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

REPLY TO
ATTENTION OF:
Planning, Programs, and
Project Management Division
Environmental Planning
And Compliance Branch

Decision Record

Individual Environmental Report #2
Lake Pontchartrain and Vicinity, West Return Flood Wall,
Jefferson and Orleans Parishes, Louisiana

IER #2

Description of Proposed Action. The New Orleans District, US Army Corps of Engineers (CEMVN) proposes to replace the existing floodwall with a new T-wall approximately 35 ft to the west of the current alignment, along the east embankment of the Parish Line Canal on the border of Jefferson and Orleans Parishes, Louisiana.

Draft IER #2, which detailed the impacts of the proposed actions, was released for public review on June 11, 2008. Stakeholders had until July 11, 2008 to comment on the document. Comments were received from one governmental agency and one citizen. Public meetings pertaining to IER 2 occurred on June 7, July 26, September 27, and December 6, 2007; and February 28, April 9, and June 17, 2008.

Factors Considered in Determination. CEMVN has assessed the impacts of the proposed action on significant resources in the proposed project area, including Lake Pontchartrain, Parish Line Canal, wetlands, fisheries, essential fish habitat, wildlife, threatened and endangered species, cultural resources, recreational resources, aesthetic resources, air quality, noise, and transportation.

All jurisdictional wetlands and non-jurisdictional bottomland hardwood forest impacts were assessed in cooperation with the US Fish and Wildlife Service (USFWS) and CEMVN under NEPA, Fish and Wildlife Coordination Act, and Section 906 (b) WRDA 1986 requirements. The impacts for the proposed action are as follows:

Lake Pontchartrain

- LPV 03a and 03c (Jefferson Parish Western Return Floodwall) – No permanent loss of lake habitat; 39 acres of lake bottom would be temporarily impacted for the access channel and the dredged material stockpiles.
- LPV 13 (Recurve I-Wall North of Kenner) – No habitat loss.

Parish Line Canal

Parish Line Canal

- LPV 03a and 03c (Jefferson Parish Western Return Floodwall) – 16 acres of canal lost to hard fill, mitigated with 9 AAHUs of marsh habitat. 20 acres of canal bottom temporarily impacted for the access channel and the dredged material stockpiles.

- LPV 13 (Recurve I-Wall North of Kenner) –No direct impacts to the canal from this alternative.

Wetlands

- LPV 03a and 03c – 17 acres of fragmented wetland habitat lost to hard fill and mitigated with 9 AAHUs of marsh habitat.
- LPV 13 – No habitat loss.

Fisheries

- LPV 03a and 03c – Temporary dredging- and construction-related impacts from disturbance of aquatic habitat in lake and canal; up to 59 acres of lake bottom could be temporarily impacted and 33 acres may be permanently replaced.
- LPV 13 – Temporary dredging-related impacts from disturbance of lake bottom.

EFH

- LPV 03a and 03c – Temporary dredging-related impacts affecting up to 59 acres of soft bottom EFH; 33 acres of potential EFH habitat lost to hard fill and mitigated with 9 AAHUs of marsh habitat.
- LPV 13 – Limited and temporary dredging related impacts.

Wildlife

- LPV 03a and 03c – Reduction in shoreline wetland habitat, utilized primarily by avian species, and temporary impacts to wildlife within the vicinity of the project area during construction.
- LPV 13 – Temporary impacts to wildlife within the vicinity of the project area during construction.

Endangered or Threatened Species

LPV 03a and 03c and LPV 13 – Unlikely to have an adverse effect.

Cultural Resources

- LPV 03a and 03c and LPV 13 – None.

Recreation

- LPV 03a and 03c and LPV 13 – Temporary construction-related impacts to fish habitat would reduce recreational fishing opportunities.
- LPV 03a and 03c and LPV 13 – Long-term and short-term impacts to the walking/biking path from construction-related activities would reduce associated recreational opportunities.

Aesthetic (Visual) Resources

- LPV 03a and 03c and LPV 13 – Temporary impact from construction activities at the project site and permanent impact from the addition of man-made feature (the breakwater) to the shoreline near the I-10 bridge.

Air Quality

- LPV 03a and 03c and LPV 13 – Temporary construction-related effects including vehicle and equipment exhaust as well as dust emissions.

Noise

- LPV 03a and 03c and LPV 13 – Temporary impacts to receptors within 1,000 ft of the project area during construction.

Transportation

- LPV 03a and 03c and LPV 13 – Worker and truck traffic resulting from the project would temporarily impact traffic on highways and local roads within the vicinity of the project area.

Mitigation IERs will be prepared documenting and compiling the unavoidable impacts discussed in each IER. The mitigation IERs will implement compensatory mitigation as early as possible. All mitigation activities will be consistent with standards and policies established in the Clean Water Act Section 404 and the appropriate USACE policies and regulations governing this activity.

Environmental Design Commitments.

1.) Although no wading bird colonies have been recently identified in the IER 2 project area, the CEMVN is cautioned that colonies may be present in the project area that are not currently listed. Should any new colonies be observed in the area, the USFWS should be notified and the following activity restrictions observed to minimize their disturbance.

> For colonies containing nesting birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anahingas, and/or cormorants, all activity occurring within 1,000 ft of a rookery should be restricted to the non-nesting period (i.e., September 1 through February 15, depending on species present), to the maximum extent possible.

In addition, USFWS recommends that on-site contract personnel be informed of the need to identify wading bird colonies and their nests, and, to the maximum extent possible, should avoid affecting them during the breeding season.

2.) In order to minimize the potential for construction activities under the proposed action to cause adverse impacts to manatees during the construction period (approximately 2 to 2.5 years), standard manatee protection measures would be implemented.

3.) If the proposed action is changed significantly or is not implemented within one year, CEMVN will reinitiate coordination with the USFWS to ensure that the proposed action would not adversely affect any Federally listed threatened or endangered species, or their habitat.

4.) If any unrecorded cultural resources are determined to exist within the proposed project boundaries, then no work will proceed in the area containing these cultural resources until a

CEMVN-PM-RN archeologist has been notified and final coordination with the State Historic Preservation Officer (SHPO) and Tribal Historic Preservation Officer (THPO) has been completed. [CEMVN-PM-RN/SHPO Standard Operating Procedure]

5.) On site personnel should be informed of the possible presence of nesting bald eagles in the vicinity of the project area, and should identify, avoid, and immediately report any such nests within 1,000 ft of the levee centerline to CEMVN-PM-RS.

Agency & Public Involvement. Various governmental agencies, non-governmental organizations, and citizens were engaged throughout the preparation of IER #2. Agency staff from US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), US Environmental Protection Agency (EPA), US Geologic Survey (USGS), National Park Service (NPS), Louisiana Department of Natural Resources (LDNR), and Louisiana Department of Wildlife and Fisheries (LDWF) were part of an interagency team that has and will continue to have input throughout the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (GNOHSDRRS) planning process (Appendix D).

There have been over 70 public meetings since March 2007 about proposed GNOHSDRRS work. Issues relating to draft IER #2 have been discussed at seven of these meetings. CEMVN sends out public notices in local and national newspapers, news releases (routinely picked up by television and newspapers in stories and scrolls), and mail notifications to stakeholders for each public meeting. In addition, www.nolaenvironmental.gov was set up to provide information to the public regarding proposed GNOHSDRRS work. CEMVN has recently started sending out e-mail notifications of the meetings to approximately 300 stakeholders who requested to be notified by this method. Public meetings will continue throughout the planning process.

Draft IER #2 Public Review Period

1. Agency Comments (found in Appendix D)
    a. USFWS: Comment letter dated June 26, 2008

2. Public Comments (found in Appendix B)
    a. Mr. Ed Fike: Comment letter dated July 9, 2008

Decision. The CEMVN Environmental Planning and Compliance Branch has assessed the potential environmental impacts of the proposed action described in this IER, and performed a review of the comments received during the public review period for Draft IER #2. Furthermore, all practicable means to avoid or minimize adverse environmental effects have been incorporated into the recommended plan. Approximately 9 AAHUs of jurisdictional wetland impacts will be addressed in a separate IER specifically written for mitigation implementation.

The public interest will be best served by implementing the selected plan as described in IER #2 in accordance with the environmental considerations discussed above.

CEMVN will prepare a Comprehensive Environmental Document (CED) that may contain additional information related to IER #2 that becomes available after the execution of the Final IER. The CED will provide a final mitigation plan, comprehensive cumulative impacts analysis, and any additional information that addresses outstanding data gaps in any of the IERs.

I have reviewed IER #2, and have considered agency recommendations and comments received from the public during the scoping phase and comment periods. I find the recommended plan fully addresses the objectives as set forth by the Administration and Congress in the 3rd, 4th, and 5th Supplemental Appropriations.

The plan is justified, in accordance with environmental statutes, and it is in the public interest to construct the actions as described in this document.

7-18-03
Date

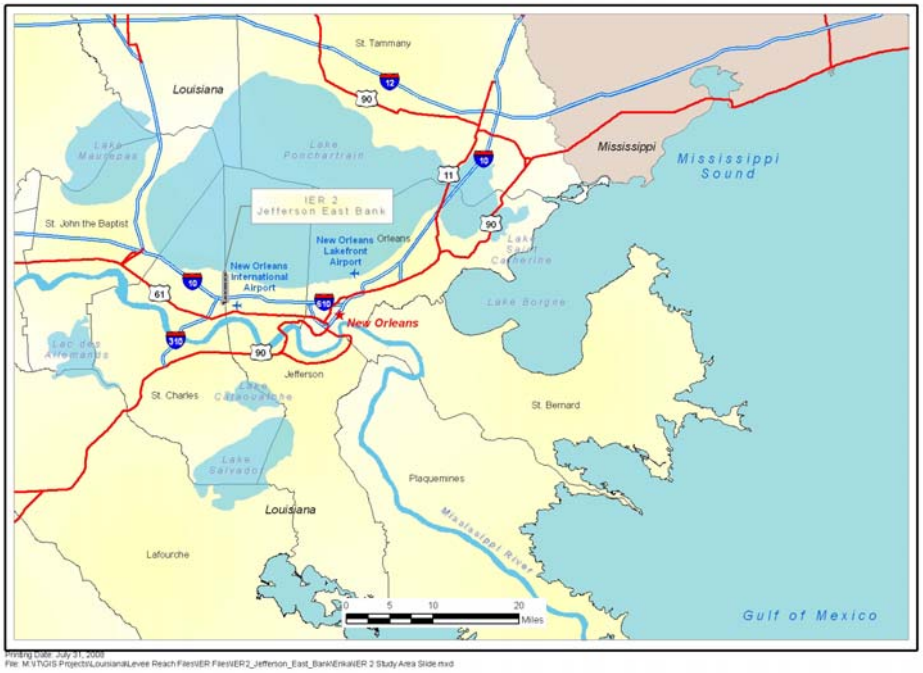
Alvin B. Lee
Alvin Lee
Colonel, U.S. Army
District Commander

FINAL INDIVIDUAL ENVIRONMENTAL REPORT

LPV, WEST RETURN FLOODWALL

JEFFERSON AND ST. CHARLES PARISHES, LOUISIANA

IER # 2



US Army Corps of Engineers®

JULY 2008

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, New Orleans District (CEMVN), has prepared this Individual Environmental Report # 2 (IER # 2) to evaluate the potential impacts associated with the proposed replacement of 17,900 feet (ft) (3.4 miles) of floodwalls as part of the Lake Pontchartrain and Vicinity (LPV) Greater New Orleans Hurricane and Storm Damage Risk Reduction System (GNOHSDRRS), formerly known as the Hurricane Protection System (HPS). The proposed action is located on the border of Jefferson and St. Charles Parishes, Louisiana (figure 1).

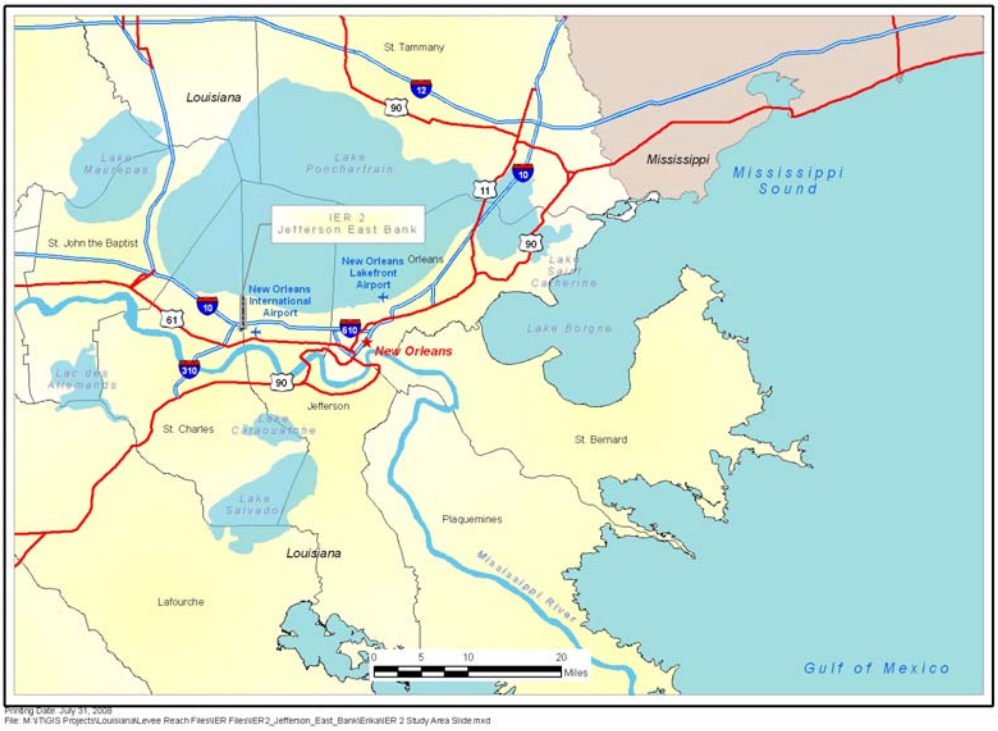

Figure 1. Vicinity Map, West Return Floodwall Jefferson and Recurve I-Wall Kenner

For the purposes of this IER, the LPV has been divided into numerous reaches, and each reach is identified by a project identification number (for example, LPV 03a). The LPV reaches included in the IER #2 project area are the following (figure 2):

- LPV 03a, West Return Floodwall, consists of approximately 14,700 ft of floodwall at a current elevation of 13.5 to 17 ft North American Vertical Datum of 1988 (NAVD88). All references to elevation in this document are in NAVD88 unless otherwise specified. The LPV03a floodwall begins at the entrance to Parish Line Canal from Lake Pontchartrain and continues to the north side of I-10, where it connects to LPV 03c. LPV 03a resumes on the other side of LPV 03c, on the south side of I-10, to its terminus at the Louis Armstrong New Orleans International Airport.
- LPV 03c, Floodwall under I-10, consists of approximately 3,100 ft of floodwall at a current height of approximately 11.5 ft.
- LPV 13, Recurve I-Wall in Northwest Kenner, consists of a floodwall at a current height of 16 ft, starting at the entrance to Parish Line Canal from Lake Pontchartrain and continuing for approximately 1,025 ft to the northeast. LPV 13 also includes an existing swing gate with a 20 ft clear opening at a current height of approximately 16 ft.

Figure 2. IER # 2 - West Return Floodwall Jefferson and Recurve I-Wall Kenner

IER # 2 has been 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 the USACE Engineering Regulation (ER), ER 200-2-2. The execution of an IER, in lieu of a traditional Environmental Assessment (EA) or Environmental Impact Statement (EIS), is provided for in ER 200-2-2, Environmental Quality (33 CFR 230), Procedures for Implementing the NEPA and pursuant to the Council on Environmental Quality (CEQ) NEPA Implementation Regulations (40 CFR 1506.11). The Alternative Arrangements can be found at www.nolaenvironmental.gov, and are incorporated herein by reference.

The CEMVN implemented Alternative Arrangements on 13 March 2007 under the provisions of the CEQ Regulations for Implementing the NEPA (40 CFR 506.11). This process was implemented in order to expeditiously complete environmental analysis for any changes to the authorized system and the 100-year level of the GNOHSDRRS (formerly known as the HPS) authorized and funded by Congress and the Administration. The proposed actions are located in southeastern Louisiana and are part of the federal effort to rebuild and complete construction of the GNOHSDRRS in the New Orleans Metropolitan area as a result of Hurricanes Katrina and Rita.

The Draft IER was distributed for a 30-day public review and comment period on June 11, 2008. Comments were received during the public review and comment period from one group of citizens (appendix B) and a Federal resource agency (appendix D). A public meeting discussing the draft IER was held on 17 June 2008. The CEMVN District Commander reviewed public and agency comments and interagency correspondence. The District Commander's decision on the proposed action is documented in an IER Decision Record.

1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to provide a 100-year level of flood protection for Jefferson and St. Charles Parishes. The proposed action results from a defined need to reduce flood risk and storm damage to residences, businesses, and other infrastructure from hurricanes (100-year storm events) and other high water events. The elevations of the existing drainage structures and the LPV project levee tie-ins are currently below the 100-year design elevation. The safety of people in the region is the highest priority of the CEMVN. The completed GNOHSDRRS would lower the risk of harm to citizens, and damage to infrastructure during a storm event.

The term "100-year level of protection," as it is used throughout this document, refers to a level of protection which reduces the risk of hurricane surge and wave-driven flooding that the New Orleans Metropolitan area has a 1 percent chance of experiencing each year.

1.2 AUTHORITY FOR THE PROPOSED ACTION

These efforts have been conducted mainly under the authority provided by Public Law (PL) 84-99 and under the authority of PL 109-148, Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico and Pandemic Influenza Act, 2006 (3rd Supplemental); PL 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (4th Supplemental); and the United States (U.S.) Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 H.R. 2206 (pgs 41-44) Title IV, Chapter 3, Flood Control and Coastal Emergencies, (5th Supplemental), General Provisions, Sec. 4302.

Other directly relevant authorizations include the Lake Pontchartrain and Vicinity Hurricane Protection Project [Lake Pontchartrain and Vicinity: Flood Control Act of 1965 (PL 89-298, Title II, Sec. 204); Water Resource Development Acts of 1974 (PL 93-251, Title I, Sec. 92), 1986 (PL 99-662, Section 401(b)), 1990 (PL 101-640, Sec. 116), 1992 (PL 102-580, Sec. 102),

1996 (PL 104-303, Sec. 325), 1999 (PL 106-53, Sec. 324), and 2000 (PL 106-541, Sec. 432); and Energy and Water Development Appropriations Acts of 1992 (PL 102-104, Title I, Construction, General), 1993 (PL 102-377, Title I, Construction, General), and 1994 (PL 103-126, Title I, Construction, General)].

1.3 PRIOR REPORTS

Numerous studies, reports and projects have been conducted in the IER # 2 area. These studies represent the allocation of significant resources toward research provided by the federal and state governments and by private, non-profit foundations. Many of the recommendations have been enacted, such as wetland restoration projects. The most relevant studies for IER # 2 are briefly summarized below, and are incorporated herein by reference.

- On 12 June 2008, the CEMVN signed a Decision Record on IER # 15, entitled "Lake Cataouatche Levee, Jefferson and Plaquemines Parishes, Louisiana." The proposed action includes constructing and maintaining a 100-year level of protection along the project area in Jefferson Parish, Louisiana.

- On 9 June 2008, the CEMVN signed a Decision Record on IER # 1, entitled "Lake Pontchartrain and Vicinity, La BrancheWetlands Levee, St. Charles Parish, Louisiana." The proposed action includes raising approximately 9 miles of earthen levees, replacing over 3,000 feet of floodwalls, rebuilding or modifying four drainage structures, closing one drainage structure, and modifying one railroad gate in St. Charles Parish, Louisiana.

- On 30 May 2008, the CEMVN signed a Decision Record on IER # 22 entitled "Government Furnished Borrow Material # 2, Jefferson and Plaquemines Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with the actions taken by the USACE while excavating borrow areas for use in construction of the GNOHSDRRS.

- On 5 May 2008, the CEMVN signed a Decision Record on IER # 23 entitled "Pre-Approved Contractor Furnished Borrow Material # 2, St. Bernard, St. Charles, Plaquemines Parishes, Louisiana, and Hancock County, Mississippi." The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors as a result of excavating borrow areas for use in construction of the GNOHSDRRS.

- On 14 March 2008, the CEMVN signed a Decision Record on IER # 11 (Tier 1) entitled "Improved Protection on the Inner Harbor Navigation Canal, Orleans and St. Bernard Parishes, Louisiana." The document was prepared to evaluate potential impacts associated with building navigable and structural barriers to prevent storm surge from entering the Inner Harbor Navigation Canal (IHNC) from Lake Pontchartrain and/or the Gulf Intracoastal Waterway-Mississippi River Gulf Outlet (MRGO)-Lake Borgne complex. Two Tier 2 documents discussing alignment alternatives and designs of the navigable and structural barriers, and the impacts associated with exact footprints, are being completed.

- On 21 February 2008, the CEMVN signed a Decision Record on IER # 18 entitled "Government Furnished Borrow Material, Jefferson, Orleans, Plaquemines, St. Charles, and

St. Bernard Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with the actions taken by the USACE as a result of excavating borrow areas for use in construction of the GNOHSDRRS.

- On 14 February 2008, the CEMVN signed a Decision Record on IER # 19 entitled "Pre-Approved Contractor Furnished Borrow Material, Jefferson, Orleans, St. Bernard, Iberville, and Plaquemines Parishes, Louisiana, and Hancock County, Mississippi." The document was prepared to evaluate the potential impacts associated with the actions taken by commercial contractors as a result of excavating borrow areas for use in construction of the GNOHSDRRS.

- In July 2006, the CEMVN signed a Finding of No Significant Impact (FONSI) on an EA # 433 entitled, "USACE Response to Hurricanes Katrina & Rita in Louisiana." The document was prepared to evaluate the potential impacts associated with the actions taken by the USACE as a result of Hurricanes Katrina and Rita.

- On 2 October 1998, the CEMVN signed a FONSI on EA # 282 entitled "LPV, Jefferson Parish Lakefront Levee, Landside Runoff Control: Alternate Borrow." The report investigates the impacts of obtaining borrow material from an urban area in Jefferson Parish. No significant impacts to resources in the immediate area were expected.

- On 2 July 1992, the CEMVN signed a FONSI on EA # 169 entitled "LPV, Hurricane Protection Project, East Jefferson Parish Levee System, Jefferson Parish, Louisiana, Gap Closure." The report addresses the construction of a floodwall in Jefferson Parish to close a "gap" in the levee system. The area was previously leveed and under forced drainage, and it was determined that the action would not significantly impact the already disturbed area.

- On 22 February 1991, the CEMVN signed a FONSI on EA # 164 entitled "LPV Hurricane Protection – Alternate Borrow Area for the St. Charles Parish Reach." The report addresses the impacts associated with the use of borrow material from the Mississippi River on the left descending bank in front of the Bonnet Carré Spillway Forebay for LPV construction.

- On 30 August 1990, the CEMVN signed a FONSI on EA # 163 entitled "LPV Hurricane Protection – Alternate Borrow Area for Jefferson Parish Lakefront Levee, Reach III." The report addresses the impacts associated with the use of a borrow area in Jefferson Parish for LPV construction.

- Supplemental Information Report (SIR) # 30 entitled "LPV Hurricane Protection Project, Jefferson Lakefront Levee" was signed by the CEMVN on 7 October 1987. The report investigates impacts associated with changes in Jefferson Parish LPV levee design.

- SIR # 17 entitled "LPV Hurricane Protection – New Orleans East Alternative Borrow, North of Chef Menteur Highway" was signed by the CEMVN on 30 April 1986. The report addresses the use of an alternate contractor furnished borrow area for LPV construction.

- SIR # 10 entitled "LPV Hurricane Protection, Bonnet Carré Spillway Borrow" was signed by the CEMVN on 3 September 1985. The report evaluates the impacts associated with using the Bonnet Carré Spillway as a borrow source for LPV construction, and found "no significant adverse effect on the human environment."

- In December 1984, an SIR to complement the supplement to the final EIS on the LPV Hurricane Protection project was filed with the U.S. Environmental Protection Agency (USEPA).

- The final EIS for the LPV Hurricane Protection Project, dated August 1974. A Statement of Findings was signed by the CEMVN on 2 December 1974. Final Supplement I to the EIS, dated July 1984, was followed by a Record of Decision (ROD), signed by the CEMVN on 7 February 1985. Final Supplement II to the EIS, dated August 1994, was followed by a ROD signed by the CEMVN on 3 November 1994.

- A report entitled "Flood Control, Mississippi River and Tributaries," published as House Document No. 90, 70th Congress, 1st Session, submitted 18 December 1927, resulted in authorization of a project by the Flood Control Act of 1928. The project provided comprehensive flood control for the lower Mississippi Valley below Cairo, Illinois. The Flood Control Act of 1944 authorized the USACE to construct, operate, and maintain water resources development projects. The Flood Control Acts have had an important impact on water and land resources in the proposed project area.

1.4 INTEGRATION WITH OTHER INDIVIDUAL ENVIRONMENTAL REPORTS

In addition to this IER, the CEMVN is preparing a draft Comprehensive Environmental Document (CED) that will describe the work completed and the work remaining to be constructed. The purpose of the draft CED will be to document the work completed by the USACE on a system-wide scale. The draft CED will describe the integration of individual IERs into a systematic planning effort. Overall cumulative impacts, a finalized mitigation plan, and future operations and maintenance requirements will also be included. Additionally, the draft CED will contain updated information for any IER that had incomplete or unavailable data at the time it was posted for public review.

The draft CED will be available for a 60-day public review period. The document will be posted on www.nolaenvironmental.gov, or can be requested by contacting the CEMVN. A notice of availability will be mailed/e-mailed to interested parties advising them of the availability of the draft CED for review. Additionally, a notice will be placed in national and local newspapers. Upon completion of the 60-day review period, all comments will be compiled and appropriately addressed. Upon resolution of any comments received, a final CED will be prepared, signed by the District Commander, and made available to any stakeholders requesting a copy.

1.5 PUBLIC CONCERNS

Throughout southern Louisiana, one of the greatest areas of public concern is reducing risk of hurricane, storm, and flood damage for businesses and residences, and enhancing public safety during major storm events. Hurricane Katrina forced residents from their homes and temporarily closed businesses, and, due to extensive flooding, made returning to their homes in a timely manner unsafe.

In public meetings held 7 June 2007, 26 July 2007, 27 September 2007, 6 December 2007, 28 February 2008, and 9 April 2008, members of the public have expressed concerns specific to Jefferson Parish regarding:

- providing safe-houses for pump station operators during hurricanes;
- potential damage to Jefferson Parish levees from Hurricane Katrina;
- backflow protection for gates and pumps;
- the potential for a funneling effect of tidal surge down the St. Charles – Jefferson Parish Line Canal and other canals in Jefferson Parish, and additional concerns related to whether or not new structures along these canals could reduce this perceived risk;
- the installation of surge barriers (rock breakwater) at the mouth of Parish Line Canal;
- the option of installing sloped earthen levees rather than a wall along the Parish Line Canal;
- the depth of the sheet piles along the West Return Wall;
- the type of earthen construction materials that will be used;
- the availability of geotechnical test results for public review;
- the need for parallel protection;
- the incorporation of redundancy and safety factors in all USACE projects; and
- the consideration of various interior approaches to drainage, such as Hoey's Basin to the river.

Additionally, the public requested that the USACE notify the homeowners and business owners regarding:

- alternatives that will require the assimilation of property prior to releasing the information to the press;
- the timing of the selection of a preferred alternative relative to the public's rebuilding efforts;
- the time required to complete the environmental studies;
- levee repairs and upgrades;
- the presence of barges in the canals and damage they may cause to levees and floodwalls; and
- the untimely construction of coastal and wetland restoration projects.

The public was also concerned about:

- the final height to which the levees/floodwalls will be raised,

- whether the proposed improvements will be protective if a future hurricane follows a different track than that of Hurricane Katrina's, and the contents of the USACE Report to Congress relative to the selection of the best and safest flood protection alternatives for the citizens of Jefferson Parish.

1.6 DATA GAPS AND UNCERTAINTY

At the time of completion of this report, engineering designs and documentation had not been completed for all of the proposed actions and alternatives. Engineering details of the proposed action could vary based on the final engineering report. As such, this analysis is based on concept level design and reasonable assumptions regarding the proposed actions. While the alternatives described in this evaluation are preliminary, the basic function of their features and the footprint for their construction should remain substantially the same as the project progresses through actual design. Estimates of materials necessary to construct the project were developed from best professional judgment and design reports completed for similar levee and floodwall alignments nearby. As such, the alternative features and associated numbers developed were used to quantify the magnitude of the proposed actions and not to prescribe detailed materials, quantities, or design specifications.

The estimated environmental impacts have been developed to create an envelope of effects within which design may proceed without compromising the integrity of the assessment. As such, the description of the features does not represent any formal commitment to final design, equipment for use, vendors for supply of materials, or methods of construction, but gives an approximation of how the features could be constructed and the associated impacts thereof.

In addition, only limited Environmental Justice (EJ) information was available for the project area and as more data becomes available, it will be incorporated into the CED. With this knowledge, a comparison of the level of impact on minority and low-income populations versus all other populations can be examined in detail. Development of a community involvement plan will contain elements of an effective marketing plan with the goal of engaging members of the targeted community by demographic and trending methods to ensure a statistically defensible sampling of the populations while serving as an information source for that same community.

2.0 ALTERNATIVES

2.1 ALTERNATIVES DEVELOPMENT AND PRELIMINARY SCREENING CRITERIA

NEPA requires, among other things, that while analyzing alternatives to the proposed action, a federal agency consider an alternative of "no action." Likewise, Section 73 of the Water Resources Development Act of 1974 (PL 93-251) requires federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. The CEMVN Project Delivery Team (PDT) considered a No Action alternative and non-structural measures in this IER, discussed in sections 2.4 and 2.5, respectively.

In addition to these mandated alternatives, a range of reasonable alternatives was formulated through input by the CEMVN PDT, Value Engineering Team, engineering and design consultants, as well as local government, the public, and resource agencies for each of the reaches described in this IER. Once a full range of alternatives was established, a preliminary screening was conducted to identify alternatives that would proceed through further analysis. The criteria used to make this determination included engineering effectiveness, economic efficiency, and environmental and social acceptability. Those alternatives that did not adequately meet these criteria were considered infeasible and, therefore, were eliminated from further study in this IER.

2.2 DESCRIPTION OF THE ALTERNATIVES

Although it is the CEMVN's intent to employ an integrated, comprehensive, and systems based approach to hurricane and storm damage reduction in raising the GNOHSDRRS to the 100-year level of protection, each reach has its own range of alternatives. This approach allows for individual reach alternative decisions to be made in a manner cognizant of unique local circumstances. At the same time, the alternatives analysis and selection remain integrated and comprehensive, considering reaches in relation to one another and other past, current, and reasonably foreseeable actions by the CEMVN and other entities within the project study area. The alternatives description below is organized by reach, noting those alternatives that are common among all reaches. Each reach is identified by a project identification number (e.g., LPV 13). The alternatives description also states how each alternative relates to the range of alternatives for adjacent reaches to insure awareness of the GNOHSDRRS as a whole.

No Action. Under the no-action alternative, the current floodwalls and associated structures would remain or be brought to the authorized heights of 12.5 to 13.5 ft. Routine maintenance of the floodwalls and gate would continue, but no additional height would be added to the system.

Proposed Action. The proposed action (preferred alternative) would provide 100-year level of protection for Jefferson and St. Charles Parishes by demolishing and replacing in a new alignment the existing floodwalls and gate at LPV 03a, LPV 03c, and LPV 13 and adding an additional protection feature at LPV 03c.

