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NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
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Regional Planning and
Environmental Division, South
Environmental Planning Branch

Decision Record

Individual Environmental Report #35
Contractor-Furnished Borrow Material #8
Jefferson, Terrebonne, and St. John the Baptist Parishes, Louisiana

IER #35

Description of Proposed Action. The U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District (CEMVN) proposes to approve four potential borrow sites for use under the contractor-furnished borrow area program to supply levee building material to the CEMVN projects in the Greater New Orleans metropolitan area. The proposed borrow areas are located in Jefferson, Terrebonne, and St. John the Baptist Parishes, Louisiana. Upon approval of these four sites, any suitable materials found within their perimeters could be utilized by a construction contractor to provide borrow material for construction of levee or floodwall projects that are part of the Hurricane and Storm Damage Risk Reduction System (HSDRRS).

On 26 October 2011, Draft Individual Environmental Report #35 (IER #35) and public notice were distributed for agency and public review and comment. CEMVN received written comments from governmental agencies (see Appendix D of the Final IER). A comment was also received from the Choctaw Nation of Oklahoma (see Appendix B of the Final IER). A series of public meetings discussing proposed HSDRRS projects, including proposed borrow areas, have been held since March 2007.

Factors Considered in Determination. The CEMVN has assessed the impacts of the proposed action on significant resources in the project areas, including jurisdictional wetlands, non-jurisdictional bottomland hardwood forest (BLH), upland resources, farmland, fisheries, wildlife, threatened and endangered species, cultural resources, recreational resources, noise quality, air quality, water quality, transportation, aesthetics, environmental justice, and socioeconomic resources.

Mitigation. It has been determined that the proposed action would not directly impact any jurisdictional wetlands. The proposed action could directly impact approximately 11.14 acres (5.18 AAHUs) of non-jurisdictional BLH at the Houma Excavation and RBEND II sites. Compensatory mitigation for any impacts to non-jurisdictional BLH would be the responsibility of the respective landowners or contractors, and would be obtained or completed before excavation, with the CEMVN requiring verification of appropriate mitigation prior to excavation of borrow material.

The landowner's recent clearing of the proposed Houma Excavation site contributed to the direct impact to non-jurisdictional BLH in the project area. Because the site was cleared in anticipation of the proposed action, the landowner would be required to complete mitigation for the loss of

non-jurisdictional BLH if their proposed site is used for construction of the HSDRRS. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the CEMVN prior to excavation.

Impacts to non-jurisdictional BLH forest were assessed in cooperation with the U.S. Fish and Wildlife Service (USFWS) and the CEMVN under the requirements of the National Environmental Policy Act, Fish and Wildlife Coordination Act, and Section 906 (b) of the Water Resources Development Act of 1986. The potential non-jurisdictional BLH impacts for the proposed action are shown in Table 1.

Table 1: BLH AAHUs of Mitigation Needed

Proposed Borrow Area	**Acres Proposed for Excavation**	**Acres Non-jurisdictional BLH**	**AAHUs**
Assumption Land Company Site	77	0	0
Houma Excavation Site	171	3.75	1.56
RBEND II Site	52	7.39	3.62
Robert Brothers Farm	232	0	0
Total	**362**	**11.14**	**5.18**

Environmental Design Commitments. The CEMVN is coordinating with the USFWS to implement the recommendations laid out in the borrow selection Planning-Aid Letter (letter dated 7 August 2006), programmatic Coordination Act Report (CAR) (letter dated 26 November 2007), and the IER #35 CAR (final CAR dated 1 December 2011). The recommendations set forth in the final CAR and the CEMVN's responses are found in Section 6.2 of the Final IER.

The Louisiana State Historic Preservation Officer (SHPO) requests that if any unrecorded cultural resources are determined to exist within the proposed borrow areas, then no work will proceed in the area containing these cultural resources until a CEMVN staff archeologist has been notified and final coordination with the SHPO and interested Tribal Historic Preservation Officers has been completed.

Colonial nesting wading birds (including herons, egrets, and Ibis), seabirds/water-birds (including terns, gulls, black skimmers, and brown pelicans) and bald eagles have the potential to nest in the proposed project areas. The nesting birds and their nests would not be disturbed or destroyed. The CEMVN would provide information on known nesting sites to construction contractors, and should be contacted if any nesting area within 650 feet of the construction zone would be disturbed.

Agency & Public Involvement. Governmental agencies, non-governmental organizations, and citizens were engaged throughout the preparation of IER #35. Agency staff from the USFWS, National Marine Fisheries Service (NMFS), U.S. Environmental Protection Agency, U.S. Geologic Survey, National Park Service, Louisiana Department of Environmental Quality (LDEQ), Louisiana Department of Natural Resources, and Louisiana Department of Wildlife and Fisheries (LDWF) are part of an interagency team that has and will continue to provide input throughout the HSDRRS planning process (Appendix C).

There have been over 150 public meetings since March 2007 about proposed HSDRRS work. Borrow issues have been discussed at most meetings, and a "borrow handout" has been available at all meetings since July 2007. The CEMVN sends out public notices in local newspapers, news releases, and mail notifications to stakeholders for each public meeting. In addition, the website www.nolaenvironmental.gov provides information to the public regarding proposed HSDRRS work, including borrow sites. The CEMVN also maintains a list of interested stakeholders who are notified by e-mail of the meetings. Public meetings will continue throughout the planning process.

Written comments from governmental agencies and a tribe were received during the public review period for draft IER #35. Copies of the comments are included in Appendix B and Appendix D of the final IER.

Comments Received:

1. Agency Comments
    1. NMFS comment letter dated 3 November 2011
    2. LDWF comment letter dated 8 November 2011
    3. USFWS comment letter dated 18 November 2011
    4. LDEQ comment letter dated 30 November 2011
    5. USFWS Final Coordination Act Report dated 1 December 2011
2. Public Comment
    1. Choctaw Nation of Oklahoma comment letter dated 9 November 2011

Decision. The CEMVN Environmental Planning Branch has assessed the potential impacts to the human and natural environment of the proposed action and has reviewed the comments received during the public review period for the draft IER. All practicable means to avoid or minimize adverse environmental impacts have been incorporated into the recommended plan. The proposed borrow areas do not contain any jurisdictional wetlands. The compensatory mitigation for impacts to non-jurisdictional BLH will be completed by the landowners or contractors of the Houma Excavation and RBEND II sites before excavation. The CEMVN will require verification from landowners that mitigation obligations have been met prior to excavation at these sites.

An adequate supply of borrow is essential to the completion of the HSDRRS, which will reduce the risk of serious adverse impacts to the Greater New Orleans metropolitan area in the event of a significant storm event. The public of the Greater New Orleans area will be best served by implementing the recommended plan as described in Final IER #35 in accordance with the environmental considerations discussed herein.

The CEMVN will prepare a Cumulative Environmental Document (CED) that may contain additional information that may become available after the execution of final IER #35. The CED will provide a mitigation plan, a comprehensive cumulative impacts analysis, and any additional information that addresses outstanding data gaps in the IERs.

I have reviewed IER #35, 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 approve the proposed contractor-furnished borrow areas as described in this document.

19 December 2011
Date

Edward R. Fleming
Colonel, U.S. Army
District Commander

FINAL INDIVIDUAL ENVIRONMENTAL REPORT

CONTRACTOR-FURNISHED BORROW MATERIAL #8

JEFFERSON, TERREBONNE, AND ST. JOHN THE BAPTIST PARISHES, LOUISIANA

IER #35

US Army Corps of Engineers

DECEMBER 2011

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1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE) Mississippi Valley Division, New Orleans District (CEMVN), has prepared this Individual Environmental Report #35 (IER #35) to evaluate the potential impacts associated with the possible excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. The proposed contractor-furnished borrow areas are located in southeastern Louisiana (figure 1). The term "borrow" as used in the fields of construction and engineering is defined as material that is dug in one location for use at another location. The proposed contractor-furnished borrow areas could be utilized as a clay source to provide borrow material for the construction of the Hurricane and Storm Damage Risk Reduction System (HSDRRS).

IER #35 has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's (CEQ) Regulations (40 CFR §1500-1508), and the USACE Engineering Regulation (ER) 200-2-2, Environmental Quality, Procedures for Implementing the NEPA. The preparation of an IER, in lieu of a traditional Environmental Assessment (EA) or Environmental Impact Statement (EIS), is provided for in ER 200-2-2 (33 CFR §230) and pursuant to the CEQ NEPA Implementation Regulations (40 CFR §1506.11).

The CEMVN implemented Alternative Arrangements on 13 March 2007, under the provisions of the CEQ Regulations for Implementing the NEPA (40 CFR §1506.11). The Alternative Arrangements were developed and implemented in the aftermath of Hurricanes Katrina and Rita in order to evaluate environmental impacts arising from HSDRRS projects in a timely manner, utilizing the NEPA emergency procedures found at 40 CFR 1506.11. The Alternative Arrangements were published on 13 March 2007 in 72 FR 11337, and are available for public review at www.nolaenvironmental.gov.

The Alternative Arrangements were implemented in order to expeditiously complete environmental analysis for any changes to the authorized HSDRRS, formerly known as the Hurricane Protection System (HPS), authorized and funded by Congress and the Administration. The proposed contractor-furnished borrow areas discussed in this IER are located in southeastern Louisiana and southwestern Mississippi and are part of the Federal effort to rebuild and complete construction of the HSDRRS in the New Orleans metropolitan area as a result of Hurricanes Katrina and Rita in 2005.

The draft IER was distributed for a 30-day public review and comment period on 26 October 2011. Comments were received during the public comment period from Federal and state resource agencies, and the Choctaw Nation of Oklahoma (appendix B and appendix D). The District Commander's decision on the proposed action is documented in the IER Decision Record.

Four potential contractor-furnished borrow areas investigated by the CEMVN are discussed in this IER. The CEMVN's engineers currently estimate that over 31 million cubic yards of suitable material would be required to complete HSDRRS projects. Due to the importance of providing safety to the citizens of the New Orleans metropolitan area, and the amount of borrow needed to supply levee projects for the HSDRRS, multiple borrow IERs have been prepared as additional potential borrow sites are evaluated.

The CEMVN ended investigations of potential sources of contractor-furnished borrow material and provided a deadline of April 30, 2011, for interested landowners to

participate in the HSDRRS Borrow Program. CEMVN received its last submissions from interested landowners on this date and is no longer accepting submissions for potential contractor-furnished borrow sources.

1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to locate suitable borrow material for use in the construction of the HSDRRS. The completed HSDRRS would lower the risk of harm to citizens and damage to infrastructure during a storm event. The safety of people in the region is the highest priority of the CEMVN. The proposed action results from the need to provide a total of over 31 million cubic yards of suitable borrow material for the HSDRRS projects that include the construction and improvement to hurricane risk reduction levees and floodwalls in southeastern Louisiana. Raising existing levee elevations and constructing new levees would require the excavation of material from borrow areas to ensure that the HSDRRS is constructed to the authorized elevations to reduce the risk of flood and storm damage for local communities.

The term "100-year level of risk reduction," as it is used throughout this document, refers to a level of reduced 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

The authority for the proposed action was provided as part of hurricane and storm damage risk reduction projects in southeastern Louisiana, specifically, the Lake Pontchartrain and Vicinity Hurricane Protection (LPV) Project and the West Bank and Vicinity Hurricane Protection (WBV) Project. Congress and the Administration granted a series of supplemental appropriation acts following Hurricanes Katrina and Rita in 2005 to repair and enhance the systems damaged by the storms.

The LPV project was authorized under the Flood Control Act of 1965 (Public Law [P.L.] 89-298, Title II, Section [Sec.] 204), which, as amended, authorized a "project for hurricane protection on Lake Pontchartrain, Louisiana ... substantially in accordance with the recommendations of the Chief of Engineers in House Document 231, Eighty-ninth Congress." The original statutory authorization for the LPV Project was amended by the Water Resources Development Acts (WRDA) of 1974 (P.L. 93-251, Title I, Sec. 92), 1986 (P.L. 99-662, Title V3, Sec. 805), 1990 (P.L. 101-640, Sec. 116), 1992 (P.L. 102-580, Sec. 102), 1996 (P.L. 104-303, Sec. 325), 1999 (P.L. 106-53, Sec. 324), and 2000 (P.L. 106-541, Sec. 432); and the Energy and Water Development Appropriations Acts of 1992 (P.L. 102-104, Title I, Construction, General), 1993 (P.L. 102-377, Title I, Construction, General), and 1994 (P.L. 103-126, Title I, Construction, General).

The Westwego to Harvey Canal Project was authorized by the WRDA of 1986 (P.L. 99-662, Sec. 401(b)). The WRDA of 1996 modified the project and added the Lake Cataouatche Project and the East of Harvey Canal Project (P.L. 104-303, Sec. 101(a)(17) & P.L. 104-303, 101(b)(11)). The WRDA of 1999 combined the three projects into one project under the WBV project (P.L. 106-53, Sec. 328).

The Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, and Pandemic Influenza Act of 2006 (3rd Supplemental - P.L. 109-148, Chapter 3, Construction, and Flood Control and Coastal Emergencies) appropriated funds to accelerate the completion of the previously authorized projects and to restore and repair the projects at full Federal expense. The Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and

Hurricane Recovery of 2006 (4th Supplemental - P.L. 109-234, Title II, Chapter 3, Construction, and Flood Control and Coastal Emergencies) appropriated funds and added authority to raise levee heights where necessary, reinforce and replace floodwalls, and otherwise enhance the projects to provide the levels of risk reduction necessary to achieve the certification required for participation in the National Flood Insurance Program. Additional Supplemental Appropriations include the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act of 2007 (P.L. 110-28, Title IV, Chapter 3, Flood Control and Coastal Emergencies, section 4302) (5th Supplemental), and the 6th Supplemental (P.L. 110-252, Title 3, Chapter 3, Construction).

1.3 PRIOR REPORTS

A number of studies and reports on water resources development in the proposed project area have been prepared by the USACE, other Federal, state, and local agencies, research institutes, and individuals. Pertinent studies, reports, and projects are discussed below:

Lake Pontchartrain and Vicinity Project

- On 15 April 2011, the CEMVN Commander signed a Decision Record on the IER Supplemental #27.a entitled "Outfall Canal Remediation on the 17th Street, Orleans Avenue and London Avenue Canals, Jefferson and Orleans Parish, Louisiana." The document evaluates the potential impacts associated with changes to the design of work described in IER #27.

- On 22 March 2011, the CEMVN signed a Decision Record on IERS #11.c (Tier 2 Borgne - IHNC) 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 the construction of those actions approved in IER #11 Tier 2 Borgne, with the exception of expanded size of the access channel due to erosion of the bankline.

- On 29 November 2010, the CEMVN Commander signed a Decision Record on Individual Environmental Report Supplemental (IERS) #11.b entitled "Improved Protection on the Inner Harbor Navigation Canal, Orleans and St. Bernard Parishes, Louisiana." The document evaluates the potential effects associated with restoring and reinforcing 4.6 miles of levees and floodwalls along the Inner Harbor Navigation Canal (IHNC) to meet current Hurricane and Storm Damage Risk Reduction System (HSDRRS) design guidelines for seepage and stability.

- On 10 November 2010, the CEMVN Commander signed a Decision Record on Individual Environmental Report (IER) #27 entitled "Outfall Canal Remediation on the 17th Street, Orleans Avenue and London Avenue Canals, Jefferson and Orleans Parish, Louisiana." The document evaluates the potential impacts associated with strengthening approximately 7 miles of floodwalls that have been examined for stability, seepage, settlement, and deflection along the 17th Street,London Avenue, and Orleans Avenue Canals in Orleans and Jefferson Parish, Louisiana.

- On 29 October 2010, the CEMVN Commander signed a Decision Record on IER #31 entitled, "Contractor-Furnished Borrow Material #7, East Baton Rouge, Jefferson, Lafourche, Plaquemines, St. Bernard, and St. Tammany 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 HSDRRS.

- On 3 May 2010, the CEMVN Commander signed a Decision Record on IERS #7 entitled "Lake Pontchartrain and Vicinity, New Orleans East Lakefront to Michoud Canal, Orleans Parish, Louisiana." The document was prepared to evaluate the potential impacts associated with construction changes to the IER #7 project area.

- On 1 April 2010, the CEMVN Commander signed a Decision Record on IER #11 Tier 2 Pontchartrain entitled "Improved Protection on the Inner Harbor Navigation Canal, Orleans and St. Bernard Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with the construction of a storm surge barrier in the Inner Harbor Navigation Canal 540 feet south of Seabrook Bridge.

- On 8 February 2010, the CEMVN Commander signed a Decision Record on IER #9 entitled "Caernarvon Floodwall, St. Bernard Parish, Louisiana." The document was prepared to evaluate the potential impacts associated with realignment of Caernarvon Floodwall to the west of the existing alignment.

- On 8 February 2010, the CEMVN Commander signed a Decision Record on IERS #6 entitled "East Citrus Lakefront Levee, Orleans Parish, Louisiana." The document was prepared to evaluate the potential impacts associated with the addition of a floodwall in lieu of raising the existing levee, which was evaluated in IER #6.

- On 22 January 2010, the CEMVN Commander signed a Decision Record on IER #32 entitled, "Contractor-Furnished Borrow Material #6, Ascension, Plaquemines, and St. Charles Parishes, Louisiana." 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 HSDRRS.

- On 18 December 2009, the CEMVN Commander signed a Decision Record on IERS #3a entitled, "Jefferson East Bank, Jefferson Parish, Louisiana." The document was prepared to evaluate the impacts associated with construction of wave attenuation berms and foreshore protection along the Jeffferson Parish lakefront and a T-wall, overpass bridge, and traffic detour lane bridge spans at the Causeway Bridge abutment.

- On 29 October 2009, the CEMVN Commander signed a Decision Record on IER Supplemental #2 entitled "Lake Pontchartrain and Vicinity, West Return Flood Wall, Jefferson and Orleans Parishes, Louisiana." The document describes the impacts associated with replacing the existing floodwall with a new T-wall approximately 35 feet 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.

- On 28 September 2009, the CEMVN Commander signed a Decision Record on IER #30 entitled "Contractor-Furnished Borrow Material #5, St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi." The document evaluates the potential impacts associated with the actions taken by commercial

contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 20 September 2009, the CEMVN Commander signed a Decision Record on IER #29 entitled "Pre-Approved Contractor-Furnished Borrow Material #4, Orleans, St. John the Baptist, and St. Tammany Parishes, Louisiana." The document evaluates the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 31 July 2009, the CEMVN Commander signed a Decision Record on IER #28 entitled "Government-Furnished Borrow Material #4, Plaquemines, St. Bernard, and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas and an access route for use in construction of the HSDRRS.

- On 30 June 2009, the CEMVN Commander signed a Decision Record for IER #5, entitled "Lake Pontchartrain and Vicinity, Permanent Protection System for the Outfall Canals Project on 17th Street, Orleans Avenue, and London Avenue Canals, Jefferson and Orleans Parishes, Louisiana." The document evaluates the potential impacts related to constructing permanent pumps on the 17th Street, Orleans Avenue, and London Avenue Canals to provide for 100-year level of risk reduction.

- On 29 June 2009, the CEMVN Commander signed a Decision Record for IER Supplemental (IERS) #1, entitled "Lake Pontchartrain and Vicinity, LaBranche Wetlands Levee, St. Charles Parish, Louisiana." The document evaluates the potential impacts related to modifications to actions approved in IER #1.

- On 25 June 2009, the CEMVN Commander signed a Decision Record for IER #6, entitled "Lake Pontchartrain and Vicinity, New Orleans East, Citrus Lakefront Levee, Orleans Parish, Louisiana." The document evaluates the potential impacts associated with constructing improved levees on the south shore of Lake Pontchartrain in New Orleans East, Orleans Parish, Louisiana.

- On 23 June 2009, the CEMVN Commander signed a Decision Record for IER #8, entitled "Lake Pontchartrain and Vicinity, Bayou Dupre Control Structure, St. Bernard Parish, Louisiana." The document evaluates the potential impacts associated with constructing a new flood control structure on Bayou Dupre.

- On 19 June 2009, the CEMVN Commander signed a Decision Record for IER #7, entitled "Lake Pontchartrain and Vicinity, New Orleans East Lakefront to Michoud Canal, Orleans Parish, Louisiana." The document evaluates the potential impacts associated with reconstructing levees, floodwalls, and floodgates around the Bayou Sauvage National Wildlife Refuge.

- On 26 May 2009, the CEMVN Commander signed a Decision Record for IER #10, entitled "Lake Pontchartrain and Vicinity, Chalmette Loop Levee, St. Bernard Parish, Louisiana." The document evaluates the impacts related to improving hurricane risk reduction structures in St. Bernard Parish, Louisiana.

- On 13 March 2009, the CEMVN Commander signed a Decision Record for IER #4, entitled "Lake Pontchartrain and Vicinity, Orleans East Bank, New Orleans Lakefront Levee, West of Inner Harbor Navigation Canal to Eastbank of 17th

Street Canal, Orleans Parish, Louisiana." The document evaluates the potential impacts associated with improving the Orleans lakefront hurricane risk reduction features.

- On 3 February 2009, the CEMVN Commander signed a Decision Record on IER #25 entitled "Government-Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 21 October 2008, the CEMVN Commander signed a Decision Record on IER #11 Tier 2 Borgne entitled "Improved Protection on the Inner Harbor Navigation Canal, Tier 2 Borgne Orleans and St. Bernard Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with constructing a surge barrier on Lake Borgne.

- On 20 October 2008, the CEMVN Commander signed a Decision Record on IER #26 entitled "Pre-Approved Contractor-Furnished Borrow Material #3, Jefferson, Plaquemines, and St. John the Baptist Parishes, Louisiana, and Hancock County, Mississippi." The document evaluates the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 25 July 2008, the CEMVN Commander signed a Decision Record on IER #3, entitled "Lake Pontchartrain and Vicinity, Lakefront Levee, Jefferson Parish, Louisiana." The proposed action includes raising approximately 9.5 miles of earthen levees, completing upgrades to foreshore protection, replacing two floodgates, and completing fronting protection modifications to four existing pump stations in Jefferson Parish, Louisiana.

- On 18 July 2008, the CEMVN Commander signed a Decision Record on IER #2, entitled "LPV, West Return Floodwall, Jefferson and St. Charles Parishes, Louisiana." The proposed action includes replacing over 17,900 linear feet of floodwalls in Jefferson and St. Charles Parishes, Louisiana.

- On 9 June 2008, the CEMVN Commander signed a Decision Record on IER #1, entitled "Lake Pontchartrain and Vicinity, La Branche Wetlands 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 Commander signed a Decision Record on IER #22 entitled "Government-Furnished Borrow Material, Plaquemines and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 6 May 2008, the CEMVN Commander 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 evaluates the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 14 March 2008, the CEMVN Commander 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 evaluates potential impacts associated with building navigable and structural barriers to prevent storm surge from entering the Inner Harbor Navigation Canal from Lake Pontchartrain and/or the Gulf Intracoastal Waterway-Mississippi River Gulf Outlet-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, were being completed.

- On 21 February 2008, the CEMVN Commander signed a Decision Record on IER #18 entitled "Government-Furnished Borrow Material, Jefferson, Orleans, Plaquemines, St. Charles, and St. Bernard Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 14 February 2008, the CEMVN Commander 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 evaluates the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

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

- On 30 October 1998, the CEMVN Commander signed a FONSI on EA #279 entitled "Lake Pontchartrain Lakefront, Breakwaters, Pump Stations 2 and 3." The report evaluates the impacts associated with providing fronting protection for outfall canals and pump stations. It was determined that the action would not significantly impact resources in the immediate area.

- On 2 October 1998, the CEMVN Commander 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 Commander 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 Commander 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 back in front of the Bonnet Carré Spillway Forebay for LPV construction.

- On 30 August 1990, the CEMVN Commander signed a FONSI on EA #163 entitled "LPV Hurricane Protection – Alternate Borrow Area for Jefferson Parish Lakefront Levee, Reach 3." The report addresses the impacts associated with the use of a borrow area in Jefferson Parish for LPV construction.

- On 2 July 1991, the CEMVN Commander signed a FONSI on EA #133 entitled "LPV Hurricane Protection – Alternate Borrow at Highway 433, Slidell, Louisiana." The report addresses the impacts associated with the excavation of a borrow area in Slidell, Louisiana for LPV project construction.

- On 12 September 1990, the CEMVN Commander signed a FONSI on EA #105 entitled "LPV Hurricane Protection – South Point to Gulf Intracoastal Waterway, A. V. Keeler and Company Alternative Borrow Site." The report addresses the impacts associated with the excavation of a borrow area in Slidell, Louisiana for LPV project construction.

- On 12 March 1990, the CEMVN Commander signed a FONSI on EA #102 entitled "LPV Hurricane Protection – 17th Street Canal Hurricane Protection." The report addresses the use of alternative methods of providing flood protection for the 17th Street Outfall Canal in association with LPV activity. Impacts to resources were found to be minimal.

- On 4 August 1989, the CEMVN Commander signed a FONSI on EA #89 entitled "LPV Hurricane Protection, High Level Plan - Alternate Borrow Site 1C-2B." The report addresses the impacts associated with the excavation of a borrow area along Chef Menteur Highway, Orleans Parish for LPV construction. The material was used in the construction of a levee west of the Inner Harbor Navigation Canal.

- On 27 October 1988, the CEMVN Commander signed a FONSI on EA #79 entitled "LPV Hurricane Protection – London Avenue Outfall Canal." The report investigates the impacts of strengthening hurricane risk reduction at the London Avenue Outfall Canal.

- On 21 July 1988, the CEMVN Commander signed a FONSI on EA #76 entitled "LPV Hurricane Protection – Orleans Avenue Outfall Canal." The report investigates-the impacts of strengthening hurricane risk reduction at the Orleans Avenue Outfall Canal.

- On 26 February 1986, the CEMVN Commander signed a FONSI on EA #52 entitled "LPV Hurricane Protection – Geohegan Canal." The report addresses the impacts associated with the excavation of borrow material from an extension of the Geohegan Canal for LPV construction.

- On 12 June 1987, the CEMVN Commander signed Supplemental Information Report (SIR) #25 entitled "LPV Hurricane Protection – Chalmette Area Plan, Alternate Borrow Area 1C-2A". The report addresses the use of an alternate contractor-furnished borrow area for LPV project construction.

- On 12 June 1987, the CEMVN signed SIR #27 entitled "LPV Hurricane Protection – Alternate Borrow Site for Chalmette Area Plan". The report addresses the use of an alternate contractor-furnished borrow area for LPV project construction.

- On 12 June 1987, the CEMVN Commander signed SIR #28 entitled "LPV Hurricane Protection – Alternate Borrow Site, Mayfield Pit". The report addresses the use of an alternate contractor-furnished borrow area for LPV project construction.

- On 12 June 1987, the CEMVN Commander signed SIR #29 entitled "LPV Hurricane Protection – South Point to GIWW Levee Enlargement". The report discusses the impacts associated with the enlargement of the GIWW.

- On 7 October 1987, the CEMVN signed SIR #30 entitled "LPV Hurricane Protection Project, Jefferson Lakefront Levee". The report investigates impacts associated with changes in Jefferson Parish LPV project levee design.

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

- On 5 August 1986, the CEMVN signed SIR #22 entitled "LPV Hurricane Protection – Use of 17th Street Pumping Station Material for LPHP Levee". The report investigates the impacts of moving suitable borrow material from a levee at the 17th Street Canal in the construction of a stretch of levee from the Inner Harbor Navigation Canal to the London Avenue Canal.

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

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

- The final EIS for the LPV project, dated August 1974. A Statement of Findings was signed by the CEMVN Commander 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 Commander on 7 February1985. Final Supplement II to the EIS, dated August 1994, was followed by a ROD signed by the CEMVN Commander 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.

<u>West Bank and Vicinity Project</u>

On 21 April 2011, the CEMVN Commander signed a Decision Record on the IER Supplemental #13.a entitled "Gulf Intracoastal Waterway (GIWW), Harvey and Algiers Levees and Floodwalls and Hero Canal Levee and Eastern Tie-In,

Plaquemines Parish, Louisiana." The document evaluates the temporary closure of the Hero Canal.

- On February 22, 2011, the CEMVN Commander signed a Decision Record on the IER Supplemental #12.a entitled "GIWW, Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with the construction of an access road, the use of a pontoon bridge in the V-Line Levee Canal and the placement of rip rap along an 800 foot length of the V-Line Levee Canal.

- On February 2, 2011, the CEMVN Commander signed a Decision Record on the IERS #12/13 Waterline entitled "GIWW, Harvey and Algiers Levees and Floodwalls/ Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Supplemental IER #12/13 Waterline." The document was prepared to evaluate the potential impacts associated with the installation of 16,000 linear ft of waterline to provide water for the operations and maintenance of the West Closure Complex (WCC).

- On November 20, 2010, the CEMVN Commander signed a Decision Record on the Addendum to draft IER Supplemental #12 entitled "GIWW, Harvey and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with the temporary closure of the Belle Chase Tunnel.

- On 29 October 2010, the CEMVN Commander signed a Decision Record on IER #31 entitled, "Contractor-Furnished Borrow Material #7, East Baton Rouge, Jefferson, Lafourche, Plaquemines, St. Bernard, and St. Tammany 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 HSDRRS.

- On 7 August 2010, the CEMVN Commander signed a Decision Record on IER #27 entitled "Outfall Canal Remediation on the 17th Street, Orleans Avenue and London Avenue Canals, Jefferson and Orleans Parish, Louisiana." The document was prepared to evaluate the potential impacts associated with the remediation of the canal walls on the 17th Street, Orleans Avenue and London Avenue Canals.

- On 24 August 2010, the CEMVN Commander signed a Decision Record on IER Supplemental #16.a entitled "Western Tie-In, Jefferson and St. Charles Parishes, Louisiana." The document evaluates the potential impacts associated with changes to the design of work described in IER #16.

- On 9 February 2010, the CEMVN Commander signed a Decision Record on IER Supplemental #14.a entitled "Westwego to Harvey Levee, Jefferson Parish, Louisiana." The document evaluates the potential impacts associated with constructing a larger levee footprint for the WBV-14.c.2 reach and revisions to fronting protection and floodwall construction at the Ames and Mt. Kennedy Pump Stations.

