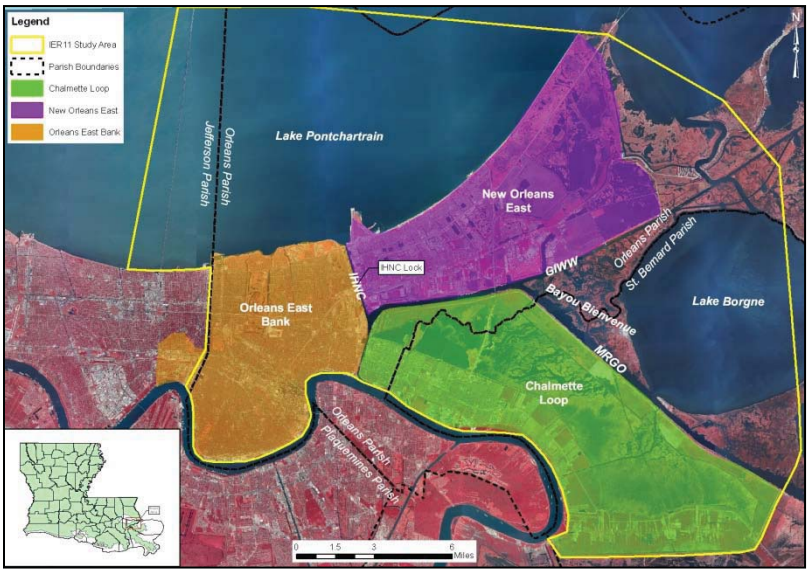
DRAFT INDIVIDUAL ENVIRONMENTAL REPORT SUPPLEMENTAL

IMPROVED PROTECTION ON THE INNER HARBOR NAVIGATION CANAL

ORLEANS AND ST. BERNARD PARISHES, LOUISIANA

IERS # 11.c TIER 2 BORGNE



US Army Corps of Engineers®

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, New Orleans District (CEMVN), has prepared this Individual Environmental Report Supplemental #11.c Tier 2 Borgne (IERS #11.c) to evaluate the potential impacts associated with proposed project revisions to the original IER #11 Tier 2 Borgne.

On October 21, 2008, the District Commander signed the Decision Record for IER #11 Tier 2 Borgne. On December 10, 2009, the District Commander signed the Decision Record for IERS #11a Tier 2 Borgne. On November 29, 2010, the District Commander signed the Decision Record for IERS #11.b Tier 2 Borgne. IER #11 Tier 2 Borgne, IERS #11.a Tier 2 Borgne, and IERS #11.b Tier 2 Borgne documents are hereby incorporated by reference into this supplemental document. Copies of the documents and other supporting information are available upon request or at www.nolaenvironmental.gov. This supplemental document has been prepared to address proposed changes in the Government's approved plan.

The project approved in IER 11 Tier 2 Borgne consisted of constructing two miles of a new floodwall/gated system, to an elevation of approximately 24 to 26 feet (ft) North American Vertical Datum (2004/65) (NAVD88), from the Michoud floodwall north of the Gulf Intracoastal Waterway (GIWW) and extending to the new floodwall on the west side of the MRGO. The floodwall/gated system would cross the GIWW, Bayou Bienvenue, the Mississippi River-Gulf Outlet (MRGO), and the Golden Triangle Marsh. As described in IER 11 Tier 2 Borgne, to construct the floodwall, a 350 ft wide channel was dredged through the marsh. The floodwall was constructed within this dredged channel, and the remaining excavated area was developed into a 250 ft access channel on the flood side of the structural wall for use during construction and after construction for maintenance purposes and a 96 ft plunge pool on the protected side of the structural wall to absorb impact from overtopping. Near the end of construction, shoreline protection was to be provided on both banks along the entire length of the access channel (Figure 1). IER 11 Tier 2 Borgne stated that the shoreline protection would consist of riprap, concrete slope paving, geotextiles, or other means. The protection would extend approximately 30 ft into the channel bottom and 5 feet onto the channel bank. Additionally, the scour pad on the protected side of this channel would provide shoreline protection as well.

During a survey of the construction access channel for the Borgne barrier, it was observed that in some areas the bankline has eroded past the right-of-way (ROW) disclosed in IER #11 Tier 2 Borgne (Figure 2). In order to inhibit further erosion and to account for current erosion, CEMVN is accelerating the design and construction of the shoreline protection measures generally described in IER #11 Tier 2 Borgne.

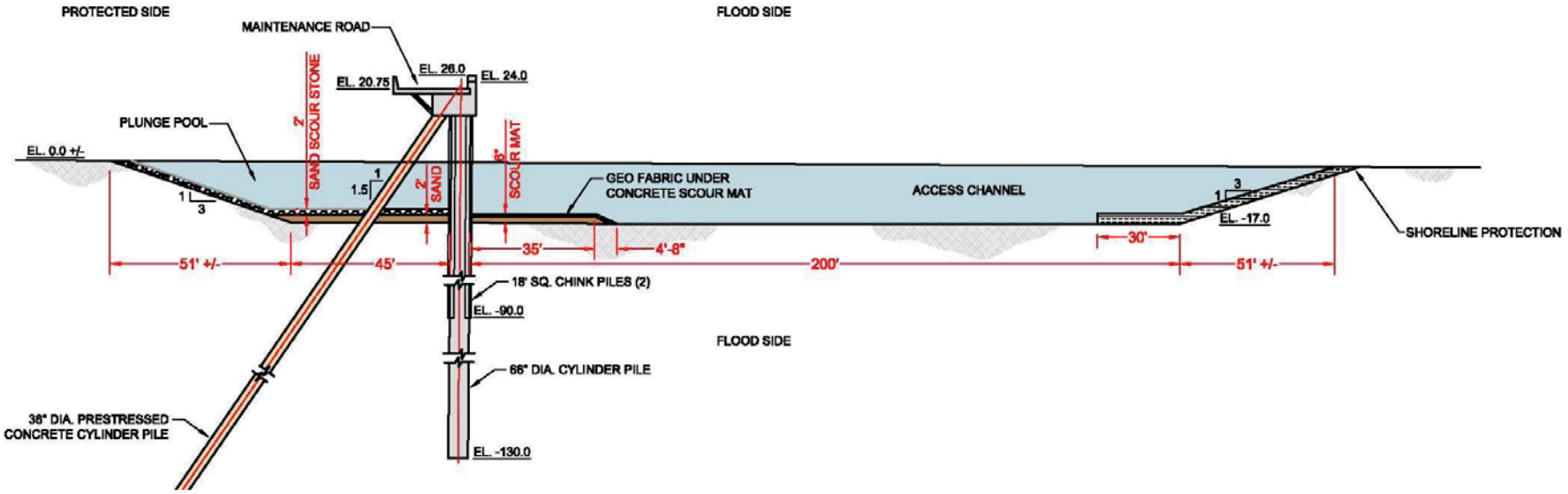


Figure 1: Floodwall cross-section originally described in IER #11 Tier 2 Borgne

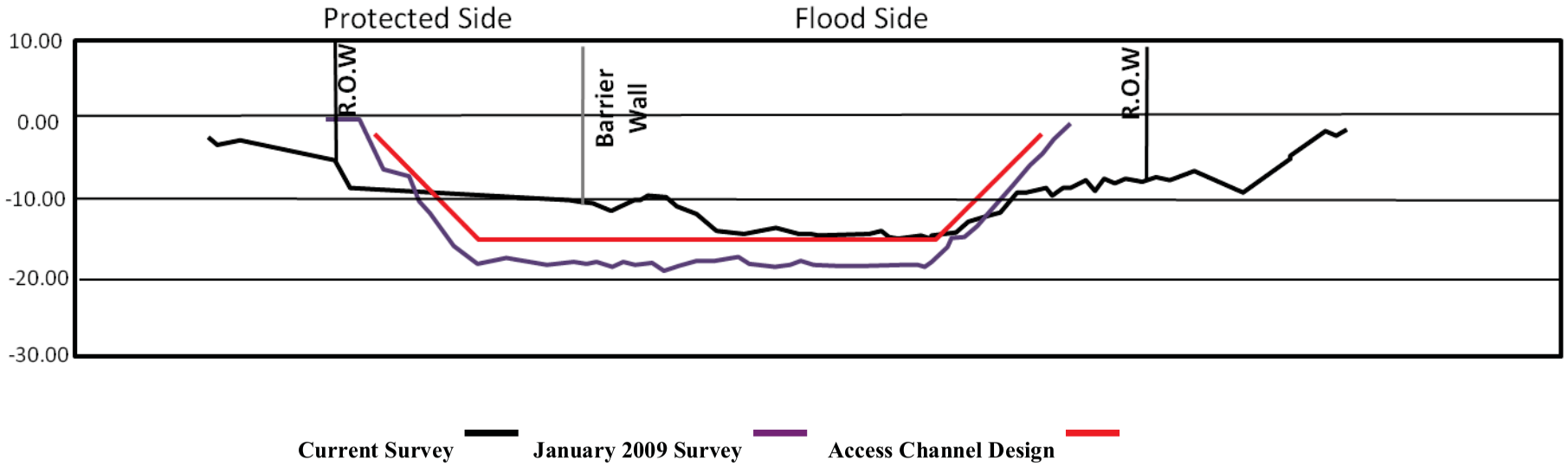


Figure 2: Surveys of the construction access channel revealed that the shoreline has eroded outside of the original ROW, as shown in this cross-section. The ROW line depicts the currently authorized ROW limits and the red line shows the currently authorized channel dimensions that were described in IER #11 Tier 2 Borgne.

1.1 PRIOR REPORTS

A number of studies and reports on water resources development in the proposed action area have been prepared by the USACE, other Federal, state, and local agencies, research institutes, and individuals. Pertinent studies, reports, and projects not previously discussed in IER #11 Tier 2 Borgne, IERS #11.a Tier 2 Borgne are summarized below:

- 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 HSDRRS design guidelines for seepage and stability.

- On 3 May 2010, the CEMVN Commander signed a Decision Record on Individual Environmental Report Supplemental (IERS) #7 entitled "Lake Pontchartrain and Vicinity, New Orleans East Lakefront to Michoud Canal, Orleans Parish, Louisiana." The document evaluates the potential effects associated with proposed project revisions to the original IER #7, including constructing a temporary bridge across Interstate 10 (I-10), expansion of construction easements for highway tie-ins on LPV 109 for I-10 and Highway 90, expansion of right of way (ROW) on LPV 111 and barge access locations, construction of a T-wall and raising/relocating USFWS pump stations.