2.3 PROPOSED ACTION

LPV 03a and 03c West Return Floodwall

The proposed action for these reaches would consist of replacing the existing floodwall with a new T-wall alignment approximately 35 ft to the west along the east embankment of the Parish Line Canal (figures 3a and 3b). The new T-wall would be constructed to an elevation of 17.5 ft north of I-10 and 16.5 ft south of I-10. Based on construction restrictions under the I-10 bridge, the new T-wall elevation would be approximately 13.5 ft under the bridge. At the I-10 bridge (LPV 03c) a rock breakwater would be constructed on a geotextile fabric (figure 4) to provide further flood protection in that area. The breakwater would be at an elevation of approximately 19.5 ft with a width of approximately 105 ft and a length of approximately 500 ft. Following the

Figure 3a. LPV 13 and LPV 03a (northern portion) - Existing and Proposed Floodwall Alignment

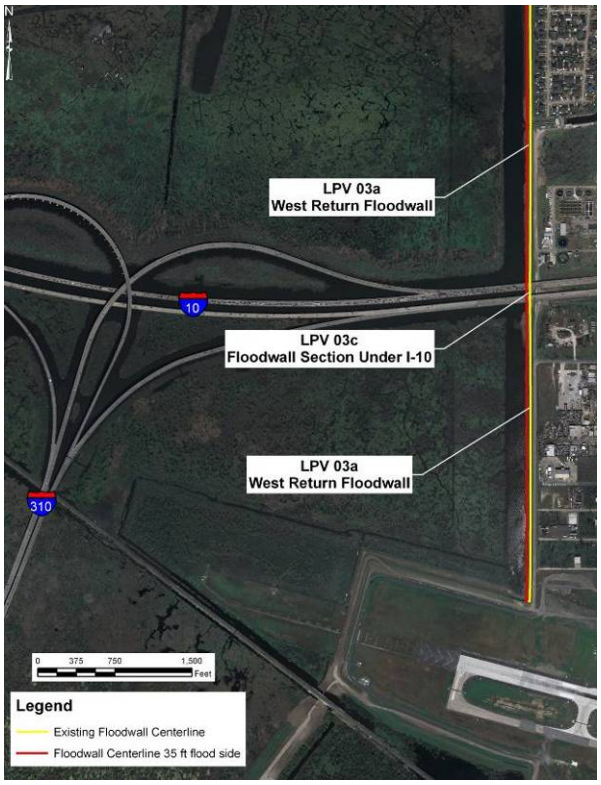

Figure 3b. LPV 03a (southern portion) and LPV 03c - Existing and Proposed Floodwall Alignment

construction of the new T-wall, the existing floodwall would be demolished to 2 inches below ground surface, and the area would be regraded.

Flood-side and protected-side berms would be incorporated into the construction design. The berms would be at an elevation of 4.5 ft from the Louis Armstrong New Orleans International Airport to I-10 and at an elevation of 2.5 ft from I-10 to the lake front. Armoring with rock would be incorporated to protect against erosion and scour on the flood side of the floodwall. In addition, the Parish Line Canal Pump Station discharge would be incorporated into the new T-wall, with no additional fronting protection. Approximately six pile test sites, along the footprint of the proposed action, will be proposed and sampled prior to construction.

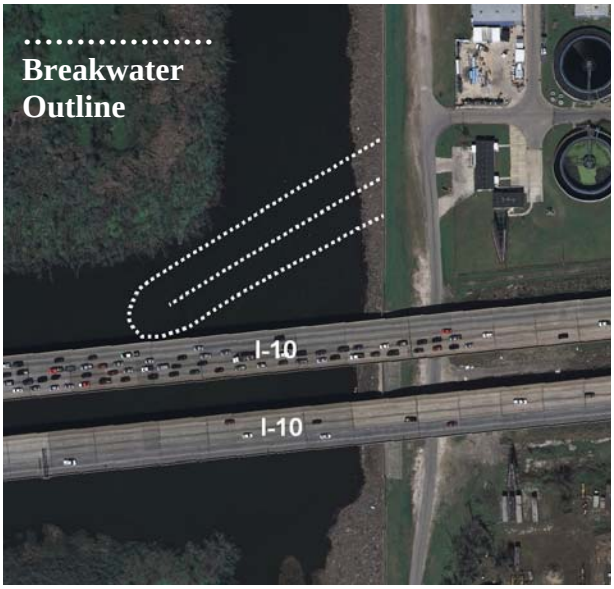

Figure 4. Proposed Breakwater Alignment Near I-10

LPV 13 Recurve I-Wall Northwest of Kenner

The proposed action for this reach is a continuation of the proposed alternative for LPV

03a. This action would include replacing the existing floodwall with a new T-wall alignment approximately 35 ft to the west, between the existing floodwall and the shoreline of Lake Pontchartrain near the mouth of the Parish Line Canal. The new T-wall would be constructed to an elevation of 17.5 ft. Following the construction of the new T-wall, the existing floodwall would be demolished to 2 inches below ground surface and the area would be regraded.

The existing gate closure would be replaced with a new gate closure. The gate would consist of a new swing gate closure structure with a clear opening of 20 ft. The sill elevation would be at 10 ft and the top of the gate would be at 17.5 ft. The swing gate would allow one person to operate the gate.

Armoring of Levees and Floodwalls

Armoring would be incorporated as an additional feature of floodwalls and levees to protect against erosion and scour on the protected and/or flood sides of critical areas. These critical areas include: transition points (where levees and floodwalls transition into any hardened feature such as other levees, floodwalls, pump stations, etc.), utility pipeline crossings, floodwall protected side slopes, and earthen levees that are exposed to wave and surge overtopping during a 500-year hurricane event. The proposed method of armoring could be one of the following: cast-in-place reinforced concrete slabs; articulated concrete blocks (ACB) covered with soil and grass; turf reinforcement mattress (TRM); ACB/TRM; TRM/grass; or good grass cover. The armoring would be incorporated into the existing levee or floodwall footprint, and no additional environmental impacts would be anticipated.

Construction-Related Information for Proposed Alternatives

Construction of the proposed action could begin in mid-2008, and the construction activities are expected to last for approximately 2 to 2.5 years. A significant amount of construction equipment would be required to conduct the work, including, but not limited to, generators, barges, boats, cranes, trucks, bulldozers, excavators, pile hammers, graders, tractors, and front-end loaders. Truck access to the project site would be via I-10 to Loyola Dr. to either Veterans Memorial Blvd., West Esplanade Ave., or Vintage Dr.

For construction under the proposed action, earthen fill material would be obtained from the Bonnet Carré Spillway, which is located approximately 10 miles from the IER # 2 project area. If additional borrow material is needed from a source other than the Bonnet Carré Spillway, an additional IER would be prepared to analyze the impacts associated with potential borrow sources.

Barges may also be used during construction and would access the project area via Lake Pontchartrain to the Parish Line Canal. Barge access to the lakefront and to Parish Line Canal from Lake Pontchartrain would likely require dredging. The dimensions required for a tug boat and barge to access these areas would be approximately -10 ft deep and 100 ft wide. An access channel would be dredged perpendicular to the Lake Pontchartrain shoreline and would be aligned with the Parish Line Canal. Dredging for access to the project area would be done via bucket dredge and would begin 1,200 ft north of the confluence of the Parish Line Canal and

Lake Pontchartrain and would continue south into the canal to the I-10 bridge. Dredging of the access channel and the stockpiling of associated dredge material would temporarily impact approximately 59 acres of lake and canal bottom and associated water column. Dredged material would be stockpiled adjacent to the access channel in an area 457 ft wide in the lake narrowing to an area 100 ft wide in Parish Line Canal (figure 5). The southern portion of the proposed dredged channel is shown in figure 6.

Table 1 provides the estimated quantities of construction materials required for the completion of the proposed action. Figures 7a and 7b illustrate the three staging areas that would be established on the protected side of the floodwall. From north to south the potential staging areas would be located (1) off Woodlake Blvd, west of Arcadia St, north of St. Thomas Drive (2) south of Vintage Dr, west of Grandlake Blvd, and (3) immediately south of Veterans Memorial Highway, adjacent to the floodwall.

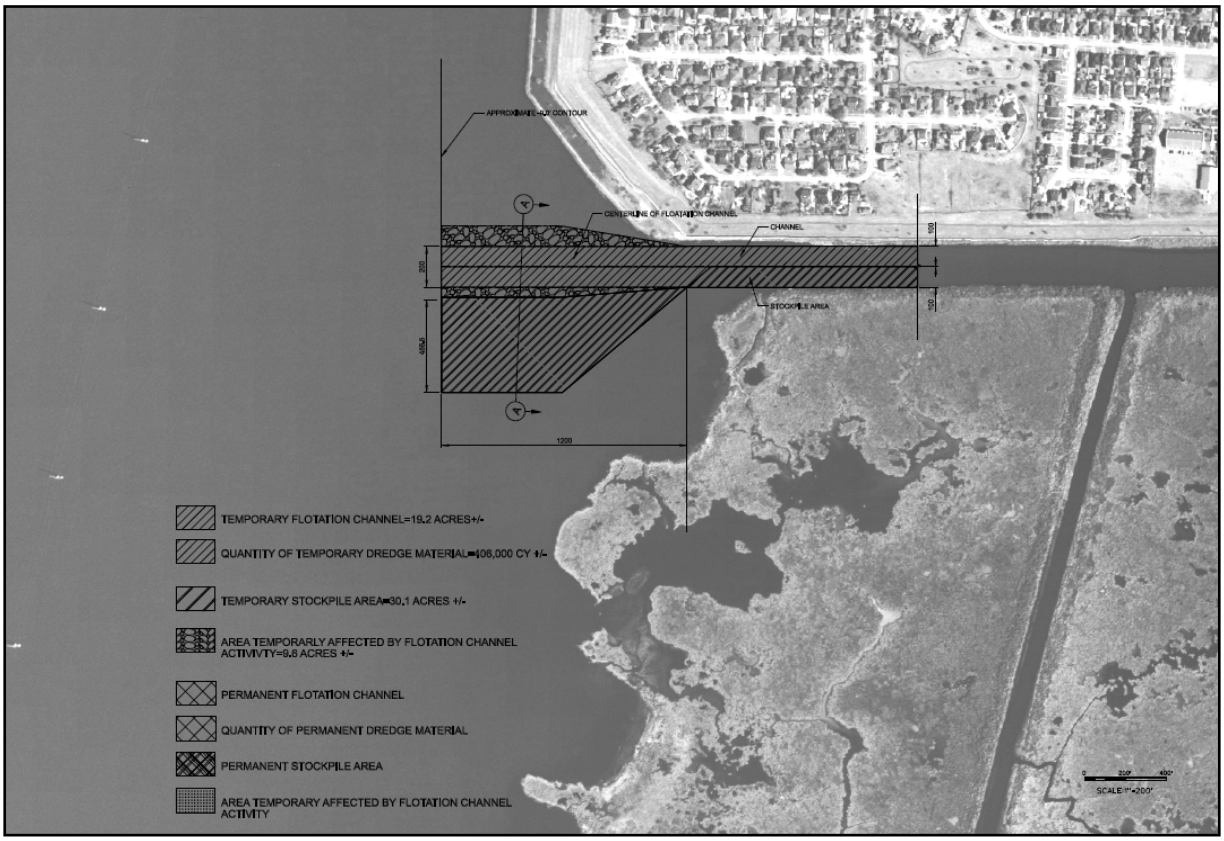

Figure 5. Barge Access Channel to Lake Pontchartrain

Figure 6. Barge Access Channel to I-10 Bridge

Table 1
Estimated Construction Material Quantities Required to Complete the Proposed Action

	West Return Wall	Recurve Wall
Concrete cubic yard (cy)	100,145	44,891
Sheet Piling square feet (sq ft)	616,865	N/A
H-Piling linear feet (lft)	1,467,720	N/A
Concrete Piles volume per linear foot (vlf)	N/A	18,400
Fill (cy)	100,000	N/A
Rock (tons)	87,700	280

Figure 7a. Potential Staging Area 1 – Off Woodlake Blvd. and Staging Area 2 – South of Vintage Blvd.

Figure 7b. Potential Staging Area 3 – South of Veterans Memorial Highway

2.4 ALTERNATIVES TO THE PROPOSED ACTION

Two alternatives to the proposed action were considered in detail. These primary alternatives were no action and construction of a new wall along the current alignment.

No-Action Alternative

The no-action alternative was evaluated for the IER # 2 floodwalls and floodgate. Under the no-action alternative, the proposed action would not be constructed by the CEMVN. The current floodwalls would remain or be brought to the authorized heights of 12.5 to 13.5 ft, the levels authorized prior to Hurricane Katrina, rather than the 100-year level of protection. I walls or T walls in the project area that do not meet the current safety standards for the currently authorized heights would be replaced with new T-wall. This could result in the need for additional sub-surface right of way for the T-wall's supporting structure. Routine maintenance of the floodwalls and gate would continue, but no additional height beyond what is authorized would be added to the system.

Alternatives for LPV 03a and 03c West Return Floodwall

Alternative 1 – New Wall Design Placed along the Current Alignment

Under this alternative, the existing floodwalls would be demolished and a new T-wall would be constructed along the existing alignment. The new T-wall would be constructed to an elevation of 16.5 ft to 17.5 ft, with height changes under the I-10 bridges similar to those described in the preferred alternative. Although construction of a new T-wall along the existing alignment is a viable alternative, it would have disadvantages that make it less desirable than the preferred alternative. The two primary disadvantages of this alternative are: 1) construction would have to be conducted around underground pilings from the existing floodwall and 2) demolition of the existing line of protection would have to occur prior to the construction of the new walls, leaving the parish vulnerable to flooding during construction.

Alternatives for LPV 13 Recurve I-Wall Northwest of Kenner

Alternative 1 – New Wall Design Placed along the Current Alignment

Under this alternative, the existing floodwall and gate would be demolished and a new T-wall and gate would be constructed along the existing alignment. The new T-wall would be constructed to an elevation 17.5 ft along with a new swing gate comparable to that described in the proposed action. The main disadvantages of this alternative are the same as those described above for the West Return Floodwall.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The following alternatives were eliminated from further consideration because they did not adequately meet the screening criteria.

Earthen Lakefront Levee

The construction of an earthen lakefront levee to protect St. Charles Parish against flooding from Lake Pontchartrain has been considered in the past and was considered again as part of this IER evaluation.

Consideration was initially given to the construction of an earthen lakefront levee extending from the Jefferson Parish lakefront levee on the east to the Bonnet Carré Spillway east guide levee on the west in the early 1970s. Plans at the time were to build the earthen lakefront levee to a net grade of 12.5 feet, with a gravity drainage structure located at its approximate midpoint. After conducting detailed studies of the proposed lakefront levee, the CEMVN decided to indefinitely defer its construction based on environmental considerations. It was determined that the levee would have altered the existing hydrology of a large area of wetlands (the LaBranche Wetlands) and thereby reduce their biological productivity. Following this decision, Bayou LaBranche and Bayou Trepagnier, which would have been blocked by the levee, were designated as Louisiana Natural and Scenic Rivers under the "State and Local Coastal Resources Management Act" of 1978 (USACE 1984).

When the Reevaluation Study was conducted for the LPV Hurricane Protection Project in the early 1980s, the authorized lakefront levee alignment was retained for further evaluation along with an alignment just north of U.S. 61 (Airline Highway) and a third alignment that veered south of U.S. 61, as well as the no-action alternative. The lakefront alignment was again eliminated from further consideration because it would enclose the LaBranche and adjacent wetlands, and although provisions would be made for drainage structures to allow tidal exchange, the natural regime of tidal sheet flow interchange would be reduced, tending to reduce the biological productivity of the enclosed wetlands. The alignment just north of U.S. 61 was chosen for detailed study (USACE 1984) and eventually constructed.

Taking into account these previous reviews and from verification of these conclusions from current the CEMVN staff, this alternative has been eliminated from further consideration

Parish Line Plug

Construction of a "plug" at the Parish Line Canal, where it enters Lake Pontchartrain, was considered but eliminated from detailed evaluation. Preliminary engineering and hydraulic studies (USACE 2007a) indicate that the effect of the plug on the surge height would be insignificant due to large expanse of low lying marsh directly to the west that would allow any structure regardless of height to be flanked by the surge. Any reduction of the wave height on the protected side of the plug would only impact a couple of hundred feet immediately behind the plug. This impact would be dependant on the height of the plug and the direction of the waves. The wave heights in the marsh would be limited to 0.4 times the depth of the surge over the marsh. This estimation was based on laboratory experiments and Boussinesq runs that suggest that the breaker parameter of 0.4 is a realistic choice for a relatively long shallow foreshore as it is the case for the levees and structures within the project area. Based on recommendations from Engineering Research Development Center, this value has been used in the entire design approach to translate the significant wave heights based on Steady-State

Spectral Wave (STWAVE) model results in the significant wave height at the toe of the levee or structure.

LPV 03a and 03c

As part of the initial evaluation of Levee LPV 03a and 03c, construction of an earthen levee on the canal side of the existing floodwalls was considered but eliminated from detailed impact analysis. The potential levee design would include an elevation of 17.5 ft NAVD88 with an 8 ft wide crown, 3 to 1 (horizontal to vertical) side slopes, and protected-side stability berms that would be 9-10 ft in elevation and 200 ft long. Preliminary engineering assessment indicates that implementation of this alternative is unlikely based on insufficient soil stability in the surrounding areas.

Modification of the existing floodwall was considered from an engineering design perspective. However, structural analysis of the modified T-wall indicates that the existing T-wall is not structurally capable of withstanding the proposed loading conditions. Therefore, modification of the existing floodwall was eliminated from further consideration based on engineering infeasibility.

Replacement of the floodwall with an earthen levee using deep soil mixing was considered but eliminated from detailed impact analysis due to its engineering infeasibility caused by the presence of cypress logs in the subsurface surrounding the existing levee system.

A protected-side shift of the existing floodwall alignment was considered. Based on the presence of a substantial number of residential neighborhoods and commercial establishments, this alternative also was eliminated from detailed consideration.

A number of additional alternatives were also considered and eliminated from further consideration based on a variety of engineering concerns. These potential alternatives included: (a) the use of breakwaters to reduce the height of new protection; (b) relocation of the line of protection to the west side of Parish Line Canal; (c) construction of a new wall westward of the existing wall, filling the area between the walls with fill, and capping with concrete; (d) construction of a new wall westward of the existing wall, creating gaps in the existing wall and filling the space between the walls with riprap; and (e) construction of a new wall westward of the existing wall, partially demolishing the existing wall and filling space between the walls with riprap. Each of these alternatives was eliminated from further consideration based on the following: (1) the open marsh land westward of the Parish Line Canal reduces the effectiveness of alternative (a); (2) the poor soil quality on the western side of Parish Line Canal makes alternative (b) infeasible; and (3) alternatives (c), (d), and (e) were eliminated based on maintenance and public safety concerns.

LPV 13 Recurve I-Wall Northwest of Kenner

As part of the initial evaluation of LPV 13, modification of the existing floodwall was considered from an engineering design perspective. However, structural analysis of the modified I-wall indicated that the existing I-wall was not structurally capable of withstanding the proposed

loading conditions. Therefore, modification of the existing floodwall was eliminated from further consideration based on engineering infeasibility.

A protected-side shift of the existing floodwall alignment was considered. However, this alternative also was eliminated from detailed consideration based on the presence of existing residential development.

Hollow Core Levee

For each of the floodwall reaches that include the potential for a new levee, a hollow core levee was considered and eliminated from further consideration. The concept of the hollow concrete levee system is such that the section fills with water from the bottom as the storm surge rises. The combined weight of the concrete frame and its water filled voids inside the frame result in a gravity structure that is designed to resist hydrostatic forces and impact forces from vessel collision.

The hollow concrete levees would be constructed of trapezoidal shapes similar to that of earthen levees. The levee superstructure sections would have sloped side walls with a flat bottom slab with access to the interior via steel grating or manholes in the crest. Water inlets or ports would be incorporated into the cross section near the levee base on the flood side to allow the section to flood with water to contribute to the overall weight for stability purposes. Shear keys in the base were designed to protect against sliding under design loading conditions. The substructure consists of a concrete base slab or pad that would be supported by steel pipe piles. It is anticipated that excavation and granular backfill would be required to construct the pile supported concrete pad. The concrete base slab serves a two-fold purpose. It distributes loads to the pile foundations as well as serves as a “roadway” for cast-in-place construction. A typical section is shown in figure 8.

In the case of the IER # 2 project areas, a concrete levee would have the potential to be more beneficial than a standard earthen levee, especially since a new levee would have to be constructed. However, the incorporation of a hollow core levee was eliminated from further consideration based on the same rationale on which an earthen levee was eliminated: preliminary engineering assessments indicated that insufficient soil stability in the surrounding areas made implementation of this alternative unlikely.

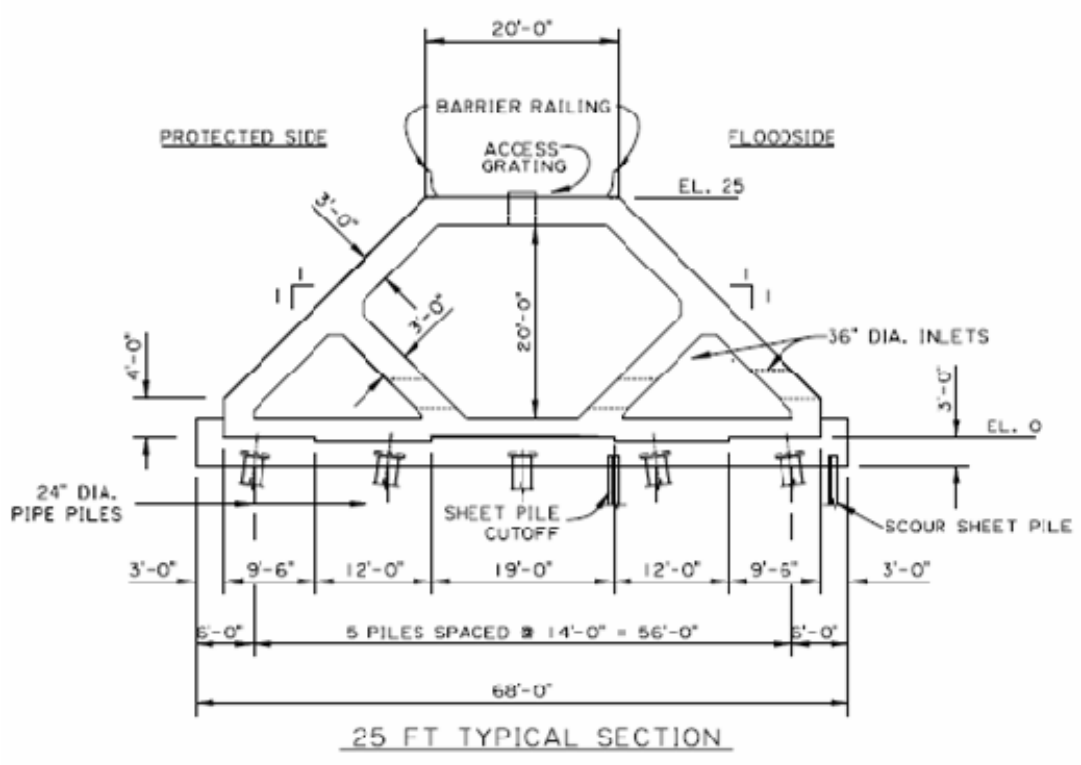

Figure 8. Hollow Core Levee – Typical Section

Non-Structural Alternatives

Section 73 of the Water Resources Development Act of 1974 requires consideration of nonstructural alternatives in flood damage reduction studies. ER 1105-2-100 provides the following planning guidance on applicable nonstructural measures. Nonstructural measures can be considered independently or in combination with structural measures (USACE 2000). Nonstructural measures reduce flood damages without significantly altering the nature or extent of flooding. Damage reduction from nonstructural measures is accomplished by changing the use made of the floodplains, or by accommodating existing uses to the flood hazard. Examples are flood proofing, relocation of structures, flood warning and preparedness systems (including associated emergency measures), and regulation of floodplain uses. Jefferson Parish already has a flood warning system and evacuation plan in place, and regulation of floodplain uses is addressed by the National Flood Insurance Program. Therefore, only flood proofing and relocation were considered as nonstructural measures. The flood proofing nonstructural measure evaluated in this analysis is to "raise in place" existing structures, and the relocation measure evaluated is a buyout or permanent physical relocation.

Raise in Place

Flood proofing would require elevating all residential and commercial properties subject to flooding in the study area above the expected levels of flooding. This alternative would also have to consider elevating roadways, public buildings, and some forms of public infrastructure that need to continue operations during and after a storm event. Some facilities such as

roadways, railroads, and runways might remain at grade when repair from storm damage would be less costly than the construction, operation, and maintenance of them on elevated structures. The average cost of elevating residential structures in the study area has been estimated at approximately $95 per square foot (USACE 2007b). This includes the cost of administration, design, inspection, costing, project management, and all other associated costs of elevating the structures as well as the costs of the occupants of the residential structures being relocated to temporary housing during the time period that the structures are being elevated. There were 30,737 homes in Jefferson Parish that were damaged by flooding from Hurricane Katrina (U.S. Department of Housing and Urban Development 2006). The $95 per square foot average cost results in a cost of approximately $153,000 to raise a 1,600 square-foot residence above the expected level of flooding. Using these assumptions, the costs to elevate all of the residences in the parish damaged from flooding by Hurricane Katrina would be approximately $4.7 billion.

Other costs associated with flood proofing would include elevating commercial, industrial, and public buildings. No information is available on the cost of elevating these structures because these buildings are so different from one another that information would have to be developed for each individual building. However, it can reasonably be assumed that it would equal the costs associated with elevating the residential structures, bringing the total estimated costs to more than $9 billion.

Elevating the roadways would be equivalent to converting all roadways and railroads to bridges. The costs for repairing all roads and railroads would be much more reasonable, and these costs were estimated based on highway design assumptions and current unit prices. A nonstructural alternative that left roads and railroads at existing elevations would mean they would have to be repaired after each storm event. Costs for repairing two-lane asphalt roads with shoulders were estimated at $400,000 per mile. There are approximately 97 miles of two-lane roads in Jefferson Parish. Therefore, repair costs would be $38.8 million for each storm event that exceeded the level of flood protection. Repair costs were estimated at $800,000 per mile for four-lane divided roadways with shoulders. There are approximately 48 miles of four-lane roadways in Jefferson Parish. The cost of repairs to the four-lane roadways would be $38.4 million for each storm event that compromised hurricane protection. Repair costs to railroads were calculated for the 93 miles of railroad in Jefferson Parish. Railroad repair costs were estimated at $100 per linear foot. This resulted in railroad repair costs of approximately $49.1 million for the parish.

No information is available on the costs for elevating other infrastructure such as airport facilities, electrical distribution and transmission grids, gas distribution lines, drainage, sewage and water distribution facilities, communication networks, public transit, and waterborne navigation facilities. However, the estimated costs of elevating all flood-prone infrastructure in the study area would likely exceed $14 billion, which would be much more than the costs of other structural alternatives. Therefore, this alternative was eliminated from further consideration.

Real Estate Acquisition and Relocation Assistance

Public acquisition of properties in areas subject to flooding can also reduce the damages from storms and hurricanes. Acquisition of these properties as part of a federal project and for

projects where there is federal financial assistance in any part of project costs would be subject to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 United States Code (U.S.C.) Section 4601, et seq., as amended (the Relocation Assistance Act). Accordingly, the displacement of individuals, families, businesses, farms, and non-profit organizations would have to be organized and a system established to minimize the adverse impacts on displaced persons.

There are several options that could be offered for the acquisition and relocation alternative: sale of the site and home or commercial structure to the local sponsor for demolition, sale of the site to the local sponsor and relocation of the structure to a comparable site outside the area of flooding, or relocation of the displaced persons to a comparable home or business outside the area of flooding. In addition to compensation for real property, displaced persons may be eligible for expenses for moving themselves and their personal or business-related property, costs of property lost as a result of moving or discontinuing a business, expenses in searching for a replacement business or farm, and necessary expenses for reestablishment of a displaced farm, nonprofit organization, or small business at its new location. However, the estimated costs for real estate acquisition and relocation assistance for all flood-prone infrastructures in the study area would exceed the costs of structural alternatives. Therefore, this alternative was eliminated from further consideration.

2.6 SUMMARY TABLE

Table 2 provides a summary of the preliminary alternatives screening results.

Table 2
Preliminary Alternative Screening Results

Alternative	**LPV 03a**	**LPV 03c**	**LPV 13**
No-Action	☑	☑	☑
Non-Structural	X	X	X
Existing Alignment			
▪ Earthen Levee	X	X	X
▪ T-wall Floodwall (modification)	☑	☑	☑
▪ Earthen Levee with T-wall Floodwall cap	X	X	X
▪ Addition of Breakwater	n/a	n/a	n/a
Flood-side Shift			
▪ Earthen Levee	X	X	X
▪ T-wall Floodwall	☑	☑	☑
▪ Earthen Levee with T-wall Floodwall cap	X	X	X
▪ Addition of Breakwater	n/a	☑	n/a
Protected-side Shift			
▪ All Alternatives	X	X	X
Alternative Alignment			
▪ All Alternatives	X	X	X

X = eliminated from further study
☑ = considered in detail
n/a = not applicable; this alternative was not formulated for this reach

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ENVIRONMENTAL SETTING

General

The IER # 2 project area runs along the line between Jefferson Parish and St. Charles Parish in the northeastern portion of the Mississippi River deltaic plain. The project area is adjacent to the Parish Line Canal from the north side of the Louis Armstrong New Orleans International Airport to the south shore of Lake Pontchartrain.

Climate

Jefferson and St. Charles Parishes are located within a subtropical latitude. The climate is influenced by the many water surfaces of the nearby wetlands, rivers, lakes, streams, and the Gulf of Mexico. Throughout the year, the relative humidity, temperature, and the range between temperature extremes are affected by the amount of surface water present in south eastern Louisiana. Summers are long and hot with high average humidity, with average daily temperatures of 83°Fahrenheit (°F) and the average daily maximum of 91°F. Winters are influenced by cold, dry polar air masses moving southward from Canada, with the average daily temperature of 59°F, and the average daily minimum of 50°F. Annual precipitation averages 54 inches.

Geology and Soils

Dominant physiographic features in the vicinity include Lake Pontchartrain and the floodwalls, levees, and other components of the GNOHSDRRS. The natural surface environment of marsh and swamp has been altered by filling and drainage for development.

The shallow subsurface beneath, and immediately adjacent to, the Jefferson Parish Return Floodwall and the Recurve Floodwall is composed of up to 15 ft of fill material. Fill deposits are predominantly clay and silty clay. Fill deposits overlay swamp/marsh deposits, which are approximately 5 to 10 ft thick. Swamp/marsh deposits are composed of very soft to medium organic clay, clay, silty clay, and silt, with peat and wood. Interdistributary deposits underlie swamp/marsh deposits and are characterized by soft to medium clays with some silt and sand layers, and shells. Interdistributary deposits are approximately 25 ft thick. Bay-sound deposits are located beneath interdistributary deposits. Bay-sound deposits are mainly soft to medium clays and silty clays with some silt, silty sand, and shells. These deposits are approximately 10 to 15 ft thick. Pleistocene deposits composed of oxidized, stiff to very stiff clays and silty clays with silty sand and sand underlie bay-sound deposits. The top of the Pleistocene deposits is approximately -50 ft in elevation.

The protected side of the study area is comprised of mostly fill soils associated with the current floodwall. Other soils occurring in the project area include those in the Barbary muck, Kenner muck, and Westwego clay soils. The flood side of the project area across from the Parish Line

Canal in the LaBranche Wetlands is composed of Barbary muck, Lafitte muck, and a smaller area of Allemands-Larose soils. All of these soil types are poorly to very poorly drained, have zero percent slopes, and are classified as hydric soils. The Barbary soils are generated from fluid clayey backswamp deposits, have a low sink/swell potential, with very low water movement, are frequently flooded or ponded, and occur on swamps and delta plains (Natural Resources Conservation Service [NRCS] 2007). The Kenner series are soils that have a thick or moderately thick mucky surface layer and mucky and a fluid clayey underlying material, in former freshwater marshes (NRCS 2007). The Kenner component has a low sink/swell potential and is rarely flooded or ponded. The Westwego component occurs on backswamps and delta plains from parent material that has a nonfluid over fluid clayey alluvium and it is frequently flooded and ponded (NRCS 2007). Lafitte muck and Allemands-Larose soils occur within swamps or marshes on delta plains, shrink/swell potential is low, and they are frequently flooded and ponded (NRCS 2007).

Long-term relative subsidence resulting mainly from compaction of Holocene sediments, and possibly from movement on the downthrown side of growth faults, is estimated at 0.5 ft per century. Eustatic sea level is predicted to rise an additional 1.3 ft over the next century (Intergovernmental Panel on Climate Change [IPCC] 2001). Therefore, the natural, long-term, relative subsidence rate at the project site is estimated to be 1.8 ft per century. Groundwater is artificially lowered east of the protection floodwalls by forced drainage. Ground subsidence related to artificial lowering of the water table far exceeds the natural rate of subsidence and may reach several feet in areas east of the project site.

Hydrology

The proposed project area occurs within the Lake Pontchartrain Basin, a 4,700 square mile (mi^2) watershed in southeast Louisiana and southwest Mississippi. The Basin is within the coastal zone delineation and, therefore, is regulated under the Louisiana state and local Coastal Resources Management Act of 1978. The areas potentially affected by the IER # 2 project are near or immediately adjacent to the current floodwalls along the Parish Line Canal from north of the Louis Armstrong New Orleans International Airport to the Lake Pontchartrain shoreline along the Jefferson and St. Charles Parish line.

