WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED DRAFT FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
ENVIRONMENTAL APPENDIX

Annex A: Clean Water Act Section 401 Water Quality Certification
Clean Water Act Section 404(b)(1) Evaluation
Annex B: Louisiana Coastal Resources Program Consistency Determination
Annex C: Louisiana State Department of Wildlife and Fisheries Mitigation Letter
Annex D: National Marine Fisheries Service Scoping / Planning Aid Letter
Annex E: Natural Resources Conservation Service Prime and
Unique Farmlands Coordination
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Tribal Coordination Letters
Annex G: U.S. Fish and Wildlife Service Final Coordination Act Report
Annex H: U.S. Fish and Wildlife Service Scoping / Planning Aid Letter
Annex I: Technical, Institutional and Public Significance of Relevant Resources
Annex J: Environmental Compliance Laws
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Annex L: Adaptive Management and Monitoring Plan
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WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex A

Clean Water Act Section 401 Water Quality Certification
Clean Water Act Section 404(b)(1) Evaluation

BOBBY JINDAL
GOVERNOR

PEGGY M. HATCH
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

MAY 20 2014

Mr. Nathan Dayan
US Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

AI Number: 101235
Activity Number: CER 20140004

RE: Water Quality Certification WQC 140428-01
St. Charles, St. John the Baptist, St. James, Ascension, Livingston, Assumption and St. Tammany Parishes

Dear Mr. Dayan:

The Louisiana Department of Environmental Quality, Water Permits Division (LDEQ), has received notice of the application for a 401 Water Quality Certification to clear, grub, grade, excavate and place fill material for the Hurricane and Storm Damage Risk Reduction (HSDRR) Project located on the West Shore-Lake Pontchartrain in various parishes.

Based on the information provided in the application and the additional information received May 12, 2014, LDEQ has determined that the requirements for a Water Quality Certification have been met. LDEQ concludes that the excavation and placing of fill material will not violate water quality standards as provided for in LAC 33:IX.Chapter 11. Therefore, LDEQ hereby issues the US Army Corps of Engineers, New Orleans District Water Quality Certification, WQC 140428-01.

Should you have any questions concerning any part of this certification, please contact Elizabeth Johnson at (225) 219-3225 or by email at elizabeth.johnson@la.gov. To ensure all correspondence regarding this certification is properly filed into the Department's Electronic Document Management System, please reference your Agency Interest (AI) number 101235 on all future correspondence to this Department.

Sincerely,

Scott Guilliams
Administrator
Water Permits Division

c: IO-W

Addendum to
West shore Lake Pontchartrain Study
Section 401Water Quality Application

1. Following transmission of the Section 401 Water Quality application packet and publication of legal notices in the news papers modifications to the project occurred. These changes are briefly described below. Because the project modifications occurred after the application packet was finalized these changes are not reflected in the application packet. Please see chapter 5 of the Final Report for an updated project description of the recommended plan.

2. The Milton Island Swamp Restoration (SWMP5) mitigation component has been eliminated from the mitigation plan (table page 2, and description page 5 of "*WSLP Project Description*" attached to the application packet). See Annex K of this Appendix for the updated mitigation plan. The effect of this component is no longer part of this evaluation. There is no-longer impact in St. Tammany Parish. The quantity of borrow being used for mitigation item 21 in application is reduced to 2.8 M CY. The area of open water in item 22 is now 496.19 acres.

3. The Lutcher Polder Farmland Restoration (SWMP6) mitigation component has been increased in size. An additional 302 acres of farmland will be restored for a total of 348 acres (table page 2, and description page 5 of "*WSLP Project Description*" attached to the application packet). See Annex K of this Appendix for the updated mitigation plan. No fill will be placed in US waters as part of this project– no 404(b)(1) impacts. There are no new adjacent land owners (item 24), these land owners were previously identified due to being adjacent to the non-structural component of the study.

4. Throughout this Annex the term "nonstructural" is used to describe the following elements; berms, flap gates on the roadway, raising of homes and flood proofing of individual structures. In the main report these elements are identified as localized storm surge risk reduction measures in St. James Parish. There has been no change in the impact area of these element. The name has only changed for this portion of the final recommendation.

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

APRIL 28, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division South
New Orleans Environmental Branch

Mr. Scott Guilliams
LA DEQ
Office of Environmental Services
P.O. Box 4313
Baton Rouge, LA 70821-4313

Dear Mr. Guilliams:

The CEMVN is requesting WQC for the West Shore-Lake Pontchartrain, Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) Project. We have enclosed a WQ application which addresses the actions of the proposed HSDRR Project. The proposed action consists of various combinations of HSDRR and the associated mitigation plan (see attached).

The Draft EIS was released for public review on August 23, 2013. You will be notified when the Final EIS is released for state and agency review. The Final EIS will not be signed until all environmental review and compliance requirements have been completed. A copy of the signed EIS will be provided upon request.

Questions and/or concerns should be addressed to the attention of Mr. Nathan Dayan; U.S. Army Corps of Engineers; Regional Planning and Environmental Division South New Orleans Environmental Branch; Environmental Planning and Compliance Branch; CEMVN-PDN-CEP; P.O. Box 60267; New Orleans, Louisiana 70160-0267. Mr. Dayan can also be reached at Nathan.s.dayan@usace.army.mil or (504)862-2530.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, New Orleans Environmental Branch

Enclosures

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0710-003
Expires October 1996

Public reporting burden for this collection of information is estimated to average 5 hours per response, including the time of reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting, navigable waters of the United States, the discharge of dredged of fill material in waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Routine Uses: Information provided on this form will be used in evaluating the application or a permit. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	*2. FIELD OFFICE CODE*	*3. DATE RECEIVED*	*4. DATE APPLICATION COMPLETED*

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME US Army Corps of Engineers, New Orleans District	*8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)* Same as Applicant
6. APPLICANT'S ADDRESS Regional Division South, Environmental Planning Branch CEMVN-PDN-CEP P.O. Box 60267 New Orleans, LA 70160-0267 ATTN:	***9. AGENT'S ADDRESS*** Same as Applicant
7. APPLICANT'S PHONE NOS. W/AREA CODE	*10. AGENT'S PHONE NOS. W/AREA CODE*
a. Residence ***b. Business*** (504) 862-2530	*a. Residence* *b. Business* Same as Applicant

11. ***STATEMENT OF AUTHORIZATION***

Joan M Exnicios — April 25, 2014

APPLICANT'S SIGNATURE *DATE*

NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
West Shore-Lake Pontchartrain,Louisiana
Hurricane and Storm Damage Risk Reduction (HSDRR) Project

13. NAME OF WATERBODY, IF KNOWN (if applicable) Lake Pontchartrain, Bonnet Carre spillway and some unnamed canals	*14. PROJECT STREET ADDRESS (if applicable)* *NA*
15. LOCATION OF PROJECT *St.Charles, St. John the Baptist, St. James, Ascension, Livingston Assumption and St. Tammany* Louisiana *COUNTY* *STATE*	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN, (see instructions)
The area is bounded on the southeast by the Bonnet Carre' Spillway, on the northeast by Milton Island, on the northwest by the Amite River diversion channel, on the west by the Ascension/St. James Parish line and on the south by the Mississippi River Levee.

17. DIRECTIONS TO THE SITE
Please see attachedproject description withmap

18. Nature of Activity (Description of project, include all features.)
Please See attachedProject Description

19. Project Purpose (Describe the reason or purpose of the project, (see instruction.)
The purpose of the project is to provide hurricane and storm damage risk reduction tothe communities of Montz, Laplace, Reserve Garyville and St. James Parish
The project also consists of a mitigation plan to mitigate impacts to forested wetlands during construction of the system

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
To construct theHSDRR levee and berms
To bring existing grade up to bottomland hardwood and swamp elevatiofor mitigation

21. Type(s) of Material BeingDischarged and the Amount of Each Type in Cubic Years.
Levee -4.7 Million cubic yard (CY) compacted 1.3 M CY uncompacted, and 85,319 CY limestone
Structures -12,533 CY concrete
Berms -0.8 M cy compacted fill
Mitigation 4.9 M CY borrow

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
941.19 acres of open water, 1,187 acres forested wetlands

23. Is Any Portion of the Work Already Complete? Yes _____ No _X_ IF YES, DESCRIBE THE COMPLETED WORK

24. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered herepease attach a supplemental list.
See attached

25. List of Other Certifications or Approvals/Denials Received from other Federal State or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL	IDENTIFICATION NO.	DATE APPLIED	DATE APPROVED	DATE DENIED
DNR	Coastal Zone Consistency		27 March 14	ongoing	
USACE	404(b)(1)		31 March 14	ongoing	
USFWS	Endangered Species Act		07 April 14	ongoing	
NMFS	Endangered Species Act	SER-2014-13887	10 April14	ongoing	
SHPO	Section 106			ongoing	

To the best of my knowledge the proposed activity described in my permit application complies with and will be conducted in a manner that is consistent with the LA Coastal management Program.
*Would include but is not restricted to zoning, building and flood plain permits.

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Joan M Exnicios 4-25-14
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

West Shore-Lake Pontchartrain, Louisiana
Hurricane and Storm Damage Risk Reduction (HSDRR) Project

Project Description

The final selected risk reduction system for the WSLP study includes the construction of an 18.27-mile (96,481 ft) levee system around the communities of Montz, Laplace, Reserve and Garyville. The levee system would consist of earthen levees, floodwalls (T-Walls), floodgates, drainage canals, flood side ditch for hydraulic connectivity for wetlands north and south of the recommended plan, drainage structures and pump stations located along the alignment. The final selected risk reduction system also includes the construction of nonstructural components in St. James Parish consisting of berms, culverts with flap gates and raising of structures. A mitigation plan has been developed to address the direct impacts to approximately 1,236 acres of forested wetlands and the associated indirect impacts.

Structural

The construction of the levee system would begin at the upper guide levee of the Bonnet Carre Spillway, north of an underground utility pipeline right of way and US-61. The levee would head northwest paralleling the pipeline right of way and pass under I-10. Past I-10 the levee would enclose the I-10 and I-55 interchange and cross US-51. It would then track north of I-10 and a pipeline transmission corridor. Past the Belle Terre/I-10 exit, the levee would pass back under I-10 and parallel the pipeline corridor through wetlands until it crosses Hope Canal. The levee would then turn south; cross the pipeline transmission corridor and then extend to the Mississippi River Levee System (MRL).

Non-structural

The non-structural components would consist of three Polders, flood control under LA 3125 and raising of structures. Polder 1 would consist of a 10,086 lf nonstructural berm In the Gramercy area, north of Hwy 3125. The berm would also include two floodgates to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 217 cfs, would be included as part of the nonstructural berm system to remove any rainfall during the surge event.

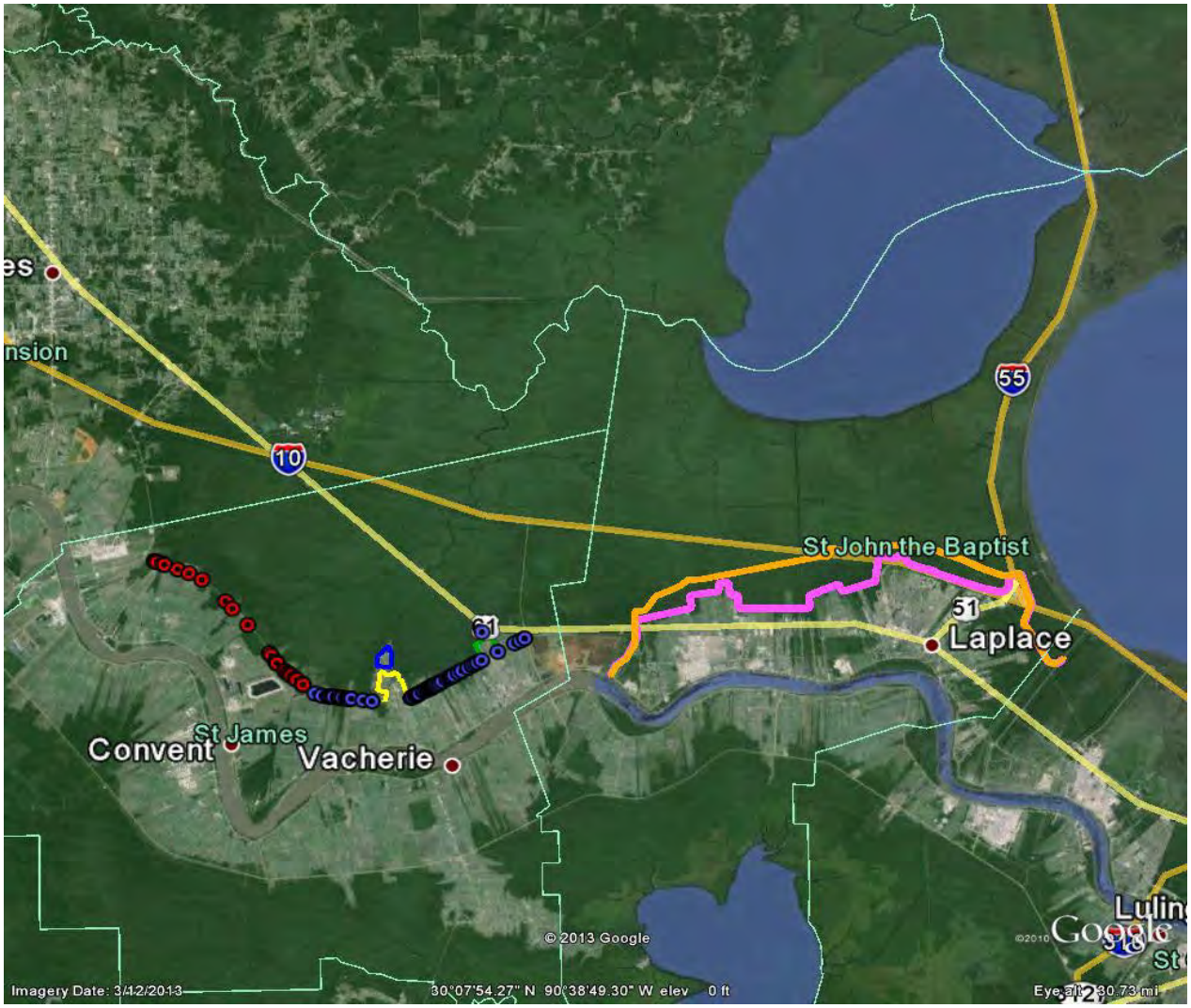
Polder 2, called~~,~~ Grand Point South would tie into HWY 3125. The berm would be 14,488 lf. The berm would also include one floodgate to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 382 cfs, would be included as part of the nonstructural berm system to remove any rainfall during the surge event.

Polder 3 consists of a 10,314 lf complete ring berm around the structures in the northern portion of Grand Point. A temporary system pump, approximately 140 cfs, would be included as part of the nonstructural berm system to remove any rainfall during the surge event.

The flood control under LA 3125 would consitst of 145 flap gate culvert closures, two flood gates and two small berms. The total length of these berms are approximately 645 lf.

33 structures with a first floor elevation less than the 6.5 ft NAVD 88 would be outside of the previously discussed non-structural features. These 33 structures would be raised to the stage associated with the 2070 100-year event.

Structural and Non-structural Project Features



Mitigation Plan

Proposed Mitigation Components	Acres
Bonnet Carre Bottomland Hardwood Restoration	156
Swamp Mitigation Bank Credit Purchase	n/a
Blind River Swamp Restoration	1,040
Bonnet Carre Swamp Restoration	310
Maurepas Crawfish Ponds Restoration	1,161
Milton Island Swamp Restoration	445
Lutcher Polder Farmlands Swamp Restoration	46
Total	3,158

Bonnet Carre Bottomland Hardwood Restoration (Figure K-1)

- Clear and grub woody vegetation within the mitigation sites before fill placement. This includes mechanized removal of invasive and nuisance plants. Degrade certain existing earthen mounds and ridges within each site to the final target grade elevation. Perimeter ridges at each site will be left in place at this stage to serve as containment berms.

- Eradicate invasive/nuisance plant species within the sites through groundbased application of appropriate herbicides to the target species, prior to fill placement. Follow-up eradication before initial planting of native species within these features, as necessary.

- Placement of fill within the sites as necessary to attain the desired final target grade elevation of approximately 1.5 feet NAVD88. The fill material would be dredged from within the Project right of way and hauled in trucks to the mitigation site.

- Final grading within the mitigation features after the fill deposited in these features has settled to the desired final target elevation, prior to initial planting of the features. This grading will be performed to remove any earthen ridges that remain projecting above the target grade elevation, thereby creating a relatively level surface.

- Plant native BLH canopy and midstory species in the sites.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

Swamp Mitigation Bank Credit Purchase

Before the first levee construction contract is advertised, available mitigation banks and credits will be assessed to compensate for a portion of swamp impacts. The amount of credits purchased may be more or less than currently identified in Table K-2. If more credits are available then more may be purchased. If fewer credits are available then additional plans will be developed to construct mitigation projects. Specific monitoring of mitigation success criteria following acquisition of bank credits will be conducted in accordance with the terms of the applicable Mitigation Banking Instrument.

Blind River Swamp Restoration (Figure K-2)

- Verify that the Livingston Parish CIAP project was built, and that those hydraulic modifications when combined with this planting plan will produce the proposed AAHUs. If this is not verified then the details of the mitigation measure will be revised to accomplish the required mitigation.

- Plant native swamp canopy and midstory species on 1,040 acres.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

Bonnet Carre Swamp Restoration (Figure K-1)

- Clear and grub woody vegetation within the sites before fill placement. This will include mechanized removal of invasive and nuisance plant species. Degrade certain existing earthen mounds and ridges within each site to the final target grade elevation. Perimeter ridges at each site will be left in place at this stage to serve as containment berms.

- Eradicate invasive/nuisance plants within the sites through groundbased application of appropriate herbicides to the target species, prior to fill placement. Follow-up eradication before the initial planting of native swamp species within these features, as necessary.

- Place fill in the mitigation sites to a final target grade elevation of approximately 0.5 feet NAVD88. Use fill material obtained from the Project levee right of way

- Final grading within the sites after the fill deposited in these features has settled to the desired final target elevation, prior to initial planting of the features. This grading will be performed to remove any earthen ridges that remain projecting above the target grade elevation, thereby creating a relatively level surface in the mitigation features.

- Follow-up eradication before the initial planting of native swamp species within these features, as needed. There will likely be multiple invasive/nuisance plant species eradication events during various years after the initial planting event. These may take place even beyond the attainment of the initial success criteria.

- Plant native swamp canopy and midstory species in the sites after final grading.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

<u>Maurepas Crawfish Ponds Restoration (Figure K-3)</u>

- Clear and grub woody vegetation within the sites before grading. This will include mechanized removal of invasive and nuisance plant species.

- Degrade existing earthen mounds and levees within each site to a final target elevation approximately 0.5 feet NAVD88. Grading will remove former water management levees that were used to manage the crawfish ponds. Removal of these levees is intended to create a uniform elevation and to enable open exchange of water with adjacent swamps.

- Eradicate invasive/nuisance plants within the sites through groundbased application of appropriate herbicides to the target species. Follow-up eradication before the initial planting of native swamp species as necessary.

- Plant 1,161 acres with native swamp canopy and midstory species after grading.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

Milton Island Swamp Restoration (Figure K-4)

- Construct containment dikes around the restoration site.

- Dredge material from Lake Pontchartrain and pump it to the restoration site. Place fill in the mitigation sites to a final target grade elevation of approximately 0.5 feet NAVD88.

- Eradicate any invasive/nuisance plants within the site through groundbased application of appropriate herbicides to the target species.

- Plant 445 acres of native swamp canopy and midstory species.
- Install nutria guards on all planted trees to protect against herbivore tree loss.

Lutcher Polder Farmlands Swamp Restoration (Figure K-5)

- Clear and grub woody vegetation within the sites before grading. This will include mechanized removal of invasive and nuisance plant species.

- Mechanically grade sites to a final target elevation approximately 0.5 feet NAVD88.

- Degrade existing earthen mounds and levees within each site to a final target elevation approximately 0.5 feet NAVD88. Grading should remove former water management levees that were used in the crawfish ponds. Removal of these levees is intended to create uniform elevation and to enable open exchange of water with adjacent swamps.

- Eradicate invasive/nuisance plants within the sites through groundbased application of appropriate herbicides to the target species. Follow-up eradication before the initial planting of native swamp species as necessary.

- Plant 46 acres with native swamp canopy and midstory species.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

Mitigation Project Location and Features

Figure K-1: Bonnet Carre Spillway Bottomland Hardwood Restoration and Bonnet Carre Spillway Swamp Restoration

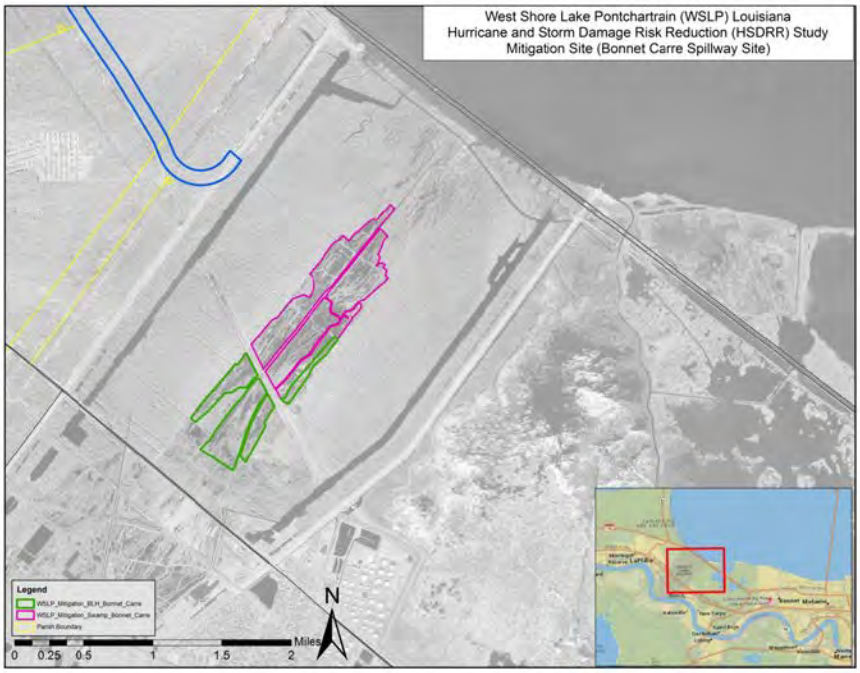


Figure K-2: Blind River Swamp Restoration

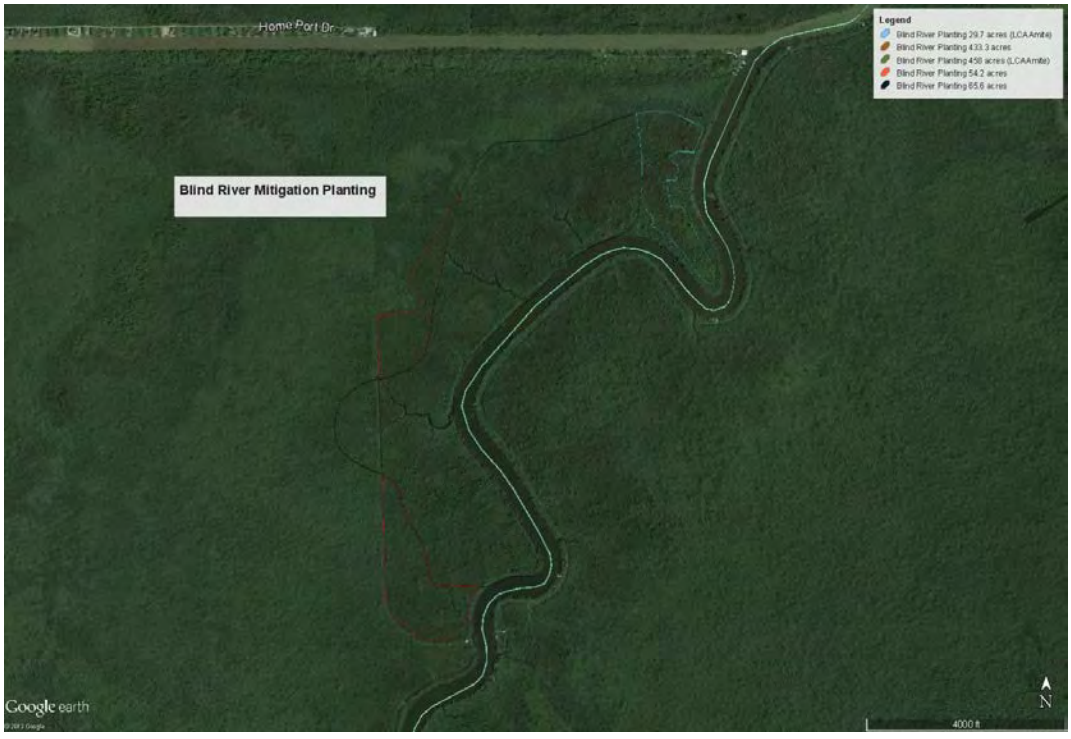


Figure K-3: Maurepas Crawfish Ponds Swamp Restoration

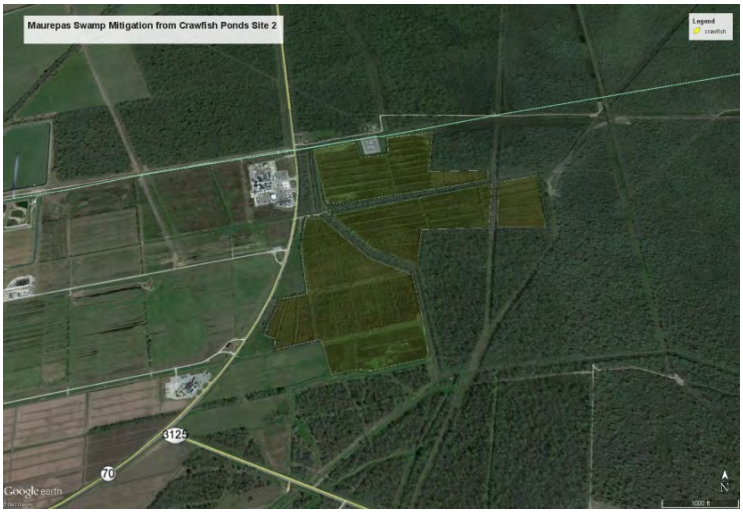


Figure K-4: Milton Island Swamp Restoration

Figure K-5: Lutcher Polder Farmland Swamp Mitigation

Addendum to
West shore Lake Pontchartrain Study
Section 404(b)(1) Evaluation Report

1. Following circulation of public notice for the Section 404(b)(1) Evaluation Report, modifications to the project occurred. These changes are briefly described below. Because the project modifications occurred after the Evaluation Report was finalized these changes are not reflected in the Evaluation Report. Please see chapter 5 of the Final Report for an updated project description of the recommended plan.

2. The Milton Island Swamp Restoration (SWMP5) mitigation component has been eliminated from the mitigation plan. See Annex K of this Appendix for the updated mitigation plan. The effect of the SWMP5 component is no longer part of the 404(b)(1) evaluation and therefore there are no-longer impacts in St. Tammany Parish or near the community of Madisonville.

3. The Lutcher Polder Farmland Restoration (SWMP6) mitigation component has been increased in size. An additional 302 acres of farmland will be restored for a total of 348 acres (Table 1 and page 18 of this evaluation). See Annex K of this Appendix for the updated mitigation plan. No fill will be placed in US waters as part of this expanded mitigation component and as such, there will be no related 404(b)(1) impacts.

4. The 131 AAHUs that were to be mitigated at SWMP5 will now be mitigated at the expanded SWMP6 (Table 1 of this evaluation).

Appendix A
Annex A2

SECTION 404(b)(1) EVALUATION REPORT

West Shore Lake Pontchartrain Study

St. Charles, St. John the Baptist, and St. James Parishes, Louisiana

Throughout this Annex the term "nonstructural" is used to describe the following elements; berms, flap gates on the roadway, raising of homes and flood proofing of individual structures. In the main report these elements are identified as localized storm surge risk reduction measures in St. James Parish. There has been no change in the impact area of these element. The name has only changed for this portion of the final recommendation.

Section 404(b)(1) Evaluation
West Shore Lake Pontchartrain Study
St. Charles, St. John the Baptist, and St. James Parishes, Louisiana

I. Project Description

a. Location. *Levee/Nonstructual:* The 184,351-acre area study is located in southeast Louisiana between the Mississippi River and Lakes Maurepas and Pontchartrain. The towns of Montz, LaPlace, Reserve, Garyville, Gramercy, Lutcher, Paulina, Hester, and Convent are area communities (figure 1and 2).

Mitigation: The mitigation areas are located in the Bonnet Carré Spillway in St. Charles Parish (figure 3); on converted farmland adjacent to the Grand Point south polder (figure 4) in converted crawfish ponds near the junction of Hwy 3125 and Hwy 3124 (figure 7) and Hwy 3125 and Hwy 70 (figure 6) in St James Parish, in converted crawfish ponds near Sorrento (Figure 5) in Ascension Parish, along Blind River in Livingston Parish (figure 8) and at Milton Island (figure 9) in St Tammany Parish. The towns of Norco, Montz, Lutcher, Paulina, Hester, Convent, Sorrento, Burnside, Madisonville, are area communities.

b. General Description. The final selected risk reduction system for the West Shore Lake Pontchartrain (WSLP) study includes the construction of an 18.27-mile (96,481-foot) long levee system. The final selected risk reduction system also includes the construction of nonstructural components in St. James Parish. An overview of the entire risk reduction system and the St. James Parish nonstructural features are shown on figure 1.

Due to the fact that the recommendation only addresses hurricane and storm surge damages, the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.