- On 8 February 2010, the CEMVN Commander signed a Decision Record on IER #9 entitled "Lake Pontchartrain and Vicinity, Caernarvon Floodwall, St. Bernard Parish, Louisiana." The document evaluates the potential effects associated with the replacement of two floodgates, approximately 1,500 feet (ft) of floodwall, and a levee tie-in at the southwestern terminus of the Chalmette Loop Levee.

- On 8 February 2010, the CEMVN Commander signed a Decision Record on IERS #6 entitled "Lake Pontchartrain and Vicinity, East Citrus Lakefront Levee, Orleans Parish, Louisiana." The document evaluates the potential effects associated with the proposed project modifications to the original IER #6, including construction of new I-walls and a T-wall.

- On 18 December 2009, the CEMVN Commander signed a Decision Record on IERS #3.a entitled "Lake Pontchartrain and Vicinity, Jefferson East Bank, Jefferson Parish, Louisiana." The document evaluates the potential effects associated with the proposed project revisions within the IER #3 project area such as the construction of wave attenuation berms and foreshore along the Jefferson Parish lakefront and a T-wall, overpass bridge, and traffic detour lane bridge spans at the Lake Pontchartrain Causeway Bridge abutment.

2. ALTERNATIVES

2.1 ALTERNATIVES DEVELOPMENT AND PRELIMINARY SCREENING CRITERIA

NEPA requires, among other things, that while analyzing alternatives to the proposed action, a Federal agency consider an alternative of "no action." Likewise, Section 73 of the Water

Resources Development Act of 1974 (PL 93-251) requires Federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. As part of the Tier 1 IER # 11, the no action alternative as well the non-structural and create wetlands alternatives were evaluated and eliminated from further consideration for the Borgne complex project area because none accomplished the purpose and need of the project.

The No Action Alternative was evaluated in detail in the Tier 1 document. Because this alternative did not meet the defined purpose and need in the Tier 1 document, it was not selected for further consideration in the Tier 2 document. The No Action Alternative includes all features of the two miles of new floodwall/gated system described in IER #11 Tier 2 Borgne and IERS #11.a Tier 2 Borgne would remain the same within the footprint of the approved right of way (figure 1 and 2). However, the bankline has eroded past the ROW described in IER #11 Tier 2 Borgne, and it is no longer possible to construct the shoreline protection features as discussed in the IER. The analysis of this alternative is incorporated by reference, but is not discussed further in this supplemental document.

2.2 DESCRIPTION OF THE ALTERNATIVES

All dimensions for the described alternatives are approximate.

Proposed Action. The proposed action consists of constructing those actions approved in IER #11 Tier 2 Borgne, with the exception of expanded size of the access channel (Figure 3 and 4) due to erosion of the bankline.

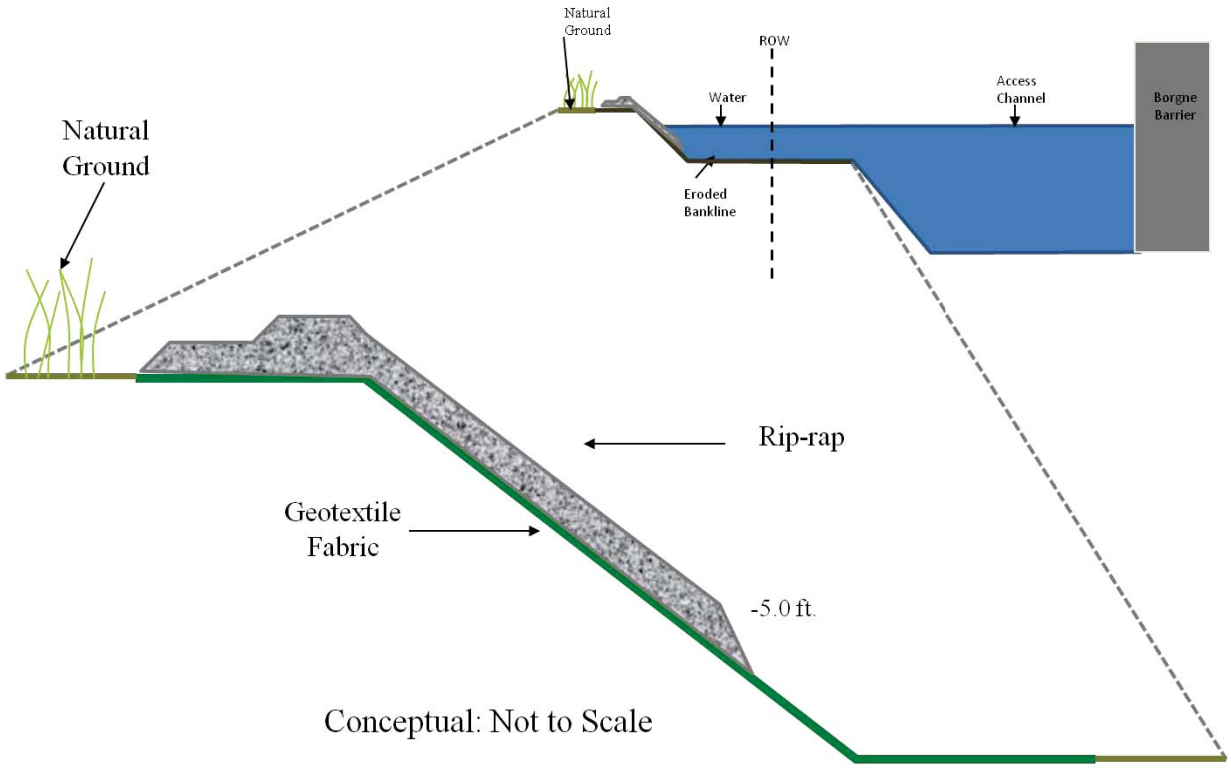
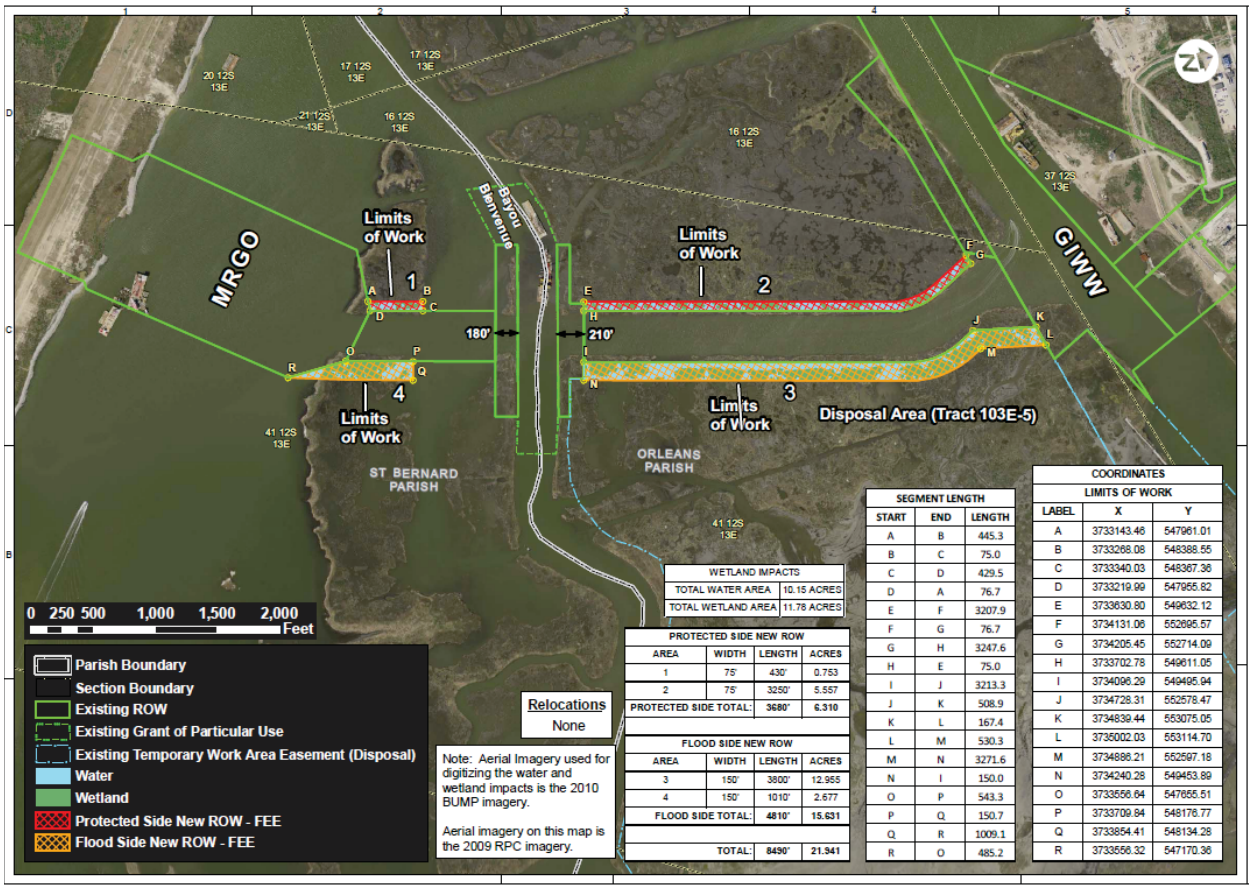


Figure 3: Proposed action includes construction of approximately 13,000 ft of primarily shoreline revetment with toe at -5.0 ft along the expanded construction access channel.