- On 22 January 2010, the CEMVN Commander signed a Decision Record on IER #32 entitled "Contractor-Furnished Borrow Material #6, Ascension,

Plaquemines, and St. Charles Parishes, Louisiana." The document evaluates the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 4 December 2009, the CEMVN Commander signed a Decision Record on IER #13 entitled "Hero Canal Levee and Eastern Tie-In, Plaquemines Parish, Louisiana." IER #13 evaluates the potential impacts associated with raising and/or constructing levees, and other structures to meet the 100-year level of risk reduction.

- On 28 September 2009, the CEMVN Commander signed a Decision Record on IER #30 entitled "Contractor-Furnished Borrow Material #5, St. Bernard and St. James Parishes, Louisiana, and Hancock County, Mississippi." The document evaluates the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 20 September 2009, the CEMVN Commander signed a Decision Record on IER #29 entitled "Pre-Approved Contractor-Furnished Borrow Material #4, Orleans, St. John the Baptist, and St. Tammany Parishes, Louisiana." The document evaluates the potential impacts associated with the actions taken by commercial contractors as a result of excavating contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 31 July 2009, the CEMVN Commander signed a Decision Record on IER #28 entitled "Government-Furnished Borrow Material #4, Plaquemines, St. Bernard, and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas and an access route for use in construction of the HSDRRS.

- On 12 June 2009, the CEMVN Commander signed a Decision Record on IER #16, entitled "Western Tie-In, Jefferson and St. Charles Parishes, Louisiana." The document describes the potential impacts associated with constructing a new levee to provide 100-year level of risk reduction for the project vicinity.

- On 18 February 2009, the CEMVN Commander signed a Decision Record on IER #12, entitled "Gulf Intracoastal Waterway (GIWW), Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana." The document describes the potential impacts associated with construction of approximately 3 miles of levee and floodwall in the project vicinity.

- On 3 February 2009, the CEMVN Commander signed a Decision Record on IER #25 entitled "Government-Furnished Borrow Material, Orleans, Plaquemines and Jefferson Parishes, Louisiana." The document evaluates the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 21 January 2009, the CEMVN Commander signed a Decision Record on IER #17 entitled "Company Canal Floodwall, Jefferson Parish, Louisiana." The document evaluates the proposed construction and maintenance of the 100-year level of hurricane and storm damage risk reduction along the Company Canal from the Bayou Segnette State Park to the New Westwego Pumping Station.

- On 20 October 2008, the CEMVN Commander signed a Decision Record on IER #26 entitled "Pre-Approved Contractor-Furnished Borrow Material #3, Jefferson, Plaquemines, and St. John the Baptist Parishes, Louisiana, and Hancock County, Mississippi." The document evaluates the potential impacts associated with approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 26 August 2008, the CEMVN Commander signed a Decision Record on IER #14, entitled "Westwego to Harvey, Levee Jefferson Parish, Louisiana." The document was prepared to examine the potential environmental impacts associated with the proposed construction and maintenance of 100-year level of hurricane and storm damage risk reduction along the WBV, Westwego to Harvey Levee project area.

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

- On 30 May 2008, the CEMVN Commander signed a Decision Record on IER #22 entitled "Government-Furnished Borrow Material, Plaquemines and Jefferson Parishes, Louisiana." The document was prepared to evaluate the potential impacts associated with approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 6 May 2008, the CEMVN Commander 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 approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- On 21 February 2008, the CEMVN Commander 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 approving government-furnished borrow areas for use in construction of the HSDRRS.

- On 14 February 2008, the CEMVN Commander 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 approving contractor-furnished borrow areas for use in construction of the HSDRRS.

- In July 2006, the CEMVN Commander signed a 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 because of Hurricanes Katrina and Rita.

- On 23 August 2005, the CEMVN Commander signed a FONSI on EA #422 entitled "Mississippi River Levees – West Bank Gaps, Concrete Slope Pavement Borrow Area Designation, St. Charles and Jefferson Parishes, Louisiana." The

report investigates the impacts of obtaining borrow material from various areas in Louisiana.

- On 22 February 2005, the CEMVN Commander signed a FONSI on EA #306A entitled "West Bank Hurricane Protection Project – East of the Harvey Canal, Floodwall Realignment and Change in Method of Sector Gate." The report discusses the impacts related to the relocation of a proposed floodwall moved because of the aforementioned sector gate, as authorized by the LPV project.

- On 5 May 2003, the CEMVN Commander signed a FONSI on EA #337 entitled "Algiers Canal Alternative Borrow Site."

- On 19 June-2003, the CEMVN Commander signed a FONSI on EA #373 entitled "Lake Cataouatche Levee Enlargement." The report discusses the impacts related to improvements to a levee from Bayou Segnette State Park to Lake Cataouatche.

- On 16 May 2002, the CEMVN Commander signed a FONSI on EA #306 entitled "West Bank Hurricane Protection Project - Harvey Canal Sector Gate Site Relocation and Construction Method Change." The report discusses the impacts related to the relocation of a proposed sector gate within the Harvey Canal, as authorized by the LPV project.

- On 30 August 2000, the CEMVN Commander signed a FONSI on EA #320 entitled "West Bank Hurricane Protection Features." The report evaluates the impacts associated with borrow sources and construction options to complete the Westwego to Harvey Canal Hurricane Protection Project.

- On 18 August 1998, the CEMVN Commander signed a FONSI on EA #258 entitled "Mississippi River Levee Maintenance - Plaquemines West Bank Second Lift, Fort Jackson Borrow Site."

- The final EIS for the WBV, East of Harvey Canal, Hurricane Protection Project was completed in August 1994. A ROD was signed by the CEMVN Commander in September 1998.

- The final EIS for the WBV, Lake Cataouatche, Hurricane Protection Project was completed. A ROD was signed by the CEMVN Commander in September 1998.

- In December 1996, the USACE completed a post-authorization change study entitled, "Westwego to Harvey Canal, Louisiana Hurricane Protection Project Lake Cataouatche Area, EIS." The study investigates the feasibility of providing hurricane surge risk reduction to that portion of the west bank of the Mississippi River in Jefferson Parish between Bayou Segnette and the St. Charles Parish line. A Standard Project Hurricane (SPH) level of risk reduction was recommended along the alignment followed by the existing non-Federal levee. The project was authorized by Section 101 (b) of the WRDA of 1996 (P. L. 104-303) subject to the completion of a final report of the Chief of Engineers, which was signed on 23 December 1996.

- On 12 January 1994, the CEMVN Commander signed a FONSI on an EA #198 entitled, "West Bank of the Mississippi River in the Vicinity of New Orleans, Louisiana, Hurricane Protection Project, Westwego to Harvey Canal, Jefferson Parish, Louisiana, Proposed Alternate Borrow Sources and Construction Options." The report evaluates the impacts associated with borrow sources and

construction options to complete the Westwego to Harvey Canal Hurricane Levee.

- In August 1994, the CEMVN Commander completed a feasibility report entitled "WBV (East of the Harvey Canal)." The study investigates the feasibility of providing hurricane surge risk reduction to that portion of the west bank of metropolitan New Orleans from the Harvey Canal eastwards to the Mississippi River. The final report recommends that the existing West Bank Hurricane Project, Jefferson Parish, Louisiana, authorized by the WRDA of 1986 (P.L. 99-662), approved November 17, 1986, be modified to provide additional hurricane risk reduction east of the Harvey Canal. The report also recommends that the level of risk reduction for the area east of the Algiers Canal deviate from the National Economic Development Plan's level of risk reduction and provide risk reduction for the SPH. The Division Engineer's Notice was issued on 1 September 1994. The Chief of Engineer's report was issued on 1 May 1995. Preconstruction, engineering, and design was initiated in late 1994 and is continuing. The WRDA of 1996 authorized the project.

- On 20 March 1992, the CEMVN Commander signed a FONSI on EA #165 entitled "Westwego to Harvey Canal Disposal Site."

- In February 1992, the USACE completed a reconnaissance study entitled "West Bank Hurricane Protection, Lake Cataouatche, Louisiana." The study investigated the feasibility of providing hurricane surge risk reduction to that portion of the west bank of the Mississippi River in Jefferson Parish, between Bayou Segnette and the St. Charles Parish line. The study found a 100-year level of risk reduction to be economically justified based on constructing a combination levee/ sheetpile wall along the alignment followed by the existing non-Federal levee. Due to potential impacts to the Westwego to Harvey Canal project, the study is proceeding as a post-authorization change.

- On 3 June 1991, the CEMVN Commander signed a FONSI on EA #136 entitled "West Bank Additional Borrow Site between Hwy 45 and Estelle PS."

- On 15 March 1990, the CEMVN Commander signed a FONSI on EA #121 entitled "West Bank Westwego to Harvey Changes to EIS." The report addresses the impacts associated with the use of borrow material from Fort Jackson for LPV construction. The material was used for constructing the second lift for the Plaquemines West Bank levee upgrade, as part of LPV construction.

- In December 1986, the USACE completed a Feasibility Report and EIS entitled, "West Bank of the Mississippi River in the Vicinity of New Orleans, La." The report investigates the feasibility of providing hurricane surge risk reduction to that portion of the west bank of the Mississippi River in Jefferson Parish between the Harvey Canal and Westwego, and down to the vicinity of Crown Point, Louisiana. The report recommends implementing a plan that would provide SPH level of risk reduction to an area on the west bank between Westwego and the Harvey Canal north of Crown Point. The project was authorized by the WRDA of 1986 (P.L. 99-662). Construction of the project was initiated in early 1991.

1.4 INTEGRATION WITH OTHER IERS

In addition to evaluating proposed borrow areas in IERs, the CEMVN is preparing a draft Comprehensive Environmental Document (CED) that will describe all HSDRRS work

completed and remaining to be constructed. The purpose of the draft CED is to document the work completed by the CEMVN on a system-wide scale. The draft CED will describe the integration of individual IERs into a systematic planning effort. Analysis of 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 available 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 CEMVN Commander, and made available to any stakeholders requesting a copy.

Compensatory mitigation for unavoidable impacts associated with this and other proposed HSDRRS projects will be documented in forthcoming mitigation IERs, which are being written concurrently with all other IERs.

1.5 PUBLIC CONCERNS

The CEMVN has provided numerous opportunities to the public to provide input and comments about the proposed HSDRRS work throughout the planning process through a number of outlets (i.e., public meetings; written and verbal comments; www.nolaenvironmental.gov). IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, and IER #32 discuss the impacts of borrow excavation related to the HSDRRS. These documents contain public comments regarding borrow issues (appendix B – all documents), and are available at www.nolaenvironmental.gov, or upon request.

The foremost public concern in the project area is reducing the risk of hurricane, storm, and flood damage for businesses and residences, and enhancing public safety during major storm events in the Greater New Orleans metropolitan area. Comments received at public meetings indicated concern over the risk to current levees and floodwalls from overtopping from storm-induced tidal surges during major storm events, and the potential risk of levee or floodwall failure during a major storm event. A key concern of local officials is to increase public confidence in the HSDRRS so that the physical and economic recovery of the area can proceed. Local officials also want the public to be aware that the completed HSDRRS is not intended to invalidate evacuation measures.

Residents in the vicinity of proposed borrow areas have expressed concern over the potential or perceived impact on potential future development, land values, and public safety. Some members of the public have stated that they would prefer that remaining land in coastal parishes either not be excavated, or should be developed as residential, commercial, or industrial areas. Members of the public have also said that they feel that borrow areas should be backfilled. Non-governmental organizations have commented on the importance of avoiding impacts to jurisdictional wetlands when looking for borrow sources. The CEMVN is currently avoiding impacts to all jurisdictional wetlands, as other reasonable alternatives are available (see section 2.1). (If a Section 404 permit was issued for an unrelated activity, as outlined in Section 3.2.1 of this IER, the site was considered for CEMVN borrow activity.) Residents in the vicinity of proposed borrow

areas are concerned about truck haulers causing traffic congestion and noise. The public is also concerned about safety issues during and after the borrow area is excavated.

1.6 DATA GAPS AND UNCERTAINTIES

At the time of submission of this IER, geotechnical evaluations have been completed for the proposed contractor-furnished borrow areas. However, final selection and/or footprints of borrow areas could vary based on the results of future evaluations. If additional geotechnical evaluations result in negative findings, borrow area footprints would be decreased.

Transportation impacts and routes for the delivery of borrow material have not been fully determined, as it is currently uncertain to which construction sites each proposed contractor-furnished borrow area would provide material. Large quantities of material would be delivered to construction sites within the New Orleans metropolitan area. This could have localized short-term impacts to transportation corridors that cannot be quantified at this time. The CEMVN completed a transportation study to determine potential impacts associated with the transporting of material to construction sites. The study detailed an increase in truck traffic on highways and feeder roads during construction. The study can be found at www.nolaenvironmental.gov.

Cumulative impacts to noise quality, air quality, and aesthetics are not fully known at this time. Any additional impacts that have not been identified will be discussed in the CED.

Details on environmental justice impacts from potential use of proposed borrow areas will be further analyzed and details will be included in the CED.

The excavation of the proposed contractor-furnished borrow areas is subject to compliance with local and state regulations or ordinances, including any local or state rules concerning backfilling excavated sites. It is the responsibility of the landowner to coordinate and secure appropriate permits from the local parish/county authority before starting any work on the property. Some unknown impacts due to backfilling activity may include traffic impacts, river dredging impacts, impacts to threatened and endangered species, stockpile/staging locations, sediment pipeline routes from the Mississippi River or other sediment source, and water quality impacts.

2. ALTERNATIVES

2.1 ALTERNATIVES DEVELOPMENT AND PRELIMINARY SCREENING CRITERIA

NEPA requires that in analyzing alternatives to a proposed action a Federal agency consider an alternative of “No Action.” Likewise, Section 73 of the WRDA of 1974 (P.L. 93-251) requires Federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. This IER discusses the potential impacts associated with excavating proposed contractor-furnished borrow areas, and as such there are no non-structural alternatives. Non-structural alternatives have and will be evaluated in the IERs discussing the construction of the HSDRRS levees, floodwalls, and structures.

The CEMVN is pursuing three avenues of obtaining the estimated amount of borrow material needed for construction of the HSDRRS. These three avenues are government-furnished (the Government acquires rights to property), pre-approved contractor-furnished (a CEMVN levee construction contractor works in partnership with a

landowner to provide suitable borrow material from the landowner's property), and supply contract (a landowner or corporation delivers a pre-specified amount of suitable borrow material to a designated location for use by a CEMVN levee construction contractor). Two of the avenues being pursued (contactor furnished and supply contract) would allow a private individual(s) or corporation(s) to propose a site for excavation of borrow material. It is conceivable that government-furnished, contractor-furnished, and supply contract sources of borrow material could come from anywhere in the United States.

IER #18, IER #22, IER #25, and IER #28 discuss the potential impacts related to using approved government-furnished borrow areas. The potential impacts related to using approved contractor-furnished borrow areas are discussed in IER #19, IER #23, IER #26, IER #29, IER #30, IER #31, and IER #32. This IER discusses potential contractor-furnished borrow alternatives.

The U.S. Fish and Wildlife Service (USFWS) supports the CEMVN's prioritization of selection for potential borrow areas in the following order: existing commercial areas, upland sources, previously disturbed/manipulated wetlands within a levee system, and low-quality wetlands outside a levee system (letter dated August 7, 2006, appendix D). The USFWS recommends that prior to utilizing borrow areas, every effort should be made to reduce impacts by using sheetpile and/or floodwalls to increase levee heights wherever feasible. The USFWS also recommends adopting and utilizing the following protocol to identify borrow sources in descending order of priority:

1. "Permitted commercial sources, authorized borrow sources for which environmental clearance and mitigation have been completed, or non-functional levees after newly constructed adjacent levees are providing equal protection.

2. Areas under forced drainage that are protected from flooding by levees, and that are:

    a) non-forested (e.g., pastures, fallow fields, abandoned orchards, former urban areas and non-wetlands;

    b) wetland forests dominated by exotic tree species (i.e., Chinese tallow) or non-forested wetlands (e.g., wetland pastures), excluding marshes;

    c) disturbed wetlands (e.g., hydrologically altered, artificially impounded).

3. Areas that are outside a forced drainage system and levees, and that are:

    a) non-forested (e.g., pastures, fallow fields, abandoned orchards, former urban areas) and non-wetlands;

    b) wetland forests dominated by exotic tree species (i.e., Chinese tallow) or non-forested wetlands (e.g., wetland pastures), excluding marshes;

    c) disturbed wetlands (e.g., hydrologically altered, artificially impounded)."

The USFWS is currently assisting the CEMVN in meeting this protocol.

<u>Clay Specifications</u>

Material from the proposed borrow areas were tested for suitability. The earthen clay material shall be naturally occurring or contractor blended. Addition of lime, cement, or other soil amendments for any reason is not permitted. Soil that is classified in accordance with ASTM D 2487 and the Unified Soil Classification System as CH and CL are suitable. Soil classified as ML shall be considered unsuitable; however, minor amounts of ML may be suitably blended with CH or CL to formulate a material that classifies as a CL as per ASTM D 2487. Soil must be free from masses of organic matter, sticks, branches, roots, and other debris, including hazardous and regulated solid wastes. Soil from a contractor-supplied earthen clay material source may not contain excessive amounts of wood. However, isolated pieces of wood would not be considered objectionable in the embankment provided their length does not exceed 1 foot, their cross-sectional area is less than 4 square inches, and they are distributed throughout the fill. Not more than 1 percent (by volume) of objectionable material shall be contained in clay material ordered by the Government. Pockets and/or zones of wood shall not be acceptable. Material consisting of greater than 35 percent sands (by dry weight) or materials with a PI of less than 10 will not be accepted, nor will material having an organic content exceeding 9 percent by weight. Under no circumstances shall frozen earth, snow, or ice in the material be considered acceptable.

The geotechnical analysis consists of the following:

1. A geotechnical report stamped and signed by a licensed civil engineer with a specialization in geotechnical engineering certifying that the proposed source contains suitable material meeting the specifications outlined in the CEMVN's Soil Boring Factsheet.

2. The geotechnical report must consist of a summary and conclusion section in the main body of the report with any supporting data attached separately. The licensed engineer shall determine the sub-surface investigations required. These investigations could include but are not limited to soil borings, test sites, or cone penetrometer tests.

3. Investigations shall be spaced according to the geotechnical engineer's sub-surface evaluation and be representative of the entire proposed source. The licensed engineer's test plan must provide a comprehensive sampling to at least 5 feet below the bottom of the proposed excavation.

4. All soil samples must be classified in accordance with the Unified Soil Classification system. The supporting data attached to the geotechnical report shall be comprehensive and include as a minimum all field logs, soil sampling and testing results and a detailed investigation location map with the location of the potential borrow source and all investigation locations superimposed. The soil investigation locations must include latitudes and longitudes for plotting purposes.

Laboratory tests include:

1. Soil classification shall be performed in accordance with the Unified Soil Classification System and ASTM D 2487.

2. Atterberg Limits Test shall be performed in accordance with ASTM D 4318.

3. Determination of moisture content shall be performed in accordance with ASTM D 2216 or ASTM D 4643.

4. Determination of organic content shall be performed in accordance with ASTM D 2974, Method C.

5. Control compaction curves shall be established in accordance with ASTM D 698 (Standard Proctor Compaction Tests). A control compaction curve is required for each soil type from each source. Where material is blended and stockpiled, a control compaction curve would be required for each resulting blend of material and would be utilized in lieu of those required for the "unblended materials."

6. Sand Content shall be determined by 200 wash in accordance with ASTM D 1140.

Test Procedures for borings include:

1. A moisture content determination shall be made and recorded on all samples classified as (CH), (CL), and (ML) at no less than 2 foot intervals.

2. For (CH), (CL), and (ML) soils, Atterberg Limits and Organic Content Testing (ASTM D 2974, Method C) is required every 5 feet (minimum).

3. Samples with moisture contents at 70 percent or higher or having a Liquid Limit of 70 or higher must be tested for organic content for that sample as well as for a sample 2 feet above and 2 feet below that sample.

4. Sand content tests would be required for samples that classify as CL (with a PI greater than 10) and for all clay samples (CH and CL) with greater than 10 percent coarse grain materials estimated by visual classification for 2 or more consecutive feet.

5. Sand content tests would be limited to one test every 5 feet of sampling and shall conform to ASTM D1140-00 (#200 sieve required).

6. Sand content tests would be required for samples that classify as a ML, but limited to one test every 5 feet of sampling.

The resulting classification, plasticity, water content, and organic content determinations and borrow area boring logs with GPS readings at the boring locations have been or will be analyzed for potential use by the CEMVN to determine the suitability of the soil. Geotechnical testing and soil analysis is ongoing at some of the areas, so it is possible that the area of suitable acreage may decrease as results are finalized.

The CEMVN is pursuing three avenues of obtaining the estimated amount of borrow material needed for construction of the HSDRRS. They include:

- <u>Government-Furnished Borrow Material.</u> The Government would acquire the rights to property, from which suitable borrow material could be used for construction of the HSDRRS. Government-furnished borrow alternatives are discussed in IER #18, IER #22, IER #25, and IER #28.

  For potential government-furnished borrow areas, the CEMVN conducts site visits, performs soil borings and testing, acquires all pertinent environmental clearances, and is responsible for borrow site acquisition. Using this method, the landowner provides the CEMVN with a signed right-of-entry (ROE) form and the Government completes all required testing and analysis.

- Contractor-Furnished Borrow Material. A CEMVN levee contractor would work in partnership with a landowner to obtain suitable pre-approved contractor-furnished borrow material from the landowner's property. The 4 proposed sites discussed in this document are potential contractor-furnished borrow areas. If the proposed sites are approved, a CEMVN levee contractor could select any of these sites for use in a contract for construction of the HSDRRS. If a levee contractor selected one of these proposed contractor-furnished borrow areas, he would work in partnership with the borrow area landowner to provide suitable borrow material from the selected borrow area. Other contractor-furnished borrow alternatives are discussed in IER #19, IER #23, IER #26, IER #29, IER #30, IER #31, and IER#32.

  For potential contractor-furnished borrow areas, individual landowners are responsible for soil boring and testing, and acquiring all applicable local, state, and Federal environmental clearances. Upon completing all required tasks, the landowner submits a complete package to the CEMVN for approval. The Government completes an analysis of the site and the material proposed for use based upon the information supplied to the Government by the landowner. Upon approval of the site by the Government, the potential borrow site would be placed on the complimentary list of potential pre-approved contractor-furnished borrow sources ("Clay Source List"). The CEMVN may opt to provide in construction contracts a complimentary list of contractor-furnished clay sources that have been deemed to have material that meets geotechnical standards and to be environmentally acceptable. However, the CEMVN does caution that it cannot vouch for the availability, suitability or quantity of borrow material from such listed sources. The construction contractor is not obligated to select a site from the contractor-furnished clay source list. However, if the contractor chooses to obtain borrow material elsewhere, then it must demonstrate that its source has undergone environmental clearance conforming to the CEMVN's requirements and that the source meets the CEMVN's geotechnical standards. Agreements for use of a contractor-furnished site would solely be between a construction contractor and the landowner, and at no point in time would the landowner have an agreement with the CEMVN. Additionally, there are no guarantees that the landowner will sell borrow material for construction of the HSDRRS. For a construction contractor to use borrow from the contractor-furnished clay source list, the contractor must reach an agreement with the site owner(s) and compensate the owner for the material used from the site, based on that agreement. Reaching the agreement and compensating the landowner are the responsibility of the construction contractor.

- Supply Contract Borrow Material. A supply contract would allow a private individual(s) or corporation(s) to deliver a pre-specified amount of suitable borrow material from an area(s) anywhere in the United States. The individual or corporation would deliver the borrow material to a designated location for use by a CEMVN construction contractor.

  The Government may secure borrow material through a supply contractor that would deliver material to the construction site and/or stockpile area for placement by a construction contractor. For potential supply contract borrow sites, individual bidders are responsible for geotechnical testing and acquiring state and Federal environmental clearances. Upon completing all required tasks, the landowner submits a complete package to the CEMVN for approval when requested, as per a contract Request For Proposal. Sites are evaluated by the

CEMVN for environmental compliance and soil suitability. If approved, the bidders would be allowed to participate in the supply contract process.

2.2 DESCRIPTION OF THE ALTERNATIVES

Two alternatives were considered. These include the no action and the proposed action.

No Action. Under the no action alternative, the proposed contractor-furnished borrow areas would not be used in connection with construction of the HSDRRS. The HSDRRS levee and floodwall projects would be built to authorized levels using government-furnished borrow areas and contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, and IER #32 or other sources yet to be identified.

Proposed Action. The proposed action consists of excavating the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas, as discussed in section 2.3.

2.3 PROPOSED ACTION

The proposed action (preferred alternative) consists the potential to excavate all suitable material from the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas (figure 1). Material would be excavated by a CEMVN contractor who has made a financial arrangement with the contractor-furnished borrow area landowner. Once excavated and processed, the material would be transported to a HSDRRS construction site.

The landowners of the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites have stated they do not plan to backfill the sites.

In order to meet the borrow needs of the HSDRRS, personnel from the CEMVN investigated and completed environmental coordination of the proposed contractor-furnished borrow areas. Currently, no other potential contractor-furnished borrow areas are under investigation. The CEMVN has decided to end investigations of potential sources of contractor-furnished borrow material. The CEMVN gave a deadline of 30 April 2011 for interested landowners to participate in the HSDRRS Borrow Program. The Borrow Team received its last submissions from interested landowners on this date. The CEMVN is no longer accepting submissions from landowners.

Landowners or their agents of the proposed borrow areas discussed in this IER submitted the following information to the CEMVN for review: 1) a signed right of entry; 2) maps showing the property boundaries and areas being proposed for use as a contractor-furnished borrow area; 3) an approved Jurisdictional Determination from the CEMVN Regulatory Functions Branch indicating no jurisdictional wetland impacts; 4) a Coastal Use Permit or Letter of No Objection from the Louisiana Department of Natural Resources, Coastal Management Division (LADNR) (or state agency equivalent if the proposed site is in a state other than Louisiana), and a local parish/county Coastal Use Permit, when applicable; 5) a concurrence letter from the U.S. Department of the Interior, USFWS indicating that no threatened or endangered (T&E) species or their critical habitat would be affected by the proposed action; 6) a cultural resources assessment; 7) a Phase I Environmental Site Assessment (ESA); and 8) geotechnical boring logs and soil analysis identifying the suitability of potential borrow material. These materials are incorporated by reference.

This IER details the potential impacts related to the excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas.

- The 77-acre Assumption Land Company is located on the west bank of Jefferson Parish, Louisiana at the intersection of Live Oak Boulevard and Willswood Lane in Waggaman (figures 2 and 3). The site was previously investigated as the Westbank E government-furnished borrow area, as detailed in IER #25 (detailed in figure 3). The site is currently used for farming.

- The 171-acre Houma Excavation Site is located on Aragon Road in Montegut, Terrebonne Parish (figures 4 and 5). The site is currently open pasture used for cattle farming. There are 76 acres of wetlands located on the site, and if the site were to be utilized as a contractor-furnished borrow area a 100-foot buffer would be placed around jurisdictional wetlands located on the site to minimize potential impacts to the wetlands (figure 5). There is also 3.75 acres of non-wetland bottom land hardwood (BLH) habitat located within the proposed site that the landowner recently cleared to prepare the site for excavation of material for the HSDRRS.

- The 52-acre RBEND II site is located in LaPlace, St. John the Baptist Parish. The site is currently used for sugarcane farming. There is also 7.39 acres of non-wetland BLH habitat located within the proposed site as well.

- The 232-acre Robert Brothers Farm site is located in Wallace, St. John the Baptist Parish (figures 6 and 7). The site is currently used for sugarcane farming.