Levee System:
The levee system would begin at the upper guide levee of the Bonnet Carré Spillway, north of an underground utility pipeline right of way and US-61. The levee would head northwest paralleling the pipeline right of way and pass under I-10. Past I-10 the levee would enclose the I-10 and I-55 interchange and cross US-51. It would then track north of I-10 and a pipeline transmission corridor. Past the Belle Terre/I-10 exit, the levee would pass back under I-10 and parallel the pipeline corridor through wetlands until it crosses Hope Canal. The levee would then turn south; cross the pipeline transmission corridor and then extend to the Mississippi River Levee System (MRL)

The construction of the levee system would be based on a 1% probability storm level of risk reduction and a 2020 intermediate sea level rise condition. In order to maintain the 1% probability storm level of risk reduction system over the life of the federal project (50 yrs) the levee system would include future levee lifts based on the 2070 intermediate sea level rise conditions. For example, at the starting point of the upper guide levee of the Bonnet Carré Spillway the levee would be constructed to a top of levee elevation of 15 ft NAVD 88 in 2020. In the future, the levee at this point would be lifted to a final elevation of 19.5 ft NAVD 88 based on the 2070 intermediate sea level rise conditions. This is the highest elevation point of the

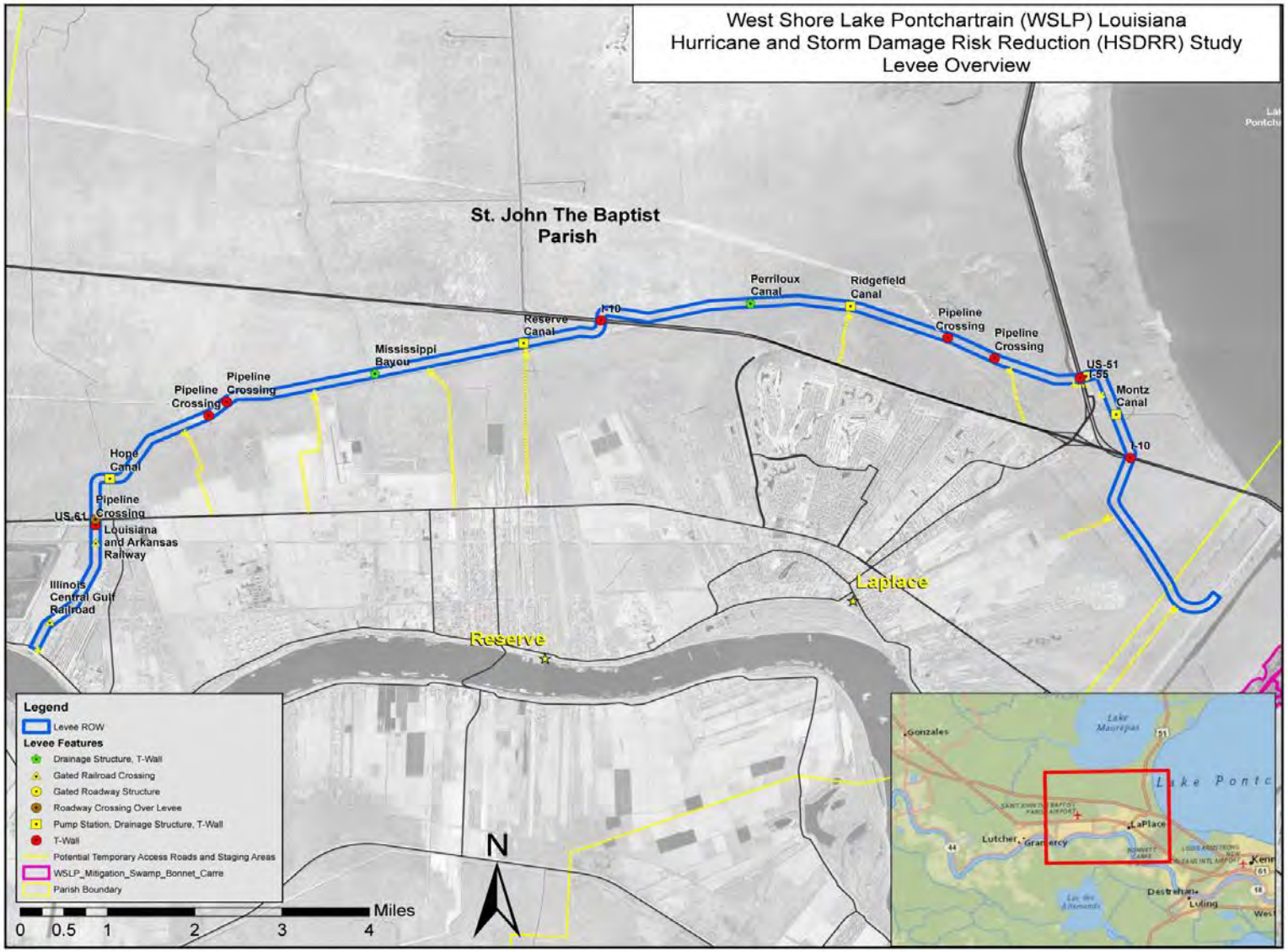


Figure 1: Project Map

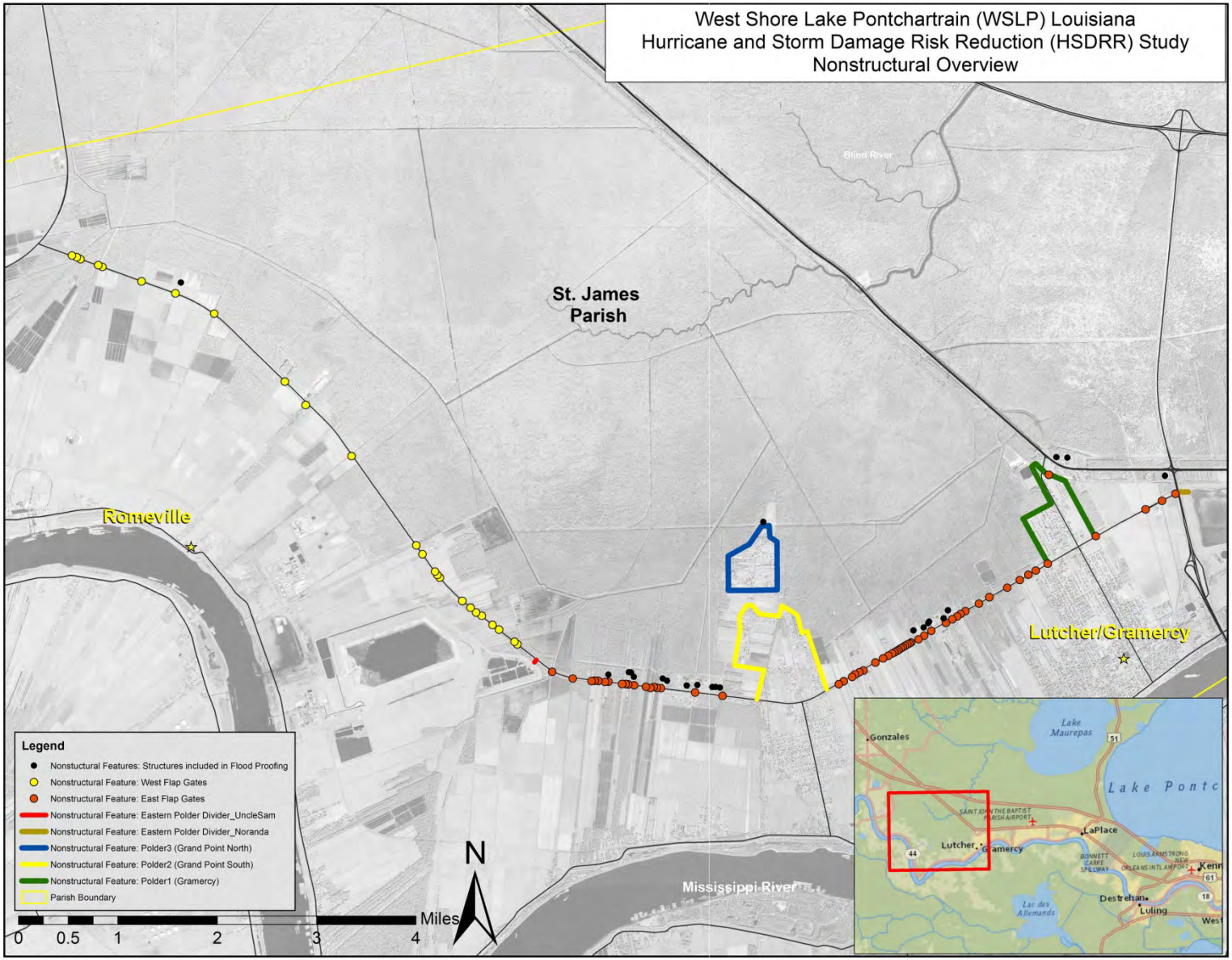


Figure 2: Nonstructual Features Project Map

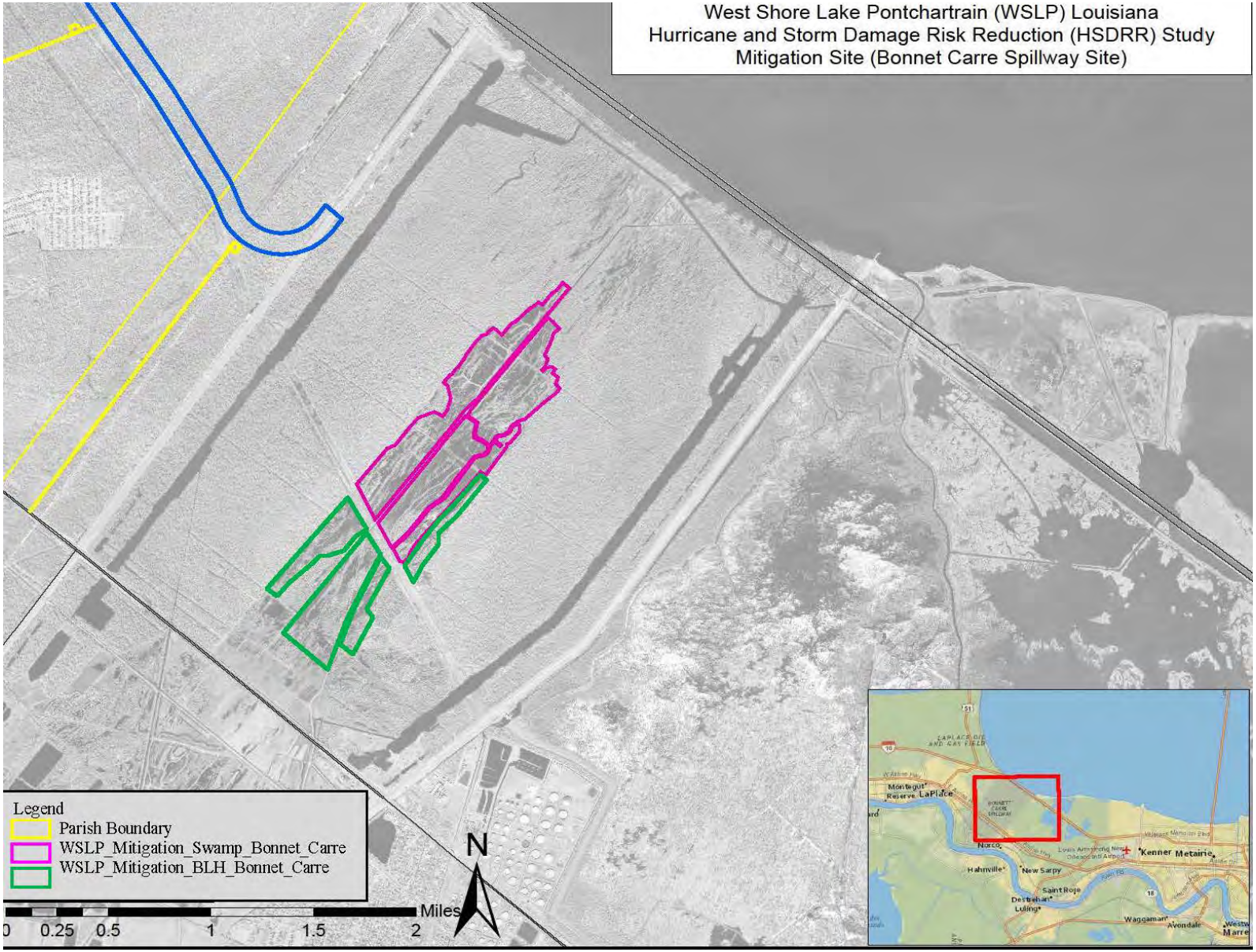


Figure 3: Bonnet Carré Spillway Mitigation (BLH1 and SWMP3)

Figure 4: Lutcher Polder Farmland Mitigation (SWMP6) – *no 404(b)(1) impacts*

Figure 5: Maurepas Swamp Crawfish Pond Mitigation Site 1 (SWMP4 1 of 3)

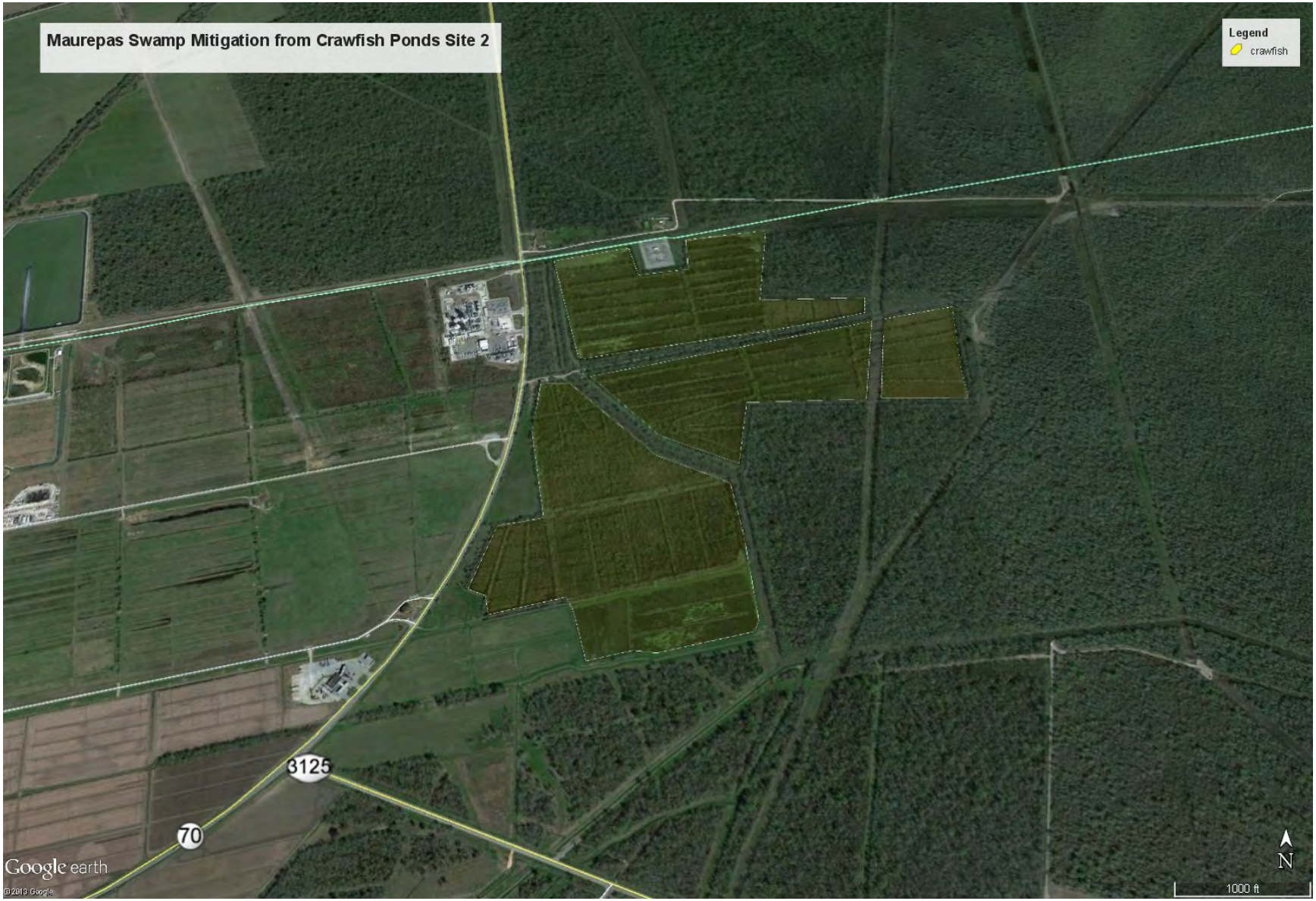


Figure 6: Maurepas Swamp Crawfish Pond Mitigation Site 2 (SWMP4 2 of 3)

Figure 7: Maurepas Swamp Crawfish Pond Mitigation Site 3(SWMP4 3 of 3)

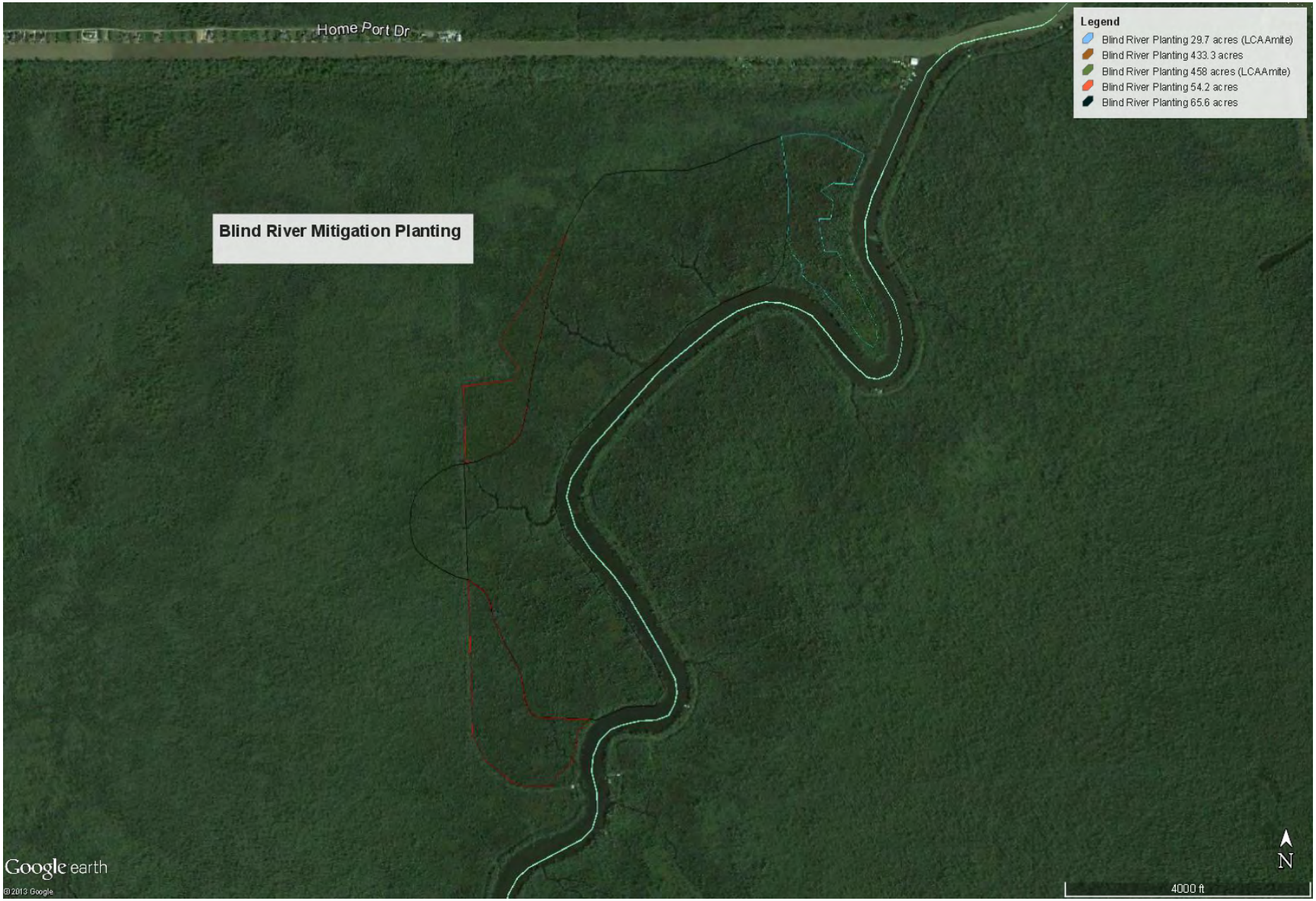


Figure 8: Blind River Mitigation (SWMP2) – *no 404(b)(1) impacts*

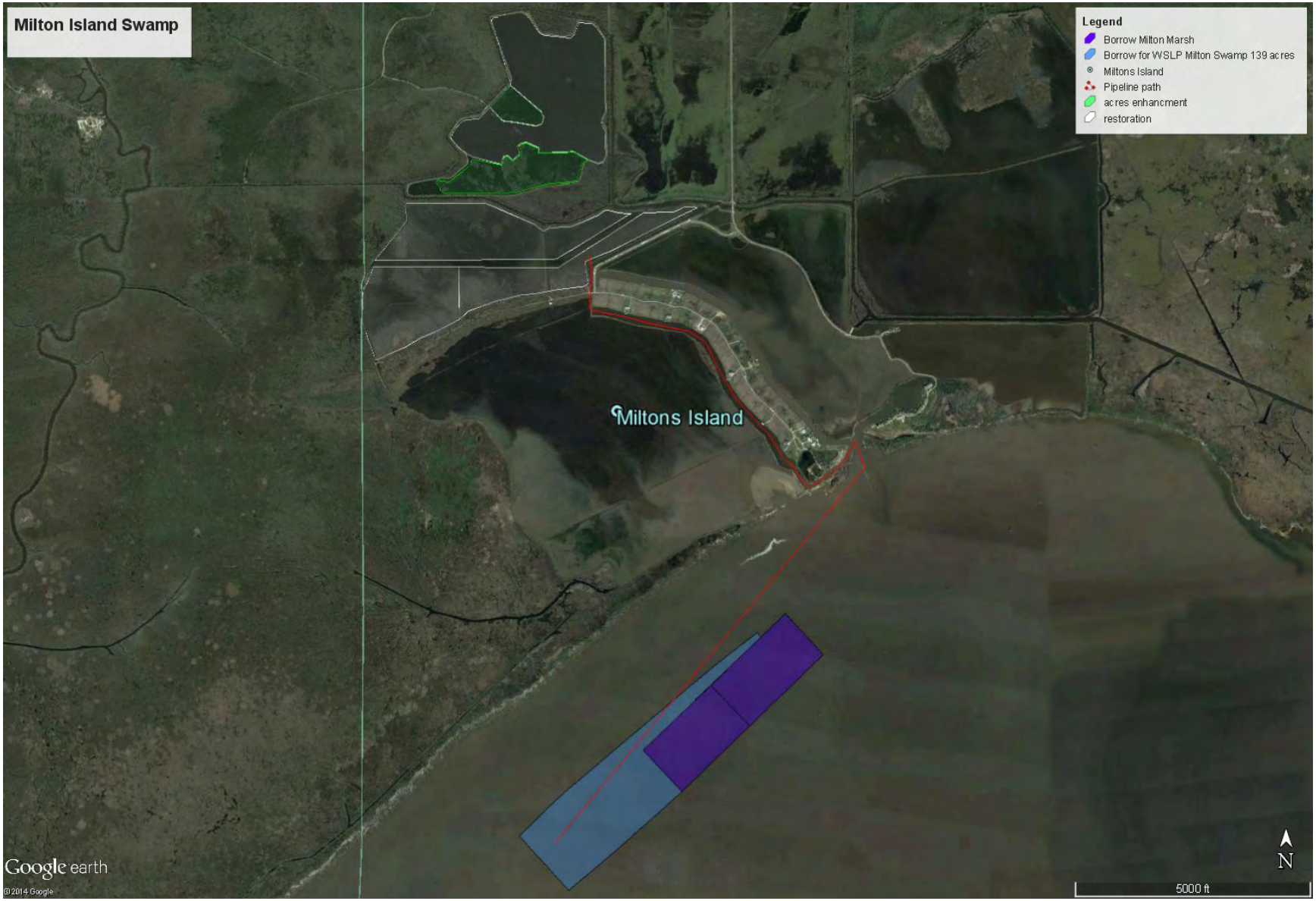


Figure 9: Milton Island Mitigation (SWMP5)

constructed levee system. The levee would start at this height and taper down to a final top levee elevation of 8.5 ft NAVD 88 near the MRL. The final 2070 top levee elevation near the MRL would be 16 ft NAVD 88.

The system would consist of earthen levees, floodwalls (T-Walls), floodgates, drainage canals, and a flood-side ditch for hydraulic connectivity for wetlands north and south of the system, drainage structures and pump stations along the alignment (Figure 1). Structures through the levee would be built to the 2070 intermediate sea level rise condition, to prevent costly future retrofits required for changing sea levels.

Starting at the upper guide levee of the Bonnet Carré Spillway and heading west along levee the project would construct a 646 lf T-Wall to pass under the existing I-10 overpass. Past this point, an 1100 cfs pump station with three 68" outfalls would be built at Montz Canal, which is very near the I-55 northbound entrance ramp. The pump station, when the system is closed, would mainly remove rainwater flows from the Woodland, the River Forest, and the Prescott Canals. A 267 lf T-Wall and with two 6' x 18' x 27' gated drainage structures would also be constructed at this location. This location and all locations with pump stations or drainage structures would be connected to a flood side ditch and a protected side canal that would parallel the entire levee length. The canals would be used to maintain the existing connection between swamps inside and the swamps outside the levee system. The protected side canal would also serve as a redundancy connection if one of the pump stations failed during an event.

Past the Montz Canal, at the location of US-51, a 188 lf gated structure would be placed through the levee. Directly west of US-51, a 247 lf T-Wall would cross under I-55. The levee would continue to the west until the levee intercepts the first pipeline crossings near Vicknair Canal. Two sections of T-Walls would be used for these pipeline crossing, a 550 lf T-Wall, and a 623 lf T-Wall. Half of the 35 required pipeline relocations would be at these two locations. It is expected that all of the pipeline relocation would be compensable, but the relocations would take place in the proposed levee right of way (ROW) or existing pipeline ROW.

Continuing west, the levee would then cross Ridgefield Canal. Ridgefield Canal is located between the I-10 LADOT weight station and the I-10/LA 3188 exit. A 200 cfs pump station with three 30" outfalls would be built at Ridgefield Canal. The pump station, when the system is closed, would mainly remove rainfall flows from Laplace Plantation, Perriloux, Ridgefield, Tebo and Vicknair canals. A 244 lf T-Wall and with two 6' x 18' x 267' gated drainage structures would also be constructed at this location.

West of the Ridgefield Canal, a 100 lf floodgate would be constructed at the location of the Perriloux Canal to allow rainfall flows to flow through the levee when the system is not closed.

West of the I-10/LA 3188 exit, a 247 lf T-Wall would be constructed to cross back under I-10. The levee would continue to parallel the pipeline corridor through wetlands until it reaches Reserve canal. A 400 cfs pump station with three 48" outfalls would be built at this location. The structure at this location would also include two 6' x 20' x 25' drainage structure with a boat bay and 335 lf of T-Walls. Small boats would still be able to pass through the drainage structure when the system is open.

Continuing west, the levee would then cross Mississippi Bayou. A 6' x 10' x 25' drainage structure with a 267 lf T-Wall would be constructed at this location.

The levee would then continue west toward Hope Canal, until it reaches the next major set of pipeline crossings. All of the remaining major pipeline relocations would be at this location. Two sections of T-Walls would be used for these pipeline crossing, a 400 lf T-Wall, and a 300 lf T-Wall. As with the other pipelines, it is expected that the pipeline relocations would be compensable, but the relocations would take place in the proposed levee right of way (ROW) or existing pipeline ROW at this location.

The levee would then continue west until it reaches Hope Canal. A 450 cfs pump station with three 54" outfalls would be constructed at this location. Currently the design and cost includes a 6' x 20' x 25' drainage structure and a 247 lf T-Wall, but the Hope Canal location is also the same location of the State of Louisiana's proposed Mississippi Reintroduction into Maurepas Swamp diversion. The WSLP project has been coordinating activities between the project development teams, but for the purposes of the WSLP feasibility design, we do not consider the diversion project as a future landscape feature, since the State has not identified funding and has not submitted final permits to the USACE for construction of the project. The USACE would continue to monitor the status of the diversion project. The team expects that if the diversion project moves forward it would be constructed on the flood side of the levee and would parallel the levee from Hope Canal to the MRL.

When the levee turns south, past Hope Canal to tie into the MRL, the levee would cross US-61, a pipeline ROW, and two railroad tracks. US-61 would be raised to hump over the levee at the crossing point. The pipeline crossing would include a 301 lf T-Wall, while the two railroad crossings would include a 150 lf gate structure and a 50 lf gate structure.

In all, there would be a total of 5,001 lf of T-Walls, 4 pump stations with associated drainage structures, 2 drainage structures, one gated road crossing, and 2 gated railroad crossings.

4.69 miles of the upper guide levee of the Bonnet Carré Spillway from the spillway control structure to the WSLP tie-in point would be included in the WSLP levee system, but there would be no construction activities associated with this Bonnet Carré levee. Existing levee heights are high enough to prevent 1% probability storm surge from entering the WSLP system during storms. The construction of the WSLP tie-in point would be to set to elevation of 15 ft NAVD 88 while the current upper guide levee elevation is 15.5 ft NAVD 88. The upper guide levee heights in the future would be monitored to determine if sections of the Bonnet Carré Spillway levee would need future lifts to prevent overtopping of storm surges into the WSLP system.

All levee rights-of-way (figure 10) would have the following typical dimensions, starting on the flood side of the levee system. The 50 ft and 100 ft right of ways adjacent to the levee footprints would be used for future levee lifts. The levee would be lifted five times over the life of the project. The first two lifts would be used to obtain a 1% probability storm level of risk reduction system in 2020. Additional levee lifts to maintain a 1% probability storm level of risk reduction system would take place years 2030, 2045, and in 2060.

9,000,000 million cubic yards (cy) of compacted fill and un-compacted fill would be required to create and maintain the levee over the life of the project. A portion of the initial fill material if suitable would be obtained from the canals and ditch, approximately 1,678,000 cy. Borings indicate that the top 4 ft of the cross section of these features would not be suitable as levee fill material. The top 4 ft of material; approximately 1,685,000 cy, would used beneficially for the mitigation plan, or disposed appropriately by the contractor. The remaining fill for the levee, approximately 7,322,000 cy, would be obtained from the Bonnet Carré Spillway.

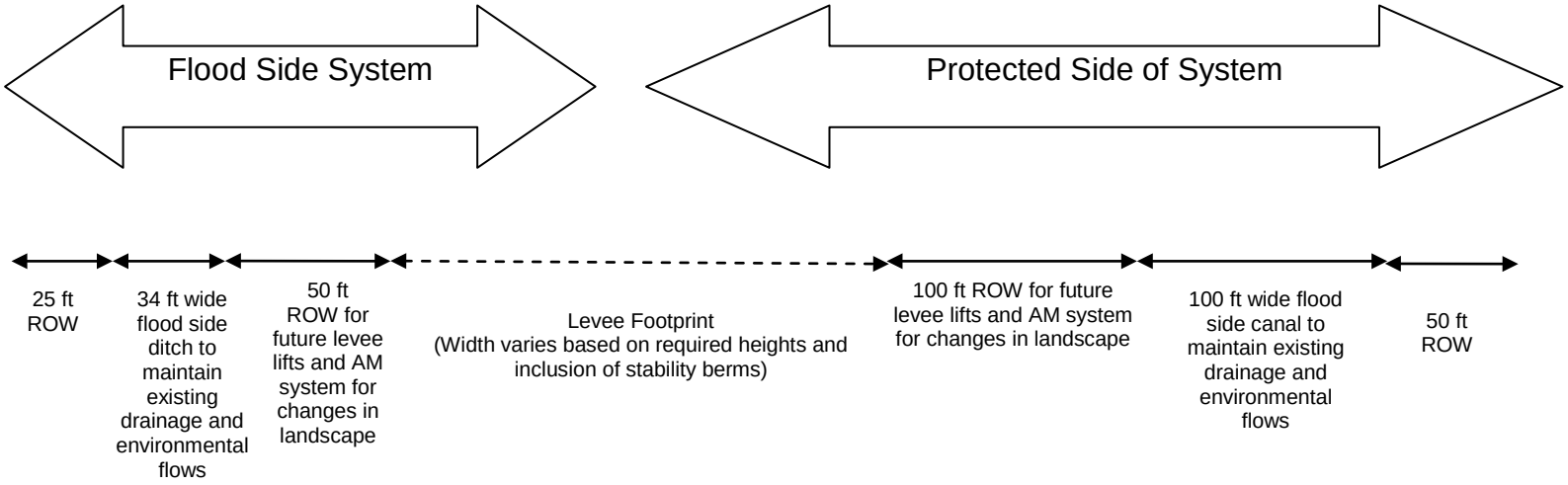


Figure 10: Typical Dimensions of Levee Right Of Way.

The total construction right-of-way of the levee system would be 1,237 acres. All of the impacts from the constructed features would be to either open water, swamp habitats or bottomland hardwoods (BLH) habitats. There would be a direct removal of approximately 15 acres of open water, 1,112 acres of swamp and 123 acres of BLH habitats. In addition to the direct removal of habitat with the constructed features, the project would enclose 8,432 acres of swamp and 89 acres of BLH.

Nonstructural System

Gramercy Area

In the Gramercy area, north of Hwy 3125, a 10,100 lf nonstructural berm would be built to provide risk reduction to 275 structures, herein referred to as "**Polder 1 (Gramercy Berm)**." The berm would be constructed to a +6.5' NAVD 88 elevation. The berm in 2020 would provide risk reduction above 1% the AEP storm stages. Storm stages St. James Parish are below +6.5' NAVD 88 elevation in 2020. As discussed in Chapter 3, in the future, the berm's effectiveness depends on the sea level rise and local improvements.