WETLAND IMPACTS	
TOTAL WATER AREA	10.15 ACRES
TOTAL WETLAND AREA	11.78 ACRES

PROTECTED SIDE NEW ROW			
AREA	WIDTH	LENGTH	ACRES
1	75'	430'	0.753
2	75'	3250'	5.557
PROTECTED SIDE TOTAL:		3680'	6.310

FLOOD SIDE NEW ROW			
AREA	WIDTH	LENGTH	ACRES
3	150'	3800'	12.955
4	150'	1010'	2.677
FLOOD SIDE TOTAL:		4810'	15.631
TOTAL:		8490'	21.341

SEGMENT LENGTH		
START	END	LENGTH
A	B	445.3
B	C	75.0
C	D	429.5
D	A	76.7
E	F	3207.9
F	G	76.7
G	H	3247.6
H	E	75.0
I	J	3213.3
J	K	508.9
K	L	167.4
L	M	530.3
M	N	3271.6
N	I	150.0
O	P	543.3
P	Q	150.7
Q	R	1009.1
R	O	485.2

COORDINATES LIMITS OF WORK		
LABEL	X	Y
A	3733143.46	547961.01
B	3733268.08	548388.55
C	3733340.03	548367.36
D	3733219.99	547955.82
E	3733630.80	549632.12
F	3734131.06	552695.57
G	3734205.45	552714.09
H	3733702.78	549611.05
I	3734096.29	549495.94
J	3734728.31	552578.47
K	3734839.44	553075.05
L	3735002.03	553114.70
M	3734886.21	552597.18
N	3734240.28	549453.89
O	3733556.64	547655.51
P	3733709.84	548176.77
Q	3733854.41	548134.28
R	3733556.32	547170.36

Figure 4: Proposed additional ROW needed for expanded access channel and associated shoreline protection.

2.3 PROPOSED ACTION

Proposed change to approved plan: Shoreline Protection on expanded ROW
The project would consist of the construction of approximately 13,000 ft (2.5 miles) of shoreline protection along the flood and protected side of an expanded construction access channel with a Toe Elevation at -5.0 ft NAVD 88 (figure 4). This expanded footprint, approximately 75 ft of additional ROW on the protected side and 150 ft of additional ROW on the flood side, includes the area adjacent to the access channel where the erosion has previously occurred, additional area for erosion which is anticipated to occur over the next 6-12 months, as well as area required for bankline shaping during construction and placement of geotextile and rock riprap (Figure 4).

Shoreline protection would consist of placing geotextile fabric with a cover layer of rock riprap to a -5 NAVD 88 elevation along the bankline. In areas in which the construction access channel has eroded adjacent to an open water pond, and no shoreline exists, a rock dike would be constructed in line with the new shoreline protection to minimize erosion within the adjacent open water pond (Figure 5). Approximately 140,000 tons of riprap and 94,000 square yards of geotextile fabric would be used for the construction.

To create adequate side slopes for the placement of rock, bank shaping would be required on all shoreline locations. Bank shaping would require the removal of sediment material to shape the bank for placement of rock. The sediments removed for bank shaping would be placed within the Beneficial Use (BU) disposal area approved in IER #11 Tier 2 Borgne. Maintenance dredging of the access channel would remove material which has sloughed off of the access channel banks to provide the approved access channel elevation of -17.0 NAVD88. The total disposed material from shoreline shaping and channel dredging is anticipated to be approximately 185,000 cubic yards (cy). This material would be disposed of in the approved BU Area for marsh nourishment as described in IER #11 Tier 2 Borgne. Project equipment would consist of deck barges, excavators mounted on barges for rock placement and channel side slope shaping, 10 cy dragline or bucket crane for rock placement, tug boats, crew boats, quarter barge. The project duration would be approximately 6 months.

Additional ROW would also be used at the northern terminus of the project, on the bank of the GIWW. Acquisition of the ROW as disclosed in IER #11 Tier 2 Borgne (shown in orange in figure 6) would have left an “uneconomic parcel” within the larger landowner’s parcel shown in blue in figure 6. This means that by acquiring only a portion of the landowner’s property, the landowner would have been left with a remnant of the property that is of little utility or value. Therefore, CEMVN was legally required by Title 3, Section 301, Para. (9) of the Uniform Relocation Act to offer to acquire this uneconomic remnant, and the landowner accepted this offer. CEMVN proposes to use a portion of this parcel shown in blue in figure 6 as a storage area for the adjacent GIWW gate and to minimize temporary clearing of vegetation within this parcel to the extent practicable.

Figure 5: Shallow water rock dikes would be used in areas adjacent to open water ponds where no shoreline exists

Figure 6: Comparison of ROW approved in IER #11 Tier 2 Borgne

2.4 ALTERNATIVES TO THE PROPOSED ACTION

Alternative 1.Construct approximately 13,000 ft (2.5 miles) of rock riprap revetment or pre-fabricated revetment mats or other lightweight material shaped over corrugated polyethylene pipe (CPE) shoreline protection along the flood and protected side of the construction access channel with a Toe Elevation at -10 ft NAVD (figure 7). In areas in which the construction access channel has eroded adjacent to an open water pond, and no shoreline exists, a rock dike would be constructed in line with the new shoreline protection to minimize erosion within the adjacent open water pond as described for the proposed action. Bankline shaping and access channel maintenance dredging as described under the proposed action would also occur under this alternative. Any excavated dredged material would be disposed in the Beneficial Use disposal area for marsh nourishment. Additional ROW would also be used at the northern terminus of the project, on the bank of the GIWW as described under the proposed action.

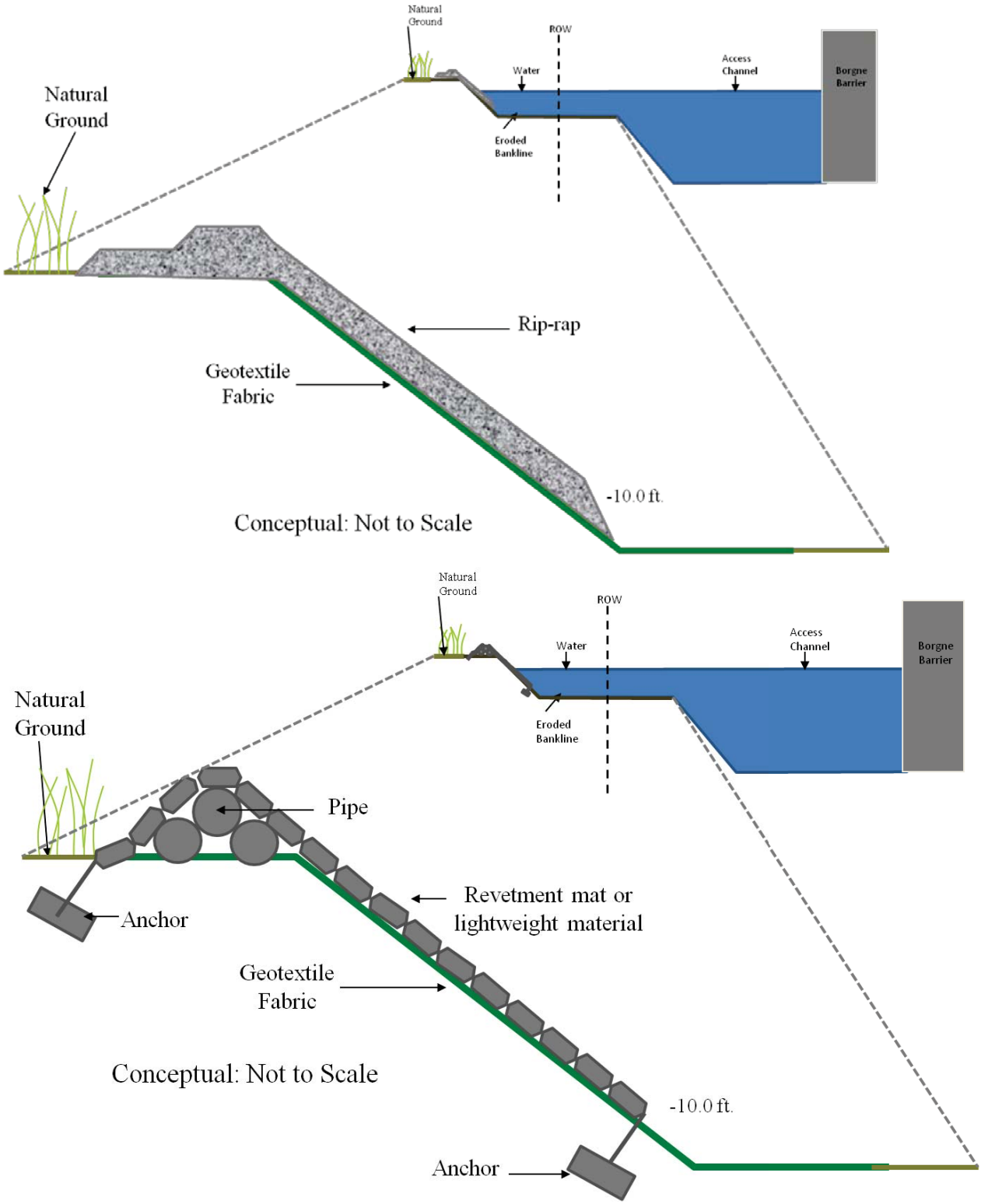


Figure 7: Alternative 1 includes rock riprap or lightweight revetment mats over polyethelyne pipes on the existing bankline.

Alternative 2.
Construct approximately 13,000 ft of rock dike, sheet pile wall, or some combination at the existing ROW along the flood and protected side of the construction access channel (figure 8). Material dredged from the channel would be placed behind the rock dike or sheet pile wall structures within the open water areas created by previous access channel erosion. Additional ROW would also be used at the northern terminus of the project, on the bank of the GIWW.