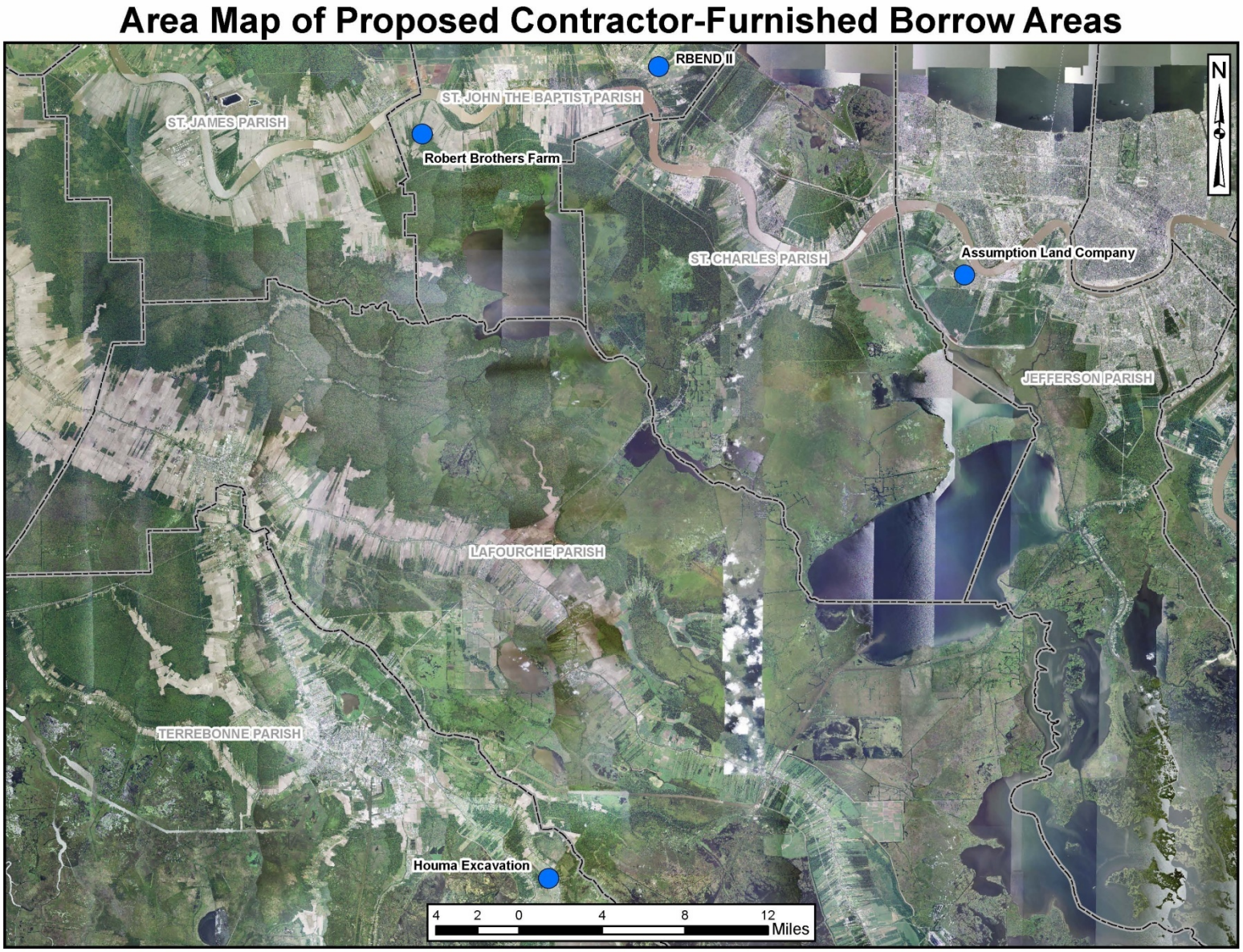

Figure 1: Area map of the proposed contractor-furnished borrow areas

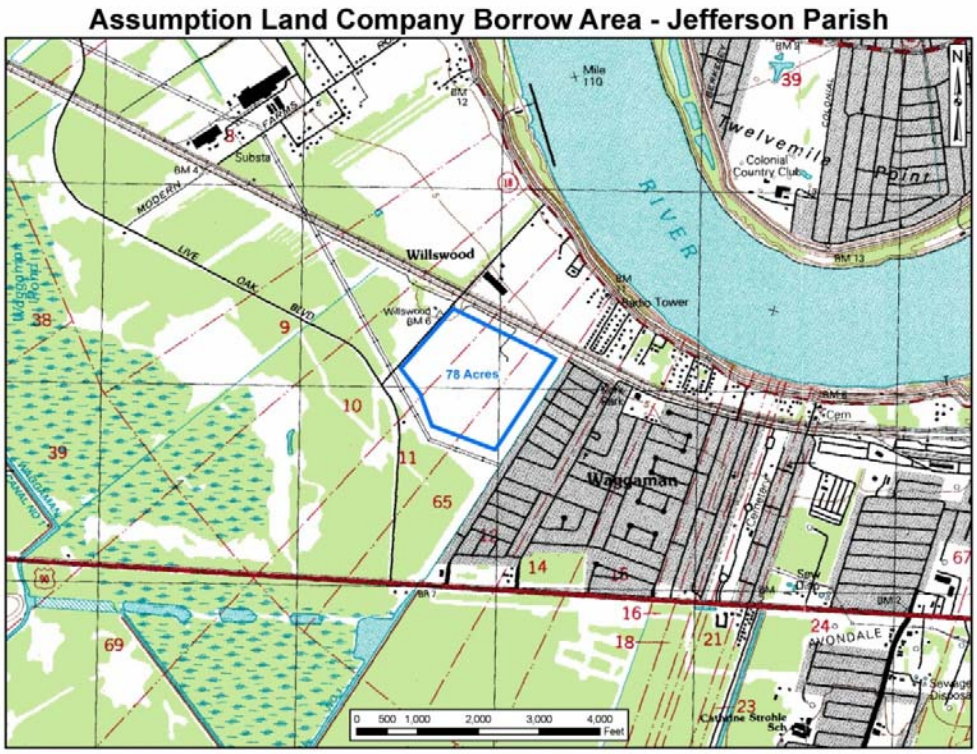

Figure 2: Area map of the proposed Assumption Land Company contractor-furnished borrow area

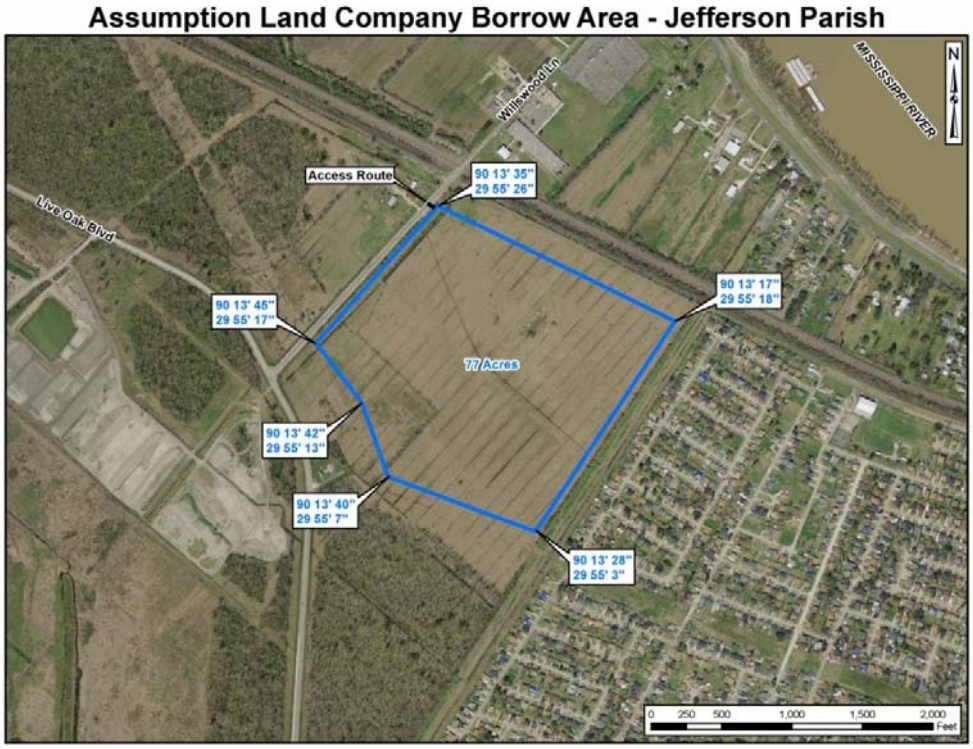

Figure 3: Site map of the proposed Assumption Land Company contractor-furnished borrow area

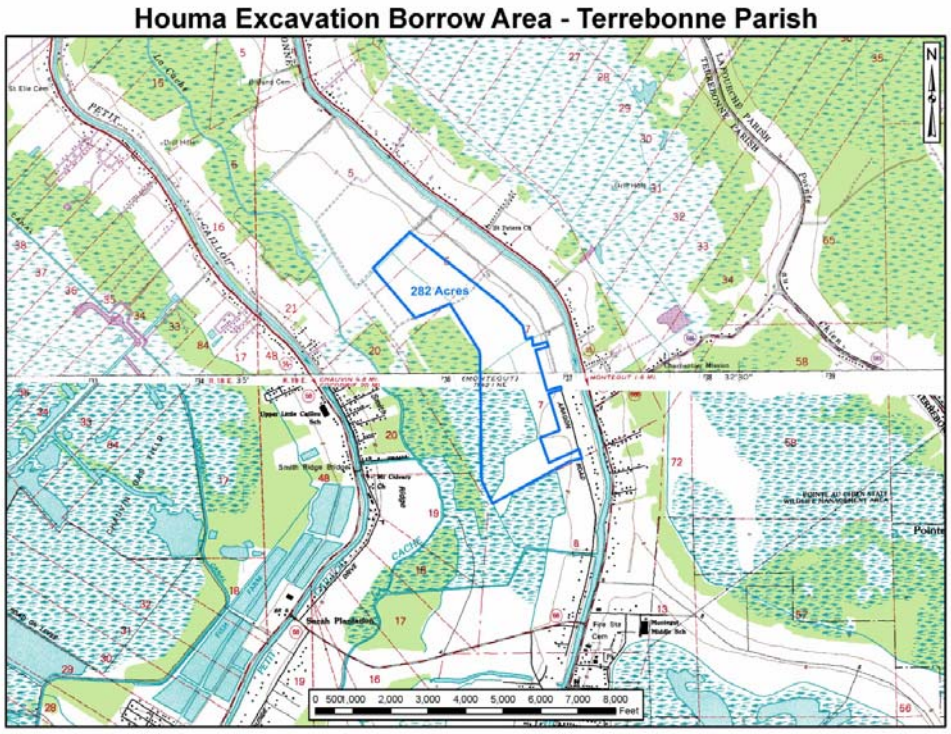

Figure 4: Area map of the proposed Houma Excavation contractor-furnished borrow area

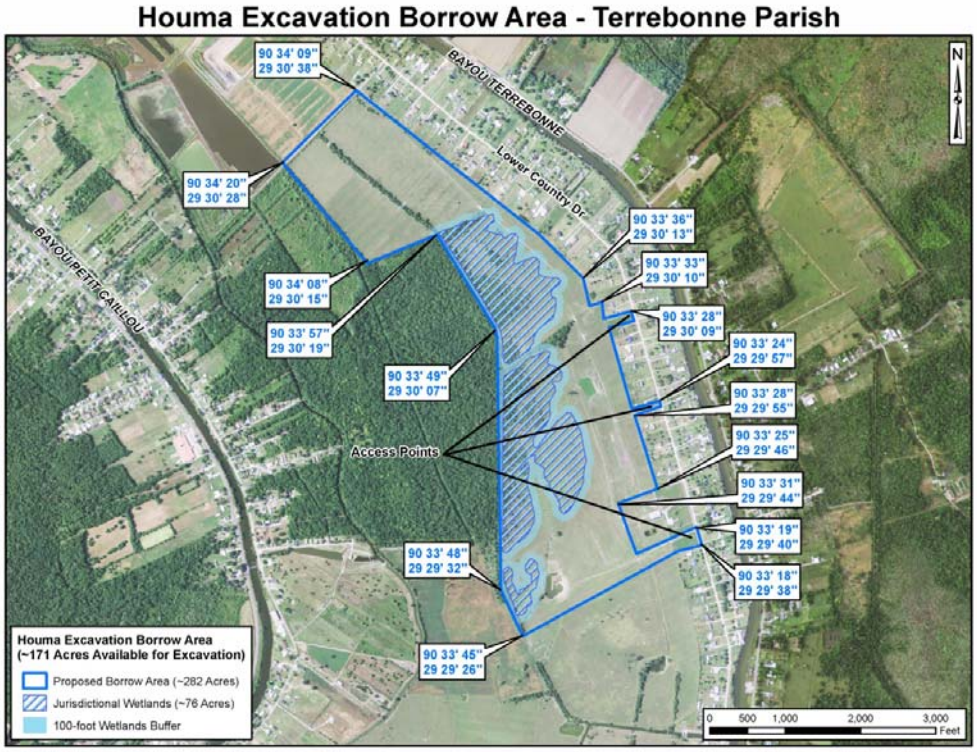

Figure 5: Site map of the proposed Houma Excavation contractor-furnished borrow area

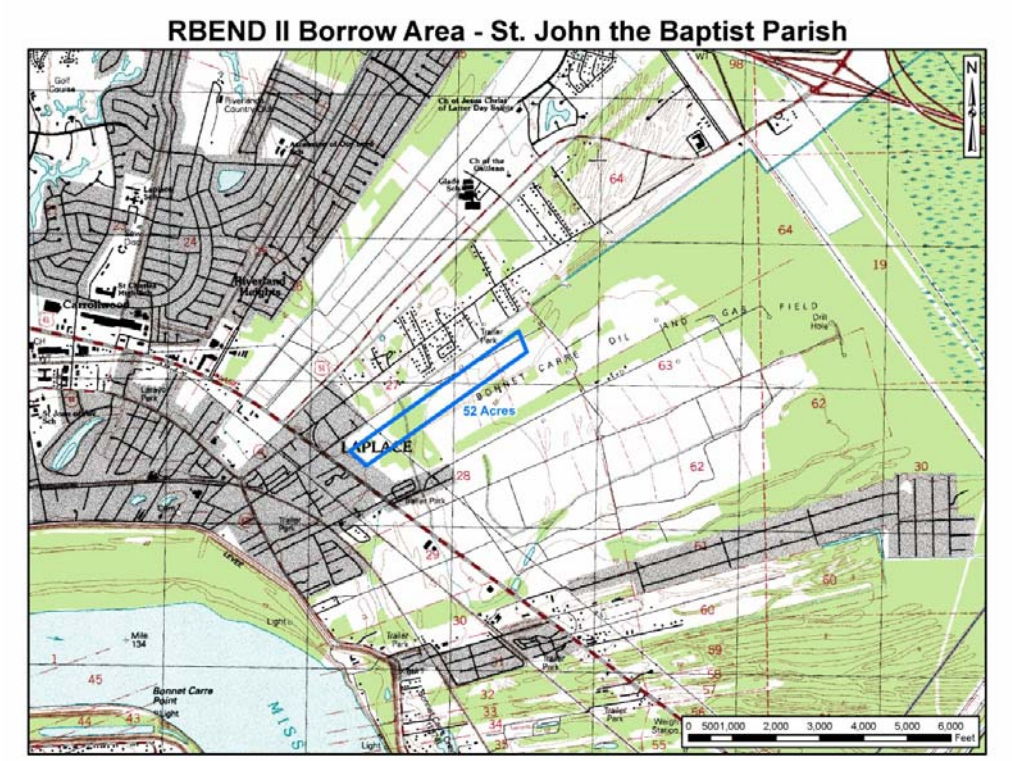

Figure 6: Area map of the proposed RBEND II contractor-furnished borrow area

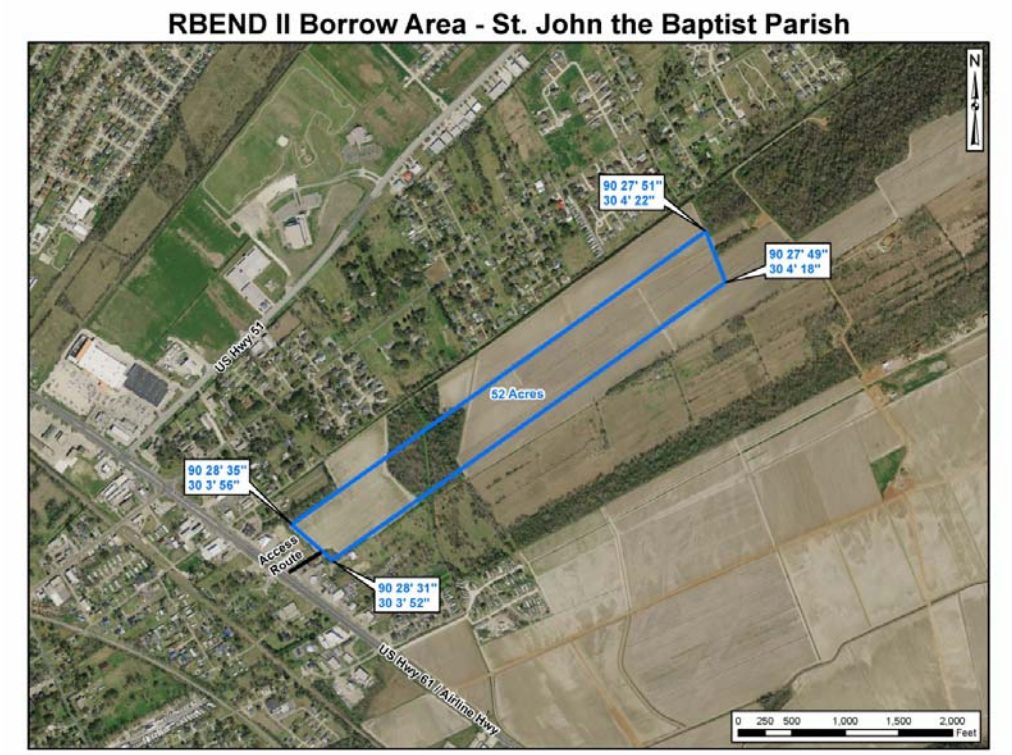

Figure 7: Site map of the proposed RBEND II contractor-furnished borrow area

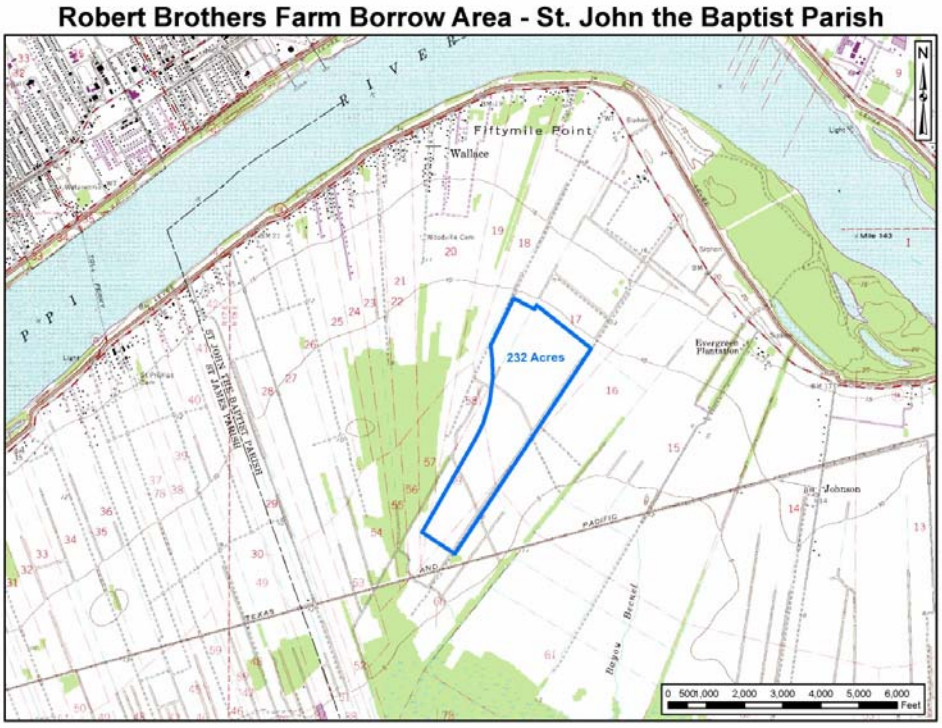

Figure 8: Area map of the proposed Robert Brothers Farm contractor-furnished borrow area

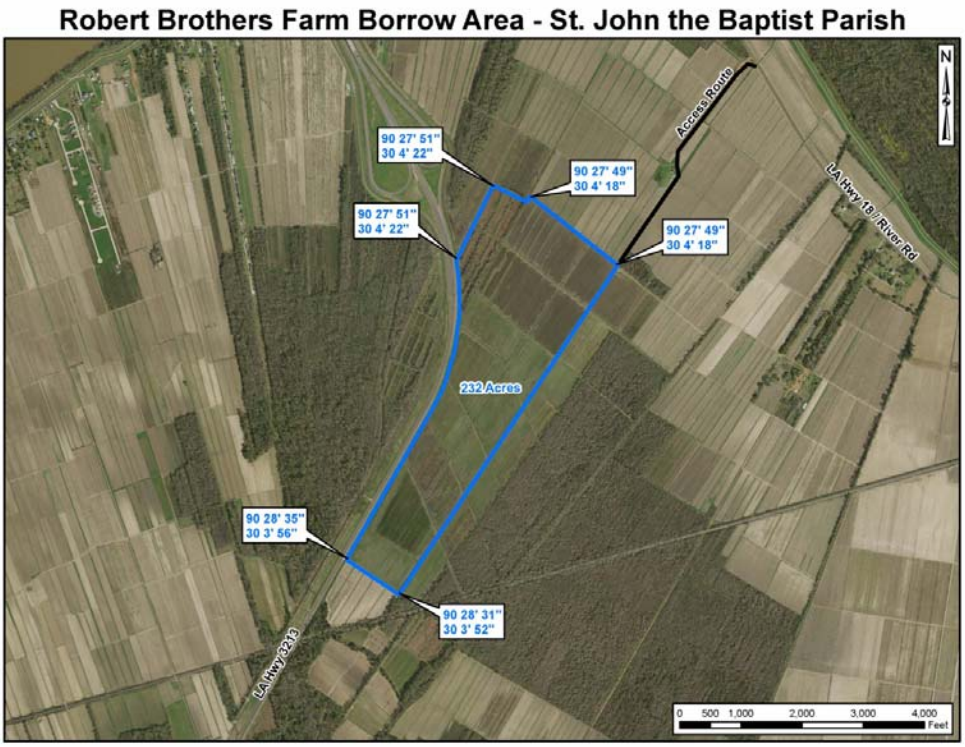

Figure 9: Site map of the proposed Robert Brothers Farm contractor-furnished borrow area

2.4 ALTERNATIVES TO THE PROPOSED ACTION

The alternative to the proposed action is the no action, as described in section 2.2. HSDRRS contractors could utilize previously-investigated sites included in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, and IER #32, or other sites that may be proposed by the contractor.

It is assumed the landowners would maintain the current uses of the sites if they are not utilized as borrow areas, as the PDT was not made aware of any planned land use changes at the proposed sites. The CEMVN is currently not pursuing use of the Westbank E site as a government-furnished borrow area. This site is included in this IER as the proposed Assumption Land Company site.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ENVIRONMENTAL SETTING

The proposed contractor-furnished borrow areas described in this report are located in southeastern Louisiana. For the purposes of this report, the study area is defined as the parishes and ecosystems of southeastern Louisiana surrounding Lake Pontchartrain south to the Gulf of Mexico, and west to Terrebonne Parish.

Flora and Fauna

The Study Area is located within the Louisiana Coastal Plain, which contains an extraordinary diversity of estuarine habitats that range from narrow natural ridges to expanses of BLH forest, forested swamps and fresh, brackish, saline marshes, croplands, and pasturelands. Wetlands support a diversity of functions and values to the region such as recreational and commercial fishing, harvesting of furbearers, hunting, ecotourism, critical wildlife habitat (including that for threatened and endangered species), water quality improvement, navigation and waterborne commerce, flood control, and buffering protection from storms.

Terrestrial animals that may inhabit some of the proposed contractor-furnished borrow areas include nutria, muskrat, raccoon, mink, and otter, which are harvested for their furs. White-tailed deer, feral hogs, rabbits, various small mammals, and a variety of birds, reptiles, amphibians, and mosquitoes also occur in the study area. Agricultural crops grown in the vicinity of some of the proposed contractor-furnished borrow areas include sugar cane, citrus fruits, and truck crops.

Soils

The term “borrow” is used in the fields of construction and engineering to describe material that is dug in one location for use at another location. The term “suitable” as it relates to borrow material is defined as meeting the following current criteria after placement as levee fill:

- Soils classified as clays (CH or CL) are allowed as per the Unified Soils Classification System;
- Soils with organic contents greater than 9 percent are not allowed;
- Soils with plasticity indices (PI) less than 10 are not allowed;

- Soils classified as silts (ML) are not allowed;
- Clays will not have more than 35 percent sand content.

The USACE HSDRRS Design Guidelines, of which the below-stated soil standards are a part, are reviewed and updated as necessary. Changes to the guidelines are reviewed and approved by USACE staff at the local, regional and headquarters level; additional reviews are completed by academia and private individuals who are recognized experts in their fields. Additionally, the guidelines being utilized by the CEMVN have been reviewed by members of the Interagency Performance Evaluation Team (IPET). The design guidelines may be updated from time to time to respond to new engineering analysis of improved technology, innovative processes, or new data.

3.2 SIGNIFICANT RESOURCES

This section contains a list of the significant resources located in the vicinity of the proposed contractor-furnished borrow areas, and describes in detail those resources that may be impacted directly, indirectly, or cumulatively by the proposed action. 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 are impacts that result 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 actions (40 CFR §1508.7).

The resources described in this section are those recognized as significant by laws, executive orders, regulations, and other standards of Federal, state, or regional agencies and organizations; technical and scientific agencies, groups, and 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 1 shows those significant resources found within the project area, and notes whether they would be impacted by the proposed action.

The impacts discussed in this report are those impacts specifically associated with utilizing the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas.

Table 1: Significant Resources in the Project Area

Significant Resource	Impacted	Not Impacted
Jurisdictional Wetlands		X
Non-Jurisdictional Bottomland Hardwood Forest	X	
Upland Areas		X
Farmland & Farmland Soils	X	
Wildlife	X	
Threatened and Endangered Species		X
Cultural Resources		X
Recreational Resources	X	
Noise	X	

Significant Resource	Impacted	Not Impacted
Air Quality	X	
Water Quality	X	
Aesthetics	X	
Socioeconomics	X	

3.2.1 Jurisdictional Wetlands

Existing Conditions

Jurisdictional wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The CEMVN is working diligently to avoid impacts to jurisdictional wetlands (as defined by Section 404 of the Clean Water Act [CWA]) when investigating and approving potential borrow sites for use in construction of the HSDRRS. The CEMVN selection prioritization of potential borrow areas (section 2.1), as well as guidance from the USFWS (appendix D), relating to potential impacts to jurisdictional wetlands have been and will continue to be followed. To date, wetlands have not been impacted at the over 11,000 acres of potential borrow sources the CEMVN has investigated. The CEMVN is committed to coordinating with governmental agencies and the public if jurisdictional wetlands are proposed for potential future government-furnished, contractor-furnished, or supply contract borrow activities.

During initial investigations, a jurisdictional wetland determination from the CEMVN Regulatory Functions Branch was completed for the four potential contractor-furnished borrow areas assessed in this IER.

- *Assumption Land Company Site*
  The CEMVN jurisdictional determination MVN-2011-00930-SY dated 1 June 2011 indicates that there are no jurisdictional wetlands on the proposed Assumption Land Company site. Additionally, jurisdictional wetlands are likely not located outside of and adjacent to the proposed site.

- *Houma Excavation Site*
  The CEMVN jurisdictional wetland determination MVN-2010-01847-SQ dated 16 December 2010 indicates that jurisdictional wetlands are located on the proposed Houma Excavation site (figure 5). Jurisdictional wetlands on the site would be avoided with a 100-foot buffer between them and any proposed activity.

  Jurisdictional wetlands are likely located outside of and adjacent to the proposed Houma Excavation site.

- *RBEND II Site*
  The CEMVN jurisdictional wetland determination MVN-2010-02874-SY indicates that jurisdictional “404 other waters” (drainage canals) are located along the perimeter of the proposed RBEND II site (figure 7). The term "other waters" is meant to differentiate the manmade drainage canals found on the proposed contractor-furnished borrow area from Clean Water Act Section 404 jurisdictional wetlands, per 33 CFR 328.3. Any activity other than excavating of the canals

would require permitting by the CEMVN Regulatory Branch, Louisiana Department of Natural Resources, and other regulating agencies.

Jurisdictional wetlands are likely not located outside of and adjacent to the proposed site.

- *Robert Brothers Farm*
  The CEMVN jurisdictional wetland determination MVN-2011-00880- indicates that jurisdictional "404 other waters" (drainage canals) are located along the perimeter and within the boundaries of the proposed RBEND II site (figure 7). Any activity other than excavating of the canals would require permitting by the CEMVN Regulatory Branch, Louisiana Department of Natural Resources, and other regulating agencies.

  Jurisdictional wetlands are likely not located outside of and adjacent to the proposed site.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts
Under the no action alternative, no direct impacts to jurisdictional wetlands would occur at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to jurisdictional wetlands at the sites with wetlands present would depend on what the landowners decide to do with the proposed sites, and is subject to permitting under the USACE CWA Section 404 program

Indirect Impacts
Under the no action alternative, there would be no indirect impacts to jurisdictional wetlands at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. The proposed sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to jurisdictional wetlands would depend on what the landowners decide to do with the proposed sites.

Cumulative Impacts
Under the no action alternative, the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas, and as such there would be no cumulative impacts to jurisdictional wetlands at the proposed sites or in the project areas due to the proposed action. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Cumulative impacts to jurisdictional wetlands would continue in the project area under the no action alternative. Historical and present wetland losses and gains in southeastern Louisiana have been caused by a multitude of natural and

anthropogenic actions (Barras et al., 2003). Coastal wetland loss has occurred for thousands of years in Louisiana, and has until the 20th century been balanced by various natural wetland building processes (LACOAST, 1997). Multiple factors have been associated with coastal land loss, including the inhibition of sediment movement into coastal systems due to levee systems along the Mississippi River; man-made canals and their associated hydrologic changes (i.e., saltwater intrusion); a decline of suspended sediments coming from the Mississippi River due to upriver dams and other projects; erosion caused by wave action and boating activity; geologic compaction and faulting; storm events, including hurricanes; and relative sea level rise (Boesch et al., 1994). Public and private wetland creation and restoration projects have contributed to wetland gain in southeastern Louisiana. Major programs and initiatives include the Coastal Wetlands Planning, Protection and Restoration Act program; the Beneficial Use of Dredged Material program; WRDA restoration projects (e.g., Davis Pond Freshwater Diversion, Caernarvon Freshwater Diversion); vegetation restoration projects (e.g., National Resources Conservation Service Plant Materials Center); Louisiana state restoration projects; the Louisiana Parish Coastal Wetland Restoration Program; Federal Emergency Management Agency restoration projects; public and private parties' initiatives, including those of non-governmental organizations and corporations; and private mitigation banks. It is expected that the trend of wetland loss would continue, the rate of which would be slowed by the previously mentioned wetland creation and restoration initiatives.

Human-induced impacts to wetlands have contributed the most to wetland loss in leveed areas. Most of these impacts have been associated with the conversion of wetland areas for agriculture and residential housing. These actions are regulated by the USACE CWA Section 404 regulatory program, and wetland losses are mitigated for through the program. It is expected that this historical trend of anthropogenic impacts would continue to impact non-protected leveed wetlands in the region.

Federal and non-Federal borrow activity has contributed to the loss of wetlands in the region. Historically, borrow material was taken from sources near levees, sometimes within wetland areas. At this time, the CEMVN has successfully avoided impacting wetlands when obtaining borrow for the proposed HSDRRS projects (section 2.1). Other Federal and non-Federal levee projects may incrementally impact wetlands for borrow acquisition and levee construction in the reasonably foreseeable future.

Historical and projected losses of wetlands in southeastern Louisiana have been analyzed and discussed in Coast 2050: Towards a Sustainable Coastal Louisiana (LCWCRTF, 1998), the final Louisiana Coastal Area (LCA), Louisiana - Ecosystem Restoration Study (USACE, 2004), Louisiana's Comprehensive Master Plan for a Sustainable Coast (LACPRA, 2007), and the ongoing USACE Louisiana Coastal Protection and Restoration project.

Proposed Action

- *All Sites*

Direct Impacts

No direct impacts to jurisdictional wetlands would occur with use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers

Farm contractor-furnished borrow areas. The wetlands found at the Houma Excavation site would be avoided by a 100-foot buffer, and would not be excavated. Any jurisdictional wetland areas outside of the sites would be avoided. The excavated areas would be converted to ponds and small lakes if water is retained, or to vegetated areas if water is not retained and the site overgrown with colonizing species. Additional potential direct impacts to jurisdictional wetlands would depend on what the landowners decide to do with the sites following excavation.