Surface water features within the IER # 2 project area are shown in figure 9. The project area is bounded by the LaBranche Wetlands (approximately 20,000 acres of swamps, marsh, and shallow open water [Maygarden 2004]) on the west, urban development and the Mississippi River to the south, the densely developed residential area on the east, and by Lake Pontchartrain to the north. Lake Pontchartrain is an oval-shaped, low-salinity estuary approximately 12 ft deep with a water surface area of 640 mi^2. Water depths in the project area within 350 ft of the shoreline are less than 3 ft (U.S. Geological Survey [USGS] 1998), and depths 2,700 to 4,000 ft from the shoreline are less than 10 feet. Hydrology for the area has been severely altered from its original state and currently is influenced primarily by Lake Pontchartrain, the LaBranche Wetlands, and the Parish Line Canal.

Figure 9. Hydrological Features of the IER # 2 Project Area

Lake Pontchartrain connects to Lake Borgne and the Mississippi Sound via two natural tidal passes, the Rigolets and the Chef Menteur Pass. Lake Pontchartrain also connects to Lake Borgne via man-made waterways, the IHNC, GIWW, and MRGO. Lake Pontchartrain receives freshwater drainage from Lake Maurepas to the west via Pass Manchac and from rivers and bayous along its northern shore, including the Tangipahoa River, Tchefuncte River, Bayou Lacombe, Bayou Liberty, and Bayou Bonfouca. A pumping station within the project area pumps water from the city of Kenner into the Parish Line Canal, which drains to Lake Pontchartrain.

Hurricane Katrina and On-going Construction Activities

On 29 August 2005, Hurricane Katrina made landfall near Buras on the Louisiana coast east of New Orleans. The water level of Lake Pontchartrain rose 7 ft, affecting all of the surrounding coastal areas. The storm crossed southeastern Louisiana, approximately 20 miles east of Jefferson Parish, with wind gusts reaching 100 to 125 miles per hour (mph). Storm surges of up to 15 ft severely flooded areas in the southern part of Jefferson Parish. Heavy rains and overtopping of the Lake Pontchartrain levees resulted in flooding in the northernmost sections of the parish, and sections of “Old Metairie” remained flooded for weeks.

On 27 September 2005 Hurricane Rita hit the western part of the Louisiana, bringing sustained winds of 45 mph to Jefferson parish. Storm surges again flooded areas of southern Jefferson Parish and utilities were disrupted throughout the parish. Many businesses were closed for several weeks. High winds damaged more than 26,700 residential roofs throughout the parish. As part of the USACE GNOHSDRRS Program, 29 contracts have been created for Jefferson Parish and 18 have been created for St. Charles Parish for work to repair, construct, and raise levees and flood control structures as currently authorized in these parishes. Fourteen of these contracts have been awarded, and nine of those have been completed.

3.2 SIGNIFICANT RESOURCES

This section contains a list of the significant resources located in the vicinity of the proposed action and describes in detail those resources that would be impacted, directly or indirectly, by the alternatives. Direct impacts are those that are caused by the action taken and occur at the same time and place (40 CFR 1508.8(a)). Indirect impacts are those that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR 1508.8(b)). Cumulative impacts, the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, are discussed in conjunction with each resource and in a more general broad scope context in section 4.

The resources described in this section are those recognized as significant by laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Further detail on the significance of each of these resources can be found by contacting the CEMVN, or on www.nolaenvironmental.gov, which offers information on the ecological and human value of these resources, as well as the laws and regulations governing each resource. Search for "Significant Resources Background Material" in the website's digital library for additional information. Table 3 shows those significant resources found within the project area, and notes whether they would be impacted by the proposed alternative.

Table 3
Significant Resources in Project Study Area

Significant Resource	Impacted	Not Impacted
Water	X	
Lake Pontchartrain	X	
Parish Line Canal	X	
Wetlands and Misc. Drainageways/Canals	X	
Fisheries	X	
Essential Fish Habitat	X	
Wildlife	X	
Threatened or Endangered Species		X
Non-wet Uplands		X
Cultural Resources		X
Recreational Resources	X	

Table 3
Significant Resources in Project Study Area

Significant Resource	Impacted	Not Impacted
Aesthetic (Visual) Resources	X	
Air Quality		X
Noise	X	
Transportation	X	
Socioeconomic Resources • Land Use, Population, Employment • Environmental Justice	X	X

3.2.1 Lake Pontchartrain

As discussed previously in the Hydrology section and shown in figure 7, this project primarily involves the floodwall along Parish Line Canal. Parish Line Canal is a man-made canal that provides drainage from the urban areas west and south of the project area into Lake Pontchartrain. The alternatives evaluated within this IER would occur along the canal, where the canal enters Lake Pontchartrain, and along a small section of the shoreline along Lake Pontchartrain immediately east of the Parish Line Canal. Lake Pontchartrain the canal are classified as Waters of the United States (as defined by 33 USC 328) and Navigable Waters of the United States (NWUS, as defined by 33 USC 329) and are under the jurisdiction of the USACE. Dredge and fill activities in the lake require compliance with Section 404 of the Clean Water Act (33 USC 1344).

The lakeshore in the project area is currently protected with rock riprap. The purpose of the shoreline armoring is to reduce erosion and help protect the levee system, which protects the population and infrastructure of New Orleans. Armored shorelines do not allow for a transitional wetland area that would provide many ecological functions such as production of detritus, reduction of turbidity, filtration of nutrients/contaminants, and fisheries nursery habitat. Hard armoring of shorelines can contribute to the erosion of adjacent water bottoms by altering the magnitude and direction of sediment transport (National Research Council [NRC] 2007).

Water circulation and lake levels are controlled by tidal action at the tidal passes, freshwater inflows from upstream drainage areas, and wind. The greatest volume of water contributed to the lake is from the Rigolets (USACE 1984). The salinity of the lake varies from one end of the lake to the other with an average salinity of 4.9 parts per thousand (ppt) (Georgiou and McCorquodale 2002).

The water quality in the project area is impacted by stormwater runoff from Jefferson and St. Charles Parishes. Stormwater could contain elevated levels of pathogens, heavy metals, and soil-derived suspended sediments. Additionally, communities discharging treated and untreated wastewater into the Lake Pontchartrain Basin and tens of thousands of individual septic systems and past oil and gas production have contributed to water quality problems. Proposed freshwater diversions from the Mississippi River to benefit wetlands adjacent to the lake and salinity levels in the lake also could potentially introduce toxic chemicals, pesticides, herbicides, excess

nutrients, and sediments (Penland et al. 2002). Water quality of Lake Pontchartrain was listed as impaired based on copper and total fecal coliform by the State based on 2004 water quality data (USEPA 2008).

Since an initial biological inventory published in 1954, submerged aquatic vegetation (SAV) in Lake Pontchartrain had declined by more than 50 percent by 2000. Observations by University of New Orleans researchers found no grass beds along the south shore from 1996 to 1998. The absence of SAV was attributed to high nutrient input from urban runoff and the armoring of the shoreline. Turbid water can limit the growth of aquatic plants by decreasing the amount of light they receive. Nutrients can induce this shading effect by stimulating the growth of phytoplankton and algae (Penland et al. 2002). The dominant species of SAV that occur in the lake include widgeon grass (*Ruppia maritime*) and American eelgrass/wild celery *(Vallisneria americana)* (Cho and Poirrier 2002).

The lake bottom in the project area is composed of fine-grained materials with abundant shell hash and some intact clams (Flocks et al. 2002) with a clay substrate (Gulf of Mexico Fishery Management Council [GMFMC] 2006). Rangia clams (*Rangia cuneata*; discussed in more detail in the Fisheries section) improve water clarity in the lake, which helps support SAV, and their shells also contribute to the composition of the lake sediments.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls beyond was is currently authorized for the GNOHSDRRS. Effects on the water and habitat of Lake Pontchartrain would not differ substantially from what was described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

The proposed action would not have direct impacts to Lake Pontchartrain with the exception of the dredging and the placement of dredged material in Lake Pontchartrain that could be required for access to the Parish Line Canal by barge. Dredging could cause increased turbidity, which could immediately reduce water quality in Lake Pontchartrain near the project area. Flotation channels would be evaluated prior to dredging for SAV, so impacts to this sensitive habitat would be minimized. Dredging from depths greater than 10 ft in the lake would be required to reach the shoreline resulting in disruption of approximately 9 acres of lake bottom for the access channel and

30 acres for the dredged material stockpiles. The 39 acres of aquatic water bottom that would be disturbed for the proposed action represents a miniscule portion of the over 410,000 acres of lake bottom. Impacts to the waters and substrate of the lake from the proposed action would be temporary occurring primarily during the construction period of 2 to 2.5 years, with some effects potentially lasting for up to several months following construction.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity to the canal, wetland, and lake areas surrounding the project area. However, construction related runoff into the lake would be managed through best management practices. Only a small area of the lake would be affected relative to the size of the lake and the effects would be temporary.

Cumulative Impacts

Potential cumulative impacts on the lake from the proposed action would involve the combined effects from the multiple LPV flood control projects in the New Orleans area. However, several wetland restoration projects are proposed or recently approved that would positively impact the habitat within Lake Pontchartrain. The actions impacting the lake would be primarily short-term.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

Since this reach is not directly on the lake, adverse direct impacts to the lake would not be anticipated. However, dredging for access to the construction site would be required; therefore lake impacts would be similar to those discussed for the proposed action.

Indirect and Cumulative Impacts

The indirect and cumulative impacts for this alternative for LPV 03a and 03c would be very similar to those for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

The shoreline within LPV 13 has previously been armored with rock and is wider than the footprint assumed for the impact of the proposed action, so no lake bottom would be directly disrupted for construction of the proposed action. However, dredging for access to the construction site would be required, which would have lake impacts similar to those discussed for the proposed alternative for LPV 03a and 03c. The proposed gate structure would be similar

to the existing gate, but placed in the new alignment; thus no long-term impacts from the gate would be expected.

Indirect and Cumulative Impacts

The indirect and cumulative impacts for the proposed action for LPV 13 would be similar to those for the proposed action at LPV 03a and 03c.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

Under this alternative, the existing floodwall and gate would be demolished and a new T-wall and gate would be constructed along the existing alignment. There would be no direct impacts to the waters and substrate of the lake from these activities. However, dredging for access to the construction site would be required, which would have lake impacts similar to those discussed for the proposed alternative for LPV 03a and 03c.

Indirect and Cumulative Impacts

Most of the construction would occur along a rock-lined shoreline in a footprint similar to the existing footprint. Transportation of materials to this area by truck should be possible and best management practices should be able to successfully control turbidity and sedimentation in the lake during construction activities.

3.2.2 Parish Line Canal

This man-made canal provides drainage from the urban areas east and south of the project area into Lake Pontchartrain via the Parish Line Canal Pump Station. The alternatives evaluated within this IER would occur mostly in and along this canal. The Parish Line Canal was likely created as a borrow canal for the levee system and is classified as subtidal estuarine with an unconsolidated bottom (typically mud) from the lake south to I-10; from I-10 south to the Louis Armstrong New Orleans International Airport it is classified as riverine, lower perennial with unconsolidated bottom (U.S. Fish and Wildlife Service [USFWS] 2007a). The characteristics of the canal are estuarine and would be similar to Lake Pontchartrain for the northern portion of the project area (north of I-10) and gradually transition to provide freshwater habitat in the southern portion of the canal (south of I-10). The Parish Line Canal is a Water of the United States (as defined by 33 USC 328) and Navigable Water of the United States (as defined by 33 USC 329) and, therefore, is under the jurisdiction of the USACE. Dredge and fill activities in the canal would require compliance with Section 404 of the Clean Water Act (33 USC 1344).

Water quality within the canal only partially supports the designated uses for this canal of “primary and secondary contact recreation” and “fish and wildlife propagation” (Louisiana Department of Environmental Quality [LDEQ] 2007). The surface water of the canal is suspected as impaired by organic enrichment/low dissolved oxygen and pathogens.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls beyond was is currently authorized for the GNOHSDRRS. Effects on the water and habitat of the Parish Line Canal would not differ substantially from those described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

The new alignment would place the new T-wall's centerline along the canal's edge. In most areas there is about 5 to 25 ft between the centerline and the shoreline available on the flood side of the new alignment. Where distance to the shoreline is not adequate, the T-wall would be placed in the open water of the canal, and the open water of the canal would be filled to allow for wave and stability berms. Approximately 15 acres of canal habitat would be impacted, permanently removing the existing habitat including water and water bottom. Additionally, slightly less than an acre of canal habitat (water and water bottom) would be replaced by the construction of the rock breakwater on geotextile fabric near I-10. The total of 16 acres of canal habitat (water and water bottom) that would be lost was previously wetland habitat that was converted to canal from dredging activities for borrow. In addition, dredging to provide barge access within Parish Line Canal north of the I-10 bridge would temporarily impact approximately 20 acres of canal bottom, 10 acres dredged along the eastern half of the canal and 10 acres for stockpiling of dredged sediment within the western half of the canal. Dredging could cause increased turbidity, which could immediately reduce water quality in Parish Line Canal. However, these impacts would be temporary and would be minimized by the use of a bucket dredge. This habitat represents only a small portion of similar habitat available in southeastern Louisiana.

Indirect Impacts

Potential indirect impacts to Parish Line Canal from the proposed action would primarily consist of effects from increased turbidity. However, construction-related runoff into the canal would be managed through best management techniques when possible and impacts would be temporary, lasting from 2 to 2.5 years. Only a small area of the canal would be affected relative to the size of the canal.

Cumulative Impacts

Potential cumulative impacts to the canal from the proposed action would involve the combined effects to the canal from the multiple LPV flood control projects in the New Orleans area. However, several wetland restoration projects are proposed or recently approved that would positively impact the habitat within Lake Pontchartrain and its adjoining wetlands. Impacts from the proposed action on the canal would be primarily short-term. Permanent impacts to the canal habitat represent only a small portion of similar habitat available in southeastern Louisiana.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

Impacts for this alternative would be similar to those for the proposed action, but less since the floodwall would not be shifted to the edge of the canal as in the proposed action.

Indirect and Cumulative Impacts

The indirect and cumulative adverse impacts for this alternative for LPV 03a and 03c would be similar to those discussed for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

This action would not directly affect the canal, because the proposed action does not occur on the canal shoreline.

Indirect and Cumulative Impacts

LPV 13 is adjacent to only a small portion of the canal and most of the construction activities would be limited to the shoreline. Runoff would be controlled through best management practices.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

This alternative at LPV 13 does not occur on the canal shoreline and best management practices should successfully control turbidity and sedimentation in the lake during construction activities so that the canal would not be affected by construction of alternative one in this reach.

3.2.3 Wetlands and Miscellaneous Drainageways/Canals

The shoreline in the IER # 2 project area along the Parish Line Canal occurs between the existing floodwall and the open water of the canal on a narrow zone of dredge spoil material excavated from the canal and deposited to form its eastern bank. A shallow, open water area approximately 1,100 ft long occurs between the floodwall and canal (photo 1) near staging area 2 (figure 7a). The wetland vegetation along the 17,500 ft of eastern shoreline of the Parish Line Canal includes a variety of species, such as bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), cattails (*Typha* spp.), and spikerushes (*Eleocharis* spp.). Also present in some areas adjacent to the current floodwall are small trees and shrubs such as willows (*Salix* sp.), wax myrtle (*Myrica cerifera*), and rattlebush (*Sesbania drummondii*).

The LaBranche Wetlands on the Western side of Parish Line Canal consists of freshwater hardwood forests and cypress swamp around the southern boundary near U.S. 61 which transition to intermediate and brackish marshes and shallow open water ponds in the northern areas closer to Lake Pontchartrain (Louisiana Coastal Wetlands Conservation and Restoration Task Force [LCWCRTF] and Wetlands Conservation and Restoration Authority [WCRA] 1999). The wetlands east of Parish Line Canal (photo 1) are emergent brackish marsh with some freshwater scrub/shrub. These wetlands are under the jurisdiction of the USACE (i.e., are Jurisdictional Wetlands) because of their connection to Lake Pontchartrain.

Photo 1. East Bank of Parish Line Canal (looking northwest)

Brackish marsh salinity averages about 8 ppt and is typically dominated by marshhay cordgrass (*Spartina patens*), saltgrass (*Distichlis spicata*), bulrush (*Schoenoplectus* spp.), dwarf spikerush (*Eleocharis parvula*), widgeongrass (*Ruppia maritima*), seashore paspalum (*Paspalum vaginatum*), black rush (*Juncus roemerianus*), coastal water hyssop (*Bacopa monnieri*), smooth cordgrass (*Spartina alterniflora*), and big cordgrass (*Spartina cynosuroides*) (Lester et al. 2005).

Healthy cypress swamps occur only in freshwater areas experiencing minimal daily tidal action and where the salinity range does not normally exceed 2 ppt (USACE et al. 2004). The soils are inundated or saturated by water on a nearly permanent basis. The cypress swamps support the predominant bald cypress (*Taxodium distichum*) and other associated woody vegetation like the tupelo gum (*Nyssa aquatica*) swamp blackgum (*Nyssa sylvatica* var. *biflora*), swamp red maple (*Acer rubrum* var. *drummondii*), black willow (*Salix nigra*), pumkin and green ash (*Fraxinus* spp.), water elm (*Planera aquatica*), and button bush (*Cephalanthus occidentalis*) (Louisiana Natural Hertitage Program [LNHP] 2004).

Scrub/Shrub Swamp is a low, flat wetland dominated by true shrubs and young trees, and shrubs or trees that are stunted due to some environmental condition. Species that are associated with this habitat type are buttonbush (*Cephalanthus occidentalis*), eastern baccharis (*Baccharis halimifolia*), dwarf palmetto (*Sabal minor*), wax myrtle (*Morella cerifera*), marsh-elder (*Iva frutescens*), and swamp red maple (*Acer rubrum*) (LNHP 2004).

The natural processes of subsidence, saltwater intrusion, erosion of wetlands, and the human effects of levee construction and the oil and gas industry, have caused major impacts to the wetlands of Louisiana, resulting in major problems of sediment deprivation and saltwater intrusion (LaCoast 1993). The USGS recently estimated that approximately 20 mi^2 of land were lost within the Pontchartrain Basin as a result of Hurricane Katrina (USGS 2006). Proposed projects such as a freshwater diversion through the Bonnet Carré Spillway and other restoration projects like those that use dredged material to fill in open water ponds would help to counteract the loss of wetlands throughout Louisiana.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls beyond what is currently authorized for the GNOHSDRRS. Effects on the wetlands in the project area would not differ substantially from those described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

The new alignment places the new T-wall centerline along the edge of the Parish Line Canal. Wetlands within the footprint of this alternative would be impacted by construction of the T-wall and fill associated with the wave and stability berms. Approximately 17 acres of fragmented, low-quality wetland habitat, consisting primarily of non-woody plant species, would be lost with construction of the proposed action. This loss would be mitigated as discussed in section 7.0.

Construction of the proposed action's access channel would result in a localized increase in turbidity that may extend into shoreline wetlands on the western side of the Parish Line Canal. These impacts would be temporary, limited to the lake and shoreline, and minimized by the use of a bucket dredge and the movement of the tides.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of construction-related effects from increased turbidity on the wetland areas surrounding the project area from the construction site runoff. The area affected would be small relative to the size of the adjacent wetlands. Construction-related runoff into the wetlands would be managed through best management techniques when possible, and the effects from construction would be temporary, lasting from 2 to 2.5 years.

Cumulative Impacts

Potential cumulative impacts to the wetlands from the proposed action would involve the combined effects to wetlands from the multiple LPV flood control projects in the New Orleans area. The amount of wetlands lost by construction of the proposed action is a miniscule fraction of similar habitat available in southeastern Louisiana. In addition, several wetland restoration projects are proposed or recently approved that would positively impact the habitat within the LaBranche wetlands.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

Since this alternative would occur in the previously impacted current location of the floodwall, direct adverse impacts to the wetlands along this shoreline would be primarily temporary. This alternative does include a slight expansion from the existing floodwall footprint to include flood side and protected side berms, including flood side armoring, that could fill up to 4.5 acres of shoreline wetland habitat. An additional 0.1 acre of habitat could be impacted for the breakwater under I-10. The approximately 5 acres of wetland habitat that could be impacted is fragmented wetland habitat of mostly emergent vegetation. This habitat is a miniscule fraction of similar habitat available in southeastern Louisiana and impacts from this action would be mitigated.

Construction of the proposed action's access channel would result a localized increase in turbidity that may extend into shoreline wetlands on the western side of the Parish Line Canal. These impacts would be temporary, limited to the lake and shoreline, minimized by the use of a bucket dredge, and minimized by the movement of the tides.

Indirect and Cumulative Impacts

The indirect and cumulative adverse impacts for this alternative for LPV 03a and 03c would be similar to those described for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

There would be no impact to wetlands from the construction of the terrestrial portion of the project in this reach since no wetlands currently exist there. Construction of the proposed action's access channel would result a localized increase in turbidity that may extend into shoreline wetlands on the western side of the Parish Line Canal. These impacts would be temporary, limited to the lake and shoreline, and minimized by the use of a bucket dredge and the movement of the tides.

Indirect and Cumulative Impacts

Construction of the terrestrial portion of proposed action in this reach would result a localized increase in turbidity that may extend into shoreline wetlands on the western side of the Parish Line Canal. However, construction-related runoff into the wetlands would be managed through best management techniques when possible, and the effects from construction would be temporary, lasting from 2 to 2.5 years

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

The impacts to the wetlands for this alternative would be similar to but less than those for the proposed action for LPV 13.

3.2.4 Fisheries

Existing Conditions

Lake Pontchartrain and surrounding wetlands provide habitat for freshwater fish. Freshwater fishes that might inhabit areas near the project area are presented by season in table 4. Lake Pontchartrain and surrounding wetlands also provide nursery and foraging habitat for marine fish and shellfish. Marine fish that might inhabit areas near the project area are presented by season in table 5.

Rangia clams have historically been prevalent in Lake Pontchartrain and have contributed to the unique ecology of the lake. The clams provide clarity to the lake required for SAV to grow and are a favorite food item for many fish and shellfish species, including the red drum and blue crab. Dredging of the clams and the hypoxic/anoxic effects of the high salinity plume from the MRGO have impacted the density of this indicator species within the lake. Clam dredging was halted in 1990, but reduced populations of rangia clams have been recorded immediately east of the project area (Abadie and Poirrier 2000).

Table 4
Freshwater Fish of Lake Pontchartrain

Common Name	Scientific Name	Seasonality			
		Spring	Summer	Fall	Winter
Gizzard shad	*Dorosoma cepedianum*	B	B	P	P
Largemouth bass	*Micropterus salmoides*	B	P	P	P
Black crappie	*Pomoxis nigromaculatus*	P	P	P	P
Bluegill	*Lepomis macrochirus*	P	P	P	P
Blue catfish	*Ictalurus furcatus*	B	B	P	P
Channel catfish	*Ictalurus punctatus*	B	B	P	P
White crappie	*Pomoxis annularis*	P	P	P	P
Warmouth	*Chaenobryttus gulosus*	P	P	P	P
Redear sunfish	*Lepomis microlophus*	P	P	P	P
Freshwater drum	*Aplodinotus grunniens*	P	P	P	P
Spotted sunfish	*Lepomis punctatus miniatus*	P	P	P	P
P = present, B = breeding season (table compiled from Milanes [2002] and Frierson [2002])					

Table 5
Marine Fish/Shellfish of Lake Pontchartrain

Common Name	Scientific Name	Seasonality			
		Spring	Summer	Fall	Winter
Spotted seatrout	*Cynoscion nebulosus*	P	P	P	P
Red drum	*Sciaenops ocellatus*	P	P	B	B
Southern flounder	*Paraichthys lethostigma*	P	P	P	B
Bay anchovy	*Anchoa mitchilli*	B	B	B	B
Spot	*Leiostomus xanthurus*	P	P	P	B
Black drum	*Pogonias cromis*	P	P	P	B
Atlantic croaker	*Micropogonias undulatus*	P	P	P	B
Southern kingfish	*Menticirrhus americanus*	P	P	P	P
Sheepshead	*Coryphaena hippurus*	B	P	P	P
Gulf menhaden	*Brevoortia patronus*	P	P	P	B
Gulf kingfish	*Menticirrhus littoralis*	P	P	P	P
Blue crab	*Callinectes sapidus*	B	B	P	P
White shrimp	*Penaeus setileus*	B	P	P	P
Brown shrimp	*Penaeus aztecus*	B	P	P	P
Brackish-water clam	*Macomia* sp.	B	P	P	P
P = present, B = breeding season (table compiled from Milanes [2002] and Frierson [2002])					

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls beyond what is currently authorized for the GNOHSDRRS. Effects on the water and fish habitat of Lake Pontchartrain would not differ substantially from those described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

Dredging in Lake Pontchartrain for access to the project areas could temporarily disrupt 59 acres of lake and canal bottom and adversely impact water quality. Dredging of a flotation channel to provide access to the shoreline would temporarily displace and possibly destroy the benthic organisms within the acres estimated for the flotation channel and stockpiles. Additionally, increased suspended sediment could clog fish gills, lower growth rates, and affect egg and larval development (USEPA 2003). The numbers of fish maturing to adults could be reduced by the increased turbidity and decreased water quality. However, mobile fish species would be able to avoid the project area during construction. In addition, turbidity would be minimized by the use of a bucket dredge and further reduced by the movement of the tides. Impacts on fisheries, prey species, or their habitat would be short-term, approximately 2 to 2.5 years in duration, with effects lasting up to several months after completion.

Construction of the new floodwall along the new alignment (35 ft to the floodside) and breakwater under I-10 could potentially impact 16 acres of aquatic habitat (open water and water bottom) with dirt and rock and would destroy the immobile and less-mobile species in the filled area. Approximately 17 acres of low-quality wetland habitat would be replaced by hard fill along the shoreline of the Parish Line Canal for this alternative. These wetlands do not provide a significant amount of nursery/foraging/cover habitat for fish species. Most mobile species within the canal and lake would avoid the areas impacted by dredging and construction and could move from areas being permanently filled by the proposed action. Impacts on less-mobile benthic populations, such as rangia clams, from construction activities would be short-term, approximately 2 to 2.5 years in duration, with effects lasting up to several months after completion. The existing aquatic and wetland habitat destroyed under the proposed action would be replaced by mostly hard rock surfaces that would be suitable for colonization by periphyton and other sessile organisms. This new habitat would provide protective cover for various species of shellfish and finfish providing a more productive aquatic community. The total of 92 acres that would be disturbed for the proposed action are a small proportion of the similar aquatic

habitat available in vicinity (e.g., there is over 410,000 acres of water surface area available in Lake Pontchartrain). Impacts to the waters and substrate of the lake from the proposed action would be temporary. Once the proposed action is complete, sediment would settle, benthos would repopulate, and other mobile aquatic species would return.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity from terrestrial construction activities which could immediately reduce water quality in the project area and negatively impact fish. However, construction-related runoff into the canal would be managed through best management techniques and would be reduced by the movement of the tides. Those impacts on fisheries, prey species, or their habitat would be short-term, approximately 2 to 2.5 years in duration, with effects lasting up to several months after completion.

Cumulative Impacts

Potential cumulative impacts on fish habitat from the proposed action would involve the combined effects on suitable fish habitat in wetlands, canals, and lakes from the multiple LPV flood control projects in the New Orleans area. However, several wetland restoration projects are proposed or recently approved that would positively impact the fish habitat of Lake Pontchartrain, the Parish Line Canal, and associated wetlands. The actions affecting aquatic habitat would be primarily short-term during the construction period. The project area would be modified very slightly in context of the size of the lake and magnitude of historical changes to the shoreline.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Impacts from this alternative for LPV 03a and 03c would be similar to those from the proposed action for these LPV, but less aquatic habitat along the shoreline and in the canal would be impacted.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

Direct impacts from this action on the local fisheries would be limited to those caused by dredging, because construction of the floodwall and gate for this alternative would occur entirely on the existing rock shoreline of Lake Pontchartrain.

Dredging of a flotation channel to provide access to the lake shoreline would temporarily displace and possibly destroy the benthic organisms within the 39 acres estimated for the channel

and stockpiles. Most mobile species within Lake Pontchartrain would avoid the areas impacted by dredging. Impacts on less-mobile benthic populations, such as rangia clams, from dredging would be short-term, approximately 2 to 2.5 years in duration, with effects lasting up to several months after completion. The 39 acres that would be disturbed for this alternative represent a miniscule portion of similar aquatic habitat available in southeastern Louisiana (e.g., there are over 410,000 acres of water surface area available in Lake Pontchartrain alone). Impacts on the waters and substrate of the lake from the proposed action would be temporary and would be minimized by the use of a bucket dredge and the movement of the tides. Once the proposed action is complete, sediment would settle, benthos would repopulate, and other mobile aquatic species would return.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity from terrestrial construction activities, which could immediately reduce water quality in the project area and negatively impact fish. However, construction-related runoff into the canal would be managed through best management techniques and would be reduced by the movement of the tides. Those impacts on fisheries, prey species, or their habitat would be short-term, approximately 2 to 2.5 years in duration, with effects lasting up to several months after completion.

Cumulative Impacts

Potential cumulative impacts to fish habitat from the proposed action would involve the combined effects to suitable fish habitat in wetlands, canals, and lakes from the multiple LPV flood control projects in the New Orleans area. However, several wetland restoration projects, are proposed or recently approved that would positively impact the fish habitat of Lake Pontchartrain and associated wetlands. The actions affecting aquatic habitat would be primarily short-term during the construction period. The project area would be modified very slightly in context of the size of the lake and magnitude of historical changes to the shoreline.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

The impacts to fisheries from this alternative at LPV 13 would be similar to but less than those for the proposed action. Impacts would be primarily related to dredging required for barge access and would be temporary.

3.2.5 Essential Fish Habitat

Existing Conditions

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) (50 CFR 600) states that Essential Fish Habitat (EFH) is “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 U.S.C. 1802). The 1996 amendments to the MSA

set forth a mandate for the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), regional Fishery Management Councils (FMC), and other federal agencies to identify and protect EFH of economically important marine and estuarine fisheries. A provision of the MSA requires that FMCs identify and protect EFH for every species managed by a Fishery Management Plan (FMP; 16 U.S.C. 1853).

The IER # 2 alternatives would affect areas adjacent to or within the Parish Line Canal and Lake Pontchartrain. These areas are designated EFH under the provisions of the MSA. EFH includes all waters and substrates within estuarine boundaries, including the subtidal vegetation (seagrasses and algae) and adjacent tidal vegetation (marshes). The primary categories of EFH occurring in the project vicinity include estuarine water column, mud bottoms, and estuarine emergent wetlands (marsh edge). Post-larval and juvenile life stages of brown and white shrimp and red drum are the managed species likely to occur in the project area. As discussed previously, the lake bottom near the project area is most likely a non-vegetated, silty, fine sand, shell, and soft mud bottom, and the canal substrate is most likely non-vegetated mud.

Discussion of Impacts

Impacts on EFH and managed fish species from each alternative are similar to those for fisheries for those same alternatives. However, the consultation requirements in the MSA direct federal agencies to consult with NMFS when any of their activities could have an *adverse effect* on EFH. The NMFS defines *adverse effec*t as "any impact that reduces quality and/or quantity of EFH... [and] may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions." Impacts on essential fish habitat occur with removal or disturbance of wetland and aquatic habitats. Consultation with NMFS was initiated by CEVM and is discussed in section 6.2, Agency Coordination, and any recommended mitigation activities proposed by NMFS are discussed in section 7.0, Mitigation.

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls beyond what is currently authorized for the GNOHSDRRS. Effects on EFH would not differ substantially from those described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

Direct impacts to EFH from the proposed action at LPV 03a and 03c would be similar to those described for the fisheries resource. The waters and substrate of Lake Pontchartrain would be directly impacted by dredging required for access to the project areas. Dredging could temporarily disrupt 59 acres of non-vegetated sand, shell, and soft bottom EFH, as well as impacting surrounding water quality. The potentially anoxic conditions associated with dredging could be avoided by mobile life stages of fish species. Mobile fish would avoid the areas impacted by construction and could move from areas being permanently filled by the proposed action. Turbidity would be minimized by the use of a bucket dredge and by the movement of the tides. Impact to less-mobile, bottom-dwelling fish and eggs and benthic populations from dredging would be short-term because the dredged channels would be temporary (occurring in conjunction with construction activities). Once the proposed action is complete the access channel would be backfilled, sediment would settle, benthos would repopulate, and other mobile aquatic species would return.

Construction of the new floodwall along the new alignment (35 ft to the floodside) and breakwater under I-10 could potentially replace 33 acres of potential EFH (wetlands, water column and water bottom) with dirt and rock and would destroy the immobile and less-mobile species in the filled area. Most mobile species within the canal and lake would avoid the areas impacted by dredging and construction and could move from areas being permanently filled by the proposed action. Impacts on less-mobile populations from construction activities would be short-term. Existing EFH in the Parish Line Canal that would be destroyed under the proposed action would be replaced by a rocky foreshore and breakwater that would be suitable for colonization by periphyton and other sessile organisms. The new habitat would provide protective cover for various species of shellfish and finfish. As a result, the proposed action would create more productive and less common categories of EFH in the Parish Line Canal out of the very common and less productive mud bottoms. EFH associated with the fragmented fringe wetlands that would be destroyed for the proposed action would be mitigated through implementation of a mitigation plan coordinated with NMFS.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity from terrestrial construction activities that could immediately reduce water quality in the project area and negatively impact essential fish habitat. However, construction-related runoff into the canal would be managed through best management techniques and would be reduced by the movement of the tides. Those impacts on fisheries, prey species, or their habitat would be largely short-term, approximately 2 to 2.5 years in duration, with effects lasting up to several months after completion.