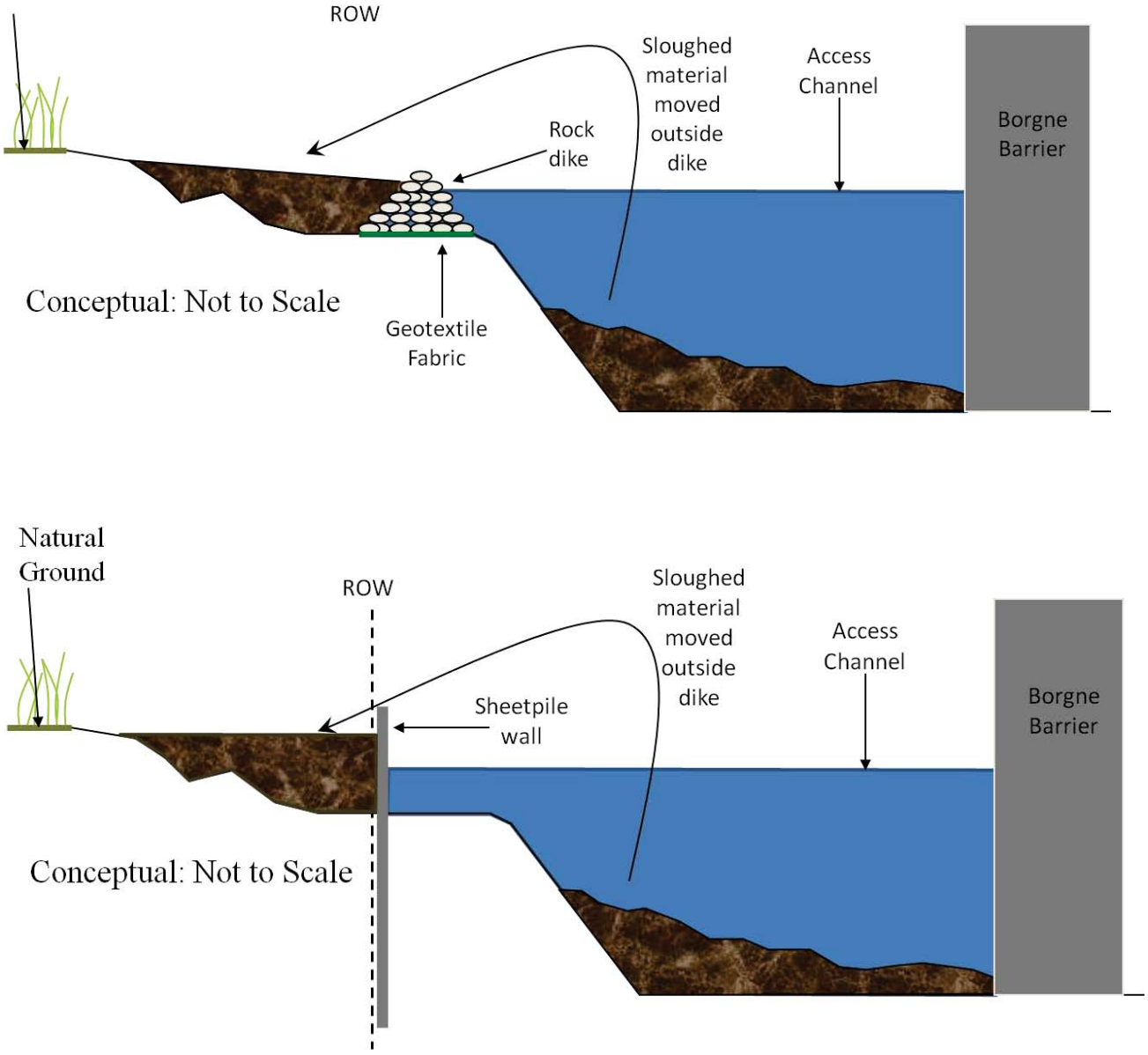


Figure 8: Alternative 2 includes installation of a rock dike or sheetpile walls or some combination at original ROW; excess material would be placed behind the rock dike or sheetpile wall.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ENVIRONMENTAL SETTING

IER #11 Tier 2 Borgne contains a complete discussion of the Environmental Setting for the project area and is incorporated by reference into this document. As such, no discussion of environmental setting will be made in this document.

3.2 SIGNIFICANT RESOURCES

This section contains a list of the significant resources located in the vicinity of the proposed action, and describes in detail those resources that would be impacted, directly or indirectly, by the alternatives. Direct impacts are those that are caused by the action taken and occur at the same time and place (40 CFR §1508.8(a)). Indirect impacts are those that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR §1508.8(b)). Cumulative impacts are discussed in section 4.

The resources described in this section are those recognized as significant by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Further detail on the significance of each of these resources can be found by contacting the CEMVN, or on www.nolaenvironmental.gov, which offers information on the ecological and human value of these resources, as well as the laws and regulations governing each resource. Search for "Significant Resources Background Material" in the website's digital library for additional information. Table 1 shows those significant resources found within the project area, and notes whether they would be impacted by any of the alternatives analyzed in this IER.

Table 1
Significant Resources in Project Study Area

Significant Resource	Impacted	Not Impacted
Hydrology		X*
Water Quality		X*
Wetlands	X	
Aquatic Resources	X	
Fisheries	X	
Essential Fish Habitat	X	
Wildlife	X	
Threatened or Endangered Species		X*
Non-wet Uplands		X*
Cultural Resources		X*
Recreational Resources		X*
Aesthetic (Visual) Resources		X*
Air Quality		X*
Noise		X*

Transportation		X*
Socioeconomic Resources		X*

*= The proposed action poses no additional impacts above those described in IER #11 Tier 2 Borgne and IERS #11.a Tier 2 Borgne; therefore these significant resources are not discussed in this document.

Existing conditions for the below resources were discussed in IER #11 Tier 2 Borgne and are incorporated by reference for each significant resource discussed in this document.

3.2.1 Wetlands

The existing conditions for wetlands have changed because the shoreline of the construction access canal has eroded. The Golden Triangle marsh is still subsiding and the same brackish marsh species are present in the project area as were described originally in IER #11 Tier 2 Borgne; changes in the existing wetland community to a fresher wetland community as result of the closure of the MRGO at La Loutre as described in IER #11 Tier 2 Borgne are also expected. According to the January 2009 bathymetric survey, the shoreline on the protected and flood sides of the barrier has experienced erosion of 0 ft to 150 ft outside the existing ROW since it was dredged in December 2008. Comparing aerial photography of the site, the flood side had experienced more erosion than the protected side of the barrier.

Discussion of Impacts

Proposed Action

Direct, Indirect and Cumulative Impacts

With implementation of the proposed action, the impacts would be similar to those described in IER #11 Tier 2 Borgne; however, the shoreline protection would be constructed along the existing shoreline within an expanded ROW approximately 75 ft to 150 ft on protected and flood sides of the Borgne Barrier, respectively. Further erosion could occur during the period of National Environmental Policy Act (NEPA) analysis and real estate acquisition, prior to the construction of the shoreline protection. Therefore, the acreage of impact for the proposed action includes the erosion which has previously occurred, erosion which is anticipated to occur over the next 6-12 months, bankline shaping during construction and placement of the geotextile and rock.

The total wetland acreage of impact (including 11.78 acres brackish marsh and 10.15 acres open water) is anticipated to be approximately 22 acres of wetland (brackish marsh and brackish water). However, approximately 28 acres of wetlands adjacent to the GIWW and Bayou Bienvenue within the original ROW and accounted for in the original Wetland Value Assessment will not be impacted by the project (figure 9). Therefore, the net wetland loss associated with the proposed action considering the reduced footprint adjacent to the GIWW and Bayou Bienvenue is approximately -6 acres. According to the updated wetland value assessment completed by the interagency team, the cumulative impact of the Borgne Barrier project including the proposed action is 80.84 acres of wetland lost (see Table 2). Approximately 181,000 cy of material dredged from the channel would be deposited in the Beneficial Use disposal area for marsh nourishment and would add sediment to the 205 acre pond within the subsiding Golden Triangle marsh.

Table 2. IER 11 Tier 2 Borgne Cumulative Wetlands and Bottomland Hardwood Wetland Value Assessment ***

Habitat Type	Location	Parish	Impacted Acres	AAHUs
Brackish Marsh	Golden Triangle	Orleans St.Bernard	67.88	
Brackish Water**			9.26	
Brackish Marsh	North of GIWW	Orleans	3.26	
Brackish Water**			0.44	
		Total Wetlands	**80.84**	**-34.7**
Bottomland Hardwood Habitat*	Staging Area-North of GIWW	Orleans	2.46	
	Staging Area-North of Bayou Bienvienue	Orleans	9.48	
		Total	**11.94**	**-2.01**

*scrub/shrub-early successional BLH
**Interspersed with marsh; major waterways and large open water areas not included.
***acreage includes original IER 11 Tier 2 Borgne action and proposed action described in this supplement

last updated Nov. 18, 2010

Figure 9: Additional marsh impacts outside of the original ROW are shown in blue; reduced marsh impacts are shown in green.

Alternative 1

Direct, Indirect and Cumulative Impacts
The impacts of this alternative would be similar to the proposed action. Although the revetment would be placed with the toe at -10 ft NAVD, this deeper revetment should not impact any additional wetlands. Similar to the proposed action alternative, approximately 181,000 cyd of material dredged from the channel would be deposited in the beneficial use disposal area for marsh nourishment and would add sediment to the 205 acre pond within the subsiding Golden Triangle marsh.

Alternative 2

Direct, Indirect and Cumulative Impacts
The wetland impacts of this alternative would be similar to the proposed action alternative. The only difference would be that approximately 181,000 cyd of material dredged from the

work canal would be placed behind the rock dike structures in the brackish open water ponds adjacent to the brackish marsh shoreline. There is not enough material to build up to marsh elevation so open water ponds would still exist between the rock dike and the shoreline, however it would be shallower. These ponded areas would remain hydraulically connected to other open water ponds within the Golden Triangle marsh so it is anticipated that much of this material would not stack and be spread down these "cuts" within existing marsh.

3.2.2 Aquatic Resources

Discussion of Impacts

Proposed Action

Direct, Indirect and Cumulative Impacts

With implementation of the proposed action, the construction impacts to aquatic resources that provide habitat for plankton and zooplankton would be similar to those described in IER #11 Tier 2 Borgne. Because the shoreline protection would be constructed along the existing shoreline within an expanded ROW of approximately 75 to 150 of brackish marsh edge and brackish water estuarine habitat would be impacted by placement of the shoreline protection. This acreage includes the erosion which has previously occurred, erosion which is anticipated to occur over the next 6-12 months, bankline shaping during construction and placement of the geotextile and rock. Consequently, direct, indirect, and cumulative impacts on aquatic resources for plankton and zooplankton would be similar in type but greater in acreage than those described previously in the original IER #11 Tier 2 Borgne. Existing shallow open water ponds would remain connected and tidally influenced through natural creeks within the Golden Triangle marsh.

Alternative 1

Direct, Indirect and Cumulative Impacts

Impacts associated with Alternative 1 would be similar to the proposed action; however, revetment material would be placed with a toe elevation at -10 ft NAVD so a slightly larger area, approximately 1.5 acres of estuarine substrate and estuarine open water and marsh, would be replaced with a revetment material for shoreline protection. Existing shallow open water ponds would remain connected and tidally influenced through natural creeks within the Golden Triangle marsh.