The manmade drainage ditches and canals at the RBEND II and Robert Brothers Farm sites that are classified as jurisdictional “404 other waters” may be excavated. The term "other waters" is meant to differentiate the manmade ditches found at the site from Clean Water Act Section 404 jurisdictional wetlands, which are not found on the project site, per 33 CFR 328.3. Any activity other than excavating of these canals at the RBEND II and Robert Brothers Farm sites would likely need to be permitted by the CEMVN Regulatory Branch (CWA Section 404 program), Louisiana Department of Natural Resources, and other regulating agencies.

Indirect Impacts

Use of the proposed Houma Excavation site may result in indirect wetland impacts. There are jurisdictional wetlands located close to the proposed excavation area. Excavation of the site may affect nearby jurisdictional wetlands by changing the hydrology and nutrient dynamics in its vicinity. These potential changes have not been quantified. There is a potential for wetland species from nearby wetlands to colonize and form wetland habitat around the excavated site, especially if ponds or small lakes form after excavation.

There would be no impacts to wetlands at the proposed Assumption Land Company, RBEND II, and Robert Brothers Farm sites because there are no known wetlands in the immediate vicinity of the sites. There is a potential for ponds or small lakes to form after the sites are excavated and the development of fringe wetlands along the perimeter of the excavated sites.

Additional potential indirect impacts to jurisdictional wetlands would depend on what the landowners decide to do with the sites following excavation.

Cumulative Impacts

Excavation of the proposed Houma Excavation site would not significantly contribute to cumulative wetland impacts. Any potential cumulative impacts to jurisdictional wetlands would depend on what the landowner decides to do with the site following excavation, and is subject to permitting under the USACE CWA Section 404 program.

There are no cumulative impacts anticipated with the proposed Assumption Land Company, RBEND II, and Robert Brothers Farm sites because there are no known wetlands in the immediate vicinity of the sites.

Additional cumulative impacts to jurisdictional wetlands would continue in the project area and would be similar to those described for the no action alternative.

3.2.2 Non-Jurisdictional Bottomland Hardwood Forest

Existing Conditions
Bottomland hardwood forest habitat is found throughout southeastern Louisiana. The typically productive forests are found in low-lying areas, and are usually dominated by deciduous trees such as hackberry, Chinese tallow tree, pecan, American elm, live oak, water oak, green ash, bald cypress, black willow, box elder, and red maple. Typical understory plants include dewberry, elderberry, ragweed, Virginia creeper, and poison ivy. Hard mast (nuts) and soft mast (samaras, berries) provide a valuable nutritional food source for birds, mammals, and other wildlife species.

The USACE has regulatory authority over jurisdictional Waters of the United States, including wetlands, pursuant to Section 404 of the Clean Water Act (CWA), as discussed in section 3.2.1. Non-jurisdictional BLH are those habitats that do not meet all three wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology), and thus are out of the USACE's jurisdiction (USACE, 1987). However, Section 906(b) of WRDA 1986 requires mitigation for impacts to BLH caused by an USACE project.

Biologists from the CEMVN and the USFWS conducted a site visit of the proposed contractor-furnished borrow areas to assess the value of these BLH habitats. Table 2 lists these values, as calculated by using the Wetland Value Assessment (WVA) model.

- *Assumption Land Company Site*
  There is no BLH currently at the proposed Assumption Land Company site, which is currently utilized for sugarcane farming.

- *Houma Excavation Site*
  There were approximately 3.75 acres of BLH forest at the proposed Houma Excavation site that the landowner recently cleared in the process of preparing the site for use as an HSDRRS borrow source. Most of the site is currently used for cattle pasture.

- *RBEND II Site*
  There are approximately 7.39 acres of BLH forest at the proposed RBEND II site. Most of the site is currently used for farming.

- *Robert Brothers Farm*
  There is no BLH at the Robert Brothers Farm site, which is currently used for sugarcane farming.

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, no direct impacts to non-jurisdictional BLH would occur at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas due to the proposed action. The proposed sites would not be used as contractor-furnished borrow areas.

  The landowner's recent clearing of the proposed Houma Excavation site contributed to the direct impact to non-jurisdictional BLH in the project area. Because the site was cleared in anticipation of the proposed action, the landowner

would be required to complete mitigation for the loss of non-jurisdictional BLH if their proposed site is used for construction of the HSDRRS. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the CEMVN prior to excavation.

Indirect Impacts

Under the no action alternative, no indirect impacts to non-jurisdictional BLH would occur at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas due to the proposed action. The proposed sites would not be used as contractor-furnished borrow areas.

Cumulative Impacts

Under the no action alternative, no cumulative impacts to non-jurisdictional BLH at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would occur due to the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified. Sites in these IERs encompass more than 1,700 acres of BLH that may be impacted for use on HSDRRS work.

Cumulative impacts to non-jurisdictional BLH would continue in the project area under the no action alternative. There are over 60 approved potential borrow areas in southeastern Louisiana and southwestern Mississippi that may be utilized for construction of the HSDRRS, some of which have BLH present.

Non-jurisdictional BLH habitat in the project area has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact non-jurisdictional BLH habitat in the region.

Proposed Action

The CEMVN and USFWS have assessed the environmental impacts of the proposed action utilizing the WVA. The agencies have determined that the proposed action would have unavoidable impacts to a number of acres of non-jurisdictional BLH, which is quantified by the WVA as Average Annualized Habitat Units (AAHUs) (table 2). Habitat Units (HU) represent a numerical combination of habitat quality (Habitat Suitability Index) and habitat quantity (acres) within a given area at a given point in time. AAHUs represent the average number of HUs within any given year over the project life for a given area. The project life for this action is defined as 50 years.

Use of the proposed Assumption Land Company and Robert Brothers Farm contractor-furnished borrow areas would not cause impacts to non-jurisdictional BLH. Use of the proposed RBEND II and Houma Excavation contractor-furnished borrow area would cause unavoidable impacts 11.14 acres (5.18 AAHUs) of non-jurisdictional BLH on the site (table 2).

Table 2: Non-jurisdictional BLH at proposed contractor-furnished borrow areas

Proposed Borrow Area	Acres Proposed for Excavation	Acres Non-jurisdictional BLH	AAHUs
Assumption Land Company Site	77	0	0
Houma Excavation Site	171	3.75	1.56
RBEND II Site	52	7.39	3.62
Robert Brothers Farm	232	0	0
Total	**362**	**11.14**	**5.18**

Compensatory mitigation would be required prior to impacting the BLH. The landowner or contractors would accomplish compensatory mitigation through the purchase of mitigation bank credits at an appropriate mitigation bank within the same watershed as the impacts. Mitigation for unavoidable impacts to non-jurisdictional BLH is discussed in section 7, and will be described under a separate IER.

- *Assumption Land Company and Robert Brothers Farm*

  Direct Impacts
  No direct impacts to non-jurisdictional BLH would occur with use of the proposed Assumption Land Company and Robert Brothers Farm sites because the sites do not contain any non-jurisdictional BLH.

  Indirect Impacts
  Use of the proposed Assumption Land Company and Robert Brothers Farm sites would not likely result in indirect impacts to non-jurisdictional BLH because the habitat type is not near these sites.

  Cumulative Impacts
  Use of the proposed Assumption Land Company and Robert Brothers Farm sites would not contribute to the cumulative loss of non-jurisdictional BLH in the project area because the sites do not contain any BLH habitat.

  Cumulative impacts to non-jurisdictional BLH would continue in the project area and would be similar to those described for the no action alternative.

- *Houma Excavation and RBEND II*

  Direct Impacts
  Excavation of the proposed RBEND II site would directly impact 7.39 acres of non-jurisdictional BLH (table 2).
  Mature trees would be cut down with the use of chainsaws or pushed down with bulldozers and excavators. Woody debris would be cleaned up and all berms would be leveled to eliminate hydrologic impacts. Mobile fauna would be expected to vacate the area during construction, most likely to similar habitat within the vicinity. All non-mobile fauna and flora would be destroyed.

  The landowner's recent clearing of 3.75 acres of non-jurisdictional BLH at the proposed Houma Excavation site contributed to the direct impact to non-jurisdictional BLH in the project area. Because the site was cleared in anticipation of the proposed action, the landowner would be required to complete mitigation for the loss of non-jurisdictional BLH if their proposed site is used for

construction of the HSDRRS. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the CEMVN prior to excavation.

Any additional potential direct impacts to non-jurisdictional BLH would depend on what the landowners decide to do with the sites following excavation.

Compensatory mitigation for the loss of non-jurisdictional BLH will be completed prior to the sites' use for construction of the HSDRRS. Proof of mitigation for non-jurisdictional BLH impacts would be supplied to the CEMVN prior to excavation.

Indirect Impacts
Use of the proposed Houma Excavation and RBEND II sites may result in indirect impacts to non-jurisdictional BLH. The excavation of borrow material and the excavated borrow areas may affect nearby non-jurisdictional BLH by changing the hydrology and nutrient dynamics in the vicinity. These changes have not been quantified.

Additional potential indirect impacts to non-jurisdictional BLH would depend on what the landowners decide to do with the sites following excavation.

Cumulative Impacts
Use of the proposed Houma Excavation and RBEND II sites would contribute to the cumulative loss of non-jurisdictional BLH in the project area. Additional potential cumulative impacts to non-jurisdictional BLH would depend on what the landowner decides to do with the site following excavation.

Cumulative impacts to non-jurisdictional BLH would continue in the project area and would be similar to those described for the no action alternative.

3.2.3 Upland Resources

For the purposes of this IER, upland resources are any non-wetland areas. Non-jurisdictional BLH habitat, although part of this definition, are discussed separately in section 3.2.2. Impacts to farmland and farmland soils, which may be located in upland areas, are discussed in section 3.2.4. Upland areas include maintained and unmaintained pasture, overgrown/vacant areas, and forested areas that are neither wetland nor non-jurisdictional BLH. Following this definition, there are no upland resources at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas.

3.2.4 Farmland and Farmland Soils

Existing Conditions
The National Resources Conservation Service (NRCS) uses a land evaluation and site assessment system to establish a farmland conversion impact rating score on proposed sites. This score is used by Federal agencies in assessing potential impacts to farmland and farmland soils in potential project areas. As identified by the NRCS, the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites contain prime farmland soils.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, no direct impacts to farmland and farmland soils at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would occur. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to farmland soils would depend on what the landowners decide to do with the sites.

  Indirect Impacts
  Under the no action alternative, no indirect impacts to farmland soils at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would occur. The proposed sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to farmland and farmland soils would depend on what the landowners decide to do with the sites.

  Cumulative Impacts
  Under the no action alternative, there would be no cumulative impacts to farmland soils at the sites due to the proposed action. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas. Any potential cumulative impacts to farmland soils would depend on what the landowners decide to do with the sites. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

  Farmland and farmland soils in the project area have historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact farmland in the region.

Proposed Action

- *All Sites*

  Direct Impacts
  Use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would directly impact farmland soils. The sites would be cleared and excavated, which would result in a direct permanent loss of farmland soils. Any additional potential direct impacts to farmland soils would depend on what the landowners decide to do with the sites following excavation.

  Indirect Impacts
  No indirect impacts to farmland soils at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would occur due to the proposed action. Any potential indirect impacts to farmland soils would depend on what the landowners decide to do with the sites following excavation.

  Cumulative Impacts

Use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would contribute to the cumulative loss of farmland soils in the region. Any additional potential cumulative impacts to farmland and farmland soils would depend on what the landowners decide to do with the sites following excavation.

Additional cumulative impacts to farmland soils would continue in the project area and would be similar to those described for the no action alternative.

3.2.5 Wildlife

Existing Conditions

The study area contains a great variety of mammals, birds, reptiles, and amphibians. Species inhabiting the area include nutria, muskrat, mink, otter, raccoon, white-tailed deer, skunks, rabbits, squirrels, armadillos, and a variety of smaller mammals. Wood ducks and some migratory waterfowl may be present during winter.

Non-game wading birds, shore birds, and sea birds including egrets, ibis, herons, sandpipers, willets, black-necked stilts, gulls, terns, skimmers, grebes, loons, cormorants, and white and brown pelicans are found in the project vicinity. Various raptors such as barred owls, red-shouldered hawks, northern harriers (marsh hawks), American kestrel, and red-tailed hawks may be present. Passerine birds in the areas include sparrows, vireos, warblers, mockingbirds, grackles, red-winged blackbirds, wrens, blue jays, cardinals, and crows. Many of these birds are present primarily during periods of spring and fall migrations. Colonial nesting wading birds (including herons, egrets, and Ibis), seabirds/water-birds (including terns, gulls, black skimmers, and brown pelicans) and bald eagles have the potential to nest in the proposed project area. The areas may also provide habitat for the American alligator, salamanders, toads, frogs, turtles, and several species of poisonous and nonpoisonous snakes. The area currently provides suitable breeding habitat for various species of mosquitoes.

The bald eagle is a raptor that is found in various areas throughout the United States and Canada as well as throughout the study area. Bald eagles are Federally protected under the Bald Eagle Protection Act of 1940. The bald eagle feeds on fish, rabbits, waterfowl, seabirds, and carrion (Ehrlich et al., 1988). The main basis of the bald eagle diet is fish, but they will feed on other items such as birds and carrion depending upon availability of the various foods. Eagles require roosting and nesting habitat, which in Louisiana consists of large trees in fairly open stands (Anthony et al., 1982). Bald eagles nest in Louisiana from October through mid-May. Eagles typically nest in bald cypress trees near fresh to intermediate marshes or open water in the southeastern parishes.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts

Under the no action alternative, no direct impacts to wildlife or wildlife habitat at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would occur due to the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to wildlife and wildlife habitat would depend on what the landowners decide to do with the sites.

Indirect Impacts
Under the no action alternative, no indirect impacts to wildlife or wildlife habitat at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would occur due to the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to wildlife and wildlife habitat would depend on what the landowners decide to do with the sites.

Cumulative Impacts
Under the no action alternative, there would be no cumulative impacts to wildlife or wildlife habitat from the proposed action. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would not be used as contractor-furnished borrow areas. Any potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowners decide to do with the sites. Under the no action alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Cumulative impacts to wildlife and wildlife habitat would continue in the project area under the no action alternative. Other activities in the vicinity have and would continue to change land use patterns, contributing to the cumulative loss of wildlife and wildlife habitat in the project area. Recent residential and commercial developmental pressures may contribute to a decline in remaining wildlife habitat in the vicinity.

Wildlife habitat in the project area has historically been affected by residential, commercial, and industrial development. Land has been converted for residential, commercial, and industrial uses in a significant portion of leveed areas in the region. It is expected that this historical trend would continue to impact wildlife habitat in the region.

Proposed Action
Colonial nesting wading birds (including herons, egrets, and Ibis), seabirds/water-birds (including terns, gulls, black skimmers, and brown pelicans) and bald eagles have the potential to nest in the proposed project area. The nesting birds and their nests would not be disturbed or destroyed. The CEMVN will provide additional information on affected bird species and known colonial nesting sites to construction contractors, and will require that it be contacted if any nesting area within 650 feet of the construction zone would be disturbed.

- *All Sites*

Direct Impacts
Direct impacts from wildlife displacement would occur when the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas are cleared and excavated. Non-mobile wildlife would be destroyed. Trees, uplands, and other habitat would be removed and the sites would be excavated. The excavated sites could fill with water and create aquatic habitats. Any additional potential direct impacts to wildlife and wildlife habitat would depend on what the landowners decide to do with the sites following excavation.

Indirect Impacts
The excavated borrow areas may be converted to ponds and small lakes, which could add to wildlife habitat in the vicinity. Aquatic vegetation may colonize the shallow littoral edge of the area, and wildlife (alligators, raccoons, wading birds, and ducks) adapted to an aquatic environment would be expected to expand their range into the new waterbodies. A variety of plant species may colonize adjacent to the water that could provide important wildlife habitat utilized for nesting, feeding, and cover. Any areas that remain dry would be expected to be colonized by vegetation and woody plants, which could provide habitat to wildlife. The dense vegetation could attract a variety of wildlife including birds, reptiles, amphibians, and small mammals. While the excavated borrow areas have the potential to become a mosquito breeding areas, the amount of surface acres of water is considered to be small compared to surrounding wetlands. However, local parish mosquito control programs, not the CEMVN, are responsible for mosquito control.

Any additional potential indirect impacts to wildlife and wildlife habitat would depend on what the landowners decide to do with the sites following excavation.

Cumulative Impacts
Use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would contribute to the cumulative loss of wildlife and wildlife habitat in the region. Because the excavated borrow sites may provide habitat for wildlife, the detrimental cumulative impact to wildlife may be reduced. Any additional potential cumulative impacts to wildlife and wildlife habitat would depend on what the landowners decide to do with the sites following excavation.

Additional cumulative impacts to wildlife and wildlife habitat would continue in the project area and would be similar to those described for the no action alternative.

3.2.6 Threatened and Endangered Species

Existing Conditions
Threatened and endangered species (T&E) are those recognized species that are legally protected in the United States through various conservation measures. The USFWS designates areas that have the physical and biological features that are essential to the conservation of T&E species or areas of habitat that are believed to be essential for a species' conservation as "critical habitat", pursuant to the Endangered Species Act of 1973. Through this designation the USFWS is helping to manage the survival and proliferation of T&E species in the region. Although several Federal or state-listed T&E species are dependent on the habitat types present in the study areas, no endangered, threatened, or candidate species under USFWS jurisdiction presently occur in the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas, as described below. No critical habitat for any T&E species was found at any of the proposed contractor-furnished borrow areas.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  No direct impacts to T&E species or their critical habitat would occur under the no action alternative. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas.

  Indirect Impacts
  No indirect impacts to T&E species or their critical habitat would occur under the no action alternative. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas.

  Cumulative Impacts
  Under the no action alternative, there would be no cumulative impacts to T&E species or their critical habitat from the proposed action. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

  Approved government-furnished and contractor-furnished borrow areas could be used for construction of the HSDRRS. Use of these approved sites would not contribute to the loss of T&E species or their critical habitat in the project area because none of these approved sites contain any T&E species or critical habitat.

  The region's T&E species depend on a variety of habitat that includes resources previously discussed in this IER, mainly jurisdictional wetlands and non-jurisdictional BLH. A discussion of the potential impacts to these resources can be found in, respectively, section 3.2.1 and section 3.2.2. Cumulative impacts to T&E species and wildlife habitat would continue in the project area under the no action alternative.

Proposed Action
No listed endangered, threatened, or candidate species are known to exist at the proposed sites. The USFWS concurred with the landowners' determination that excavation of the proposed contractor-furnished borrow areas are not likely to adversely affect T&E species or their critical habitat, as described below (table 3).

Table 3: USFWS T&E Concurrence

Proposed Borrow Area	USFWS Concurrence of Landowners' Determination
Assumption Land Company Site	7 April 2011
Houma Excavation Site	20 April 2011
RBEND II Site	29 November 2010
Robert Brothers Farm Site (1/2)	9 December 2010
Robert Brothers Farm Site (2/2)	20 April 2011

- *All Sites*

  Direct Impacts
  No direct impacts to T&E species or their critical habitat would occur with excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites. The USFWS concurred with determinations that implementation of the proposed action would not adversely affect any T&E species or their critical habitat in their letters (table 3).

  Indirect Impacts
  No indirect impacts to T&E species or their critical habitat would occur with excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites.

  Cumulative Impacts
  Use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not contribute to the loss of T&E species or their critical habitat in the project area because the proposed sites do not contain any T&E species or critical habitat.

  The region's T&E species depend on a variety of habitat that includes resources previously discussed in this IER, mainly jurisdictional wetlands and non-jurisdictional BLH. A discussion of the impacts to these resources can be found in, respectively, section 3.2.1 and section 3.2.2. Cumulative impacts to T&E species and wildlife habitat would continue in the project area.

3.2.7 Cultural Resources

The level of cultural resource investigations for each proposed contractor-furnished borrow area depends on factors such as current and past land use, geomorphology, presence of known sites, and the probability of unknown sites located within the areas of potential effect (APE). This information is used to assess the likelihood that archaeological sites or historic structures could be affected by excavation or visual impacts of a proposed project. When sites are present within the APE, the project area boundaries may be adjusted to avoid impacts to historic properties, or sites may be investigated further to determine if they are eligible for inclusion on the National Register of Historic Places (NRHP). Site identification (Phase I) cultural resource investigations were conducted for the ten sites.

Section 106 of the National Historic Preservation Act of 1966, as amended, requires consideration of cultural resources prior to a federal undertaking and requires consultation with the State Historic Preservation Officer (SHPO) and Federally recognized Indian Tribes that have an interest in the region, and in some cases the Advisory Council on Historic Preservation and other consulting parties. Only sites, buildings, structures, or objects determined eligible for, or listed on, the NRHP are afforded the safeguards of the National Historic Preservation Act. Table 4 summarizes the consultation efforts of the CEMVN for the proposed contractor-furnished borrow areas and the dates the organizations concurred with the CEMVN's findings and recommendations. The results of these investigations and consultation reveal that no known sites eligible for, or listed on, the NRHP exist within the APE of each site. No historic properties will be adversely affected by the proposed actions. However, 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 archaeologist has been notified and supplemental coordination with the SHPO and Indian Tribes has been completed.

In its evaluation of potential contractor-furnished borrow areas, the CEMVN seeks to avoid adverse impacts to historic properties. Cultural resource investigations have revealed the presence of both prehistoric and historic sites in the vicinity of the proposed contractor-furnished borrow areas. These prehistoric and historic sites are located outside the APEs for the proposed contractor-furnished borrow areas. However, prehistoric archaeological sites, such as shell middens, hunting and gathering camps, habitation sites, villages, and mound sites tend to be located on active and abandoned distributary channel levee complexes, major beach ridges, and on older stable portions of the delta, and in association with freshwater marshes. Similarly, historic period sites, such as forts, plantations, and industrial features tend to be located on natural levees and waterways. The geologic processes associated with the Mississippi River including delta lobe formation, meander progressions, and alluvial sedimentation from floods greatly influence site location and preservation. For example, the geological progression of the Mississippi River delta lobes suggests that the earliest archaeological sites near the proposed contractor-furnished borrow areas under consideration would date to approximately 5,000 years ago. In addition, flood sedimentation buries and preserves some sites, while channel erosion and subsidence obliterate other sites.

- *RBEND II Site*
  A Phase I cultural resources survey of the proposed RBEND II contractor-furnished borrow area was conducted and located no cultural resources.

- *Assumption Land Company Site*
  A Phase I cultural resources survey of the proposed Assumption Land Company contractor-furnished borrow area was completed when this land was contemplated as a government-furnished borrow source and was called Westbank E. A single isolated cultural find was located in Westbank E but was determined as not eligible for the National Register of Historic Places. This non-eligible location requires no further actions of avoidance or investigation.

- *Houma Excavation Site*
  A Report was produced for the Houma Excavation site, to identify any historic properties within the proposed Houma Excavation contractor-furnished borrow area. This report concluded that no historic resources would be damaged by the proposed borrow area, and this report was accepted by the SHPO.

- *Robert Brothers Farm*
  Background research undertaken for the proposed Robert Brothers Farm contractor-furnished borrow area found that a Phase I cultural resources investigation has been completed of this area in 1991. That 1991 investigation included all of the currently proposed Robert Brothers Farm area, and found no cultural resources within the proposed Robert Brothers Farm borrow area.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, no direct impacts to cultural resources at the proposed RBEND II, Assumption Land Company, Houma Excavation, and Robert Brothers Farm sites would be anticipated. Any undiscovered or

unreported cultural resources or traditional cultural properties would remain intact and in their current state of preservation. The burial or subsidence of historic land surfaces would continue in the current pattern. All available information indicates that it is highly unlikely that under the no action alternative there would be any direct negative impacts to cultural resources.

Indirect Impacts
Under the no action alternative, no indirect impacts to cultural resources at the proposed contractor-furnished borrow areas would be anticipated.

Cumulative Impacts
Under the no action alternative, the proposed contractor-furnished borrow areas would not be used. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32 or other sources yet to be identified.

Proposed Action

- *All Sites*

Direct Impacts
All available information indicates that it is highly unlikely that cultural resources would be impacted by excavation of the proposed RBEND II, Assumption Land Company, Houma Excavation, and Robert Brothers Farm sites. With implementation of the proposed action, any undiscovered cultural resources may be damaged during borrow excavation and construction operations. It is unlikely that such direct impacts would occur because cultural resource surveys have been completed in order to identify cultural resources within the proposed contractor-furnished borrow areas and those surveys did not reveal the existence of any known historic properties that are eligible for the NRHP within the proposed borrow sites.

Construction contractors are required to contact the CEMVN in the event that any apparent historical or archaeological properties are unearthed during excavation of the proposed site. The items shall be carefully preserved, and the contractor shall leave the find undisturbed. Excavation would be halted until the SHPO and Indian Tribes are notified.

Indirect Impacts
With implementation of the proposed action, no indirect impacts to cultural resources would be anticipated.

Cumulative Impacts
If the proposed RBEND II, Assumption Land Company, Houma Excavation, and Robert Brothers Farm sites are used as contractor-furnished borrow areas, it is highly unlikely that any cumulative negative impacts to cultural resources would occur from the sites' excavation. Cultural resource surveys were completed for the sites and those surveys did not reveal the existence of any known historic properties that are eligible for the NRHP within them (table 4).

Table 4. Summary of Section 106 of NHPA correspondence

Site	Date Consulting Party Provided Concurrence on the Project											
	SHPO	**Chitimacha Tribe of LA**	**MS Band of Choctaw Indians**	**Alabama Coushatta Tribe of TX**	**Caddo Nation of OK**	**Choctaw Nation of OK**	**Coushatta Tribe of LA**	**Jena Band of Choctaw Indians**	**Quapaw Tribe of OK**	**Seminole Nation of OK**	**Seminole Tribe of FL**	**Tunica-Biloxi Tribe of LA**
Assumption Land Company Site	5/7/08 4/12/11	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*	5/23/08*
Houma Excavation	4/13/11	7/21/11	7/21/11	7/21/11	7/21/11	9/9/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11
RBEND II	7/1/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11
Robert Brothers Farm (1/2)	7/22/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11
Robert Brothers Farm (2/2)	7/22/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11	7/21/11

* No response (NR) implies concurrence with the CEMVN finding of “no historic properties affected” as per 36 CFR 800.4(d).

3.2.8 Recreational Resources

Existing Conditions

- *Assumption Land Company Site*
  There is no recreation occurring within the proposed Assumption Land Company site. The land is currently being used as an agricultural site.

- *Houma Excavation Site*
  There is no recreation occurring within proposed Houma Excavation site. The land is private with no public access. It is currently being used for cattle grazing.

- *RBEND II Site*
  There is no recreation occurring within the proposed RBEND II site. The land is currently being used as a sugar cane field.

- *Robert Brothers Farm*
  The proposed Robert Brothers Farm is currently being used as a sugar care field. There is recreation occurring within the site.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Without implementation of the proposed action, the conditions within the recreational environment would continue as they have in the past and would be dictated by the natural land use patterns and processes that have dominated the area in the past within or adjacent to the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. Direct, indirect and cumulative impacts would be negligible.

  Indirect Impacts
  Under the no action alternative, no indirect impacts to recreational resources would occur at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas.

  Cumulative Impacts
  Under the no action alternative, no cumulative impacts to recreational resources would occur at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action

- *All Sites*

  There is no recreation occurring within the project area. The proposed action will not directly, indirectly or cumulatively impact recreation resources.

- *All Sites*

  Direct Impacts
  There is no recreation occurring within or adjacent to the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. As a result, there would be no direct impact to recreation at these sites.

  Indirect Impacts
  There is no recreation occurring within or adjacent to the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. As a result, there would be no indirect impact to recreation.

  Cumulative Impacts
  There is no recreation occurring within or adjacent to the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. As a result, there would be no cumulative impact to recreation.

3.2.9 Noise Quality

Existing Conditions
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 (dBA). Sound on the decibel scale is referred to as the sound level. The threshold of discomfort or pain is around 120 dBA. Noise levels at and surrounding the proposed contractor-furnished borrow areas are variable depending on the time of day and climatic conditions.

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 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).

- *Assumption Land Company Site*
  The Assumption Land Company site is located in a developed part of Jefferson Parish. It is directly east of the River Birch Landfill, and borrow areas currently being utilized for HSDRRS contracts (e.g., River Birch Landfill Expansion). It is bordered to the east by an active railroad line. Beyond the railroad located approximately 300 feet from the site is the Norbert Rilleux Elementary School.

Approximately 250 feet to the southeast is a residential development; a ditch and windrow of trees delineate the boundary between the site and homes.

All of these features impact noise quality in the vicinity of the site. The roads are mostly traveled during daylight hours, while the railroad is sporadically traveled daily. The landfill and borrow areas are generally operated during daylight hours. Heavy machinery used at the sites, and trucks traveling to and from them would contribute to noise levels in the vicinity. The school and homes are not expected to significantly contribute to noise levels in the vicinity. Noise increases at the site due to farming activities are sporadic.

- *Houma Excavation Site*
  The Houma Excavation site is located between a residential area and undeveloped forested land. Homes located off of Lower Country Drive (Aragon Road) are approximately 100 feet from the boundary of the site. They are not expected to significantly contribute to noise levels in the vicinity. Noise increases at the site due to farming activities are sporadic.

- *RBEND II Site*
  The RBEND II site is located off of US-61, a main thoroughfare in the community. The road is mostly traveled during daylight hours. There are homes located approximately 400 feet from the western boundary of the site. Homes are not expected to significantly contribute to noise levels in the vicinity. Noise increases at the site due to farming activities are sporadic.

- *Robert Brothers Farm*
  The Robert Brothers Farm site is located amongst farms in St. John the Baptist Parish. The site is bordered to the west by LA-3213, a main highway in the community. Noise increases at the site due to farming activities are sporadic.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, there would be no direct impacts to noise quality due to the proposed actions. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to noise quality would depend on what the landowners decide to do with the sites.

  Indirect Impacts
  No indirect impacts to noise quality would occur under the no action alternative at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas due to the proposed action. Any potential indirect impacts to noise quality would depend on what the landowners decide to do with the sites.

  Minor, temporary indirect impacts to noise levels at the sites due to farming activities would continue.