The berm would parallel both side sides of HWY 20, and parallel the railroad track along US-61 (Airline Highway). On the south, the berm would tie into Hwy 3125 to close off the system. Hwy 3125 is key feature for all of the nonstructural features. The entire roadway is above a 6.5 ' NAVD 88 elevation and will be used as a tie in point for all berms. The design of the berm is based on with a 4' wide crown and 3:1 side slopes. Using local LIDAR data it was assumed that the existing ground elevation under the berm would be at an elevation of approximately 4.3 ft NAVDD88. Using this assumption the proposed berm would have an average height of 2.2 ft with an average with of 18 ft, and require 237,000 cy of compacted fill for construction. The berm would also include two floodgates to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 217 cfs, would be included as part of the nonstructural system to remove any rainfall during the surge event. The berm would be placed on opposite banks so that the areas enclosed by the polder would still be able to drain into the ditches.

In reviewing, the berm footprint there is a risk of affecting approximately 0.29 acres of forested wetlands. Attempts would be made to avoid these areas during construction. Due to the current uncertainty in avoiding these areas, we have included cost for mitigating for these forested wetlands in the total construction cost.

Grand Point Area

In the Grand Point area, north of Hwy 3125, the recommended plan includes two nonstructural berms, "**Polder2 (Grand Point South)**" and "**Polder3 (Grand Point North**)".

Polder2 (Grand Point South) would reduce risk for 190 structures. The berm would be 14,488 lf, and would include a 4' wide crown and 3:1 side slopes. Similar to the Gramercy berm, it would tie into HWY 3125 and be constructed to a 6.5' NAVD 88 elevation. Initial the berm in 2020 would provide risk reduction above 1% the AEP storm stages. Storm stages St. James Parish are below a 6.5' NAVD 88 elevation in 2020.

Using LIDAR data it was assumed that the existing ground elevation under the berm would be approximately 4.5 'NAVD 88. Using this assumption the proposed berm would have an average height of 2 ft with an average width of 16 ft, and require 273,900 cy of compacted fill for construction. The berm would also include one floodgates to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 382

cfs, would be included as part of the nonstructural system to remove any rainfall during the surge event. The berm would be placed on opposite banks so that the areas enclosed by the polder would still be able to drain into the ditches. The berm would also be placed very near the edge of the property owners parcels where feasible. This would minimize the loss of use of any property.

Polder3 (Grand Point North) would provide risk reduction to 71 structures. The berm would be a complete ring around the structures in the northern portion of Grand Point, near the Grandpoint Boat Lunch. The berm would be 10,400 lf, and would include a 4' wide crown and 3:1 side slopes. The berm would be constructed to a 6.5 ' NAVD 88 elevation. Initial the berm in 2020 would provide risk reduction above 1% the AEP storm stages. Storm stages St. James Parish are below a 6.5‘ NAVD 88 elevation in 2020.

Using local LIDAR data it was assumed that the existing ground elevation under the berm would be approximately 4‘ NAVD 88. Using this assumption the proposed berm would have an average height of 2.5 ft with an average width of 20 ft, and require 286,800 cy of compacted fill for construction. The berm would also include one floodgates to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 140 cfs, would be included as part of the nonstructural system to remove any rainfall during the surge event. The berm would be placed on opposite banks so that the areas enclosed by the polder would still be able to drain into the ditches. The berm would also be placed very near the edge of the property owners parcels where feasible. This would minimize the loss of use of any property.

In reviewing, the berm footprint there is a risk of affecting approximately 0.81 acres of forested wetlands. Attempts would be made to avoid these areas during construction. Due to the current uncertainty in avoiding these areas, we have included cost for mitigating for these forested wetlands in the total construction cost.

Flood Control Under (LA 3125)

In addition to the nonstructural berms north of Hwy 3125, the recommended plan is to use Hwy 3125 as nonstructural feature. The roadway elevation is above a 6.5 'NAVD 88 elevation and currently under a 2020 100 yr event, surges flow, in the opposite direction from natural drainage, through the culverts under the roadway. By closing off the culverts with one-way flap gates and a drainage canal with a floodgate under surge events, the plan would provide risk reduction to 19,500 acres and 4,295 structures south of Hwy 3125. Although there are a limited number structures that are impacted by a 1% AEP storm surge event, this closure would prevent a large portion of the parish’s critical sugarcane crops from flooding from storm surge. In addition, if the parish in the future makes improvements to Hwy 3125, any additional height added to the highway would add to the structures risk reduction level.

The recommended plan includes 145 flap gated closures, two floodgates and two small berms (Noranda and Uncle Sam). The Noranda berm ties the highway into high ground east of Gramercy. The Uncle Sam berm divides the developed area behind Hwy 3125 from an area that is primarily agricultural land. By dividing these two areas the local community can focus its reduction effort in the future. The area west of the Uncle Sam berm includes an area of 8,175 acres, but only includes one structure that is has a first floor elevation below the 1% the AEP storm stages. The total length of the berms is approximately 645 lf.

Due to the nature of the flooding south of Hwy 3125, it is assumed that the 19,500 acres would have ample storage capacity to hold any rainfall during the surge events. Even if some acres of

crops are flooded from rainfall it would be much less than if the surge was allowed to flow under Hwy 3125.

Remaining Structures in St. James Parish

The recommended plan addresses the flooding of structures located outside of the polders north of Hwy 3125. Eighty structures would be outside of the nonstructural berms. Only 23 of the 80 structures have a first floor elevation less than the 1% AEP storm stages in 2020. Based on this evaluation the recommended plan includes 14 residential structures would be raised to the stage associated with the 2070 1% (100-year) ACE event; 4 non-residential structures would be flood proofed to 3 feet above the ground elevation; and smaller nonstructural berms would be constructed for 5 light industrial/warehouse facilities.

Wetland Mitigation:

Seven mitigation plan components will provide the required compensation for habitat impacts. The first feature mitigates for project BLH impacts. Six other components collectively compensate for project swamp impacts. The components are as listed in the table 1 and described below:

Table 1: Mitigation Components

Mitigation Project ID	Proposed Components	Acres	Net Gain AAHU
BLH1	Bonnet Carré Bottomland Hardwood Restoration	156	99
SWMP1	Swamp Mitigation Bank Credit Purchase	n/a	72
SWMP2	Blind River Swamp Restoration	1,040	339
SWMP3	Bonnet Carré Swamp Restoration	310	121
SWMP4	Maurepas Crawfish Ponds Restoration	1,161	407
SWMP5	Milton Island Swamp Restoration	445	131
SWMP6	Lutcher Polder Farmlands Swamp Restoration	46	20
TOTAL		3,158	1,189

BONNET CARRÉ BOTTOMLAND HARDWOOD RESTORATION (BLH1): A mitigation site for bottomland hardwood habitat has been identified within the Bonnet Carré Spillway between Highway 61 and Interstate 10 (figure 3). The project would create 156 acres using dredged material and tree plantings. Creating bottomland hardwood forest would provide benefits to wildlife and fisheries.

Mitigation would consist of beneficially placing dredge material obtained from within the WSLP levee construction footprint. Material would be hauled by truck and placed in existing shallow open water areas in the spillway. Work would commence at the northern-most portion of the area and proceed towards the river until 156 acres is restored.

SWAMP MITIGATION BANK CREDITS (SWMP1): The feasibility study documented that sufficient mitigation bank credits exist in the Pontchartrain Basin to partially offset the impacts to swamp habitat. It is not known which banks would be available with sufficient credits when project implementation begins. It is assumed that credits would be available when the need arises. Some banks may not have enough credits remaining, some may be closed, and additional mitigation banks may be approved before the WSLP project begins. SWMP1 is not considered in this evaluation; any approved mitigation bank would have all required permits and evaluations needed.

BLIND RIVER SWAMP RESTORATION (SWMP2): A project site in Livingston Parish west of the Blind River has been identified to plant swamp vegetation. See figure 8 for a map of the area and mitigation details. No fill will be placed in US waters as part of this project – no 404(b)(1) impacts. Key parts of the restoration plan are:

- Plant native swamp canopy and midstory species on 1,040 acres.
- Install nutria guards on all planted trees to protect against herbivore tree loss.

BONNET CARRÉ SWAMP RESTORATION (SWMP3): A mitigation site for swamp habitat has been identified within the Bonnet Carré Spillway between Highway 61 and Interstate 10. The project would create 310 acres of swamp using beneficial placement of dredged material and tree plantings. Creating swamp would provide benefits to wildlife and fisheries. See figure 3 for a map of the area and details of the mitigation features. Dredged material would be hauled and placed in existing shallow open water areas in the spillway.

MAUREPAS CRAWFISH PONDS SWAMP RESTORATION (SWMP4): Mitigation sites for swamp habitat have been identified at former crawfish ponds in the upper Maurepas basin. The project would restore 1,161 acres of swamp through land grading and tree plantings. See figures 5, 6 and 7 for a map of the area and project details.

MILTON ISLAND SWAMP RESTORATION (SWMP5): A mitigation site for swamp habitat has been identified near Madisonville, Louisiana. The project at Milton Island would create 389 acres of swamp through dredged material placement and tree plantings. An additional 56 acres of swamp would be enhanced with dredged material and tree plantings. See figure 9 for a map of the area and details of the mitigation project and the location of the designated borrow source in Lake Pontchartrain adjacent to borrow being cleared for the LPV HSDRR marsh mitigation project at Milton Island.

LUTCHER POLDER FARMLAND SWAMP RESTORATION (SWMP6): A mitigation site for swamp habitat has been identified near Lutcher. The project would restore 46 acres of swamp through land grading and tree plantings. Creating swamp would provide benefits to wildlife and fisheries. See figure 4 for a map of the area and project details. No fill will be placed in US waters as part of this project– no 404(b)(1) impacts.

c. Authority and Purpose.

Two Congressional resolutions authorize this study. The first was adopted on July 29, 1971 by the U.S. House of Representatives Committee on Public Works. The second was adopted by the U.S. Senate Committee on Public Works on September 20, 1974.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. Suitable clay that meets the USACE's specifications will be used for levee construction. Overburden material such as topsoil and sand will be used for the wetland mitigation areas.

(2) Quantity of Material. The levee will require 9,000,000 cubic yards of clay, 80,000 cubic yards of limestone aggregate, and 3,400,000 yards of geotextile fabric. The nonstructural system will require 797,700 cubic yards of clay. The mitigation will require 1.4 M cubic yards of material for the combined Bonnet Carré site and 2.1 M cubic yards for the Milton Site. An undetermined amount will be moved in the Maurepas Crawfish ponds.

(3) Source of Material. Clay will come from the drainage canals adjacent to the levee project and the Bonnet Carré Spillway Borrow Area for the levee and berm construction. Material for the mitigation site at Bonnet Carré will come from drainage canals adjacent to and under the levee project. The source of the material for the Milton Island mitigation measure will be a borrow area in Lake Pontchartrain and adjacent to the site identified for the LPV HSDRR marsh mitigation at Milton Island. Material in the crawfish ponds will be reworked for onsite grading to required elevations.

e. Description of the Proposed Discharge Site(s)

(1) Location. (Figures 1, 2, 3, 5, 6, 7, and 9)

(2) Size. The total construction right-of-way of the levee and berm system would be 1,252 acres. All of the impacts from the constructed features would be to either open water, swamp habitats or bottomland hardwoods (BLH) habitats. There would be a direct removal of 15 acres of open water, 1,112 acres of swamp and 123 acres of BLH habitats. The mitigation features will convert 156 of open water to BLH, and 699 acres of open water, 46 acres of farmland and 1,161 acres of crawfish ponds into swamp. The project would also enhance two areas of poor quality swamp by elevating 56 acres, and just planting 1,040 acres

(3) Type of Site. The project would be confined.

(4) Type(s) of Habitat. The existing habitat is cypress swamp, bottomland hardwoods, abandoned crawfish ponds, scrub shrub, and open water.

(5) Timing and Duration of Discharge. Various.

f. Description of Disposal Method. (hydraulic, drag line, etc) The levees and berm placed mechanically after being hauled in. Milton Island will use mechanical to build containment dikes and hydraulics to create platform. The crawfish ponds will have mechanically manipulation of onsite material.

II. Factual Determinations

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope

General:
Figure 11 depicts existing study area and project footprint LIDAR elevations. Elevations in the study area generally range between 0 and +8.8 ft (NAVD88). Within the footprint of the proposed levee right-of-way, elevations generally range between 0 and +1.3 ft, while elevations within the footprints of proposed berms are between +0.5 and +12.0 ft. Elevations within the footprint of the proposed SWMP3 project generally range between -1.0 and +2.0 ft; elevations within the footprint of the proposed BLH1 project generally range between -0.4 and +2.3 ft; elevations within the footprint of the proposed SWMP5 project generally range between -3.0 and +1.5 ft, while the SWMP5 range from -0.4 and +2.3 ft *(Please note: for the remaining proposed mitigation projects [SWMP1, SWMP2, and SWMP6], it is understood that no dredged or fill material would be placed into the aquatic environment, and therefore these projects do not require 404(b)(1) evaluation.)*

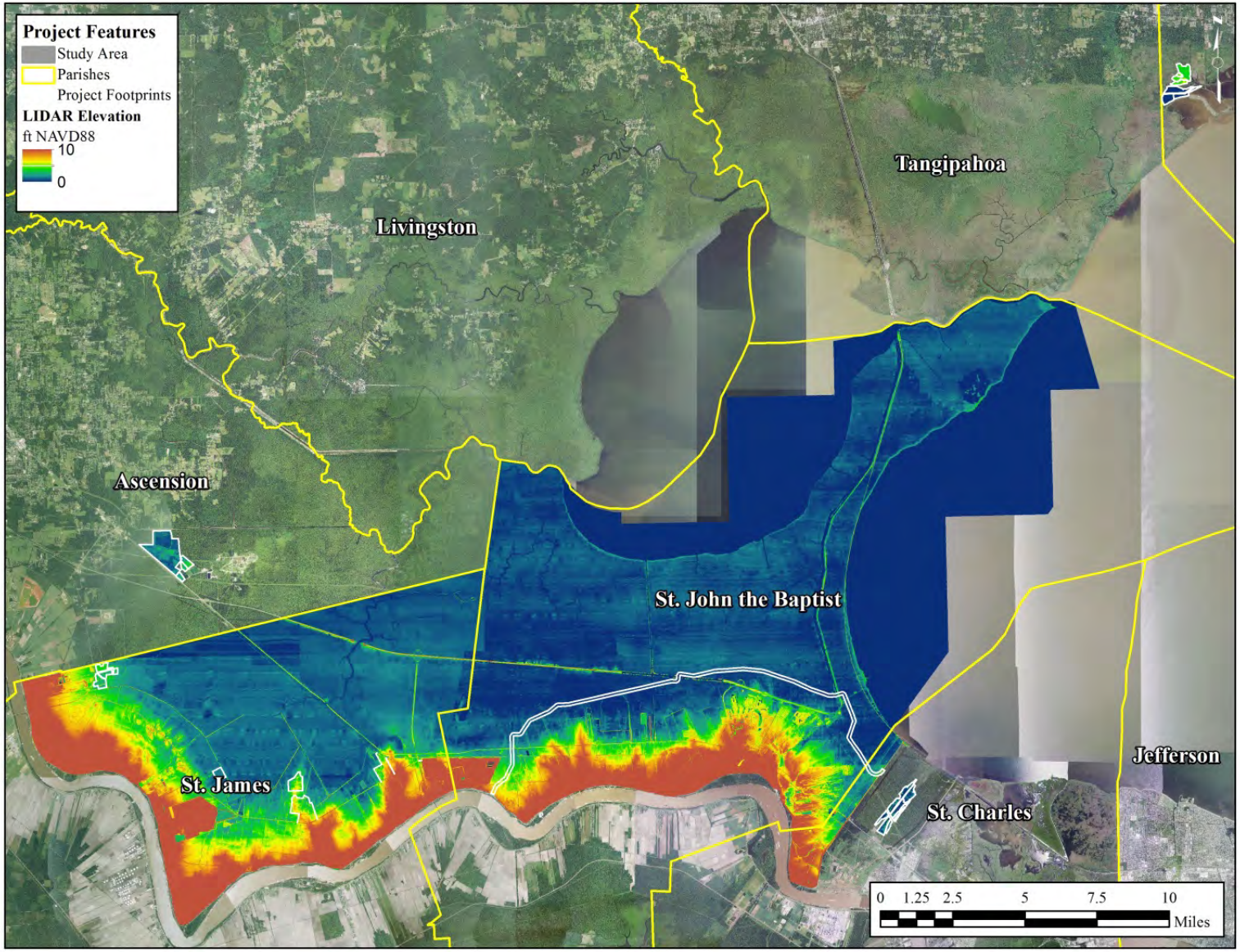


Figure 11: Study area and project footprint LIDAR Elevations

The alignment for the proposed levee starts at the Upper Guide Levee of the Bonnet Carré Spillway in St. Charles Parish, LA, extends west around the I-10/I-55 interstate interchange, and ends at the Mississippi River levee just west of Hope Canal in St. John the Baptist Parish, LA, covering a total distance of 18.3 miles (Figure 1). The proposed project includes thirteen floodwall reaches, four pumping stations, eight gravity drainage structures, two railroad swing gates, one gated road crossing, one floodgate, three berms, and the flood proofing of 23 structures. Figure 12 and Table 2 depict habitat types for the study area and project footprints.

Table 2: Project footprint existing habitat types

Project/Feature	Habitat	Area (acres)
Levee	Forested Wetlands/Swamp	1,112
	Bottom Land Hardwood	56
	Water	15
	Agriculture/Cropland/Grassland	51
	Vegetated Urban	3
Berms	Agriculture/Cropland/Grassland	10
	Bottom Land Hardwood	1
	Vegetated Urban	4
	Water	0.19
SWMP3	Wetland Scrub/Shrub Deciduous	5
	Water	305
BLH1	Wetland Scrub/Shrub Deciduous	2
	Water	154
SWMP4	Water	78
	Wetland Scrub/Shrub Deciduous	11
	Seasonally drained areas	1,072
SWMP5	Water	389
	Wetland Forest/swamp	56

Levee: Table 3 depicts approximate fill material quantities for the proposed alternative. Levees would be constructed in a total of 5 lifts. The proposed levee would be designed to a 1% probability storm level of risk reduction. Based on feasibility level hydraulic modeling, the final elevations for the proposed levee would range between approximately +19.5 ft NAVD88 on the eastern end of the alignment, to approximately +16 ft NAVD88 on the western end, and would have a footprint ranging between approximately 180 ft on the eastern end of the alignment and 80 ft on the western end.

Structures: Table 4 provides a summary of structure types and material quantities. The proposed road and railroad gates are located in existing upland areas, and are thus not subject to 404(b)(1) evaluation. At this time, material quantities for structures other than pump stations (including cofferdams, if required for construction) have not been developed.

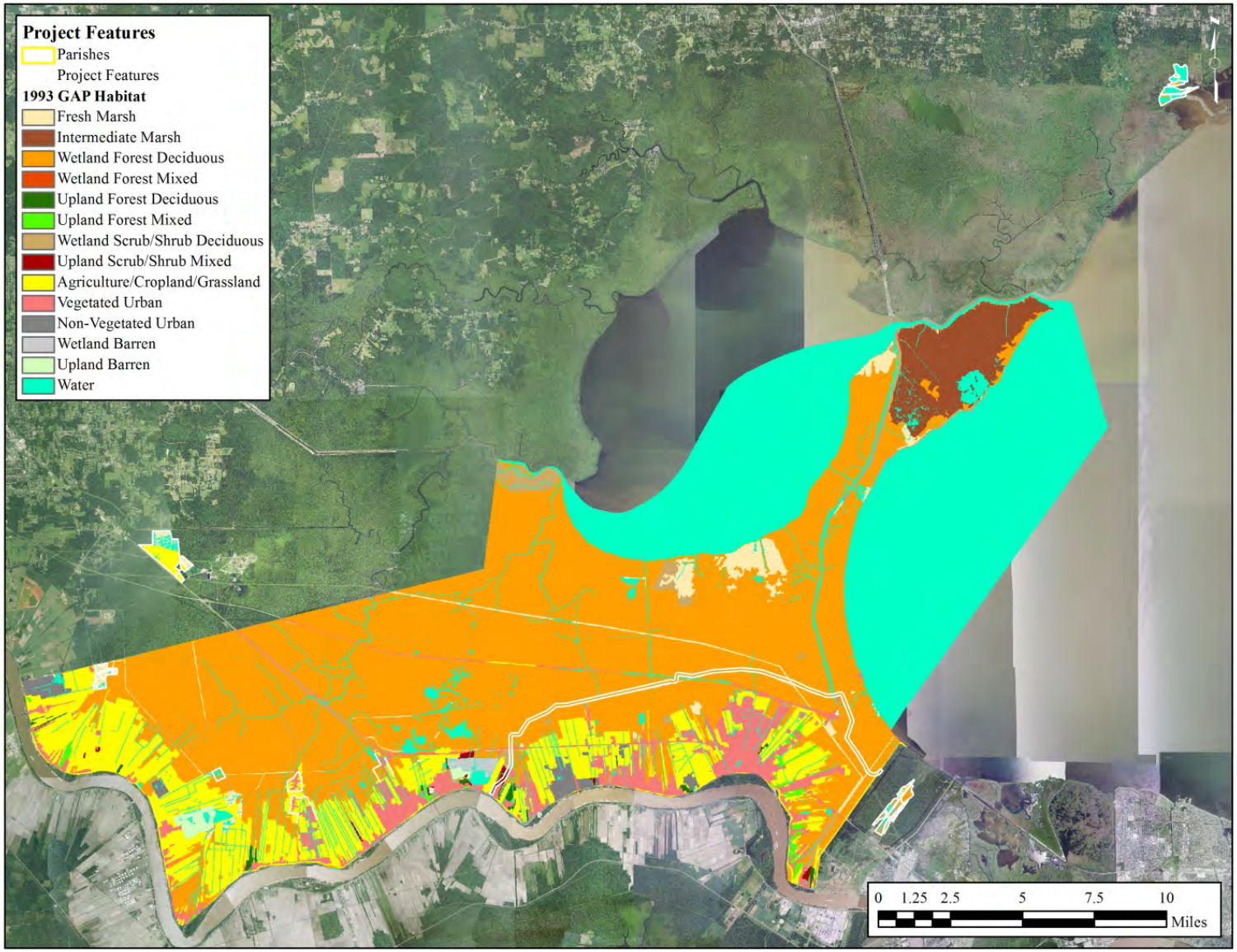


Figure 12: Study area and project footprint habitat types (source: USGS 1993)

Table3: Levee fill material quantities					
	Dimensions		Quantities		
			Levee Fill		
Section	Length (Miles)	Width (Approx.) (ft)	Compacted (yd^3)	Uncompacted (yd^3)	Aggregate Limestone (yd^3)
C-1	0.73	143	135,154	24,309	2,895
C-2	0.75	173	270,915	137,629	4,845
C-3	0.95	178	313,351	152,109	4,995
C-4	0.95	176	301,927	56,986	5,000
C-5	0.49	177	157,031	30,443	2,484
C-6	0.94	165	281,954	131,162	4,915
C-7	0.40	164	94,997	47,899	2,070
C-8	1.86	164	488,157	301,925	9,735
C-9	0.66	144	168,585	106,045	3,470
C-10	0.66	143	165,203	107,637	3,470
C-11	0.66	114	213,515	-	2,776
C-12	0.66	109	159,640	67,157	2,768
C-13	0.76	116	187,115	126,336	3,200
C-14	0.54	116	149,274	-	2,256
C-15	0.76	108	199,011	15,561	3,200
C-16	0.36	111	111,431	-	1,508
C-17	1.53	109	433,898	-	6,404
C-18	0.54	108	136,245	-	2,260
C-19	1.04	105	260,383	-	4,372
C-20	0.78	97	165,804	-	3,256
C-21	0.43	96	92,065	-	1,820
C-22	1.82	77	236,507	-	7,620
Totals:	**18.27**	--	**4,722,162**	**1,305,198**	**85,319**

Table 4: Structure dimensions and material quantities						
			Material Quantities			
Section	Structure Type(s)	Length	Concrete (yd^3)	Sheet pile (ft^2)	Rip rap (Tons)	Concrete Piles (Linear ft)
C-4	T-Wall	646	*NA*	*NA*	*NA*	*NA*
	Pump Station (1,100 ft^3/s), T-Wall, Drainage Structures (2-6 ft x 18 ft x 27 ft)	311	3,514	31,520	980	10,890
C-5	Road Gate	188	*NA*	*NA*	*NA*	*NA*
	T-Wall	247	*NA*	*NA*	*NA*	*NA*
C-7	T-Wall	550	*NA*	*NA*	*NA*	*NA*
C-8	T-Wall	17	*NA*	*NA*	*NA*	*NA*
	Pump Station (200 ft^3/s), T-Wall, Drainage Structure (2-6 ft x 18 ft x	300	3,023	28,860	622	19,890

	26 ft)					
C-10	Floodgate	100	*NA*	*NA*	*NA*	*NA*
C-12	T-Wall	574	*NA*	*NA*	*NA*	*NA*
C-14	Pump Station (400 ft^3/s), T-Wall, Drainage Structure (2-6 ft x 20 ft x 25 ft)	395	3,159	31,270	980	21,300
C-17	T-Wall, Drainage Structure (6 ft x 10 ft x 25 ft)	287	*NA*	*NA*	*NA*	*NA*
C-18	T-Wall	400	*NA*	*NA*	*NA*	*NA*
C-19	T-Wall	300	*NA*	*NA*	*NA*	*NA*
C-20	Pump Station (450 ft^3/s), T-Wall, Drainage Structure (6 ft x 20 ft x 25 ft)	275	2,837	28,520	785	21,132
	T-Wall	301	*NA*	*NA*	*NA*	*NA*
	Railroad Gate	150	*NA*	*NA*	*NA*	*NA*
C-22	Railroad Gate	53	*NA*	*NA*	*NA*	*NA*

Nonstructural Features: Table 5 depicts dimensions and compacted fill quantities for berms included in the nonstructural project features. Nonstructural features include the proposed berms along with the flood proofing of 23 structures.

Table 5: Berm dimensions and compacted fill quantities

	Dimensions						Quantities
		Elevation		Width			
Berm Polder	Length (Miles)	Base (ft NAVD88)	Crown (ft NAVD88)	Crown (ft)	Berm (ft)	Side Slopes	Compacted Fill (yd^3)
Gramercy	2.01	+4.3	+6.5	4	18	1:3	237,000
Grand Point South	2.75	+4.5	+6.5	4	16	1:3	273,900
Grand Point North	2.06	+4	+6.5	4	20	1:3	286,800

Mitigation: Mitigation for the proposed hurricane protection project incorporating placement of dredged or fill material in the aquatic environment includes the previously developed SWMP3, BLH1, and SWMP5 projects. Table 6 displays dimensions and dredged material quantities for components of these projects that include placement of dredged material into the aquatic environment. For the SWMP3, BLH1, and SWMP5 projects, dredged material would be placed in areas confined by existing ridges to elevations conducive to swamp (for SWMP3 and SWMP5) and bottomland hardwood forest (for BLH1) creation.

Pipeline Relocations: A total of 36 pipelines would require relocation under the proposed alternative. With the exception of one pipeline relocation, all relocations would occur within the proposed levee right-of-way. The single pipeline relocation outside of the proposed levee right-of-way would occur within a pipeline corridor that has been previously environmentally cleared. Relocations would occur at the T-walls in sections C-5, C-7, C-18, C-19, and C-22. The compensability for pipeline relocations has not been determined at this time, future NEPA and

404 evaluation will be done either by the pipeline owner or USACE as appropriate.

Table 6: Mitigation project dimensions and material quantities							
	Dimensions						Quantities
	Retention Dike/Berm					Final Platform Elevation (ft NAVD88)	Dredged Material ($yd^{3)}$)
Project	Area (acres)	Berm Elevation: Base (ft NAVD88)	Berm Elevation: Crown (ft NAVD88)	Berm Width (ft)	Side Slopes		
SWMP3	310					+0.5	1,400,000
BLH1	156					+1.5	810,000
SWMP5	445	+1.0	+5.0	5	1:4	+0.5	2,700,000
SWMP4	1161					+0.5	

(2) Sediment Type

General: Sediment types and corresponding area within the footprints of the proposed project and proposed mitigation projects are depicted in Table 7 (USDA 2014). Most soils within the footprint of the proposed project features are very poorly drained and very frequently flooded, with a mucky or loamy surface layer and clayey subsoil, occurring in broad, low swamp and marsh areas. More information regarding soil types within the footprint of the proposed project and proposed mitigation projects, including soil type descriptions, can be found in USDA (1973, 1987, 1991, 2009).

Table 7. Project footprint soil types			
Project/Feature	Soil Code	Soil Type	Area (acres)
Levee Right-of-Way	Ba	Barbary Soils, Frequently Flooded	665.2
	CT	Cancienne and Carville Soils, Gently Undulating, Frequently Flooded	308.1
	Sm	Schriever Clay, Frequently Flooded	89.2
	GrA	Gramercy Silty Clay, Undulating	61.1
	SkA	Schriever Clay, 0 to 1 Percent Slopes	27.5
	Cn	Commerce Silty Clay Loam, Frequently Flooded	22.8
	FA	Fausse Clay	22.8
	CmA	Cancienne Silt Loam, 0 to 1 Percent Slopes	16.4
	LV	Levees, 0 to 25 Percent Slope	2.3
Berms	CmA	Cancienne Silt Loam, 0 to 1 Percent Slopes	8.6
	Sm	Schriever Clay, Frequently Flooded	2.7
	CnA	Cancienne Silty Clay Loam, 0 to 1 Percent Slopes	1.3
	GrA	Gramercy Silty Clay, Undulating	1.2
	SkA	Schriever Clay, 0 to 1 Percent Slopes	0.6
	VhA	Vacherie Silty Sandy Loam	0.4
SWMP3	CR	Convent and Commerce Soils, Frequently Flooded	310.3
BLH1	CR	Convent and Commerce Soils, Frequently Flooded	146.1

SWMP4	Sf	Sharkey Clay, 0 To 1 Percent Slopes, Frequently Flooded	561.0
	BA	Barbary Muck, 0 To 1% Slope, Frequently Flooded	267.0
	Sm	Schriever Clay, 0 To 1% Slopes, Frequently Flooded	223.2
	Fo	Foley-Deerford Complex	3.2
	SkA	Schriever Clay, 0 To 1 Percent Slopes	2.7
SWMP5	Ha	Harahan Clay	219.1
	Md	Maurepas Muck, Drained	13.6
	BB	Barbary Mucky Clay, 0 To 1 % Slopes, Frequently Flooded	4.7
	St	Stough Fine Sandy Loam	3.6

Levee: Borrow material for the initial lift will be obtained from the Bonnet Carré Spillway and from adjacent protected and flood side wetlands within the proposed levee right-of-way. Material for future lifts will come from Bonnet Carré only. Previous testing of spillway sediments used as borrow material for other projects suggests that spillway material consists of high plasticity clay interspersed with low plasticity clay and silt, while borings in the vicinity of the proposed levee right-of-way suggest the subsurface material proposed for excavation primarily consists of low- and high-plasticity clays.

Material used for levee construction will be levee grade material meeting HSDRRS Guidelines. Levee grade material is currently defined and specified as follows: earth materials naturally occurring or contractor blended materials that are classified in accordance with ASTM D2487 as clay (CL) or high plasticity, fat clay (CH) with less than 35% sand content are suitable for use as embankment fill (Materials classified as silt [ML] are suitable if blended to produce a material that classifies as CH or CL according to ASTM D 2487). Materials shall be free from masses of organic matter, sticks, branches, roots, and other debris including hazardous and regulated solid wastes. Isolated pieces of wood will 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 the earthen material placed in each cubic yard of the levee section. Pockets and/or zones of wood shall not be placed in the embankment. Materials placed in the section must be at or above the Plasticity Index of 10. Materials placed in the section must be at or below organic content of 9 percent by weight, as determined by ASTM D 2974, Method C.

Structures: Fill material used in construction of structures would either consist of backfill from adjacent areas, or offsite borrow. Adjacent backfill characteristics would be dependent on location and depth; however, as described earlier, a majority of soils within the footprint of the proposed alternative are considered to be very poorly drained, flooded soils with a mucky or loamy surface layer and clayey subsoil. Both adjacent and offsite borrow material may be required to meet HSDRRS guidelines for levee grade material.

Nonstructural Features: Borrow material for berm construction would be derived from the Bonnet Carré Spillway (physical properties of spillway sediments are described earlier in this section). Material borrowed from the spillway would be required to meet HSDRRS guidelines for levee grade material (as described earlier in this section).