Alternative 2

Direct, Indirect and Cumulative Impacts

Impacts associated with Alternative 2 would be similar to those described previously in the original IER #11 Tier 2 Borgne; however, additional marsh (approximately 22 acres) has been converted to estuarine substrate and estuarine open water due to channel erosion. Additionally, a portion of this newly formed estuarine substrate and open water will be converted when rock is placed along designated areas of the ROW to an elevation of +0.0 ft NAVD. Shallow brackish open water ponds would be formed between the eroded bankline

and these rock dikes. Dredged material would be placed behind the rock dike on top of estuarine substrate and estuarine open water temporarily increasing turbidity for the brackish water adjacent to the shoreline and impacting plankton and zooplankton in the area. After settlement of the dredged material, the area would remain estuarine substrate and open water because the dredged material would not likely stack to an elevation sufficient to create marsh and replace the eroded shoreline.

3.2.3 Fisheries

Discussion of Impacts

Proposed Action

Direct, Indirect and Cumulative Impacts
With implementation of the proposed action the fishery impacts would be similar to those described in IER #11 Tier 2 Borgne; however, the footprint of the construction access channel would be larger due to the eroded bankline approximately 75 ft to 150 ft on the protected and flood sides of the Borgne Barrier. The increase in the size of the construction access channel increases brackish open water habitat utilized by fishery species in the project area. The proposed action would also decrease the available marsh edge habitat by converting it to a rocky substrate.

Alternative 1

Direct, Indirect and Cumulative Impacts
With implementation of alternative 1, the fishery impacts would be similar to the proposed action except the footprint of the revetment material would be slightly larger (approximately 1.5 acres) because it would be placed along the channel to a toe elevation of -10 ft NAVD 88. Thus, more open water and estuarine substrate would be converted to revetment substrate than the proposed action.

Alternative 2

Direct, Indirect and Cumulative Impacts
With implementation of alternative 2, the impacts would be similar to those described previously in the original IER #11 Tier 2 Borgne, except the material dredged to shape the channel would be placed behind the rock dike, temporarily increasing turbidity of the brackish water adjacent to the shoreline and impacting fishery species in the area. After settlement of the dredged material, the area would remain estuarine substrate and open water because the dredged material would not likely stack to an elevation sufficient to create marsh and replace the eroded shoreline. These brackish open water ponds adjacent to the ROW would be shallower but still hydrologically connected to the Golden Triangle marsh and continue to provide fishery habitat.

However, because the shoreline adjacent to the Borgne barrier has eroded up to 100 ft outside of ROW in some areas, much of the habitat that was marsh edge has converted to estuarine substrate and open water. Placing rock or sheetpile within the ROW would create small shallow brackish ponds adjacent to the shoreline which would be hydrologically connected to the Golden Triangle marsh. These ponds, as well as the rock substrate, could provide fishery habitat. Less marsh edge habitat would be directly impacted than the proposed action by placing the rock or sheet pile in open water on estuarine substrate along the ROW line, therefore, this alternative converts more open water areas to a rocky substrate than the proposed action and impacts less marsh edge.

3.2.4 Essential Fish Habitat

Discussion of Impacts

Proposed Action

Direct, Indirect and Cumulative Impacts
With implementation of the proposed action, the impacts would be similar to those described in IER #11 Tier 2 Borgne; however, the footprint of the construction access channel would be larger to account for the expanded ROW and placement of the rock revetment. The erosion of the shoreline caused an increase in open water habitat and a decrease in marsh edge habitat and the placement of shoreline protection will permanently change the habitat from open water/estuarine bottom and marsh edge to a rocky substrate. Dredged material to shape the channel would be deposited in the 205 acre beneficial use disposal area contributing to shallow open water, sand/shell/mud substrate, and marsh edge habitat within the Golden Triangle.

Alternative 1

Direct, Indirect and Cumulative Impacts
Impacts associated with Alternative 1 would be similar to those described for the proposed action; however, the footprint of the shoreline protection would be slightly larger because revetment material would be placed along the channel to a toe elevation of -10 ft NAVD 88 which would replace more estuarine substrates of sand, shell, and mud than the proposed action.

Alternative 2

Direct, Indirect and Cumulative Impacts
With implementation of alternative 2, the impacts would be similar to those described in IER #11 Tier 2 Borgne. Impacts would differ in the areas where the shoreline has eroded past the ROW when the rock is placed for shoreline protection. Approximately 10.15 acres of small open water ponds could form between the shoreline and the rock interface. The placement of rock dikes or sheetpile shoreline protection along the existing ROW line will permanently change the habitat from open water/estuarine bottom and marsh edge to a rocky or sheetpile substrate. Direct loss of emergent marsh would be limited to those areas in

which the bankline remains within existing ROW where the shoreline protection would be built along the existing bankline. Material dredged to shape the channel would be placed behind the rock dike so the open water ponds adjacent to the ROW would be shallower but still connected to the Golden Triangle marsh. These shallow ponds, buffered from waves between the shoreline protection and the marsh, could provide additional essential fish habitat and may be suitable for submerged aquatic vegetation.

3.2.5 Wildlife

Discussion of Impacts

Proposed Action

Direct, Indirect and Cumulative Impacts
Construction of the proposed action would directly impact an additional 22 acres of wetlands (11.78 acres brackish marsh and 10.15 acres open water). This would have an additional incremental negative impact to the wildlife in the form of loss of wildlife habitat and displacement of wildlife populations within the project footprint to what was described in IER #11 Tier 2 Borgne. Approximately 185,000 cyd of material dredged from the channel would be deposited in the Beneficial Use disposal area for marsh nourishment and would add sediment to the 205 acre pond within the subsiding Golden Triangle marsh which would positively impact wildlife habitat by nourishing eroding and subsiding marsh. Wildlife habitat impacts from this and other LPV flood control projects would be mitigated through wetland creation and enhancement activities designed to minimize cumulative habitat losses in the project area and the region. As a result, the proposed action would contribute negligibly to the minimal cumulative impacts on wildlife occurring in the region.

Alternative 1

Direct, Indirect and Cumulative Impacts
Impacts associated with Alternative 1 would be similar to those described for the proposed action.

Alternative 2

Direct, Indirect and Cumulative Impacts
Impacts associated with Alternative 2 would be similar to those originally described in IER #11 Tier 2 Borgne and the proposed action. The only difference would be that material dredged from the channel would be placed behind the rock dike structures. Benefits to wildlife that utilize brackish marsh and brackish water habitat would be reduced because the material is not likely to stack to an elevation suitable to create marsh, so shallow open water ponds would still exist between the rock dike or sheetpile wall and the shoreline, which could provide habitat for wading bird species.

4. CUMULATIVE IMPACTS

Aside from impacts disclosed in IER #11 Tier 2 Borgne, the only additional impacts would be those associated with the additional 22 acres of wetlands impacted by this project. This increased wetland acreage adds to the overall cumulative acreage of all of past, present, and future projects within the project area.

5. SELECTION RATIONALE

The proposed action provides the most cost-effective shoreline protection considering its initial cost, operation and maintenance costs, and engineering effectiveness. The proposed action had the shortest construction duration schedule and could be constructed by June 2011. Material dredged to shape the channel would be placed in the beneficial use disposal site and has added environmental benefit because it will nourish the eroding Golden Triangle marsh because it is being placed on top of other disposed material it is more likely to stack to an elevation suitable to create marsh. To construct the shoreline protection to the -10 ft NAVD 88 depth for Alternative 1 has added cost with no environmental benefit. The engineering design for this alternative was considered excessive because with the construction access channel plugged to only allow operation and maintenance there would be no additional wave action generated by navigation to erode the shoreline. There is more operation and maintenance required for Alternative 1 if a light weight revetment material is utilized because of the likely dispersal of materials after storm events. The life of the project is 50 years and light weight material will require more maintenance over time than the proposed action alternative. Alternatives 1 would take longer to construct than the proposed action. The construction schedule and duration for Alternative 2 would take more time than Alternative 1, because of procurement and the installation of sheet pile or a rock dike. Alternative 2 is more costly than Alternative 1 and the Proposed Action and provides no additional environmental benefit because the material placed behind the structures would not create additional marsh. Shallow open water ponds are abundant in the project area of the eroding and subsiding Golden Triangle marsh.

6. COORDINATION AND CONSULTATION

6.1 AGENCY COORDINATION

Preparation of this IER Supplemental has been coordinated with appropriate Federal, state, and local interests, as well as environmental groups and other interested parties. An interagency environmental team was established for this project in which Federal and state agency staff played an integral part in the project planning and alternative analysis phases of the project (members of this team are listed in appendix C). This interagency environmental team was integrated with the CEMVN Project Delivery Team 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 held concerning this and other IER projects.

Section 106 of the National Historic Preservation Act, as amended, requires consultation with the Louisiana State Historic Preservation Office (SHPO) and Native American tribes. The SHPO concurred with the CEMVN "no historic properties affected" finding in a letter dated November 22, 2010. No Federally recognized Indian tribes responded to our request for comments. Consultation under Section 106 of the National Historic Preservation Act is concluded. However, if any unrecorded cultural resources are determined to exist within the proposed project action boundaries, then no work will proceed in the area containing these cultural resources until a CEMVN archaeologist has been notified and final coordination with the SHPO and Indian Tribes has been completed.

The U.S. Fish and Wildlife Service (USFWS) reviewed the proposed action to see if it would affect any Federally listed Threatened & Endangered (T&E) species, or their critical habitat. The USFWS concurred with the CEMVN in a letter dated October 1, 2010 that the proposed action would not have adverse impact on T&E species.

The Louisiana Department of Natural Resources reviewed the modification to Coastal Zone Management Consistency Determination C20080280 for IER #11 Tier 2 Borgne. The proposed action was found to be consistent with the Louisiana Coastal Restoration Plan (LCPR), as per a letter dated November 29, 2010. A modified Fish and Wildlife Coordination Act Report (CAR) was provided by the USFWS on October 20, 2010. The October 20, 2010 report along with the October 9, 2008 Final Fish and Wildlife Coordination Act (FWCA) Report addresses the study area, significant fish and wildlife species, and project construction to be conducted within the IER #11 Tier 2 Borgne project area. The Final and modified CARs concluded that the USWFS does not object to the construction of the proposed project provided that fish and wildlife conservation recommendations are implemented concurrently with project implementation.

The USFWS believes that the project-specific recommendations provided in the October 9, 2008 Final FWCA Report continue to remain valid.