Cumulative Impacts
No cumulative impacts to noise quality would occur under the no action alternative. The proposed sites would not be used as contractor-furnished borrow areas. Any potential cumulative impacts to noise quality would depend on what the landowners decide to do with the sites. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Noise levels would be cumulatively impacted by existing and reasonably foreseeable activity in the vicinity of the proposed sites.

Private construction activities would also incrementally impact noise levels in the area. Additionally, construction of the HSDRRS levees and floodwalls would also cumulatively impact noise quality in the project areas. Cumulative noise impacts related to the construction of the HSDRRS will be discussed in the CED.

Proposed Action

- *All Sites*

Direct Impacts
Under the proposed action, temporary noise would occur during construction and hauling activities. The noise would affect wildlife during construction, causing them to avoid the area and return once construction ends. Residents of nearby residential areas may be impacted by noise associated with construction equipment such as bulldozers, excavators, and dump trucks. Noise would also directly impact employees excavating the contractor-furnished borrow areas.

Table 5 describes possible noise emission levels for construction equipment expected to be used during the proposed construction activities. Typical noise levels range from 80 dBA to 88 dBA at 50 foot range (FHWA, 2006). Noise levels would decrease as distance from the noise source increases.

Table 5: Possible Construction Equipment Noise Emission

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

Source: *FHWA 2006. "Highway Construction Noise Handbook"*

It is assumed that excavation and hauling would be limited to daylight hours (10 hours to 14 hours per day) seven days a week. However, this may change due to construction schedules, weather conditions, and project borrow needs. Residents of nearby residential areas may be impacted by elevated noise levels due to excavation and hauling. Actual noise impacts depend on construction schedules, which are dependent on weather conditions and project borrow needs, which are not known at this time.

Any additional potential direct impacts to noise quality would depend on what the landowners decide to do with the sites following excavation.

Indirect Impacts
Minimal indirect impacts to noise quality would occur because of excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. Hauling of borrow material would add to existing traffic and its related noise in the vicinity. Any potential indirect impacts to noise quality would depend on what the landowners decide to do with the sites following excavation.

Cumulative Impacts
Excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas could temporarily contribute to cumulatively impacts on noise levels in the vicinity of the proposed sites. Hauling of borrow material would add to existing traffic and its related noise in the vicinity. Most times of elevated noise levels associated with traffic would be expected to be during construction hours. Any additional potential cumulative impacts to noise quality would depend on what the landowners decide to do with the sites following excavation.

Noise levels would be cumulatively impacted by existing and reasonably foreseeable activity in the vicinity of the proposed sites.

Previously approved government furnished and contractor furnished borrow areas could be used for construction of the HSDRRS. Use of these sites would also temporarily contribute to cumulative noise levels in the project areas.

Private construction activities would incrementally impact noise levels in the project area. Construction of the HSDRRS would also cumulatively impact noise quality in the project area. Cumulative noise impacts will be further discussed in the CED.

3.2.10 Air Quality

Existing Conditions
Under the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for seven pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), ozone (O_3), particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). 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	
	µg/m^3	parts per million (ppm)	µg/m^3	ppm
CO *8-hour concentration* *1-hour concentration*	10,000[1] 40,000[1]	9[1] 35[1]	N/A	N/A
NO_2 *Annual arithmetic mean*	100	0.053	same as primary standard	
SO_2 *Annual arithmetic mean* *24-hour concentration* *3-hour concentration*	80 365[1] -	0.03 0.14[1] -	- - 1300[1]	- - 0.50[1]
Pb *Quarterly arithmetic mean*	1.5	-	same as primary standard	
O_3 *8-hour concentration*	157	0.08[2]	same as primary standard	
PM_{10} *24-hour maximum*	150[1]	-	same as primary standard	
$PM_{2.5}$ *Annual arithmetic mean* *24-hour maximum*	15[3] 35[4]	- -	same as primary standard	

[1] Not to be exceeded more than once per year.
[2] 3-year average of the 4th highest daily maximum 8-hour concentration may not exceed 0.08 ppm.
[3] Based on 3-year average of annual averages.
[4] Based on 3-year average of annual 98th percentile values.
Source: *40 CFR 50*

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 non attainment." The parishes and county the proposed contractor-furnished borrow areas are located in are currently in attainment of all NAAQS (USEPA, 2009).

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts
Under the no action alternative, no direct impacts to air quality at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would occur from the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to air quality would depend on what the landowners decide to do with the sites. Air quality impacts due to farming at the sites would be temporary in nature.

Indirect Impacts
Under the no action alternative, no indirect impacts to air quality at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would occur from the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to air quality would depend on what the landowners decide to do with the sites.

Cumulative Impacts
Under the no action alternative, no cumulative impacts to air quality at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would occur from the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to air quality would depend on what the landowners decide to do with the sites. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Air levels would be cumulatively impacted by existing and reasonably foreseeable activity in the vicinity of these proposed sites.

Other activities in the vicinity have and will continue to affect air quality in the project area. Air quality in the project area has historically been affected by residential, commercial, and industrial development. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions. It is expected that this historical trend would continue to impact air quality in the region.

Proposed Action

- *All Sites*

Direct Impacts
During excavation at the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas, a temporary increase in air emissions would be expected in the project vicinities. Major emissions could include exhaust emissions from operations of diesel dump trucks, various types of construction equipment (e.g., loaders, excavators), and fugitive dust due to excavation and clearing.

The principal air quality concern associated with excavation of the proposed contractor-furnished borrow area would be emission of fugitive dust near demolition and construction areas. The on-road trucks and private vehicles used to access the work area would also contribute to construction phase air pollution in the project vicinity when traveling along local roads and highways. Most instances of diminished air quality associated with excavation and truck hauling would be expected to be limited to daylight hours (10 hours to 14 hours a day) seven days a week. It is expected that these impacts would be temporary and limited to construction hours. Additional potential direct impacts to air quality would depend on what the landowners decide to do with the sites following excavation.

The construction contractor(s) would be required to secure all applicable state and local permits required for potentially impacting air quality.

Indirect Impacts
Indirect impacts to air quality would not be expected due to excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. Any potential indirect impacts to air quality would depend on what the landowners decide to do with the sites following excavation.

Cumulative Impacts
Use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would temporarily contribute to cumulative air quality impacts in the project area. However, these impacts would be temporary and would last through the excavation period. Additional potential cumulative impacts to air quality would depend on what the landowners decide to do with the sites following excavation.

Air levels would be cumulatively impacted by existing and reasonably foreseeable activity in the vicinity of the proposed sites.

Other activities in the vicinity have and will continue to affect air quality in the project area. Air quality in the project area has historically been affected by residential, commercial, and industrial development. Most of these actions would be associated with emissions from vehicular traffic on local roads and residential energy emissions. It is expected that this historical trend would continue to impact air quality in the region.

3.2.11 Water Quality

Existing Conditions
The Louisiana Department of Environmental Quality (LADEQ) regulates both point and nonpoint source pollution. The proposed contractor-furnished borrow areas are farmland and forested areas, some with associated drainage features.

Discussion of Impacts

No Action

- *All Sites*

Direct Impacts
Under the no action alternative, no direct impacts to water quality at the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would occur from the proposed action. The proposed sites would not be used as contractor-furnished borrow areas. Any potential direct impacts to water quality would depend on what the landowners decide to do with the sites.

Indirect Impacts
Under the no action alternative, no indirect impacts to water quality would occur from the proposed action. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas. Any potential indirect impacts to water quality would depend on what the landowners decide to do with the sites.

Cumulative Impacts
Under the no action alternative, there would be no cumulative decreases in water quality from the proposed action. The proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites would not be used as contractor-furnished borrow areas. Any potential cumulative impacts to water quality would depend on what the landowners decide to do with the sites. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Other activities in the vicinity have and will continue to affect water quality in the project area. Cumulative impacts to water quality would continue in the project area under this alternative. Water quality in the project area has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

Proposed Action

- *All Sites*

Direct Impacts
Excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would result in some temporary direct water quality impacts from disturbances to water quality in the immediate vicinity of the construction areas. Most of these impacts would be associated with sediments getting around installed silt fencing during high rain events, which would cause surface water turbidity in the immediate vicinity. These impacts would be localized and temporary. If the contractor-furnished borrow areas are drained by use of a sump pump during construction, water would be deposited outside of the borrow site, most likely into adjacent non-construction areas. Depending on where water is directed, temporary impacts to water quality in these areas may occur.

The construction contractor(s) would be required to secure all applicable Federal, state, and local permits required for potentially impacting water quality.

Any additional potential direct impacts to water quality would depend on what the landowners decide to do with the sites following excavation.

Indirect Impacts
Indirect impacts to water quality in adjacent areas depend on where water is directed during construction. These impacts would mostly be associated with increased turbidity, and would likely be temporary and confined to adjacent areas. Without additional action by the landowner following excavation of the site, it is expected that there will be no indirect impacts to water quality following excavation.

Any additional potential indirect impacts to water quality would depend on what the landowners decide to do with the sites following excavation.

Cumulative Impacts
Excavation of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas would temporarily contribute to the cumulative decline of water quality within the region.

Additional potential cumulative impacts to water quality would depend on what the landowners decide to do with the sites following excavation.

Other activities in the vicinity have and will continue to affect water quality in the project area. Cumulative impacts to water quality would continue in the project area under this alternative. Water quality in the project area has historically been affected by residential, commercial, and industrial development. Major contributors to decreases in water quality in the region include urban stormwater runoff, pollutants, sediment loading/runoff, nutrient loading, and dry weather flows. It is expected that this historical trend would continue to impact water quality in the region.

3.2.12 Aesthetic (Visual) Resources

Existing Conditions

- *Assumption Land Company Site*
  Water: Water resources in the vicinity of the project area include small ponds and lakes, drainage canals and small lagoons. There are no identified scenic streams in or near the project area.

  Landform: Land in the area has moderately rolling hills and low lying ridges. From the tops of the hills and small ridges areas open up into large square patches of open fields and grasslands. Roadways do not play a factor in terrain changes for the proposed site. The conjunction of open field and dense forest makes for a pastoral and serene setting that has a relatively high visual quality.

  Vegetation: Vegetation in the vicinity of the project area (primarily around its periphery) is dense with a variety of trees and associated undergrowth. Vegetation does not affect view sheds to the site. The immediate vicinity of the project site consists of open fields with vast, open tracts of lands offering 360 degree panoramas to outlying areas.

  Land Use: The dominant eco-region is “Southern Holocene Meander Belts,” which is a part of the Mississippi Alluvial Plain. The immediate project area is characteristic of Southern Holocene Meander Belts, with a variety of vegetation present, flat terrain lifting into a natural levee system near the banks of the Mississippi River, and open fields for agriculture.

  Land use in the area is made up of a thoroughly developed, urban environment that features residential as the primary use. The site itself has historically been reserved for agricultural purposes.

  Access: Access to the site is offered via Live Oak Boulevard and Willswood Lane, which attach to LA-44 (River Road) and US- 90 (Westbank Expressway). The highways feature a drive with a relatively high visual interest and quality. View sheds are abundant along these thoroughfares, but can become blocked by

dense vegetation and developed areas in some locations. Views to the actual project site are minimal due to the dense vegetation and distance.

Other Factors that Affect Visual Resources: User activity is high, with the massive traffic that traverses US-90 and LA-44 every day. Residential development to the east also contributes to the traffic count. Average Daily Traffic Counts, provided by the Louisiana Department of Transportation and Development, show an average daily traffic count of 26,000 cars per day along the Westbank Expressway Corridor and a count of 14,000 cars per day along the River Road Corridor.

Other factors such as litter and foul odors were not persistent throughout the area. Noise from the Westbank Expressway was loud; however, distance and vegetative screening muffled some sound coming to the immediate project site.

- *Houma Excavation Site*
  Water: Water resources in the vicinity of the project area are abundant and include Bayou Terrebonne, Bayou La Cache, Bayou Petit Caillout, several canals, small ponds and lakes, and wetland areas. There are no identified scenic streams in or near the project area. These water resources provide the opportunity for water recreation (including boating and fishing). View sheds of the project site from these canals are minimal based on distance, terrain (most notably, the existing levees) and vegetation.

  To the northwest of the project site are what appear to be previously used borrow areas that have since filled in with water, adding to the number of water resources in the area.

  Landform: Land in the area is flat with occasional natural ridges interspersed throughout the project area giving some minimal elevation changes. The immediate project site has historically been utilized as pasture land for cattle, and has long since been cleared of all natural vegetation (other than native grasses). The conjunction of open field and dense forest makes for a pastoral and serene setting that has a relatively high visual quality.

  Vegetation: Vegetation in the project area is a mixture of thick hardwood forest and native grasses. Lower growing vegetation is dense and fills the dense forest floors. The nearby residential areas, to the east and west, feature street trees and fruit trees interspersed with natural greenery between and along fence and property lines, creating an inviting park-like setting.

  Land Use: The dominant eco-region is “Southern Holocene Meander Belts,” which is a part of the Mississippi Alluvial Plain. The immediate project area is characteristic of Southern Holocene Meander Belts, with a variety of vegetation present, flat terrain lifting into a natural levee system near the banks of the Mississippi River, and open fields for agriculture.

  Land use in the area is made up of a semi-developed, sub-urban environment that features agricultural and residential uses.

  Access: Access to the site is offered via Parish Road 51 (Lower Country Drive) and a few small local streets (both paved and unpaved) that connect with the project site. The local highway features a drive with high visual interest and quality. Views to the actual project site are open and vast.

Other Factors that Affect Visual Resources: User activity along Parish Road 51 is relatively steady for a residential area. Average Daily Traffic Counts, provided by the Louisiana Department of Transportation and Development, show an average daily traffic count of 9,000 cars per day along the Parish Road 51 Corridor near the project area.

Other factors such as litter and foul odors were not persistent throughout the area.

- *RBEND II Site*
  Water: Water resources in and around the project area are relatively minimal and include the Main Channel of the Mississippi River. Access to the river is limited to non-existent. There are no identified scenic streams in or near the project area.

  Landform: Land in the area is flat with occasional natural ridges interspersed throughout the project area giving some minimal elevation changes. The immediate project site has historically been utilized for planting and agricultural purposes, and has long since been cleared of all natural vegetation (other than native grasses). The conjunction of open field and dense forest makes for a pastoral and serene setting that has a relatively high visual quality.

  View sheds are offered from the local highway system and some local and neighborhood streets. The only limitation to view shed quality is the relatively dense vegetation around the periphery of the project site.

  Vegetation: Vegetation in the project area is a mixture of thick hardwood forest and native grasses. Lower growing vegetation is dense and fills the dense forest floors. The nearby neighborhoods feature street tree alleys, interspersed with natural greenery between and along fence and property lines, creating an inviting park-like setting.

  Land Use: The dominant eco-region is "Southern Holocene Meander Belts," which is a part of the Mississippi Alluvial Plain. The immediate project area is characteristic of Southern Holocene Meander Belts, with a variety of vegetation present, flat terrain lifting into a natural levee system near the banks of the Mississippi River, and open fields for agriculture.

  Land use in the area is made up of developed, urban and suburban lands that feature a wide variety of commercial, residential, and public and quasi-public uses (Quasi-public and public uses, in this case refer to educational facilities located nearby). The immediate project area itself appears to be (or was) cultivated agricultural land.

  Access: Access to the site is primarily offered via US- 61, which features a drive with moderate visual interest and quality. View sheds are abundant along this thoroughfare, but, can become blocked by both dense vegetation and the man-made environment. Other nearby thoroughfares include several smaller, local roads, all of which have moderate visual access to the project site.

  Other Factors that Affect Visual Resources: User activity is relatively steady throughout the project vicinity, most likely due to the high number of residential units, commercial development, and educational facilities available. Average Daily Traffic Counts, provided by the Louisiana Department of Transportation

and Development, show an average daily traffic count of 35,000 cars per day along the US-61 Corridor.

Other factors such as litter and foul odors were not persistent throughout the area.

- *Robert Brothers Farm*
  Water: Water resources in the vicinity of the project area are limited and include the Main Channel of the Mississippi River and some small streams. There are no identified scenic streams in or near the project area.

  Landform: Land in the area has moderately rolling hills and low lying ridges. From the tops of the hills and small ridges areas open up into large square patches of open fields and grasslands. Roadways play a minor role in terrain changes for the project area. The conjunction of open field and dense forest makes for a pastoral and serene setting that has a relatively high visual quality.

  Vegetation: Vegetation in the vicinity of the project area (primarily around its periphery) is dense with a variety of trees and associated undergrowth. Vegetation does somewhat affect view sheds to the site from the outside looking in, especially along the northwestern edge of the project area. The immediate vicinity of the project site consists of open fields with vast, open tracts of lands offering vast panoramas to outlying areas.

  Land Use: The dominant eco-region is "Southern Holocene Meander Belts," which is a part of the Mississippi Alluvial Plain. The immediate project area is characteristic of Southern Holocene Meander Belts, with a variety of vegetation present, flat terrain lifting into a natural levee system near the banks of the Mississippi River, and open fields for agriculture.

  Land use in the area is made up of a semi-developed, sub-urban environment that features agricultural and residential uses.

  Access: Access to the site is offered via LA- 3213, LA-18 (River Road), and a few local roads (both paved and unpaved). View sheds are abundant along these thoroughfares, but can become blocked by dense tree lines along the northwestern side of the project area.

  Other Factors that Affect Visual Resources: User activity along LA-3213 and LA-18 is relatively steady. Average Daily Traffic Counts, provided by the Louisiana Department of Transportation and Development, show an average daily traffic count of 11,000 cars per day along the LA-3213 Corridor and a count of 3,000 cars per day along the LA-18 Corridor.

  Other factors such as litter and foul odors were not persistent throughout the area.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, no direct impacts to aesthetic (visual) resources would occur at the proposed RBEND II, Houma Excavation, Robert Brothers

Farm, and Assumption Land Company contractor-furnished borrow areas. Aesthetic (visual) resources would most likely evolve from existing conditions in a natural process, or change as dictated by future land use maintenance practices. The landowners could directly impact aesthetic quality at the sites with future planned development; however, this would not be related to the proposed action.

Indirect Impacts
Under the no action alternative, no indirect impacts to aesthetic (visual) resources would occur at the proposed contractor furnished borrow areas. The proposed sites would not be used as contractor furnished borrow areas. However, it is important to note that whatever the land owner would choose to do with the property may have long lasting effects on the surrounding, adjacent areas.

Cumulative Impacts
Under the no action alternative, no foreseen cumulative impacts to aesthetic (visual) resources would occur at the proposed borrow areas. The proposed sites would not be used as contractor furnished borrow areas. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government furnished and/ or contractor furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Cumulative impacts to aesthetic (visual) resources, in the project vicinity, depend on what the landowner would decide to do with the site, and would not be associated with the proposed action. Any future changes or alterations to the site will evolve in a natural process over the course of time.

Proposed Action

- *Assumption Land Company*

Direct Impacts
The proposed action at the Assumption Land Company contractor furnished borrow site will have direct impacts to the scenic quality of the area and view sheds from Kennedy Heights neighborhood (located to the east of the project site).

Other impacts will be derived from the construction process itself, but these impacts will be temporary.

Indirect Impacts
The following are excerpts from IER #25, Aesthetic (Visual) Resources. These references still hold true for the scenario described in IER #35:

”Indirect impacts may occur based on the condition that the borrow areas are left in after construction activity. The Westbank E Phase 1 (Assumption Land Company) proposed borrow area is adjacent to the Kennedy Heights neighborhood.”

“The view sheds from the residences along the Capital Drive area of the Kennedy Heights neighborhood may be exposed to the proposed borrow area if the tree line at the eastern edge of the project area is removed by construction activity; there is the possibility that the proposed Westbank E Phase 1 (Assumption Land

Company) borrow area existence may not be considered as a positive visual environmental feature."

Another potential impact not discussed in IER #25 would include the following:

While, in most cases it is a desirable trait to have havens for a variety of wildlife (i.e., ponds or lakes), in this case this may not be true given the proximity to such a dense urban area.

Cumulative Impacts
Other previous and continuing projects that have involved government-furnished and/or contractor-furnished borrow areas are described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #30, IER #31, and IER #32. Other, future sources have yet to be identified. This project would join the long list of previously designed and completed borrow sites throughout the region, Southeastern Louisiana Basin, and the rest of the Nation.

- *RBEND II*

Direct Impacts
The proposed action at the RBEND II site will have direct impacts to the scenic quality of the area and view sheds from US- 61. The introductions of manmade borrow supply areas will only minimally contrast the developed lands to the northwest of the site. The depth of scenic quality loss will depend on the final design of the borrow supply areas. Squares, rectangles and other unnatural shapes will yield a higher degree of loss in scenic quality. Even curvilinear shapes could yield a certain degree of loss, but over time this could decrease with erosion and the introduction of natural landscape elements to create a frame for the water feature.

Other impacts will be derived from the construction process itself, but these impacts will be temporary.

Indirect Impacts
The proposed action at the RBEND II site will have indirect impacts. The surrounding area has significant development in terms of residential land use and view sheds to the site from these types of locations are present, however, slightly screened by a natural tree boundary. This tree line should be preserved.

While, in most cases it is a desirable trait to have havens for a variety of wildlife (i.e., ponds or lakes), in this case this may not be true, given the proximity to such a dense urban area.

Cumulative Impacts
Other previous and continuing projects that have involved government-furnished and/or contractor-furnished borrow areas are described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #30, IER #31, and IER #32. Other, future sources have yet to be identified. This project would join the long list of previously designed and completed borrow sites throughout the region, Southeastern Louisiana Basin, and the rest of the Nation.

- *Houma Excavation*

Direct Impacts

The proposed action at the Houma Excavation will have direct impacts to the scenic quality of the immediate area and view sheds from the Parish Road 51 (Lower Country Road) corridor. The introductions of manmade borrow supply areas will starkly contrast the natural landscapes and water features in the area. It is important to note that the depth of scenic quality loss will depend on the final design of the borrow supply areas. Squares, rectangles and other unnatural shapes will yield a higher degree of loss in scenic quality. Even curvilinear shapes could yield a certain degree of loss, but over time this could decrease with erosion and the introduction of natural landscape elements to create a frame for the water feature.

Other impacts will be derived from the construction process itself, but these impacts will be temporary.

Indirect Impacts
The proposed action at the Houma Excavation site will have indirect impacts to the scenic quality and view sheds from the surrounding area. View sheds from nearby residential development to the east are present, available and unobstructed. There is no natural or man-made screening between the rear property lines of these residences and the proposed borrow site.

The introduction of borrow ponds may serve to attract different forms of wildlife, in this case, increasing the scenic quality of the area. Proximity to the residential areas is somewhat more removed and the area more rural, so the possibility for outdoor recreation, which includes hunting, fishing and other outdoor activities, could benefit the community.

Cumulative Impacts
Other previous and continuing projects that have involved government-furnished and/or contractor-furnished borrow areas are described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #30, IER #31, and IER #32. Other, future sources have yet to be identified. This project would join the long list of previously designed and completed borrow sites throughout the region, Southeastern Louisiana Basin, and the rest of the Nation.

- *Robert Brothers Farm*

Direct Impacts
The proposed action at the Robert Brothers Farm area will have direct impacts to the scenic quality of the immediate area and view sheds from the LA- 3213 and LA-44 corridors. The introductions of manmade borrow supply areas will starkly contrast the natural landscapes and water features in the area. It is important to note that the depth of scenic quality loss will depend on the final design of the borrow supply areas. Squares, rectangles and other unnatural shapes will yield a higher degree of loss in scenic quality. Even curvilinear shapes could yield a certain degree of loss, but over time this could decrease with erosion and the introduction of natural landscape elements to create a frame for the water feature.

Other impacts will be derived from the construction process itself, but these impacts will be temporary.

Indirect Impacts

The proposed action at the Robert Brothers Farm site will have minimal indirect impacts to the scenic quality and view sheds from the surrounding area. There are no residential areas within optimum viewing range of the proposed sites. This, in conjunction with natural vegetative screening on the northwest side of the project area, will work to shield nearby residences from any obtrusive visual elements that may come about due to the proposed borrow project.

The introduction of borrow ponds may serve to attract different forms of wildlife, in this case, increasing the scenic quality of the area. Proximity to the residential areas is more removed and the area more rural, so the possibility for outdoor recreation, which includes hunting, fishing and other outdoor activities, could benefit the community.

Cumulative Impacts
Other previous and continuing projects that have involved government-furnished and/or contractor-furnished borrow areas are described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #30, IER #31, and IER #32. Other, future sources have yet to be identified. This project would join the long list of previously designed and completed borrow sites throughout the region, Southeastern Louisiana Basin, and the rest of the Nation.

3.3 SOCIOECONOMIC RESOURCES

The focus of this section is to evaluate the relative socioeconomic impacts of construction activities associated with 4 proposed contractor-furnished borrow areas in the vicinity of the New Orleans metropolitan area. This borrow material could be used to construct proposed HSDRRS projects.

The no action alternative in this case includes the potential use of government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified. The proposed action is to approve the potential use of the four privately-owned sites discussed in this report as proposed contractor-furnished borrow areas.

As previously stated, the purpose of the NEPA Emergency Alternative Arrangements (40 CFR 1506.11) is to expeditiously complete environmental analyses of impacts arising from HSDRRS efforts by allowing decisions on smaller groups of proposed actions to move forward sooner than under the traditional NEPA process (72 F.R. 1137). Because of the exigency of the Emergency Alternative Arrangements and the need to complete the HSDRRS, each IER can identify areas where data is incomplete, unavailable, as well as areas of potential controversy (72 F.R. 11339). Therefore, it is expected that earlier IERs will not contain the same amount of information, data and analyses as later IERs. The analysis contained in each IER builds off the analysis contained in previous IERs. As information becomes available, more detailed analysis is successively presented in the IERs. Ultimately, at the conclusion of the IER process, the full cumulative effects analysis will be presented in a CED (Emergency Alternative Arrangements, Page 10). This is why IER #35 may contain additional information, data or analyses not contained in earlier IERs.

3.3.1 Population and Housing

Existing Conditions

- *Assumption Land Company Site*
  The Assumption Land Company site is located in Jefferson Parish. The site is in Waggaman, at the intersection of Live Oak Boulevard and Willswood Lane. It is bordered by Live Oak Boulevard to the south and southwest, Highway 90 to the south, and Capitol Drive to the east. Willswood Lane intersects the site from southwest to northeast. The site is located in Census Tract 275.02, Block Group 2 which, according to 2010 U.S. Census data, has a total of 1,314 residents and 456 housing units.

- *Houma Excavation Site*
  The Houma Excavation site is located in Terrebonne Parish, approximately 0.8 miles north of the intersection of Aragon Road and Highway 58 in Montegut. The property consists of a large vacant tract of pastureland and woods. It is bounded on the north by a parish-owned borrow pit site, on the south and west by residential properties and undeveloped land, and on the east by residential properties and Aragon Road. The site is located in Census Tract 11, Block Group 1 which, according to 2010 U.S. Census data, has a total of 986 residents and 347 housing units.

- *RBEND II Site*
  The RBEND II site is located on the east bank of the Mississippi River in the city of LaPlace. This site is an agricultural field currently containing sugarcane with no structures on the site. It is bounded to the north, east, and west by sugarcane fields, and to the south by a wooded area. The nearest surrounding streets include East Airline Highway and Cardinal Street. The site is located in Census Tract 701, Block Group 2 which, according to 2010 U.S. Census data, has a total of 1,192 residents and 499 housing units.

- *Robert Brothers Farm*
  The Robert Brothers Farm site is located on the west bank of the Mississippi River in an area largely used for agricultural purposes, southeast of Wallace. It consists of approximately 19 acres of actively cultivated soy bean fields and is bounded by dirt access roads. Access to the property is provided by dirt roads from Highway 3127. The site is located in Census Tract 711, Block Group 1 which, according to 2010 U.S. Census data, has a total of 921 residents and 445 housing units.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under this alternative, the four sites would not be used to obtain borrow material to construct Federal HSDRRS projects. There would be no direct impacts to population and housing under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts

There would be no indirect impacts to population and housing under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

Cumulative Impacts
Under this alternative, there would be no cumulative impacts to population and housing; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action

- *All Sites*

Direct Impacts
The use of the proposed borrow sites would not cause the displacement of any population or housing. There may be direct temporary, construction-related impacts to the population in the vicinity of the Assumption Land Company site due to its proximity to residences along Capitol Drive and in the vicinity of the Houma Excavation site due to its proximity to residences along Aragon Road. Excavation and an increased presence of trucks in these vicinities may create noise impacts and traffic congestion.

Indirect Impacts
No adverse, indirect impacts to population and housing are anticipated under the proposed action. Residents would be at a reduced risk of permanent displacement due to the lowered risk of flooding as a result of using the borrow material from these sites for the HSDRRS as compared to the No Action alternative.

Cumulative Impacts
Positive cumulative impacts to population and housing associated with completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may enhance the desirability of living within the protected areas. As a result, a shift in the dispersion of population within the New Orleans Metropolitan Statistical Area (MSA), or beyond, may occur. Also, to the extent that the completion of the HSDRRS encourages regional economic growth, any additional jobs thus created may manifest itself in either in-migration to the area or an increase in commuting activity.

3.3.2 Impacts to Employment, Business, and Industry

Existing Conditions
With the exception of the Houma Excavation site which consists of undeveloped land and land used for cattle farming, the proposed sites are currently being used for agricultural purposes. Of the four sites, RBEND II is the only one located near commercial sites. What few businesses there are in the area are located to the South of the site, including a restaurant and bar; however, no commercial sites adjoin the site.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under this alternative, the four sites would not be used to obtain borrow material to construct Federal HSDRRS projects. There would be no direct impacts to employment, business, and industrial activity under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts
  There would be no indirect impacts to employment, business, and industrial activity under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Cumulative Impacts
  Under this alternative, there would be no cumulative impacts to employment, business, and industrial activity; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32,or other sources yet to be identified.

Proposed Action

- *All Sites*

  Direct Impacts
  Temporary, direct impacts may occur to area businesses near the RBEND II site due to delays caused by increased traffic congestion.

  Indirect Impacts
  Minimal indirect impacts to businesses near the RBEND II site, such as customer avoidance of the project vicinity due to congestion, may occur as a result of the proposed action. However, these impacts would be expected to be temporary and negligible.

  Cumulative Impacts
  Under the proposed action, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. As a result, an increase in the number of firms and the output of business and industry would likely manifest itself in such growth.