Mitigation: For the SWMP3 and BLH1 projects, the topmost 4 ft of material excavated for proposed levee flood and protected side canal construction would be used for construction of

project features. This material is assumed to be highly organic and unsuitable for use as levee fill. Approximately 3.2 million cubic yards of material is expected to be available from canals for use in the SWMP3 and BLH1 projects. For the SWMP5 project, borrow material would be derived from adjacent Lake Pontchartrain waterbottoms, in a 139 acre area located approximately 2,000 ft from the shoreline. Approximately 2.7 million cubic yards of borrow material would be required for mitigation.

(3) Dredged/Fill Material Movement

Levee: Material placed for levee construction would be contained within the levee right of way with berms or small dikes. Movement of material beyond the levee right of way is not anticipated.

Structures: Structure materials, including any associated cofferdams, would not be expected to move or shift after final material placement.

Nonstructural Features: Fill material placed for berm construction is not expected to move after final material placement.

Mitigation: For the SWMP3 and BLH1 projects, material would be confined by existing ridges. However, if restoration sites are not sufficiently established prior to a significant spillway opening, they may experience high water velocities capable of eroding fine sediments, which could in effect scour restoration project sediments. Water velocities in the center of the spillway can approach 20 ft/s during openings, which is much higher than velocities permissibly for preventing scour of even gravel (Departments of the Army and Air Force, 1983). For the SWMP5 project, dredged material would be confined by earthen dikes, and is not expected to shift after initial settlement of dredged material used for swamp creation platform construction.

(4) Physical Effects on Benthos (burial, changes in sediment types, etc)

Levee: Sessile aquatic organisms within the footprint of the proposed levee would be smothered by placement of fill and construction materials, and these organisms would not be expected to reestablish.

Structures: Sessile aquatic organisms within the footprint of proposed structures would be smothered by placement of fill and construction materials, and these organisms would not be expected to reestablish. Cofferdam construction, if implemented for construction of any structures included in the proposed project, would also smother sessile aquatic organisms. Following cofferdam removal, sessile and mobile aquatic organisms are expected to reestablish within cofferdam footprints.

Nonstructural Features: Sessile aquatic organisms within the footprint of the berm sections that coincide with aquatic habitat would be smothered by placement of fill and construction materials, and these organisms would not be expected to reestablish.

Mitigation: Placement of dredged material would smother sessile aquatic organisms within the footprints of mitigation areas; following construction activities, organisms adapted to survival in newly established habitat (swamp for SWMP3/SWMP5 and bottomland hardwood forest for BLH1) would populate the areas.

(5) Other Effects

(6) Actions Taken to Minimize Impacts:

Confinement dikes, berms, and existing ridges would be used to prevent lateral movement of dredged, fill, and construction materials during construction activities. The route of the levee was chosen over the other two alternatives because it had the smallest direct footprint and avoided some wetland impacts. The nonstructural features avoids impacts to wetlands by being placed in agricultural fields or in urban yards.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water

(a) Salinity

General: A major component of the proposed project includes the construction of eight gravity drainage structures along the proposed levee alignment (See II.a.(1) (Substrate Elevation and Slope)). The purpose of the gravity drainage structures is to provide flood control during storm conditions and to match existing drainage patterns during non-storm conditions. In addition, to minimize impacts to hydrology from the proposed project, canals will be constructed adjacent to the proposed levee alignment, on both the flood and protected sides. The intent of drainage features incorporated into the project includes minimizing project impacts to existing study area salinity patterns.

Because the proposed levee alignment would create a new hydrologic barrier along some reaches, the proposed project has the potential to induce changes to water circulation and water level patterns in the study area, despite the incorporation of gravity drainage structures and canals into the proposed alternative. These localized changes in water circulation and water level patterns may induce localized changes in salinity levels within the study area.

Levee: Because fill material used for levee construction would be dewatered prior to placement, placement of fill for levee construction would have little direct impact on the salinities of adjacent waters.

Structures: It is expected that material used for structure backfill and cofferdam construction would be dewatered prior to placement. Placement of dewatered fill materials for construction of structures would have little direct impact on the salinities of adjacent waters. Construction materials are not expected to contain salts and therefore would not directly impact the salinities of adjacent water bodies. Cofferdams, if implemented, would have the potential to temporarily alter salinity gradients, by restricting or eliminating surface water flows during construction activities. Upon removal of cofferdams, changes to salinity gradients are expected to return to previous conditions.

Nonstructural Features: Because fill material used for berm construction would be dewatered prior to placement, because berms generally do not encroach on existing wetlands, and because berms are located in areas removed from saline surface waters, placement of fill for berm construction would have little direct or indirect impact on the salinities of adjacent surface waters.

Mitigation: For the SWMP3, SWMP4 and BLH1 projects, because proposed borrow material would be derived from a relatively freshwater region, and because the restoration footprints are

expected to be freshwater, no direct impacts to salinity are expected from placement of dredged material for swamp and bottomland hardwood forest restoration. For the SWMP5 project, because borrow material would be derived from adjacent Lake Pontchartrain waterbottoms, hydraulic placement of material for swamp creation is expected to introduce waters with salinities slightly higher than those currently within the swamp creation site. Following site dewatering and swamp platform consolidation, platform confinement dikes would be gapped, and site salinities would be controlled by site interactions with local surface waterbodies.

(b) Water Chemistry (pH, etc.)

General: Ambient surface water pH values for study area monitoring stations generally range between 6.7 and 7.2, with median values of 6.9 and 7.0.

Placement of dredged and fill materials can result in short term effects on pH. Factors typically associated with dredged and fill material placement activities may cause pH in receiving area waters to shift toward more acidic conditions. These factors include increased turbidity, organic enrichment, chemical leaching, reduced dissolved oxygen, and elevated carbon dioxide levels, among others.

A major component of the proposed project includes the construction of eight gravity drainage structures along the proposed levee alignment (See II.a.(1) (Substrate Elevation and Slope)). The purpose of the gravity drainage structures is to provide flood control during storm conditions and to match existing drainage patterns during non-storm conditions. In addition, to minimize impacts to hydrology from the proposed project, canals will be constructed adjacent to the proposed levee alignment, on both the flood and protected sides. The intent of drainage features incorporated into the project includes minimizing project impacts to existing study area water quality.

Because the proposed levee alignment would create a new hydrologic barrier along some reaches, the proposed project has the potential to induce changes to water circulation and water level patterns in the study area, despite the incorporation of gravity drainage structures and canals into the proposed alternative. These localized changes in water circulation and water level patterns may induce localized changes in pH levels within the study area.

Levee: Material proposed for use as levee fill would be confined by berms. Therefore, only minimal amounts of fill material (primarily material associated with berm construction) would directly impact adjacent waterbodies. Associated impacts to surface water pH levels from placement of levee fill material would therefore be localized and temporary.

Structures: Minor and localized impacts to pH levels in adjacent waters may occur during placement of cofferdam, construction, and backfill materials. These impacts would be expected to last the duration of construction activities. Cofferdams, if implemented, would have the potential to temporarily alter pH levels, by restricting or eliminating surface water flows during construction activities. Upon removal of cofferdams, changes in pH associated with cofferdams would diminish.

Nonstructural Features: Because fill material used for berm construction would be dewatered prior to placement, and because berms generally do not encroach on existing wetlands, placement of fill for berm construction would have little direct or indirect impact on the pH of

adjacent surface waters.

Mitigation: For both the SWMP3, BLH1, and SWMP5 projects, dredged material discharges would be expected to result in a temporary reduction in pH for adjacent waters. For the SWMP3 and BLH1 projects, dredged material effluent would presumably discharge from restoration areas to adjacent borrow ponds, causing temporary reductions in pH within those ponds. For the SWMP5 project, the limited currents present placement of hydraulically dredged material is expected to result in a temporary reduction in the pH of dredged material effluent. Effluent waters of reduced pH are expected to enter adjacent water bodies, where they would be dispersed at a rate dependent upon receiving water body flow characteristics.

(c) Clarity

General: Placement of dredged and fill material is expected to result in localized turbidity plumes, which could affect water clarity and color. Following completion of construction activities and vegetation of constructed project features, the occurrence of these turbidity plumes would no longer occur.

To minimize construction-related impacts to surface water, including water clarity and turbidity, a Stormwater Pollution Prevention Plan (SWPPP) will be implemented for construction activities. SWPPPs will be prepared in accordance with good engineering practices emphasizing storm water Best Management Practices and complying with Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology. The SWPPP will identify potential sources of pollution which may reasonably be expected to affect storm water discharges associated with the construction activity. In addition, the SWPPP will describe and ensure the implementation of practices which are to be used to reduce pollutants in storm water discharges associated with the construction activity and to assure compliance with the terms and conditions of this permit (USEPA 2012).

(d) Color

See Section 2.b.(1)(c) (Clarity)

(e) Odor

General: No significant odors are anticipated to be associated with dewatered borrow material from the Bonnet Carré Spillway or construction materials.

Mitigation: Discharge of dredged sediments for the SWMP3, BLH1, and SWMP5 projects would result in the exposure of previously undisturbed, organic and reduced sediments, which would emit odors. Because restoration sites are removed from developed areas, this is not expected to be of concern.

(f) Taste

The nearest surface drinking water intakes to the study area are located on the Mississippi River, which is hydrologically isolated from the study area by the Mississippi River levees. The proposed projects are therefore not expected to affect area drinking water resources.

(g) Dissolved Gas Levels

General: Ambient dissolved oxygen values for the project area water quality monitoring stations are generally very low, ranging between 1 and 4 mg/L, with median concentrations of 1.6 and 3.1 mg/L. As discussed in Appendix *A annex M of the EIS,* low dissolved oxygen level is the second most commonly cited suspected cause of impairment for study area water bodies.

A major component of the proposed project includes the construction of eight gravity drainage structures along the proposed levee alignment (See II.a.(1) (Substrate Elevation and Slope)). The purpose of the gravity drainage structures is to provide flood control during storm conditions and to match existing drainage patterns during non-storm conditions. In addition, to minimize impacts to hydrology from the proposed project, canals will be constructed adjacent to the proposed levee alignment, on both the flood and protected sides. The intent of drainage features incorporated into the project includes minimizing project impacts to existing study area water quality.

Because the proposed levee alignment would create a new hydrologic barrier along some reaches, the proposed project has the potential to induce changes to water circulation and water level patterns in the study area, despite the incorporation of gravity drainage structures and canals into the proposed alternative. These localized changes in water circulation and water level patterns may induce localized changes in dissolved oxygen levels within the study area.

Recent significant changes in the Federal flood insurance program (stemming from passage of the Biggert-Waters Flood Insurance Reform Act) will likely have the effect of establishing dramatically lower flood insurance rates in areas within the West Shore Lake Pontchartrain levee. This could create a significant financial incentive for development within the levee alignment, which could amplify athropogenic influences on water quality within the proposed alignment and study area, influencing dissolved oxygen levels.

Levee: Material proposed for use as levee fill would be confined by berms. Therefore, only minimal amounts of fill material (primarily material associated with berm construction) would directly impact adjacent water bodies. Associated impacts to the water column from placement of levee fill material would therefore be localized and temporary.

Structures: Minor, localized impacts to dissolved oxygen levels in adjacent waters may occur during placement of cofferdam, construction, and backfill materials. These impacts would be expected to last the duration of construction activities. Cofferdams, if implemented, would have the potential to temporarily alter dissolved oxygen levels, by restricting or eliminating surface water flows during construction activities. Upon removal of cofferdams, changes in dissolved oxygen levels associated with cofferdams would diminish.

Nonstructural Features: Because fill material used for berm construction would be dewatered prior to placement, and because berms generally do not encroach on existing wetlands, placement of fill for berm construction would have little direct or indirect impact on the dissolved oxygen levels of adjacent surface waters.

Mitigation: For the SWMP3, BLH1, SWMP4 and SWMP5 projects, short-term decreases in dissolved oxygen could occur due to introduction of organics from sediment into the water column, as well as the release of nutrients. Turbidity affects water quality in several ways, which can include the reduction of dissolved oxygen levels. The introduction of nutrients and organic material from sediments discharged into the water column can lead to a high biochemical oxygen demand (BOD), which in turn can lead to reduced dissolved oxygen, thereby potentially affecting the survival of aquatic organisms. For all mitigation projects, the proposed dredged

material to be used for construction of project features is expected to be highly organic, and therefore there is potential for temporarily lowering dissolved oxygen levels.

(h) Nutrients

General: A major component of the proposed project includes the construction of eight gravity drainage structures along the proposed levee alignment (See II.a.(1) (Substrate Elevation and Slope)). The purpose of the gravity drainage structures is to provide flood control during storm conditions and to match existing drainage patterns during non-storm conditions. In addition, to minimize impacts to hydrology from the proposed project, canals will be constructed adjacent to the proposed levee alignment, on both the flood and protected sides. The intent of drainage features incorporated into the project includes minimizing project impacts to existing study area water quality.

Because the proposed levee alignment would create a new hydrologic barrier along some reaches, the proposed project has the potential to induce changes to water circulation and water level patterns in the study area, despite the incorporation of gravity drainage structures and canals into the proposed alternative. These localized changes in water circulation and water level patterns may induce localized changes in the distribution of nutrients within the study area.

Levee: Material proposed as levee fill would be confined by berms. Therefore, only minimal amounts of fill material (primarily material associated with berm construction) would directly impact adjacent waterbodies. Associated impacts to the water column from placement of levee fill material would therefore be localized and temporary.

Structures: Fill and construction materials used for structure and cofferdam construction are not expected to contain high nutrient levels. Therefore, placement of these materials for structure construction is not expected to directly impact nutrient levels for adjacent surface waters.

Nonstructural Features: Material proposed as berm fill would be largely relegated to upland areas, and would be dewatered prior to placement. Therefore, only minimal amounts of fill material (primarily material associated with berm construction) would directly impact adjacent waterbodies. Associated impacts to the water column from placement of berm fill material would therefore be localized and temporary.

Mitigation: Sediments proposed as borrow material for mitigation sites are expected to contain variable levels of organic material, which may release elevated concentrations of ammonia during construction activities related to wetland restoration. For the SWMP3 and BLH1 projects, any ammonia released would be contained in waters within existing ridges, where its fate would be determined by soil biogeochemistry. For the SWMP5 and SWMP4 project, any ammonia released would enter adjacent surface waters, where its fate would be determined by waterbody flow characteristics and area biogeochemistry.

(i) Eutrophication

See Section 2.b.(1)(h) (Nutrients)

(j) Others as Appropriate

(2) Current Patterns and Circulation

(a) Current Patterns and Flow

General: A major component of the proposed project includes the construction of eight gravity drainage structures along the proposed levee alignment (See II.a.(1) (Substrate Elevation and Slope)). The purpose of the gravity drainage structures is to provide flood control during storm conditions and to match existing drainage patterns during non-storm conditions. In addition, to minimize impacts to hydrology from the proposed project, canals will be constructed adjacent to the proposed levee alignment, on both the flood and protected sides.

Because the proposed levee alignment would create a new hydrologic barrier along some reaches, the proposed project has the potential to induce changes to water circulation and water level patterns in the study area, despite the incorporation of gravity drainage structures and canals into the proposed alternative.

Levee: The proposed levee footprint within existing aquatic habitat would be converted to upland habitat, thus eliminating surface waters within the footprint.

Structures: The proposed structures whose footprints are within existing aquatic habitat would convert their footprints to upland habitat, with the exception of structure openings, thus eliminating surface waters within portions of structure footprints.

Nonstructural Features: The proposed berm footprints within existing aquatic habitat would be converted to upland habitat, thus eliminating surface waters within the footprints. Proposed berms are expected to hydrologically isolate small areas of existing wetlands; approximately 117 acres of existing forested wetlands are present within the proposed berms.

Mitigation: For the SWMP3, BLH1, and SWMP5 projects, existing hydrology and flow patterns within restoration areas would be modified via conversion of these areas to swamp and bottomland hardwood forest habitat. For the SWMP3 and BLH1 projects, if restoration areas are successfully established, they may affect hydrology and flow patterns within the spillway, as these areas are in an area of the spillway previously cleared to reduced susceptibility of spillway guide levees to erosion. Hydraulic modeling is currently being performed to estimate the effects of the SWMP3 and BLH1 projects on spillway flows and water levels.

For the SWMP5 project, the area would be converted from open water area to swamp, thus altering area current patterns and flow. The longevity of these conditions would be dependent upon project success. The swamp creation area and surrounding areas have undergone significant hydromodification which may be a central cause of local wetland loss; without significant changes in site hydrology, wetlands in the SWMP5 area may suffer a similar fate as wetlands previously converted to open water in the area.

(b) Velocity

See II.b.(2)(a) (Current Patterns and Flow)

(c) Stratification.

Because project area salinities are generally low and area water bodies are generally shallow (less than 10 ft in depth), the proposed alternative is not expected to contribute to water column stratification.

(d) Hydrologic Regime.

See II.b.2(a) (Current Patterns and Flow **)**

(3) Normal Water Level Fluctuations/Hydroperiod.

See II.b.(2)(a) Current Patterns and Flow

(4) Salinity Gradients.

See II.b.(1)(a) (Salinity)

(5) Actions That Would Be Taken to Minimize Impacts.

A major component of the proposed project includes the construction of eight gravity drainage structures along the proposed levee alignment (See II.a.(1) (Substrate Elevation and Slope)). The purpose of the gravity drainage structures is to provide flood control during storm conditions and to match existing drainage patterns during non-storm conditions. In addition, to minimize impacts to hydrology from the proposed project, canals will be constructed adjacent to the proposed levee alignment, on both the flood and protected sides.

To minimize construction-related impacts to water quality, it is anticipated that a Stormwater Pollution Prevention Plan (SWPPP) shall be implemented for construction activities. SWPPPs shall be prepared in accordance with good engineering practices emphasizing storm water Best Management Practices and complying with Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology. The SWPPP shall identify potential sources of pollution, which may reasonably be expected to affect storm water discharges associated with the construction activity. In addition, the SWPPP shall describe and ensure the implementation of practices which are to be used to reduce pollutants in storm water discharges associated with the construction activity and to assure compliance with the terms and conditions of this permit.

Levee: Material will be placed between levee berms, minimizing water column impacts associated with levee construction.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site

Levee: Material proposed as levee fill would be confined by berms. Therefore, only minimal amounts of fill material (primarily material associated with berm construction) would directly impact adjacent waterbodies. Associated impacts to the water column from placement of levee fill material would therefore be localized and temporary.

Structures: Minor, localized impacts to turbidity levels and water clarity in adjacent waters may occur during placement of cofferdam, construction, and backfill materials. These impacts would be expected to last the duration of construction activities.

Mitigation: For the SWMP3 and BLH1 projects, material would be placed within existing ridges, which would allow for settling of suspended solids prior to effluent discharge from restoration

areas. For the SWMP5 project, material would be hydraulically placed in a confined swamp creation site, where suspended particulates would be expected to settle prior to effluent discharge. For all projects, any effluent waters would be expected to contain elevated turbidities which would be reduced depending on receiving waterbody flow characteristics.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light penetration

See II.c.(1) (Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site)

(b) Dissolved oxygen

See section II.b.(1)(g) (Dissolved Gas Levels)

(c) Toxic metals and organics

See section II.d (Contaminant Determinations)

(d) Pathogens

As discussed in Appendix A annex M of the EIS elevated fecal coliform densities is the fourth most commonly cited suspected cause of impairment for study area waterbodies. Because the proposed levee alignment would create a new hydrologic barrier along some reaches, the proposed project has the potential to induce changes to water circulation and water level patterns in the study area, despite the incorporation of gravity drainage structures and canals into the proposed alternative. These localized changes in water circulation and water level patterns may induce localized changes in the distribution of waterborne pathogens within the study area.

d. Contaminant Determinations.

General: As a screening-level assessment of contaminants in proposed dredged and fill material proposed for placement in the aquatic environment under the proposed projects, sediment chemistry data for proposed borrow areas was collected. Chemistry data was only available for the spillway (Mielke et al. 2001).

Comparison of available data (Table 8) to freshwater sediment benchmarks (NOAA 2008) suggests some low-level PAH and cadium contamination may be present in spillway sediments.

As stated earlier, Material borrowed from the spillway would be required to meet HSDRRS guidelines for levee grade material, which includes the specification that it should be free of hazardous and regulated solid wastes.

Mitigation: Dredged Material for the SWMP3, BLH1, and SWMP5 projects would be derived from isolated areas, which are presumed to be relatively un-impacted by human activities. Material is therefore expected to be relatively free of contaminants.

Table 8. Bonnet Carré Spillway Sediment Chemistry Data

Chemical Class	Parameter	N	Min	10%	25%	Median	75%	90%	Max	NOAA Sediment Screening Values for Freshwater Sediment *Predicted Toxicity Gradient: Increasing →* ARCS Hyalella TEL	TEL	TEC	LEL	PEL	PEC	SEL	UET
Metals	Lead	5	4,100	4,100	4,600	6,900	13,900	17,300	17,300	37,000	35,000	35,800	31,000	91,300	128,000	250,000	127,000 H
	Zinc	5	11,600	11,600	12,500	18,900	26,700	36,400	36,400	98,000	123,000	121,000	120,000	315,000	459,000	820,000	520,000 M
	Cadmium	5	300	300	1,000	1,400	1,600	2,000	2,000	583	596	990	600	3,530	4,980	10,000	3,000 I
	Manganese	5	54,000	54,000	110,000	147,000	254,000	291,000	291,000								
	Nickel	5	1,000	1,000	3,700	5,600	8,900	10,500	10,500	19,514	18,000	22,700	16,000	36,000	48,600	75,000	43,000 H
	Copper	5	1,300	1,300	2,100	4,500	13,200	14,500	14,500	28,012	35,700	31,600	16,000	197,000	149,000	110,000	86,000 I
	Chromium	5	400	400	700	1,100	1,600	1,700	1,700	36,286	37,300	43,400	26,000	90,000	111,000	110,000	95,000 H
	Vanadium	5	800	800	1,900	3,200	8,900	10,500	10,500								
PAHs	Naphthalene	5	-	-	-	9	33	46	46	14.7	34.6 c	176		391 c	561		600 I
	Acenaphthylene	5	-	-	-	-	1	5	5		5.87 c			128 c			
	Acenaphthene	5	-	-	-	-	1	6	6		6.71 c			88.9 c			290 M
	Fluorene	5	-	-	-	-	7	14	14	10.0	21.2 c	77.4	190	144 c	536	1,600	300 M
	Phenanthrene	5	27	27	33	36	52	72	72	18.7	41.9	204	560	515	1,170	9,500	800 I
	Anthracene	5	-	-	3	4	6	10	10	10.0	46.9 c	57.2	220	245 c	845	3,700	260 M
	Fluoranthene	5	12	12	28	54	57	65	65	31.5	111	423	750	2,355	2,230	10,200	1,500 M
	Pyrene	5	8	8	24	56	62	63	63								
	Benz(a)anthracene	5	-	-	-	41	44	48	48	15.7	31.7	108	320	385	1,050	14,800	500 I
	Chrysene	5	-	-	4	14	25	28	28	26.8	57.1	166	340	862	1,290	4,600	800 I
	Benzo(k)fluoranthene	5	-	-	-	52	70	108	108	27.2			240			13,400	13,400 B
	Benzo(j)fluoranthene	5	-	-	3	4	7	7	7								
	Benzo(a)pyrene	5	-	-	-	-	45	54	54	32.4	31.9	150	370	782	1,450	14,400	700 I
	Indeno(1,2,3-cd)pyrene	5	-	-	7	10	14	23	23	17.32			200			3,200	330 M
	Dibenz(a,h)anthracene	5	-	-	5	8	11	17	17	10.0	6.22 c	33.0	60.0	135 c		1,300	100 M
	Benzo(g,h,i)perylene	5	-	-	-	-	5	7	7				170			3,200	300 M

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton.

Levee / Nonstructural Features: Because of the presence of a forest canopy and floating vegetation (primarily salvinia and water hyacinth), a plankton community within the swamps is unlikely to be a significant resource. Therefore the placement of material would have little, if any, effect on plankton.

Mitigation: It is likely that a plankton community is present in the open water areas in the Bonnet Carré and Milton Island. The excavation and movement of material to construct the mitigation is likely to create sufficient turbidity in the vicinity of construction to adversely affect

(2) Effects on Benthos. *Levee / Nonstructural Features/ Mitigation:* Benthic organisms would be smothered by the placement of clay and dredged material at the sites and eliminate benthic habitats.

(3) Effects on Nekton. *Levee:* Some species of the nekton community would be temporarily displaced during construction operations. The levee footprint in the swamp and open water areas will remove foraging, breeding, spawning, and cover habitat for a variety of adult and juvenile fishes.

Structure: The levee and structures combination reduces the value of the wetlands enclosed by approximately 34%. This would have an indirect impact on nekton that uses those wetlands

Nonstructual Features: No effects.

Mitigation: Reestablishment of hydrologic connectivity to restored swamp would enable the utilization of numerous microenvironments by juvenile fishes.

(4) Effects on the Aquatic Food Web. *Levee/Non Structural:* The levee footprint would impact the aquatic food web. The levee would remove 1,112 acres of swamp and 123 acres of BLH.

Mitigation: At all mitigation sites aquatic food web would benefit from both short and long-term changes resulting from the wetland mitigation projects, including additions in energy to basal elements of the food web, habitat preservation, and increased habitat complexity. Nutrients and detritus provided by the connection to swamp habitats would be added to the existing food web. The proposed action would reestablish numerous microenvironments that would be utilized by invertebrates and juvenile fishes that serve as prey items for larger fauna.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. Two potentially active water bird rookeries exist within 1,000 feet of the selected levee alignments. Before construction surveys of the area would be conducted by the USFWS and CEMVN biologists to confirm whether the rookeries are active or not. If active, USFWS guidelines would be utilized during construction to avoid any impacts to the above described species, if encountered.

Levee: The levee will directly impact 204.6 acres and indirectly impact 241.2 aces of swamp habitat that is part of the Maurepas Swamp wildlife management area (WMA).

Nonstructual Features: No effects.
Mitigation: Approximately 1,027.8 acres of the planting at Blind River (SWMP2) site is on the WMA and will fully compensate for impacts to the WMA from the levee.

(b) Wetlands. *Levee/Non Structural:* The levee would remove 1,112 acres of swamp and 123 acres of BLH and enclose 8,432 acres of swamp and 89 acres of BLH.

Mitigation: The complete mitigation plan (Table 1) will fully compensate for the impacts to swamp and BLH due to this project.

(c) Mud Flats. Not applicable.

(d) Vegetated Shallows. *Levee:* Submerged aquatic vegetation occurs within the project area. The placement of clay material for levee construction will create unsuitable conditions for their continued vigor by: covering them up, changing water circulation patterns, releasing nutrients that increase undesirable algal populations, and increasing turbidity levels during construction, thereby reducing light penetration and hence photosynthesis.

Mitigation: The connection to swamp habitats would reestablish numerous microenvironments including some freshwater vegetated shallows.

(e) Coral Reefs. Not applicable.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. *Levee/Nonstructual/Mitigation*: Implementing the selected plan has been determined as not likely to adversely affect any of the listed species or their critical habitat.

(7) Other Wildlife. *Levee/Nonstructual/Mitigation*: There are active bald eagle nests in the area; however, based on information provided by USFWS, all nests are beyond 660 feet from the selected project alignments and therefore are not expected to be adversely affected. Two potentially active water bird rookeries exist within 1,000 feet of the selected alignments. Before construction surveys of the area would be conducted by the USFWS and CEMVN biologists to confirm whether the rookeries are active or not. If active, USFWS guidelines would be utilized during construction to avoid any impacts to the above described species, if encountered.

(8) Actions to Minimize Impacts. *Levee/Nonstructual/Mitigation*: Adverse impacts on benthic organisms are unavoidable. However, the loss of benthic habitat by the placement of excavated/dredged material on the swamp floor would be compensated by the wetland mitigation proposed for the project. Additional benthic habitat would be provided by the construction of conveyance channels. The levee alignment chosen minimized the direct impact to wetlands because it was shorter than the other action alternatives. The berms avoided impact to wetlands by being placed primarily on agricultural fields.

The plankton community of the project would be affected by increased concentrations of turbidity/suspended solids during construction. Best management practices, such as silt fencing

and hay bales, would minimize impacts. Turbidity/suspended solid concentrations would return to preconstruction activities following completion of the project.

Avoidance of activities in an area within 660 feet of the bald eagle nest, particularly during the nesting season, is expected to minimize disturbances.

To deter colonial nesting water birds from establishing active nesting colonies in the construction areas, a Nesting Prevention Plan would be developed during PED in coordination with the USFWS and LDWF. If measures to prevent nesting of colonial nesting bird populations are not successful in the area, construction-related activities that would occur within 1,000 feet of a colony could be restricted to the non-nesting period, which in this region generally extends from September 1 to February 15, depending on the species present. This restriction would likely pose significant problems to construction activity schedules. If wading bird nesting colonies become established in the area, the 1,000 foot buffer must be maintained unless coordination with the USFWS indicates that the buffer zone may be reduced based on the species present or an agreement is reached with USFWS that allows a modified process to be adopted.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination.

For the proposed hurricane protection project, because all fill material would be dewatered, and because there are no known contamination issues in the vicinity of proposed borrow areas for mitigation project, there does not appear to be a reason to believe that material placement activities will exceed water quality criteria outside of the proposed mixing zone.

(2) Determination of Compliance with Applicable Water Quality Standards.

There does not appear to be a reason to believe that material placement activities will exceed water quality criteria outside of the proposed mixing zone; therefore, based on best available information, direct impacts from construction of the proposed project are expected to be in compliance with applicable water quality standards. As discussed in earlier sections (in particular, subparts II.b.(1)(g) and II.b.(1)(h)) and in Appendix A annex M of the EIS, there is a potential for impacts to water circulation which could affect dissolved oxygen and nutrient levels within protected side surface waters.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and private water supply.

The nearest surface drinking water intakes to the study area are located on the Mississippi River, which is hydrologically isolated from the study area by the Mississippi River levees. The proposed projects are therefore not expected to affect area drinking water resources.

g. Determination of Cumulative Effects on the Aquatic Ecosystem The proposed project would impact 9,757 acres of wetlands (Table 9). The required mitigation components can be found in Table 1.

Table 9. Impact to wetlands						
Habitat	Direct Impacts		Indirect Impacts		Total Impacts	
	Acres	AAHU	Acres	AAHU	Acres	AAHU
Swamp	1,112	595	8,432	495	9,544	1,090
Bottomland Hardwood	124	96	89	3	213	99
Total	***1,236***	***691.1***	***8,521***	***497.6***	***9,757***	***1,189***

The Wetland Value Assessment models indicate that the total net gain in AAHU derived from the proposed mitigation features will be 1,189 AAHU, while the total net loss resulting from all habitat impacts would be 1,189 AAHU. This demonstrates that the mitigation plan should fully compensate for the lost functions/values due to constructing and operating the WSLP project. An adaptive management plan is part of the mitigation plan Appendix A Annex M of the EIS.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem . The formulation of project plans and designs, evaluation of alternative plans, and development of operational scenarios for the tentatively selected plan, have all been conducted with the objective of minimizing potential negative impacts to the aquatic ecosystem. Placement of material excavated for construction of project features was designed in the context best management practices to reduce impacts also mitigation for any loss of functions and values of wetlands are part of the plans.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge

a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation
No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impacts on the Aquatic Ecosystem No practicable alternatives to the proposed discharges could be identified that would have less adverse impacts on the aquatic ecosystem.

c. Compliance with Applicable State Water Quality Standards Compliance with State Water Quality Standards will be achieved upon receipt of a water quality determination letter from the Louisiana Department of Environmental Quality. Chemical constituents of the dredged material released during dredging and disposal operations are not expected to exceed Louisiana Water Quality Standards.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act Compliance with applicable Toxic effluent standards under Section 307 will be achieved.

e. Compliance with the Endangered Species Act of 1973 The proposed action would not significantly adversely affect endangered or threatened species or their critical habitats.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972 The proposed action is compliant with specified protection measures for marine sanctuaries designated by the Marine

Protection, Research, and Sanctuaries Act of 1972. All disposal sites and effects are in inland waters. No effects would occur in ocean waters beyond the shoreline of the Gulf of Mexico.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

(a) Municipal and Private Water Supplies. No effect on water supplies is expected.