Cumulative Impacts

Potential cumulative impacts from the proposed action would involve the combined effects on EFH in southeastern Louisiana from the multiple LPV flood control projects. However, several wetland restoration projects are proposed or recently approved that would positively impact EFH in Lake Pontchartrain, the Parish Line Canal, and associated wetlands. The actions affecting EFH would be primarily short-term during the construction period.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Impacts from this alternative for LPV 03a and 03c would be similar but less than the proposed action for these reaches.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct, Indirect, and Cumulative Impacts

Direct, indirect, and cumulative impacts from the proposed action at LPV 13 on EFH would be negligible because the proposed action would occur entirely on the existing alignment, would be set back from the shoreline of Lake Pontchartrain, and would not require filling or dredging. No EFH would be permanently impacted by construction of this alternative.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

The impacts to fisheries EFH from this alternative at LPV 13 would be similar to those described for the proposed action.

3.2.6 Wildlife

Existing Conditions

The diversity and abundance of wildlife inhabiting the project area are dependent on the character, quality, and extent of suitable habitat present. Construction-related activities under the alternatives considered would occur along the current floodwall, within the Parish Line Canal, and along the shoreline and inshore area of Lake Pontchartrain near the mouth of the canal (on the flood-side of the current floodwall). The terrestrial wildlife habitats potentially most affected would be those on the protected side of the floodwall in the right-of-way (ROW) and three potential staging areas adjacent to the ROW, as well as those areas along the shoreline of the canal and lake on the flood side of the floodwall. Habitats in the nearby area of the LaBranche

Wetlands on the west side of the canal potentially would be affected indirectly by the noise and activity associated with construction.

Along the Protected Side of the Floodwall in the ROW

Terrestrial wildlife habitat on the protected side of the project corridor along the canal and near Lake Pontchartrain consists principally of open expanses of turf grass lawn that extend from the floodwall to the protected side ROW boundary (photo 2). The grass in these areas is kept short by regular mowing in conjunction with the maintenance of the floodwall ROW. Wildlife found in this area include small mammals and reptiles, but the species most likely to occur here are birds that commonly forage on lawns and other open grassy areas, including the northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), common grackle (*Quiscalus quiscula*), boat-tailed grackle (*Quiscalus major*), and American crow (*Corvus brachyrhynchos*). Some of these birds potentially may nest in the few trees and shrubs present in this habitat. Habitat and species likely to occur are similar in the three potential staging areas adjacent to the ROW.

Photo 2. Example habitat on protected side of existing floodwall

Along the Shoreline of Parish Line Canal and Lake Pontchartrain

The shoreline in the IER # 2 project area along Parish Line Canal occurs between the existing floodwall and the open water of the canal in a narrow zone of dredge spoil material excavated from the canal and deposited to form its eastern bank (photo 1). The wetland vegetation along this shoreline consists principally of grasses and other herbs. The herbaceous community generally is dense and includes a variety of species, such as bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), cattails (*Typha* spp.), and spikerushes (*Eleocharis* spp.). Also present in some areas adjacent to the current floodwall are small trees and shrubs such as willow (*Salix* sp.), wax myrtle (*Myrica cerifera*), and rattlebush (*Sesbania drummondii*). Scrub/shrub occurs on higher areas of the canal bank and includes species such as eastern baccharis (*Baccharis halimifolia*) and wax myrtle (*Myrica cerifera*) (LNHP 2004).

The shoreline habitat along Lake Pontchartrain near the recurve floodwall occurs in a narrow zone between the wall and the water. The shoreline is level, approximately 50 ft wide, and covered by sand, gravel, riprap, and limited vegetation along the project portion of the waterline. This area provides minimal habitat for wildlife and is likely to be utilized mainly as a resting and foraging area for wading birds. The vegetation community within the shoreline habitat consists principally of a narrow zone of marsh grasses, such as salt grass (*Distichlis spicata*) and bulrush, growing within the rock and riprap at the water's edge, and ruderal vegetation (plants such as weeds that colonize disturbed areas) growing between the shoreline and the floodwall.

The wildlife most likely to utilize as habitat the narrow zone of shoreline adjacent to the floodwall in the project area are birds, small mammals, reptiles, and amphibians. Birds that may occur in these shoreline and wetland habitats include both nonmigratory residents of the region and migratory species that are present only part of the year. Nonmigratory species that may use these habitats include the anhinga (*Anhinga anhinga*), double-crested cormorant (*Phalacrocorax auritus*), laughing gull (*Larus atricilla*), Forster's tern (*Sterna forsteri*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), tricolored heron (*Egretta tricolor*), snowy egret (*Egretta thula*), black-crowned night heron (*Nycticorax nycticorax*), green heron (*Butorides virescens*), white ibis (*Eudocimus albus*), fish crow (*Corvus ossifragus*), killdeer (*Charadrius vociferus*), mallard (*Anas platyrhynchos*), and red-winged blackbird (*Agelaius phoeniceus*). Migrant birds that occur in the area only during the spring/summer breeding season include the purple martin (*Progne subis*) and barn swallow (*Hirundo rustica*). Migrant birds that may occur in the area only during winter include the ring-billed gull (*Larus delawarensis*), American white pelican (*Pelecanus erythrorhynchos*), canvasback (*Aythya valisineria*), ruddy duck (*Oxyura jamaicensis*), lesser scaup (*Aythya affinis*), blue-winged teal (*Anas discors*), redhead (*Aythya americana*), and song sparrow (*Melospiza melodia*) (Dunn and Alderfer 2006).

The mammal most likely to forage along the open shoreline is the raccoon (*Procyon lotor*). An amphibian that may be present is the Gulf coast toad (*Bufo valliceps*). Reptiles that may utilize the habitats provided by these wetland areas include the Mississippi diamondback terrapin (*Malaclemys terrapin pileata*), common snapping turtle (*Chelydra serpentina*), green anole (*Anolis carolinensis*), Gulf salt marsh snake (*Nerodia clarkii clarkii*), marsh brown snake (*Storeria dekayi limnetes*), and rough green snake (*Opheodrys aestivus*) (Conant and Collins 1998, Moore 1992).

In the Nearby LaBranche Wetlands

The LaBranche Wetlands on the west side of Parish Line Canal at the south end of the IER # 2 project area consist of freshwater hardwood forest and cypress swamp habitat. Moving north along the canal, the wetland habitat transitions to intermediate and brackish marshes closer to Lake Pontchartrain. Wildlife that typically inhabit these wetland habitats include a diverse assemblage of amphibians, reptiles, birds, and mammals. Of the species that may occur in the nearby wetland habitats west of the canal and the project area, mammals and birds would be the most susceptible to the effects of construction activity and noise. Mammals that may occur in the wetland habitats near the west bank of the Parish Line Canal include the muskrat (*Ondatra zibethicus*), nutria (*Myocastor coypus*), river otter (*Lutra canadensis*), mink (*Mustela vison*), swamp rabbit (*Sylvilagus aquaticus*), marsh rice rat (*Oryzomys palustris*), cotton mouse (*Peromyscus gossypinus*), and raccoon *(Procyon lotor)* (Whitaker 1998, Wigley and Lancia 1998). Birds that may utilize these habitats are mainly wading birds and waterfowl and include the anhinga, purple gallinule (*Porphyrula martinica*), great blue heron, little blue heron (*Florida caerulea*), tricolor heron, yellow-crowned night heron, green heron, snowy egret, cattle egret (*Bubulcus ibis*), white ibis, wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), northern shoveler (*Anas clypeata*), and blue-winged teal (Dunn and Alderfer 2006, Wigley and Lancia 1998). An amphibian that may be present is the Gulf coast toad (*Bufo valliceps*). Reptiles that may utilize these wetland areas include the Mississippi diamondback terrapin (*Malaclemys terrapin pileata*), common snapping turtle (*Chelydra serpentina*), green anole (*Anolis*

carolinensis), Gulf salt marsh snake (*Nerodia clarkii clarkii*), marsh brown snake (*Storeria dekayi limnetes*), and rough green snake (*Opheodrys aestivus*) (Conant and Collins 1998, Moore 1992).

Certain areas within the LaBranche Wetlands are known to be inhabited by colonial-nesting wading birds, including herons, egrets, ibises, and the roseate spoonbill (*Platalea ajaja*), as well as waterbirds such as the anhinga and double-crested cormorant (USFWS 2007c). These birds nest in trees and potentially could nest in the cypress swamp habitat that adjoins the Parish Line Canal in the southern portion of the project area. The habitat near the airport at the southern boundary of the project area previously has been disturbed for the construction of the airport runway, and the vegetation in the area under the runway approach is maintained to prevent growth of an overstory that would create a hazard for air traffic. The presence of the airport, with its associated noise and vegetation management activities, may limit the suitability of the area near the airport as nesting habitat for colonial-nesting wading or waterbirds.

Bald eagles are known to forage and nest within the LaBranche Wetlands and potentially could occur in the vicinity of IER # 2. Although the bald eagle was recently delisted as a federally threatened species (August 2007), it continues to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. In Louisiana, the bald eagle typically nests from October to mid-May (USFWS 2007c). Following nesting activities in autumn, egg laying/incubation and hatching/rearing of young typically occur between fall and spring, with fledging of young as early as January and usually by mid-May (USFWS 2007c, USFWS 2007e, USFWS 2007f). Bald eagle nests typically are in bald cypress trees near fresh and intermediate marshes or open water in St. Charles and other southeastern parishes. In its consultation letter (USFWS 2007c), the USFWS included a map of known bald eagle nest locations in the southern LaBranche Wetlands. The closest nest site was approximately 10,000 ft west of the southern end of the IER # 2 project area. Because forested wetlands with bald cypress trees are present near the south end of the IER # 2 project area, there is a possibility of undocumented nests in the vicinity. The habitats in the LaBranche Wetlands near the middle and north portions of the IER # 2 project area mostly lack large bald cypress or other tall trees supportive of bald eagle nesting, so the bald eagle would not be expected to nest in these areas.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls beyond those currently authorized for the GNOHSDRRS. Effects on wildlife would not differ substantially from what was described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

The increase in the height and width of the floodwalls and ROW under the proposed action would not result in the loss of high quality wildlife habitat because the footprint of the new floodwall would remain within 35 ft of the existing floodwall. The narrow corridor of shoreline between the floodwall and Parish Line Canal provides some limited wildlife habitat of wetland grasses and herbs that would most likely be replaced by routinely mowed, turf grasses. Approximately 17 acres of low-quality wetland along the canal shoreline would be impacted by the shift of the floodwall. The existing wall would be demolished and also would be maintained as routinely mowed turf grass. In addition, fill would be added on both sides of the new floodwall to accommodate the floodwall's associated stability berms, resulting in a loss of approximately 15 acres of open water and water bottom. Most species of birds and mammals would avoid the project area during construction of the floodwall under the proposed action. There are extensive wetland and shoreline habitats adjacent to the project area to which these species could relocate. The greatest potential for effects on wildlife associated with the proposed action would occur during the construction period (approximately 2 to 2.5 years). The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the terrestrial habitat of the project area, as well as nearby shoreline habitats, during the construction period.

The breakwater would be constructed almost entirely within the Parish Line Canal and a canal that joins the Parish Line Canal beneath I-10. The breakwater would have a total height of about 19.5 ft with a footprint approximately 100 ft wide by 450 ft long. The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the project area as well as nearby habitats during the construction period. Because the breakwater does not currently exist, the proposed action would result in a permanent loss of open water habitat where the structure is built and possible damage to adjacent wetland vegetation during the construction period. The breakwater would impact about 1 acre of open water and water bottom. This would reduce the extent of aquatic habitat in this area under I-10. However, the addition of this breakwater may provide additional perching, resting, and foraging areas for a variety of wildlife, particularly wading birds and waterbirds.

The greatest potential for effects on wildlife associated with the implementation of the proposed action would occur during the construction period (approximately 2.5 years). The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the area during the construction period. Although birds are highly mobile and able to move to other habitats in the vicinity, local populations of species that nest in colonies could be adversely affected if construction activities caused abandonment of nesting sites. The reproductive capacity of local or regional populations of one or more species may depend on a given nesting colony, so disturbance of a colony could adversely effect these populations. In order to minimize the potential for construction under the proposed action to disturb colonial-nesting birds should they occur in the LaBranche Wetlands near the IER # 2 project area,

procedures recommended by the USFWS would be followed (USFWS 2007c). Prior to construction, the project area would be inspected by the USFWS or other qualified personnel for the presence of nesting colonies during the nesting season. Construction-related activities that would occur within 1,000 ft radius of a colony would be restricted to the non-nesting period, which in this region generally extends from 1 September to 15 February, depending on the species present. This 1,000-ft buffer would be maintained unless coordination with the USFWS indicates that the buffer zone may be reduced based on the species present and other specifics of the situation (USFWS 2007c).

Bald eagles also have the potential to nest in the project vicinity. In order to minimize the possibility that construction activities under the proposed action could disturb nesting bald eagles, procedures recommended by the USFWS (USFWS 2007c) based on the National Bald Eagle Management Guidelines (USFWS 2007e) would be followed. The recommended guidelines include: (1) distance buffers – keeping a distance between the activity and the nest, (2) landscape buffers – maintaining forested (preferably) or natural areas between the activity and nest trees, and (3) avoiding certain activities during the breeding season (USFWS 2007e). Prior to construction, the project area would be inspected by the USFWS or other qualified personnel for the presence of nest trees, including both active and alternate nests. Construction-related activities that would occur within 660 ft of a nest would be performed outside the bald eagle nesting season, which in this region generally extends from October 1 to May 15 (USFWS 2007c). This 660-ft buffer would be maintained unless coordination with USFWS indicates that the buffer zone may be reduced based on the specifics of the situation (USFWS 2007e). Damage to nest trees would be avoided, including damage to their root systems through soil disturbance or compaction (USFWS 2007c).

The above procedures for preventing disturbance of colonial-nesting birds and bald eagle nesting sites, should they become established in the area prior to construction, would minimize the potential for adverse impacts on these species from the proposed action.

Some of the materials used in the construction of the floodwall and breakwater would be shipped to the project area by barge on Lake Pontchartrain. Either staging/stockpile areas on land or flotation channels along the lakefront would be utilized in delivery and storage of the materials. Dredging may be required to achieve the necessary depth for barge access. The three potential staging/stockpile areas include open, grassy areas adjacent to the floodwall ROW on the protected side (see figures 7a and 7b).

The greatest potential for effects on terrestrial wildlife associated with the stockpiling of materials would occur during the construction period (approximately 2 to 2.5 years). The presence of rock stockpiles and construction-related activity, machinery, and noise would cause wildlife to avoid the terrestrial habitat of the stockpile areas during construction. Similarly, dredging activities to provide barge access could cause wildlife to temporarily avoid the aquatic habitat in the dredging area while this activity is occurring. These effects on wildlife would be short-term and would not continue beyond the construction period. The potential direct, adverse impacts on terrestrial wildlife from the proposed action within LPV 03a and 03c would be moderated by the ability of the predominant wildlife present (birds and mammals) to move to adjacent terrestrial habitats during construction. In addition, after having been temporarily

avoided during construction, the terrestrial habitat could be utilized again after completion of construction. Direct impacts on aquatic wildlife from the proposed action would be moderated by the small area of shoreline and aquatic habitat that would be affected.

Indirect Impacts

Potential indirect impacts on wildlife from the proposed action for LPV 03a and 03c mainly would involve the displacement of wildlife populations from the project area. Movement of these species to adjacent, unimpacted habitats would not be expected to result in exceedances of the carrying capacity of the extensive, similar terrestrial and aquatic habitats in the vicinity. Thus, the populations and habitat areas affected would be relatively small and the adjacent, extensive habitats would have the capacity to support the immigrants.

Cumulative Impacts

Potential cumulative impacts on wildlife from the proposed action for LPV 03a and 03c mainly would involve the combined effects of habitat loss and displacement of wildlife populations from the multiple LPV flood control projects in the New Orleans area. The displacement of the majority of wildlife would be short-term during the construction period, and the displaced individuals would likely return following project completion. The terrestrial habitat that would be permanently affected is not a high-quality or unique habitat, but frequently mowed turf grass or small fragments of wetland. Wetland habitats similar to those being affected in the project area occur along constructed and/or armored shorelines along Lake Pontchartrain and the canals that drain to the lake. Turf grass habitat similar to that in the project area is found extensively in ROWs along levees and floodwalls, residential lawns, parks, and pastures.

Movement of the limited numbers of wildlife that currently inhabit the project area's terrestrial and aquatic habitats into surrounding, unimpacted habitats would not be expected to result in exceedances of the carrying capacity of the extensive, adjacent habitats. Thus, the potential cumulative impacts on wildlife from the proposed action for LPV 03a and 03c in conjunction with other flood control projects in the region would affect relatively small populations and habitat areas, and the extensive habitats remaining in the region would have the capacity to accommodate those populations.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

The impacts to wildlife from the alteration of the terrestrial, wetland, and aquatic habitats associated with this alternative at LPV 03a and 03c would be similar to those for the proposed action with the exception that no wetland and aquatic habitat along the shoreline of the Parish Line Canal would be impacted, and the time required to complete the alternative could be longer because the existing wall would have to be demolished before construction begins.

Indirect Impacts

Potential indirect impacts to wildlife from alternative 1 at LPV 03a and 03c would be essentially the same as those described for the proposed action.

Cumulative Impacts

Potential cumulative impacts to wildlife from alternative 1 at LPV 03a and 03c would be essentially the same as those described for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

The increase in the height and width of the floodwalls, gate and ROW for the proposed action would not result in the loss of quality wildlife habitat because the footprint of the new floodwall would remain within 35 ft of the existing floodwall. The narrow corridor of shoreline between Lake Pontchartrain and the existing floodwall provides limited wildlife habitat. It is a relatively flat shoreline consisting of sand, riprap, and gravel with some vegetative groundcover. As discussed for existing conditions, the wildlife that utilize the shoreline and inshore aquatic habitat in this area are principally birds. There are large areas of wetland and shoreline habitat available around Lake Pontchartrain where birds avoiding the shoreline construction area could forage.

There are no recorded colonial nesting wading birds or waterbirds within the 1,000-ft recommended buffer for avoiding disturbance of nesting colonies of LPV 13. The nearest recorded bald eagle nest is well beyond the 660-foot buffer recommended for avoidance of disturbance to nesting eagles. Habitat for LPV 13 is not likely to be suitable for nesting wading birds, waterbirds, or bald eagles.

The greatest potential for effects on wildlife associated with the implementation of the proposed action would occur during the construction period (approximately 2 to 2.5 years). The presence of construction-related activity, machinery, and noise would be expected to cause most wildlife to avoid the project and stockpile areas during the construction period. Some of the materials used in the construction of the floodwall for this reach would be shipped to the project area by barge on Lake Pontchartrain. Either staging/stockpile areas on land or flotation channels along the lakefront would be utilized in delivery and storage of the materials. The three potential staging/stockpile areas include open, grassy areas adjacent to the floodwall on the protected side (see figures 7a and 7b).

Dredging required for shoreline access could cause wildlife to temporarily avoid the aquatic habitat in the dredging area while this activity would be occurring. These effects on wildlife would be short-term and would not continue beyond the construction period. The potential, direct, adverse impacts on terrestrial wildlife from the proposed action within LPV 13 would be

moderated by to the ability of the predominant wildlife present (birds) to move to adjacent terrestrial habitats during construction, and the low quality of the terrestrial habitat that could be temporarily avoided during construction but utilized again once construction is complete. Similarly, direct adverse impacts on aquatic wildlife from the proposed action would be moderated by the small area of shoreline and aquatic habitat that would be affected.

Indirect Impacts

Potential indirect impacts on wildlife from the proposed action for LPV 13 mainly would involve the displacement of wildlife populations, predominantly birds, from the project area. Movement of the limited numbers of birds that currently inhabit the project area into nearby, unimpacted habitats would not be expected to result in exceedances of the carrying capacity of the extensive, similar terrestrial and aquatic habitats in the vicinity. Thus, the populations and habitat areas affected would be relatively small and the adjacent, extensive habitats would have the capacity to support the immigrants.

Cumulative Impacts

Potential cumulative impacts on wildlife from the proposed action for LPV 13 mainly would involve the combined effects on wildlife of habitat loss and displacement of wildlife populations from the multiple LPV flood control projects in the New Orleans area. The displacement of the majority of wildlife would be short-term during the construction period, and the displaced individuals likely would return following project completion. The terrestrial habitat that would be permanently affected is not a high-quality or unique habitat, but gravel, sand, and rock shoreline and mowed turf grass. Habitats similar to those being affected in the project area occur along constructed and/or armored shorelines along Lake Pontchartrain and the canals that drain to the lake. Impacts to any aquatic habitats in this reach would be short term, lasting only the duration of construction. Turf grass habitat similar to that in the project area is found extensively in ROWs along levees and floodwalls, residential lawns, parks, and pastures.

Movement of the limited numbers of wildlife, principally birds, that currently inhabit this reach's terrestrial and aquatic habitat areas into surrounding, unimpacted habitats, would not be expected to result in exceedances of the carrying capacity of the extensive, adjacent habitats. Thus, the potential cumulative impacts on wildlife from the proposed action for LPV 13 in conjunction with other flood control projects in the region would affect relatively small populations and habitat areas and the extensive habitats remaining in the region would have the capacity to accommodate those populations.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

The direct adverse impacts to wildlife of the terrestrial, wetland, and aquatic habitats associated with this alternative at LPV 13 would be similar but less than those for the proposed action since the wall would remain in its current location. However, the time required to complete

construction of this alternative could be longer because the existing wall would have to be demolished before construction begins.

Indirect Impacts

Potential indirect impacts to wildlife from alternative 1 at LPV 13 would be essentially the same as those described above for the proposed action.

Cumulative Impacts

Potential cumulative impacts to wildlife from alternative 1 at LPV 13 would be essentially the same as those described for the proposed action.

3.2.7 Threatened or Endangered Species

Existing Conditions

Occurrences of rare, threatened, and endangered species are tracked by the LNHP and reported by parish (Louisiana Department of Wildlife and Fisheries and [LDWF] and LNHP 2007). The IER # 2 project area is along the boundary between Jefferson Parish and St. Charles Parish. Four wildlife species that are federally listed as threatened or endangered in Louisiana have been reported by the LDWF and LNHP as occurring in Jefferson or St. Charles Parishes. Of these, two have the potential to occur in the habitats in the IER # 2 project area: the brown pelican (*Pelecanus occidentalis*) and West Indian manatee (*Trichechus manatus*).

In accordance with the provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the CEMVN submitted a letter on 10 July 2007 to the USFWS office in Lafayette, Louisiana, requesting information on protected, proposed, and candidate species and critical habitat that may occur in the vicinity of the proposed IER # 2 project (USACE 2007c). In response and in accordance with the provisions of the ESA and the Migratory Bird Treaty Act of 1918 (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), the USFWS responded in a letter on 6 August 2007 (USFWS 2007c) identifying only the West Indian manatee as a federally listed species that could occur within the IER # 2 project area and potentially be affected by the project.

The CEMVN also submitted a letter on 16 April 2008 to the NMFS in St.Petersburg, Florida, requesting consultation regarding federally protected species that are the responsibility of NMFS and may occur in the vicinity of the proposed IER # 2 project area. The NMFS responded in a letter dated 5 June 2008 (NMFS 2008a), which identified the federally listed endangered and threatened species under NMFS jurisdiction that may occur at the project site. The threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*), the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), the threatened loggerhead sea turtle (*Caretta caretta*), and the threatened green sea turtle (*Chelonia mydas*) were identified as potentially occurring in the IER 2 project area. Because the Gulf sturgeon and these sea turtles occur in Lake Pontchartrain, there is a potential that they could occur in the lake at the north end of the IER # 2 project area near the mouth of Parish Line Canal.

Brown Pelican

In the State of Louisiana, the brown pelican is both federally and state-listed as endangered. Brown pelican populations throughout the United States seriously declined in the 1950s and 1960s as a result of the toxic effects of organochlorine pesticides such as dichloro-diphenyl-trichloroethane (DDT) and endrin. Populations along the Atlantic Coast and on the Gulf Coast in Florida and Alabama have recovered, and the species has been delisted in these areas. The species remains listed as endangered in Louisiana, Texas, and the West Coast. Critical habitat has not been designated for the brown pelican (USFWS 2007b).

The brown pelican feeds mainly on fish captured by diving in bays, tidal estuaries, and along the coast. It typically uses sand spits, offshore sandbars, and structures such as pilings as daily resting and nocturnal roosting areas. It nests in colonies on small coastal islands, typically among the dunes of barrier islands. The nests can be on the ground or in shrub thickets, such as mangroves (LDWF 2005a). There is no suitable nesting habitat for the brown pelican in the vicinity of the IER # 2 project area. However, the brown pelican forages in Lake Pontchartrain, including the inshore waters along the south shoreline of the lake, and could forage in the IER # 2 project area.

West Indian Manatee

The West Indian manatee is federally and state-listed as endangered and also is protected under the Marine Mammal Protection Act of 1972, under which it is considered depleted (USFWS 2001a). Critical habitat for the manatee has been designated in Florida, but not in Louisiana (USFWS 1977). The manatee is a large gray or brown aquatic mammal that may reach a length of 13 ft and a weight of over 2,200 pounds. It occurs in both freshwater and saltwater habitats within tropical and subtropical regions. The primary human-related threats to the manatee include watercraft-related strikes (impacts and/or propeller strikes), crushing and/or entrapment in water control structures (flood gates, navigation locks), and entanglement in fishing gear, such as discarded fishing line or crab traps (USFWS 2007d).

The manatee can occur throughout the coastal regions of the southeastern United States and may travel greater distances during warmer months; it has been sighted as far north as Massachusetts and as far west as Texas. However, the manatee is a subtropical species with little tolerance for cold, and it returns to and remains in the vicinity of warm-water sites in peninsular Florida during the winter (USFWS 2001a, USFWS 2007d). Thus, the manatee is not a year-round resident in Louisiana, but it may migrate there during warmer months. Manatees prefer access to natural springs or manmade warm water and waters with dense beds of submerged aquatic or floating vegetation. Manatees prefer to forage in shallow grass beds that are adjacent to deeper channels. They seek out quiet areas in canals, creeks, lagoons, or rivers and use deeper channels as migratory routes (USFWS 1999).

There have been 110 reported sightings of manatees in Louisiana since 1975 (LDWF 2005). Sightings in Louisiana, which have been uncommon and sporadic, have included occurrences in Lake Pontchartrain and vicinity. Between 1997 and 2000, there were approximately 16 sightings in the Lake Pontchartrain area and a general increase in the number of manatees per sighting

(Abadie et al. 2000). Sightings of the manatee in the Lake Pontchartrain basin have increased in recent years, and in late July 2005, 20 to 30 manatees were observed in the lake from the air (Powell and Taylor 2005). Substantial food sources (submerged or floating aquatic vegetation) have not been observed within the IER # 2 project area, and occurrence of the manatee has not been recorded in Jefferson Parish, though it has been recorded in St. Charles Parish. There are extensive areas of relatively undisturbed wetlands to the west of the project area in the LaBranche Wetlands. Thus, it is considered unlikely that manatees would frequent and utilize as habitat the Parish Line Canal or the inshore waters of Lake Pontchartrain near its mouth; however, manatees may pass through these areas.

Gulf Sturgeon

The Gulf sturgeon is federally listed as threatened throughout its range and is state-listed as threatened in Louisiana. It supported an important commercial fishing industry during the late 19th and early 20th centuries. A minor commercial fishery was reported to exist for Gulf sturgeon in Lake Pontchartrain and its tributaries during the late 1960s (USFWS and NMFS 2003). Throughout most of the 20th century, Gulf sturgeon suffered population declines due to overfishing, habitat loss, water quality deterioration, and barriers to historic migration routes and spawning areas (dams). In 1991, the Gulf sturgeon was listed as a threatened species under the Endangered Species Act. The present range of the species extends from Lake Pontchartrain and the Pearl River system in Louisiana and Mississippi east to the Suwannee River in Florida (USFWS and NMFS 2003).

The Gulf sturgeon is an anadromous fish that migrates from salt water into coastal rivers to spawn and spend the warm summer months. Subadults and adults typically spend the three to four coolest months of the year in estuaries or Gulf waters foraging before migrating into the rivers. This migration typically occurs from mid-February through April. Most adults arrive in the rivers when temperatures reach 21 degrees Celsius (°C) and will spend eight to nine months each year in the rivers before returning to estuaries or the Gulf of Mexico by the beginning of October. Thus, the Gulf sturgeon spends the majority of its life in fresh water (USFWS and Gulf States Marine Fisheries Commission [GSMFC] 1995). Spawning takes place in upper river reaches and appears to be river-specific. After spawning, most adults move downstream to summer holding or resting areas. Eggs are demersal and adhesive, tending to sink and adhere to the bottom (USFWS and GSMFC 1995). Spawning areas require clean cobble substrate or gravel to which eggs can adhere and in which developing larvae can find shelter (USFWS and NMFS 2003).

Subadult and adult Gulf sturgeon do not feed significantly in freshwater; instead, they rely almost entirely on estuarine and marine areas for feeding. Young-of-the-year and juveniles feed mostly in the riverine environment (USFWS and NMFS 2003). The diet of the Gulf sturgeon consists predominantly of invertebrates; the types and sizes consumed vary with life history stage and annual migration. Juveniles consume amphipods, isopods, annelid worms, aquatic insects, small bivalves, and small shrimp. Subadults also consume mud or ghost shrimp. Adults in estuaries and coastal waters consume mainly amphipods, isopods, gastropods, brachiopods, polychaete worms, lancelets, and shrimp (USACE 2006a).

Critical habitat identifies specific areas that have been designated as essential to the conservation of a listed species. Critical habitat units (areas) designated for the Gulf sturgeon include the eastern half of Lake Pontchartrain, east of the causeway (USACE 2006a) and several miles east of the IER # 2 project area. Studies conducted by the LDWF have shown the presence of Gulf sturgeon in Lake Pontchartrain during the winter and during periods of migration between marine and riverine environments. Most records of Gulf sturgeon from Lake Pontchartrain have been located east of the causeway, particularly on the eastern north shore. Gulf sturgeon have also been documented west of the causeway, typically near the mouths of small rivers (USFWS and NMFS 2003).

Gulf sturgeon could pass through or forage in the inshore waters of Lake Pontchartrain near the north end of the IER # 2 project area, principally during the three to four coolest, winter months and periods of migration between marine environments (Lake Borgne and the Mississippi Sound) and rivers that drain into Lake Pontchartrain. The proposed action would temporarily decrease the prey available to the Gulf sturgeon in the areas that are being dredged for the project's access and flotation channels, as well as the adjacent areas used as temporary stockpile sites for the dredged material. However, since Gulf sturgeon prefer to forage over sandy substrates (Harris 2003), and the substrate of the portion of Lake Pontchartrain that lies within the IER # 2 project area is largely peat and is typically comprised of less than 10% sand (USGS 2002a), it is not expected that the substrates in the project area would constitute preferred foraging habitat for Gulf sturgeon. In addition, the sediments stockpiled during the dredging of the access channels would be returned to their original location and used to fill the channels upon project completion, thereby allowing for any benthic prey species utilized by Gulf sturgeon to quickly re-colonize these areas. Gulf sturgeon would be much less likely to occur in the project area during the five warmest months of the year (May through September). The area along the south shore of the lake is unlikely to be used as a migratory route to rivers draining into the lake, which are located along the north shore. In addition to its distance from the rivers, the south shore west of the causeway and designated critical habitat is unlikely to provide the sandy substrate preferred for foraging (USGS 2002b).

Kemp's Ridley, Loggerhead, and Green Sea Turtles

Sea turtles are air-breathing reptiles with large flippers and streamlined bodies. They inhabit tropical and subtropical marine and estuarine waters around the world. Of the seven species in the world, six occur in waters of the U.S., and all are listed as threatened or endangered. The three species identified by NMFS as potentially occurring in Lake Pontchartrain in the vicinity of the project area have a similar appearance, though they differ in maximum size and coloration. The Kemp's ridley is the smallest sea turtle –adults average about 100 pounds with a carapace length of 24 to 28 inches and a shell color that varies from gray in young individuals to olive green in adults. The loggerhead is the next largest of these three species – adults average about 250 pounds with a carapace length of 36 inches and a reddish brown shell color. The green is the largest of these three species – adults average 300 to 350 pounds with a length of more than 3 feet and brown coloration (its name comes from its greenish colored fat). The Kemp's ridley has a carnivorous diet that includes fish, jellyfish, and mollusks. The loggerhead has an omnivorous diet that includes fish, jellyfish, mollusks, crustaceans, and aquatic plants. The green has a herbivorous diet of aquatic plants, mainly seagrasses and algae, which is unique among sea

turtles. All three species nest on sandy beaches, which are not present near Lake Pontchartrain. The life stages that may occur in Lake Pontchartrain range from older juveniles to adults (NMFS 2008b).