7. MITIGATION

Quantitative analysis utilizing existing methodologies for water resource planning has identified the acreage and habitat type for the direct or indirect impacts of implementing the proposed action. Approximately 22 acres of wetland habitat would be impacted by the proposed action, and approximately 28 acres of wetland adjacent to the GIWW and Bayou Bienvenue within the original ROW and accounted for in the original Wetland Value Assessment will not be impacted by the project. Therefore, the net wetland loss associated with the proposed action considering the reduced footprint adjacent to the GIWW and Bayou Bienvenue is approximately -6 acres. According to the Wetland Value Assessment completed by the interagency team, the cumulative impact of the Borgne Barrier project including the proposed action is 80.84 acres or 34.7 Average Annual Habitat Units of brackish marsh and brackish water lost.

8. COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

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

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

9. CONCLUSIONS

9.1 DRAFT DECISION

The project would consist of the construction of approximately 13,000 ft (2.5 miles) of shoreline protection along the flood and protected side of an expanded construction access channel with a toe elevation at -5.0 ft NAVD. This expanded footprint, approximately 75 ft of additional ROW on the protected side and 150 ft of additional ROW on the flood side, includes the area adjacent to the access channel where erosion has previously occurred, additional area for erosion which is anticipated to occur over the next 6-12 months, as well as area required for bankline shaping during construction and placement of geotextile and rock riprap. Material removed during bank shaping and channel dredging would be placed within the Beneficial Use disposal area approved in IER #11 Tier 2 Borgne. The CEMVN has assessed the environmental impacts of the proposed action and has determined that the proposed action would have the following impacts:

Wetlands
The proposed action would impact approximately 22 acres of wetland (brackish marsh and brackish water), bringing the total wetland impact of the Borgne Barrier project to 80.84 acres.

Aquatic Resources
Approximately 22 acres of wetland (brackish marsh and brackish water) would be impacted be erosion and placement of rock dikes and shoreline protection.

Fisheries
Impacts would be similar to those described in IER #11 Tier 2 Borgne; however, the footprint of the construction access channel would be larger due to the eroded bankline, increasing brackish

open water habitat available for fish in the project area. The proposed action would also decrease the available marsh edge habitat by converting it to a rocky substrate.

Essential Fish Habitat
The erosion of the shoreline has caused an increase in brackish open water habitat and a decrease in brackish marsh edge habitat. The placement of rock dikes and shoreline protection will permanently change the habitat from open water/estuarine bottom and marsh edge to a rocky substrate.

Wildlife
Impacts to wetlands (brackish marsh and brackish water) would have an additional incremental impact on wildlife in the form of habitat loss and displacement of wildlife.

9.2 PREPARED BY

The point of contact for this IER Supplemental is Ms. Laura Lee Wilkinson, USACE, Hurricane Protection Office. Table 2 lists the preparers of relevant sections of this report. Ms. Wilkinson can be reached at the U.S. Army Corps of Engineers, New Orleans District; CEMVN-HPO, P.O. Box 60267, New Orleans, Louisiana 70118.

Table 2
IER Preparation Team

HPO Environmental Coordinator	Laura Lee Wilkinson, USACE
HPO Environmental Project Manager	Lee Walker, Evans-Graves Engineers
Technical Editor	Jennifer Darville, USACE
Cultural Resources	Michael Swanda, USACE
RPEDS HSDRRS Technical Review	Sandra Stiles-Estis, USACE
Agency Technical Review	Thomas Keevin, USACE
MVN Office of Counsel	Robert Northey , USACE

APPENDIX A: LIST OF ACRONYMS AND DEFINITIONS OF COMMON TERMS

CEMVN	U.S. Army Corps of Engineers, New Orleans District
CAR	Coordination Act Report
CFR	Code of Federal Regulations
CPE	Corrugated Polyethylene Pipe
cy	cubic yards
EFH	Essential Fish Habitat
ft	Feet
FWCA	Fish and Wildlife Coordination Act
GIWW	Gulf Intracoastal Waterway
HSDRRS	Hurricane and Storm Damage Risk Reduction System
I-10	Interstate 10
IER	Individual Environmental Report
IHNC	Inner Harbor Navigation Canal
LCRP	Louisiana Coastal Restoration Plan
LPV	Lake Pontchartrain and Vicinity
MRGO	Mississippi River Gulf Outlet
NAVD88	North American Vertical Datum (2204/65)
NEPA	National Environmental Policy Act
ROW	Right of Way
T & E	Threatened and Endangered
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

APPENDIX B: PUBLIC COMMENT

APPENDIX C: MEMBERS OF INTERAGENCY ENVIRONMENTAL TEAM

Kyle Balkum	Louisiana Dept. of Wildlife and Fisheries
Catherine Breaux	U.S. Fish and Wildlife Service
David Castellanos	U.S. Fish and Wildlife Service
Frank Cole	Louisiana Department of Natural Resources
John Ettinger	U.S. Environmental Protection Agency
Jeff Harris	Louisiana Department of Natural Resources
Richard Hartman	NOAA National Marine Fisheries Service
Christina Hunnicutt	U.S. Geologic Survey
Barbara Keeler	U.S. Environmental Protection Agency
Kirk Kilgen	Louisiana Department of Natural Resources
Tim Killeen	Louisiana Department of Natural Resources
Brian Lezina	Louisiana Dept. of Wildlife and Fisheries
David Muth	U.S. National Park Service
Jamie Phillippe	Louisiana Dept. of Environmental Quality
Heather Finley	Louisiana Dept. of Wildlife and Fisheries
Reneé Sanders	Louisiana Department of Natural Resources
Angela Trahan	U.S. Fish and Wildlife Service
David Walther	U.S. Fish and Wildlife Service
Patrick Williams	NOAA National Marine Fisheries Service
Ismail Merhi	Office of Coastal Protection and Restoration

APPENDIX D: INTERAGENCY CORRESPONDENCE

Wilkinson, Laura L MVN

From: Jamie Phillippe [Jamie.Phillippe@LA.GOV]
Sent: Thursday, September 16, 2010 3:41 PM
To: Wilkinson, Laura L MVN
Subject: RE: IER 11 Tier 2 Borgne Water Quality Certification and Supplement for Shoreline Protection

Laura Lee,

DEQ has no objection to this project. The current WQC is valid.

Thanks,
Jamie Phillippe
Louisiana Department of Environmental Quality
401 Water Quality Certifications

-----Original Message-----
From: Wilkinson, Laura L MVN [mailto:Laura.L.Wilkinson@usace.army.mil]
Sent: Thursday, September 16, 2010 10:59 AM
To: Jamie Phillippe
Subject: IER 11 Tier 2 Borgne Water Quality Certification and Supplement for Shoreline Protection

Hi Jamie,
As per our phone conversation, we are in the process of completing a supplement to IER 11 Tier 2 Borgne to address placing shoreline protection where the marsh has eroded along the construction access channel of the Borgne Barrier. I looked over what was sent to you for the original water quality certificate and believe what was described for shoreline protection is still accurate. Attached is a revised project description describing the change in acreage. Please let me know if we need to re-apply for a water quality certificate or if we can use the current water quality certification (WQC 080616-01/AI 158513/CER 20080001).
Thanks,

Laura Lee Wilkinson
Environmental Coordinator
U.S. Army Corps of Engineers
New Orleans District
504-862-1212

BOBBY JINDAL
GOVERNOR

ROBERT D. HARPER
SECRETARY

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF COASTAL MANAGEMENT

November 9, 2010

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

RE: **C20080280 Modification 3,** Coastal Zone Consistency
U. S. Army Corps of Engineers, New Orleans District
Direct Federal Action
Individual Environmental Report # 11, Improved Protection on the Inner Harbor Navigation Canal, Tier Two Borgne; modification is for shoreline protection along the construction access canal, Orleans, and St. Bernard Parishes, Louisiana

Dear Ms. Exnicios:

The above referenced modification has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The modification, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this determination please contact Brian Marcks of the Consistency Section at (225) 342-7939.

Sincerely yours,

Gregory J. DuCote
Administrator
Interagency Affairs/Field Services Divsion

GJD/JH/bgm

cc: Harold Daigle, LDOTD
Tim Killeen, CMD FC
Charles Allen, Orleans Parish
William McCartney, St. Bernard Parish
John Ettinger, USEPA
Richard Hartman, NMFS
Angela Trahan, USFWS
Dave Butler, LDWF

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

REPLY TO
ATTENTION OF:

October 27, 2010

Regional Planning and
Environmental Division, South
New Orleans Environmental Branch
Attn: CEMVN-PDR-RN

No known historic properties will be affected by this undertaking. This effect determination could change should new information come to our attention.

Phil Boggan 11-22-10
Phil Boggan Date
Deputy State Historic Preservation Officer

Mr. Phil Boggan
Deputy State Historic Preservation Officer
Department of Culture, Recreation and Tourism
Office of Cultural Development
P.O. Box 44247
Baton Rouge, Louisiana 70804

RE: Request to Continue Consultation Under Section 106 of the National Historic Preservation Act for the Lake Pontchartrain and Vicinity Project, Hurricane and Storm Damage and Risk Reduction System, Individual Environmental Report #11, Tier 2 Borgne Supplemental, Orleans and St. Bernard Parishes, Louisiana.

Dear Mr. Boggan:

The U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District (CEMVN), is amending the Area of Potential Effects (APE) for the project area studied under Individual Environmental Report #11 Tier 2 Borgne (Alignment 4), Lake Pontchartrain and Vicinity Project (LPV), Hurricane and Storm Damage Risk Reduction System (HSDRRS), Orleans and St. Bernard Parishes, Louisiana. This APE amendment includes expanding the existing construction access channel into areas that were created by recent bankline erosion. These areas are located on both the flooded and protected side of the newly constructed floodwall and are designated as rectangular red and yellow hatched areas on the enclosed map (Enclosure #1).