(b) Recreational and Commercial Fisheries. No adverse effects on recreational and commercial fisheries are expected.

(c) Plankton. Plankton are expected to decrease in the immediate area of project construction operations due to increased turbidity. Adverse effects may linger for a period of time afterwards but would diminish as water clarity returns to preconstruction levels.

(d) Fish. The project will directly impact 1,112 acres of aquatic habitat. Fisheries are expected to shift and relocate outside the immediate area of project construction operations due to increased turbidity. Adverse effects may linger for a period of time afterwards but would diminish as water clarity returns to preconstruction levels. No adverse effects on fish populations are expected.

(e) Shellfish. No adverse effects on shellfish populations are expected.

(f) Wildlife. The project will directly impact 1,237 acres of wildlife habitat. The compensatory wetland mitigation will offset the impacts by providing wildlife habitat in the area. The levee will provide animals a place to escape high water events. No adverse effects on wildlife populations are expected.

(g) Special Aquatic Sites. No adverse effects on special aquatic sites. Mitigation is planned to compensate for impacts on the WMA, to wetlands, and vegetated shallows.

(2) Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems. There will be no significant adverse effects on life stages or other wildlife that is dependent on the aquatic ecosystem. The proposed action is expected to impact 1,112 acres of swamp habitats that provide an array of foraging, breeding, spawning, and cover habitat for a variety of adult and juvenile fishes, birds, mammals, and reptiles. The compensatory wetland mitigation would offset the impacts and provide habitat for juvenile fishes and invertebrates.

(3) Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity and Stability. The proposed action would enhance diversity by providing additional open water areas adjacent to the levee in certain areas. Those areas will provide shoreline edge for fish and wildlife resources. Productivity and stability of the aquatic ecosystems will decline during construction and equalize post construction. Mitigation will compensate for adverse effects.

(4) Significant Adverse Effects on Recreational, Aesthetic, and Economic Resources. No significant adverse effects on these resource is expected.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem. The formulation of project plans and designs, evaluation of alternative plans, and development of operational scenarios for the tentatively selected plan, have all been conducted with the objective of minimizing potential negative impacts to the aquatic ecosystem. Placement of material excavated for construction of project features was designed in the context best management practices to reduce impacts also mitigation for any loss of functions and values of wetlands are part of the plans.

i. On the Basis of the Guidelines, the Proposed Disposal Site(s) for the Discharge of Dredged Material (specify which) is or are (select one)

~~(1) Specified as complying with the requirements of these guidelines; or,~~

(2) Specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem; ~~or~~,

~~(3) Specified as failing to comply with the requirements of these guidelines.~~

IV. Evaluation Responsibility

a. Water Quality Input Prepared by: Eric Glisch

b. Project Description and Biological Input Prepared by: Mike Brown, Nathan Dayan

Review Responsibility

a. Water Quality Input reviewed by: David Ramirez

b. Project Description and Biological Input reviewed by: Sandra Stiles

May 5, 2014
Date

Joan M Exnicios
Joan M. Exnicios
Chief, Environmental Planning Branch

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WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex B

Louisiana Coastal Resources Program Consistency Determination

Throughout this Annex the term "nonstructural" is used to describe the following elements; berms, flap gates on the roadway, raising of homes and flood proofing of individual structures. In the main report these elements are identified as localized storm surge risk reduction measures in St. James Parish. There has been no change in the impact area of these element. The name has only changed for this portion of the final recommendation.

BOBBY JINDAL
GOVERNOR

STEPHEN CHUSTZ
SECRETARY

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF COASTAL MANAGEMENT

May 15, 2014

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

RE: **C20140059,** Coastal Zone Consistency
New Orleans District, Corps of Engineers
Direct Federal Action
West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction System Feasibility Study
St. Charles, St. John the Baptist, and St. James Parishes, Louisiana

Dear Ms. Exnicios:

The above referenced project has been reviewed for consistency with the Louisiana Coastal Resources Program in accordance with Section 307 (c) of the Coastal Zone Management Act of 1972, as amended. Although this Office has some reservations about the sustainability of the proposed mitigation features, the project, at the feasibility stage described in this application, is consistent with the LCRP.

The Office of Coastal Management looks forward to continued participation in the planning of this project, and further consistency review when the construction phase is reached. If you have any questions concerning this determination please contact Jeff Harris of the Consistency Section at (225) 342-7949.

Sincerely,

Don Haydel
Acting Administrator
Interagency Affairs/Field Services Division

DH/jdh

cc: Nathan Dayan, COE-NOD
Dave Butler, LDWF
Kirk Kilgen, OCM
Craig Leblanc, OCM

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

March 27, 2014

Regional Planning and
Environment Division South

Mr. Don Haydel
Acting Administrator
Louisiana Department of Natural Resources
Interagency Affairs, Compliance, and Field Services Division
P.O. Box 44487
Baton Rouge, LA 70804-4487

Dear Mr. Haydel:

The U.S. Army Corps of Engineers prepared a draft Environmental Impact Statement (DEIS) for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction study. The purpose of this study is to provide, consistent with Congressional authorizations, hurricane and storm damage risk reduction for St. Charles, St. John the Baptist and St. James Parishes that would be economically and environmentally justified. We request your concurrence with the enclosed Consistency Determination, which addresses the applicable Coastal Use Guidelines.

The recommended plan presents potential solutions to reduce damages from hurricane and tropical storm surge for 62,900 residents in St. Charles, St. John the Baptist and St. James Parishes. The proposed action addresses flooding caused by storm surge but does not address rainfall flooding. The tentatively selected risk reduction system for the WSLP study includes the construction of an 18.27-mile (96,481 ft) levee system around the communities of Montz, Laplace, Reserve and Garyville (Alternative C). It also includes the construction of nonstructural components in St. James Parish, including 3 polder berms and 146 flood control culverts under LA Highway 3125. The recommended structural and non-structural features, as well as the associated compensatory mitigation plan are considered constructible at their current level of design.

The structural features were located to minimize, to the maximum extent practicable, project-induced wetland impacts by locating project features parallel and adjacent to existing oil and gas pipeline rights-of-way to minimize segmentation of wetland areas and systems. However, if the proposed project were implemented, there would be a direct removal of 1,112 acres of swamp and 123 acres of BLH habitats. In addition to the direct removal of habitat with the constructed features, the project would enclose 8,432 acres of swamp and 455 acres of BLH.

These unavoidable impacts would be mitigated through the implementation of the mitigation plan, which proposes to offset 1,189 Average Annual Habitat Units (AAHU) that would be lost due to the implementation of the selected plan. Impacts to swamp habitat would account for approximately 1,089 of these AAHUs and impacts to BLH would account for the remaining 99 AAHUs. Seven mitigation plan components are proposed to compensate for these impacts. These include the mitigation of approximately 99 AAHUs of BLH and 121 AAHUs of swamp in the

Bonnet Carré Spillway, approximately 407 AAHUs of swamp at the Maurepas Crawfish Ponds Restoration site, approximately 339 AAHUs of swamp at the Blind River Swamp Restoration site, approximately 131 AAHUs of swamp at the Milton Island Swamp Restoration site, approximately 20 AAHUs of swamp at the Lutcher Polder Farmlands Swamp Restoration site, and the purchase of sufficient credits to offset 72 AAHUs of swamp mitigation credits from an approved mitigation bank in the Pontchartrain Basin.

Since project impacts were avoided and minimized to the maximum extent practicable, and a mitigation plan is proposed that would compensate for all unavoidable impacts to wetland resources, the proposed action is consistent with the Louisiana's Coastal Resources Program's Consistency Guidelines. Please review the enclosed documents and provide concurrence as soon as possible but within 45 days of the date of this letter. Please contact Daniel Sumerall at 601-631-5428 if questions arise.

Sincerely,

Sandra Stiles

for Joan M. Exnicios
Chief, Environmental Planning Branch

Updated LOUISIANA COASTAL RESOURCES PROGRAM CONSISTENCY DETERMINATION

WEST SHORE LAKE PONTCHARTRAIN HURRICANE AND STORM DAMAGE RISK REDUCTION FEASIBILITY STUDY

St. Charles, St. John the Baptist and St. James Parishes, Louisiana

1.0 INTRODUCTION

Section 307 of the Coastal Zone Management Act of 1972, 16 U.S.C. 1451 et. seq., requires that "each Federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with state approved management programs." In accordance with Section 307, the US Army Corps of Engineers (USACE), New Orleans District (CEMVN) has prepared this Consistency Determination the West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study. Coastal Use Guidelines were written to implement the policies and goals of the Louisiana Coastal Resources Program and to serve as a set of performance standards for evaluating projects. Compliance with the Louisiana Coastal Resources Program and, therefore, Section 307, requires compliance with applicable Coastal Use Guidelines.

2.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of this study is to provide, consistent with Congressional authorizations, hurricane and storm damage risk reduction for St. Charles, St. John the Baptist and St. James Parishes that would be economically and environmentally justified. The U.S. Congress recognized the need for a hurricane and storm damage risk reduction project in the area. Two Congressional resolutions authorize this study. The first was adopted on July 29, 1971 by the U.S. House of Representatives Committee on Public Works.

> *"RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE HOUSE OF REPRESENTATIVES, UNITED STATES, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Lake Pontchartrain and Vicinity, Louisiana, published as House Document No. 231, 89th Congress, First Session, and other pertinent reports, with a view to determining whether modifications to the recommendations contained therein are advisable at this time, with particular reference to providing additional levees for hurricane protection and flood control in St. John the Baptist Parish and that part of St. Charles Parish west of the Bonnet Carré Spillway."*

The U.S. Senate Committee on Public Works adopted a resolution on September 20, 1974.

> *"RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Lake Pontchartrain and Vicinity, Louisiana, published as House Document No. 231, 89th Congress, First Session, and other pertinent reports, with a view to determining whether modifications to the recommendations contained therein are advisable at this time, for hurricane protection and flood control in St. James Parish."*

The study was first funded in the 1980s. A 1985 Reconnaissance Report found that there was no justified structural plan suitable for Federal participation. A 1987 reconnaissance report

indicated that under Federal criteria a solution could not be found that would be economically justified or environmentally acceptable. Because of increasing population and economic activity, a 1997 reconnaissance report indicated that the study should proceed into feasibility phase. A Feasibility Cost Share Agreement was executed with the Pontchartrain Levee District (PLD) in 1998. The study stopped in 2002. Following Hurricane Katrina, renewed interest by the levee district led to an amended agreement in 2008. Planning for the project was underway when Hurricane Isaac hit in August 2012. President Obama traveled to Laplace, Louisiana after the storm to view the damage and visit with residents and local leaders (Figure 1-6). The President said, "We're getting on the case to figure out what happened here and what we can do to make sure it won't happen again." The USACE's post-Isaac damage assessment met the first part of the President's commitment. This project would help deliver the second part.

The proposed plan addresses flooding caused by storm surge but does not address rainfall flooding. There have been significant changes over the last 40 years, especially since Hurricane Katrina. Population has grown over the past few decades. Storm surge flooding damages homes, businesses and infrastructure. Surge travels from the Gulf of Mexico into the basin and floods the three study area parishes and beyond. Since 1855, 70 hurricanes have made landfall within 65 nautical miles of Laplace. Hurricanes Betsy (1965), Camille (1969), Juan (1985), Andrew (1992), Katrina and Rita (2005), Gustav and Ike (2008), and Isaac (2012) caused storm surge flooding. Hurricane Isaac's surge, measured from 6 to 8 feet in the area, threatened lives and damaged more than 7,000 homes, closed roads and disrupted the Nationally-significant energy industry. Businesses and workers serving the Port of South Louisiana are located in the area. The port is the largest volume port in the Western Hemisphere and the ninth largest in the world. It stretches 54 miles on the Mississippi River between New Orleans and Baton Rouge. Hurricane Isaac disrupted port logistics. Its storm surge blocked facility access closing the port. Oil refineries, including the Nation's third largest, were shut down. Gasoline production stopped. Regional and National fuel prices spiked. The storm caused extensive agricultural losses due to an inability to drain storm surge water from fields.

3.0 DESCRIPTION OF THE PROPOSED ACTION

The recommended plan includes the construction of an 18.27-mile levee system around the communities of Montz, Laplace, Reserve and Garyville. The plan also includes the construction of nonstructural components in St. James Parish. An overview of the entire risk reduction system is shown on figures 1, 2 and 3.

Levee System

The levee system would begin at the upper guide levee of the Bonnet Carre Spillway, north of an underground utility pipeline right of way and US-61. The levee would head northwest paralleling the pipeline right of way and pass under I-10. Past I-10 the levee would enclose the I-10 and I-55 interchange and cross US-51. It would then track north of I-10 and a pipeline transmission corridor. Past the Belle Terre/I-10 exit, the levee would pass back under I-10 and parallel the pipeline corridor through wetlands until it crosses Hope Canal. The levee would then turn south; cross the pipeline transmission corridor and then extend to the Mississippi River Levee System (MRL)

The levee system would reduce the risk of flooding for over 7,000 structures and four miles of I-10 located in the system. Inclusion of this segment of I-10 could allow for an earlier re-entry

Figure 1: Overview Map Including Mitigation Areas

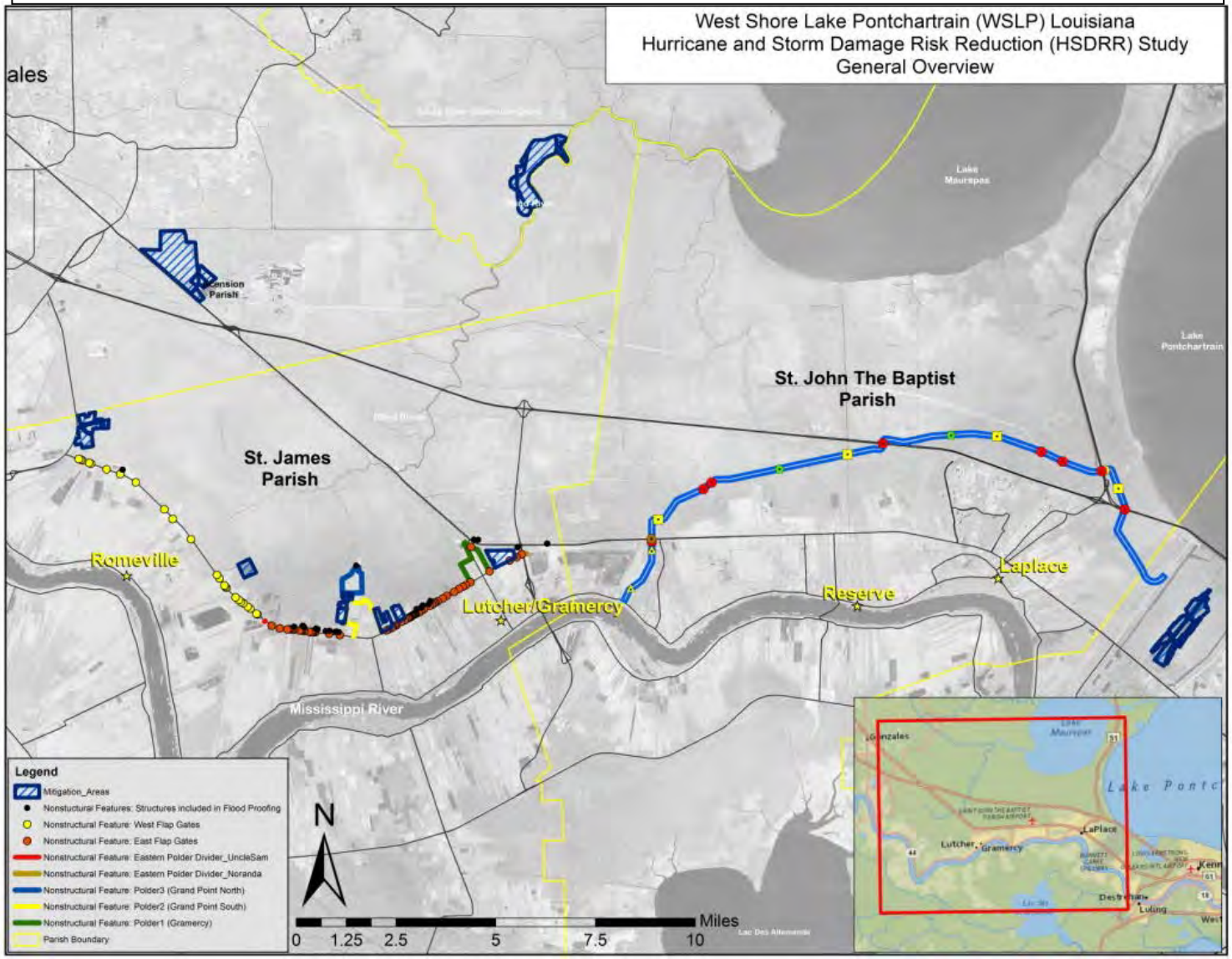


Figure 2: Structural Componet - Levee

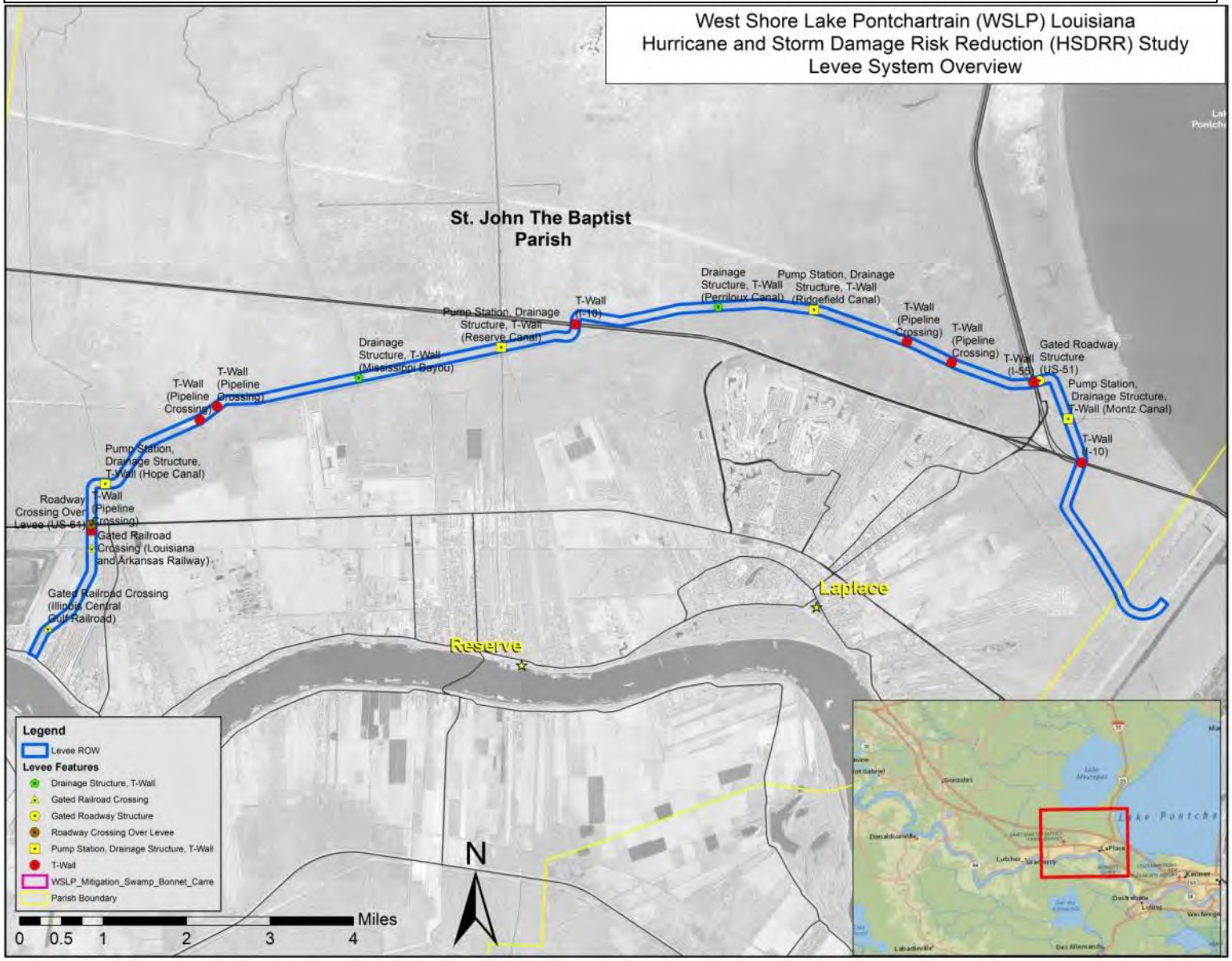
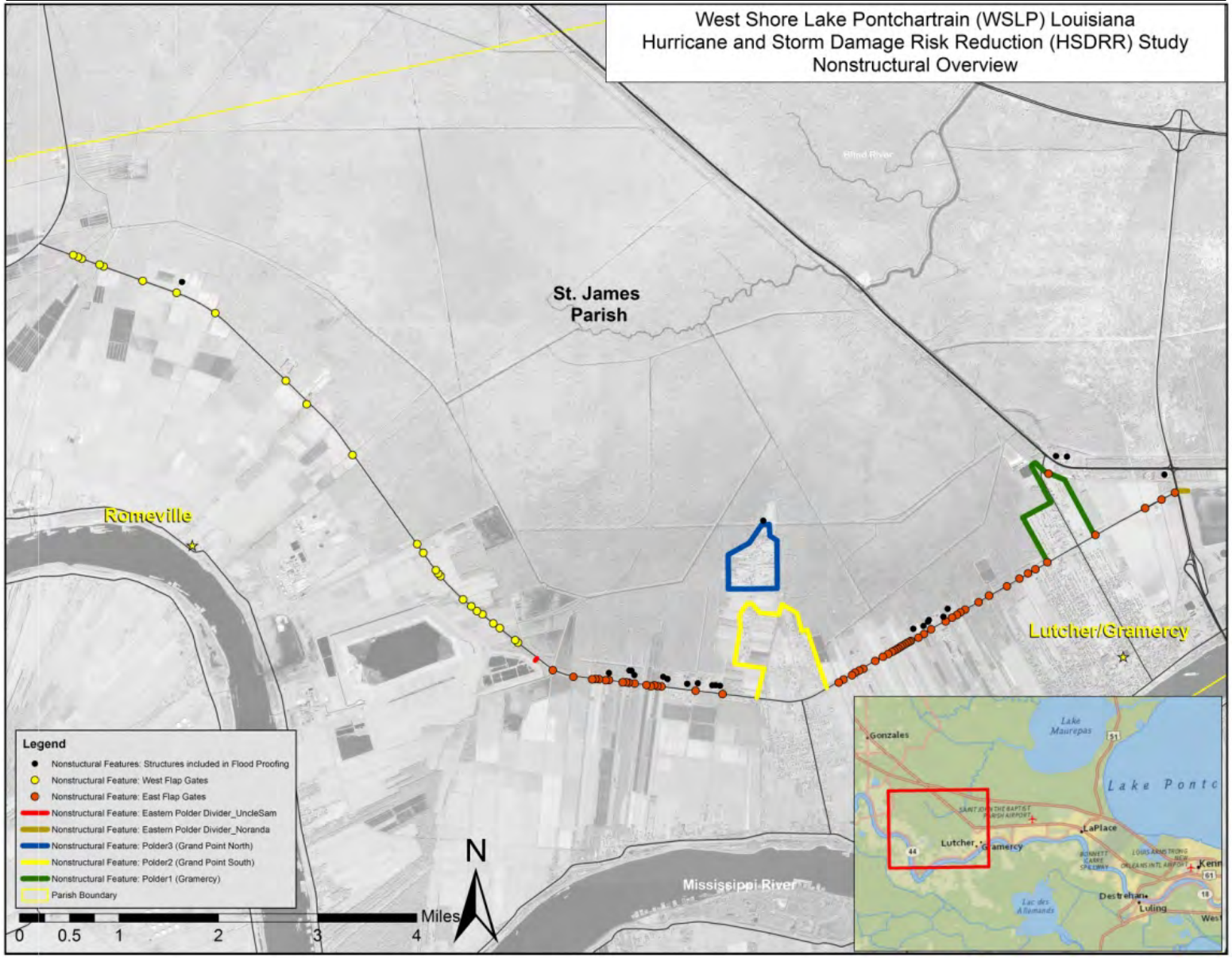


Figure 1: Non-Structural Componet



route for residents and emergency responders in southeast Louisiana, including residents in the New Orleans metropolitan area.

The construction of the structural component of the project, hereafter referred to as the “levee system”, would be based on a 1% probability storm level of risk reduction and a 2020 intermediate RSLR condition. In order to maintain the 1% probability storm level of risk reduction system over the period of evaluation (50 yrs) the levee system would include future levee lifts based on the 2070 intermediate RSLR conditions. For example, at the starting point of the upper guide levee of the Bonnet Carre Spillway the levee would be constructed to a top of levee elevation of 15 ft NAVD 88 in 2020. In the future, the levee at this point would be lifted to a final elevation of 19.5 ft NAVD 88 based on the 2070 intermediate RSLR conditions. This is the highest elevation point of the constructed levee system. The levee would start at this height and taper down to a final top levee elevation of 8.5 ft NAVD 88 near the MRL. The final 2070 top levee elevation near the MRL would be 16 ft NAVD 88.

The system would consist of earthen levees, floodwalls (T-Walls), floodgates, drainage canals, a flood-side ditch for hydraulic connectivity for wetlands north and south of the system, drainage structures and pump stations along the alignment, and mitigation measures (Figure 5-2). Structures through the levee would be built to the 2070 intermediate RSLR condition, to prevent costly future retrofits required for anticipated changing sea levels.

Starting at the upper guide levee of the Bonnet Carre Spillway and heading west along levee the project would construct a 646 linear foot (hereafter “LF”) T-Wall to pass under the existing I-10 overpass. Past this point, an 1100 c.f.s. pump station with three 68" outfalls would be built at Montz Canal, which is very near the I-55 northbound entrance ramp. The pump station, when the system is closed, would mainly remove rainwater flows from the Woodland, the River Forest, and the Prescott Canals. A 267 LF T-Wall and two 6' x 18' x 27' gated drainage structures would also be constructed at this location. This location and all locations with pump stations or drainage structures would be connected to a flood side ditch and a protected side canal that would parallel the entire levee length. The canals would be used to maintain the existing connection between swamps located inside and the swamps outside the levee system. The protected side canal would also serve as a redundancy connection if one of the pump stations failed during an event.

Past the Montz Canal, at the location of US-51, a 188 LF gated structure would be placed through the levee. Directly west of US-51, a 247 LF T-Wall would cross under I-55. The levee would continue to the west until the levee intercepts the first pipeline crossings near Vicknair Canal. Two sections of T-Walls would be used for these pipeline crossing, a 550 LF T-Wall, and a 623 LF T-Wall. Half of the 35 required pipeline relocations would be at these two locations. For purposes of this report, it is expected that all of the pipeline relocations would be compensable. Relocations are expected to take place in the proposed levee right of way (ROW) or existing pipeline ROW. Determination of the compensability of these relocations will be determined during the engineering and design phase of this project if it is authorized.

Continuing west, the levee would then cross Ridgefield Canal. Ridgefield Canal is located between the I-10 LADOT weigh station and the I-10/LA 3188 exit. A 200 c.f.s. pump station with three 30" outfalls would be built at Ridgefield Canal. The pump station, when the system is closed, would mainly remove rainfall flows from Laplace Plantation, Perriloux, Ridgefield, Tebo and Vicknair canals. A 244 LF T-Wall and with two 6' x 18' x 267' gated drainage structures would also be constructed at this location.

West of the Ridgefield Canal, a 100 LF floodgate would be constructed at the location of the Perriloux Canal to allow rainfall flows to flow through the levee when the system is not closed.

West of the I-10/LA 3188 exit, a 247 LF T-Wall would be constructed to cross back under I-10. The levee would continue to parallel the pipeline corridor through wetlands until it reaches Reserve canal. A 400 c.f.s. pump station with three 48" outfalls would be built at this location. The structure at this location would also include two 6' x 20' x 25' drainage structure with a boat bay and 335 LF of T-Walls. Small boats would still be able to pass through the drainage structure when the system is open.

Continuing west, the levee would then cross Mississippi Bayou. A 6' x 10' x 25' drainage structure with a 267 LF T-Wall would be constructed at this location.

The levee would then continue west toward Hope Canal, until it reaches the next major set of pipeline crossings. All of the remaining major pipeline relocations would be at this location. Two sections of T-Walls would be used for these pipeline crossing, a 400 LF T-Wall, and a 300 LF T-Wall. As with the other pipelines, for purposes of this report, it is expected that the pipeline relocations would be compensable. Relocations are expected to take place in the proposed levee ROW or existing pipeline ROW at this location. Determination of the compensability of these relocations will be determined during the engineering and design phase of this project if it is authorized.

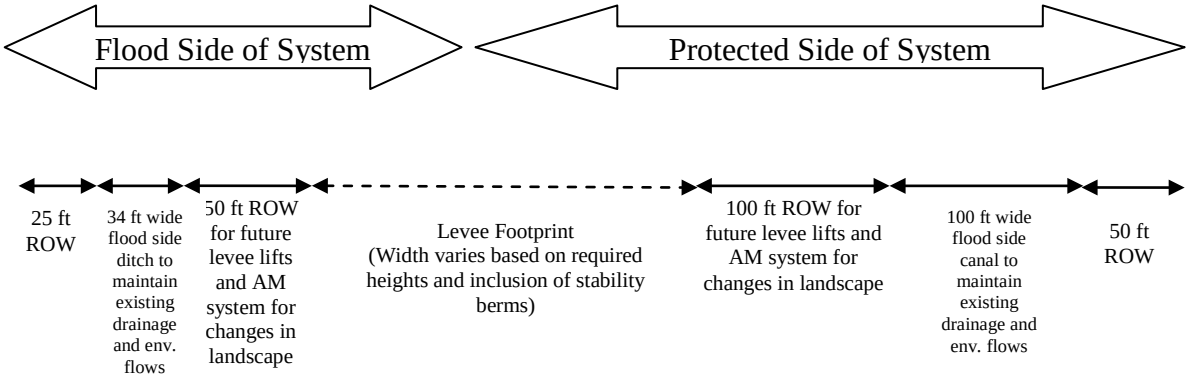
The levee would then continue west until it reaches Hope Canal. A 450 c.f.s pump station with three 54" outfalls would be constructed at this location. Currently the design and cost includes a 6' x 20' x 25' drainage structure and a 247 LF T-Wall, but the Hope Canal location is also the same location of the State of Louisiana's proposed Mississippi Reintroduction into Maurepas Swamp diversion. The WSLP project has been coordinating activities between the project development teams, but for the purposes of the WSLP feasibility design, we do not consider the diversion project as a future landscape feature, since the State has not identified funding and has filed an incomplete permit application to the USACE for construction of the project. The USACE would continue to monitor the status of the diversion project. The team expects that if the diversion project moves forward it would be constructed on the flood side of the levee and would parallel the levee from Hope Canal to the MRL.

When the levee turns south, past Hope Canal to tie into the MRL, the levee would cross US-61, a pipeline ROW, and two railroad tracks. US-61 would be raised to hump over the levee at the crossing point. The pipeline crossing would include a 301 LF T-Wall, while the two railroad crossings would include a 150 LF gate structure and a 50 LF gate structure.

In all, there would be a total of 5,001 LF of T-Walls, 4 pump stations with associated drainage structures, 2 drainage structures, one gated road crossing, and 2 gated railroad crossings.

4.69 miles of the upper guide levee of the Bonnet Carre Spillway from the spillway control structure to the WSLP tie-in point would be included in the WSLP levee system, but there would be no construction activities associated with this Bonnet Carre levee. Existing levee heights are high enough to prevent 1% probability storm surge from entering the WSLP system during storms. The construction of the WSLP tie-in point would be to set to elevation of 15 ft NAVD 88 while the current upper guide levee elevation is 15.5 ft NAVD 88. The upper guide levee heights in the future would be monitored to determine if sections of the Bonnet Carre Spillway levee would need future lifts to prevent overtopping of storm surges into the WSLP system.