3.3.3 Availability of Public Facilities and Services

Existing Conditions
Very few public facilities are located in the vicinity of the proposed borrow sites. One fire station is located south of RBEND II, and an elementary school is located to the north of the proposed Assumption Land Company site. Neither facility adjoins the

potential borrow sites.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under this alternative, the four sites would not be used to obtain borrow material to construct Federal HSDRRS projects. There would be no direct impacts to public facilities and services under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts
  There would be no indirect impacts to public facilities and services under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Cumulative Impacts
  Under this alternative, there would be no cumulative impacts to public facilities and services; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required. Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action

- *All Sites*

  Direct Impacts
  Temporary, direct impacts may occur to the fire station located south of RBEND II, and the elementary school located to the north of the proposed Assumption Land Co. site due to delays caused by increased traffic congestion. However, these impacts are expected to be minimal.

  Indirect Impacts
  No indirect impacts to public facilities and services are expected as a result of the proposed action.

  Cumulative Impacts
  Under the proposed action, cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to much

of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional population growth in the region than would otherwise occur. As a result, an increase in the demand for public services may arise due to this growth.

3.3.4 Effects on Transportation

The CEMVN has developed information for an analysis of the transportation impacts associated with the HSDRRS project in the report, "Transportation Report For The Construction Of The 100-Year Hurricane And Storm Damage Risk Reduction System," released in March 2010. Estimates on numbers of truckloads necessary to complete the HSDRRS borrow mission and their impacts are provided in this report.

Existing Conditions
The nearest surrounding streets to the RBEND II site, located in St. John the Baptist Parish, are East Airline Highway and Cardinal Street. An estimated 877,000 CY of material could be acquired from the RBEND II site. Access to Robert Brothers Farm, the second site located in St. John the Baptist Parish, is provided by dirt roads from Highway 3127. The amount of material that could be obtained from this site is estimated to be 5,800,000 CY. Assumption Land Co., the third site being examined as a potential borrow site, is located in Jefferson Parish at the intersection of Live Oak Boulevard and Willswood Lane. Roughly 1,250,000 CY of material could be obtained from this borrow site. The fourth site, Houma Excavation, is located in Terrebonne Parish, approximately 0.8 miles north of the intersection of Aragon Rd. and Highway 58 in Montegut. Approximately 5,500,000 CY of material could be acquired from the Houma Excavation site.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under this alternative, the four sites would not be used to obtain borrow material to construct Federal HSDRRS projects. There would be no direct impacts to transportation under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts
  There would be no indirect impacts to transportation under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Cumulative Impacts
  Under this alternative, there would be no cumulative impacts to transportation; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER

#18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action: Trucking Material to Project Sites

- *All Sites*

Direct Impacts
While specific projects in need of the proposed borrow material have not yet been identified, it is assumed that the majority of the material would be used for HSDRRS construction projects, mostly for the co-located WBV-MRL work (Plaquemines south of Oakville). With implementation of the proposed action, construction equipment such as bulldozers and excavators would need to be delivered to borrow and project sites, and haul trucks would be entering and exiting the areas on a daily basis during the period of excavation and delivery. Additionally, haul trucks would be trucking material from the borrow sites to project sites. If the material is used for the co-located WBV-MRL work south of Oakville in Plaquemines Parish, potential truck routes from each of the four sites are as follows: from the RBEND II site via US-61, US-51, I-10, and LA-23; from Robert Brothers Farm via LA-18, LA-640, LA-3127, Westbank Expressway/US-90-BR E, and LA-23; from Assumption Land Co. via Westbank Expressway/US-90-BR E and LA-23; from Houma Excavation via LA-55, LA-58, LA-56, LA-3087, Westbank Expressway/US-90-BR E, and LA-23.

Direct impacts from truck hauling would temporarily impede vehicle traffic at borrow and project sites as well as along the truck routes. Flagmen, signage, cones, barricades, and detours would be used where required to facilitate the movement of heavy equipment and local traffic on affected road segments. Appropriate measures to ensure safety and facilitate the movement of traffic would be implemented at all approved borrow areas. These impacts are expected to be moderate, but temporary, lasting only as long as required to obtain the borrow material.

Indirect Impacts
There would be increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on other major and local roads throughout the Greater New Orleans area as borrow and other construction materials are transported to construction sites for use at project sites and within the HSDRRS.

Cumulative Impacts
Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. There is also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts are likely to be greatest on local and feeder roads, as well as on local bridges. Higher design characteristics for high capacity roads such as Interstate Highways are able to withstand wear much better than for lesser roads. As a result of HSDRSS construction, rehabilitation to

area infrastructure would likely be required sooner than would normally be expected.

On the other hand, the lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region.

Proposed Action: Barging Material to Project Sites

Direct Impacts

With implementation of this alternative, material would be hauled via truck from the proposed borrow areas to barge facilities. The material would be loaded onto barges and then shipped to a barge facility near the project site, where it would be unloaded onto trucks and hauled to the project site. According to 2002 data from Waterborne Commerce Statistic Center "Port Series", roughly 277 barge facilities line the banks of the Mississippi from the proposed borrow sites to the area where levee work is needed. Use of the docks at these facilities for on/off loading levee material would, of course, need to be negotiated.

Direct impacts from truck hauling to and from the barge facilities would temporarily impede vehicle traffic and result in a reduction in the level of service (LOS, a metric describing traffic volume relative to capacity) on some local road segments. Flagmen, signage, cones, barricades, and detours would be used where required to facilitate the movement of heavy equipment and local traffic on affected road segments. Appropriate measures to ensure safety and facilitate the movement of traffic would be implemented at all approved borrow areas. If material is barged as opposed to being trucked from borrow areas to project sites, there would be less truck traffic on major highways which would result in less disruption to businesses and public facilities.

Indirect Impacts

There would be increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on other major and local roads throughout the Greater New Orleans area as borrow and other construction materials are transported to and from barge facilities for use at project sites and within the HSDRRS. However, if material is barged as opposed to trucking the material from borrow areas to project sites, there would be less truck traffic on major highways which would result in less disruption to the socioeconomic resources of the larger community.

Cumulative Impacts

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. There is also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts are likely to be greatest on local and feeder roads, as well as on local bridges. Higher design characteristics for high capacity roads such as Interstate Highways are able to withstand wear much better than for lesser roads. As a result of HSDRSS construction, rehabilitation to area infrastructure would likely be required sooner than would normally be expected. However, if material is barged as opposed to trucking the material from borrow areas to project sites, there would be less truck traffic on major highways

which would result in less disruption to the socioeconomic resources of the larger community.

The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region.

Proposed Action: Trucking Material Transporting to Railway to Project Sites

Direct Impacts

With implementation of this alternative, material would be hauled via rail from the proposed borrow areas to the project sites. The material would be loaded onto rail cars near the borrow sites and then hauled to off-loading areas near the project sites, where it would be unloaded onto trucks and trucked to the project sites. The nearest railroads to the four borrow sites are: Kansas City Southern and Illinois Central (RBEND II); Union Pacific (Robert Brothers Farm); Southern Pacific and Union Pacific (Assumption Land Co.). There are no railroads near the Houma Excavation site. There are no direct rail routes from the proposed borrow sites to the co-located WBV-MRL project area located south of Oakville in Plaquemines Parish. The New Orleans Lower Coast railroad is the only railroad located in Plaquemines Parish. It initiates on the west bank of Jefferson Parish in Gretna, LA and traverses the west bank of the Mississippi River south of Belle Chasse. However, the nearest connecting rail is the New Orleans Public Belt rail, located along the east bank of the river in Orleans Parish. As such, transporting material to this likely destination via rail seems highly unlikely.

Direct impacts under this alternative would include increased traffic congestion from truck hauling to and from railroad loading/off loading areas. Flagmen, signage, cones, barricades, and detours would be used where required to facilitate the movement of heavy equipment and local traffic on affected road segments. Appropriate measures to ensure safety and facilitate the movement of traffic would be implemented at all approved borrow areas. However, implementation of this alternative does not appear to be a feasible option.

Indirect Impacts

There would be increased congestion, decreased levels of service, accelerated wear and tear, and increased risk of traffic accidents on other major and local roads throughout the Greater New Orleans area as borrow and other construction materials are transported to and from railroad loading/off loading areas for use at project sites and within the HSDRRS. However, implementation of this alternative does not appear to be a feasible option.

Cumulative Impacts

Congestion impacts to the greater metropolitan area are likely to be moderate to severe as a result of HSDRRS construction. There is also likely to be moderate to severe degradation of infrastructure as a result of wear and tear from transporting HSDRRS construction materials. These impacts are likely to be greatest on local and feeder roads, as well as on local bridges. Higher design characteristics for high capacity roads such as Interstate Highways are able to withstand wear much better than for lesser roads. As a result of HSDRSS construction, rehabilitation to area infrastructure would likely be required sooner than would normally be

expected. However, implementation of this alternative does not appear to be a feasible option.

The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. An increase in the demand for transportation resources usually follows gains in economic activity and would thus be expected given any additional economic growth in the region.

3.3.5 Community and Regional Growth

Existing Conditions

Community and regional growth are generally influenced by national trends, but otherwise depend significantly upon relatively local attributes that allow it to be evaluated apart from the national economy. Growth has also historically been heavily dependent on reliable flood protection. The proposed borrow sites would be used to construct Federal HSDRRS projects and therefore reduce the risk of flood and hurricane damage. For the purposes of socioeconomic impact analysis, the proposed borrow areas are first described in summary terms with respect to prevailing trends in the growth of population, housing, income, and employment. Against this baseline, the relative effects of the proposed and alternative actions are evaluated.

According to U.S. Census data from 2000 to the 2005-2009 period, the following trends were observed in St. John the Baptist Parish: population increased from 43,044 to 47,146, per capita personal income increased from $15,445 to $20,921, and employment increased from 17,864 to 20,974. During the same period, population in Jefferson Parish declined from 455,466 to 440,134, per capita personal income increased from $19,953 to $25,196, and employment declined from 212,477 to 209,974. In Terrebonne Parish, population increased from 104,503 to 108,277, per capita income increased from $16,051 to $22,513, and employment increased from 41,406 to 47,610.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts

  Under the No Action alternative, there would be no direct impacts to community and regional growth; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts

  Under the no action alternative, there would be no indirect impacts to community and regional growth; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Cumulative Impacts

  Under this alternative, there would be no cumulative impacts to community and regional growth; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

Proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action

- *All Sites*

  Direct Impacts
  The proposed action would have no direct adverse effect on community and regional growth. Increased protection from flooding would preserve and enhance community and regional growth.

  Indirect Impacts
  No adverse indirect impacts to community and regional growth are anticipated as a result of this alternative. Increased protection from flooding would preserve and enhance community and regional growth.

  Cumulative Impacts
  Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would reduce the propensity for disruption of community life.

3.3.6 Impacts to Tax Revenues and Property Values

Existing Conditions
The proposed borrow sites are located in St. John the Baptist Parish, Jefferson Parish, and Terrebonne Parish. According to U.S. Census data, the average median value for specified owner-occupied housing units in St. John the Baptist Parish in the 2005-2009 period was $139,000, $170,000 in Jefferson Parish, and $112,800 in Terrebonne Parish.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under the no action alternative, there would be no direct impacts to tax revenues and property values proximate to the proposed sites; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts

Under the no action alternative, there would be no indirect impacts to tax revenues and property values proximate to the proposed sites; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

Cumulative Impacts
Under this alternative, there would be no cumulative impacts to tax revenues and property values proximate to the proposed sites; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required. The proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or pre-approved contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action

- *All Sites*

Direct Impacts
The four potential borrow sites are located in rural, sparsely populated areas. No direct impacts to property values are anticipated as a result of the proposed alternative.

Indirect Impacts
The four sites are currently being used as pasture or farmland. If borrow material is excavated from these areas with no backfill, then this land will no longer be available for other uses, including farmland. The land will be taken out of commerce, and will no longer have any functional use for producing income. In addition, because the land will no longer be used to produce income, the size of the local tax base will be decreased.

Cumulative Impacts
Cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of spurring additional economic growth in the region than would otherwise occur. It follows that increases in tax revenues would ensue given additional economic growth. In addition, the lower incidence of flooding that the HSDRRS is designed to achieve would have the effect of preserving, if not enhancing, property values within the protected areas.

3.3.7 Changes in Community Cohesion

Existing Conditions

- *All Sites*
Community cohesion refers to the common vision and sense of belonging within a community that is created and sustained by the extensive development of individual relationships that are social, economic, cultural, and historical in nature. The degree to which these relationships are facilitated and made effective is contingent upon the physical and spatial configuration of the community itself, the functionality of the community owes much to the physical landscape within

which it is set. The viability of community cohesion is compromised to the extent to which these physical features are exposed to interference from outside sources.

The areas of the proposed sites are currently settled communities with stable complements of churches, schools, businesses, and community interaction.

Discussion of Impacts

No Action

- *All Sites*

  Direct Impacts
  Under this alternative, the four sites would not be used to obtain borrow material to construct Federal HSDRRS projects. There would be no direct impacts to community cohesion under the no action alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts
  There would be no indirect impacts to community cohesion under this alternative; however, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Cumulative Impacts
  Under this alternative, the proposed HSDRRS projects would be built to authorized levels using potential government-furnished and/or contractor-furnished borrow areas described in IER #18, IER #19, IER #22, IER #23, IER #25, IER #26, IER #28, IER #29, IER #30, IER #31, IER #32, or other sources yet to be identified.

Proposed Action

- *All Sites*

  Direct Impacts
  The proposed action would have no direct adverse effect on community cohesion in the study area. Increased protection from flooding would preserve and enhance the potential for community cohesion.

  Indirect Impacts
  The four potential borrow sites are located in rural, sparsely populated areas. No adverse indirect impacts to community cohesion are anticipated as a result of the proposed alternative. Increased protection from flooding would preserve and enhance the potential for community cohesion.

  Cumulative Impacts

Impacts on community cohesion are contingent upon the degree to which project construction is expected to encroach upon the physical landscape that directly or indirectly affects the patterns of social interrelationships. In the current analysis, the borrow sites are sufficiently distant from areas of development such that no spatial element of the community is impinged upon and the shared identity of the community materially threatened. This does not mean that adverse impacts, such as degraded aesthetic qualities or foregone economic opportunities, do not occur. Rather, the adverse impacts in other resource areas are not sufficiently large to affect community cohesion. The impact on community cohesion is first demonstrated by identifying a change in the pattern of social interaction, such as diminished contact due to physical separation, impediments to contact, interference in communication, dislocation, or voluntary migration. None of these conditions are present with the proposed action.

Additional cumulative impacts associated with the completion of the HSDRRS in its entirety may occur. The lower flood risk that accrues to much of the New Orleans metropolitan area upon completion of the HSDRRS may have the effect of enhancing community cohesion. The reason for this is that the lower incidence of flooding reduces the likelihood that patterns of social interaction and communication within the community are interrupted or permanently altered.

3.4 ENVIRONMENTAL JUSTICE

Environmental Justice (EJ) is institutionally significant because of Executive Order 12898 of 1994 (E.O. 12898) and the Department of Defense's Strategy on Environmental Justice of 1995, which direct Federal agencies to identify and address any disproportionately high adverse human health or environmental effects of Federal actions to minority and/or low-income populations. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations as of 2010 are those whose income are $22,050.00 for a family of four and are identified using the Census Bureau's statistical poverty threshold. The Census Bureau defines a "poverty area" as a Census tract with 20 percent or more of its residents below the poverty threshold and an "extreme poverty area" as one with 40 percent or more below the poverty level. This resource is technically significant because the social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by the proposed actions. This resource is publicly significant because of public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of Federal laws, regulations, policies, and actions.

A potential disproportionate impact may occur when the percent minority in the study area exceeds 50 percent and/or the percent low-income exceeds 20 percent of the population. Additionally, a disproportionate impact may occur when the percent minority and/or low-income in the study area are meaningfully greater than those in the reference community. For purposes of this analysis, the Census Block Groups within which the borrow sites are located are defined as the EJ study area. The proposed borrow sites are located in St. John the Baptist Parish, Jefferson Parish, and Terrebonne Parish which, for the purposes of this analysis, are considered the reference communities of comparison. The methodology, consistent with E.O. 12898, to accomplish this EJ analysis includes identifying low-income and minority populations within the study area using up-to-date economic statistics, aerial photographs, 2010 U.S. Census records, the 2005-2009 U.S.

Census Bureau's American Community Survey (ACS) estimates, as well as conducting community outreach activities such as public meetings.

The 2010 U.S. decennial Census data will be used in the current analysis as the primary deciding variable to determine whether the study area exceeds the minority threshold and therefore potentially disproportionately impacts minority population groups. The U.S. Census Bureau is now only providing population (including minority status) and housing characteristics in the decennial censuses. Other social characteristics (e.g., low-income) will now be provided in the U.S. Census Bureau's American Community Survey (ACS). The ACS provides estimates of social characteristics based on data collected over five years. The 2005-2009 estimates represent the average characteristics over the 5-year period of time. For this reason, the current analysis uses the 2005-2009 ACS data to determine whether the study area exceeds the low-income threshold and therefore potentially disproportionately impacts low-income populations.

Existing Conditions

The proposed borrow sites are located in St. John the Baptist Parish, Jefferson Parish, and Terrebonne Parish. The 2010 Census records indicate that the minority population in St. John the Baptist Parish was 60.0 percent and the 2005-2009 ACS data indicate that during this period[1], the low-income population was 14.3 percent. Within St. John the Baptist Parish, the proposed RBEND II borrow site is located in Census Tract 701, Block Group 2. According to the 2010 decennial Census, Census Tract 701, Block Group 2 had a minority population of 24.0 percent and, according to the 2005-2009 ACS, had a low-income population of 2.1 percent. The Robert Brothers Farm potential site, also located in St. John the Baptist Parish, is located within Census Tract 711, Block Group 1. According to the 2010 decennial Census, Census Tract 711, Block Group 1 had a minority population of 69.5 percent and, according to the 2005-2009 ACS, had a low-income population of 19.9 percent. According to the 2010 decennial Census, Jefferson Parish, within which the Assumption Land Co. site is located, had a minority population of 44.0 percent. Jefferson Parish, according to the 2005-2009 ACS data, had a low-income population of 13.8 percent. Within Jefferson Parish, the Assumption Land Co. site is located in Census Tract 275.02, Block Group 2 which had a minority population of 99.4 percent and a low-income population of 26.5 percent. According to 2010 decennial Census data, Terrebonne Parish, in which the Houma Excavation site is located, had a minority population of 31.4 percent. The low-income population, according to the 2005-2009 ACS, was 16.9 percent. Within Terrebonne Parish, the Houma Excavation site is located in Census Tract 11, Block Group 1 which had a minority population of 21.6 percent and a low-income population of 21.0 percent.

Analyses of the above information show that the areas within which the Robert Brothers Farm and Assumption Land Co. sites are located exceed the 50 percent minority threshold. Additionally, the areas within which the Assumption Land Co. and the Houma Excavation sites are located exceed the 20 percent low-income threshold. As a result, further analysis will be conducted in the following 'Discussion of Impacts' section to determine whether a disproportionate impact will occur to minority and/or low-income populations in these areas.

Discussion of Impacts

No Action

[1] As stated previously, the 2005-2009 estimates represent the average characteristics over the 5-year period of time.

- *All Sites*

  Direct Impacts
  Under this alternative, the four sites would not be used to obtain borrow material to construct HSDRRS projects. No minority and/or low-income communities would be adversely impacted by the No Action Alternative. Therefore, no disproportionately high or adverse human health or environmental effects on minority or low-income populations would occur. However, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Indirect Impacts
  No disproportionately high or adverse human health or environmental indirect impacts on minority or low-income populations would occur. However, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

  Cumulative Impacts
  There would be no cumulative impacts on minority and/or low-income communities under the no action alternative. This alternative would not contribute to any additional EJ issues when combined with other Federal, state, local, and private restoration efforts. However, alternative methods for improving flood and hurricane protection using borrow material from other locations would likely be required.

Proposed Action

- *All Sites*

  Direct Impacts
  This alternative will result in temporary, direct effects due to construction activities. These temporary effects will equally affect all population groups in the project area and therefore will not result in a disproportionately high adverse impact on minority and/or low-income populations in the areas.

  Indirect Impacts
  Under this alternative, no disproportionately high adverse indirect impacts on human health or environmental effects are anticipated to occur. The completion of the project will result in positive impacts to the areas in the form of increased drainage that would benefit all residents equally.

  Cumulative Impacts
  No adverse cumulative impacts on minority and/or low-income communities per the requirements of E.O. 12898 are anticipated to occur under this alternative. Rather, this alternative would contribute toward achieving and sustaining the HSDDRS system that would support and protect the environment from storm surge, which would, in turn, maintain and protect the local economy and culture of the area.

3.5 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

USACE is obligated under Engineer Regulation 1165-2-132 to assume responsibility for

the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of the proposed actions. 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 ASTM E 1527-05 Phase I Environmental Site Assessment (ESA) was completed for each proposed contractor-furnished borrow area. The Phase I ESA documented the Recognized Environmental Conditions (RECs) for each proposed project area. If a REC cannot be avoided, due to construction requirements, the CEMVN may further investigate the REC to confirm the presence or absence of contaminants and to recommend actions to avoid possible contaminants. Federal, state, or local coordination may be required. Because the CEMVN plans to avoid RECs, the probability is low for encountering HTRW in the project area.

Copies of the Phase I ESA studies cited below are maintained on file at the CEMVN office, and the content of those reports are incorporated herein by reference. Copies of these reports are available by requesting them from the CEMVN, or accessing them at www.nolaenvironemtal.gov.

Phase I HTRW ESAs have been completed for the proposed contractor-furnished borrow areas:

- Assumption Land Company Site
- Houma Excavation Site
- RBEND II Site
- Robert Brothers Farm

4. 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 "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. These actions include projects conducted by government agencies, businesses, or individuals that are within the spatial and temporal boundaries of the actions that are considered in this IER.

As indicated previously, in addition to this IER, the CEMVN is preparing a draft CED that will describe all HSDRRS work completed and the work remaining to be constructed, including borrow sources for the system. 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. 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. Overall cumulative impacts and future operations and maintenance requirements will also be included.

The discussion provided below describes an overview of Federal and non-Federal actions, projects, and occurrences that may contribute to the cumulative impacts previously discussed as it relates to matters of borrow source excavation. Projects that occur within the greater New Orleans area and southeastern Louisiana were considered collectively (as appropriate) for the evaluation of cumulative impacts. For a more in-depth discussion of cumulative impacts from structural HSDRRS projects (i.e., levee, floodwall, and pumping stations) please refer to IERs #1 through #17, and the CED.

Cumulative Impacts due to HSDRRS Projects

Borrow material has been obtained in the past by the CEMVN for HSDRRS and other projects in southeastern Louisiana and southwestern Mississippi. The CEMVN has been working at an accelerated schedule to rehabilitate and complete the HSDRRS system after Hurricanes Katrina and Rita, and has a goal of building the system to authorized levels. Over 31 million cubic yards of borrow material is estimated to be needed to complete authorized levels of protection for the HSDRRS and NOV projects. Borrow material will also be needed to perform levee lifts and maintenance for at least 50 years after construction is completed. The CEMVN is in the process of implementing construction projects to raise the hurricane protection levees associated with the LPV, WBV, and New Orleans to Venice (NOV) projects to authorized elevations. This includes modifications to risk reduction projects covered in IERs #1 through #17. Levee and floodwall improvements throughout the area would require substantial amounts of borrow material, and some of the borrow areas needed have been identified in this document to provide adequate material in proximity to proposed risk reduction projects. Other potential borrow areas were identified and approved for use in IER #18, IER #19, IER #22, IER #23, #25, IER #26, IER #28, IER #29, IER #30, IER #31and IER #32 (figure 22). Depending on time, cost, and other factors, these and other potential borrow sources not yet identified may or may not be used for HSDRRS construction.

To date, there are over 60 borrow sites approved for construction of the HSDRRS in southeastern Louisiana and southwestern Mississippi (figure 22). HSDRRS borrow activity would cumulatively impact the significant resources discussed in this IER in the project area. Currently unidentified borrow sources may also incrementally impact the significant resources discussed in this IER in the project area.

Cumulative Impacts due to Borrow Needs for Other CEMVN Projects

Multiple current and upcoming CEMVN projects are expected to need suitable borrow material. Major civil works projects that may have a great requirement for borrow material include the Morganza to the Gulf project, Donaldsonville to the Gulf project, Larose to Golden Meadow project, Alexandria to the Gulf project, construction necessary to raise levee heights and incorporate the Plaquemines Parish West Bank non-Federal levees into the NOV project, Grand Isle non-Federal levee construction, and Mississippi River levee maintenance. Additional projects authorized by the Water Resources Development Act (WRDA) of 2007 could also contribute to resource impacts, either adversely or with long-term positive impacts. It is expected that borrow material would be needed for a majority of these projects. However, needed quantities and location of potential borrow areas are not know at this time.

Other CEMVN projects, including most coastal restoration and mitigation projects, should not require “levee grade” borrow material from terrestrial sources.

Cumulative Impacts due to Borrow Needs for Non-Federal Projects

State and local levee and floodwall construction efforts are continuously being repaired, maintained, and upgraded. These include most of the local levee systems found in southeast Louisiana. It is expected that borrow material would be needed for a majority

of these projects. However, needed quantities and location of potential borrow areas are not know at this time.

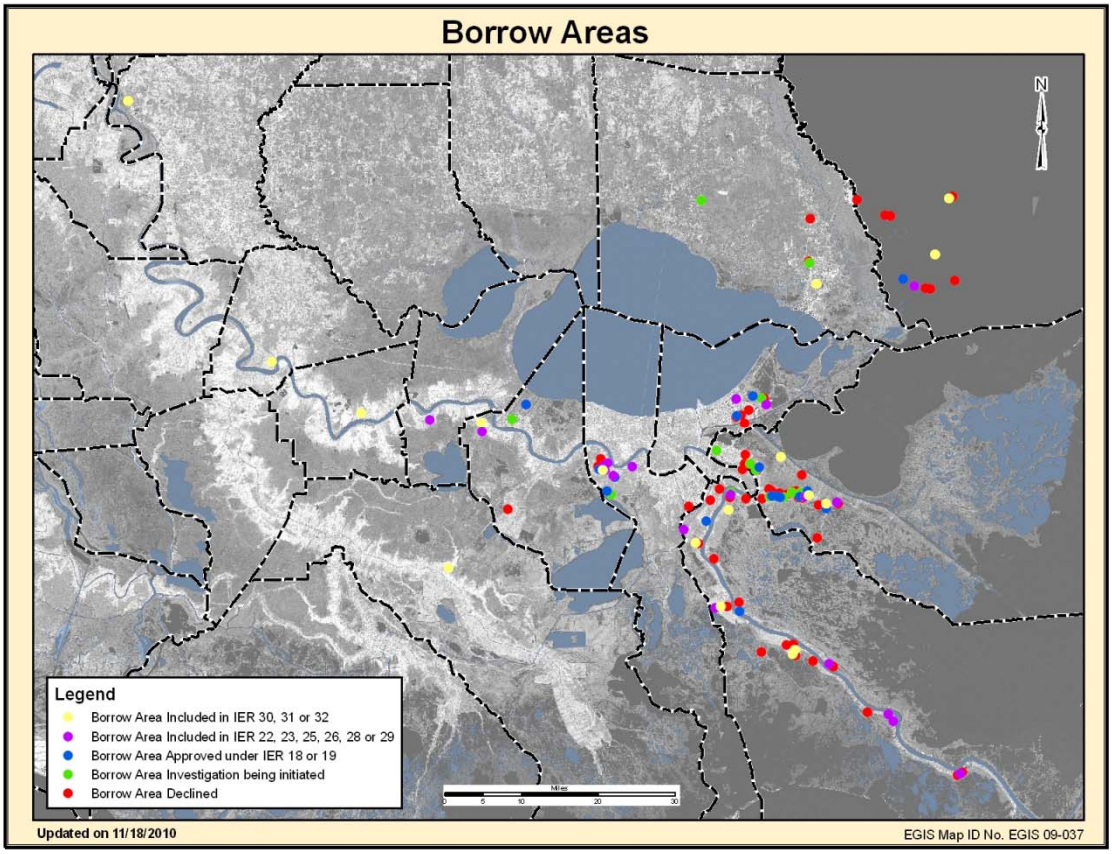

Figure 10: Potential HSDRRS Borrow Sources in the Project Area

4.1 SUMMARY OF CUMULATIVE IMPACTS

The magnitude and significance of cumulative impacts were evaluated in section 3 of this IER by comparing the existing environment with the expected impacts of the proposed action when combined with the impacts of other proximate actions. As stated previously, various Federal, state, and local ongoing and proposed actions may increase the need for borrow excavation in the study area. The potential borrow areas approved for use in IER #18, IER #19, IER #22, IER #23, #25, IER #26, IER #28, IER #29, IER #30, IER #31 and IER #32, and proposed for use in this IER could cumulatively impact land use patterns and transportation resources in the project area. Use of these proposed contractor-furnished borrow areas should not cumulatively impact jurisdictional wetlands, cultural resources, or T&E species and their critical habitat, as the CEMVN is currently avoiding impacts to these resources. The extent of potential cumulative impacts to other resources due to HSDRRS construction are not known at this time, and may be discussed in the CED.

The extent of land directly and indirectly affected by previous development activities, in combination with the excavation and use of the proposed borrow material for HSDRRS construction, would contribute cumulatively to land alteration and loss in the project area.

Most of the proposed borrow areas described in IER #18, IER #19, IER #22, IER #23, #25, IER #26, IER #28, IER #29, IER #30, IER #31 and IER #32 are upland areas. Over 4,000 acres of non-jurisdictional BLH (including habitat described in IER #35), which provides habitat for a variety of wildlife, may be destroyed due to HSDRRS borrow activities.

After borrow area excavation, land may be converted to ponds and small lakes if not backfilled by the landowner. The landowner may be required to backfill per local ordinances in some areas. If the sites are not backfilled, the excavated sites would be unsuitable for farming, forestry, or urban development in the reasonably foreseeable future. Habitat would be changed to favor aquatic and semi-aquatic plant and animal species over the terrestrial ones that now occupy the areas. Borrow areas that do not retain water would be colonized by herbaceous vegetation and woody terrestrial plant species, which would favor terrestrial animal species. This would attract the same species that are currently found in the areas.