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action, there would be no activities involving construction or modification of the existing floodwalls included beyond what is currently authorized for the GNOHSDRRS. Effects on endangered or threatened species would not differ substantially from what was described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

As discussed under existing conditions, the only endangered or threatened species that may have a reasonable possibility of occurring in the IER # 2 project area are the brown pelican, manatee, Gulf sturgeon, and three sea turtles. These species have the potential to forage or swim in aquatic habitats adjoining the project area. There are no endangered or threatened species associated with the terrestrial habitats in the project area.

The presence of construction-related activity, machinery, and noise would be expected to cause the brown pelican, manatee, Gulf sturgeon, and all sea turtles to avoid the project area during the construction period (approximately 2 to 2.5 years). The proposed action would involve the filling of some of the aquatic habitat along the east bank of the Parish Line Canal as a new floodwall is constructed between the existing floodwall and the canal. In addition, dredging of flotation channels required for barge access under the proposed action would temporarily disrupt 59 acres of lake and canal bottom, between the mouth of the canal at Lake Pontchartrain and the I-10 bridge. Dredging would take place via bucket dredge, the excavated sediment would be stockpiled near the channels, and the channels would be backfilled after completion of the project so that these areas could be recolonized by benthic organisms. Most of the effects of construction would be short-term and would not continue beyond the construction period. An area of less than an acre of canal habitat also would be permanently lost within the Parish Line Canal and an adjoining canal near I-10 due to the construction of a breakwater. After construction, the existing habitat outside of the footprints of the breakwater would gradually return to existing conditions.

The brown pelican does not nest in the vicinity of the project area, and it is capable of avoiding the area and foraging elsewhere in the extensive, adjacent, aquatic habitats during the construction period. Therefore, the brown pelican would not be adversely affected by direct effects of the proposed action at LPV 03a and 03c.

It is unlikely that manatees would utilize as habitat the Parish Line Canal or the inshore waters of Lake Pontchartrain near the north end of the IER # 2 project area, though manatees may swim through these areas. In order to minimize the potential for construction activities under the proposed action to cause adverse impacts to manatees during the construction period (approximately 2 to 2.5 years), the following standard manatee protection measures would be implemented. All contract personnel associated with the project would be informed of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel would be responsible for observing water-related activities for the presence of manatees. Temporary signs would be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees during active construction/dredging operations or within vessel movement zones (i.e., the work area), and at least one sign would be placed where it is visible to the vessel operator. Siltation barriers, if used, would be made of material in which manatees could not become entangled and would be properly secured and monitored. If a manatee is sighted within 100 yards of the active work zone, special operating conditions would be implemented, including: moving equipment would not operate within 50 feet of a manatee; all vessels would operate at no wake/idle speeds within 100 yards of the work area; and siltation barriers, if used, would be re-secured and monitored. Once the manatee has left the 100-yard buffer zone around the work area of its own accord, special operating conditions would no longer be necessary, but careful observations would be resumed. Any manatee sighting would be immediately reported to the U.S. Fish and Wildlife Service (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). These procedures have been recommended by the USFWS (2007c) and adopted by the USACE (2005) for use in situations where in-water construction activities potentially could occur when manatees may be present. Assuming these procedures for preventing disturbance or injury to manatees are employed, the potential direct effects during the period of construction of the proposed action at LPV 03a and 03c would be unlikely to adversely affect the manatee.

Gulf sturgeon potentially could forage in the waters adjacent to the north end of the IER # 2 project area near Lake Pontchartrain, principally during the winter and during periods of migration between marine environments and rivers that drain into the lake. Although the Gulf sturgeon potentially could forage in the relatively narrow area of shallow, inshore habitat near the IER # 2 project area in winter, the sturgeon would not be expected to utilize this area as an important migratory route or source of food since the rivers they migrate to are on the north shore of the lake and the substrates in the project area do not consist of sand (USGS 2002b; Harris 2003), which is preferred for foraging. Use of a bucket dredge would greatly reduce the potential for directly impacting any Gulf sturgeon in the project area, and this potential would be further reduced if the dredging in the project area occurred in the summer months (May through September) when sturgeon are absent from the lake (USACE 2006a).

Sea turtles potentially could forage in the waters adjacent to the north end of the IER # 2 project area near Lake Pontchartrain, principally during the warmer months. Due to their mobility, sea turtles could avoid equipment and noise in the project area during the construction period. The bottom substrate does not support submerged aquatic vegetation, and it is unlikely to provide substantial invertebrate populations supportive of sea turtle foraging. In addition, the adjacent areas of lake and marsh provide extensive, alternative areas for sea turtle foraging and refuge.

In summary, the potential for direct, adverse impacts on threatened or endangered species (brown pelican; manatee; Gulf sturgeon; and Kemp's ridley, loggerhead, and green sea turtles) from the proposed action within LPV 03a and 03c would be influenced by the following factors: the mobility of these species; their minimal dependence on the project area for habitat; their ability to avoid the project area during construction; the temporary nature of the effects of construction activity and dredging on this limited area of aquatic habitat; and the extensive, adjacent habitat available for use. As a result, direct effects from the proposed action on threatened or endangered species would be unlikely to adversely affect these species.

Indirect Impacts

Indirect impacts on endangered or threatened species are effects that could occur later in time than direct impacts but still are reasonably certain to occur (NMFS 2006). Potential indirect impacts from the proposed action would primarily consist of effects from increased turbidity from terrestrial construction activities which could reduce water quality in the project area. However, construction-related runoff into the canal would be managed through best management techniques and would be reduced by the movement of the tides. Long-term impacts from reduced habitat area, as discussed above, would have an insignificant effect on these species. Thus, indirect impacts on threatened or endangered species from the proposed action in the IER # 2 project area would be unlikely to adversely affect these species.

Cumulative Impacts

Potential cumulative impacts on each of the threatened or endangered species of concern in the project area (brown pelican; manatee; Gulf sturgeon; and Kemp's ridley, loggerhead, and green sea turtles) from the proposed action for LPV 03a and 03b mainly would involve the combined adverse effects on each species from the multiple LPV flood control projects in the New Orleans area. These species are mobile and could avoid project areas during the construction period. Impacts from construction of the proposed action would be minimal and largely temporary. If the habitat area that would be impacted by dredging and construction at IER # 2 were added to the areas of similar aquatic habitats potentially impacted by other projects in the Lake Pontchartrain vicinity, the loss of these habitats would be minimal in the context of the available habitat remaining. Therefore, cumulative impacts on threatened or endangered species from the proposed action in the IER # 2 project area would be unlikely to adversely affect these threatened or endangered species.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

The impacts from this alternative would be similar to those for the proposed action with the exception that no wetland and aquatic habitat along the shoreline of the Parish Line Canal would be impacted. However, the time required to complete the alternative could be longer because the existing wall would have to be demolished before construction begins. The direct adverse impacts on threatened or endangered species from this alternative would be essentially the same as those described for the proposed action. Accordingly, direct effects from alternative 1 on threatened or endangered species would be unlikely to adversely affect these species.

Indirect Impacts

Potential indirect impacts on threatened or endangered species from alternative 1 at LPV 03a and 03c would be essentially the same as those described for the proposed action.

Cumulative Impacts

Potential cumulative impacts on threatened or endangered species from alternative 1 at LPV 03a and 03c would be essentially the same as those described for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct, Indirect, and Cumulative Impacts

The proposed action involving the demolition and construction of the floodwalls and gate for LPV 13 in a new location would occur on the sand, gravel, and riprap shoreline of Lake Pontchartrain that does not provide habitat for the threatened or endangered species of concern (brown pelican; manatee; Gulf sturgeon; and Kemp's ridley, loggerhead, and green sea turtles). The impacts associated with this action would be from dredging required to enter the Parish Line Canal by barge from Lake Pontchartrain. These impacts would be the same as those discussed for the proposed action for LPV 03a and 03c. Accordingly, direct, indirect, and cumulative effects from the proposed action for LPV 13 on threatened or endangered species would not adversely affect these species.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

The alternative action involving the demolition and replacement of the floodwalls for LPV 13 would occur in the existing alignment on the sand, gravel, and riprap shoreline of Lake Pontchartrain that does not provide habitat for the endangered or threatened species of concern (brown pelican; manatee; Gulf sturgeon; and Kemp's ridley, loggerhead, and green sea turtles).

The impacts associated with this action would be from dredging required to enter the Parish Line Canal by barge from Lake Pontchartrain. These impacts would be the same as those discussed for the proposed action for LPV 03a and 03c. Accordingly, direct, indirect, and cumulative effects from the proposed action for LPV 13 on threatened or endangered species would not adversely affect these species.

3.2.8 Non-wet Uplands

Existing Conditions

There are no naturally occurring uplands in the IER # 2 project area. Those limited areas that are not wetlands are the result of the deposition of soil fill for construction of floodwalls and roads, and spoil from excavation on the canal. Therefore, non-wet uplands are not a significant resource in this area and are not evaluated further with regard to potential impacts.

3.2.9 Cultural Resources

Existing Conditions

Records on file at the Louisiana Division of Archaeology and the CEMVN indicate there are no previously recorded archaeological sites or historic properties located within the IER # 2 project area. Known prehistoric midden sites in the project vicinity are primarily located on the Lake Pontchartrain shoreline and along natural levee deposits adjacent to bayou and river environments to the west and south. Due to recent geologic development of the Mississippi delta, the earliest known archaeological sites in the region date to the Poverty Point period (1700 – 500 B.C.). Similarly, historic period sites in the greater New Orleans Metropolitan area, including forts, plantations, farmsteads, residential and commercial areas, and industrial and lake port facilities were initially located on relatively high natural levee areas adjacent to the Mississippi River, the lake front, and along smaller waterways such as Bayou St. John. Later development occurred in drained backswamp and land-filled locations. Historic period watercraft are recorded in Lake Pontchartrain as well as bayou and river channels in the region. The following reports, summarized below, provide specific historical information on the IER # 2 project area (Heller et al. 2007, New World Research, Inc. 1983, Weinstein 1980).

Three previous cultural resources investigations have been conducted in the IER # 2 project area. In the first study by Coastal Environments, Inc., researchers examined a proposed levee closure location at the intersection of the Parish Line Canal and Interstate 10 (Weinstein 1980). No cultural resources were identified. In the second study, archaeologists conducted a cultural resources survey of the Lake Pontchartrain and Vicinity Hurricane Protection Project, which included a terrestrial survey of the proposed project corridor and an off-shore survey of two proposed borrow pit locations (New World Research 1983). Segment E of this investigation generally corresponds to IER # 2, although the survey only covered a 36-foot wide area on either side of the levee. No cultural resources were identified.

In the third study, the CEMVN contracted R. Christopher Goodwin and Associates, Inc. to conduct a cultural resources investigation of the entire IER # 2 project area. The study covered the entire length of the alignment within an area measuring 1,000 ft on the flooded side and 500 ft on the

protected side of the floodwall/levee center line. In addition, a remote sensing survey was conducted from the mouth of the Parish Line Canal 1,250 ft north into Lake Pontchartrain. Researchers evaluated the results of the previous cultural resources investigations including those noted above, along with soil data and field reconnaissance information. Sixteen land parcels exhibiting a high potential for cultural resources were identified – 14 on the Jefferson Parish side and two on the St. Charles Parish side of the canal (Heller et al. 2007). Subsequent to the identification of these high probability areas, the CEMVN determined that proposed IER # 2 construction activities would be within the existing authorized project ROW except for nine land parcels in Jefferson Parish that would be combined to create five staging areas. The remaining five Jefferson Parish parcels are located outside of the existing authorized project ROW and would not be impacted by proposed construction.

Phase 1b field investigations were conducted at the five proposed Jefferson Parish staging areas and two St. Charles Parish high probability areas. No cultural resources were identified during these investigations. Researchers found that extensive disturbance was apparent throughout the study area on the Jefferson Parish side of the floodwall. Subsurface deposits were impacted by lot grading, residential development, floodwall construction, and canal excavation. Phase 1b investigations within the two high probability areas on the St. Charles Parish side of the Parish Line Canal found no indication of cultural resources. This work confirmed that the potential for cultural resources in the flat, low-lying, often flooded bayou/swamp areas throughout the project area on the St. Charles Parish side of the canal was extremely minimal.

Initial evaluations determined that the residential structures in the study area are relatively modern and would not be considered eligible for listing on the National Register of Historic Places. The analysis of remote sensing data indicates there are no submerged targets exhibiting cultural resources characteristics in the study area. No further cultural resources investigations are recommended for the IER # 2 project area.

The CEMVN held meetings with State Historic Preservation Office staff and Tribal governments to discuss the emergency alternative arrangements approved for NEPA project review and the development of a Programmatic Agreement (PA) to tailor the Section 106 consultation process under the alternative arrangements. The CEMVN formally initiated Section 106 consultation for the Lake Pontchartrain and Vicinity Hurricane Protection Project (100-year), which includes IER # 2, in a letter dated 9 April, 2007 and emphasized that standard Section 106 consultation procedures would be followed during PA development. A public meeting was held on 18 July 2007 to discuss the working draft PA. It is anticipated that the PA will be executed in the near future.

In letters to the State Historic Preservation Officer (SHPO) and Indian Tribes dated 7 January 2008, the CEMVN provided project documentation, an evaluation of cultural resources potential in the project area, and the results of Phase 1 investigations, and found that the proposed action would have no impact on cultural resources. The SHPO concurred with the CEMVN's "no historic properties affected" finding in a letter dated 15 February 2008. The Mississippi Band of Choctaw Indians, Tunic-Biloxi Tribe of Louisiana, and the Choctaw Nation of Oklahoma concurred with the effect determination in an email dated 15 January 2008 and letters dated 9 January 2008 and 15 January 2008, respectively. No other Indian Tribes responded to the requests for comment. Section 106 consultation for the proposed project actions is concluded. However, if any unrecorded cultural

resources are determined to exist within the proposed project boundaries, then no work would proceed in the area containing these cultural resources until a CEMVN archaeologist has been notified and final coordination with the SHPO and Indian Tribes has been completed. The following discussion of impacts is based on the information summarized above.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Under the no-action alternative, all proposed activities associated with raising the existing floodwall up to the originally authorized grade or replacing a substandard floodwall with a new T-wall would be conducted within the existing authorized project ROW and would have no direct, indirect, or cumulative impacts on significant cultural resources. The existing project ROW has been subjected to severe ground disturbing activities associated with previous floodwall construction and canal excavation. Recent research has shown that the likelihood for intact and undisturbed cultural resources in the existing project ROW is extremely minimal.

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

Based on the review of state records, previous cultural resources studies, and the results of recent reconnaissance and Phase 1 cultural resources investigations in the project area, implementation of the proposed action would have no direct impact on cultural resources. Recent field investigations conducted in high probability areas found no cultural resources and confirmed that severe ground disturbing activities associated with previous floodwall construction, canal excavation, and residential development severely limits the potential for intact and undisturbed cultural resources in the project area. The flood-side portion of the project area is situated in a low-lying, flat, often flooded swamp area where the likelihood for intact and undisturbed cultural resources is considered extremely minimal.

Indirect Impacts

Implementation of the proposed action would provide an added level of flood protection to known and unknown cultural resources located on the protected side of the floodwall by reducing the damage caused by flood events.

Cumulative Impacts

Implementation of the proposed action would have beneficial cumulative impacts on cultural resources in the New Orleans Metropolitan area. This proposed action is part of the ongoing federal effort to reduce the threat to property posed by flooding. The combined effects from

construction of the multiple projects underway and planned for the Lake Pontchartrain Hurricane Protection System would reduce flood risk and storm damage to archaeological sites, individual historic properties, engineering structures and historic districts.

Alternative 1- New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Potential direct, indirect, and cumulative impacts to cultural resources from alternative 1 at LPV 03a and 03c would be essentially the same as those described for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct, Indirect, and Cumulative Impacts

Potential direct, indirect, and cumulative impacts to cultural resources from LPV 13 would be essentially the same as those described for the proposed action at LPV 03a and 03c.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Potential direct, indirect, and cumulative impacts to cultural resources from alternative 1 at LPV 13 would be essentially the same as those described for the proposed action.

3.2.10 Recreational Resources

Existing Conditions

Lake Pontchartrain and surrounding wetlands provide habitat for freshwater and marine fish. Fishing occurs in the lake and surrounding waters near the project area. Additionally, active recreation use of the east side of the levee occurs year-round. A paved walking path runs parallel to the levee on its east side, 50 - 60 ft from the levee wall and extends from Lake Pontchartrain approximately 2.5 miles to the Parish Line Canal Pump Station. Both active and passive recreational use occurs in the green space on the east side of the existing alignment.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Under this condition, there would be no activities involving construction or modification of the existing floodwalls beyond what is currently authorized for the GNOHSDRRS. Effects on

recreational fishing in Lake Pontchartrain or use of the walking path would not differ substantially from what was described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c West Return Floodwall

Proposed Action

Direct Impacts

The proposed action would not have direct impacts on recreational resources with the exception of the dredging in Lake Pontchartrain that could be required for access to the Parish Line Canal by barge and the resulting effect this would have on fishing.

Dredging could cause increased turbidity, which may immediately reduce water quality in Lake Pontchartrain near the project area. Recreational fishing could be temporarily restricted in the project area during construction of the project. The impacts of dredging, material delivery, and construction would occur primarily during the construction period of 2 to 2.5 years, with some effects potentially lasting for up to several months following construction.

The walking path would likely not be available for use during construction and could be damaged by heavy equipment if the protected side is used for material transport. However, the path could be restored by local government following completion of construction activities.

Indirect Impacts

Potential indirect impacts from the proposed action would primarily consist of effects on recreational fishing from increased turbidity to the canal, wetland, and lake areas surrounding the project area. These impacts would be reduced because construction-related runoff into the lake would be managed through best management techniques.

A positive impact from the proposed action would be the creation of a larger green space on the east side of the new alignment. The additional green space would be available for active and passive recreational use.

Cumulative Impacts

Potential cumulative impacts to recreation from the proposed action would involve the combined effects to the lake from the multiple LPV flood control projects in the New Orleans area, which could temporarily affect recreational fishing. The actions impacting the lake would be primarily short-term. Several proposed or recently approved wetland restoration projects would positively impact the aquatic habitat within Lake Pontchartrain.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

Under this alternative, lake dredging would be required, so recreation fishing impacts would be similar to those discussed for the proposed action. Recreational use of the walking path on the east side of the current alignment could, at a minimum, be temporarily disrupted during construction activities. Depending on the area of impact from construction of a new wall in the current alignment, the walking path, which is about 50 – 60 feet from the existing levee wall, could be completely removed or damaged by heavy equipment. However, the path could be restored by the local government following completion of construction activities.

Indirect and Cumulative Impacts

The indirect and cumulative impacts for this alternative for LPV 03a and 03c would be very similar to those for the proposed action.

LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

Direct impacts from this action would occur to recreational resources. Bank fishing in the lake would be impacted in this reach during construction of the proposed action. Additionally, lake dredging could be required, which would have impacts to recreational fishing. Another direct impact would be to the walking path, which is a few feet from the existing wall alignment in this reach. Construction activities under the proposed action would impact the path and could be temporary or more permanent depending on the extent of impact on the area. However, the path could be restored by the local government following completion of construction activities.

Indirect and Cumulative Impacts

The indirect and cumulative impacts for the proposed action for LPV 13 would be similar to those for the proposed action at LPV 03a and 03c.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

Under this alternative, the existing floodwall and gate would be demolished and a new T-wall and gate would be constructed along the existing alignment. The primary impacts from these activities would be related to demolition and construction. Construction access by barge would require lake dredging, which would have adverse impacts on recreational fishing similar to those discussed for the proposed action at LPV 03a and 03c. Additionally, the walking path located a few feet from the levee wall could be either permanently or temporarily impacted from

construction of the new wall. However, the path could be restored by the local government following completion of construction activities.

Indirect and Cumulative Impacts

The indirect and cumulative impacts for this alternative for LPV 13 would be similar to those for the proposed action at LPV 03a and 03c.

3.2.11 Aesthetic (Visual) Resources

Existing Conditions

The project corridor includes the Jefferson Parish shoreline along the Parish Line Canal, a portion of the canal within St. Charles Parish, and a short portion of the Jefferson Parish shoreline along Lake Pontchartrain immediately east of the Parish Line Canal. The Jefferson Parish shorelines within the project area are currently bordered by concrete floodwalls on the protected side and armored with riprap along the flood side. The Parish Line Canal is not a natural feature, but was created through dredging within this portion of the LaBranche Wetlands. The LaBranche Wetlands are a large expanse of wetlands that vary from open water, swamp and emergent marsh and are undeveloped along the western portion of the project area. The protected side of the project area within Jefferson Parish has been significantly modified from its natural state by heavy residential and commercial development, the construction of levees, floodwalls and gates, pumping stations, and breakwaters and the installation of rip-rap as foreshore protection. I-10 and its associated facilities cross the southern portion of the project area and the Louis Armstrong New Orleans International Airport represents the southern boundary of the project area.

The visual resources of the area are limited by the height of the current floodwalls. The landward view from the shoreline is dominated by the concrete wall at the water's edge. The existing floodwall was designed with an architectural treatment to the floodwall concrete. Architectural treatment of floodwalls consists of textured concrete in a designed pattern. The protected side's floodwall also exhibits a sheet-pile patch in the area near Vintage Drive as the result of Hurricane Katrina related damage, which visually contrasts with the original architecturally, treated floodwall. The protected side of the floodwalls is planted with grass that blends with the landscaping of adjacent developed areas and is mowed regularly. Inland from the floodwalls, the land area is developed. Adjacent areas are primarily single-family residential buildings. The floodwall system partially obscures views of the wetlands and lake from the low-lying protected areas, in particular from buildings that are not multi-story.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Without implementation of the proposed action impacts on aesthetic resources within the project area would occur if any currently authorized work on the floodwalls occurred. This could involve modification of the existing wall within the current alignment to the currently authorized heights.

LPV 03a and 03c West Return Floodwall and LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct, Indirect, and Cumulative Impacts

Replacing the existing floodwall 35 ft west of the existing floodwall, raising the elevations of the replacement T-wall, and construction of a breakwater and wave berms with flood side armoring could have adverse effects on aesthetic resources. In the short term, the visual attributes of the project corridor would be temporarily impacted by construction activities at the project site and by transport activities needed to move equipment and materials to and from the site. Over the long-term, floodwall structure would be similar in design and scale to the existing conditions. The major differences would be the addition of the wave berms and the breakwater. The berms would have an elevation of +4.5 ft to +2.5 ft NAVD88, and would unlikely adversely affect the aesthetics of the area, although the rock armoring on the flood side berm would change the visual character of the floodwall corridor. However, the breakwater would have a footprint expanding approximately 100 ft at a +19.5 ft elevation and would not be replacing an already existing man-made structure, as the other construction under this proposed action would. However, the breakwater would be located near the I-10 bridge, which is an already existing and significant man-made element that detracts from the aesthetic value of the project area (LPV 03c).

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Alternative actions have been identified for the LPV 03a and 03c West Return Floodwall and the LPV 13 Recurve I-Wall. These alternatives would include the same type of construction described under the proposed action; however, the construction would occur in the exact location of the existing floodwall, rather than 35 ft west of the current alignment. Future conditions with alternative 1 for these reaches would be similar to those described for the proposed action.

3.2.12 Air Quality

Existing Conditions

The USEPA, under the requirements of the Clean Air Act of 1963 (CAA), has established National Ambient Air Quality Standards (NAAQS) for seven contaminants, referred to as criteria pollutants (40 CFR 50). These are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). The NAAQS standards include primary and secondary standards. The primary standards were established at levels sufficient to protect public health with an adequate margin of safety. The secondary standards were established to protect the public welfare from the adverse effects associated with pollutants in the ambient air. The primary and secondary standards are presented in table 6.

Table 6
National Ambient Air Quality Standards

Pollutant and Averaging Time	Primary Standard		Secondary Standard	
	micrograms per cubic meters ($\mu g/m^3$)	parts per million (ppm)	$\mu g/m^3$	ppm
Carbon Monoxide				
8-hour concentration	10,000[1]	9[1]	-	
1-hour concentration	40,000[1]	35[1]	-	
Nitrogen Dioxide				
Annual Arithmetic Mean	100	0.053	Same as primary	
Ozone				
8-hour concentration	147	0.075[2]	Same as primary	
Particulate Matter				
$PM_{2.5}$:				
Annual Arithmetic Mean	15[3]	-	Same as primary	
24-hour Maximum	35[4]	-		
PM_{10}:				
24-hour concentration	150[1]	-		
Lead				
Quarterly Arithmetic Mean	1.5	-	Same as primary	
Sulfur Dioxide				
Annual Arithmetic Mean	80	0.03	-	-
24-hour concentration	365[1]	0.14[1]	-	-
3-hour concentration	-	-	1300[1]	0.50[1]

Notes:
[1] Not to be exceeded more than once per year.
[2] 3-year average of the fourth highest daily maximum 8-hour concentration must not exceed 0.075 ppm, effective as of May 27, 2008.
[3] Based on 3-year average of annual averages.
[4] Based on 3-year average of annual 98th percentile values.
Source: 40 CFR 50.

National Ambient Air Quality Standard Attainment Status

Areas that meet the NAAQS for a criteria pollutant are designated as being "in attainment;" areas where a criteria pollutant level exceeds the NAAQS are designated as being "in nonattainment." The proposed floodwall demolition and floodwall and breakwater construction activities would occur in Jefferson Parish and St. Charles Parish, Louisiana, an area that is currently designated as in attainment for all criteria pollutants. Therefore, further requirements required by the CAA, general conformity rule (Section 176(c)) would not apply for the proposed federal action.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

There would be no adverse direct, indirect, or cumulative impacts to air quality within the project area under the no-action alternative beyond what was described in the Final EIS for the LPV Hurricane Protection Project (August 1974) and its supplements (Final Supplement I [July 1984] and Final Supplement II [August 1994]).

LPV 03a and 03c – West Return Floodwall and LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

During the construction of the proposed action, increases in air emissions along the levee/flood wall alignment area could be expected during the demolition and construction years. These emissions could include: 1) exhaust emissions from operations of material delivery/dump trucks and various types of non-road construction equipment such as loaders, excavators, cranes, etc. and 2) fugitive dust due to earth disturbance. These emissions would be from mobile sources for which emissions performance standards are applicable to source manufacturers and they are not regulated under the CAA air permit regulations. Therefore, it is not necessary to quantify these emissions given the lack of ambient emissions thresholds that could be used to make the determination of air quality impact significance from these mobile sources.

The principal air quality concern associated with the proposed activities is emission of fugitive dust near demolition and construction areas. The on-road trucks and private autos used to access the work area could also contribute to construction phase air pollution in the project neighborhood when traveling along local roads.

However, site-specific construction effects are temporary and dust emissions could be controlled using standard best management practices. For instance, application of water to control dust and periodic street sweeping and/or wetting down of paved surfaces could aid in preventing fugitive dust from becoming airborne. Construction activities related to the proposed action would not

all occur at once, but would occur in increments through the estimated construction period. Construction activities would be similar to those activities that have already occurred in the area since Hurricane Katrina. Subsequent impacts after the construction period are not anticipated.

Indirect Impacts

There would be no adverse indirect impacts to air quality within the project area under the proposed action.

Cumulative Impacts

It would be assumed that other activities creating dust emissions and occurring within the vicinity of IER # 2 would be using standard best management practices. For instance, application of water to control dust and periodic street sweeping and/or wetting down of paved surfaces would aid in preventing fugitive dust from becoming airborne. Construction activities occurring during and within the vicinity of IER # 2 would unlikely all occur at once, but would occur in increments through the estimated construction period. Construction activities would be similar to those activities that have already occurred in the area since Hurricane Katrina. Therefore, cumulative impacts to air quality in the project area due to the proposed action and other construction activities within the area that may be occurring concurrently would be temporary. After the construction period, there would be no incremental contribution to cumulative air quality impacts due to the proposed action.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

The direct, indirect, and cumulative, impacts to air quality under the alternative actions would be the same as those described under the proposed action.

3.2.13 Noise

<u>Existing Conditions</u>

Noise is generally described as unwanted sound, which can be based either on objective effects (hearing loss, damage to structures, etc.) or subjective judgments (such as community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise metric recommended by the USEPA and has been adopted by most federal agencies (USEPA 1974). A DNL of 65 weighted decibels (dBA) is the level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like construction. Areas exposed to a DNL above 65 dBA are generally not considered suitable

for residential use. A DNL of 55 dBA was identified by USEPA as a level below which there is no adverse impact (USEPA 1974).

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA louder than the same level of noise during the day. This perception is largely because background environmental sound levels at night in most areas are also about 10 dBA lower than those during the day.

Noise levels surrounding the project area are variable depending on the time of day and climatic conditions. Land use in this part of the Jefferson Parish East Bank is predominantly single-family residential, with some multi-family, commercial, and institutional/government development. Non-residential land uses are concentrated near the southern end of the project area near the Louis Armstrong New Orleans International Airport and I-10.

Discussion of Impacts

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Under the no-action alternative, noise receptors near the project corridor would not experience additional construction-related noise beyond that associated with activities required to bring the existing floodwalls to the currently authorized heights or replace substandard floodwall with new T-wall. Therefore, there would be no direct, indirect, or cumulative impacts beyond those associated with the previously authorized actions.

LPV 03a and 03c – West Return Floodwall and LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

Table 7 describes noise emission levels for construction equipment expected to be used during the proposed construction activities. As can be seen from this table, the anticipated noise levels at 50 ft range from 76 dBA to 101 dBA based on data from the Federal Highway Administration [FHWA] (2006).

Assuming the worst case scenario of 101 dBA, as would be the case during the construction of floodwalls along the project corridor, all areas within 1,000 ft of the project corridor would experience noise levels exceeding 65 dBA. The use of pile drivers and other high-level noise sources would likely be limited to daylight hours, which would reduce the adverse impact of noise on surrounding land uses.

The construction activities are expected to create temporary noise impacts above 65 dBA to sensitive receptors within 1,000 ft of the project corridor. The opportunities for noise mitigation are limited because much of the construction activity would occur at floodwall locations close to residential areas. However, noise emission from construction activities on the flood-side would be attenuated to some degree by the existing floodwall. In addition to noise created by construction equipment, there would also be impacts from noise generated by construction vehicles and personal vehicles for laborers that could use public roads and highways for access to constructions sites. Following construction, noise levels would return to existing conditions.

Indirect Impacts

Indirect impacts from noise may be those related to avoidance of the area by wildlife, residents, traffic, fishermen and emotional and mental stress that could result from the noise levels in the area during construction. Most of these impacts, with the exception of the emotional and mental stress, are discussed in other sections of this document corresponding to the resource being impacted by the construction related noise levels. Emotional and mental stresses from increased noise levels are difficult to assess and are out of the scope of this document. However, it is reasonable to assume that the emotional and mental stress created by noise levels would be compensated by the relief from the hurricane protection provided by the project.

Table 7
Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances[1]

Noise Source	50 ft	100 ft	200 ft	500 ft	1000 ft
Crane	81	75	69	61	55
Dump Truck	76	70	64	56	50
Compactor/Roller	83	77	71	63	57
Tractor	84	78	72	64	58
Excavator	81	75	69	61	55
Front end loader	79	73	67	59	53
Concrete mixer / pump truck	79	73	67	59	53
Dozer	82	76	70	62	56
Pile driver	101	95	89	81	75

1. The dBA at 50 ft is a measured noise emission. The 100-to 1,000-foot results are modeled estimates.
Source: FHWA 2006.

Cumulative Impacts

Noise resulting from ongoing and planned construction activities in the IER # 2 project area as a result of GNOHSDRRS projects and rebuilding and restoration following Hurricanes Katrina and Rita would not likely cause levels in the project area to surpass the maximum levels of noise described above under the direct impacts. However, concurrent projects would likely extend the amount of time people are exposed to the increased noise levels resulting from construction

activities. Efforts would be made to mitigate cumulative noise impacts to receptors (residents within 1,000 ft of construction) by limiting construction equipment operation to between the working hours of 6 am to 5 pm.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Future conditions under the alternative actions would be similar to those described under the proposed action.