All levee right of ways would have the following typical dimensions:



The 50 ft and 100 ft right of ways adjacent to the levee footprints would be used for future levee lifts. The levee would be lifted five times overthe period of evaluation.. The first two lifts would be used to obtain a 1% probability storm level of risk reduction system in 2020. Additional levee lifts to maintain a 1% probability storm level of risk reduction system would take place in years 2030, 2045, and in 2060.

9,000,000 million cubic yards (cy) of compacted fill and un-compacted fill would be required to create and maintain the levee over the period of evaluation. A portion of the initial fill material, if suitable, would be obtained from the canals and ditch, approximately 1,678,000 cy. Borings indicate that the top 4 ft of the cross section of these features would not be suitable as levee fill material. The top 4 ft of material; approximately 1,685,000 cy, would be used beneficially at mitigation plan sites, or disposed appropriately by the contractor. The remaining fill for the levee, approximately 7,322,000 cy, would be obtained from the Bonnet Carre Spillway.

The levee footprint would vary based on the designed cross section and required top of levee heights by each levee section. The top of the levee would have a 10’ wide crown and the protected side of the levee system would be based on a 1:3 side slope, with some reaches including a geotechnical stability berm. 3,400,000 square yards of geotextile fabric would be placed under the levee footprint and approximately 80,000 cubic yards of aggregate limestone would be used to build a road on the levee crown.

The total levee construction ROW would be 1,235 acres. RE agreements would be acquired on all features. A perpetual flood protection levee easement would be acquired for the 669 acres of the levee and floodwall features. A perpetual underground piling easement would be acquired for the 33 acres of the T-Walls. For the two canals, a 519 acres perpetual drainage ditch easement would be acquired. The remaining features the 4 pump stations; 9 acres and the 3 gated crossing; 5 acres would be acquired based on fee, excluding minerals. In addition to the permanent easements, 49 acres of temporary access easements and 12 acres of temporary work area easements would be acquired. These temporary access and work access areas would be on existing roadways or developed areas of the project area and would not be in environmentally sensitive areas.

All of the impacts from the constructed features would be to either swamp habitats or BLH. There would be a direct removal of 1,112 acres of swamp habitats and 123 acres of BLH habitats. Using a wetland value assessment under the intermediate sea level scenario the project would be required to mitigate for a direct loss of 595.3 average annual habitats units (AAHUs) of swamp and 95.5 AAHUs of BLH. In addition to the direct removal of acres of habitat due to construction, the project would enclose 8,432 acres of swamp and 89 acres of BLH.

Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same regardless of the actual rate of RSLR as closure of the system is tied to tropical storm events and the elevation trigger would be adjusted as sea level rises. The risk reduction system is only authorized to address storm surge caused by hurricane and tropical storm events. It is not authorized to mitigate for or reduce impacts caused by higher day-to-day water levels brought about by increases in sea level rise. Any operational changes implemented to address changing SLR conditions or for any other non-project-related purpose would be considered a separate project purpose requiring separate authorization, new NEPA documentation, and/or permit approvals.

The levee is designed to maintain hydrologic connectivity to the extent practicable. In order to minimize a reduction in efficiency of drainage affecting water quality and increased impoundment on the protected side of the system, the levee design includes drainage structures and canals located on both the flood side and protected side of the levee. In order to mitigate for any impacts caused by the potential delay in water movement, the team developed a WVA that accounts for delays in water movement. Because 366 acres of the total 455 acres of enclosed BLH is already impacted by existing roadways and railroad tracks, the BLH indirect impacts were calculated to total 89 acres. Using a WVA under the intermediate RSLR scenario, the project would have to mitigate for the indirect loss of 494.5 AAHUs of swamp and 3.1 AAHUs of BLH. The project would also be required to mitigate for a direct loss of 595.3 AAHUs of swamp and 95.5 AAHUs of BLH. The total required mitigation for both the direct and indirect impacts from the construction of the risk reduction levee system is 1,188.03 AAHUs.

Nonstructural System

The recommended plan includes nonstructural measures for structures in the communities of Gramercy, Lutcher and Grand Point which are located outside of the proposed levee system (Figure 5-2). See Chapter 3 for information concerning plan formulation. The nonstructural measures include nonstructural berms, and flapgates on existing drainage and roadway features. Flood proofing measures (e.g. raising of structures) are limited to a few structures located outside of the larger nonstructural measures. All of the measures focused on providing a risk reduction above the 1% AEP storm stages in 2020. NFS will be required to maintain the non-structural features to their initial design height for so long as the project remains authorized Future level of risk reduction is dependent on the rate of sea level rise.

Gramercy Area

In the Gramercy area, north of Hwy 3125, a 10,100 LF nonstructural berm would be built to provide risk reduction to 275 structures, herein referred to as "**Polder 1 (Gramercy Berm)**." The berm would be constructed to a +6.5' NAVD 88 elevation. The berm in 2020 would provide risk reduction above the 1% AEP storm stages. Storm stages in St. James Parish are below +6.5'

NAVD 88 elevation in 2020. As discussed in Chapter 3, in the future, the berm's effectiveness depends on the RSLR. .

The berm would parallel both sides of HWY 20, and parallel the railroad track along US-61 (Airline Highway). On the south, the berm would tie into Hwy 3125 to close off the system. Hwy 3125 is key feature for all of the nonstructural features. The entire roadway is above a 6.5 ' NAVD 88 elevation and will be used as a tie in point for the berm. The design of the berm is based on with a 4' wide crown and 3:1 side slopes. Using local LIDAR data it was assumed that the existing ground elevation under the berm would be at an elevation of approximately 4.3 ft NAVDD88. Using this assumption, the proposed berm would have an average height of 2.2 ft with an average width of 18 ft, and require 237,000 cy of compacted fill for construction. The berm would also include two floodgates to allow existing drainage to flow through the berm when not under surge events. A pump system to operate and remove rainwaters during tropical/hurricane storm events will be included in the features. The pump system will be approximately 217 cfs. The berm would be placed in a location so as not to interfere with existing local drainage.

In reviewing, the berm footprint there is a risk of affecting approximately 0.29 acres of forested wetlands. Attempts would be made to avoid these areas during construction. Due to the current uncertainty in avoiding these areas, we have included cost for mitigating for these forested wetlands in the total construction cost.

Grand Point Area

In the Grand Point area, north of Hwy 3125, the recommended plan includes two nonstructural berms, "**Polder2 (Grand Point South)**" and "**Polder3 (Grand Point North**)".

Polder2 (Grand Point South) would reduce risk for 190 structures. The berm would be 14,488 LF, and would include a 4' wide crown and 3:1 side slopes. Similar to the Gramercy berm, it would tie into HWY 3125 and be constructed to a 6.5' NAVD 88 elevation. Initially, in 2020 the berm would provide risk reduction above the 1% AEP storm stages. Storm stages St. James Parish are below a 6.5' NAVD 88 elevation in 2020. Future level of risk reduction is dependent on the rate of sea level rise.

Using LIDAR data it was assumed that the existing ground elevation under the berm would be approximately 4.5' NAVD 88. Using this assumption the proposed berm would have an average height of 2 ft with an average width of 16 ft, and require 273,900 cy of compacted fill for construction. The berm would also include one floodgate to allow existing drainage to flow through the berm when not under surge events. A pump system to operate and remove rain waters during tropical/hurricane storm events will be included in the features. The pump system will be approximately 382 cfs. The berm would be placed in a location so as not to interfere with existing local drainage. The berm would also be placed very near the edge of the property owners' parcels where feasible. This would minimize the loss of use of any property.

Polder3 (Grand Point North) would provide risk reduction to 71 structures. The berm would be a complete ring around the structures in the northern portion of Grand Point, near the Grandpoint Boat Lunch. The berm would be 10,400 LF, and would include a 4' wide crown and 3:1 side slopes. The berm would be constructed to a 6.5 ' NAVD 88 elevation. Initially, in 2020 the berm would provide risk reduction above the 1% AEP storm stages. Storm stages St. James Parish are below a 6.5' NAVD 88 elevation in 2020. Future level of risk reduction is dependent on the rate of sea level rise.

Using local LIDAR data it was assumed that the existing ground elevation under the berm would be approximately 4‘ NAVD 88. Using this assumption, the proposed berm would have an average height of 2.5 ft with an average width of 20 ft, and require 286,800 cy of compacted fill for construction. The berm would also include one floodgate to allow existing drainage to flow through the berm when not under surge events. A pump system to operate and remove rain waters during tropical/hurricane storm events will be included in the features. The pump system will be approximately 140 cfs. The berm would be placed in a location so as not to interfere with existing local drainage. The berm would also be placed very near the edge of the property owners’ parcels where feasible. This would minimize the loss of use of any property.

In reviewing, the berm footprint there is a risk of affecting approximately 0.81 acres of forested wetlands. Attempts would be made to avoid these areas during construction. Due to the current uncertainty in avoiding these areas, we have included cost for mitigating for these forested wetlands in the total construction cost.

Flood Risk Reduction Under LA Highway 3125

In addition to the nonstructural berms north of Hwy 3125, the recommended plan is to use 13 miles of Hwy 3125 and its existing foundation as nonstructural feature. Currently the roadway elevation is above a 6.5' NAVD 88 elevation. Currently, the 1% AEP storm stages in 2020 flow through the culverts under the roadway in the opposite direction from natural drainage. By closing off the culverts with one-way flap gates and a drainage canal with a floodgate during surge events, the plan would provide risk reduction to 19,500 acres and 4,295 structures south of Hwy 3125. Although there are a limited number of structures that are impacted by the 1% AEP storm surge stages, this closure reduce the risk of a large portion of the parish’s critical sugarcane crops from flooding from this type of storm surge event. If the parish in the future makes improvements to Hwy 3125, any additional height added to the entire highway would add to the structures risk reduction level behind the hwy. Due to the fact that the roadway is being used as flood risk reduction feature the local sponsor will be required to maintain the system’s initial level of risk reduction. This includes the berm tie in points to the roadway and 13 miles of the roadway. If the roadway requires maintenance and would be degraded below its original elevation, the work should take place outside of hurricane season. If it is not possible to workout side of hurricane season, interim flood risk measures should be set up to maintain the original level of risk reduction provided by the roadway.

The recommended plan includes 145 flap gated closures, two floodgates and two small berms (Noranda and Uncle Sam). The Noranda berm ties the highway into high ground east of Gramercy. The Uncle Sam berm divides the developed area behind Hwy 3125 from an area that is primarily agricultural land. By dividing these two areas, the local community can focus its reduction effort in the future. Future improvements could be focused on sections of the hwy that have structures behind the hwy, approximately 7 miles vs. 13 miles. The area west of the Uncle Sam berm includes an area of 8,175 acres, but only includes one structure that is has a first floor elevation below the 1% the AEP storm stages. The total length of the berms is approximately 645 LF.

Due to the nature of the flooding south of Hwy 3125, it is assumed that the 19,500 acres would have ample storage capacity to hold any rainfall during the surge events. Even if some acres of crops are flooded from rainfall it would be much less than if the surge was allowed to flow under Hwy 3125.

Remaining Structures in St. James Parish

The recommended plan addresses the flooding of structures located outside of the polders north of Hwy 3125. Eighty structures would be outside of the nonstructural berms. Only 23 of the 80 structures have a first floor elevation less than the 1% AEP storm stages in 2020. Based on this evaluation the recommended plan includes 14 residential structures that would be raised to the stage associated with the 2070 1% (100-year) AEP event; 4 non-residential structures would be flood proofed to 3 feet above the ground elevation; and smaller nonstructural berms would be constructed for 5 light industrial/warehouse facilities. The 14 residential structures are being raised to the 2070 height because it is more cost effective to raise a home once.

Mitigation Plan

The objective of the mitigation plan is to restore swamp and bottomland hardwood habitat to fully compensate for unavoidable project-induced impacts. WVA models were run on the recommended WSLP levee and non-structural footprints to determine the functions and values of the impacted habitats, expressed in Average Annual Habitat Units (AAHU). The models predict that approximately 1,189 AAHUs would be lost due to direct and indirect habitat impacts over the 50-year period of analysis. See Mitigation Plan for Details.

Table K-1. Wetland habitat impacts.

Habitat	Direct Impacts		Indirect Impacts		Total Impacts[1]	
	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs
Swamp[2]	1,112	595	8,432	495	9,544	1,090
Bottomland Hardwood	124	96	89	3	213	99
Total	***1,236***	***691.1***	***8,521***	***497.6***	***9757***	***1,189***

Six mitigation plan components will provide the required compensation for habitat impacts.

The first feature mitigates for BLH impacts through the construction of a project that creates BLH in the Bonnet Carré Spillway.[3]Further information about the mitigation measures that are being proposed to offset the unavoidable project-induced impacts from the WSLP project are provided in the attached draft mitigation plan (Attachment 1).

- **Five components collectively compensate for Project swamp impacts. The components are:**
  - **Purchasing credits from a swamp mitigation bank (available at this time High Point Phase 1, Timberton Phase 2 and 3)**
  - **Blind River Diversion Canal Swamp Restoration[4]**

[1] Figures are rounded up.
[2] Includes 1.1 acres of impacts from non-structural features.
[3] This plan was developed as an alternative considered in the Lake Pontchartrain and Vicinity Hurricane and Storm Damage Risk Reduction System, Programmatic Individual Environmental Report for mitigation. This alternative was not recommended. U.S. Army Corps of Engineers, 2013. Programmatic Individual Environmental Report #36 for Lake Pontchartrain and Vicinity - Mitigation. See Appendix K. Bonnet Carre BLH-WET Restoration Project.
[4] This plan was originally developed as part of a Louisiana Coastal Area project called the Amite River Diversion Canal Hydrologic Modification. It entailed cutting gaps in a spoil bank and railroad embankment, dredging conveyance channels and planting vegetation. The project was not recommended in the LCA plan. A portion of the plan is being developed by Livingston Parish under the Coastal Impact Assistance Program. The tree plantings

- **Bonnet Carré Swamp Restoration**[5]
- **Maurepas Crawfish Ponds Swamp Restoration**
- **Lutcher Polder Farmlands Swamp Restoration**

Table K-2 lists the mitigation plan components, the acreage of each component, and the net gain in AAHUs from each component over a 50-year period of analysis.

Table K-2. Mitigation plan components.

Mitigation Project ID*	Proposed Components	Acres	Net Gain AAHUs[6]
BLH1	Bonnet Carré Bottomland Hardwood Restoration	156	99
SWMP1	Swamp Mitigation Bank Credit Purchase	n/a	72
SWMP2	Blind River Swamp Restoration	1,040	339
SWMP3	Bonnet Carré Swamp Restoration	310	121
SWMP4	Maurepas Crawfish Ponds Restoration	1,161	407
SWMP6	Lutcher Polder Farmlands Swamp Restoration	348	151
TOTAL		3,015	1,189

**SWMP5 (Milton Island Swamp Restoration) was removed from the plan, the 131 AAHUs from that site will be accomplished by expanding the acres at SWMP6.*

WVA modeling indicates that the total net gain from the proposed mitigation plan will be 1,189 AAHUs, while the total net loss resulting from all Project habitat impacts is 1,189 AAHUs. This indicates that the mitigation plan would fully compensate for the lost functions/values due to constructing and operating the Project.

4.0 GUIDELINES

GUIDELINES APPLICABLE TO ALL USES

Response: Guidelines 1.1-1.6 and 1.8-1.10 have been read in their entirety and are acknowledged. They have been addressed through the preparation of responses to the guidelines contained within the specific use categories.

Guideline 1.7 It is the policy of the coastal resources program to avoid the following adverse impacts. To this end, all uses and activities shall be planned, sited, designed, constructed, operated and maintained to avoid to the maximum extent practicable significant:

a) reductions in the natural supply of sediment and nutrients to the coastal system by alterations of freshwater flow.

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feature has been expanded to use as a mitigation project. Depending on the final CIAP project, some additional features may be developed during preconstruction engineering and design for the West Shore mitigation plan.

[5] This plan is as an alternative considered in the Lake Pontchartrain and Vicinity Hurricane and Storm Damage Risk Reduction System, Programmatic Individual Environmental Report for mitigation. The alternative was not recommended but is currently a backup measure to that project. See U.S. Army Corps of Engineers, 2013. Programmatic Individual Environmental Report #36 for Lake Pontchartrain and Vicinity. Appendix L. Bonnet Carré Swamp Restoration: Mitigation for LPV HSDRRS General Swamp Impacts.

[6] Required acre and AAHU amounts are rounded up.

b) adverse economic impacts on the locality of the use and affected governmental bodies.

c) detrimental discharges of inorganic nutrient compounds into coastal waters.

d) alterations in the natural concentration of oxygen in coastal waters.

e) destruction or adverse alterations of streams, wetland, tidal passes, inshore waters and waterbottoms, beaches, dunes, barrier islands, and other natural biologically valuable areas or protective coastal features.

f) adverse disruption of existing social patterns.

g) alterations of the natural temperature regime of coastal waters.

h) detrimental changes in existing salinity regimes.

i) detrimental changes in littoral and sediment transport processes.

j) adverse effects of cumulative impacts.

k) detrimental discharges of suspended solids into coastal waters, including turbidity resulting from dredging.

l) reductions or blockage of water flow or natural circulation patterns within or into an estuarine system or a wetland forest.

m) discharges of pathogens or toxic substances into coastal waters.

n) adverse alteration or destruction of archaeological, historical, or other cultural resources.

o) fostering of detrimental secondary impacts in undisturbed or biologically highly productive wetland areas.

p) adverse alteration or destruction of unique or valuable habitats, critical habitat for endangered species, important wildlife or fishery breeding or nursery areas, designated wildlife management or sanctuary areas, or forestlands.

q) adverse alteration or destruction of public parks, shoreline access points, public works, designated recreation areas, scenic rivers, or other areas of public use and concern.

r) adverse disruptions of coastal wildlife and fishery migratory patterns.

s) land loss, erosion and subsidence.

t) increases in the potential for flood, hurricane or other storm damage, or increases in the likelihood that damage will occur from such hazards.

u) reductions in the long-term biological productivity of the coastal ecosystem.

Response: This guideline has been read in its entirety. The proposed project would result in unavoidable adverse impacts to wetlands and would slightly alter current freshwater flows. However, various steps were taken to avoid and minimize these adverse impacts. Further, a mitigation plan is developed that would fully offset these unavoidable impacts. Detailed

discussion of these measures can be found in responses to various guidelines throughout this evaluation.

GUIDELINES FOR LEVEES

Guideline 2.1 The leveeing of unmodified or biologically productive wetlands shall be avoided to the maximum extent practicable.
Response: This guideline has been read in its entirety. The proposed hurricane and storm damage risk reduction system avoided to the maximum extent practicable unmodified and biologically productive wetlands through the following steps: 1) Avoiding-- the Project Delivery Team (PDT) avoided potential impacts to wetlands by designing levee alignments and non-structural berm alignments which followed existing pipeline and utility rights of way to avoid segmentation of wetland areas; developed non-structural measures such as storm damage-proofing, structure raising, acquisitions of structures, and relocation of structures. 2) Minimizing: the PDT screened out measures and alignments that could cause potential adverse impacts but had no additional storm damage risk reduction benefits (e.g., alignments along Lakes Pontchartrain and Maurepas). 3) Rectifying: the PDT developed measures for rectifying adverse impacts of restricting tidal exchange (e.g., culverts under the levee which would provide tidal exchange). 4) Reducing: the PDT developed the levee and non-structural systems to simulate the existing hydrologic connectivity. Pumps are included in the system and would only be operated during the approximately 1.7 storm events per year and would be closed for only approximately 8.5 days per year. Consequently, hydrologic connectivity would be generally maintained with the surrounding swamps and Lakes Maurepas and Pontchartrain, except during the closing of the system for storm events. 5) Providing non-structural risk reduction in the St. James Parish area.

- Alternative D has the greatest habitat impacts (approximately 2,080 AAHUs more than Alternative C), highest mitigation costs, the lowest BC ratio, and lowest net benefits.
- Alternatives A and C are comparable in total impacts. Alternative C has fewer direct impacts, while Alternative A has fewer indirect impacts. Alternative A has a total impact of approximately 151 AAHUs less than Alternative C.
- Both Alternative A and C are considered environmentally acceptable alternatives, and provide benefits to the same number of structures.
- Alternative C has the lowest total cost (including mitigation), the highest BC ratio, and highest net benefits.

Although the PDT attempted to avoid and minimize impacts to wetland habitats, the proposed project would result in the direct removal of approximately 1,112 acres of swamp and approximately 124 acres of bottom-land hardwood habitats (BLH). Additionally, the project would enclose an additional 8,432 acres of swamp and 89 acres of BLH. Total direct and indirect impacts that would result from the implementation of the proposed project are expected to be approximately 1,189 average annual habitat units (AAHUs). These unavoidable impacts would be mitigated through the implementation of the attached mitigation plan. Since project impacts were avoided and minimized to the maximum extent practicable, and a mitigation plan is proposed that would compensate for all unavoidable impacts to wetland resources, the proposed plan is consistent with this guideline.

Guideline 2.2 Levees shall be planned and sited to avoid segmentation of wetland areas and systems to the maximum extent practicable.
Response: This guideline has been read in its entirety. The majority of the proposed levee alignment was developed and located parallel and adjacent to existing oil and gas pipeline rights-of-way to minimize segmentation of wetland areas and systems. Existing wetlands in the area are presently segmented and disrupted by the Interstate 10 (constructed in mid 1970s), as

well as numerous oil and gas pipeline corridors and associated access roads; state and local highways (e.g., US 61--Airline Highway, Hwy 641); Reserve Relief Canal and other drainage canals; numerous remnant logging railroad grades, canals and embankments; and undesignated and unimproved gravel and dirt roads and trails throughout the Maurepas swamp. These measures are consistent with this guideline.

Guideline 2.3 Levees constructed for the purpose of developing or otherwise changing the use of a wetland area shall be avoided to the maximum extent practicable.
Response: This guideline has been read in its entirety. The proposed levee system was not designed to enclose and develop existing wetlands. Rather, the proposed plan is to provide risk reduction to hurricane and storm surges. In addition, the structural and non-structural systems are designed to minimize restrictions to tidal exchange through the inclusion of 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. These features allow the includes wetlands to remain in their existing Jursdictional state. These measures are consistent with this guideline.

Guideline 2.4 Hurricane and flood protection levees shall be located at the non-wetland/wetland interface or landward to the maximum extent practicable.
Response: This guideline has been read in its entirety. The structural features were located to minimize to the extent practicable project-induced wetland impacts by locating project features parallel and adjacent to existing oil and gas pipeline rights-of-way to minimize segmentation of wetland areas and systems.

Guideline 2.5 Impoundment levees shall only be constructed in wetland areas as part of approved water or marsh management projects or to prevent release of pollutants.
Response: This guideline has been read in its entirety. The proposed levee system was designed and would be constructed for hurricane and storm damage risk reduction. The purpose of the proposed project is to provide increase storm surge protection for the the communities of Montz, Laplace, Reserve and Garyville. Therefore, the proposed project is consistent with this guideline.

Guideline 2.6 Hurricane or flood protection levee systems shall be designed, built and thereafter operated and maintained utilizing best practical techniques to minimize disruptions of existing hydrologic patterns, and the interchange of water, beneficial nutrients and aquatic organisms between enclosed wetlands and those outside the levee system.
Response: This guideline has been read in its entirety. The proposed hurricane and storm damage risk reduction system was designed and would be constructed and maintained utilizing the best management practices (BMPs) to minimize disruption of existing hydrologic patterns and the interchange of water, beneficial nutrients and aquatic organisms between the enclosed wetlands and those outside the risk reduction system. In addition, the structural and non-structural systems are designed to promote hydraulic exchange with 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. Therefore, the proposed project is consistent with this guideline.

GUIDELINES FOR LINEAR FACILITIES

Guideline 3.1 Linear use alignments shall be planned to avoid adverse impacts on areas of high biological productivity or irreplaceable resource areas.
Response: This guideline has been read in its entirety. The structural and non-structural components of the Proposed Plan (levee,floodwalls, and berms) was planned to avoid, minimize

and reduce potential adverse impacts to significant resources including areas of high biological productivity and irreplaceable resource areas. The structural features of the WSLP were located to minimize to the extent practicable project-induced wetland impacts by locating project features parallel and adjacent to existing oil and gas pipeline rights-of-way (ROWs) to minimize segmentation of wetland areas and systems. Non-structural measures would have little, if any, significant effects on areas of high biological productivity or irreplaceable resource areas. Unavoidable project-related impacts to areas of high biological productivity would be mitigated through the implementation of the attached mitigation plan. Therefore, the proposed project is consistent with this guideline.

Guideline 3.2 Linear facilities involving the use of dredging or filling shall be avoided in wetland and estuarine areas to the maximum extent practicable.
Response: This guideline has been read in its entirety. Approximately 519 acres would be dredged to create two drainage canals, with one canal occurring on either side of the levee. To the maximum extent practicable, the footprint of these drainage canals would be placed within existing pipeline ROWs to minimize impacts to wetland communities. The material from these canals will be use beneficially either in the levee footprint or as part of the Bonnet Carre mitigation site. Unavoidable project-related impacts to wetland areas would be mitigated through the implementation of the attached mitigation plan. Therefore, the proposed project is consistent with this guideline.

Guideline 3.3 Linear facilities involving dredging shall be of the minimum practical size and length.
Response: This guideline has been read in its entirety. A total of 96,481 linear feet would be dredged along both sides of the proposed levee alignment to provide sufficient drainage and to enhance wetland connectivity. The floodside drainage ditch would be approximately 34 feet wide, while the ditch on the protected side of the proposed levee alignment would be approximately 100 feet wide. Numerous culverts and gated crossings would be featured in the proposed alignment to provide maximum hydrologic exchange and reduce delays in tidal flows. The proposed project is consistent with this guideline.

Guideline 3.4 To the maximum extent practicable, pipelines shall be installed through the "push ditch" method and the ditch backfilled.
Response: This guideline has been read in its entirety. Approximately 35 pipeline and utility relocations are expected to occur as a result of the implementation of the proposed plan. To the maximum extent practicable, these relocations would occur within the proposed levee ROW to minimize additional impacts to wetlands and environmentally sensitive areas. This proposed action would not directly include the construction pipelines. These relocations would be covered under either an existing coastal use permit or a modification of this determination depending on if the linear facilities are found to be Federally compensable or not. Therefore, this guideline is not applicable to the project at this time.

Guideline 3.5 Existing corridors, rights-of-way, canals, and streams shall be utilized to the maximum extent practicable for linear facilities.
Response: This guideline has been read in its entirety. The structural component (levee and floodwalls) of the proposed plan is located adjacent and parallel to existing oil and gas pipeline corridors to avoid multiple crossings and to avoid the potential risks associated with and disruption of services provided by these pipelines if these pipelines where relocated. The proposed non-structural berms would be located along property boundaries and would avoid environmentally sensitive areas to the maximum extent practicable. Therefore, the proposed plan is consistent with this guideline.

Guideline 3.6 Linear facilities and alignments shall be, to the maximum extent practicable, designed and constructed to permit multiple uses consistent with the nature of the facility.
Response: This guideline has been read in its entirety. Federal participation and separable recreation measures is not permitted by current budget policies for hurricane and storm damage reduction projects (source: ER 1105-2-100, Appendix E page 143). Therefore, this guideline does not pertain to the proposed plan.

Guideline 3.7 Linear facilities involving dredging shall not traverse or adversely affect any barrier island.
Response: This guideline has been read in its entirety. This guideline does not pertain to the proposed plan.

Guideline 3.8 Linear facilities involving dredging shall not traverse beaches, tidal passes, protective reefs or other natural gulf shoreline unless no other alternative exists. If a beach, tidal pass, reef or other natural gulf shoreline must be traversed for a non-navigation canal, they shall be restored at least to their natural condition immediately upon completion of construction. Tidal passes shall not be permanently widened or deepened except when necessary to conduct the use. The best available restoration techniques which improve the traversed area's ability to serve as a shoreline shall be used
Response: This guideline has been read in its entirety. This guideline does not pertain to the proposed plan.

Guideline 3.9 Linear facilities shall be planned, designed, located and built using the best practical techniques to minimize disruption of natural hydrologic and sediment transport patterns, sheet flow, and water quality, and to minimize adverse impacts on wetlands.
Response: This guideline has been read in its entirety. To the maximum extent practicable, the proposed hurricane and storm damage risk reduction system was designed and would be constructed and maintained utilizing the best management practices (BMPs) to minimize disruption of existing hydrologic patterns and the interchange of water, beneficial nutrients and aquatic organisms between the enclosed wetlands and those outside the risk reduction system. In addition, the structural system is designed to reduce restrictions of tidal exchange through the inclusion of 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. Should the trend of increased precipitation and climate change continue, there could be continued increases in runoff associated with increased rainfall events which may affect the total volume of freshwater in the area as well as storm damage peak events. Non-structural measures would have little, if any, significant effects on hydrologic patterns, or the interchange of water, nutrients, or aquatic organisms. Therefore, the proposed plan is consistent with this guideline.

Guideline 3.10 Linear facilities shall be planned, designed, and built using the best practical techniques to prevent bank slumping and erosion, saltwater intrusion, and to minimize the potential for inland movement of storm-generated surges. Consideration shall be given to the use of locks in navigation canals and channels which connect more saline areas with fresher areas.
Response: This guideline has been read in its entirety. To the maximum extent practicable, the proposed hurricane and storm damage risk reduction system and the non-structural project features would be designed, constructed, and maintained utilizing the best management practices (BMPs) to minimize disruption of existing hydrologic patterns and the interchange of water, beneficial nutrients and aquatic organisms between the enclosed wetlands and those outside the risk reduction system. Therefore, the proposed project is consistent with this guideline.

Guideline 3.11 All non-navigation canals, channels and ditches which connect more saline areas with fresher areas shall be plugged at all waterway crossings and at intervals between crossings in order to compartmentalize them. The plugs shall be properly maintained.
Response: This guideline has been read in its entirety. The proposed plan would not increase tidal exchange or promote the exchange of more saline waters with fresh waters. In fact, the system is designed to minimize impacts to the hydraulic connectivity within the project area through the incorporation of 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. These exchanges are currently occurring, and these project features are only designed to reduce changes to the existing hydrologic patterns in the project area. Therefore, the proposed plan is consistent with this guideline.

Guideline 3.12 The multiple use of existing canals, directional drilling and other practical techniques shall be utilized to the maximum extent practicable to minimize the number and size of access canals, to minimize changes of natural systems and to minimize adverse impacts on natural areas and wildlife and fisheries habitat.
Response: This guideline has been read in its entirety. All existing drainage culverts under I-10 would be connected to adjacent drainage culverts within the levee thereby minimizing changes to the existing hydrology of the system and providing hydrologic connectivity between the enclosed and outside areas. Therefore, the proposed project is consistent with this guideline.

Guideline 3.13 All pipelines shall be constructed in accordance with parts 191, 192, and 195 of Title 49 of the Code of Federal Regulations, as amended, and in conformance with the Commissioner of Conservation's Pipeline Safety Rules and Regulations and those safety requirements established by La. R. S. 45:408, whichever would require higher standards.
Response: This guideline has been read in its entirety. Approximately 35 pipeline and utility relocations are expected to occur as a result of the implementation of the proposed plan. To the maximum extent practicable, these relocations would occur within the proposed levee ROW to minimize additional impacts to wetlands and environmentally sensitive areas. This proposed action would not directly include the construction pipelines. These relocations would be covered under either an existing coastal use permit or a modification of this determination depending on if the linear facilities are found to be Federally compensable or not. Therefore, this guideline is not applicable to the project at this time.

Guideline 3.14 Areas dredged for linear facilities shall be backfilled or otherwise restored to the pre-existing conditions upon cessation of use for navigation purposes to the maximum extent practicable.
Response: This guideline has been read in its entirety. Approximately 3,363,000 cy of material would be dredged during the construction of the proposed pump station canals and drainage ditches that would parallel the levee alignment. It is estimated that approximately 1,678,000 cy of this material would be suitable for levee construction. However, approximately 1,685,000 cy of this material would not be suitable for levee construction and would be used beneficially through the mitigation plan. These dredged canals and ditches are permanent features of the proposed WSLP plan, and would not be backfilled. The proposed project is consistent with this guideline to the maximum extent practicable.