The construction of the proposed contractor-furnished borrow areas would have short-term cumulative effects on transportation, as detailed in Section 3.3.4 of this IER and "Transportation Report For The Construction Of the 100-Year Hurricane And Storm Damage Risk Reduction System" report dated March 2010. It is anticipated that over 31 million cubic yards of material would be needed to raise levee elevations regionally to meet the needs of the HSDRRS and NOV projects. The total number of truck trips required or haul routes for the movement of this quantity of material is currently unknown, but cumulative short-term impacts to transportation would be expected to occur. The CEMVN is currently developing information for an analysis of the transportation impacts associated with the HSDRRS project. A transportation report is being developed and will be released publicly once it is completed. Estimates on numbers of truckloads necessary to complete the HSDRRS borrow mission are provided in this IER. These estimates were developed as a part of CEMVN's continuing analysis of the potential transportation impacts associated with the HSDRRS mission. The current estimate for the total number of truckloads necessary to complete the HSDRRS borrow mission is approximately 2,000,000. Additional information related to transportation impacts is being collected and will be discussed in the CED.

Based on historical human activities and land use trends in the project area, it is reasonable to anticipate that future activities would further contribute to cumulative degradation of land resources. It is anticipated that through the efforts taken to avoid and minimize effects on the project area and the mandatory implementation of a mitigation plan that functionally compensates unavoidable remaining impacts, the proposed contractor-furnished borrow areas would not result in substantial direct, secondary or cumulative adverse impact on the environment. The mitigation plan is discussed in section 7.

Quantitative cumulative impacts to recreational resources, noise quality, air quality, water quality, and aesthetic resources are not fully known at this time, and will be discussed in the CED. Details on cumulative EJ impacts will be analyzed at the conclusion of EJ small-group meetings and will be included in the CED.

5. SELECTION RATIONALE

The proposed action consists of excavating the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas. There is an identified need for over 31 million cubic yards of borrow material to complete the HSDRRS projects, and the proposed action meets some of this demand.

Because of this need, the CEMVN will continue to investigate all potentially viable borrow areas for the next few years. Government-furnished borrow is an option that was explored in IER #18, IER #22, IER #25, and IER #28. Contractor-furnished borrow areas were investigated in IER #19, IER #23, IER #26, IER #29, IER #30, IER #31 and IER #32. All of this identified borrow material may be used to complete the HSDRRS, which would lower the risk of harm to citizens and damage to infrastructure during a storm event.

6. COORDINATION AND CONSULTATION

6.1 PUBLIC INVOLVEMENT

Extensive public involvement has been sought in preparing this IER. The HSDRRS projects, including the proposed contractor-furnished borrow areas 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 the HSDRRS projects was initiated on 12 March 2007, through 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 to explain the scope and process of the Alternative Arrangements for implementing NEPA between 27 March and 12 April 2007, after which a 30-day scoping period was open for public comment submission. Additionally, the CEMVN has been hosting multiple monthly public meetings since March 2007 to keep the stakeholders advised of project status. Public input will be provided in appendix B.

Public meetings related to borrow started in July 2007, and will continue until the borrow quantities needed are fulfilled.

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, and correspondence between governmental agencies and the CEMVN will be found in appendix D. 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 proposed IER projects. The following agencies, as well as other interested parties, received copies of draft IER 35:

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, National Marine Fisheries Service
U.S. Natural Resources Conservation Service
Louisiana Advisory Council on Historic Preservation
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

Mississippi Department of Marine Resources

LADNR reviewed the proposed action for consistency with the states' Coastal Resource Program. All proposed borrow activities discussed in this document were found by LADNR or the local parish to be consistent with its program (table 7).

Table 7: Coastal Zone Consistency Determination Concurrence

Proposed Borrow Area	State Consistency Permit Number	Parish Consistency Permit Number
Assumption Land Company Site	P20110343	P20110343
Houma Excavation Site	P20110451	P20110451
RBEND II Site	P20101602	N/A
Robert Brothers Farm (1/2)	P20101502	N/A
Robert Brothers Farm (2/2)	P20110438	N/A

The CEMVN received a final Coordination Act Report (CAR) from the USFWS dated 1 December 2011 (appendix D). Recommendations of the USFWS, in accordance with the Fish and Wildlife Coordination Act, include:

Recommendation 1: The private contractor for each borrow site shall provide compensation for the appropriate number of lost AAHUs (maximums listed in Table 1 [of the CAR]), for a potential total of 5.18 AAHUs for the unavoidable, project-related loss of forested lands included in IER 35. The landowner for the Houma Excavation site shall provide compensation for 3.75 acres (1.56 AAHUs of forested land that has already been impacted regardless of any future excavation. Such compensation can be obtained from any approved mitigation bank. Verification of purchased mitigation credits should be provided to the Service by the mitigation banker. The [USFWS], National Marine Fisheries Service, Louisiana Department of Wildlife and Fisheries, and Louisiana Department of Natural Resources should be consulted regarding the adequacy of any proposed alternative mitigation sites, including reforestation plans.

CEMVN Response 1: The CEMVN cannot hold the landowner responsible for compensatory mitigation related to recent impact to BLH at the Houma Excavation site at this time. If and when the Houma Excavation site is utilized as a source of borrow material for HSDRRS projects, the contractor will be responsible for completing mitigation prior to the site's use. The CEMVN will provide to the USFWS proof of payment of compensatory mitigation credits by contractors.

Recommendation 2: Whenever applicable, the Service recommends that the [CEMVN] consult the [USFWS]-developed National Bald Eagle Management (NBEM) Guidelines, utilize the interactive webpage at: http://www.fws.gov/midwest/ eagle/ guidelines/index.html, and implement any recommendations suggested. We also ask that the [CEMVN] provide a copy of their disturbance determination to our office.

CEMVN Response 2: Concur.

Recommendation 3: The protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-Aid letter should be utilized as a guide for locating future borrow-sites and expanding existing sites.

CEMVN Response 3: Concur.

Recommendation 4: Because of the potential for hydrologic modifications to jurisdictional wetlands within and adjacent to the planned excavation areas caused by borrow material excavation at the Houma Excavation site, the [USFWS] recommends that the [CEMVN] conduct an investigation to determine the extent of these potential impacts. The [USFWS] recommends that a buffer zone of at least 100 feet be designated between those borrow sites and any jurisdictional wetlands, within which no excavation would be allowed, unless the hydrologic investigation suggests the need for a greater buffer zone size.

CEMVN Response 4: A buffer zone of at least 100 feet has been designated between the excavation areas on the borrow sites and any jurisdictional wetlands in which no excavation would be allowed. The CEMVN will consider investigation into the potential for hydrologic modifications caused by borrow material excavation.

Recommendation 5: Any proposed change in borrow site features, locations or plans shall be coordinated in advance with [the USFWS], [the National Marine Fisheries Service], LDWF, and LDNR.

CEMVN Response 6: The CEMVN will continue coordination with these agencies.

Recommendation 5: If a proposed borrow site is changed significantly or excavation is not implemented within one year, we recommend that [the CEMVN] notify the contractor to reinitiate coordination with… this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

CEMVN Response 6: Concur.

7. MITIGATION

All potential contractor-furnished borrow areas described in this IER were assessed by the USFWS and the CEMVN under NEPA, the Fish and Wildlife Coordination Act, and under Section 906(b) WRDA 1986 requirements. It has been determined that use of the proposed contractor-furnished borrow areas would not directly impact jurisdictional wetlands, and therefore no mitigation for this resource is necessary. Approximately 11.14 acres (5.18 AAHUs) of non-jurisdictional BLH would be impacted with use of the proposed Houma Excavation and RBEND II sites, and would be mitigated for by the contractor if the sites are selected by construction contractors for use in building the HSDRRS. The CEMVN requires contractors to fulfill their mitigation requirements by purchasing BLH credits at permitted mitigation banks prior to use of a contractor-furnished borrow area.

Table 8 shows the cumulative impacts of all IERs which have been completed as of the date of publication. Further information on mitigation efforts will be available in forthcoming IERs.

Table 8. HSDRRS Impacts and Compensatory Mitigation to be Completed

IER	Parish	Side	Non-wet BLH	Non-wet BLH	Marsh	Marsh	Swamp	Swamp	BLH (acres)	BLH	Water
			acres	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*
1 LaBranche Levee	St. Charles	Protected	-	-	-	-	137.50	73.99	-	-	-
		Flood	-	-	-	-	143.57	110.97	11.33	8.09	
1.a Supp. LaBranche Levee	St. Charles	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
1.b Supp. LaBranche Levee	St. Charles	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
2 West Return Floodwall	St. Charles, Jefferson	Protected	-	-	-	-	-	-	-	-	75.00
		Flood	-	-	17.00	9.00	-	-	-	-	
2.a Supp. West Return Floodwall	St. Charles, Jefferson	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	14.50	11.60	2.00	1.55	-	-	
3 Jefferson Lakefront Levee	Jefferson	Protected	-	-	-	-	-	-	-	-	26.40
		Flood	-	-	-	-	-	-	-	-	
3.a Supp. Jefferson Lakefront Levee	Jefferson	Protected	-	-	-	-	-	-	-	-	275.00
		Flood	-	-	-	-	-	-	-	-	
4 Orleans Lakefront Levee	Orleans	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
5 Lakefront Pump Stations	Jefferson, Orleans	Protected	-	-	-	-	-	-	-	-	3.60
		Flood	-	-	-	-	-	-	-	-	
6 Citrus Lands Levee	Orleans	Protected	-	-	-	-	-	-	-	-	68.00
		Flood	-	-	-	-	-	-	-	-	
6.a Supp. Citrus Lands Levee	Orleans	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
7 Lakefront Levee	Orleans	Protected	-	-	100.40	36.80	-	-	151.70	79.30	106.00
		Flood	-	-	70.00	37.20	-	-	30.00	11.90	
7.a Supp. Lakefront Levee	Orleans	Protected	-	-	18.60	6.10	-	-	17.30	9.90	12.49
		Flood	-	-	56.00	30.20	-	-	2.80	0.30	
8 Bayou Bienvenue/Dupre	St. Bernard	Protected	-	-	-	-	-	-	-	-	0.30
		Flood	-	-	-	-	-	-	-	-	
9 Caenarvon Floodwall	St. Bernard	Protected	-	-	-	-	-	-	-	-	0.30
		Flood	10.00	4.65	1.90	1.20	-	-	1.20	0.66	
10 Chalmette Loop	St. Bernard	Protected	-	-	106.55	57.31	-	-	38.32	16.44	50.00
		Flood	-	-	323.04	209.94	-	-	35.31	15.22	

IER	Parish	Side	Non-wet BLH	Non-wet BLH	Marsh	Marsh	Swamp	Swamp	BLH (acres)	BLH	Water
			acres	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*
11 Tier 2 Borgne IHNC	Orleans, St. Bernard	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	122.00	24.33	-	-	15.00	2.59	
11 Tier 2Supp. Borgne IHNC	Orleans, St. Bernard	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
11 Tier 2 Pontchartrain IHNC	Orleans, St. Bernard	Protected	-	-	-	-	-	-	-	-	7.00
		Flood	-	-	-	-	-	-	-	-	
11 Tier 2 Pontch. Supp. IHNC	Orleans, St. Bernard	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
12 GIWW, Harvey, Algiers	Jefferson, Orleans, Plaquemines	Protected	-	-	-	-	-	-	251.70	175.10	-
		Flood	-	-	-	-	74.70	38.40	2.40	2.00	
12 Supp. Site N/Belle Chasse Tunnel	Jefferson, Orleans, Plaquemines	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
12.a Supp. WBV-14.e.2 Access Road	Jefferson, Orleans, Plaquemines	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
12/13 Supp. GIWW, Harvey, Algiers -Waterline	Jefferson, Orleans, Plaquemines	Protected	0.34	0.12	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
13 Hero Canal, East. Terminus	Plaquemines	Protected	-	-	-	-	-	-	13.00	7.80	-
		Flood	-	-	-	-	39.00	28.87	19.00	10.59	
13.a Supp. Hero Canal, East. Terminus	Plaquemines	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
14 Westwego to Harvey Levee	Jefferson	Protected	-	-	-	-	-	-	44.50	29.67	-
		Flood	-	-	-	-	29.75	17.02	45.50	37.17	
14 Supp. Westwego to Harvey Levee	Jefferson	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	42.00	24.00	-	-	
15 Lake Cataouatche	Jefferson	Protected	-	-	-	-	-	-	23.50	6.12	-
		Flood	-	-	-	-	-	-	3.60	1.35	
16 Western Tie-in	Jefferson, St. Charles	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	134.10	65.50	-	-	78.60	36.20	
16 Supp. Western Tie-in	Jefferson, St. Charles	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	14.10	9.00	-	-	79.10	37.26	
17 Company Canal Floodwall	Jefferson	Protected	-	-	-	-	-	-	5.50	2.69	-
		Flood	-	-	-	-	19.00	17.09	-	-	

IER	Parish	Side	Non-wet BLH	Non-wet BLH	Marsh	Marsh	Swamp	Swamp	BLH (acres)	BLH	Water
			acres	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*	*AAHUs*	*acres*
18 GFBM	Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles	Protected	276.90	89.29	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
19 CFBM	Hancock County, MS; Iberville, Jefferson, Orleans, Plaquemines, St. Bernard	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
22 GFBM	Jefferson, Plaquemines	Protected	86.93	28.90	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
23 CFBM	Hancock County, MS; Plaquemines,	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
25 GFBM	Jefferson, Orleans, Plaquemines	Protected	854.70	243.10	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
26 CFBM	Jefferson, Plaquemines, St. John the Baptist; Hancock, MS	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
27 Lakefront Pump Stations	Orleans	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
27 Lakefront Pump Stations	Orleans	Protected	-	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
28 GFBM	Jefferson, Plaquemines, St. Bernard	Protected	19.10	11.60	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
29 CFBM	Orleans, St. Tammany, St. John the	Protected	107.30	48.60	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
30 CFBM	St. Bernard and St. James; Hancock, MS	Protected	225.00	189.40	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
31 CFBM	E.Baton Rouge, Jeff, Lafourche, Plaquem, St. Bern, St. Tam; Hancock, MS	Protected	965.3	-	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
32 CFBM	Ascension, Plaquemines, St. Charles	Protected	202.10	97.43	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
35 CFBM	Jefferson, St. John, Terrebonne	Protected	11.14	5.18	-	-	-	-	-	-	-
		Flood	-	-	-	-	-	-	-	-	
Totals		Protected	2741.71	1284.59	225.55	100.21	137.50	73.99	624.12	363.22	624.09
		Flood	10.00	4.65	752.64	397.97	350.02	237.90	245.24	127.13	
		Both	2751.71	1289.24	978.19	498.18	487.52	311.89	869.36	490.35	624.09

- Not applicable to the IER or number impacted is 0

GFBM: Government Furnished Borrow Material // CFBM: Contractor Furnished Borrow Material

8. COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Use of the proposed Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm contractor-furnished borrow areas 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 was achieved through coordination of this IER with appropriate agencies, organizations, and individuals for their review and comments; USFWS and National Marine Fisheries Service confirmation that the proposed action would not adversely affect any T&E species or completion of Endangered Species Act Section 7 consultation (table 3); Louisiana Department of Natural Resources concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana and Mississippi Coastal Use Programs (table 7); coordination with the SHPO (table 4); receipt and acceptance or resolution of all Fish and Wildlife Coordination Act recommendations; and receipt and acceptance or resolution of all LADEQ comments on the air quality impact analysis documented in the IER.

Comments were received by Federal and state resource agencies during the public review period for draft IER 35, and throughout the planning process. The USFWS has concurred with professional determinations that no T&E species or their critical habitat would be adversely affected by the proposed action. The agency also recommended that the landowner of the Houma Excavation site provide compensatory mitigation for 3.75 acres (1.56 AAHUs) of recent impacts to non-jurisdictional BLH. The CEMVN cannot hold the landowner responsible for compensatory mitigation related to recent impact to BLH at the Houma Excavation site at this time. If and when the Houma Excavation site is utilized as a source of borrow material for HSDRRS projects, the contractor will be responsible for completing mitigation prior to the site's use. The CEMVN will provide to the USFWS proof of payment of compensatory mitigation credits by contractors.

The Louisiana Department of Wildlife and Fisheries supports the implementation and continued maintenance of a 100 foot buffer between jurisdictional wetlands and the Houma Excavation site. The agency recommended that contractors produce a slope of at least 4:1, or more gently sloping, to improve wildlife access and revegetation capabilities of the site. The CEMVN notes that it cannot direct contractors to maintain a 4:1 slope if the site is ever developed as a borrow area.

The Louisiana SHPO has determined that cultural resources would not be adversely impacted by the proposed action. The National Marine Fisheries Service agrees with the CEMVN's determination that development of the proposed borrow areas will not affect essential fish habitat. The Louisiana Department of Environmental Quality has no objections to the proposed use of the borrow areas.

9. CONCLUSIONS

9.1 INTERIM DECISION

The proposed action consists of approving the Assumption Land Company, Houma Excavation, RBEND II, and Robert Brothers Farm sites for use as potential sources of

contractor-furnished borrow material for use by construction contractors in the construction of the HSDRRS. This office has assessed the environmental impacts of the proposed action on jurisdictional wetlands, non-jurisdictional BLH, non-wetland/upland resources, wildlife, T&E species, cultural resources, recreational resources, noise quality, air quality, water quality, aesthetic resources, farmland, and socioeconomic resources. The proposed action would have no significant effect on jurisdictional wetlands, cultural resources, or T&E species and their critical habitat. Any found RECs would be avoided.

9.2 PREPARED BY

IER #35 was prepared by the following individuals. The address of the preparers is: U.S. Army Corps of Engineers, New Orleans District; Regional Planning and Environmental Division, South; New Orleans Environmental Branch; CEMVN-PDN-CEP; P.O. Box 60267; New Orleans, Louisiana 70160-0267.

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Paula Feldmeier	Assistant District Counsel	Document review
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Paul Hughbanks, Ph.D.	Archaeologist	Cultural Resources
Thomas Keevin, Ph.D.	Chief, Environmental Compliance Branch, St. Louis District, USACE	Internal technical review
Kelly McCaffrey	Landscape Architect	Aesthetic (Visual) Resources, Recreational Resources
Sandra Stiles	Chief, Coastal Environmental Planning Section	Internal technical review
Danielle Tommaso	Environmental Manager	NEPA compliance, document preparation
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9.3 LITERATURE CITED

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APPENDIX A: LIST OF ACRONYMS AND DEFINITIONS OF COMMON TERMS

AAHU	Average Annualized Habitat Unit
APE	Area of potential impact
ASTM	American Society of Testing and Materials
BLH	Bottomland Hardwood (Forest)
BMP	Best Management Practice
CAR	Coordination Act Report
CED	Comprehensive Environmental Document
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Clay Classifications	CH: Fat clay CL: lean clay ML: Silt
dBA	Decibel
DNL	Day-night average sound level
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
USEPA	U.S. Environmental Protection Agency
ER	Engineering Regulation
ESA	Environmental Site Assessment
ESRI	Environmental Systems Research Institute
FONSI	Finding of No Significant Impact
GIWW	Gulf Intracoastal Waterway
HSDRRS	Hurricane and Storm Damage Reduction System (formerly known as the Hurricane Protection System)
HPS	Hurricane Protection System (see HSDRRS)
HTRW	Hazardous, Toxic, and Radioactive Waste
HU	Habitat Unit
IER	Individual Environmental Report
IERS	Individual Environmental Report Supplemental
IPET	Interagency Performance Evaluation Team
LCA	Louisiana Coastal Area
LACRP	Louisiana Coastal Resource Program
LADEQ	Louisiana Department of Environmental Quality
LADNR	Louisiana Department of Natural Resources
LPV	Lake Pontchartrain and Vicinity Project
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NO_x	Nitrogen oxides
NOV	New Orleans to Venice Project
O_3	Ozone
Pb	Lead
PDT	Project Delivery Team
PI	Plasticity index
PM	Particulate matter
PPM	Parts per million

P.L.	Public Law
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
ROD	Record of Decision
ROE	Right of Entry
Section 404 (of the Clean Water Act)	The Section 404 program for the evaluation of permits for the discharge of dredged or fill material was originally enacted as part of the Federal Water Pollution Amendments of 1972. The Secretary of Army acting through the Chief of Engineers may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites.
SHPO	State Historic Preservation Officer
SIR	Supplemental Information Report
SPH	Standard Project Hurricane
SO_x	Sulfur oxides
T&E	Threatened or Endangered Species
USACE	U.S. Army Corps of Engineers CEMVK: Mississippi Valley Division, Vicksburg District CEMVN: Mississippi Valley Division, New Orleans District CESAM: South Atlantic Division, Mobile District
USDA	U.S. Department of Agriculture NRCS: Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
WBV	West Bank and Vicinity Project
WRDA	Water Resources Development Act

APPENDIX B: PUBLIC COMMENT AND RESPONSES SUMMARY

Choctaw Nation of Oklahoma

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

Gregory E. Pyle
Chief

Gary Batton
Assistant Chief

November 9, 2011

Ms. Patricia Leroux
U. S. Army Corps of Engineers
Regional Planning and Environment Division
CEMVN-PDN-CEP
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Patricia Leroux:

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: ***Contractor-Furnished Barrow Material #8 – Jefferson, Terrebonne, and St. John the Baptist Parishes, Louisiana***

Comments: The Choctaw Nation of Oklahoma has reviewed the above project (s) and based on the information provided. We are requesting a Phase I Cultural Resource Report. If you have any questions, please contact our Historic Preservation Department at 1-800-522-6170 ext. 2216.

Sincerely,

Ian Thompson PhD, RPA
Director Historic Preservation Department
Tribal Archaeologist, NAGPRA Specialist
Choctaw Nation of Oklahoma

By _____
Caren A. Johnson
Administrative Assistant

APPENDIX C: MEMBERS OF INTERAGENCY ENVIRONMENTAL TEAM

Kyle Balkum	Louisiana Dept. of Wildlife and Fisheries
Catherine Breaux	U.S. Fish and Wildlife Service
Mike Carloss	Louisiana Dept. of Wildlife and Fisheries
David Castellanos	U.S. Fish and Wildlife Service
Frank Cole	Louisiana Department of Natural Resources
Greg Ducote	Louisiana Department of Natural Resources
John Ettinger	U.S. Environmental Protection Agency
David Felder	U.S. Fish and Wildlife Service
Michelle Fischer	U.S. Geologic Survey
Deborah Fuller	U.S. Fish and Wildlife Service
Mandy Green	Louisiana Department of Natural Resources
Jeffrey Harris	Louisiana Department of Natural Resources
Richard Hartman	NOAA National Marine Fisheries Service
Brian Heimann	Louisiana Dept. of Wildlife and Fisheries
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
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Reneé Sanders	Louisiana Department of Natural Resources
Angela Trahan	U.S. Fish and Wildlife Service
Nancy Walters	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

United States Department of the Interior

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

September 6, 2011

Colonel Edward R. Fleming
District Commander
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Fleming:

Please reference the Individual Environmental Report (IER) 35, entitled "Contractor Furnished Borrow Material #8, Jefferson and St. John the Baptist, and Terrebonne Parishes, Louisiana." That IER addresses impacts resulting from the excavation of contractor-supplied borrow sites which will be used to increase hurricane protection within the Greater New Orleans area located in southeast Louisiana. Work associated with that IER is being 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 the Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity hurricane protection projects in the Greater New Orleans area to provide protection against a 100-year hurricane event (Hurricane and Storm Damage Risk Reduction System [HSDRSS]). This report contains an analysis of the impacts on fish and wildlife resources that would result from excavation of those borrow sites and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which directed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the Lake Pontchartrain and Vicinity and the West Bank and Vicinity 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 prevented our agencies from following 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 U.S. Fish and Wildlife Service (Service) will be providing post-authorization 2(b) reports for individual IERs.

This draft report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the Westbank and Vicinity of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the Lake Pontchartrain and Vicinity Hurricane (dated July 25, 1984, and January 17, 1992) Protection projects. It also supplements our August 7,

2006, Planning-aid Letter to the Corps providing recommendations for minimizing impacts to fish and wildlife resources from borrow site selection and use. This report does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report was also provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service, and their comments will addressed or incorporated as appropriate.

DESCRIPTION OF THE STUDY AREA

The study area is primarily located within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem. The higher elevations in Louisiana occur on the natural levees of the Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. Federal, State, and local levees have been installed for flood protection purposes, often with negative effects on adjacent wetlands. Navigation channels such as the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet are also prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees. Major water bodies include Lake Pontchartrain located north of the main study area, and the Mississippi River which bisects the main study area.

There are four proposed borrow sites. The RBend II site is located in St. John the Baptist Parish, near Laplace, LA, north of U.S. Highway 61. The Robert Brothers site is adjacent to Louisiana Highway 3213 near the Mississippi River in St. John the Baptist Parish. The Assumption Land Company site is located in Jefferson Parish near Live Oak Blvd. and the Mississippi River. The Houma Excavation site is located near Bayou Terrebonne in Montegut, LA, in Terrebonne Parish.

FISH AND WILDLIFE HABITATS AND RESOURCES

Habitat types at and in the vicinity of the borrow sites include forested wetlands (i.e., bottomland hardwoods [BLH] and/or swamps), non-wet BLH, scrub-shrub, marsh, open water, active agriculture, and developed areas. Due to urban development and a forced-drainage system within the levee system, the hydrology of much of the forested habitat has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the area.

Wetlands (forested, marsh, and scrub-shrub) within the study area provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands in the study area also provide valuable water quality functions such as reduction of excessive dissolved nutrient levels, filtering of waterborne contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges reducing their damaging effect to man-made infrastructure within the coastal area.

Factors that will strongly influence future fish and wildlife resource conditions include freshwater input and loss of coastal wetlands. Depending upon the deterioration rate of marshes, the frequency of occasional short-term saltwater events may increase. Under that scenario, tidal action in the project area may increase gradually as the buffering effect of marshes is lost, and use of that area by estuarine-

dependent fishes and shellfish tolerant of saltwater conditions would likely increase. Regardless of which of the above factors ultimately has the greatest influence, freshwater wetlands within and adjacent to the project area will probably experience losses due to development, subsidence, and erosion.

Forested wetlands in the area are divided into two major types; BLH forests and cypress-tupelo swamps. Bottomland hardwood forests are found at higher elevations (Mississippi River and former distributary channel levees) in the project area, while cypress-tupelo swamps are located along the flanks of larger distributary ridges as a transition zone between BLH and lower-elevation marsh, scrub-shrub habitats, or open water.

Non-wet BLH within the project area also provide habitat for wildlife resources. Between 1932 and 1984, the acreage of BLH in Louisiana declined by 45 percent (Rudis and Birdsey 1986). By 1970, Jefferson Parish (located approximately between St. Charles and Plaquemine Parishes) was classified as entirely urban or nonforested in the U.S. Forest Service's forest inventory with most of this loss resulting from development within non-wet areas inside the hurricane protection levees. A large percentage of the original BLH within the Mississippi River floodplain acreage in the Deltaic Plain are located within a levee system, especially those at higher elevations. However, losses of that habitat type are not regulated or mitigated with the exception of impacts resulting from Corps projects as required by Section 906(b) of the Water Resources Development Act of 1986.

Dead-end canals and small bayous are typically shallow and their bottoms may be filled in to varying degrees with semi-fluid organic material. Drainage canals enclosed within the hurricane protection projects or within developed areas are stagnant except when pumps are operating to remove rain water. Runoff from developed areas has likely reduced the habitat value of drainage canals by introducing various urban pollutants, such as oil, grease, and excessive nutrients. Clearing and development has eliminated much of the riparian habitat that would normally provide shade and structure for many aquatic species.

Some of the waterbodies in the study area meet criteria for primary and secondary contact recreation and partially meet criteria for fish and wildlife propagation; while others do not meet the latter criteria. Causes for not fully meeting fish and wildlife propagation criteria include excessive nutrients, organic enrichment, low dissolved oxygen levels, flow and habitat alteration, pathogens and noxious aquatic plants. Sources of those problems include hydromodification, habitat modification, recreational activities, and unspecified upstream inputs. Municipal point sources, urban runoff, storm sewers, and onsite wastewater treatment systems are also known contributors to poor water quality in the area.

Developed habitats in the study area include residential and commercial areas, as well as roads and existing levees. Those habitats do not support significant wildlife use. Most of the development is located on higher elevations of the project area; however, vast acreages of swamp and marsh have been placed under forced drainage systems and developed. A smaller acreage of wetlands has been filled for development. Agricultural lands occur throughout the area; agriculture includes sugarcane farming, cattle production, and haying.

There is a bald eagle nest located further than 660 feet from the northeastern boundary of the

Assumption Land Company borrow site. If the boundary of the site should change such that the eagle nest is within 660 feet of the proposed borrow site, the Service recommends that the landowner follow the guidelines in the next paragraphs.

Bald eagles were removed from the List of Endangered and Threatened Species as of August 8, 2007, but are protected by the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) and the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.). The Service recommends that the Corps consult the Service-developed National Bald Eagle Management (NBEM) Guidelines regarding potential impacts to the eagle at http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf. In addition, a website designed to help determine whether an activity may disturb nesting bald eagles is available at: http://www.fws.gov/midwest/eagle/guidelines/index.html. Those guidelines and the website 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.

The BGEPA 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. If after consulting those guidelines and the above website 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, please contact this office. A copy of your final determination should be provided to our office.

Endangered and Threatened Species

To aid the Corps in complying with their proactive consultation responsibilities under the Endangered Species Act (ESA), the Service provided a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District. Private contractors have conducted ESA consultation on each borrow site as they were identified and determined that, at this time, no threatened or endangered species or their critical habitat were located within any proposed borrow site.

If a proposed borrow site is changed significantly or relocated, or excavation is not implemented within one year, we recommend that the Corps request that the contractor reinitiate coordination with this office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.

Future Fish and Wildlife Resources

The combination of subsidence and sea level rise results in higher water levels, stressing most non-fresh marsh plants and forested wetlands leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater

intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitats to open water or developed land represents the most serious fish and wildlife-related problem in the study area. Habitat losses could be expected to cause declines in the area's carrying capacity for migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals.

ALTERNATIVES UNDER CONSIDERATION

The only alternative to the proposed project was the "no action" alternative which would avoid impacts to fish and wildlife resources, but would potentially prevent or impede the construction of flood protection measures for residents of the greater New Orleans area.