In a letter to your office dated May 19, 2008, the CEMVN provided project documentation, evaluated the results of cultural resources investigations of the original APE (Handley et al. 2007, Heller et al. 2008) and found that the proposed actions would have no adverse impact on historic properties. Your office concurred with our "no adverse effect" finding in a letter dated June 17, 2008. These letters are attached herein.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), the CEMVN, in consultation with the State Historic Preservation Officer (SHPO) and Indian tribes, will determine if the amended APE established for IER #11 Tier 2 Borgne contains historic properties. The amended APE includes areas on the north and south banks of the existing

OCT 28 2010

United States Department of the Interior

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

October 20, 2010

Colonel Robert Sinkler
Commander
Hurricane Protection Office
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Sinkler:

Please reference the U.S Army Corps of Engineers (Corps) September 23, 2010, letter providing supplemental information regarding the "Improved Protection on the Inner Harbor Navigation Canal (IHNC), Orleans and St. Bernard parishes, Louisiana." The Corps is preparing a supplemental to Individual Environmental Report #11 Tier 2 Borgne (IER #11 Tier 2 Borgne) to address potential impacts associated with the unexpected acceleration of bank line erosion along the Borgne Barrier access canal and proposed shoreline protection. The supplemental will be titled "IERS #11.c Tier 2 Borgne." The Corps intends to accelerate the design and construction of the shoreline protection to prevent further erosion. IERs are being prepared under the approval of the Council on Environmental Quality (CEQ) to obtain compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347) and is authorized Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4), and Public Law 110-28, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (5th Supplemental). Those laws authorized the 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 in southeast Louisiana to provide 100-year hurricane protection. This draft report provides planning objectives and recommendations to minimize project impacts to fish and wildlife resources resources.

The U.S. Fish and Wildlife Service (Service) provided the following Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) reports to address impacts associated with hurricane protection improvements in the vicinity of the IHNC authorized in Supplemental 4 and provide specific recommendations:

- November 26, 2007, Draft Programmatic FWCA report,
- October 9, 2008, FWCA report for IER #11 Tier 2 Borgne,

- March 29, 2010, FWCA report for IER# 11 Tier 2 Pontchartrain; and,
- August 5, 2010, Draft FWCA report for IER#11.b Tier 2 Pontchartrain.

This letter supplements our previous reports and addresses the unanticipated impacts associated with increased erosion along the access channel and the proposed expedited design and construction of shoreline protection features. This report does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report has been provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service (NMFS); their comments will be incorporated into our final report.

The study area is located within Orleans and St. Bernard Parishes within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem. Higher elevations 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. The Mississippi River, the Gulf Intracoastal Waterway, and IHNC are 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, and Lakes Pontchartrain and Borgne are two major estuarine water bodies located within the study area.

Habitat types in the study area include forested wetlands (i.e., bottomland hardwoods in varying succesional stages and/or swamps), non-wet bottomland hardwoods, marsh, open water, and developed areas. Due to development and a forced-drainage system, the hydrology of most of the forested habitat within the levee system has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the areas enclosed by levees.

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. They 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 outside of the protection levees include freshwater and sediment input and loss of coastal wetlands. Regardless of which of the above factors ultimately has the greatest influence, emergent wetlands within, and adjacent to, the project area will probably experience losses due to subsidence, erosion, and relative sea-level rise.

As previously mentioned, the Service has provided FWCA Reports for the authorized hurricane protection project. Those reports contain a thorough discussion of the significant fish and wildlife resources (including habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein but the following information is provided to supplement the previously mentioned reports and provide specific recommendations regarding

the proposed change in plans.

The shoreline of the Lake Borgne floodwall construction access channel has experienced increase erosion potentially impacting an additional 28 acres of brackish marsh and associated waters outside of the previously evaluated right-of-way. The Corps is proposing to accelerate the design and construction of shoreline protection features to prevent further erosion. The proposed shoreline protection feature consists of the construction of approximately 13,000 feet of shoreline protection along the flood and protected side of the construction access channel. Riprap and geotextile fabric is proposed along the current shoreline including approximately 900 feet along the southern shoreline of the de-authorized Mississippi River Gulf Outlet. Under the proposed modification the access channel would be maintenance dredged to remove material that has eroded into the channel and reduced authorized channel depths.

EVALUATION METHOD

Impacts to emergent marsh habitats were re-evaluated based on the revised footprint including the erosion of 28 acres of brackish marsh and quantified by acreage and habitat quality (i.e., average annual habitat unit or AAHUs). The Service in coordination with the NMFS used the Wetland Value Assessment (WVA) (U.S. Fish and Wildlife Service 2007) methodology for brackish marsh to quantify the impacts on emergent wetlands. The WVA is used to evaluate proposed Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) projects, and is similar to the Service's Habitat Evaluation Procedures (HEP), in that habitat quality and quantity (acreage) are measured for baseline conditions, and predicted for future without-project and future with-project conditions. As with HEP, the WVA provides a quantitative estimate of project-related impacts to fish and wildlife resources; however, the WVA is based on separate models for fresh/intermediate marsh, brackish marsh, and saline marsh. Further explanation of how impacts/benefits are assessed with the WVA and an explanation of the assumptions affecting habitat suitability (i.e., quality) index (HSI) values for each target year for impacts to brackish marsh habitat are available for review at the Service's Lafayette, Louisiana, field office. Additionally, the Service's habitat assessment for impacts to bottomland hardwood habitat evaluated and presented in a previous FWCA report can be obtained by contacting the Service's Lafayette Office.

Table 1: Total Impacts from Improved Protection on the IHNC (IER 11), Tier 2 Borgne

Habitat Type	Parish	Impacted (acres)	AAHUs
Brackish Marsh	Orleans	68	-36.45
Brackish Water	St. Bernard	9	
Bottomland Hardwood Habitat [1]	Orleans	15	-2.59
Total	--	92	-39.04

[1] Young successional bottomland hardwood (i.e., scrub/shrub habitat)

As indicated in Table 1, impact analyses conducted indicate that project implementation would

result in the direct loss of 77 and 15 acres, and 36.45 and 2.59 AAHUs, of emergent marsh and bottomland hardwood habitat, respectively. It is important to note that these impacts would not occur on the Service's Bayou Savage National Wildlife Refuge (NWR), as mentioned in prior FWCA reports. Since those reports, the Corps and the Service's Regional Office (Division of Realty) negotiated a "land exchange" with the Service, through the Corps' Local Sponsor. In this "land exchange" the Corps purchased other lands in the Bayou Savage NWR acquisition boundary for inclusion into the NWR System in exchange for the area that will be impacted by the project.

SERVICE POSITION AND RECOMMENDATIONS

The Service does not object to the construction of the proposed project provided recommendations presented in our FWCA Reports, noted above, are incorporated into future project planning and implementation, and the Corps fully compensate for any unavoidable losses to bottomland hardwood habitat and emergent marsh caused by project features.

Should you or your staff have any questions regarding this letter and our attached report, please contact Angela Trahan (337/291-3137) of this office.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: USFWS, Bayou Savage NWR, Lacombe, LA
NMFS, Baton Rouge, LA
EPA, Dallas, TX
LDWF, Baton Rouge, LA
LDNR, CMD, Baton Rouge, LA
OCPR, Baton Rouge, LA

APPENDIX

Brackish Marsh Habitat
Wetland Value Assessment

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: IER11-20101019 Project Area: 77

Condition: Future Without Project

Variable		TY 0		TY 1		TY 50	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	88	0.89	88	0.89	53	0.58
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1		0.60		0.60		0.40
	Class 2	100		100			
	Class 3					100	
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	50	0.74	50	0.74	50	0.74
V5	Salinity (ppt)	13	0.55	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.84**	**EM HSI =**	**0.89**	**EM HSI =**	**0.67**
	Open Water HSI	**=**	**0.34**	**OW HSI =**	**0.37**	**OW HSI =**	**0.35**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: IER11-20101019 Project Area: 77

Condition: Future With Project

Variable		TY 0		TY 1		TY 50	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	88	0.89	0	0.10	0	0.10
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1		0.60		0.10		0.10
	Class 2	100					
	Class 3						
	Class 4						
	Class 5			100		100	
V4	%OW <= 1.5ft	50	0.74	0	0.10	0	0.10
V5	Salinity (ppt)	13	0.55	16	0.10	16	0.10
V6	Access Value	1.00	1.00	0.00	0.10	0.00	0.10
	Emergent Marsh HSI	**=**	**0.84**	**EM HSI =**	**0.10**	**EM HSI =**	**0.10**
	Open Water HSI	**=**	**0.34**	**OW HSI =**	**0.10**	**OW HSI =**	**0.10**

Project: IER11-20101019
FWP

AAHU CALCULATION - EMERGENT MARSH

Project: IER11-20101019

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	68	0.84	57.13	
1	68	0.89	60.53	58.83
50	41	0.67	27.27	2101.33
		#REF!		
		#REF!		
		#REF!		
		#REF!		
		#REF!		
		#REF!		
			AAHUs =	43.20

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	68	0.84	57.13	
1	0	0.10	0.00	20.18
50	0	0.10	0.00	0.00
			AAHUs	0.40

NET CHANGE IN AAHUs DUE TO PROJECT		
A. Future With Project Emergent Marsh AAHUs	=	0.40
B. Future Without Project Emergent Marsh AAHUs	=	43.20
Net Change (FWP - FWOP) =		**-42.80**

AAHU CALCULATION - OPEN WATER

Project: IER11-20101019

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	9	0.34	3.02	
1	9	0.37	3.32	3.17
50	36	0.35	12.75	396.94
		#REF!		
		#REF!		
		#REF!		
		#REF!		
		#REF!		
		#REF!		
			AAHUs =	**20.01**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	9	0.34	3.02	
1	0	0.10	0.00	1.16
50	0	0.10	0.00	0.00
			AAHUs	**0.06**

NET CHANGE IN AAHUs DUE TO PROJECT		
A. Future With Project Open Water AAHUs	=	0.06
B. Future Without Project Open Water AAHUs	=	20.01
Net Change (FWP - FWOP) =		**-19.95**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT		
A. Emergent Marsh Habitat Net AAHUs	=	-42.80
B. Open Water Habitat Net AAHUs	=	-19.95
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6		**-36.45**