Guideline 3.15 The best practical techniques for site restoration and re-vegetation shall be utilized for all linear facilities.
Response: This guideline has been read in its entirety. Proposed levee features, pump stations, gated structures, ditches, and canals would be maintained in accordance with a published Operations and Maintenance (O&M) Plan for the WSLP Project. Regular

maintenance of these project features would prohibit site restoration and re-vegetation after project construction. However, unavoidable project-related impacts to areas of high biological productivity would be mitigated through the implementation of the attached mitigation plan. Therefore, the proposed project is consistent with this guideline to the maximum extent practicable

Guideline 3.16 Confined and dead end canals shall be avoided to the maximum extent practicable. Approved canals must be designed and constructed using the best practical techniques to avoid water stagnation and eutrophication.
Response: This guideline has been read in its entirety. No confined or dead end canals are proposed in the WSLP plan. In fact, the system is designed to maintain existing hydraulic connectivity within the project area through the incorporation of 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. These exchanges are currently occurring, and these project features are only designed to reduce changes to the existing hydrologic patterns in the project area. Therefore, this project, as proposed, is consistent with this guideline.

GUIDELINES FOR DREDGED MATERIAL DEPOSITION

Guideline 4.1 Spoil shall be deposited utilizing the best practical techniques to avoid disruption of water movement, flow, circulation and quality.
Response: This guideline has been read in its entirety. Approximately 3,363,000 cy of material would be dredged during the construction of the proposed pump station canals and drainage ditches that would parallel the levee alignment. It is estimated that approximately 1,678,000 cy of this material would be suitable for levee construction and would likely be used as embankment material. However, approximately 1,685,000 cy of this material would not be suitable for levee construction and would either be used beneficially through the mitigation plan. Therefore, the proposed project is consistent with this guideline.

Guideline 4.2 Spoil shall be used beneficially to the maximum extent practicable to improve productivity or create new habitat, reduce or compensate for environmental damage done by dredging activities, or prevent environmental damage. Otherwise, existing spoil disposal areas or upland disposal shall be utilized to the maximum extent practicable rather than creating new disposal areas.
Response: This guideline has been read in its entirety. See response 4.1 regarding potential beneficial use of dredged material.

Guideline 4.3 Spoil shall not be disposed of in a manner which could result in the impounding or draining of wetlands or the creation of development sites unless the spoil deposition is part of an approved levee or land surface alteration project.
Response: This guideline has been read in its entirety. Approximately 3,363,000 cy of material would be dredged during the construction of the proposed pump station canals and drainage ditches that would parallel the levee alignment. It is estimated that approximately 1,678,000 cy of this material would be suitable for levee construction and would likely be used as embankment material. However, approximately 1,685,000 cy of this material would not be suitable for levee construction and would be place in a way as not to impound or drain wetlands. Therefore, the proposed project is consistent with this guideline.

Guideline 4.4 Spoil shall not be disposed of on marsh, known oyster or clam reef s or in areas of submersed vegetation to the maximum extent practicable.

Response: This guideline has been read in its entirety. Approximately 3,363,000 cy of material would be dredged during the construction of the proposed pump station canals and drainage ditches that would parallel the levee alignment. It is estimated that approximately 1,678,000 cy of this material would be suitable for levee construction and would likely be used as embankment material. However, approximately 1,685,000 cy of this material would not be suitable for levee construction and would not, to the maximum extent practicable, be disposed of on marsh, known oyster or clam reefs or in areas of submersed vegetation. Therefore, the proposed project is consistent with this guideline.

Guideline 4.5 Spoil shall not be disposed of in such a manner as to create a hindrance to navigation or fishing, or hinder timber growth.
Response: This guideline has been read in its entirety. Spoil would not be disposed of in such a manner as to create a hindrance to navigation or fishing, or hinder timber growth. Therefore, the proposed project is consistent with this guideline

Guideline 4.6 Spoil disposal areas shall be designed and constructed and maintained using the best practical techniques to retain the spoil at the site, reduce turbidity, and reduce shoreline erosion when appropriate.
Response: This guideline has been read in its entirety. See Response 4.1. Spoil disposal areas would be designed and constructed and maintained using the best practical techniques to retain the spoil at the site, reduce turbidity, and reduce shoreline erosion when appropriate. Therefore, the proposed project is consistent with this guideline

Guideline 4.7 The alienation of state-owned property shall not result from spoil deposition activities without the consent of the Department of Natural Resources.
Response: This guideline has been read in its entirety. Concur.

GUIDELINES FOR SHORELINE MODIFICATION

Response: These guidelines have been read in their entirety. These guidelines do not pertain to the proposed plan.

GUIDELINES FOR SURFACE ALTERATIONS

Guideline 6.1 Industrial, commercial, urban, residential, and recreational uses are necessary to provide adequate economic growth and development. To this end, such uses would be encouraged in those areas of the coastal zone that are suitable for development. Those uses shall be consistent with the other guidelines and shall, to the maximum extent practicable, take place only:

a) on lands five feet or more above sea level or within fast lands; or

b) on lands which have foundation conditions sufficiently stable to support the use, and where flood and storm hazards are minimal or where protection from these hazards can be reasonably well achieved, and where the public safety would not be unreasonably endangered; and

1) the land is already in high intensity of development use, or

2) there is adequate supporting infrastructure, or

3) the vicinity has a tradition of use for similar habitation or development

Response: This guideline has been read in its entirety. The proposed project is not meant to induce further development within the project area. Instead, it is meant as a means to protect existing structures and infrastructure during storm surges. In fact, the structural portion of the proposed WSLP system is designed to maintain current hydraulic connectivity " with 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. These exchanges are currently occurring, and these project features are designed to reduce changes to the existing hydrologic patterns in the project area. The nonstructural component of the WSLP project includes berms that would restrict tidal flow, however, the areas protected by these berms are already developed and they would not likely induced further development. Therefore, the proposed project is consistent with this guideline.

Guideline 6.2 Public and private works projects such as levees, drainage improvements, roads, airports, ports, and public utilities are necessary to protect and support needed development and shall be encouraged. Such projects shall, to the maximum extent practicable, take place only when:

a) they protect or serve those areas suitable for development pursuant to Guideline 6.1; and

b) they are consistent with the other guidelines; and

c) they are consistent with all relevant adopted state, local and regional plans.

Response: This guideline has been read in its entirety. The WSLP, as proposed, is consistent with this guidline.

Guideline 6.3 BLANK (Deleted)

Guideline 6.4 To the maximum extent practicable wetland areas shall not be drained -or filled. Any approved drain or fill project shall be designed and constructed using best practical techniques to minimize present and future property damage and adverse environmental impacts.

Response: This guideline has been read in its entirety. The structural component of the Proposed Plan (levee and floodwalls) was planned to avoid, minimize and reduce potential adverse impacts to significant resources including areas of high biological productivity and irreplaceable resource areas. The structural features of the WSLP were located to minimize to the extent practicable project-induced wetland impacts by locating project features parallel and adjacent to existing oil and gas pipeline rights-of-way (ROWs) to minimize segmentation of wetland areas and systems. Non-structural measures would have little, if any, significant effects on areas of high biological productivity or irreplaceable resource areas. BMPs would be implemented during the construction of structural and non-structural features of the project. Unavoidable project-related impacts to wetland areas would be mitigated through the implementation of the attached mitigation plan. Therefore, the proposed project is consistent with this guideline.

Guideline 6.5 Coastal water dependent uses shall be given special consideration in permitting because of their reduced choice of alternatives.

Response: This guideline has been read in its entirety. This guideline is not applicable to the proposed project.

Guideline 6.6 Areas modified by surface alteration activities shall, to the maximum extent practicable, be re-vegetated, refilled, cleaned and restored to their predevelopment condition upon termination of the use

Response: This guideline has been read in its entirety. Proposed levee features, pump stations, gated structures, ditches, and canals would be maintained in accordance with a published Operations and Maintenance (O&M) Plan for the WSLP Project. Regular maintenance of these project features would prohibit site restoration and re-vegetation after project construction. However, unavoidable project-related that would permanently alter surface areas would be mitigated through the implementation of the attached mitigation plan. The proposed project, to the maximum extent practicable, would be consistent with this guideline.

Guideline 6.7 Site clearing shall to the maximum extent practicable be limited to those areas immediately required for physical development.

Response: This guideline has been read in its entirety. The structural and non-structural components of the Proposed Plan (levee and floodwalls) were planned to avoid, minimize and reduce potential adverse impacts to significant resources including areas of high biological productivity and irreplaceable resource areas. The structural features of the WSLP were located to minimize to the extent practicable project-induced wetland impacts by locating project features parallel and adjacent to existing oil and gas pipeline rights-of-way (ROWs) to minimize segmentation of wetland areas and systems. Non-structural measures would have little, if any, significant effect on areas of high biological productivity or irreplaceable resource areas. Clearing would be limited to only that which would be required for project construction and O&M responsibilities. Unavoidable project-related impacts would be mitigated through the implementation of the attached mitigation plan. The proposed project, to the maximum extent practicable, would be consistent with this guideline.

Guideline 6.8 Surface alterations shall, to the maximum extent practicable, be located away from critical wildlife areas and vegetation areas. Alterations in wildlife preserves and management areas shall be conducted in strict accord with the requirements of the wildlife management body.

Response: This guideline has been read in its entirety. It is anticipated that there will be approximately 373 acres of swamp impacted on Maurepas Wildlife Management area by the proposed plan, however through the implementation of the mitigation plan, which includes habitat restoration and purchase of mitigation credits, these impacts will be offset. The structural features of the WSLP were located to minimize to the extent practicable project-induced wetland impacts by locating project features parallel and adjacent to existing oil and gas pipeline rights-of-way (ROWs) to minimize segmentation of wetland areas and systems. Non-structural measures would have little, if any, significant effect on areas of high biological productivity or irreplaceable resource areas. Unavoidable project-related impacts to areas of high biological productivity would be mitigated through the implementation of the attached mitigation plan. Therefore, the proposed project is consistent with this guideline.

Guidelines 6.9 - 6.12

Response: These guidelines have been read in their entirety. These guidelines do not pertain to the WSLP project, as proposed..

Guideline 6.13 Surface alteration sites and facilities shall be designed, constructed, and operated using the best practical techniques to prevent the release of pollutants or toxic substances into the environment and minimize other adverse impacts.

Response: This guideline has been read in its entirety. BMPs would be utilized during all construction and O&M activities associated with the WSLP project to minimize the impacts of these actions to adjacent areas. Therefore the proposed plan is consistent with this guideline.

Guideline 6.14 *To the maximum extent practicable only material that is free of contaminants and compatible with the environmental setting shall be used as fill.*
Response: This guideline has been read in its entirety. Only material that is free of contaminants and is compatible with the environmental setting would be used as fill for the proposed WSLP project. Therefore the proposed plan is consistent with this guideline.

GUIDELINES FOR HYDROLOGIC AND SEDIMENT TRANSPORT MODIFICATIONS

Response: Guidelines 7.1 – 7.4 and 7.7 – 7.9 have been read in their entirety. The proposed plan would not involve hydrologic or sediment transport modifications and, therefore, these guidelines are not applicable.

Guideline 7.5 *Water or marsh management plans shall result in an overall benefit to the productivity of the area.*
Response: This guideline has been read in its entirety. Project features including 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts have been designed to provide maximum hydrologic exchange upon project completion. Inclusion of these features would allow normal tidal exchanges while protecting the project area from storm surges. Therefore, it is anticipated that the water management plan is consistent with this guideline.

Guideline 7.6 *Water control structures shall be assessed separately based on their individual merits and impacts and in relation to their overall water or marsh management plan of which they are a part.*
Response: This guideline has been read in its entirety. Project features including 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts have been designed to provide maximum hydrologic exchange upon project completion. Inclusion of these features would allow normal tidal exchanges while protecting the project area from storm surges. Therefore, it is anticipated that the water management plan is consistent with this guideline.

GUIDELINES FOR DISPOSAL OF WASTES

Response: These guidelines have been read in their entirety. The proposed plan would not involve the disposal of wastes and, therefore, these guidelines are not applicable.

GUIDELINES FOR USES THAT RESULT IN THE ALTERATION OF WATERS DRAINING INTO COASTAL WATERS

Guideline 9.1 *Upland and upstream water management programs which affect coastal waters and wetlands shall be designed and constructed to preserve or enhance existing water quality, volume, and rate of flow to the maximum extent practicable.*
Response: This guideline has been read in its entirety. The WSLP, as proposed, would not include upland or upstream water management programs.

Guideline 9.2 *Runoff from developed areas shall to the maximum extent practicable be managed to simulate natural water patterns, quantity, quality and rate of flow.*

Response: This guideline has been read in its entirety. The structural and non-structural portions of the proposed WSLP system are designed to maintain tidal exchange through the incorporation of 2 drainage structures, one gated road-crossing, two gated railroad-crossings, and 145 gated-culverts to provide maximum hydrologic exchange that reduces interchange flows by only about 7 percent and, on average, a 10-minute delay in tidal flows. These exchanges are currently occurring, and these project features are designed to reduce changes to the existing hydrologic patterns in the project area. Therefore, the proposed project is consistent with this guideline to the maximum extent practicable.

Guideline 9.3 *Runoff and erosion from agricultural lands shall be minimized through the best practical techniques.*
Response: This guideline has been read in its entirety. The proposed plan would not involve alteration or management of agricultural lands and, therefore, this guideline is not applicable.

GUIDELINES FOR OIL, GAS, AND OTHER MINERAL ACTIVITIES

Response: These guidelines have been read in their entirety. The proposed plan would not involve oil, gas, and other mineral activities and, therefore, these guidelines are not applicable.

OTHER STATE POLICIES INCORPORATED INTO THE PROGRAM

Section 213.8A of Act 361 directs the Secretary of DOTD, in developing the LCRP, to include all applicable legal and management provisions that affect the coastal zone or are necessary to achieve the purposes of Act 361 or to implement the guidelines effectively. It states:

The Secretary shall develop the overall state coastal management program consisting of all applicable constitutional provisions, laws and regulations of this state which affect the coastal zone in accordance with the provisions of this Part and shall include within the program such other applicable constitutional or statutory provisions, or other regulatory or management programs or activities as may be necessary to achieve the purposes of this Part or necessary to implement the guidelines hereinafter set forth.

The constitutional provisions and other statutory provisions, regulations, and management and regulatory programs incorporated into the LCRP are identified and described in Appendix 1. A description of how these other authorities are integrated into the LCRP and coordinated during program implementation is presented in Chapter IV. Since all of these policies are incorporated into the LCRP, federal agencies must ensure that their proposed actions are consistent with these policies as well as the coastal use guidelines. (CZMA, Section 307)

CONSISTENCY DETERMINATION

The proposed plan would provide, consistent with Congressional authorizations, hurricane and storm damage risk reduction for St. Charles, St. John the Baptist and St. James Parishes that would be economically and environmentally justified. The proposed plan is consistent with the guidelines for all users, levees, linear facilities, dredged material deposition, surface alterations, and hydrologic and sediment transport, and alteration of waters draining into coastal waters. Based on this evaluation and the findings of the Final Environmental Impact Statement (EIS #0901), the U. S. Army Corps of Engineers, New Orleans District, has determined that the

proposed is consistent, to the maximum extent practicable, with the State of Louisiana's Coastal Resources Program.

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex C

Louisiana State Department of Wildlife and Fisheries Mitigation Letter

BOBBY JINDAL
GOVERNOR

State of Louisiana

ROBERT J. BARHAM
SECRETARY

DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

JIMMY L. ANTHONY
ASSISTANT SECRETARY

October 24, 2012

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

RE: *West Shore Lake Pontchartrain Hurricane Levee Project*

Dear Colonel Fleming:

The professional staff of the Louisiana Department of Wildlife and Fisheries (LDWF) has reviewed limited information concerning the West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study in Ascension, St. Charles, St. James, and St. John the Baptist Parishes, Louisiana. The information included three preliminary levee alignments which would provide Federal hurricane protection to the western shore of Lake Pontchartrain. Based upon our review of the limited information, LDWF provides the following comments and questions. We recommend that each comment and question be thoroughly considered and satisfactorily addressed by the U.S. Army Corps of Engineers (USACE).

Natural and Scenic River

The Blind River, which is a Louisiana designated Natural and Scenic River, is located within Alignment D of the proposed project. The purpose of the Natural and Scenic Rivers Act is to preserve, protect, develop, reclaim, and enhance the wilderness qualities, scenic beauties, and ecological regime of certain free-flowing streams. A Scenic Rivers Permit will be required for Alignment D if LDWF determines that the levee has the potential to directly and significantly degrade the ecological integrity of the river. Please contact Mr. Keith Cascio at 318-343-4045 or kcascio@wlf.la.gov concerning this Natural and Scenic River.

Wildlife Management Area

Our database indicates that all levee Alignments (i.e., A, C and D) occur within the boundaries of Maurepas Swamp Wildlife Management Area (WMA). However, Alignment D will impact the WMA more significantly than the other alignments. No activities shall occur within any WMA/refuge without first obtaining proper authorization from LDWF. Please contact Mr. Mike Windham at 504-284-5268 or cwindham@wlf.la.gov for more information about appropriate WMA authorizations.

Endangered Species

Manatees (*Trichechus manatus*) are known to occur in the surrounding water bodies of Alignment D. Manatees are large mammals inhabiting both fresh and salt water. Although most manatees are year round residents of Florida or Central America, they have been known to migrate to areas along the

Atlantic and Gulf Coast during the summer months. Manatees are an endangered species protected under the Endangered Species Act of 1973 and the Federal Marine Mammal Protection Act of 1972. In Louisiana, taking or harassment of the manatee is a violation of state and federal laws. Critical habitat for manatees includes marine submergent vascular vegetation (sea-grass beds). Areas with sea-grass beds should be avoided during project activities if possible. Please contact Mr. Beau Gregory at 337-491-2575 or bgregory@wlf.la.gov for more information about manatees.

Bird Nesting Colonies

Our Natural Heritage Program database indicates the presence of bird nesting colonies within one mile of the western end of Alignment D. Please be aware that entry into or disturbance of active breeding colonies is prohibited by LDWF. To minimize disturbance to colonial nesting birds, LDWF prohibits work within a certain radius of an active nesting colony. The following restrictions on activity should be observed:

- For colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, roseate spoonbills, anhingas, and/or cormorants), all project activity occurring within 300 meters of an active nesting colony should be restricted to the non-nesting period (i.e., September 1 through February 15).
- For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters (700 meters for brown pelicans) of an active nesting colony should be restricted to the non-nesting period (i.e., September 16 through April 1).

Please contact Ms. Carolyn Michon at 225-765-2357 or cmichon@wlf.la.gov for more information on bird nesting colonies.

Compensatory Mitigation

This levee project may result in the loss of significant habitat that provides ecological services such as resource production, water quality improvement, flood peak reduction and hurricane abatement. The loss of these ecological services must be compensated with mitigation. Therefore, if the proposed activity is approved by the regulatory agencies, the applicant shall develop a mitigation plan designed to off-set all impacts to wetland functions and fish and wildlife resources. A mitigation plan should be approved by the resource and regulatory agencies and be implemented concurrently with levee construction. Furthermore, the mitigation shall be located within the same hydrologic basin as the impacts.

Planning Considerations

LDWF believes that alternative borrow sites should be considered, including but not limited to, hauled in material to avoid further impacts. Hauled in material shall be free of contaminates. Borrow sites from within the project area would impact a larger footprint of wildlife and fisheries habitat.

The proposed levee alignments, in particular Alignment D, could potentially restrict recreational opportunities, boating access and other fishing vessels.

Summary and Conclusions

LDWF understands the need to protect these communities; nevertheless, we believe a proper plan would ensure that impacts are minimized and all necessary mitigation is carried out. LDWF believes Alignment A will result in the least amount of impact to valuable forested wetland habitat. Understandably, Alignment C might be more feasible from an engineering standpoint. Alignment D will likely result in the most impacts to fish and wildlife resources, including Maurepas Swamp WMA and Blind River.

Proposed Alignments C and D will impound wetlands thereby reducing exchange of nutrients which most estuarine species are dependent upon. LDWF believes that precautions should be taken to allow for

adequate aquatic species migration. Should Alignments C or D be chosen, adequately sized water control structures must be placed within the levee to allow for ingress and egress of estuarine species, proper drainage, tidal exchange, and the natural release of fresh water (sheet flow) into the coastal system. Water control structures, including but not limited to, culverts should be scaled as large as possible, located frequently, and should be placed in a way that mimics natural bottom contours.

LDWF is further concerned with indirect impacts which may result from the proposed activity. Specifically, by affording flood protection to an area comprised of wetlands, the project may promote future development in wetland areas. Additionally, the levee alignment may alter natural periods of inundation or soil saturation in the impounded wetlands and could prove detrimental to their function and longevity. Alignments C and D could likely reduce the natural storage capacity the wetlands provide, thereby, increasing the risk of induced flooding in other areas.

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 Mr. Kyle Balkum at 225-765-2819 should you need further assistance.

Sincerely,

Jimmy L. Anthony
Assistant Secretary

c: LDNR, Office of Coastal Management
EPA, Marine & Wetlands Section
National Marine Fisheries Service
USFWS, Ecological Services
Keith Cascio, LDWF
Beau Gregory, LDWF
Barry Hebert, LDWF
Carolyn Michon, LDWF
Mike Windham, LDWF
Christian Winslow, LDWF

-----Original Message-----
From: Balkum, Kyle [mailto:kbalkum@wlf.la.gov]
Sent: Thursday, May 23, 2013 3:29 PM
To: Klein, William P Jr MVN
Cc: Winslow, Christian J.; Cascio, Keith; Hebert, Barry; Ribbeck, Kenny; Breaux, Catherine M MVN; 'Catherine_Breaux@fws.gov'; 'Lisa Abernathy'; 'Ettinger.John@epamail.epa.gov'; Richardson, Jerica M MVN; Varisco, Jeffrey J MVN; Myers, Randy; Tuma, Tommy; Mooney, Brad
Subject: LDWF Scoping Comments (Part 2) - West Shore Lake Pontchartrain

Bill,

In addition to our previously submitted scoping comments, LDWF is providing the West Shore-LP PDT with proposed mitigation measures that we believe can best offset impacts associate with levee construction. You will receive the following two documents today:

1. pdf-document that briefly describes the nine conceptual mitigation measures proposed by LDWF, and
2. jpg-map that illustrates the nine mitigation measures (to follow in a subsequent e-mail).

We hope that this draft mitigation plan is included in the Draft TSP.

We look forward to working with you to further develop these proposed mitigation measures in order to ensure that project impacts are adequately and appropriately mitigated for.

Thanks,
Kyle

Kyle F. Balkum
Biologist Program Manager, Habitat Section -
Louisiana Department of Wildlife and Fisheries
2000 Quail Dr., Baton Rouge, LA 70808
225-765-2819 / kbalkum@wlf.la.gov

DRAFT Maurepas Swamp WMA Mitigation Proposals

Prepared by the Louisiana Department of Wildlife and Fisheries (LDWF)

Presented to the West Shore-Lake Pontchartrain Project Delivery Team (PDT)

May 23, 2013

The elimination of nutrient and freshwater inputs threatens the sustainability of the Maurepas Swamp. The most effective strategy to restore health and productivity of the swamp is construction of Mississippi River reintroductions into Maurepas Swamp. However, additional measures such as eliminating barriers to surface flow patterns are also needed, not only to compliment the planned river reintroductions, but also to improve current hydrologic conditions. Therefore, the mitigation measures identified below by LDWF primarily aim to enhance or improve surface hydrology until such time that river reintroductions are constructed. The mitigation measures are still conceptual and will require further planning and engineering. LDWF also prioritized each measure (i.e., High, Medium or Low) to inform the PDT on which measures are believed to be most beneficial.

1. Gap spoil banks along Reserve Relief Canal (**High priority**).
2. Gap spoil banks along New River Canal (**High priority**).
3. Gap/degrade railroad bed which traverses the swamp beginning from Hope Canal and proceeding north and west to the northern property boundary (crossing Blind River and Amite River Diversion Canal (**High priority**).
4. Improve through flow of Hammond wastewater into existing Joyce WMA outfall area (**High priority**).
5. Make efficient use of stormwater and wastewater produced by communities south of I-10 (e.g., Laplace, Ascension Parish) by distributing this water into the Maurepas Swamp (**High priority**).
6. Diversion of freshwater from Bonnet Carre Spillway guide levee to the swamps and marshes to the northwest (**Medium priority**).
7. Gap any spoil banks north of I-10 in the area of Tennessee Williams (**Medium priority**).
8. Preserve existing wetlands by acquiring land in fee title that is enclosed within the levee (**Low priority**).
9. Restrict development in wetlands enclosed within the levee (**Low priority**).

The number of the proposed mitigation measure corresponds with the number on the accompanying map.

LDWF Proposed WSLP Mitigation Sites

WMA Boundary
Gaps
Mitigation Measures 8 & 9
Freshwater Introduction
1 LDWF Proposed Mitigation Sites

5 Miles

Product Number: LDWF_Proposed_WSLP_Mitigation_bmm60169_052213
Analyst: B. Mooney
Date: 05/22/13
Sources: Microsoft/Bing maps, USACE and LDWF

1 New River Canal
2 New River Canal
3
4
5
6
7
8
9

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
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APPENDIX A
Annex D

National Marine Fisheries Service Scoping / Planning Aid Letter

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

January 29, 2009 F/SER46/RH:jk
225/389-0508

Ms. Elizabeth Wiggins, Chief
Environmental Compliance and Analysis Branch
New Orleans District
Department of the Army, Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Wiggins:

NOAA's National Marine Fisheries Service (NMFS) has received the public notice dated December 17, 2008, announcing a scoping meeting and the intention of the New Orleans District (NOD) to prepare an Environmental Impact Statement (EIS) for the **West Shore-Lake Pontchartrain, Louisiana; Hurricane and Storm Damage Risk Reduction Feasibility Study**. The purpose of the study is to assess the feasibility and impacts of providing hurricane and storm surge damage risk reduction measures to a study area bounded by the Bonnet Carre Spillway to the east, the Mississippi River to the south, Lakes Pontchartrain and Maurepas to the north, and the St. James Parish/Ascension Parish line to the west. According to the public notice, previous studies have identified four preliminary levee alignments. The draft EIS will consider those alignments and other reasonable alternatives to provide hurricane and storm risk reduction to the project area.

Aquatic and tidally influenced wetland habitats in portions of the study area are designated as essential fish habitat (EFH) for economically important fishery species managed by the Gulf of Mexico Fishery Management Council (GMFMC), including white shrimp and red drum. Primary categories of EFH in the study area include estuarine emergent wetlands, submerged aquatic vegetation, mud substrates, and estuarine water column. Detailed information on federally-managed fisheries and their EFH is provided in the 2005 generic amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the GMFMC. The generic amendment was prepared as required by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act, P.L. 104-297).

In addition to being designated as EFH for white shrimp and red drum, water bodies and wetlands in the study area provide nursery and foraging habitats supportive of a variety of economically important marine fishery species, such as striped mullet, Atlantic croaker, gulf menhaden, and blue crab. Some of these species also serve as prey for other fish species managed under the Magnuson-Stevens Act by the GMFMC (e.g., mackerels, snappers, and groupers) and highly migratory species managed by NMFS (e.g., billfishes and sharks).

NMFS recommends the EIS include separate sections titled "Essential Fish Habitat" and "Marine Fishery Resources" that identify the EFH and fisheries resources of the study area. The EIS should describe the potential direct and indirect impacts on fishery resources and each category of EFH used by federally managed fishery species and their life stages. A discussion should be included on direct adverse impacts that may result from placement of fill in wetlands to construct levee sections and the dredging of channels in shallow water areas to allow access of construction equipment. The EIS should evaluate alternatives to any activity that would result in an adverse impact to these resources and determine if there are lesser environmentally damaging methods. These sections also should evaluate whether mitigative actions would adequately offset net impacts to EFH and associated fishery resources.

The EIS developed for this project should include a section titled "Mitigation" that contains sufficient information to support a determination of compliance with the Clean Water Act Section 404(b)(1) guidelines and Section 2036 of the Water Resources Development Act of 2007. This includes the joint Environmental Protection Agency/Department of the Army final rule on compensatory mitigation for losses of aquatic resources, issued April 10, 2008, which amends the Clean Water Act guidelines. Perhaps most pertinent therein is the requirement that measures should be taken first to avoid, then minimize, and mitigate and that mitigation plans should include 12 components: 1) objectives; 2) site selection (rationale); 3) site protection instrument; 4) baseline information; 5) determination of credits; 6) mitigation work plan; 7) maintenance plan; 8) performance standards; 9) monitoring requirements; 10) long-term management plan; 11) adaptive management plan; and,12) financial assurances.

We appreciate the opportunity to provide input into the issues that should be evaluated in the EIS for this project. If you have any questions regarding our comments, please contact Mr. Richard Hartman of our Habitat Conservation Division, Baton Rouge office at (225) 389-0508, ext 203.

Sincerely,

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

c:
FWS, Lafayette
EPA, Dallas
LA DNR, Consistency
F/SER46, Swafford
F/SER4, Dale
Files

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex E

Natural Resources Conservation Service Prime and Unique Farmlands Coordination

USDA

May 16, 2014

Nathan Dayan
RTS Environmental Compliance
US Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, Louisiana 70160

RE: St. James Parish, West Shore Lake Pontchartrain – Swamp Restoration - USACE

Dear Mr. Dayan:

I have reviewed the above referenced project for potential requirements of the Farmland Protection Policy Act (FPPA) and potential impact to Natural Resources Conservation Service projects in the immediate vicinity.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.
The project map and narrative submitted with your request indicates that the proposed construction areas will potentially impact the following prime or unique farmland soils:

CmA - Cancienne silt loam, 0 to 1 percent slopes	RV = 100	Acres = 267.2
CvA – Carville silt loam, 0 to 1 percent slopes	RV = 100	Acres = 6.1
GrA – Gramercy silty clay, 0 to 1 percent slopes	RV = 85	Acres = 50.4
SkA – Schriever clay, 0 to 1 percent slopes	RV = 85	Acres = 24.3

This project has 348 acres prime farmland with a weighted average RV of 97.

Please find attached an AD-1006 Farmland Conversion Impact Rating for Corridor Type Projects with our agencies information completed. Furthermore, we do not predict impacts to NRCS work in the vicinity.

For specific information about the soils found in the project area, please visit our Web Soil Survey at the following location: http://websoilsurvey.nrcs.usda.gov/

For more information on FPPA requirements or the process to receive a Farmland Conversion Impact Rating (Form AD-1006 or CPA-106) please visit the following location:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/

Please direct all future correspondence to me at the address shown above.

Respectfully,

Kevin Norton
State Conservationist

Enclosure

Natural Resources Conservation Service
State Office
3737 Government Street
Alexandria, Louisiana 71302
Voice: (318) 473-7751 Fax: (318) 473-7626

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 05/12/2014
Name of Project West Shore Lake Pontchartrain	Federal Agency Involved US Army Corp of Engineers
Proposed Land Use Swamp Restoration	County and State St. James Parish, Louisiana
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 5/12/14 — Person Completing Form: Mike Lindsey

Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES	NO	Acres Irrigated	Average Farm Size
	☑	☐	—	676 ac.