3.2.14 Transportation

Existing Conditions

The project lies on the border of Jefferson and St. Charles Parishes, running from the southern shore of Lake Pontchartrain towards the Mississippi River to the Louis Armstrong New Orleans International Airport. The Jefferson Parish side of the project is fully developed with residential land uses north of I-10, and light industrial land use at and south of I-10. The St. Charles side of the project is marshlands, which has no development. Western Jefferson Parish is densely developed with residential, commercial, and light to medium industrial land uses. The Bonnet Carré Spillway lies to the west of the project area. To the east, the Port of New Orleans is one of the world's busiest ports with many transportation modes intersecting: river and sea vessels, rail, and highway. To the northwest is Baton Rouge—the state capital and second largest city in Louisiana. Baton Rouge is a major traffic generator to the west of the project area. The Louis Armstrong New Orleans International Airport south of the project area is the primary commercial airport for the New Orleans Metropolitan area and southeast Louisiana. The Mississippi River is south of the airport.

I-10 is the only major east-west highway that crosses this area. I-10 is a multi-lane divided freeway. It connects the New Orleans Metropolitan area with Baton Rouge. In addition, along with I-610 to the east, I-10 is a major east-west route along the northern Gulf Coast. U.S. 61 is a multi-lane highway that has either limited or no control of access. It is functionally classified as a "principal arterial" in Jefferson Parish. U.S. 61 runs parallel to I-10; it primarily serves local travel, while I-10 serves regional travel. Interstate 310 (I-310) provides regional access to the west side of the Mississippi River. Other principal arterials in the project's vicinity are U.S. 90 to the south along the Mississippi River, Causeway Boulevard (4 to 6-lane median-divided urban expressway), Veterans Memorial Boulevard, Clearview Parkway, and Williams Boulevard (6-lane median-divided urban street). Minor arterials in the project's vicinity are Esplanade Avenue, Loyola Drive (6-lane median-divided urban street), Vintage Drive (4-lane median-divided urban street), Power Boulevard, and Bonnabel Boulevard (4-lane median-divided urban street). All along the project area are local streets (Louisiana Department of Transportation and Development [LADOTD] 2006).

There are several rail lines in the project vicinity. There is a major rail line that runs parallel to I-10 in St. Charles Parish, and then runs along U.S. 61 in Jefferson Parish. There are several rail

spurs in the area. There are several dock facilities on the East Bank of the Mississippi River that are capable of handling ocean vessels.

Operational conditions on a highway can be described with "level-of-service" (LOS). LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. The "Highway Capacity Manual" (Transportation Research Board [TRB] 2000) defines six LOS, designating each level with the letters A to F. LOS "A" represents the best operating condition, and LOS "F" represents the worst operating condition. LOS "C" or "D" is generally considered acceptable. Heavy trucks adversely affect the LOS of a highway. "Heavy trucks" are vehicles that have more than four tires touching the pavement. Heavy vehicles adversely affect traffic in two ways: (1) they are larger than passenger cars and occupy more roadway space; and (2) they have poorer operating capabilities than passenger cars, particularly in respect to acceleration, deceleration, and the ability to maintain speed on grades. The second impact is more critical. The inability of heavy vehicles to keep pace with passenger cars in many situations creates large gaps in the traffic stream, which are difficult to fill by passing maneuvers. The resulting inefficiencies in the use of roadway space cannot be completely overcome.

The most recent traffic volumes available from the Louisiana Department of Transportation and Development are from 2005 (LADOTD 2007). At most of the traffic count stations in Jefferson Parish east of the Mississippi River, the 2005 traffic counts are lower than prior years. This traffic reduction is probably due to the population shifts caused by Hurricanes Katrina and Rita (2005). Most of the project lies north of I-10. There is only one traffic count station north of I-10—on Williams Boulevard between I-10 and Esplanade Avenue. The 2005 average daily traffic (ADT) on I-10 ranged between 128,000 and 140,000 vehicles per day (vpd). The 2005 ADT on Williams Boulevard was 48,000 vpd.

Based on field observations, the LOS on highways and street in the project area is very poor during morning, noon, and evening peak hours, while vehicles are able to travel at the posted speed limits during off-peak times. The area does have a large amount of truck traffic due to nearby shipping and manufacturing industries. In addition, additional truck traffic exists due to rebuilding efforts from the destruction caused by Hurricane Katrina. In Jefferson Parish from 2002 through 2006, there were 11 fatalities involving large trucks. In 2006, there were 3 fatalities involving a large truck—a rate of 0.70 fatalities per 100,000 people, which ranks the parish 41 in the state (1 being the highest rate of fatalities) (National Highway Traffic Safety Administration [NHTSA] 2007).

Future Conditions with No-Action

Direct, Indirect, and Cumulative Impacts

Under the no-action alternative, transportation facilities near the project corridor would not experience additional construction-related effects beyond that associated with activities required to bring the existing floodwalls to the currently authorized heights or replace substandard floodwall with new T-wall. Therefore, there would be no direct, indirect, or cumulative adverse

impacts to transportation facilities within the project area beyond those associated with the previously authorized actions.

LPV 03a and 03c West Return Floodwall and LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

Truck access to the project site would be via I-10 to Loyola Drive to either Veterans Memorial Boulevard, West Esplanade Avenue, or Vintage Drive. In addition, barges could be used during construction and would access the project area via Lake Pontchartrain to the Parish Line Canal. Concrete would likely be transported to the site via mixing truck and pumped on-site. Steel sheet piling and H-piling would likely be shipped by rail into the metropolitan area from the manufacturer. The materials would be shipped via railways and transloaded to barges at a terminal, then transported to the project site. Riprap would likely be shipped by barge to the project site.

It is estimated there would be 12,087 truckloads of concrete delivered to the project site over the life of the project. The peak frequency is expected to be six truckloads per hour. The peak frequency is based on the assumptions of:

- Project life of 2.25 years
- 260 workdays per year
- 8-hour workdays
- Delivery of concrete is 50 percent of the project time
- 12-cubic yard concrete trucks

The LOS involving concrete trucks on the major roads in the project's vicinity cannot be predicted, because there is no existing traffic count data in the project vicinity for these predictions. Relative LOS impacts can be predicted by looking at the impact of Williams Boulevard, where a 2005 traffic count resulted in 48,000 vehicles per day. Assuming the peak hour traffic is 10 percent of the ADT equals 4,800; 60 percent of the vehicles going the peak direction equals 2,880; and 5 percent trucks equals 144; the existing LOS is "C". Six additional trucks does not change the LOS.

Local streets would be used to access work sites from the arterials and collectors. These access roads (e.g., work site access, staging areas) used by the trucks could experience substantial changes in their LOS. It should be noted that without a detailed transportation routing plan, a more detailed impact evaluation to the LOS of minor highways and roads cannot be done.

Indirect Impacts

Heavy trucks are the primary loading source of pavement degradation. The additional truck traffic would contribute to additional wear-and-tear of pavement on the area arterials and local streets.

Cumulative Impacts

As discussed above, additional wear-and-tear of pavement on roads within the project's vicinity could occur due to increased truck traffic under the proposed action. On-going construction related to other reconstruction projects in the project vicinity could also contribute to the increase of truck traffic and could, therefore, increase the wear-and-tear on the pavement of the roads.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

Direct, indirect, and cumulative impacts under the alternative actions would be similar to those described under the proposed action.

3.3 SOCIOECONOMIC RESOURCES

The focus of IER # 2 is to evaluate the relative socioeconomic impacts, if any, of construction activities associated with modifying the currently authorized hurricane protection project on the border of Jefferson and St. Charles parishes so that the 100-year level of protection is achieved. The currently authorized alignment that is the subject of IER # 2 extends along the entirety of the Jefferson/St. Charles return levee floodwall. However, the alignment is an integral part of a larger one that extends from the Bonnet Carre Floodway to the Jefferson/Orleans parish line at the lakefront. The area protected constitutes an interconnected hydrologic unit. IERs # 1 and # 3 address socioeconomic impacts associated with other constituent parts of the alignment. The focus of socioeconomic resources is to describe in general terms the area protected and to identify socioeconomic impacts on land use, population, and employment associated with construction activities within the scope of IER # 2.

Existing Conditions

The project area is located at the western edge of Jefferson Parish, adjacent to the Jefferson Parish and St. Charles Parish boundary line, extending from immediately north of the Louis Armstrong New Orleans International Airport to the southern shore of Lake Pontchartrain. Land use in this part of the Jefferson Parish East Bank is predominantly single-family residential, with some multi-family, industrial, and institutional/government development. Non-residential land uses are located almost exclusively in the southern part of the project area. Starting from the south they include industrial uses (such as a large auto salvage operation) between the airport and I-10, a municipal wastewater treatment plant immediately north of I-10, and the Parish Line Canal Pump Station. North of the pump station, the project area is entirely residential with the exception of a recreational facility south of West Esplanade Ave. and a church adjacent to the canal approximately one-half mile south of the Lake Pontchartrain shoreline. A pedestrian/bicycle path runs parallel to the existing floodwall, on the protected side, from immediately north of the Parish Line Canal Pump Station to the lake shoreline, where it connects with the linear park running along the lake shoreline.

Directly across the Parish Line Canal from the project area, in St. Charles Parish, is the LaBranche wetlands. It is an undeveloped area consisting of cypress swamp in the southern portion and marshes and shallow open water ponds farther north, crossed by man-made drainage-ways. This is an unprotected area located on the north side of the LaBranche Wetlands Levee; that levee system is addressed in IER # 1.

I-10 crosses Jefferson Parish in an east-west direction, parallel to and approximately 2 miles south of the Lake Pontchartrain shoreline. The highway passes through the southern portion of the project area, approximately 0.7 miles north of Louis Armstrong New Orleans International Airport, continuing to the west across the Parish Line Canal into St. Charles Parish. Access to the project area is provided via Loyola Drive (running north-south), Veterans Memorial Blvd., West Esplanade Ave., and Vintage Dr. (all running east-west), and numerous local streets.

Jefferson Parish encompassed 306.5 mi^2 of land plus 336 mi^2 of water in the year 2000 (U.S. Census Bureau [USCB] 2007a). With a population of 455,466 reported in the 2000 Census, the parish had a population density of 1,484 persons per square mile, compared to 103 persons per square mile for the state of Louisiana (USCB 2007b). The parish population is almost equally divided between the East and West Banks. A total of 257,501 residents in the Jefferson Parish East Bank (based on the 2000 Census) were protected by the Lake Pontchartrain and Vicinity Hurricane Protection Project, as authorized (USACE 2006b). The population had declined slightly to an estimated 452,824 in July 2005 (prior to Hurricane Katrina). Following Katrina, the population declined further to an estimated 431,361 in July 2006, which represents a 5.3 percent decrease from 2000 (USCB 2006 and 2007b).

According to the 2000 Census, 69.8 percent of the population of Jefferson Parish was white, 22.9 percent was African American, and the remaining 7.3 percent was primarily Asian, “some other race”, and persons identified as two or more races. The median household income was $38,435 and approximately 13.7 percent of individuals residing in Jefferson Parish were identified as living below the federal poverty level (USCB 2007c). In 2004, the median household income had declined slightly to $38,234 while persons below the poverty level increased to 16.5 percent, compared to $35,216 and 19.2 percent for Louisiana (USCB 2007b).

Jefferson Parish is included in the New Orleans-Metairie-Kenner, Louisiana Metropolitan Statistical Area. Between 2000 and 2004, employment in Jefferson Parish declined slightly from 214,647 to 213,303 representing a decrease of 0.6 percent. In 2005, employment declined by 6.9 percent to 198,491. In 2004 and 2005, retail trade represented the largest sector of employment followed by health care/social assistance, accommodation/food services, and manufacturing (Louisiana Department of Labor [LDOL] 2002, 2005, 2006). In 2006, the annual average unemployment rate in Jefferson Parish was 5.0 percent, which is higher than the annual average unemployment rate of 4.0 percent for Louisiana (LDOL 2007).

Discussion of Impacts

Future Conditions with No-Action

Direct Impacts

Under this alternative, there would be no activities involving construction or modification of the existing floodwalls beyond what is currently authorized for the GNOHSDRRS. This could present an increased risk of storm-related flooding in the low-lying portions of the area and the associated damage to buildings and infrastructure, disruption of economic activity, and displacement of residents. Costs could be incurred for such items as evacuation, clean-up, debris removal, building and infrastructure repair, damaged vehicles, and reoccupation of homes and businesses.

Indirect Impacts

The no-action alternative is anticipated to have an adverse impact on the number of businesses and industries, land use patterns, employment, and population levels in the Jefferson Parish area. Without implementation of the proposed action, the flood protection necessary for recovery and economic prosperity in the parish would not be provided.

Cumulative Impacts

The no-action alternative could contribute to adverse cumulative impacts on socioeconomic resources in the New Orleans Metropolitan area. Without improvement of the West Return Floodwall Jefferson flood protection system, there could be a gap in the GNOHSDRRS for 100-year level of protection that could leave parts of Jefferson Parish more vulnerable to flooding and the associated damage to buildings and infrastructure, disruption of economic activity, and displacement of residents.

LPV 03a and 03c West Return Floodwall and LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

Replacement of the existing floodwalls with a new T-wall alignment approximately 35 ft to the west (LPV 03a and LPV 13) and replacement of the existing gate closure (LPV 13) would take place on the flood side of the existing floodwalls, as would construction of the breakwater at the I-10 bridge (LPV 03c). Therefore, land use would not be directly affected by the construction activities associated with the proposed action. However, the proposed action would provide 100-year level of flood protection for the area within the Jefferson Parish East Bank protected area. This would allow for the Federal Emergency Management Agency (FEMA) certification of that level of protection, and would have a beneficial impact on social and economic resources in Jefferson Parish East Bank.

There would be short-term beneficial economic impacts from construction activities associated with the proposed action, including purchase of materials, equipment, and services and a temporary increase in employment and income. This increase could be local or regional, depending on where the goods, services, and workers are obtained.

Indirect Impacts

Following completion of the proposed action, land use patterns in Jefferson Parish East Bank would not be expected to change since raising the West Return Floodwall and Recurve I-Wall to the 100-year level of flood protection would not encourage one type of land use over another. However, the potential exists for an increase in the rate of urban development, given the increased protection from flooding provided by the raised levees. Additionally, the proposed action would allow for FEMA certification of the 100-year level of protection. A reduction in insurance rates and the potential costs resulting from flood damage could be expected after the proposed action is complete. Population and long-term employment and income levels in Jefferson Parish would be expected to increase if the raised levees stimulated growth in urban development in the protected area. Although the proposed action would reduce but not eliminate the risk of flooding, it would still have a beneficial impact on population and long-term employment and income levels in the parish.

Cumulative Impacts

The proposed action would have beneficial cumulative impacts on socioeconomic resources in the New Orleans Metropolitan area. It is part of the ongoing federal effort to reduce the threat to life, health, and property posed by flooding. The combined effects from construction of the multiple projects underway and planned to rebuild the GNOHSDRRS in the area would reduce flood risk and storm damage to residences, businesses, and other infrastructure from storm-induced and tidally-driven flood events and, thereby, encourage recovery. All segments of the Jefferson East Bank GNOHSDRRS need to be brought to 100-year level of protection in order to obtain FEMA certification of the system.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct Impacts

The direct beneficial impacts on socioeconomic resources and land use from alternative 1 for the West Return Floodwall and Recurve I-Wall would be essentially the same as those described for the proposed action. Although this alternative would provide the same (100-year) level of flood protection as the proposed action, demolition of the existing line of protection would have to occur prior to construction of the new walls and there would be a period of time when no protection would be in place (i.e., between demolition of the existing floodwalls and completion of the replacement floodwalls). This could have a short term adverse impact on the recovery process in Jefferson Parish East Bank.

Indirect Impacts

Potential indirect impacts on socioeconomic resources and land use from alternative 1 for the West Return Floodwall and Recurve I-Wall would be essentially the same as those described for the proposed action.

Cumulative Impacts

Potential cumulative impacts on socioeconomic resources and land use from alternative 1 for the West Return Floodwall and Recurve I-Wall would be essentially the same as those described for the proposed action.

3.4 ENVIRONMENTAL JUSTICE

The USEPA defines EJ [environmental justice] as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, local, and tribal programs and policies." Meaningful involvement means that people have an opportunity to participate in decisions about activities that may affect their environment and/or health; the public's contribution can influence the regulatory agency's decision; their concerns will be considered in the decision making process; and the decision makers seek out and facilitate the involvement of those potentially affected. The goal of this "fair treatment" is not to shift risks among populations, but to identify potential disproportionately high or adverse effects and identify alternatives that may mitigate these impacts.

This environmental justice analysis identifies and addresses, as appropriate, potential disproportionate adverse human health and/or environmental effects of the proposed action on minority and/or low-income populations. The methodology to accomplish this includes identifying low-income and minority populations within the study area. Census block group statistics from the 2000 US Census (the latest and most detailed census) and Environmental Systems Research Institute (ESRI), Incorporated, estimates were utilized for data analysis. In addition, community meetings targeted at minority and low-income populations have and will continue to take place throughout the planning process.

Detailed discussion of demographic and income data, along with pertinent maps, tables and photographs are available by request, and will be included in the CED [Comprehensive Environment Document].

Existing Conditions

Based on the 2000 US Census, the population in the vicinity of the project area (i.e., located within 1 mile from the IER # 2 proposed action footprint) was 44 percent minority, while 15 percent of the population was living below the poverty line. This is comparable to Jefferson Parish and Louisiana, whose minority percentages were 34.6 percent and 37.5 percent, and

whose poverty rates were 13.7 percent and 19.6 percent, respectively. The 2007 ESRI, Inc. estimates for race and income do not show a significant change from 2000. According to these estimates, the proposed project area has slightly increased its minority percentage, but likely remains below 50 percent. The changes in income level increased in an unknown amount from 2000 to 2007.

By examining data by census block group, and comparing that information to aerial satellite imagery provided by Google, it appears there are no low-income or minority communities directly adjacent to the proposed project footprint.

Discussion of Impacts

The proposed actions and alternatives were evaluated for potential disproportionately high environmental effects on minority or low-income populations. Aerial photos were utilized to confirm the presence of habitation in the project area, and are utilized in EJ analysis.

Future Conditions with No Action

Under this alternative, there would be no activities involving construction or modification of the existing floodwalls beyond what is currently authorized for the GNOHSDRRS. Areas in low-income and minority communities subject to flooding would continue to be threatened by flooding under the no action alternative.

LPV 03a and 03c – West Return Floodwall and LPV 13 – Recurve I-Wall Northwest of Kenner

Proposed Action

Direct Impacts

The footprints of all proposed alternatives are not directly located in or near low-income or minority communities, and the project would not have a disproportionate impact on low-income or minority communities.

Indirect Impacts

Minority and low-income communities are located in the project area. The project would not have a disproportionate impact on low-income or minority communities.

Cumulative Impacts

Cumulative environmental justice impacts will be discussed in the Cumulative Environmental Document at the conclusion of small neighborhood focus meetings.

Alternative 1 – New Wall Design Placed along the Current Alignment

Direct, Indirect, and Cumulative Impacts

The direct, indirect, and cumulative EJ impacts for the alternative actions would be the same as those described under the proposed action.

3.5 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

Under ER 1165-2-132 the reasonable identification and evaluation of Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within a proposed area of construction is required. ER 1165-2-132 identifies the CEMVN HTRW policy to avoid the use of project funds for HTRW removal and remediation activities. Costs for necessary special handling or remediation of wastes (e.g., Resource Conservation and Recovery Act [RCRA] regulated), pollutants, and other contaminants, which are not regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), will be treated as project costs if the requirement is the result of a validly promulgated federal, state or local regulation.

An American Society for Testing and Materials (ASTM) E 1527-05 Phase I Environmental Site Assessment was completed for the project area. A copy of the Phase I Environmental Site Assessment will be maintained on file at the CEMVN office in New Orleans. The Phase I Environmental Site Assessment documented the Recognized Environmental Conditions (REC)s for the project area. If a REC cannot be avoided, due to the necessity of construction requirements, the CEMVN may further investigate the REC; to confirm presence or absence of contaminants, to take actions to avoid possible contaminants, and to determine if local, state or federal coordination is required.

RECs based on database review and site history of adjoining properties were not identified for the West Return Levee (IER # 2). Site reconnaissance indicated an abandoned drum on the unprotected (canal) side of the levee. On the protected side of levee, there was evidence of dumping, old tires, and abandoned vehicles.

Because the CEMVN plans to avoid RECs, the probability of encountering HTRW in the project area is low. If avoidance is not possible, then the CEMVN would contract for removal of the waste materials, characterization and disposal of drums and containers (with soil sampling near any drums that are rusted or open and may have leaked), and removal of the vehicles, with soil sampling to ensure there has been no contamination from spills or leaks from the vehicles.

4.0 CUMULATIVE IMPACTS

NEPA requires a federal agency to consider not only the direct and indirect impacts of a proposed action, but also the cumulative impacts of the action. A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and 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. Cumulative impacts were addressed for each alternative and resource in the preceding sections.

As indicated previously, in addition to this IER, the CEMVN is preparing a draft CED that will describe the work completed and the work remaining to be constructed. The purpose of the draft CED will be to document the work completed by the USACE on a system-wide scale. The draft CED will describe the integration of individual IERs into a systematic planning effort. Overall cumulative impacts, a finalized mitigation plan, and future operations and maintenance requirements will also be included. The discussion provided below describes an overview of other actions, projects, and occurrences that may contribute to the cumulative impacts previously discussed.

Rebuilding efforts as a result of Hurricane Katrina are taking place throughout southeast Louisiana, and along the Mississippi and Alabama Gulf Coast. The Insurance Information Institute (III) has estimated that the total insured losses from Hurricane Katrina were $40.6 billion in six states, and in Louisiana the insured losses are estimated at $25.3 billion (III 2007); much of those insured losses would be a component of the regional rebuilding effort. Although the full extent of construction in Jefferson Parish and throughout the Gulf Coast over the next 5 to 10 years is unknown, a large-scale rebuilding effort is underway.

Federal hurricane protection for the greater New Orleans area is referred to as the GNOHSDRRS and is divided into three USACE authorized projects: 1) LPV; 2) West Bank and Vicinity; and 3) New Orleans to Venice. The New Orleans to Venice and the West Bank and Vicinity projects are not discussed in this IER because their alignments are not located within the project region and with the exception of some positive cumulative impacts to socioeconomics, these projects would not greatly increase cumulative impacts. The various projects that make up the LPV projects have resulted in the construction of 125 miles of levees, concrete floodwalls, and other structures.

In addition to on-going construction in association with raising floodwall and levee elevations to authorized levels within various reaches of the LPV project, the CEMVN is planning to raise levees, floodwalls, and floodgates, and to construct new structures within all reaches of the LPV to provide 100-year level of flood protection. All of these 100-year level of flood protection projects are currently in the planning and design stages and impacts from these component projects would be addressed in separate IERs. These projects all occur within the greater New Orleans area, within the Lake Pontchartrain Basin, and within the designated coastal zone for Louisiana, so these projects are considered collectively (as appropriate) for the evaluation of cumulative impacts. Table 8 provides a summary of the cumulative impacts to be mitigated for the GNOHSDRRS projects completed (draft or final) to date. In addition to the impacts shown in table 8, approximately 170.5 acres of impacts, requiring mitigation, would occur as part of projects for the Mississippi River Levee.

The CEMVN and other federal agencies participate in coastal restoration projects through the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). These are specific prioritized restoration projects implemented coast-wide by the Louisiana Department of Natural Resources (LDNR), Coastal Restoration Division in cooperation with federal agencies. Within

the Lake Pontchartrain Basin, there are 16 projects proposed or constructed under CWPPRA designed to restore, enhance, or build marsh habitat and prevent erosion of marsh habitat. The projects involve numerous protection and restoration methods, including rock armored shoreline breakwaters, dredged material marsh construction, marsh terracing and planting, fresh water and sediment diversion projects, and modification or management of existing structures. Collectively these projects are expected to significantly reduce the continued loss of wetlands within coastal Louisiana.

The Water Resources Development Act of 2007 (WRDA 07) became law in November 2007. This bill authorized several additional projects and studies in the general area of the IER #2 project area. The majority of these projects or studies still require specific appropriations. These additional projects could contribute to resource impacts, either adversely or with long-term positive impacts. These projects include the LPV and the West Bank and Vicinity GNOHSDRRS projects to raise protection levels to 100-year levels, as well as coastal restoration projects, Morganza-to-the-Gulf hurricane protection, hurricane protection in Jean Lafitte and lower Jefferson Parish, a study of coastal area damage that could be attributable to the USACE, the de-authorization of the MRGO, an EIS for the IHNC lock, and the formation of a Coastal Louisiana Ecosystem Protection and Restoration Task Force (Alpert 2007). The WRDA does not guarantee financing of these projects, but does allow Congress to allocate money for them in future spending bills (Alpert 2007). All of these projects are in the general area of the IER # 2 project area and could contribute to resource impacts. Although some of them could contribute to adverse impacts for some of the resources, several of them would have long-term positive impacts.

Table 8: GNOHSDRRS Impacts and Compensatory Mitigation to be Completed											
IER	**Parish**		**Non-wet BLH (acres)**	**Non-wet BLH AAHUs**	**BLH (acres)**	**BLH AAHUs**	**Swamp (acres)**	**Swamp AAHUs**	**Marsh (acres)**	**Marsh AAHUs**	**EFH (acres)**
1 LPV, LaBranche Wetlands Levee	St. Charles	Protected Side	-	-	-	-	137	74	-	-	-
		Flood Side	-	-	11	8	144	111	-	-	-
2 LPV, West Return Floodwall	St. Charles, Jefferson	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	33	9	33
3 LPV, Lakefront Levee	Jefferson	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	26
15 WBV, Lake Cataouatche Levee	Jefferson	Protected Side	-	-	24	6	-	-	-	-	-
		Flood Side	-	-	4	1	-	-	-	-	-
18 GFBM	Jefferson, Plaquemines, St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
18 GFBM	Orleans	Protected Side	226	69	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
18 GFBM	St. Bernard	Protected Side	74	44	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
19 CFBM	Hancock County, MS; Iberville; Orleans; Plaquemines; St. Bernard	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
19 CFBM	Jefferson	Protected Side	7*	N/A	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
22 GFBM	Jefferson	Protected Side	158	90	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
22 GFBM	Plaquemines	Protected Side	87	29	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
23 CFBM	Hancock County, MS; Plaquemines; St. Bernard; St. Charles	Protected Side	-	-	-	-	-	-	-	-	-
		Flood Side	-	-	-	-	-	-	-	-	-
Totals		Protected Side	552	232	24	6	137	74	-	-	-
		Flood Side	-	-	15	9	177	120	-	-	26
		Both	552	232	39	15	314	194	-	-	26

* Impacts not related to Federal action – already mitigated for through the 404 program (Section 404 of the Clean Water Act [33 USC 1344]).
- Not applicable to the IER or number impacted is 0.
AAHU – average annual habitat unit, BLH – bottomland hardwood, CFBM - Contractor Furnished Borrow Material, GFBM - Government Furnished Borrow Material

The proposed action would have cumulative beneficial impacts on socioeconomic resources in the New Orleans Metropolitan area. It is part of the ongoing federal effort to reduce the threat to life, health, and property posed by flooding. The LPV project would be improved to provide additional hurricane, storm, and flood damage protection, reducing the threat of inundation of infrastructure due to severe tropical storm events. The combined effects from construction of the multiple projects underway and planned to rebuild the GNOHSDRRS in the area would reduce flood risk and storm damage to residences, businesses, and other infrastructure from storm-induced and tidally-driven flood events and, thereby, encourage recovery. Providing 100-year level of protection within all reaches of the LPV allows for FEMA certification of that level of protection. Improved hurricane, storm, and flood damage protection would benefit all residents, regardless of income or race, increase confidence, reduce insurance rates, and allow for development and redevelopment of existing urban areas.

5.0 SELECTION RATIONALE

The proposed action for the LPV 03a and 03c West Return Floodwall and the LPV 13 Recurve I-Wall in Northwest Kenner consists of replacing the existing floodwalls with a new T-wall and replacing an existing gate in an alignment approximately 35 ft to the west, along the east embankment of the Parish Line Canal and the shoreline of Lake Pontchartrain near the mouth of the canal. The new T-wall would be constructed to an elevation of 17.5 ft NAVD88 north of I-10 and 16.5 ft south of I-10. At the I-10 bridge, the new T-wall would be approximately 13.5 ft in elevation, and a rock breakwater would be constructed. The sill elevation of the new gate would be at 10 ft and the top of the gate would be at 17.5 ft NAVD88. The proposed action was selected because it provides adequate structural measures to meet the 100-year level of flood protection for Jefferson Parish, does not disturb existing residential or commercial development, and would be possible within the time constraints and technology available, while minimizing adverse impacts to natural resources such as wetlands, fisheries, wildlife, and threatened or endangered species and maximizing beneficial impacts to socioeconomic resources.

In addition, there were a number of engineering and/or construction issues that impacted the selection rationale. The disadvantage of the no-action alternative is that it would not result in the desired 100-year level of flood protection for Jefferson Parish. Although alternative 1 – New Wall Design Placed along the Current Alignment (the one alternative evaluated in detail in this IER) is a viable alternative for LPV 03a and 03c and LPV 13, it would have disadvantages that make it less desirable than the preferred alternative (proposed action). The two primary disadvantages of this alternative are: 1) construction would have to be conducted around underground pilings from the existing floodwall, and 2) demolition of the existing line of protection would have to occur prior to the construction of the new walls leaving the parish vulnerable to flooding during construction.

6.0 COORDINATION AND CONSULTATION

6.1 PUBLIC INVOLVEMENT

Extensive public involvement has been sought in preparing this IER. The projects analyzed in this IER were publicly disclosed and described in the Federal Register on 13 March 2007 and on the website www.nolaenvironmental.gov. Scoping for this project was initiated on 12 March 2007 by placing advertisements and public notices in *USA Today* and *The New Orleans Times-Picayune*. Nine public scoping meetings were held throughout the New Orleans metropolitan area between 27 March and 12 April 2007 to explain the scope and process of the Alternative Arrangements for implementing NEPA, after which a 30-day scoping period was open for public comment submission. Additionally, the CEMVN is hosting monthly public meetings to keep the stakeholders advised of project status. Specific public meetings discussing IER #2 were held on 7 June 2007; 26 July 2007; 27 September 2007; 6 December 2007; 28 February 2008; and 9 April 2008. The public was able to provide verbal comments during the meetings and written comments after each meeting in person, by mail, and via www.nolaenvironmental.gov.

The draft IER was made available for a 30-day public review and comment period. The document was posted on www.nolaenvironmental.gov. A notice of availability was mailed/e-mailed to interested parties advising them of the availability of the draft IER for review. Additionally, a notice was placed in national and local newspapers. Upon completion of the 30-day review period, all comments were compiled and appropriately addressed. Upon resolution of comments received, this final IER was prepared, signed by the District Commander, and made available to any stakeholders requesting a copy.

6.2 AGENCY COORDINATION

Preparation of this IER has been coordinated with appropriate Congressional, federal, state, and local interests, as well as environmental groups and other interested parties. An interagency environmental team was established for this project in which federal and state agency staff played an integral part in the project planning and alternative analysis phases of the project (members of this team are listed in appendix C). This interagency environmental team was integrated with the CEMVN PDT to assist in the planning of this project and to complete a mitigation determination of the potential direct and indirect impacts of the proposed action. Monthly meetings with resource agencies were also held concerning this and other IER projects. The following agencies, as well as other interested parties, received copies of the draft IER:

- U.S. Department of the Interior, Fish and Wildlife Service
- U.S. Department of the Interior, National Park Service
- U.S. Environmental Protection Agency, Region VI
- U.S. Department of Commerce, NOAA National Marine Fisheries Service
- U.S. Natural Resources Conservation Service
- Governor's Executive Assistant for Coastal Activities
- Louisiana Department of Wildlife and Fisheries
- Louisiana Department of Natural Resources, Coastal Management Division

- Louisiana Department of Natural Resources, Coastal Restoration Division
- Louisiana Department of Environmental Quality
- Louisiana State Historic Preservation Officer

The USFWS reviewed the proposed action to see if it would affect any threatened or endangered species or their critical habitat. In a letter dated 5 May 2008, the USFWS concurred with the CEMVN that the proposed action would not have adverse impacts on threatened or endangered species (appendix D).

NMFS was sent the CEMVN's determination of the effects that the proposed action would have on threatened and endangered (T&E) species on 16 April 2008 and on EFH on 2 May 2008. No T&E species under NMFS jurisdiction or their critical habitat would be significantly adversely affected by construction of the proposed action. NMFS concurred with this conclusion in a letter on 5 June 2008. Permanent removal of EFH would be mitigated by the creation of higher quality fish habitat through the placement of the breakwater and rock foreshore protection and through mitigation of wetland habitat.

The LDNR reviewed the proposed action for consistency with the Louisiana Coastal Resource Program (LCRP). The proposed action was found to be consistent with the LCRP, as per a letter dated 23 May 2008 (appendix D).