Projec	IER 11		
Total Acres	TYO Marsh Acres	TY0 Water Acres	
77	67.88	9	

DATE: 14-Oct-10

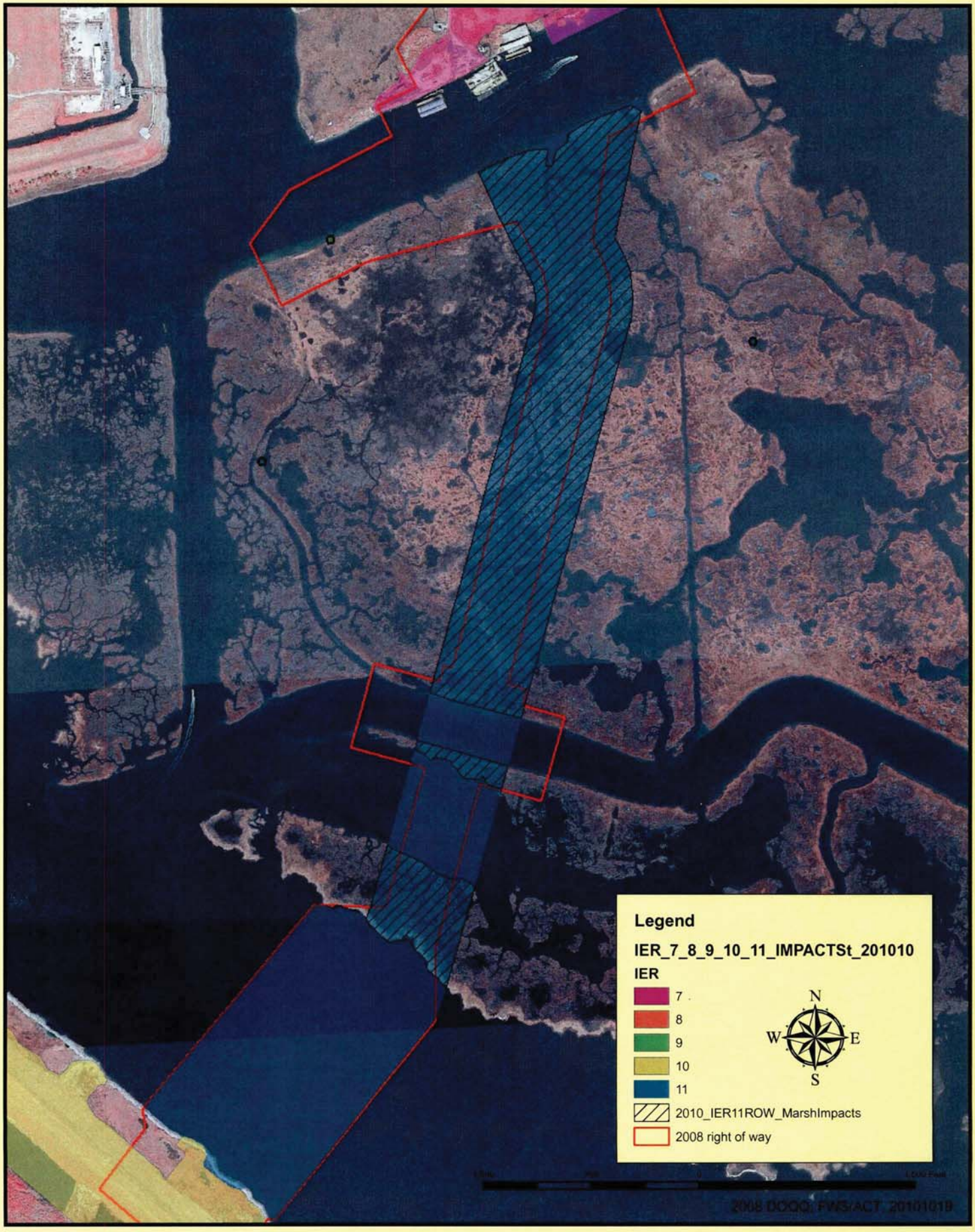
	FWOP						FWP						NET ACRES MARSH
TY	Loss Rate	Marsh (acres)	% Marsh	Water (acres)	% Water		TY	Loss Rate	Marsh (acres)	% Marsh	Water (acres)	% Water	
0		68	88%	9	12%		0	100	68	88%	9	12%	0
1	0.51	68	88%	9	12%		1	100	0	0%	77	100%	-68
2	0.51	67	87%	10	13%		2	100	0	0%	77	100%	-67
3	0.51	67	87%	10	13%		3	100	0	0%	77	100%	-67
4	0.51	66	86%	11	14%		4	100	0	0%	77	100%	-66
5	0.51	65	85%	12	15%		5	100	0	0%	77	100%	-65
6	0.51	64	84%	12	16%		6	100	0	0%	77	100%	-64
7	0.51	64	83%	13	17%		7	100	0	0%	77	100%	-64
8	0.51	63	82%	14	18%		8	100	0	0%	77	100%	-63
9	0.51	63	81%	14	19%		9	100	0	0%	77	100%	-63
10	0.51	62	81%	15	19%		10	100	0	0%	77	100%	-62
11	0.51	61	80%	16	20%		11	100	0	0%	77	100%	-61
12	0.51	61	79%	16	21%		12	100	0	0%	77	100%	-61
13	0.51	60	78%	17	22%		13	100	0	0%	77	100%	-60
14	0.51	59	77%	17	23%		14	100	0	0%	77	100%	-59
15	0.51	59	77%	18	23%		15	100	0	0%	77	100%	-59
16	0.51	58	76%	19	24%		16	100	0	0%	77	100%	-58
17	0.51	58	75%	19	25%		17	100	0	0%	77	100%	-58
18	0.51	57	74%	20	26%		18	100	0	0%	77	100%	-57
19	0.51	56	73%	20	27%		19	100	0	0%	77	100%	-56
20	0.51	56	73%	21	27%		20	100	0	0%	77	100%	-56
21	0.51	55	72%	22	28%		21	100	0	0%	77	100%	-55
22	0.51	55	71%	22	29%		22	100	0	0%	77	100%	-55
23	0.51	54	71%	23	29%		23	100	0	0%	77	100%	-54
24	0.51	54	70%	23	30%		24	100	0	0%	77	100%	-54
25	0.51	53	69%	24	31%		25	100	0	0%	77	100%	-53
26	0.51	53	68%	24	32%		26	100	0	0%	77	100%	-53
27	0.51	52	68%	25	32%		27	100	0	0%	77	100%	-52
28	0.51	51	67%	25	33%		28	100	0	0%	77	100%	-51
29	0.51	51	66%	26	34%		29	100	0	0%	77	100%	-51
30	0.51	50	66%	26	34%		30	100	0	0%	77	100%	-50
31	0.51	50	65%	27	35%		31	100	0	0%	77	100%	-50
32	0.51	49	64%	27	36%		32	100	0	0%	77	100%	-49
33	0.51	49	64%	28	36%		33	100	0	0%	77	100%	-49
34	0.51	48	63%	28	37%		34	100	0	0%	77	100%	-48
35	0.51	48	62%	29	38%		35	100	0	0%	77	100%	-48
36	0.51	47	62%	29	38%		36	100	0	0%	77	100%	-47
37	0.51	47	61%	30	39%		37	100	0	0%	77	100%	-47
38	0.51	46	60%	30	40%		38	100	0	0%	77	100%	-46
39	0.51	46	60%	31	40%		39	100	0	0%	77	100%	-46
40	0.51	46	59%	31	41%		40	100	0	0%	77	100%	-46
41	0.51	45	59%	32	41%		41	100	0	0%	77	100%	-45
42	0.51	45	58%	32	42%		42	100	0	0%	77	100%	-45
43	0.51	44	57%	33	43%		43	100	0	0%	77	100%	-44
44	0.51	44	57%	33	43%		44	100	0	0%	77	100%	-44
45	0.51	43	56%	34	44%		45	100	0	0%	77	100%	-43
46	0.51	43	56%	34	44%		46	100	0	0%	77	100%	-43
47	0.51	42	55%	34	45%		47	100	0	0%	77	100%	-42
48	0.51	42	55%	35	45%		48	100	0	0%	77	100%	-42
49	0.51	41	54%	35	46%		49	100	0	0%	77	100%	-41
50	0.51	41	53%	36	47%		50	100	0	0%	77	100%	-41

77.14 12% OW= 9.26 ac
88%Marsh 67.88 ac

U.S. Fish and Wildlife Service

Louisiana Ecological Services Field Office

IER 11 2010 Revised Impacts Marsh_BT



United States Department of the Interior

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

October 1, 2010

Ms. Laura Lee Wilkinson
U.S. Army Corps of Engineers
CEMVN-Hurricane Protection Office
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Wilkinson:

Please reference the U.S. Army Corps of Engineers (Corps) September 23, 2010, letter regarding supplemental Individual Environmental Report # 11.c Tier 2 Borgne for the "Improved Protection on the Inner Harbor Navigation Canal (IHNC)," in Orleans and St. Bernard Parishes, Louisiana. That letter requested our concurrence with the Corps' determination that proposed project features associated with the Lake Borgne Barrier are not likely to adversely affect the West Indian manatee. We have reviewed the information provided, and offer the following comments in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.), and the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The shoreline of the Lake Borgne floodwall construction access channel has experienced increase erosion resulting in an additional 28 acres of impacts to brackish marsh and water outside of the previously evaluated right-of-way. The Corps is proposing to accelerate the design and construction of shoreline protection features to prevent further erosion. The proposed shoreline protection feature consists of the construction of approximately 13,000 feet of shoreline protection along the flood and protected side of the construction access channel. Riprap and geotextile fabric is proposed along the current shoreline including approximately 900 feet along the southern shoreline of the de-authorized Mississippi River Gulf Outlet. Maintenance dredging of the access channel is proposed to remove material that has sloughed off into the channel and reduced authorized channel depths.

West Indian manatees, federally listed as an endangered species, occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). Manatee occurrences and their distribution appear to be increasing, as they have been regularly reported in the Amite, Blind, Tchefuncte, and Tickfaw Rivers, and in canals within the adjacent coastal marshes of Louisiana. They have also been

occasionally observed elsewhere along the Louisiana Gulf coast and infrequently observed along the Texas Gulf coast. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Cold weather and outbreaks of red tide may also adversely affect these animals.

The Corps' concurrence request further ensures that standard manatee protection measures will continue to be included in the Corps' construction contracts. The Service, therefore, concurs that the proposed project is not likely to adversely affect the West Indian manatee. No further endangered species consultation will be required for Individual Environmental Report # 11.c Tier 2 Borgne unless there are changes in the scope or location of project features. Should the scope or location of the proposed project change, consultation with the Service should be conducted as soon as such changes are made.

We look forward to working with the Corps to evaluate impacts and provide recommendations during the development of the supplemental IER. Should you have any questions regarding our comments, please contact Angela Trahan (337/291-3137) of this office.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: LDWF, Natural Heritage Program, Baton Rouge, LA