The proposed borrow sites have been located in areas that avoid direct impacts to wetlands and impacts to non-wet BLH have also been avoided to the extent practicable. Use of adjacent borrow, the typical construction method, has been limited because of soil conditions (i.e., insufficient clay content), thus impacts resulting from expansion of borrow sites into wetlands has been avoided in some areas.

PROJECT IMPACTS

Excavation of the borrow sites will usually result in the conversion of terrestrial habitat into open-water areas. There would be direct impacts to non-wet BLH at two of the four proposed borrow areas; therefore, mitigation would be required (Table 1). Because agricultural, pasture, and cleared land habitats have a reduced value to fish and wildlife resources and are not a declining or limited habitat type, impacts associated with conversion of those habitats to open-water were quantified only by acreage as part of the total site (Table 1).

The RBend II site is comprised of mostly agricultural land, with approximately 7.39 acres of non-wet BLH forest habitat that would be impacted by the proposed project.

The Robert Brothers site is comprised of mostly active agricultural land, and previously contained about 20 acres of early successional and more mature non-wet BLH forest. The older forested area (approximately 5 acres) had existed for over 10 years; all of the land was cleared of vegetation between 2008 and 2009. The landowner informed the Service and the Corps that the land has been, and remains, leased for farming under a 1995 agreement. The lease agreement does not restrict the farmer from clearing forest or other vegetation for farming, drainage, etc. The landowner stated that the farmer cleared the non-wet BLH forest that occurred on the property prior to 2009 for reasons related to farming only. Because the landowner confirmed that the deforestation of the land was undertaken by the landowner's lessee for reasons wholly unrelated to the sale of borrow material to contractors supplying clay for the federal HSDRSS project, mitigation would not be required for the loss of the BLH habitat.

The Assumption Land Company site area was previously proposed as part of a HDRSS borrow site and assessed by the Corps and the Service as part of IER 25. The site is mostly pasture with some trees

associated with fence lines, but no forested areas.

The Houma Excavation site is comprised of wetlands, pasture, and approximately 3.75 acres of recently deforested land. The forested lands were cleared in early 2011 to prepare for excavation of material for the HSDRSS; therefore, mitigation would be required as stated in this report.

The Corps' regulatory program has determined that jurisdictional wetlands occur within the boundaries of the Houma Excavation borrow site. The excavation of material at the site will not directly impact any jurisdictional wetlands; however, as indicated in the IER, there is a potential for hydrologic modifications caused by borrow material excavation to indirectly impact jurisdictional wetlands. A reduction or interception of rainfall runoff could result in a decrease in downstream jurisdictional wetlands by conversion of the soils into non-hydric types. These effects may be difficult to describe and quantify; however, potential impacts due to hydrology modifications caused by borrow material excavation should be discussed here and in future borrow IERs because of the close proximity of wetlands, and other fish and wildlife habitat, to some proposed borrow sites. Therefore, the Service recommends an investigation to determine the extent of potential hydrologic changes due to borrow excavation so that protective measures may be recommended as necessary. The Service would be pleased to participate in the effort.

To further protect jurisdictional wetlands, the Service also recommends the designation of a 100 foot "no excavation" buffer zone between the jurisdictional wetlands and the borrow site to help preserve the water quality of the wetlands.

Table 1: Contractor borrow sites and direct impacts to BLH.

Site	Parish	Entire borrow site (acres)	Area of Site Proposed for Excavation (acres)	Maximum BLH Habitat Impacted (acres)	Maximum AAHUs Lost
Assumption Land Company	Jefferson	77	77	0	0
Houma Excavation	Terrebonne	282	171	3.75	1.56
RBend II	St. John the Baptist	52	52	7.39	3.62
Robert Brothers Farm	St. John the Baptist	232	232	0	0
Total		**643**	**362**	**11.14**	**5.18**

FISH AND WILDLIFE CONSERVATION MEASURES

To minimize wetland and non-wet BLH impacts, the Service recommends that prior to utilizing borrow sites, every effort should be made to reduce impacts by using sheet pile, floodwalls, geotextile, or some combination thereof, to increase levee heights wherever feasible. In addition, the Service recommends that the previous protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-Aid letter should continue to be utilized as a guide in locating future borrow-sites.

MITIGATION 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 hurricane protection needs while addressing the co-equal 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 forested areas (wet and non-wet) and marsh for fish and wildlife, and the relative scarcity of those habitat types, they are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Degraded BLH forest (e.g. dominated by exotic species) and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value. The 11.14 acres of BLH habitat impacted by utilization of the borrow sites in this IER are placed in Resource Category 2; therefore, the mitigation should be no net loss of in-kind habitat value.

Several contractors, working of various parts of the HSDRRS, may use different portions of the borrow sites. Each excavation and associated impacts (i.e. forest clearing) to BLH will be assessed separately by the Service. The mitigation for impacts incurred by each contractor will be charged separately. The maximum mitigation amount cited in this report may not be required depending on the actual BLH area that is ultimately impacted by utilization for the HSDRRS.

The Service used the Habitat Assessment Methodology (HAM) to quantify the impacts to forested habitats. The habitat assessment model utilized in this evaluation is modified from those developed in the Service's Habitat Evaluation Procedures (HEP). However, this model is a community-level evaluation instead of the species-based approach used with HEP. For BLH, the model defines an assemblage of variables considered important to the suitability of an area to support a diversity of fish and wildlife species (Louisiana Department of Natural Resources 1994; U.S. Fish and Wildlife Service 1980). A Habitat Suitability Index (HSI) is calculated from all of the model variables to represent the overall value of the wetland habitat quality. The product of an HSI value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU), and is the basic unit for measuring

project effects on fish and wildlife habitat. HUs are annualized over the project life to determine the Average Annual Habitat Units (AAHUs) available for each habitat type. The change (increase or decrease) in AAHUs for the future with-project scenario, compared to the future without-project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the fish and wildlife community within that habitat type; a net loss of AAHUs indicates that the project would adversely impact fish and wildlife resources. Further explanation of how impacts/benefits are assessed and an explanation of the assumptions affecting the HSI values for each target year are available for review at Service's Louisiana, Ecological Services Field Office.

SERVICE POSITION AND RECOMMENDATIONS

Excavation of the entire approved area of the proposed borrow sites would result in a permanent loss of 11.14 acres of BLH forest for a loss of 5.18 AAHUs. The Service does not object to the use of the proposed borrow sites provided the following fish and wildlife recommendations are implemented concurrently with project implementation:

1. The private contractor for each borrow site shall provide compensation for the appropriate number of lost AAHUs as listed in Table 1, for a total of 5.18 AAHUs for the unavoidable, project-related loss of forested lands included in IER 35. Such compensation can be obtained from any approved mitigation bank. Verification of purchased mitigation credits should be provided to the Service by the mitigation banker. The Service, National Marine Fisheries Service, Louisiana Department of Wildlife and Fisheries, and Louisiana Department of Natural Resources should be consulted regarding the adequacy of any proposed alternative mitigation sites, including reforestation plans.

2. Whenever applicable, the Service recommends that the Corps consult the Service-developed National Bald Eagle Management (NBEM) Guidelines, utilize the interactive webpage at: http://www.fws.gov/midwest/eagle/guidelines/index.html, and implement any recommendations suggested. We also ask that the Corps provide a copy of their disturbance determination to our office.

3. The protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-Aid letter should continue to be utilized as a guide for locating future borrow-sites and expanding existing sites.

4. Because of the potential hydrologic modifications to jurisdictional wetlands within and adjacent to the planned excavation areas caused by borrow material removal at the Houma Excavation site, the Service recommends that the Corps conduct an investigation to determine the extent of these potential impacts. The Service recommends that a buffer zone of at least 100 feet be designated between those borrow sites and any jurisdictional wetlands, within which no excavation would be allowed, unless the hydrologic investigation suggests the need for a greater buffer zone size.

5. Any proposed change in borrow site features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

6. If a proposed borrow site is changed significantly or excavation is not implemented within one year, we recommend that the Corps notify the contractor to reinitiate coordination with David Castellanos (337/291-3112) of this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

Sincerely,

David Walther
Acting Field Supervisor
Louisiana Ecological Services Office

cc: USCAE, New Orleans, LA (Attn: Ms. Danielle Tommaso)
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

LITERATURE CITED

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U.S. Fish and Wildlife Service. 1980. Habitat evaluation procedures. U.S. Fish and Wildlife Service, Division of Ecological Services, Washington, D.C. Ecological Services Manual

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

November 3, 2011 F/SER46/LA:jk
225/389-0508

Ms. Joan Exnicios, Chief
Environmental Planning and Compliance Branch
Planning, Programs, and Management Division
New Orleans District, U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Exnicios:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the draft **Individual Environmental Report (IER) #35** titled "Draft Individual Environmental Report, Contractor Furnished Borrow Material #8; Jefferson, Terrebonne, and St. John the Baptist Parishes, Louisiana." The draft IER evaluates and quantifies the impacts associated with the use of four contractor-furnished borrow areas for use in construction of the Hurricane and Storm Damage Risk Reduction System.

NMFS has reviewed the draft IER and agrees that none of the borrow sites are located in areas classified as essential fish habitat or supportive of marine fishery resources. As such, we have no comments to provide on the draft IER.

We appreciate the opportunity to review and comment on the draft IER.

Sincerely,

Virginia M. Fay

Virginia M. Fay
Acting Assistant Regional Administrator
Habitat Conservation Division

c:
FWS, Lafayette, Walther
EPA, Dallas, Ettinger
LA DNR, Consistency, Lovell
F/SER46, Swafford
F/SER4, Rolfes
Files

BOBBY JINDAL
GOVERNOR

State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY

JIMMY L. ANTHONY
ASSISTANT SECRETARY

November 8, 2011

Attn: Joan M. Exnicios
Planning, Programs, and Project Management Division
Environmental Planning and Compliance Branch
United States Army Corps of Engineers
P. O. Box 60267
New Orleans, LA 70160-0267

RE: *Application Number: Individual Environment Report #35 (IER #35)*
Applicant: U.S. Army Corps of Engineers-New Orleans District
Notice Date: October 26, 2011

Dear Ms. Exnicios:

The professional staff of the Louisiana Department of Wildlife and Fisheries (LDWF) has reviewed the above referenced Public Notice. Based upon this review, the following has been determined:

> LDWF supports the implementation and continued maintenance of a 100' buffer between wetlands and the 171 acre "Houma Excavation Site".
>
> The applicant shall produce a slope of at least 4:1 (H:V) on the edge of the borrow pits once mining has ceased. Pit side slopes that are 4:1, or more gently sloping, improve wildlife access and revegetation capability, and are safer for users.

The Louisiana Department of Wildlife and Fisheries submits these recommendations to the U.S. Army Corps of Engineers in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). Please do not hesitate to contact Habitat Section biologist Chris Davis at 225-765-2642 should you need further assistance.

Sincerely,

Kyle F. Balkum
Biologist Program Manager

cd

United States Department of the Interior

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

November 18, 2011

Colonel Edward R. Fleming
District Commander
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Fleming:

The U.S. Fish and Wildlife Service (Service) has reviewed the October 26, 2011, Draft Individual Environmental Report #35 (IER #35), titled, "Draft Individual Environmental Report, Contractor Furnished Borrow Material #8, Jefferson, Terrebonne, and St. John the Baptist Parishes, Louisiana" transmitted to our office via a letter from Ms. Joan M. Exnicios. That study addresses impacts resulting from the excavation of borrow material at several sites that will be used to increase hurricane protection within the Greater New Orleans area located in southeast Louisiana. Work associated with that IER is being 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 U.S. Army Corps of Engineers (Corps) to upgrade two existing hurricane protection projects (i.e., Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity) in the Greater New Orleans area to provide protection against a 100-year hurricane event. The Service submits the following comments in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347).

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. Bottomland hardwood (BLH) forest in the project area provides habitat for Federal trust species such as neotropical migrants. The proposed borrow excavations would impact BLH; however, the Corps has indicated that mitigation for those impacts would be implemented by the responsible contractor.

The landowner of the proposed Houma Excavation Site has already cleared the 3.75 acres of BLH forest formerly on that site in early 2011 in anticipation of use of the site for borrow material for the Hurricane Storm Damage Risk Reduction System (HSDRRS). The Service recommends that the landowner provide compensatory mitigation for those 3.75 acres (1.56 Average Annual Habitat Units [AAHUs]) and provide a letter to this office that documents the purchase of those mitigation credits. That mitigation is expected whether or not the site is ultimately utilized.

The Service thus far does not object to the proposed features in IER 35. Thank you for the opportunity to provide comments on the draft IER. If you or your staff has any questions regarding our comments, please contact David Castellanos (337/ 291-3112) of this office.

Sincerely,

David Walther
Acting Field Supervisor
Louisiana Ecological Services Office

cc: USACE, New Orleans District, LA (Attn: Mr. Eric Williams)
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

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GOVERNOR

State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY

JIMMY L. ANTHONY
ASSISTANT SECRETARY

November 8, 2011

Attn: Joan M. Exnicios
Planning, Programs, and Project Management Division
Environmental Planning and Compliance Branch
United States Army Corps of Engineers
P. O. Box 60267
New Orleans, LA 70160-0267

RE: *Application Number: Individual Environment Report #35 (IER #35)*
Applicant: U.S. Army Corps of Engineers-New Orleans District
Notice Date: October 26, 2011

Dear Ms. Exnicios:

The professional staff of the Louisiana Department of Wildlife and Fisheries (LDWF) has reviewed the above referenced Public Notice. Based upon this review, the following has been determined:

> LDWF supports the implementation and continued maintenance of a 100' buffer between wetlands and the 171 acre "Houma Excavation Site".
>
> The applicant shall produce a slope of at least 4:1 (H:V) on the edge of the borrow pits once mining has ceased. Pit side slopes that are 4:1, or more gently sloping, improve wildlife access and revegetation capability, and are safer for users.

The Louisiana Department of Wildlife and Fisheries submits these recommendations to the U.S. Army Corps of Engineers in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). Please do not hesitate to contact Habitat Section biologist Chris Davis at 225-765-2642 should you need further assistance.

Sincerely,

Kyle F. Balkum
Biologist Program Manager

cd

United States Department of the Interior

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

December 1, 2011

Colonel Edward R. Fleming
District Commander
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Fleming:

Please reference the Individual Environmental Report (IER) 35, entitled "Contractor Furnished Borrow Material #8, Jefferson and St. John the Baptist, and Terrebonne Parishes, Louisiana." That IER addresses impacts resulting from the excavation of contractor-supplied borrow sites which will be used to increase hurricane protection within the Greater New Orleans area located in southeast Louisiana. Work associated with that IER is being 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 the Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity hurricane protection projects in the Greater New Orleans area to provide protection against a 100-year hurricane event (Hurricane and Storm Damage Risk Reduction System [HSDRSS]). This report contains an analysis of the impacts on fish and wildlife resources that would result from excavation of those borrow sites and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which directed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the Lake Pontchartrain and Vicinity and the West Bank and Vicinity 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 prevented our agencies from following 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 U.S. Fish and Wildlife Service (Service) will be providing post-authorization 2(b) reports for individual IERs.

This report incorporates and supplements our FWCA reports that addressed impacts and mitigation features for the Westbank and Vicinity of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the Lake Pontchartrain and Vicinity Hurricane (dated July 25, 1984, and January 17, 1992) Protection projects. It also supplements our August 7, 2006,

Planning-aid Letter to the Corps providing recommendations for minimizing impacts to fish and wildlife resources from borrow site selection and use. This report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. A draft of this report was provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service.

DESCRIPTION OF THE STUDY AREA

The study area is primarily located within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem. The higher elevations in Louisiana occur on the natural levees of the Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. Federal, State, and local levees have been installed for flood protection purposes, often with negative effects on adjacent wetlands. Navigation channels such as the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet are also prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees. Major water bodies include Lake Pontchartrain located north of the main study area, and the Mississippi River which bisects the main study area.

There are four proposed borrow sites. The RBend II site is located in St. John the Baptist Parish, near Laplace, LA, north of U.S. Highway 61. The Robert Brothers site is adjacent to Louisiana Highway 3213 near the Mississippi River in St. John the Baptist Parish. The Assumption Land Company site is located in Jefferson Parish near Live Oak Blvd. and the Mississippi River. The Houma Excavation site is located near Bayou Terrebonne in Montegut, LA, in Terrebonne Parish.

FISH AND WILDLIFE HABITATS AND RESOURCES

Habitat types at and in the vicinity of the borrow sites include forested wetlands (i.e., bottomland hardwoods [BLH] and/or swamps), non-wet BLH, scrub-shrub, marsh, open water, active agriculture, and developed areas. Due to urban development and a forced-drainage system within the levee system, the hydrology of much of the forested habitat has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the area.

Wetlands (forested, marsh, and scrub-shrub) within the study area provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands in the study area also provide valuable water quality functions such as reduction of excessive dissolved nutrient levels, filtering of waterborne contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges reducing their damaging effect to man-made infrastructure within the coastal area.

Factors that will strongly influence future fish and wildlife resource conditions include freshwater input and loss of coastal wetlands. Depending upon the deterioration rate of marshes, the frequency of occasional short-term saltwater events may increase. Under that scenario, tidal action in the project area may increase gradually as the buffering effect of marshes is lost, and use of that area by estuarine-dependent fishes and shellfish tolerant of saltwater conditions would likely increase. Regardless of

which of the above factors ultimately has the greatest influence, freshwater wetlands within and adjacent to the project area will probably experience losses due to development, subsidence, and erosion.

Forested wetlands in the area are divided into two major types; BLH forests and cypress-tupelo swamps. Bottomland hardwood forests are found at higher elevations (Mississippi River and former distributary channel levees) in the project area, while cypress-tupelo swamps are located along the flanks of larger distributary ridges as a transition zone between BLH and lower-elevation marsh, scrub-shrub habitats, or open water.

Non-wet BLH within the project area also provide habitat for wildlife resources. Between 1932 and 1984, the acreage of BLH in Louisiana declined by 45 percent (Rudis and Birdsey 1986). By 1970, Jefferson Parish (located approximately between St. Charles and Plaquemine Parishes) was classified as entirely urban or nonforested in the U.S. Forest Service's forest inventory with most of this loss resulting from development within non-wet areas inside the hurricane protection levees. A large percentage of the original BLH within the Mississippi River floodplain acreage in the Deltaic Plain are located within a levee system, especially those at higher elevations. However, losses of that habitat type are not regulated or mitigated with the exception of impacts resulting from Corps projects as required by Section 906(b) of the Water Resources Development Act of 1986.

Dead-end canals and small bayous are typically shallow and their bottoms may be filled in to varying degrees with semi-fluid organic material. Drainage canals enclosed within the hurricane protection projects or within developed areas are stagnant except when pumps are operating to remove rain water. Runoff from developed areas has likely reduced the habitat value of drainage canals by introducing various urban pollutants, such as oil, grease, and excessive nutrients. Clearing and development has eliminated much of the riparian habitat that would normally provide shade and structure for many aquatic species.

Some of the waterbodies in the study area meet criteria for primary and secondary contact recreation and partially meet criteria for fish and wildlife propagation; while others do not meet the latter criteria. Causes for not fully meeting fish and wildlife propagation criteria include excessive nutrients, organic enrichment, low dissolved oxygen levels, flow and habitat alteration, pathogens and noxious aquatic plants. Sources of those problems include hydromodification, habitat modification, recreational activities, and unspecified upstream inputs. Municipal point sources, urban runoff, storm sewers, and onsite wastewater treatment systems are also known contributors to poor water quality in the area.

Developed habitats in the study area include residential and commercial areas, as well as roads and existing levees. Those habitats do not support significant wildlife use. Most of the development is located on higher elevations of the project area; however, vast acreages of swamp and marsh have been placed under forced drainage systems and developed. A smaller acreage of wetlands has been filled for development. Agricultural lands occur throughout the area; agriculture includes sugarcane farming, cattle production, and haying.

There is a bald eagle nest located further than 660 feet from the northeastern boundary of the Assumption Land Company borrow site. If the boundary of the site should change such that the eagle

nest is within 660 feet of the proposed borrow site, the Service recommends that the landowner follow the guidelines in the next paragraphs.

Bald eagles were removed from the List of Endangered and Threatened Species as of August 8, 2007, but are protected by the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) and the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.). The Service recommends that the Corps consult the Service-developed National Bald Eagle Management (NBEM) Guidelines regarding potential impacts to the eagle at http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf. In addition, a website designed to help determine whether an activity may disturb nesting bald eagles is available at: http://www.fws.gov/midwest/eagle/guidelines/index.html. Those guidelines and the website 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.

The BGEPA 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. If after consulting those guidelines and the above website 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, please contact this office. A copy of your final determination should be provided to our office.

Endangered and Threatened Species

To aid the Corps in complying with their proactive consultation responsibilities under the Endangered Species Act (ESA), the Service provided a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District. Private contractors have conducted ESA consultation on each borrow site as they were identified and determined that, at this time, no threatened or endangered species or their critical habitat were located within any proposed borrow site.

If a proposed borrow site is changed significantly or relocated, or excavation is not implemented within one year, we recommend that the Corps request that the contractor reinitiate coordination with this office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.

Future Fish and Wildlife Resources

The combination of subsidence and sea level rise results in higher water levels, stressing most non-fresh marsh plants and forested wetlands leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and

development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitats to open water or developed land represents the most serious fish and wildlife-related problem in the study area. Habitat losses could be expected to cause declines in the area's carrying capacity for migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals.

ALTERNATIVES UNDER CONSIDERATION

The only alternative to the proposed project was the "no action" alternative which would avoid impacts to fish and wildlife resources, but would potentially prevent or impede the construction of flood protection measures for residents of the greater New Orleans area.

The proposed borrow sites have been located in areas that avoid direct impacts to wetlands and impacts to non-wet BLH have also been avoided to the extent practicable. Use of adjacent borrow, the typical construction method, has been limited because of soil conditions (i.e., insufficient clay content), thus impacts resulting from expansion of borrow sites into wetlands has been avoided in some areas.

PROJECT IMPACTS

Excavation of the borrow sites will usually result in the conversion of terrestrial habitat into open-water areas. There would be direct impacts to non-wet BLH at two of the four proposed borrow areas; therefore, mitigation would be required (Table 1). Because agricultural, pasture, and cleared land habitats have a reduced value to fish and wildlife resources and are not a declining or limited habitat type, impacts associated with conversion of those habitats to open-water were quantified only by acreage as part of the total site (Table 1).

The RBend II site is comprised of mostly agricultural land, with approximately 7.39 acres of non-wet BLH forest habitat that would be impacted by the proposed project.

The Robert Brothers site is comprised of mostly active agricultural land, and previously contained about 20 acres of early successional and more mature non-wet BLH forest. The older forested area (approximately 5 acres) had existed for over 10 years; all of the land was cleared of vegetation between 2008 and 2009. The landowner informed the Service and the Corps that the land has been, and remains, leased for farming under a 1995 agreement. The lease agreement does not restrict the farmer from clearing forest or other vegetation for farming, drainage, etc. The landowner stated that the farmer cleared the non-wet BLH forest that occurred on the property prior to 2009 for reasons related to farming only. Because the landowner confirmed that the deforestation of the land was undertaken by the landowner's lessee for reasons wholly unrelated to the sale of borrow material to contractors supplying clay for the federal HSDRSS project, mitigation would not be required for the loss of the BLH habitat.

The Assumption Land Company site area was previously proposed as part of a HDRSS borrow site and assessed by the Corps and the Service as part of IER 25, Government Furnished Borrow Material #3, Orleans, Jefferson, and Plaquemines Parishes, Louisiana. The site is mostly pasture with some trees

associated with fence lines, but no forested areas.

The Houma Excavation site is comprised of wetlands, pasture, and approximately 3.75 acres of recently deforested land. That forested land was cleared in early 2011 to prepare for excavation of material for the HSDRSS; therefore, mitigation is required for this impact regardless of future excavations.

The Corps' regulatory program has determined that jurisdictional wetlands occur within the boundaries of the Houma Excavation borrow site. The excavation of material at the site will not directly impact any jurisdictional wetlands; however, as indicated in the IER, there is a potential for hydrologic modifications caused by borrow material excavation to indirectly impact jurisdictional wetlands. A reduction or interception of rainfall runoff could result in a decrease in downstream jurisdictional wetlands by conversion of the soils into non-hydric types. These effects may be difficult to describe and quantify; however, potential impacts due to hydrology modifications caused by borrow material excavation should be discussed here and in future borrow IERs because of the close proximity of wetlands, and other fish and wildlife habitat, to some proposed borrow sites. Therefore, the Service recommends an investigation to determine the extent of potential hydrologic changes due to borrow excavation so that protective measures may be recommended as necessary. The Service would be pleased to participate in the effort.

To further protect jurisdictional wetlands, the Service also recommends the designation of a 100 foot "no excavation" buffer zone between the jurisdictional wetlands and the borrow site to help preserve the water quality of the wetlands.

Table 1: Contractor borrow sites and direct impacts to BLH.

Site	Parish	Entire borrow site (acres)	Area of Site Proposed for Excavation (acres)	Maximum BLH Habitat Impacted (acres)	Maximum AAHUs Lost
Assumption Land Company	Jefferson	77	77	0	0
Houma Excavation	Terrebonne	282	171	3.75*	1.56
RBend II	St. John the Baptist	52	52	7.39	3.62
Robert Brothers Farm	St. John the Baptist	232	232	0	0
Total		**643**	**362**	**11.14**	**5.18**

*Also indicates acres already impacted.

FISH AND WILDLIFE CONSERVATION MEASURES

To minimize wetland and non-wet BLH impacts, the Service recommends that prior to utilizing borrow sites, every effort should be made to reduce impacts by using sheet pile, floodwalls, geotextile, or some combination thereof, to increase levee heights wherever feasible. In addition, the Service recommends that the previous protocol to identify and prioritize borrow sources provided in our August 7, 2006,

Planning-Aid letter should continue to be utilized as a guide in locating future borrow-sites.

MITIGATION 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 hurricane protection needs while addressing the co-equal 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 forested areas (wet and non-wet) and marsh for fish and wildlife, and the relative scarcity of those habitat types, they are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Degraded BLH forest (e.g. dominated by exotic species) and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value. The 11.14 acres of BLH habitat impacted by utilization of the borrow sites in this IER are placed in Resource Category 2; therefore, the mitigation should be no net loss of in-kind habitat value.

Several contractors, working on various parts of the HSDRRS, may use different portions of the borrow sites. Each excavation and associated impacts (i.e. forest clearing) to BLH will be assessed separately by the Service. The mitigation for impacts incurred by each contractor will be charged separately. The maximum mitigation amount cited in this report may not be required depending on the actual BLH area that is ultimately impacted by utilization for the HSDRRS.

The Service used the Habitat Assessment Methodology (HAM) to quantify the impacts to forested habitats. The habitat assessment model utilized in this evaluation is modified from those developed in the Service's Habitat Evaluation Procedures (HEP). However, this model is a community-level evaluation instead of the species-based approach used with HEP. For BLH, the model defines an assemblage of variables considered important to the suitability of an area to support a diversity of fish and wildlife species (Louisiana Department of Natural Resources 1994; U.S. Fish and Wildlife Service 1980). A Habitat Suitability Index (HSI) is calculated from all of the model variables to represent the overall value of the wetland habitat quality. The product of an HSI value and the acreage of available

habitat for a given target year is known as the Habitat Unit (HU), and is the basic unit for measuring project effects on fish and wildlife habitat. HUs are annualized over the project life to determine the Average Annual Habitat Units (AAHUs) available for each habitat type. The change (increase or decrease) in AAHUs for the future with-project scenario, compared to the future without-project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the fish and wildlife community within that habitat type; a net loss of AAHUs indicates that the project would adversely impact fish and wildlife resources. Further explanation of how impacts/benefits are assessed and an explanation of the assumptions affecting the HSI values for each target year are available for review at Service's Louisiana, Ecological Services Field Office.

SERVICE POSITION AND RECOMMENDATIONS

Excavation of the entire approved area of the proposed borrow sites would result in a permanent loss of 11.14 acres of BLH forest for a loss of 5.18 AAHUs. The Service does not object to the use of the proposed borrow sites provided the following fish and wildlife recommendations are implemented concurrently with project implementation:

1. The private contractor for each borrow site shall provide compensation for the appropriate number of lost AAHUs (maximums listed in Table 1), for a potential total of 5.18 AAHUs for the unavoidable, project-related loss of forested lands included in IER 35. The landowner for the Houma Excavation site shall provide compensation for 3.75 acres (1.56 AAHUs) of forested land that has already been impacted regardless of any future excavation. Such compensation can be obtained from any approved mitigation bank. Verification of purchased mitigation credits should be provided to the Service by the mitigation banker. The Service, National Marine Fisheries Service, Louisiana Department of Wildlife and Fisheries, and Louisiana Department of Natural Resources should be consulted regarding the adequacy of any proposed alternative mitigation sites, including reforestation plans.

2. Whenever applicable, the Service recommends that the Corps consult the Service-developed National Bald Eagle Management (NBEM) Guidelines, utilize the interactive webpage at: http://www.fws.gov/midwest/eagle/guidelines/index.html, and implement any recommendations suggested. We also ask that the Corps provide a copy of their disturbance determination to our office.

3. The protocol to identify and prioritize borrow sources provided in our August 7, 2006, Planning-Aid letter should continue to be utilized as a guide for locating future borrow-sites and expanding existing sites.

4. Because of the potential hydrologic modifications to jurisdictional wetlands within and adjacent to the planned excavation areas caused by borrow material removal at the Houma Excavation site, the Service recommends that the Corps conduct an investigation to determine the extent of these potential impacts. The Service recommends that a buffer zone of at least 100 feet be designated between those borrow sites and any jurisdictional wetlands, within which no excavation would be allowed, unless the hydrologic investigation suggests the need for a greater buffer zone size.

5. Any proposed change in borrow site features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

6. If a proposed borrow site is changed significantly or excavation is not implemented within one year, we recommend that the Corps notify the contractor to reinitiate coordination with David Castellanos of this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

If you or your staff has any questions concerning this report, please contact David Castellanos (337/291-3112).

Sincerely,

David Walther
Acting Field Supervisor
Louisiana Ecological Services Office

cc: USCAE, New Orleans, LA (Attn: Ms. Danielle Tommaso)
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA

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