Section 106 of the National Historic Preservation Act (NHPA), as amended, requires consultation with the Louisiana SHPO and Native American tribes. Eleven federally recognized tribes that have an interest in the region were given the opportunity to review the proposed action. The SHPO concurred with the CEMVN "no historic properties affected" finding in a letter dated 15 February 2008 and the Mississippi Band of Choctaw Indians, Tunic-Biloxi Tribe of Louisiana, and the Choctaw Nation of Oklahoma concurred with the effect determination in an email dated 15 January 2008 and letters dated 9 January 2008 and 15 January 2008, respectively (appendix D). No other Indian tribes responded to the requests for comment.

Coordination with the USFWS on the Alternative Arrangements process was initiated by letter on 13 March 2007 and concluded on 6 August 2007. A final Fish and Wildlife Coordination Act Report (CAR) was provided by the USFWS on 15 July 2008. The CAR concluded that the USFWS does not object to the construction of the proposed project provided that fish and wildlife conservation recommendations are implemented concurrently with project implementation. This report is discussed in more detail in the following section and a copy of the CAR is provided in appendix D.

The USFWS' programmatic recommendations applicable to this project will be incorporated into project design studies to the extent practicable, consistent with engineering and public safety requirements. The USFWS' programmatic recommendations, and the CEMVN's response to them, are listed below:

> Recommendation 1: To the greatest extent possible, situate flood protection so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized.

CEMVN Response 1: The project will utilize the authorized level of protection footprint and minimize impacts to wetlands.

Recommendation 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.

CEMVN Response 2: This recommendation will be considered in the design of the project to the greatest extent practicable.

Recommendation 3: Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design project features and timing of construction.

CEMVN Response 3: Concur. These issues are addressed in Chapter 3.2.4 of the IER.

Recommendation 4: Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.

CEMVN Response 4: This recommendation will be considered in the design of the project to the greatest extent practicable.

Recommendation 5: The project's first Project Cooperation Agreement (or similar document) should include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation features.

CEMVN Response 5: Corps Project Partnering Agreements (PPA) do not contain language mandating the availability of funds for specific project features, but require the non-Federal Sponsor to provide certification of sufficient funding for the entire project. Further, mitigation components are considered a feature of the entire project. The non-Federal Sponsor is responsible for Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) of all project features in accordance with the OMRR&R manual that the Corps provides upon completion of the project.

Recommendation 6: 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 USFWS, NMFS, LDWF, USEPA, and LDNR. The USFWS shall be provided an opportunity to review and submit recommendations on all the work addressed in those reports.

CEMVN Response 6: Concur.

Recommendation 7: The CEMVN should avoid impacts to public lands, if feasible. If not feasible, the CEMVN should establish and continue coordination with agencies managing public lands that may be impacted by a project feature until construction of that feature is complete and prior to any subsequent maintenance. Points of contacts for the agencies overseeing public lands potentially impacted by project features are: Kenneth Litzenberger, Project Leader for the USFWS' Southeast National Wildlife Refuges, and Jack Bohannan (985) 822-2000, Refuge Manager for the Bayou Sauvage National Wildlife Refuge (NWR), Office of State Parks contact Mr. John Lavin at 1-888-677-1400, National Park Service (NPS) contact Superintendent David Luchsinger, (504) 589-3882, extension 137 (david_luchsinger@nps.gov), or Chief of Resource Management David Muth (504) 589-3882, extension 128 (david_muth@nps.gov) and for the 404(c) area contact the previously mentioned NPS personnel and Ms. Barbara Keeler (214) 665-6698 with the USEPA.

CEMVN Response 7: Concur.

Recommendation 8: If applicable, a General Plan should be developed by the CEMVN, the USFWS, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.

CEMVN Response 8: Concur.

Recommendation 9: If mitigation lands are purchased for inclusion within an NWR, those lands must meet certain requirements; a summary of some of those requirements is provided in Appendix A (to the draft Fish and Wildlife Coordination Act Report.) Other land-managing natural resource agencies may have similar requirements that must be met prior to accepting mitigation lands; therefore, if they are proposed as a manager of a mitigation site, they should be contacted early in the planning phase regarding such requirements.

CEMVN Response 9: Concur.

Recommendation 10: If a proposed project feature is changed significantly or is not implemented within one year of the date of the Endangered Species Act consultation letter, the USFWS recommended that the Corps reinitiate coordination to ensure that the proposed project would not adversely affect any federally-listed threatened or endangered species or their habitat.

CEMVN Response 10: Concur.

Recommendation 11: In general, larger and more numerous openings in a protection levee better maintain estuarine-dependent fishery migration. Therefore, as many openings as practicable, in number, size, and diversity of locations should be incorporated into project levees.

CEMVN Response 11: This recommendation will be considered in the design of the project to the greatest extent practicable. However, the project primarily addresses modifications in the height the floodwall system, not the construction of new levees.

Recommendation 12: Flood protection water control structures in any watercourse should maintain pre-project cross-sections in width and depth to the maximum extent practicable, especially structures located in tidal passes.

CEMVN Response 12: Acknowledged.

Recommendation 13: Flood protection water control structures should remain completely open except during storm events. Management of those structures should be developed in coordination with the USFWS, NMFS, LDWF, and LDNR.

CEMVN Response 13: Acknowledged.

Recommendation 14: Any flood protection water control structure sited in canals, bayous, or a navigation channel which does not maintain the pre-project cross-section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.

CEMVN Response 14: This recommendation will be considered in the design of the project to the greatest extent practicable.

Recommendation 15: The number and siting of openings in flood protection levees should be optimized to minimize the migratory distance from the opening to enclosed wetland habitats.

CEMVN Response 15: Not applicable.

Recommendation 16: Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered.

CEMVN Response 16: Not applicable.

Recommendation 17: To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 ft per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.

CEMVN Response 17: Not applicable.

Recommendation 18: To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts selected should maintain sufficient flow to prevent siltation.

CEMVN Response 18: Concur.

Recommendation 19: Culverts should be installed in construction access roads unless otherwise recommended by the natural resource agencies. At a minimum, there should be one 24-inch culvert placed every 500 ft and one at natural stream crossings. If the depth of water crossings allow, larger-sized culverts should be used. Culvert spacing should be optimized on a case-by-case basis. A culvert may be necessary if the road is less than 500 ft long and an area would hydrologically be isolated without that culvert.

CEMVN Response 19: Concur.

Recommendation 20: Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.

CEMVN Response 20: Acknowledged.

Recommendation 21: Levee alignments and water control structure alternatives should be selected to avoid the need for fishery organisms to pass through multiple structures (i.e., structures behind structures) to access an area.

CEMVN Response 21: Not applicable. Project area does not include the utilization of multiple structures.

Recommendation 22: Operational plans for water control structures should be developed to maximize the cross-sectional area open for as long as possible. Operations to maximize freshwater retention or redirect freshwater flows could be considered if hydraulic modeling demonstrates that is possible and such actions are recommended by the natural resource agencies.

CEMVN Response 22: Not applicable.

Recommendation 23: The CEMVN shall fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.

CEMVN Response 23: Concur.

Recommendation 24: 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 CEMVN shall

provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.

CEMVN Response 24: Construction of the project features are cost shared between the Government and the non-Federal sponsor. However, costs for operation, maintenance, repair, replacement, and rehabilitation will be the responsibility of the non-Federal sponsor.

Recommendation 25: Any proposed change in mitigation features or plans should be coordinated in advance with the USFWS, NMFS, LDWF, USEPA, and LDNR.

CEMVN Response 25: Mitigation for the impacts caused by this project will be coordinated through a mitigation IER. Any material changes to the mitigation plan in this IER would be coordinated in advance.

Recommendation 26: A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the CEMVN, USFWS, NMFS, USEPA, LDNR, and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

CEMVN Response 26: Concur.

The USFWS project-specific recommendations for the IER # 2 proposed action are listed below. Each recommendation is followed by the CEMVN response.

Recommendation 1: The Corps and local sponsor shall provide 9 average annual habitat units (AAHUs) to compensate for the unavoidable, project-related loss of intermediate marsh. The Service, NMFS, LDWF, and LDNR should be consulted regarding the adequacy of any proposed alternative mitigation sites.

CEMVN Response 1: Concur.

Recommendation 2: The Service recommends that any impacts to marsh should be avoided or minimized to the greatest extent practicable.

CEMVN Response 2: Concur.

Recommendation 3: The Service recommends backfilling all access channels in Lake Pontchartrain after construction is complete. In order to have sufficient material to backfill the access channels and minimize turbidity in the lake, the Service also recommends the use of silt curtains.

CEMVN Response 3: Concur that all access channels will be backfilled. Silt curtains will be used to contain material in the stockpile site if deemed effective and maintainable at the time of construction.

Recommendation 4: Avoid adverse impacts to wading bird colonies through careful design project features and timing of construction. In addition, the Service recommends that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season.

CEMVN Response 4: Concur.

Recommendation 5: The Service shall be provided an opportunity to review and submit recommendations on the draft plans and specifications for all floodwalls, gates, associated berms and breakwater work addressed in this report.

CEMVN Response 5: Concur.

Recommendation 6: Any proposed change in breakwaters, floodwalls, or gate structure features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

CEMVN Response 6: Concur.

Recommendation 7: The project's first Project Cooperation Agreement (or similar document) shall include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation features.

CEMVN Response 7: Corps PPAs do not contain language mandating the availability of funds for specific project features, but require the non-Federal Sponsor to provide certification of sufficient funding for the entire project. Further, mitigation components are considered a feature of the entire project. The non-Federal Sponsor is responsible for OMRR&R of all project features in accordance with the OMRR&R manual that the Corps provides upon completion of the project

Recommendation 8: Coordination should continue with the Service and the NMFS on detailed contract specifications to avoid and minimize potential impacts to manatees, Gulf sturgeon, and bald eagles.

CEMVN Response 8: Concur.

Recommendation 9: If the proposed project has not been constructed within 1 year or if changes are made to the proposed project, the Corps should re-initiate Endangered Species Act consultation with the Service to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.

CEMVN Response 9: Concur.

7.0 MITIGATION

Quantitative analysis utilizing existing methodologies for water resource planning has identified the acreages and habitat types affected by the direct or indirect impacts of implementing the proposed action. Although the proposed action was selected because it would minimize impacts to the surrounding environment, it is anticipated that approximately 92 acres of wetland, canal, and lake habitat could be impacted at least temporarily, but only about 33 acres of wetland and canal would be permanently impacted.

Best management practices would be used to reduce sediment loading to the surface waters of Lake Pontchartrain, the Parish Line Canal, and wetland areas and could reduce effects on water quality and aquatic life, specifically EFH. Other temporary impacts to the lake bottom that may result from dredging to provide access to the shoreline for delivery of fill and riprap could be limited by accessing areas by land when feasible. Dredging pathways would avoid SAV, emergent vegetation, and any areas known to have higher levels of sediment contamination. Permanent removal of EFH would be mitigated by the creation of higher quality fish habitat through the placement of the breakwater and rock foreshore protection and through mitigation of wetland habitat.

A habitat evaluation was conducted by the USFWS using habitat assessment models developed by the state of Louisiana (LCWCRTF 2006) for all reaches evaluated in this IER. The wetland value assessment (WVA) was conducted independently of this IER to determine the changes in fish and wildlife habitat that would be projected to occur as a result of the proposed action. The WVA identifies the quality and quantity of available habitat for fish and wildlife species that utilize wetland communities under existing conditions, and it predicts the future suitability of the habitat for such species under conditions without the project (proposed action) and with the project.

The evaluation was performed for two habitats within the project area, emergent brackish marsh and open water. The USFWS identified approximately 33 acres of marsh and open water habitat, between the current floodwall and the canal, for assessment in the WVA. The results of the evaluation are expressed in habitat units (HUs), representing the acreage and quality of the habitat. HUs were derived by multiplying the number of acres of a particular habitat times the habitat suitability index (HSI) representing the quality of that habitat. The HSI is based on seven different variables that address both site-specific habitat quality features and how a site fits into the overall "landscape." HUs were calculated for the two scenarios (without project and with the project) from the current time to 50 years into the future, the assumed life of the proposed action (USFWS 2007g).

The HUs were summed to determine the total number of HUs gained or lost without the project and as a result of the proposed action. These cumulative HU values were then divided by the life of the action (50 years) to determine the average annual habitat unit (AAHU) value. Finally, in order to obtain an estimate of the impact of the proposed action on the fish and wildlife habitat, the AAHU value for the future with the project was subtracted from the AAHU value for the future without the project. A positive AAHU indicates that the proposed action would result in

an increase in the "value" of the wetland habitat, while a negative result indicates that the proposed action would result in a decrease in the wetland habitat "value."

The results of the WVA indicate that the impact on wetlands from the proposed action would decrease the wetland habitat value of open water and emergent brackish marsh habitat in the project area. Open water habitat would have a net change in AAHUs of -5.4 and emergent brackish marsh habitat would have a net change in AAHUs of -10.6 if the proposed project were constructed. The total loss of habitat would be 9 AAHUs. These AAHUs will be used to adequately mitigate the loss of these habitats due to the proposed action. The draft USFWS Coordination Act Report for the IER # 2 project, which contains a discussion of the WVA, is included in appendix D of this document**.**

Mitigation for unavoidable impacts to the human and natural environment described in this and other IERs will be addressed in separate mitigation IERs. The CEMVN has partnered with federal and state resource agencies to form an interagency mitigation team that is working to assess and verify these impacts, and to look for potential mitigation sites in the appropriate hydrologic basin. This effort is occurring concurrently with the IER planning process in an effort to complete mitigation work and construct mitigation projects expeditiously. As with the planning process of all other IERs, the public will have the opportunity to give input about the proposed work. These mitigation IERs will, as described in section 1 of this IER, be available for a 30-day public review and comment period.

These forthcoming mitigation IERs will implement compensatory mitigation as early as possible. All mitigation activities would be consistent with standards and policies established in the Clean Water Act Section 404 and the appropriate USACE policies and regulations governing this activity.

8.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Construction of the proposed action would not commence until the proposed action achieves environmental compliance with all applicable laws and regulations, as described below.

Environmental compliance for the proposed action will be achieved upon coordination of this IER with appropriate agencies, organizations, and individuals for their review and comments; the USFWS and NMFS confirmation that the proposed action would not be likely to adversely affect any endangered or threatened species or completion of ESA section 7 consultation; LDNR concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program; receipt of a Water Quality Certificate from the state of Louisiana; public review of the Section 404(b)(1) Public Notice and signature of the Section 404(b)(1) Evaluation; coordination with the Louisiana SHPO; receipt and acceptance or resolution of all Fish and Wildlife Coordination Act recommendations; receipt and acceptance or resolution of all LDEQ comments on the air quality impact analysis documented in the IER; and receipt and acceptance or resolution of all EFH recommendations.

9.0 CONCLUSIONS

9.1 FINAL DECISION

The proposed action for the LPV 03a and 03c West Return Floodwall and the LPV 13 Recurve I-Wall in Northwest Kenner consists of replacing the existing floodwalls with a new T-wall alignment approximately 35 ft to the west, along the east embankment of the Parish Line Canal and the shoreline of Lake Pontchartrain near the mouth of the canal. The new T-wall would be constructed to an elevation of 17.5 ft north of I-10 and 16.5 ft south of I-10. At the I-10 bridge, the new T-wall would be approximately 13.5 ft in elevation, and a rock breakwater would be constructed. Staging areas would be required for the materials used in construction, and a channel would likely be dredged in Lake Pontchartrain and the Parish Line Canal to provide barge access to the project area. Staging areas and channel access would be placed in areas that minimize impacts to sensitive habitats.

The CEMVN has assessed the environmental impacts of the proposed action and has determined that the proposed action would have the following impacts:

Lake Pontchartrain

- LPV 03a and 03c (Jefferson Parish Western Return Floodwall) – No permanent loss of lake habitat, 39 acres of lake bottom for the access channel and the dredged material stockpiles would be temporarily impacted.
- LPV 13 (Recurve I-Wall North of Kenner) – No habitat loss.

Parish Line Canal

- LPV 03a and 03c (Jefferson Parish Western Return Floodwall) – Approximately 16 acres of canal would be lost to hard fill (to be mitigated with 9 AAHUs of marsh habitat), 20 acres of canal bottom temporarily impacted for the access channel and the dredged material stockpiles.
- LPV 13 (Recurve I-Wall North of Kenner) – No direct impacts to the canal from this alternative.

Wetlands

- LPV 03a and 03c – Approximately17 acres of fragmented wetland habitat would be lost to hard fill (to be mitigated with 9 AAHUs of marsh habitat).
- LPV 13 – No habitat loss.

Fisheries

- LPV 03a and 03c – Temporary dredging- and construction-related impacts from disturbance of aquatic habitat in lake and canal. Up to 59 acres of open-water bottom (lake and canal) could be temporarily impacted, and an additional 33 acres of canal and marsh could be permanently lost (to be mitigated with 9 AAHUs of marsh habitat).

- LPV 13 – Temporary dredging-related impacts from disturbance of lake bottom.

EFH

- LPV 03a and 03c – Temporary dredging-related impacts could affect up to 59 acres of soft bottom EFH (lake and canal), and an additional 33 acres of potential EFH habitat (canal and marsh) could be lost to hard fill (to be mitigated with 9 AAHUs of marsh habitat).
- LPV 13 – Limited and temporary dredging related impacts.

Wildlife

- LPV 03a and 03c – Reduction in shoreline wetland habitat, utilized primarily by avian species, and temporary impacts to wildlife within the vicinity of the project area during construction.
- LPV 13 – Temporary impacts to wildlife within the vicinity of the project area during construction.

Endangered or Threatened Species

- LPV 03a and 03c and LPV 13 – Unlikely to have an adverse effect.

Cultural Resources

- LPV 03a and 03c and LPV 13 – None.

Recreation

- LPV 03a and 03c and LPV 13 – Temporary construction-related impacts to fish habitat would reduce recreational fishing opportunities.
- LPV 03a and 03c and LPV 13 – Long-term and short-term impacts to the walking/biking path from construction-related activities would reduce associated recreational opportunities.

Aesthetic (Visual) Resources

- LPV 03a and 03c and LPV 13 – Temporary impact from construction activities at the project site and permanent impact from the addition of man-made feature (the breakwater) to the shoreline near the I-10 bridge.

Air Quality

- LPV 03a and 03c and LPV 13 – Temporary construction-related effects including vehicle and equipment exhaust as well as dust emissions.

Noise

- LPV 03a and 03c and LPV 13 – Temporary impacts to receptors within 1,000 ft of the project area during construction.

Transportation

- LPV 03a and 03c and LPV 13 – Worker and truck traffic resulting from the project would temporarily impact traffic on highways and local roads within the vicinity of the project area.

Socioeconomic Resources

- LPV 03a and 03c and LPV 13 – Beneficial impacts to population, land use, and employment due to heightened flood protection and construction-related employment.

Environmental Justice

- LPV 03a and 03c and LPV 13 – No disproportionate impact on low-income or minority residents.

9.2 PREPARED BY

The point of contact for this IER is Elizabeth Behrens, USACE, New Orleans District CEMVN-PM-RS. Table 9 lists the preparers of relevant sections of this report. Ms. Behrens can be reached at the U.S. Army Corps of Engineers, New Orleans District, Protection and Restoration Office, P.O. Box 60267, 7400 Leake Avenue, New Orleans, Louisiana 70118.

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APPENDIX A

LIST OF ABBREVIATIONS AND ACRONYMS

$\mu g/m^3$	micrograms per cubic meter
AAHU	average annual habitat unit
ADT	average daily traffic
ASTM	American Society for Testing and Materials
°C	degree Celsius
CAA	Clean Air Act
CAR	Coordination Act Report
CED	Comprehensive Environmental Document
CEMVN	Corps of Engineers, Mississippi Valley Division, New Orleans District
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
cy	cubic yard
dB	decibel
dBA	A-weighted decibel
DDT	dichloro-diphenyl-trichloroethane
DNL	day-night average sound level
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
ER	Engineering Regulation
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
°F	degree Fahrenheit
ft	feet
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMC	Fishery Management Council
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
GMFMC	Gulf of Mexico Fishery Management Council
GNOHSDRRS	Greater New Orleans Hurricane and Storm Damage Risk Reduction System
HPS	Hurricane Protection System
HSI	habitat suitability index
HTRW	hazardous, toxic, and radioactive waste
HU	habitat unit
I-10	Interstate 10
I-310	Interstate 310
IER	Individual Environmental Report

IHNC	Inner Harbor Navigation Canal
III	Insurance Information Institute
IPCC	Intergovernmental Panel on Climate Change
LADOTD	Louisiana Department of Transportation and Development
LCRP	Louisiana Coastal Resource Program
LCWCRTF	Louisiana Coastal Wetlands Conservation and Restoration Task Force
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDOL	Louisiana Department of Labor
lft	linear feet
LNHP	Louisiana Natural Heritage Program
LDWF	Louisiana Department of Wildlife and Fisheries
LOS	level of service
LPV	Lake Pontchartrain and Vicinity
mi^2	square mile
mph	miles per hour
MRGO	Mississippi River Gulf Outlet
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standard
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic and Safety Administration
NMFS	National Marine Fisheries Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NWUS	Navigable Waters of the United States
O_3	ozone
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
PA	Programmatic Agreement
Pb	lead
PDT	Project Delivery Team
PL	Public Law
PM	particulate matter
PPA	Project Partnering Agreements
ppm	parts per million
ppt	parts per thousand
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
ROD	Record of Decision
ROW	right-of-way
SAV	submerged aquatic vegetation
SHPO	State Historic Preservation Officer
SIR	Supplemental Information Report

SO_2	sulfur dioxide
sq ft	square feet
STWAVE	steady-state spectral wave
T&E	threatened and endangered
TRB	Transportation Research Board
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
vlf	volume per linear foot
vpd	vehicles per day
WCRA	Wetlands Conservation and Restoration Authority
WRDA	Water Resources Development Act
WVA	wetland value assessment

APPENDIX B

PUBLIC COMMENTS

Coastal Environments , Incorporated

Services:

Applied Science & Planning

Environmental Restoration & Monitoring

Cultural Resources Management

Geographic Information Systems

Litigation Support

Website:

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Madisonville, LA 70447
Ph/F (985) 845-2879
mgagliano@coastalenv.com

July 9, 2008

Mr. Gib Owen, PM-RS
Project Management
U. S. Army Corps of Engineers
7400 Leake Avenue
New Orleans, LA 70118

(504) 862-1337

RE: Draft Individual Environmental Report LPV, West Return Floodwall Jefferson; Jefferson and St. Charles Parish, LA, IER #2 (draft report)

Dear Mr. Owen:

On behalf of St. Charles Land Syndicate (SCLS) and St. Charles Airline Lands, Inc. (SCALI) landowners in the LaBranche area of St. Charles Parish, Coastal Environments, Inc. respectfully submits the following comments regarding the aforementioned project.

Figure 6 (pg 13) in the draft report depicts the proposed breakwater as appearing to close the Parish Line Canal at its proposed crossing location just north of the westbound lanes of I-10. We are requesting that the breakwater be located, planned/engineered, constructed, and armored as to tie into existing or new spoil in order to prevent wash-around conditions from occurring. Failure to take this consideration into account will most likely result in conditions that contribute to the erosion, loss, and/or degradation of existing land owned by SCLS.

The occurrence of a wash-around scenario at the breakwater would be further reduced if the Corps would construct the proposed plug at the mouth of the Parish Line Canal. The breakwater and plug structures would have a combined effect of throttling unabated tidal water movement, increasing freshwater retention, and reducing saltwater intrusion in the LaBranche wetlands.

Therefore, SCLS and SCALI strongly support the inclusion of both structures as components of the West Return Floodwall Project, but we must object if the project only includes the breakwater with no consideration given to our concerns as expressed.

It is our understanding that the impacts to wetlands for IER #2 are not fully known; however, we are asking that all compensatory wetland mitigation for this project, as well as the IER #1 project, remain in the LaBranche wetlands and not be implemented offsite.

Thank you for the opportunity to make these comments.

Sincerely yours,

Ed Fike
Project Scientist

xc: SCLS
SCALI

APPENDIX C

MEMBERS OF INTERAGENCY ENVIRONMENTAL TEAM

Kyle Balkum	Louisiana Dept. of Wildlife and Fisheries
Agaha Brass	Louisiana Department of Natural Resources
Catherine Breaux	U.S. Fish and Wildlife Service
David Castellanos	U.S. Fish and Wildlife Service
Frank Cole	Louisiana Department of Natural Resources
John Ettinger	U.S. Environmental Protection Agency
Jeffrey Harris	Louisiana Department of Natural Resources
Richard Hartman	NOAA National Marine Fisheries Service
Jeffrey Hill	NOAA National Marine Fisheries Service
Christina Hunnicutt	U.S. Geologic Survey
Barbara Keeler	U.S. Environmental Protection Agency
Kirk Kilgen	Louisiana Department of Natural Resources
Tim Killeen	Louisiana Department of Natural Resources
Brian Lezina	Louisiana Dept. of Wildlife and Fisheries
David Muth	U.S. National Park Service
Clint Padgett	U.S. Corps of Engineers
Jamie Phillippe	Louisiana Dept. of Environmental Quality
Molly Reif	U.S. Geological Survey
Manuel Ruiz	Louisiana Dept. of Wildlife and Fisheries
Reneé Sanders	Louisiana Department of Natural Resources
Angela Trahan	U.S. Fish and Wildlife Service
David Walther	U.S. Fish and Wildlife Service
Patrick Williams	NOAA National Marine Fisheries Service

APPENDIX D
INTERAGENCY CORRESPONDENCE

- USFWS Threatened and Endangered Species Concurrence
- NMFS Threatened and Endangered Species Concurrence
- NMFS Essential Fish Habitat Concurrence
- LDNR LCRP Consistency Determination
- LDEQ Water Quality Certification
- LSHPO Cultural Resource Concurrence
- Tribe Concurrence (Tunica-Biloxi, Choctaw Oklahoma/Mississippi)
- USFWS Fish and Wildlife Comments
- USFWS Fish and Wildlife Coordination Act Report

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

RECEIVED
APR 18 2008
FISH & WLDL. SERV
LAFAYETTE, LA.

REPLY TO
ATTENTION OF:

April 16, 2008

Planning, Programs, and
Project Management
Environmental Planning
and Compliance Branch

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 — Date 5/5/08
Louisiana Field Office
U.S. Fish and Wildlife Service

James Boggs
Field Supervisor
U.S. Fish and Wildlife Service
646 Cajundome Blvd - Suite 400
Lafayette, LA 70506

Dear Mr. Boggs:

A project description, project location map, and determination of the effect that the proposed action will have on Threatened and Endangered (T&E) species at LPV, West Return Floodwall, Jefferson and St. Charles Parishes, Louisiana (Individual Environmental Report [IER] #2) have been prepared by the U.S. Army Corps of Engineers, New Orleans District (CEMVN) and are enclosed for your review and comment. The IER for the project will be completed in the next few weeks and will be forwarded to you upon completion.

Project Description

The proposed action is located on the border of Jefferson and St. Charles Parishes, LA and consists of the following features (Figure 1 & 2):

- LPV 03a and 03c West Return Floodwall
- LPV 13 Recurve I-Wall in Northwest Kenner.

LPV 03a and 03c West Return Floodwall

The proposed action (preferred alternative) for these reaches would consist of replacing the existing floodwall with a new T-wall alignment approximately 35 ft to the west, along the east embankment of the Parish Line Canal. The new T-wall would be constructed to an elevation of 17.5 ft North American Vertical Datum of 1988 (NAVD88) north of Interstate 10 (I-10) and 16.5 ft NAVD88 south of I-10. Flood-side and protected-side berms would be incorporated into the construction design. The berms would be at an elevation of 4.5 ft from the airport to I-10 and at an elevation of 2.5 ft from I-10 to the lake front. In addition, the Parish Line Canal Pump Station

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL # of pages ▶ 1

To Libby Behrens	From David Walther
Dept./Agency	Phone #
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
(727) 824-5317, FAX 824-5309
http://sero.nmfs.noaa.gov

JUN 5 2008 F/SER32:CH

Ms. Elizabeth Wiggins
New Orleans District Corps of Engineers
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Re: IER 2

Dear Ms. Wiggins:

This responds to your letter dated April 16, 2008, requesting section 7 consultation pursuant to the Endangered Species Act (ESA) for the Army Corps of Engineers' (COE) Individual Environmental Report (IER) 2. The report evaluates the COE's proposal to upgrade the existing hurricane protection system to protect communities and infrastructure in Jefferson Parish and St. Charles Parish, Louisiana, from a 500-year hurricane storm event. The proposed project includes the replacement of existing floodwalls with new T-walls. You determined the project is "unlikely to adversely affect Gulf sturgeon." NMFS' determinations regarding the effects of the proposed action are based on the description of the action in this informal consultation. You are reminded that any changes to the proposed action may negate the findings of the present consultation and may require reinitiation of consultation with NMFS.

This project is located at 30.0211°N, 90.1450°W (WGS84), on the border of Jefferson Parish and St. Charles Parishes, Louisiana. The project consists of the following four elements: (1) A new T-wall will be constructed approximately 35 feet to the west (floodside) of the existing floodwall, along the east embankment of the Parish Line Canal. Protective-side berms will also be installed. Following the construction of the new T-wall the existing floodwall will be demolished. In addition, the Parish Lane Pump Station discharge would be incorporated into the new T-wall, with no additional fronting protection. (2) A rock breakwater will be constructed at the I-10 Bridge over the Parish Lane Canal. The breakwater will be at an elevation of 19.5 feet with a width of 105 feet and a length of 500 feet. (3) A new T-wall will be constructed 35 feet west (floodside) of the existing flood wall northwest of Kenner and the shoreline of Lake Pontchartrain. Upon completion of the new T-wall, the existing floodwall will be demolished. (4) Parish Lane canal and the mouth of the canal at Lake Pontchartain will be dredged to allow for construction barge access.

A total of 59 acres of lake and canal bottom would be temporarily disrupted by dredging. In addition, backfilling and the installation of the new flood walls will result in the permanent loss of approximately 17 acres of brackish marsh wetland and 16 acres of canal bottom. Dredging

will be completed using a bucket dredge and spoil material will be temporarily stockpiled at an adjacent area. Spoil material will be used as backfill. The submerged bottom in the surrounding project area consists of peat and muddy sand sediments. The project is proposed to be completed in approximately 2 to 2.5 years.

In addition to Gulf sturgeon, three listed species of sea turtles may occur at the project site: the endangered Kemp's ridley, the threatened/endangered[1] green, and the threatened loggerhead. The proposed project is not located within designated Gulf sturgeon critical habitat.

NMFS has identified the following potential effects to listed species and concluded that listed sea turtles and Gulf sturgeon are not likely to be adversely affected by the proposed action. We believe the potential effects could result from the following: dredging; transit and anchoring of construction equipment and vessels at the site; water quality impacts associated with construction (i.e., turbidity and noise); temporary impacts to 59 acres of benthic habitat; and permanent loss of 33 acres of benthic habitat. Based on the type of dredge being used (i.e., bucket dredge), the risk of injury to listed species from dredging activity will be discountable. Furthermore, due to their mobility, the likelihood of sea turtles and Gulf sturgeon being struck by the transit and anchoring of equipment and vessels at the project site is discountable. While sea turtles and Gulf sturgeon potentially present in the project area are likely to avoid the area during construction due to noise, the effects to these species as a result of avoiding potential refuge and foraging habitat at the site will be insignificant, as the surrounding area provides ample foraging and refuge opportunities. NMFS considers the temporary loss of 59 acres of potential benthic habitat and the permanent loss of 33 acres of potential foraging and refuge habitat as having an insignificant effect on sea turtles and Gulf sturgeon. The project area encompasses only a small portion of the 403,200-acre lake and there is ample available habitat in the vicinity such that impacts to foraging success, reproduction, resting, or other behaviors are insignificant. In addition, the substrate bottom does not support submerged aquatic vegetation and is likely a poor source of other forage resources for sea turtle species. Due to the shallow water depth and the bottom substrate in the project area, the area provides poor foraging habitat for Gulf sturgeon, as well. Gulf sturgeon are suction feeders; due to their feeding morphology, as well as their preferred prey, they typically feed over sandy substrate and are not likely to be found foraging over peat and hard bottom. In addition, the survey showed that water depths in the project area are less than 1.5 feet. Gulf sturgeon are usually found at slightly deeper depths (2 to 4 meters), where lower wave energy at the substrate, compared to the shallower swash zone, interferes less with feeding.

This concludes your consultation responsibilities under the ESA for species under NMFS' purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. We have enclosed additional information on other statutory requirements that may apply to this action, and on NMFS' Public Consultation Tracking System (PCTS) to allow you to track the status of ESA consultations.

---

1 Green turtles are listed as threatened, except for breeding populations in Florida and the Pacific Coast of Mexico, which are listed as endangered.

Thank you for your continued cooperation in the conservation of threatened and endangered species under NMFS' purview. If you have any questions on this consultation or PCTS, please contact Calusa Horn at 727-824-5312, or by e-mail at Calusa.Horn@noaa.gov.

Sincerely,

James E. Weaver

for Roy E. Crabtree, Ph.D.
Regional Administrator

File: 1514-22 F.1. LA
Ref: I/SER/2008/03218

PCTS Access and Additional Considerations for ESA Section 7 Consultations
(Revised 4-30-2008)

Public Consultation Tracking System (PCTS) Guidance: PCTS is an online query system at https://pcts.nmfs.noaa.gov/ that allows federal agencies and U.S. Army Corps of Engineers' (COE) permit applicants and their consultants to ascertain the status of NMFS' ESA and EFH consultations, conducted pursuant to ESA section 7, and MSA sections 305(b)2 and 305(b)(4)(Essential Fish Habitat), respectively. Federal agencies are required to enter an agency-specific username and password to query the Federal Agency Site. The Corps "Permit Site" (no password needed) allows COE permit applicants and consultants to check on the current status of Clean Water Act section 404 permit actions for which NMFS has conducted, or is in the process of conducting, an ESA or EFH consultation with the COE.

For COE-permitted projects, click on "Enter Corps Permit Site." From the "Choose Agency Subdivision (Required)" list, pick the appropriate COE district. At "Enter Agency Permit Number" type in the COE district identifier, hyphen, year, hyphen, number. The COE is in the processing of converting its permit application database to PCTS-compatible "ORM." An example permit number is: SAJ-2005-000001234-IPS-1. For the Jacksonville District, which has already converted to ORM, permit application numbers should be entered as SAJ (hyphen), followed by 4-digit year (hyphen), followed by permit application numeric identifier with no preceding zeros. For example: SAJ-2005-123; SAJ-2005-1234; SAJ-2005-12345.

For inquiries regarding applications processed by Corps districts that have not yet made the conversion to ORM (e.g., Mobile District), enter the 9-digit numeric identifier, or convert the existing COE-assigned application number to 9 numeric digits by deleting all letters, hyphens, and commas; converting the year to 4-digit format (e.g., -04 to 2004); and adding additional zeros in front of the numeric identifier to make a total of 9 numeric digits. E.g., AL05-982-F converts to 200500982; MS05-04401-A converts to 200504401. PCTS questions should be directed to Eric Hawk at Eric.Hawk@noaa.gov. Requests for username and password should be directed to PCTS.Usersupport@noaa.gov.

Essential Fish Habitat (EFH) Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division (PRD) pursuant to section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's (MSA) requirements for essential fish habitat (EFH) consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The Endangered Species Act (ESA) section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA section 101 (a)(5) is necessary. Contact Ken Hollingshead of our NMFS Headquarters' Protected Resources staff at (301) 713-2323 for more information on MMPA permitting procedures.

Behrens, Elizabeth H MVN

From: Richard Hartman [Richard.Hartman@noaa.gov]
Sent: Friday, May 02, 2008 10:55 AM
To: Behrens, Elizabeth H MVN
Subject: IER 2 document

Libby - I have reviewed the letter dated April 17, 2008, summarizing potential project related impacts associated with IER 2 activities on essential fish habitat. I believe the letter accurately summarizes those potential project impacts. If I were to recommend any changes, since the FWS has already put out their Fish and Wildlife Coordination Act Report which included the revised WVA quantifying adverse impacts, and indicated that mitigation would be necessary, I might pull out the part of the last sentence in paragraph 2, page 3 beginning with "if deemed necessary...".

Rick

BOBBY JINDAL
GOVERNOR

SCOTT A. ANGELLE
SECRETARY

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF COASTAL RESTORATION AND MANAGEMENT

May 23, 2008

Elizabeth Wiggins
Chief, Environmental Planning and Compliance Branch
U. S. Army Corps of Engineers, New Orleans District
P. O. Box 60267
New Orleans, Louisiana 70160-0267

RE: **C20080223,** Coastal Zone Consistency
U. S. Army Corps of Engineers, New Orleans District
Direct Federal Action
IER 2: West Return Floodwall, Lake Pontchartrain and Vicinity Hurricane Storm Damage Risk Reduction System, **Jefferson Parish, Louisiana**

Dear Ms. Wiggins:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this determination please contact Jeff Harris of the Consistency Section at (225) 342-7949.

Sincerely,

Jim Rives
Administrator

JR/JDH/bmv

cc: Venise Ortego, LDWF
Elizabeth Behrens, COE-NOD
Jason Smith, Jefferson Parish

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HAROLD LEGGETT, PH.D.
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

May 19, 2008

U.S. Army Corps of Engineers- New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

Attention: Elizabeth Behrens

RE: Water Quality Certification (WQC 080430-01/AI 157567/CER 20080001)
Corps of Engineers Individual Environmental Report (IER #2)
Jefferson & St. Charles Parishes

Dear Ms. Behrens:

The Department has reviewed your application to construct the West Return Floodwall Levee between Jefferson & St. Charles Parishes.

The requirements for Water Quality Certification have been met in accordance with LAC 33:IX.1507.A-E. Based on the information provided in your application, we have determined that the placement of the fill material will not violate the water quality standards of Louisiana provided for under LAC 33:IX.Chapter 11. Therefore, the Department has issued a Water Quality Certification.

Sincerely,

Thomas R. Griggs

Thomas R. Griggs
Engineer Manager

TRG/jjp

Post Office Box 4313 • Baton Rouge, Louisiana 70821-4313 • Phone 225-219-3181 • Fax 225-219-3309
www.deq.louisiana.gov

MITCHELL J. LANDRIEU
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT
DIVISION OF ARCHAEOLOGY

DAWN ROMERO WATSON
SECRETARY

PAM BREAUX
ASSISTANT SECRETARY

February 15, 2008

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

Re: CRM Management Summary
LA Division of Archaeology Report No. (22-3034)
Phase I Cultural Resources Survey and Inventory
Performed for Lake Pontchartrain and Vicinity Project,
Individual Environmental Report Area 2 (IER#2)
Lake Pontchartrain Hurricane Protection Levee,
Jefferson and St. Charles Parish, Louisiana
R. Christopher Goodwin and Associates, Inc.

Dear Ms. Wiggins:

We are in receipt of your letter of January 15, 2008, transmitting a Management Summary from R. Christopher Goodwin and Associates, Inc. for the above-cited project. This management summary meets the basic guidelines for such documents set forth by the Louisiana Division of Archaeology.

We agree with the recommendations concerning cultural resources for the project area made by R. Christopher Goodwin and Associates, Inc. that no known historic properties will be affected by the proposed undertaking.

We look forward to reviewing the full reports for this and other Individual Environmental Report Areas (IERs). Technical comments of a minor nature are enclosed and should be considered with the submission of a draft report for all the IERs. If you have any questions or comments concerning this project, please feel free to contact Dennis Jones at (225) 342-8170 or djones@crt.state.la.us

Sincerely,

Pam Breaux

Pam Breaux
State Historic Preservation Officer

PB:DJ:s

C: Mr. William Athens, R. Christopher Goodwin and Associates, Inc. (w/enclosures).

TECHNICAL COMMENTS

1. Page 6. Matthews 1983 is not in the References Cited.

2. Page 8. Please cite the sources for the historic maps cited on this page, especially Kruse's *Map of Kenner*, when referencing the possible locations of the logging industry in this particular IER.

3. Page 9. The text notes that nine of the original 15 parcels were "assessed" for potential work staging areas and refers to Figures 3 and 4. The designations for these nine areas are unclear on these two figures. Figure 3 shows 16 "Survey Areas" and Figure 4 shows five "Staging Areas," one "Parcel" and one "Area." **The various figures and individual sheets within all the figures, however, are very informative to the locations that were investigated.**

4. Page 24. Figure 5 is a commendable documentation of logging activities within the project area and supports the case for a focus on that portion of the Area of Potential Effect.

5. Pages 25-31. The photographs and illustrations for the various Staging Areas are laudable for providing a record of the conditions within each of the areas investigated.

In 1982, archeologists from New World Research, Inc. conducted a cultural resources survey of the Lake Pontchartrain and Vicinity Hurricane Protection Project for the New Orleans District of the Army Corps of Engineers (New World Research 1983). This project consisted of both a terrestrial survey of the proposed project corridor, and an off-shore survey of two proposed borrow pit locations. Segment E of this proposed project corridor generally corresponded to IER#2, although the configuration of the project corridor required survey of only an 11 m (36.1 ft) wide area on either side of the existing levee. The investigators reported that because of poor surface visibility on Segment E, shovel test pits were required on both sides of the levee; however, the spacing and total number of shovel tests was not reported. No cultural resources were identified within Segment E as the result of this survey.

ASSESSMENT OF ARCHEOLOGICAL SITE POTENTIAL WITHIN IER#2

Currently, the northwestern corner of Jefferson Parish consists mainly of residential neighborhoods with mixed industrial / commercial activity in the vicinity of New Orleans International Airport. Prior to urban development it consisted of cypress swamp, very similar to the LaBranche wetlands that still exist in St. Charles Parish on the west side of the St. Charles Outflow Canal. The potential for significant prehistoric archeological sites within this setting is generally very low because of frequent flooding; no archeological sites have been recorded within 1.6 km (1 mi) of the IER#2 undertaking. The prehistoric sites that have been found within regional wetlands usually occur at the mouths of bayous (e.g., Sites 16SC11, 16SC12 and 16SC17) or on elevated natural levees (e.g., Site 16SC10). Some of these sites can be large, such as the Bayou Jasmine Site (16SJB2) in St. John the Baptist Parish. Sites created during the historic period tend to be related to plantations that were concentrated along the Mississippi River and other major waterways. Substantial occupation of New Orleans area wetlands did not occur until after the completion of major drainage projects in the early to mid-twentieth century.

In order to determine the potential for unrecorded historic properties within IER#2 for Section 106, R. Christopher Goodwin & Associates, Inc. staff assessed the Area of Potential Effects in relation to the results of the previous archeological surveys, the plotted positions of known cultural resources, aerial, topographic and soil maps, and visual observation of land parcels from publicly accessible streets. In conjunction, these data indicate that some (moderate) archeological potential is limited to the northernmost and eastern portions of the St. Charles Outflow Canal, where existing land disturbance was absent. This assessment is based primarily on its location near the shoreline of a major lake / potential bayou with excellent food sources (both *Rangia* shellfish and lacustrine fish). The site files at the Louisiana Division of Archaeology show that prior to development of residential neighborhoods, several prehistoric archeological sites were located on the Lake Pontchartrain shoreline in the northeast corner of Jefferson Parish, in the vicinity of Bonnabel Boulevard and the 17th Street Canal. These sites included 16JE04, 16JE05, and 16JE40, which were situated within or very near the Area of Potential Effects for adjacent IER#3. The records also plot Sites 16SC17, 16JE06 and 16JE39 being located in the general shoreline area. All of these sites are described in the site files as the remnants of prehistoric shell middens, including at least two sites (16JE04 and 16LE06) that once were quite substantial. With the exception of 16SC17, all of these sites have been severely impacted by modern development. Similar sites may once have occurred along the Lake Pontchartrain shoreline in additional portions of St. Charles and Jefferson Parishes, but have been obscured from view or destroyed without having been recorded.

possible?

Natural effects, such as subsidence, and modern disturbance from levee construction and residential development has greatly limited the potential for locating significant *in situ* cultural deposits (i.e., historic properties defined by Section 106) in the northern part of IER#2. Figures 3-4 and Appendix I provide topographic and aerial views of the IER#2 study area and show that the entirety of the Jefferson Parish side of the project corridor has been extensively impacted by residential and industrial development. The potential for locating intact archeological deposits in this area is therefore assessed as being low, although a number of land tracts that displayed little surface evidence of urban development were selected for testing this supposition (Appendix I). On the St. Charles Parish side of the project corridor, much of the Area of Potential Effects shows existing disturbance through dredging of the hurricane protection levee and the St.

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1983 *Cultural Resources Survey of Terrestrial and Off-Shore Locations, Lake Pontchartrain and Vicinity Hurricane Protection Project, Louisiana.* Report on File, Louisiana Division of Archaeology, Baton Rouge.

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1963 *Recent Geomorphic History of the Pontchartrain Basin, Louisiana.* Coastal Studies Series No. 9, Louisiana State University Press, Baton Rouge.

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IER #2

CHAIRMAN
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MARSHALL RAY SAMPSON, SR.

TUNICA-BILOXI
TRIBE OF LOUISIANA

January 9, 2008

Department of the Army
New Orleans District Corps of Engineers
PO Box 60267
New Orleans LA 70160

ATTN: Michael Swanda, Natural & Cultural Resources Analysis Section Environmental Branch

RE: Lake Ponchartrain & Vicinity Hurricane Protection Project, Jefferson East Bank, Individual Environmental Report #2, St. Charles and Jefferson Parishes Louisiana

Mr. Swanda:

This correspondence will verify our interest in the above referenced project. While we suspect a lack of impact upon any archaeological site(s) located within the project area, if any archaeological material is discovered at any time by anyone associated with the project, the Tunica-Biloxi Historic Preservation Office should be notified immediately @ (318) 240-6450.

Thank you, in advance, for your anticipated cooperation in respecting and preserving our culture and heritage with respect to the planned projects.

Sincerely,

Earl J. Barbry, Jr., Tribal Historic Preservation Officer
Tunica-Biloxi Historic Preservation Office

CHERISHING OUR PAST, BUILDING FOR OUR FUTURE
P.O. BOX 1589 MARKSVILLE, LA 71351 (318) 253-9767 OR 4578 FAX (318) 253-9791

152 #2

Choctaw Nation of Oklahoma

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

Gregory E. Pyle
Chief

Gary Batton
Assistant Chief

January 15, 2008

Elizabeth Wiggins
Dept. of the Army
New Orleans District, Corps of Engineers
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Dear Elizabeth Wiggins:

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.

Project Description: Lake Ponchartrain and Vicinity Hurricane Protection Project

County-State: St. Charles and Jefferson Parishes, Louisiana

Comments: After further review of the above-mentioned project (s), to the best of our knowledge, it will have no adverse effect on any historic properties in the project's area of potential effect. However, should construction expose buried archaeological or building materials such as chipped stone, tools, pottery, bone, historic crockery, glass or metal items, this office should be contacted immediately @ 1-800-522-6170 ext. 2137.

Sincerely,

Terry D. Cole
Tribal Historic Preservation Officer
Choctaw Nation of Oklahoma

By: Caren A. Johnson
Caren A. Johnson
Administrative Assistant

CAJ: vr

Swanda, Michael L MVN

From: Carleton, Ken [KCarleton@choctaw.org]
Sent: Tuesday, January 15, 2008 9:33 AM
To: Swanda, Michael L MVN
Subject: RE: Lake Ponchartrain & Vicinity Hurricane Protection Project, Jefferson East Bank, Individual Environmental Report #2, St. Charles and Jefferson Parishes, Louisiana

January 15, 2008

Michael Swanda,
Archaeologist
Natural & Cultural Resources Analysis Section

Environmental Branch

New Orleans District Corps of Engineers

Dear Mr. Swanda,

I have reviewed the cultural resource report for the Lake Ponchartrain & Vicinity Hurricane Protection Project, Jefferson East Bank, Individual Environmental Report #2, St. Charles and Jefferson Parishes, Louisiana, project. I concur that there appears to be No Historic Properties Affected by this project. There always remains the possibility that buried or otherwise unidentified cultural resources may be encountered during the course of the construction activities associated with this project. Should such a discovery occur, all work must be stopped in the vicinity of the discovery and I should be contacted immediately for further consultation about the discovery.

Kenneth H. Carleton

Tribal Historic Preservation Officer/Archaeologist

Mississippi Band of Choctaw Indians

P.O. Box 6257 or 101 Industrial Road

Choctaw, MS 39350

601.650.7316

FAX: 601.650.7454

-----Original Message-----
From: Swanda, Michael L MVN [mailto:Michael.L.Swanda@usace.army.mil]
Sent: Tuesday, January 08, 2008 12:59 PM
To: Carleton, Ken
Subject: Lake Ponchartrain & Vicinity Hurricane Protection Project, Jefferson East Bank, Individual Environmental Report #2, St. Charles and Jefferson Parishes, Louisiana

Dear Ken,

Enclosed is project documentation for the proposed Lake Ponchartrain & Vicinity Hurricane Protection Project, Jefferson East Bank, Individual Environmental Report #2, St. Charles

and Jefferson Parishes, Louisiana. A copy of our letter sent to Chief Denson is enclosed. Please review the enclosed project information and if you would like to comment on the proposed project and/or on our "no historic properties affected" finding, we are asking that you respond within 30 days of receipt of this email. Please contact me at 504-862-2036 if you have any questions or require any additional information.

Sincerely,

Michael Swanda,
Archaeologist
Natural & Cultural Resources Analysis Section Environmental Branch New Orleans District Corps of Engineers

(504) 862-2036

<<IER #2 - Management Summary Email Version.pdf>> <<April 9, 2007 SHPO Letter Request to Initiate.pdf>> <<IER #2 - January 7, 2008 Mississippi Band of Choctaw Indians Request to Continue Letter.pdf>>

United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

June 26, 2008

Colonel Alvin B. Lee
District Engineer
U.S. Army Corps of Engineers
Planning, Programs, and Project Management Division
Environmental Compliance Branch, CEMVN-PM-RS
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) West Return Floodwall, Jefferson and St. Charles Parishes, Louisiana (IER2). That study was conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps of Engineers (Corps) to upgrade some existing hurricane protection projects to provide protection against a 100-year hurricane event. The Service submits the following comments in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.), the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the Fish and Wildlife coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

General Comments

The IER is well written and provides a good description of fish and wildlife resources in the project area and project impacts on those resources. Wetlands in the project area provide important habitat for several Federal trust species including wading birds, neotropical migrants, and resident and migratory waterfowl. Specific comments are provided in the following section.

Specific Comments

Page 44-45, Last Paragraph, and Page 45, Paragraph 2 – These paragraphs state that there potentially could be colonial-nesting waterbirds and bald eagles in the surrounding area but none would be expected under future conditions due to the proximity to airport operations (i.e., associated noise and vegetation management activities). The Service believes that the proximity of the cypress swamp to the airport noise and maintained lands would not preclude colonial-nesting waterbirds or eagles from nesting in the area. For instance, an eagle nest was recently constructed adjacent to Interstate 10 and north of the airport in the vicinity of IER 2. Please revise the paragraph to indicate that nesting could occur in the area.

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The Service supports the measures proposed thus far for the IER2 Hurricane Protection Project. Thank you for the opportunity to provide comments on the draft IER 2. If you have any questions regarding our comments, please contact Catherine Breaux at (504) 862-2689.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: EPA, Dallas, TX
National Marine Fisheries Service, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD/CRD), Baton Rouge, LA

United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

July 15, 2008

Colonel Alvin B. Lee
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee

Please reference the "Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) West Return Floodwall, Jefferson and St. Charles Parishes, Louisiana" (IER2). That study was conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps of Engineers (Corps) to upgrade some existing hurricane protection projects to provide protection against a 100-year hurricane event. This report contains an analysis of the impacts on fish and wildlife resources that would result from the implementation of 100-year hurricane protection for that area, and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which instructed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the Lake Pontchartrain and Vicinity (LPV) and the West Bank and Vicinity (WBV) Hurricane Protection Projects so those projects would provide 100-year hurricane protection. Procedurally, project construction has been authorized in the absence of the report of the Secretary of the Interior that is required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). In this case, the authorization process has precluded the normal procedures for fully complying with the FWCA. The FWCA requires that our Section 2(b) report be made an integral part of any report supporting further project authorization or administrative approval. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Fish and Wildlife Service (Service) will be providing post-authorization 2(b) reports for each IER.

This draft report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the WBV of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the LPV (dated July 25, 1984 and January 17, 1992) Hurricane Protection projects and the November 26, 2007 Draft Programmatic FWCA Report that

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addresses the hurricane protection improvements authorized in Supplemental 4. This report does constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. The draft report was provided to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Marine Fisheries Service; their comments were incorporated into this final report.

DESCRIPTION OF THE STUDY AREA

The IER2 project area is located on the border of Jefferson and St. Charles Parishes, Louisiana and consists of 17,900 linear feet (lf) (3.4 miles) of floodwalls and a recurve I-wall in northwest Kenner. And on the protected side of the floodwall is almost entirely commercial or residential development, while the floodside is swamp and intermediate marsh.

Figure 1. Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) West Return Floodwall Jefferson and Recurve I-Wall Kenner, Louisiana (IER2).

FISH AND WILDLIFE RESOURCES

The Service has provided a November 26, 2007 draft programmatic FWCA Report for the LPV project. In addition the Service provided an August 7, 2006 letter addressing threatened and endangered species for the coastal parishes of the New Orleans District. Those reports contain a thorough discussion of the significant fish and wildlife resources (including those habitats) and

threatened and endangered species and their critical habitat that occur within the study area. For brevity, those discussions are incorporated by reference herein.

ALTERNATIVES UNDER CONSIDERATION

Alternatives considered include the no-action, various floodwalls and gates, and non-structural alternatives.

No-Action Alternative

For the floodwalls and floodgate within IER2, the no-action alternative was evaluated. Under the no-action alternative, the proposed action would not be constructed by CEMVN. The current floodwalls would remain or be brought to the authorized heights of 12.5 to 13.5 feet (ft) North American Vertical Datum of 1988 (NAVD88). Routine maintenance of the floodwalls and gate would continue, but no additional height would be added to the system.

Floodwalls and Gates Alternatives

Another alternative for the floodwalls and floodgate was to demolish the existing wall and construct a new T-wall and gate along the existing alignment. It was determined that this alternative would have the disadvantages that construction would have to be conducted around existing underground pilings from the exiting floodwall and demolition of the existing line of protection would have to occur prior to the construction of the new walls

As part of the initial evaluation construction of an earthen levee on the canal side of the existing floodwalls was considered but eliminated based on insufficient soil stability in the surrounding areas. Modification of the existing floodwall was considered however, structural analysis of the modified T-wall indicates that the existing T-wall is not structurally capable of withstanding the proposed loading conditions. Replacement of the floodwall with an earthen levee using deep soil mixing was considered but eliminated due to engineering infeasibility caused by the presence of cypress logs in the subsurface surrounding the existing levee system.

A number of additional alternatives were also considered and eliminated from further consideration based on a variety of engineering concerns. These potential alternatives included: (a) the use of breakwaters to reduce the height of new protection; (b) relocation of the line of protection to the west side of Parish Line Canal; (c) construction of a new wall westward of the existing wall, filling the area between the walls with fill, and capping with concrete; (d) construction of a new wall westward of the existing wall, creating gaps in the existing wall and filling the space between the walls with riprap; and (e) construction of a new wall westward of the existing wall, partially demolishing the existing wall and filling space between the walls with riprap. Each of these alternatives was eliminated from further consideration based on the following: (1) the marsh west of the Parish Line Canal reduces the effectiveness of alternative (a); (2) the poor soil quality on the western side of Parish Line Canal makes alternative (b) infeasible; and (3) alternates (c), (d), and (e) were eliminated based on maintenance and public safety concerns.

Non-Structural Alternatives

Non-structural alternatives included elevating all residential and commercial properties and public acquisition of properties in areas subject to flooding. Both these alternatives were eliminated due to excessive cost.

DESCRIPTION OF SELECTED PLAN

The proposed plan for the west return floodwall and the recurve I-Wall northwest of Kenner would consist of replacing the existing floodwall with a new T-wall alignment approximately 35 linear feet (lf) to the west (Figure 2). The new T-wall would be constructed to an elevation of +17.5 ft NAVD88 north of Interstate 10 (I-10) and +16.5 ft NAVD88 south of I-10. Under the I-10 bridge, the new T-wall elevation would be approximately +13.5 ft NAVD88. At the I-10 bridge (LPV 03c), rock breakwaters would be constructed on a geotextile fabric (Figure 2). The breakwaters would be at an elevation of approximately +19.5 ft with a width of approximately 105 lf and a length of approximately 500 lf. At the recurve wall northwest of Kenner the existing gate closure would be replaced with a new swing gate closure structure of which the top elevation of the gate would be at +17.5 ft NAVD88. As an additional feature, armoring (Articulated Concrete Blocks (ACB) covered with soil and grass, Turf Reinforcement Mattress (TRM), ACB/TRM; TRM/grass, or good grass cover) may be incorporated to protect against erosion and scour on the protected and flood sides of critical portions of levees and floodwalls. These critical areas include: transition points (where levees and floodwalls transition into any hardened feature such as other levees, floodwalls, pump stations, etc.), utility pipeline crossings, floodwall protected side slopes, and earthen levees that are exposed to wave and surge overtopping during a 500-year hurricane storm event. Flood side berms would be incorporated into the construction design of the floodwall.

Figure 2. The Existing and Proposed Floodwall and Breakwater Alignments for IER 2.

Access Channel
Barge access to the project area would require flotation channels to access the lakefront and the Parish Line Canal from Lake Pontchartrain. Access to these areas may require dredging. The dimensions required for a tug boat and barge to access the shoreline would be approximately -10 ft NAVD88 deep and approximately 100 lf wide. Channels would be dredged perpendicular to the lake shoreline from where depths within Lake Pontchartrain are less than -10 ft, which would require dredging approximately 1,200 lf from the mouth of the canal. Therefore, an access channel for the project area would temporarily impact approximately 19.2 acres of lake bottom and an additional 20.1 acres of lake bottom would be temporarily impacted by the placement of dredged materials.

PROJECT IMPACTS

Approximately 33 acres of wetlands (of which 17 acres are marsh or scrub/shrub and 16 acres are water bottoms) would be directly impacted by the proposed project. Work would involve replacing the existing floodwall with a new T-wall alignment approximately 35lf to the west, replacing the existing gate, constructing a rock breakwater at the I-10 bridge, and armoring at critical portions of levees and floodwalls and flood side berms.

To quantify anticipated project impacts to fish and wildlife resources, the Service used the Wetland Value Assessment (WVA) methodology. The WVA was developed to evaluate restoration projects proposed for funding under Section 303 of the Coastal Wetlands Planning, Protection and Restoration Act. Further explanation of how impacts/benefits are assessed with WVA and an explanation of the assumptions affecting HSI values for each target year are available for review at the Fish and Wildlife Service's (Service) Lafayette, Louisiana, field office.

Our WVA analyses indicate that project implementation would result in the direct loss of 9 AAHUs in marsh and scrub/shrub habitat. Once the proposed action is complete, the adjacent wetlands would stabilize. As with the future without project, fish and wildlife and their habitats, in the future with project scenario, are expected to remain relatively stable with some decline from development, subsidence, and erosion.

Threatened and Endangered Species
Three threatened and endangered species of concern to this project area include the brown pelicans (*Pelecanus occidentalis*), the West Indian manatees (*Trichechus manatus*) and the Gulf sturgeon (*Acipenser oxyrhynchus desotoi*).

Federally listed as an endangered species, brown pelicans are currently known to nest in Louisiana but not within the project area. Brown pelicans feed within Lake Pontchartrain and other shallow estuarine waters, using sand spits, sand bars, and some man-made structures (e.g., pilings) as rest and roost areas. Major threats to this species include chemical pollutants, colony site erosion, disease, and human disturbance.

Federally listed as endangered, West Indian manatees occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through

September). Manatees have been regularly reported in the Amite, Blind, Tchefuncte, and Tickfaw Rivers, and in canals within the adjacent coastal marshes of Louisiana. They have also been occasionally observed elsewhere along the Louisiana Gulf coast. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Cold weather and outbreaks of red tide may also adversely affect these animals.

The following are conditions that would be used to avoid impacts to manatee. All contract personnel associated with the project shall be informed of the potential presence of manatees and the need to avoid collisions with manatees, which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. All construction personnel are responsible for observing water-related activities for the presence of manatee(s). Temporary signs should be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees during active construction/dredging operations or within vessel movement zones (i.e., work area), and at least one sign should be placed where it is visible to the vessel operator. Siltation barriers, if used, should be made of material in which manatees could not become entangled, and should be properly secured and monitored. If a manatee is sighted within 100 yards of the active work zone, special operating conditions should be implemented, including: no operation of moving equipment within 50 feet of a manatee; all vessels shall operate at no wake/idle speeds within 100 yards of the work area; and siltation barriers, if used, should be re-secured and monitored. Once the manatee has left the 100-yard buffer zone around the work area on its own accord, special operating conditions are no longer necessary, but careful observations would be resumed. Any manatee sighting should be immediately reported to the Service (337/291-3100) and the LDWF, Natural Heritage Program (225/765-2821).

The Gulf sturgeon, federally listed as a threatened species, is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwannee River, Florida. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Habitat alterations such as those caused by water control structures that limit and prevent spawning, poor water quality, and over-fishing have negatively affected this species. Though the project area is beyond their designated critical habitat, the potential still exist for Gulf sturgeon to be in the area.

Protected Species

The Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.) and the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) offer additional protection to many bird species within the project area including colonial nesting birds and the bald eagle (*Haliaeetus leucocephalus*).

The project area is located adjacent to where colonial nesting waterbirds may be present. LDWF currently maintains a database of these colonies locations. That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new, comprehensive coast-wide survey is conducted to determine the location of newly-established nesting colonies, we recommend that a qualified biologist inspect the proposed work sites for the presence of undocumented nesting colonies during the nesting season (e.g. February through

September depending on the species). If colonies exist work should not be conducted within 1,000 feet of the colony during the nesting season

Forested habitat adjacent to the project-area may provide nesting habitat for the bald eagle, which has officially been removed from the List of Endangered and Threatened Species as of August 8, 2007. Although the bald eagle has been removed from the threatened and endangered species list, it continues to be protected under the MBTA and the BGEPA. The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. Those guidelines recommend maintaining: (1) a specified distance between the activity and the nest (buffer area); (2) natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or replacement nest trees. On-site personnel should be informed of the possible presence of nesting bald eagles within the project boundary, and should identify, avoid, and immediately report any such nests to this office. A copy of the NBEM Guidelines is available at: http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf. If after consulting those guidelines you need further assistance in determining the appropriate size and configuration of buffers or the timing of activities in the vicinity of a bald eagle nest, the please contact this office.

FISH AND WILDLIFE CONSERVATION MEASURES

The President's Council on Environmental Quality defined the term "mitigation" in the National Environmental Policy Act regulations to include:

(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

The Service supports and adopts this definition of mitigation and considers its specific elements to represent the desirable sequence of steps in the mitigation planning process. Based on current and expected future without-project conditions, the planning goal of the Service is to develop a balanced project, i.e., one that is responsive to demonstrated development needs while addressing the coequal need for fish and wildlife resource conservation.

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved.

Considering the high value of intermediate marsh for fish and wildlife and the relative scarcity of that habitat type, those wetlands are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Because the "no action" alternative was not selected, avoiding the project impacts altogether is not feasible. Therefore, remaining project impacts should be mitigated via compensatory replacement of the habitat values lost.

To replace the project-related loss of high-quality intermediate marsh habitat, the Corps and the local sponsor should develop and fund mitigation actions that would produce the equivalent of 9 AAHUs within the Pontchartrain Basin. The estimated costs for achieving that mitigation should be borne as a project expense, and should be provided to the agency implementing the mitigation.

SERVICE POSITION AND RECOMMENDATIONS

Construction of the floodwalls and gate would result in the loss of 33 acres of intermediate marsh and water bottoms for a total loss of 9 AAHUs. The Service does not object to the construction of the proposed project provided the following fish and wildlife conservation recommendations are implemented concurrently with project implementation:

1. The Corps and local sponsor shall provide 9 AAHUs to compensate for the unavoidable, project-related loss of intermediate marsh. The Service, National Marine Fisheries Service (NMFS), LDWF, and Louisiana Department of Natural Resources (LDNR) should be consulted regarding the adequacy of any proposed alternative mitigation sites.

2. The Service recommends that any impacts to marsh should be avoided or minimized to the greatest extent practicable.

3. The Service recommends backfilling all access channels in Lake Pontchartrain after construction is complete. In order to have sufficient material to backfill the access channels and minimize turbidity in the lake, the Service also recommends the use of silt curtains.

4. Avoid adverse impacts to wading bird colonies through careful design project features and timing of construction. In addition, the Service recommends that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season.

5. The Service shall be provided an opportunity to review and submit recommendations on the draft plans and specifications for all floodwalls, gates, associated berms and breakwater work addressed in this report.

6. Any proposed change in breakwaters, floodwalls, or gate structure features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

7. The project's first Project Cooperation Agreement (or similar document) shall include language that includes the responsibility of the local-cost sharer to provide operational,

monitoring, and maintenance funds for mitigation features.

8. Coordination should continue with the Service and NMFS on detailed contract specifications to avoid and minimize potential impacts to manatees, Gulf sturgeon, and bald eagles.

9. If the proposed project has not been constructed within 1 year or if changes are made to the proposed project, the Corps should re-initiate Endangered Species Act consultation with the Service to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

We appreciate the opportunity to provide comments in the planning stages of the proposed project. If you or your staff have further questions, or would like to meet and discuss our recommendations, please contact Catherine Breaux of this office at (504) 862-2689.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: CEMVN-PM-R, New Orleans, LA
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD/CRD), Baton Rouge, LA