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount of Farmland As Defined in FPPA
Soybeans	Acres: 61,849 % 40	Acres: 61,849 % 40
Name of Land Evaluation System Used	**Name of State or Local Site Assessment System**	**Date Land Evaluation Returned by NRCS**
St. James Parish LESA	NA	5/16/14

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	348			
B. Total Acres To Be Converted Indirectly	—			
C. Total Acres In Site	348			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	348			
B. Total Acres Statewide Important or Local Important Farmland	—			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.5			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	100			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	97			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)				
2. Perimeter In Non-urban Use	(10)				
3. Percent Of Site Being Farmed	(20)				
4. Protection Provided By State and Local Government	(20)				
5. Distance From Urban Built-up Area	(15)				
6. Distance To Urban Support Services	(15)				
7. Size Of Present Farm Unit Compared To Average	(10)				
8. Creation Of Non-farmable Farmland	(10)				
9. Availability Of Farm Support Services	(5)				
10. On-Farm Investments	(20)				
11. Effects Of Conversion On Farm Support Services	(10)				
12. Compatibility With Existing Agricultural Use	(10)				
TOTAL SITE ASSESSMENT POINTS	160				
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or local site assessment)*	160				
TOTAL POINTS *(Total of above 2 lines)*	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

Name of Federal agency representative completing this form: Eric M. Williams — Date: 05/12/2014

(See Instructions on reverse side)

Form AD-1006 (03-02)

USDA

United States Department of Agriculture

April 1, 2014

Eric Williams
US Army Corp of Engineers
Eric.M.Williams@usace.army.mil

RE: St. John and St. Charles Parishes, LA – West Shore Lake Pontchartrain Levee Update

Dear Mr. Williams:

I have reviewed the above referenced project for potential requirements of the Farmland Protection Policy Act (FPPA) and potential impact to Natural Resources Conservation Service projects in the immediate vicinity.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

The project map and narrative submitted with your request indicates that the proposed construction areas will potentially impact the following prime or unique farmland soils:

CmA – Cancienne silt loam, 0 to 1 percent slopes	16 ac.	
GrA – Gramercy silty clay, 0 to 1 percent slopes	62 ac.	
SkA – Schriever clay, 0 to 1 percent slopes	28 ac	
Cn – Cancienne silty clay loam, frequently flooded	23 ac.	
Total acres prime farmland	129 ac.	RV = 92

Please find attached an NRCS-CPA-106 Farmland Conversion Impact Rating for Corridor Type Projects with our agencies information completed. Furthermore, we do not predict impacts to NRCS work in the vicinity.

For specific information about the soils found in the project area, please visit our Web Soil Survey at the following location: http://websoilsurvey.nrcs.usda.gov/

For more information on FPPA requirements or the process to receive a Farmland Conversion Impact Rating (Form AD-1006 or CPA-106) please visit the following location:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/

Please direct all future correspondence to me at the address shown above.

Respectfully,

Kevin Norton
State Conservationist

ACTING FOR

Attachment

Natural Resources Conservation Service
State Office
3737 Government Street
Alexandria, Louisiana 71302
Voice: (318) 473-7751 Fax: (318) 473-7626

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 3/20/13	4. Sheet 1 of 1
1. Name of Project **West Shore Lake Pontchartrain**	5. Federal Agency Involved **U.S. Army Corps of Engineers**	
2. Type of Project **Levee**	6. County and State **St. Charles and St. John the Baptist Parish, LA**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 3/20/14	2. Person Completing Form Mike Lindsey
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated | Average Farm Size 676
5. Major Crop(s) **Soybeans**	6. Farmable Land in Government Jurisdiction Acres: 45143 % 33	7. Amount of Farmland As Defined in FPPA Acres: 33193 % 24
8. Name Of Land Evaluation System Used **LESA**	9. Name of Local Site Assessment System **NA**	10. Date Land Evaluation Returned by NRCS 4/1/14

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		385			
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor		385			
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		129			
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.28			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		32			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*		92			
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availablility Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	92	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	92	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex F

State Historic Preservation Officer (SHPO) and Tribal Coordination Letters

Preserving America's Heritage

May 16, 2014

Ms. Joan Exnicios
Chief, Environmental Branch
U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

REF: West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction System

Dear Ms. Exnicios:

Enclosed is the executed Programmatic Agreement for the referenced program. By carrying out the terms of the Agreement, the Corps of Engineers will have fulfilled its responsibilities under Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's regulations.

If you have any questions, please call Dr. Tom McCulloch at 202-606-8554 or via email at tmcculloch@achp.gov

Sincerely,

Caroline D. Hall
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

Programmatic Agreement
among
The United States Army Corps of Engineers,
Louisiana State Historic Preservation Officer,
and
The Advisory Council on Historic Preservation
regarding the
West Shore Lake Pontchartrain Hurricane and
Storm Damage Risk Reduction System

WHEREAS, historically, residents and businesses of St. Charles, St. John the Baptist, and St. James Parishes, Louisiana have suffered major damage as a result of storms and hurricanes. Recent hurricanes that have impacted the area include Hurricanes Katrina and Rita in 2005, Hurricanes Gustav and Ike in 2008, and Hurricane Isaac in 2012, which caused a storm surge in the area that threatened lives and damaged more than 7,000 homes; and

WHEREAS, the U.S. Congress recognized the need for a hurricane and storm damage risk reduction project in the area with two Congressional resolutions to authorize its study. The first was adopted on July 29, 1971 by the U.S. House of Representatives Committee on Public works.

“RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE HOUSE OF REPRESENTATIVES, UNITED STATES, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Lake Pontchartrain and Vicinity, Louisiana, published as House Document No. 231, 89th Congress, First Session, and other pertinent reports, with a view to determining whether modifications to the recommendations contained therein are advisable at this time, with particular reference to providing additional levees for hurricane protection and flood control in St. John the Baptist Parish and that part of St. Charles Parish west of the Bonnet Carré Spillway."

The U.S. Senate Committee on Public Works adopted a resolution on September 20, 1974.

“RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Lake Pontchartrain and Vicinity, Louisiana, published as House Document No. 231, 89th Congress, First Session, and other pertinent reports, with a view to determining whether modifications to the recommendations contained therein are advisable at this time, for hurricane protection and flood control in St. James Parish."

WHEREAS, the United States Army Corps of Engineers (USACE) has been working with state and local officials to study potential solutions to reduce

damage caused by hurricane and tropical storm surge in the three-parish area. This study has come to be known as the West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study; and

WHEREAS, the USACE has determined that the WSLP project is an "Undertaking" pursuant to the National Historic Preservation Act of 1966 (16 U.S.C. 470), as amended, (NHPA), and may have an adverse effect on properties included or eligible for inclusion in the National Register of Historic Places (NRHP); and

WHEREAS, the USACE has elected to fulfill its obligations under Section 106 of the NHPA through the execution and implementation of a Programmatic Agreement (this Agreement) as provided in 36 CFR 800.14(b); and

WHEREAS, the USACE notified the Advisory Council on Historic Preservation (ACHP) of the potential for this undertaking to adversely affect historic properties pursuant to the ACHP's implementing regulations (36 CFR Part 800); and

WHEREAS, the ACHP accepted the invitation to participate in consultation to develop this Agreement and to seek ways to avoid, minimize, or mitigate adverse effects on historic properties; and

WHEREAS, the USACE consulted with the Louisiana State Historic Preservation Officer (LA SHPO), Tribal Historic Preservation Officers (THPO) and federally recognized Indian Tribes as defined under 36 CFR 800.16(m) (Tribes), and other appropriate consulting parties in developing this Agreement in order to define efficient and cost effective processes for taking into consideration the effects of the WSLP project upon historic properties pursuant to 36 CFR 800.14(b); and

WHEREAS, the USACE acknowledges Tribes as sovereign nations which have a unique government-to-government relationship with the federal government and its agencies; USACE further acknowledges its Trust Responsibility to those Tribes; and

WHEREAS, the USACE made a reasonable and good faith effort to identify any Tribes that may attach religious and cultural significance to historic properties that may be affected by the undertaking; and

WHEREAS, the USACE has invited the Alabama-Coushatta Tribe of Texas, Caddo Nation of Oklahoma, Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Jena Band of Choctaw Indians, Mississippi Band of Choctaw Indians, Quapaw Tribe of Oklahoma, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and the Tunica-Biloxi Tribe of Louisiana to consult in the development of this Agreement. The Quapaw Tribe of Oklahoma and the Seminole Tribe of Florida have independently determined that

the undertaking is not within their tribe's area of interest and do not wish to comment; and

WHEREAS, the USACE will invite any interested Tribe who participates in the development of this Agreement to sign this Agreement as an Invited Signatory Party, and those Tribes not requesting to sign this Agreement as an Invited Signatory Party will be invited to sign as a Concurring Party; and

WHEREAS, the USACE has involved the public through the National Environmental Policy Act (NEPA) process, which affords all persons, organizations and government agencies the right to review and comment on proposed major federal actions that are evaluated by a NEPA document. Public meetings to collect input during planning were held in January 2009, February 2011, November 2012, April 2013, and May 2013. On August 23, 2013, the USACE released an Integrated Draft Feasibility Report and Environmental Impact Statement for the WSLP project (Draft Report) to the public for a review period of forty-five (45) calendar days. The public review period was extended an additional 14 days to October 22, 2013 as compensation for Federal Government shutdown of 2013. This document included a general discussion of cultural resources within the study area. Public hearings of the Draft Report were held on September 10, September 17, and November 2, 2013. Comments received during the 59-day review and the public hearings are being incorporated into the Integrated Final Feasibility Report and Environmental Impact Statement; and

WHEREAS, the USACE has taken appropriate measures to identify other parties that may be interested specifically in the development of this Agreement, by notification to the Parish Presidents of St. James, St. John the Baptist, and St. Charles Parishes, as well as to four (4) historical associations within these three parishes, and has invited such parties to participate in the development and execution of this Agreement; and

WHEREAS, the USACE has also taken steps to notify the wider public with newspaper announcements in the Times-Picayune of New Orleans, and NOLA.com of New Orleans. The USACE will furthermore take appropriate steps to involve and notify parties, as appropriate, during the implementation of the terms of this Agreement; and

WHEREAS, the Louisiana Coastal Protection and Restoration Authority Board (CPRAB) is a local sponsor for WSLP project and has participated in the development of this Agreement and will be invited to sign this Agreement as a Concurring Party. Any additional local sponsors for the WSLP project will also be invited to sign this Agreement as a Concurring Party; and

NOW, THEREFORE, the USACE, ACHP, and LA SHPO agree that the implementation of the following stipulations will evidence that the USACE has taken into account the effects of the WSLP project upon historic properties.

STIPULATIONS

The USACE shall adhere to the process and protocols set forth in this Agreement.

I. Correspondence

Electronic mail (email) will serve as the official correspondence method for all communications regarding this Agreement and its provisions. See Appendix A for a list of contacts and email addresses. Contact information in Appendix A may be updated as needed without an amendment to this Agreement. It is the responsibility of each signatory to immediately inform the USACE of any change in name, address, email address, or phone number of any point-of-contact. The USACE will forward this information to all signatories by email. Failure of any party to this Agreement to notify the USACE of any change to a point-of-contact's information shall not be grounds for asserting that notice of a proposed action was not received.

A. All standard response timeframes established by 36 CFR Part 800 will apply to this Agreement, unless an alternative response timeframe is agreed to by the LA SHPO and Tribes. The USACE may request expedited review by the LA SHPO and Tribes on a case by case basis. Such expedited review period shall not be less than 10 working days.

II. Tribal Consultation

A. The Chitimacha Tribe of Louisiana, the Choctaw Nation of Oklahoma, and the Coushatta Tribe of Louisiana participated in the development of this Agreement and will sign this Agreement as an Invited Signatory Party.

B. The Mississippi Band of Choctaw Indians participated in the development of this Agreement and will be invited to sign this Agreement as a Concurring Party.

C. The Alabama-Coushatta Tribe of Texas, Caddo Nation of Oklahoma, Jena Band of Choctaw Indians, Seminole Nation of Oklahoma, and the Tunica-Biloxi Tribe of Louisiana will be invited to sign this Agreement as a Concurring Party.

D. The Seminole Tribe of Florida and the Quapaw Tribe of Oklahoma have independently determined that the undertaking is not within their tribe's area of interest and they have elected not to consult further in connection with the WSLP project.

E. The USACE shall make a reasonable and good faith effort to identify any additional Tribes that might attach religious and cultural significance to historic properties in the area of potential effects (APE) for the WSLP project.

F. The USACE shall consult with Tribes that are invited to sign this Agreement as Invited Signatory Parties and Tribes that are invited to sign this agreement as Concurring Parties, as well as any other Tribe that requests in writing to be a consulting party (collectively, “Consulting Tribes”).

G. The USACE will provide the Consulting Tribes with an executed copy of this Agreement and with copies of all plans, determinations, and findings provided to the LA SHPO.

III. Public Involvement

A. The USACE, in consultation with the LA SHPO, shall continue to identify and provide members of the public likely to be interested in the effects of the WSLP project upon historic properties with a description of the undertaking and the provisions of this Agreement.

B. Specific cultural resources data will not be released to the general public or become released as part of NEPA documents.

C. To the extent permitted under applicable federal laws and regulations (e.g., Section 304 of the NHPA, Section 9 of the Archaeological Resources Protection Act [ARPA]), the USACE will release to the public, documents developed pursuant to this Agreement, effects determinations, and Interim Progress Reports.

IV. Other Consulting Parties

A. Any member of the public expressing an interest in the effects of this undertaking on historic properties, may become a consulting party by submitting a written request to USACE.

B. The USACE, in consultation with the LA SHPO, will continue efforts during the duration of this Agreement to identify other parties with demonstrated interests in the preservation of historic properties.

C. The USACE will document the consulting parties in the consultation process for the WSLP project and maintain it as part of the administrative record.

D. If any dispute arises about the right to be recognized as a consulting party, the USACE will contact the ACHP and provide all appropriate documentation. The ACHP will participate in the resolution of the issue.

V. Identification, Evaluation, and Assessment of Effects Determinations

A. The USACE, in consultation with the LA SHPO and Consulting Tribes, will define and document the geographic areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist, referred to as an area of potential effects (APE). Because WSLP contains borrow sources and mitigation areas that are spatially distinct from the risk reduction system, there will be multiple APE (collectively, the WSLP APE). Each APE will assist in identifying the potential for direct, indirect, and cumulative effects upon historic properties. The reasonable and good faith identification and evaluation efforts will be limited to the identified WSLP APE.

B. WSLP APE are defined at this time to include areas that may be directly or indirectly impacted by:

1. A 55-foot wide and 18.27-mile long levee to be constructed in St. John the Baptist Parish, including its associated features (i.e., pump stations, canals, and drainage structures), as well as activities associated with construction (i.e., access roads and staging areas);

2. Three (3) 20-foot wide berms enclosing three residential communities located in St. James Parish with a combined total length of approximately 7 miles;

3. Installation of 145 flap gates on existing culverts below Highway 3125.

C. Borrow sources and mitigation sites are not yet fully defined, and will be coordinated for purposes of defining the APE by the USACE, LA SHPO, and Consulting Tribes. Additional areas of the WSLP APE will be identified as necessary.

D. Following the delineation of final WSLP APE components, the USACE will conduct a reasonable and good faith effort to identify historic properties located within the WSLP APE. Level of survey to be conducted within the APE and methodology will be developed in consultation with the LA SHPO and

Consulting Tribes, in a manner equivalent to the Section 106 Process of NHPA and equivalent to Reconnaissance or Phase I Investigations required by the Louisiana Division of Archaeology. Areas that are inaccessible or are determined to possess a low probability for containing historic properties may be excluded from survey after consultation with the LA SHPO and Consulting Tribes.

E. The USACE will ensure that the results of identification efforts are documented in reports that meet the standards of the Louisiana Division of Archaeology, and will ensure that the reports are submitted to the LA SHPO and Consulting Tribes for review and comment. The USACE will ensure that the comments provided by the LA SHPO and Consulting Tribes are addressed and incorporated into a final report.

F. The USACE will consult with the LA SHPO and Consulting Tribes on the eligibility of any properties identified during the identification effort. For any properties determined not eligible for nomination to the NRHP, no further consideration will be required under the terms of this Agreement. For those properties determined eligible for nomination, the USACE will proceed in accordance with Stipulation VI. For those properties whose eligibility for the NRHP cannot be determined on the basis of the identification effort, the USACE will consult with the LA SHPO and Consulting Tribes to determine if the proposed project can avoid the properties. If the properties can be avoided, the USACE will proceed as in Stipulation VI. If the properties cannot be avoided, the USACE will ensure that additional investigations to evaluate each property's eligibility for nomination will be undertaken.

G. The USACE will ensure that the results of the evaluation efforts are documented in reports that meet the standards of the Louisiana Division of Archaeology and will ensure that the reports are submitted to the LA SHPO and Consulting Tribes for review and comment. The USACE will ensure that the comments provided by the LA SHPO and Consulting Tribes are addressed and incorporated into a final report.

H. The USACE will consult with the LA SHPO and Consulting Tribes on the eligibility of the properties assessed during the evaluation effort. For any properties determined not eligible for nomination to the NRHP, no further consideration will be required. For those properties determined eligible for nomination, the USACE will proceed in accordance with Stipulation VII.

I. In the event of disagreement between the USACE, LA SHPO, and/or Consulting Tribes concerning the eligibility of a property for listing in the NRHP under 36 CFR Part 60, the USACE shall request a formal determination of eligibility for that property from the Keeper of the NRHP (Keeper). The determination by the Keeper will serve as the final decision regarding the NRHP eligibility of the property.

VI. Coordination of Effects Determinations

A. The USACE shall evaluate the effects of a project activity on historic properties in a holistic manner and will not segment activities. In the event the USACE determines that any aspect of the project activity will have an effect or adverse effect on a historic property within the WSLP APE, the entire project activity will be reviewed accordingly.

B. Consultation under this Agreement will be concluded for USACE findings of *no historic properties affected* and *no adverse effect* when the LA SHPO and Consulting Tribes have been provided the opportunity to review and comment on the written documentation and either concur or do not object within 30 days of receipt of the USACE finding, and subject to the provisions of this Agreement.

C. Following submission of written documentation to the LA SHPO and Consulting Tribes, the USACE may propose a finding of *no adverse effect with conditions*, as appropriate. Such conditions may include, but are not limited to:

1. Avoidance and/or preservation-in-place of historic properties;

2. Modifications or conditions to ensure consistency with the Secretary of Interior's Standards for the Treatment of Historic Properties and applicable guidelines.

D. In the event of an objection by the LA SHPO, Consulting Tribes or other consulting parties regarding the USACE’s findings of *no historic properties affected*, findings of *no adverse effect*, and findings of *no adverse effect with conditions*, the USACE shall seek to resolve such objection through consultation in accordance with procedures outlined in Stipulation XII.

VII. Resolution of Adverse Effects

A. In the event that the USACE, in consultation with the LA SHPO and Consulting Tribes, determines that the implementation of a project activity may result in an adverse effect to historic properties (as defined in 36 CFR 800.5(a)(1) and (2) of the ACHP's regulations), the USACE shall notify the ACHP, LA SHPO, Consulting Tribes, other consulting parties and the public. If the project activity will affect a National Historic Landmark, USACE shall also notify the National Park Service (NPS). The notification of adverse effect shall include the following documentation, subject to the confidentiality provisions of 36 CFR 800.6:

1. Summary description of the activity area;

2. Summary of identification efforts in accordance with this agreement;

3. Summary analysis of effects to historic properties;

4. Summary of alternatives considered to avoid or reduce adverse effects;

5. Proposed mitigation measures in accordance with Stipulation VIII when adverse effects cannot be avoided or conditioned to reach a determination of no adverse effect; and

6. Request for ACHP comment and involvement, as appropriate.

B. The ACHP, LA SHPO, Consulting Tribes, and any additional consulting parties, including the NPS, as appropriate, shall be afforded an opportunity to review and to comment on the adverse effect notification for a period of thirty (30) calendar days after receipt of the adverse effect notification.

C. Should the USACE, LA SHPO, and Consulting Tribes disagree on the proposed mitigation measures, the USACE shall seek to resolve such objection through consultation in accordance with Stipulation XII.

VIII. Standard Mitigation Measures

A. The USACE, in coordination with the ACHP, LA SHPO, Consulting Tribes, and other consulting parties, will identify standard mitigation measures for adverse effects to historic properties. Standard mitigation measures will be tailored to the significance of the historic property, and may include, but are not necessarily limited to, one or more of the following:

1. Public Interpretation;

2. Documentation consistent with the Level II Standards of the Historic American Building Survey/Historic American Engineering Record (HABS/HAER);

3. Historical, Architectural or Archeological Monographs;

4. Rehabilitation of historic buildings in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68);

5. Off-site mitigation, including acquisition of property or preservation easements on property, as appropriate and legal, containing threatened resources of comparable significance in circumstances where there is an imminent need to proceed with construction activity and it is in the public interest;

6. Ethnographic studies;

7. Studies of traditional cultural properties;

8. Relocation of historic properties to sites approved by the LA SHPO as possessing similar overall character; and

9. Data recovery for archeological properties.

B. In the event that the ACHP, LA SHPO, and/or Consulting Tribes determine that standard mitigation measures are not adequate or appropriate to resolve adverse effects, the USACE, LA SHPO, and Consulting Tribes will consult to negotiate additional mitigation measures. Other consulting parties may express their concerns regarding mitigation measures through written comments submitted to any of the signatories to the Agreement.

C. Once the USACE, ACHP, LA SHPO, and/or Consulting Tribes agree to the terms of the mitigation, such agreement will be formalized through an MOA executed and implemented pursuant to 36 CFR 800.6(c). Such MOA shall be forwarded to all signatories to this Agreement. If there is a disagreement that cannot be resolved, the formal dispute provisions at Stipulation XII will be implemented.

IX. Curation

The USACE will ensure that all collections and associated records retrieved or created during the life of this Agreement are curated in accordance with 36 CFR Part 79.

X. Unanticipated Discoveries and Effects

A. In the event that the USACE discovers a previously unidentified cultural resource, including but not limited to archeological sites, standing structures, human remains, and properties of traditional religious and cultural significance to Tribes, during the execution of the project, the USACE immediately shall secure the immediate jobsite by the most appropriate quickly available means, to include but not necessarily limited to a 50-foot radius buffer around the unexpected discovery, and suspend work in that buffered area of the affected resource. The USACE shall immediately notify the LA SHPO, Consulting Tribes, and additional consulting parties, as appropriate, of the finding. Any previously unidentified cultural resource will be treated as though it is eligible for the NRHP until other determination may be made. If consulting parties agree that the cultural resource is not eligible for the NRHP, then suspension of work will end. If consulting parties agree that the cultural resource is eligible for the NRHP, then the USACE, in consultation with the LA SHPO and Consulting Tribes, will develop a treatment plan or Standard Mitigation Measures agreement in accordance with Stipulation VIII. USACE will implement the plan or Standard Mitigation Measures agreement once approved by the LA SHPO, Consulting Tribes, and additional consulting parties, as appropriate. If there is a disagreement that cannot be resolved, the formal dispute provisions at Stipulation XII will be implemented.

B. In the event that the USACE is notified of a previously unidentified archaeological property on federal or tribal land during the execution of any of the undertakings, the USACE will ensure that procedures established by ARPA 1979 (Public Law

96-95; 16 U.S.C. 470aa-mm), as amended, and implementing regulations (43 CFR Part 7) will be followed.

C. The USACE shall insure that all contractors are made aware of the requirements of this Agreement. Language of Stipulation X shall be included in Construction Plans and Specifications. In the event that a contractor discovers a previously unidentified cultural resource, the contractor shall immediately notify the USACE and refrain from further project activities within a minimum of 50 feet from the discovery (50-foot radius no work buffer), and shall take reasonable efforts to avoid and minimize harm to the cultural resource. The USACE shall implement any additional measures thought necessary to secure the historic property for safety and security concerns.

D. In the event that previously unidentified effects to historic properties are identified following the completion of work within an activity area, any party may provide the USACE with evidence of such effects for a period of twelve (12) months from the completion of the affecting work. The USACE, in consultation with the LA SHPO, Consulting Tribes, and ACHP, as appropriate, will review and if determined necessary will develop a treatment plan or Standard Mitigation Measures agreement in accordance with Stipulation VIII.

E. If the USACE, LA SHPO, and/or Consulting Tribes cannot agree on an appropriate course of action to address the discovery situation, the USACE shall initiate the dispute resolution process set forth in Stipulation XII.

XI. Discovery of Human Remains

A. Language of Stipulation XI shall be included in Construction Plans and Specifications, to offer fullest knowledge of the importance therein.

B. When human remains or indications of a burial are discovered, the individual(s) who made the discovery shall immediately notify the local law enforcement and the USACE, New Orleans District. All work shall cease within a minimum of 50 feet from the discovery (50-foot radius no work buffer) until and unless determined otherwise in consultation according to this Agreement.

C. The USACE may authorize the activity in the direct discovery areas to resume, following the completion of all necessary steps as outlined below.

D. In the event that the USACE is notified of a previously unidentified burial, including burial sites, human skeletal remains, or burial artifacts, on private or state land during the execution of any of the Undertakings, the USACE will ensure that the procedures established in the Louisiana Unmarked Human Burial Sites Preservation Act (La. R.S. 8:671-681) will be followed.

E. In the event that the USACE is notified of a previously unidentified burial, including burial sites, human remains or funerary objects, on federal or tribal land during the execution of any of the undertakings, the USACE will ensure that procedures established by ARPA 1979 (Public Law 96-95; 16 U.S.C. 470aa-mm), as amended, and implementing regulations (43 CFR Part 7) will be followed.

F. In the event that the USACE is notified of a previously unidentified American Indian burial, including burial sites, human remains or funerary objects, on federal or tribal land during the execution of any of the undertakings, the USACE will ensure that procedures established by the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 and the regulations that implement it (43 CFR Part 10) will be followed.

G. The USACE shall have an archaeologist immediately survey or resurvey the general area where the remains were found to determine the nature of the remains and evaluate the possibility of preserving the remains in place or whether they will need to be exhumed/moved. Tribes likely to have a cultural affiliation with the remains will be notified by telephone immediately in accordance with 43 CFR Part 10.4(b). If possible, Tribal representative(s) shall be present to advise on appropriate treatment of the exposed remains and on the most appropriate long-term solution.

H. The USACE shall provide information collected on the nature of the remains and a recommended plan of action pursuant to 43 CFR 10.5(e) within five (5) working days to the Consulting Tribes and the LA SHPO. The USACE shall consult with all relevant parties to determine the appropriate course of action with regard to the human remains and any accompanying artifacts, grave goods, or funerary objects.

I. All signatories agree that the most appropriate treatment, if feasible, is to protect the remains and permanently preserve the burial in situ.

J. If the USACE, after consultation, determines that protection, avoidance, or repair is not feasible, disinterment shall be conducted in accordance with methods and procedures developed in accordance with the appropriate federal and state laws and in consultation with the Consulting Tribes and the LA SHPO.

XII. Dispute Resolution

A. Except for the resolution of eligibility issues, as set forth in Stipulation V, should the LA SHPO, Consulting Tribes, or a member of the public disagree on the implementation of the provisions of this agreement, they will notify the USACE, who will seek to resolve such objection through consultation.

B. If the dispute cannot be resolved through consultation, the USACE shall forward all documentation relevant to the dispute to the ACHP, including any proposed resolution identified during consultation. Within seven (7) calendar days after receipt of all pertinent documentation, the ACHP may:

1. Provide the USACE with recommendations to take into account in reaching final decision regarding the dispute; or

2. Notify the USACE that it will comment pursuant to 36 CFR 800.7(c) and provide formal comments within twenty-one (21) calendar days.

C. Any recommendation or comment provided by the ACHP will be understood to pertain only to the subject of the dispute, and the USACE's responsibilities to fulfill all actions that are not subject of the dispute will remain unchanged.

D. If the ACHP does not provide the USACE with recommendations or notification of its intent to provide formal comments within seven (7) calendar days, the USACE may assume that the ACHP does not object to its recommended approach and it will proceed accordingly.

XIII. Administration, Effect, and Duration of this Agreement

A. This Agreement will be signed in counterparts and shall take effect upon execution by the ACHP, USACE, and LA SHPO.

B. This Agreement will remain in effect for ten (10) years from the date of execution, unless extended for a two-year period by written agreement negotiated by all signatories.

C. All signatories to this Agreement shall meet annually to evaluate the effectiveness of this Agreement, beginning one (1) year after the date of execution. The USACE shall coordinate such annual meetings following the execution of this Agreement. At each annual meeting, held in manner and location as mutually agreed upon by all signatories, the effectiveness of the Stipulations of this Agreement shall be discussed. After five (5) years, all signatories will begin the discussion to consider any cumulative effects as discussed by Stipulation XIV.

XIV. Comprehensive Review

A. Upon completion of the construction activities for the WSLP project, the USACE will analyze the undertaking holistically to identify cumulative effects upon historic properties. Cumulative effects are those coincident effects on specific resources of all related activities, not just the proposed actions governed by the Stipulations of this Agreement.

B. The USACE, in consultation with the signatories to this Agreement, shall identify and implement additional mitigation measures to address adverse cumulative effects, as appropriate. If there is a disagreement that cannot be resolved, the formal dispute provisions at Stipulation XII will be implemented.

C. Measures to address adverse cumulative effects shall be documented in a report that meets the standards of the Louisiana Division of Archaeology and will be submitted to the LA SHPO and Consulting Tribes for review and comment. The final cumulative report shall be distributed to the signatories to this Agreement, as well as any additional consulting parties.

XV. Amendment and Termination

A. Notwithstanding any provision of this Agreement, USACE, ACHP, LA SHPO, and Invited Signatory Parties may request that it be amended, whereupon these parties will consult to consider such amendment. The USACE will facilitate such consultation within thirty (30) days of receipt of the written request. Any amendment will be in writing and will be signed by the USACE, ACHP, LA SHPO, and Invited Signatory Parties, and shall be effective on the date of the final signature.

B. Any Invited Signatory Party may withdraw its participation in this Agreement by providing thirty (30) days advance written notification to all other parties. In the event of withdrawal by one Invited Signatory Party, the Agreement will remain in effect for the other signatories.

C. The Agreement may be terminated in accordance with 36 CFR Part 800. Any party requesting termination of this Agreement shall provide thirty (30) days advance written notification to all other signatories.

Execution of this Agreement by the ACHP, USACE, and LA SHPO and implementation of its terms, evidences that the USACE has taken into account the effects of the WSLP project upon historic properties and has afforded the ACHP an opportunity to comment.

Programmatic Agreement
among
The United States Army Corps of Engineers,
Louisiana State Historic Preservation Officer,
and
The Advisory Council on Historic Preservation
regarding the
West Shore Lake Pontchartrain Hurricane and
Storm Damage Risk Reduction System

Execution of this Agreement by the ACHP, USACE, and LA SHPO and implementation of its terms, evidences that the USACE has taken into account the effects of the WSLP project upon historic properties and has afforded the ACHP an opportunity to comment.

Signatory:

United States Army Corps of Engineers

By: Richard L. Hansen Date: 5/15/14
Richard L. Hansen
Colonel, U.S. Army
District Commander

Programmatic Agreement
among
The United States Army Corps of Engineers,
Louisiana State Historic Preservation Officer,
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Execution of this Agreement by the ACHP, USACE, and LA SHPO and implementation of its terms, evidences that the USACE has taken into account the effects of the WSLP project upon historic properties and has afforded the ACHP an opportunity to comment.

Signatory:

Louisiana State Historic Preservation Officer

By: Pam Breaux Date: 5-15-14

Pam Breaux
Louisiana State Historic Preservation Officer
Louisiana Office of Cultural Development

Programmatic Agreement
among
The United States Army Corps of Engineers,
Louisiana State Historic Preservation Officer,
and
The Advisory Council on Historic Preservation
regarding the
West Shore Lake Pontchartrain Hurricane and
Storm Damage Risk Reduction System

Execution of this Agreement by the ACHP, USACE, and LA SHPO and implementation of its terms, evidences that the USACE has taken into account the effects of the WSLP project upon historic properties and has afforded the ACHP an opportunity to comment.

Signatory:

Advisory Council on Historic Preservation

By: John M. Fowler Date: 5/16/14
John M. Fowler
Executive Director
Advisory Council on Historic Preservation

Programmatic Agreement
among
The United States Army Corps of Engineers,
Louisiana State Historic Preservation Officer,
and
The Advisory Council on Historic Preservation
regarding the
West Shore Lake Pontchartrain Hurricane and
Storm Damage Risk Reduction System

Invited Signatory Party:

Chitimacha Tribe of Louisiana

By: John Paul Darden Date: 6-25-14
John Paul Darden, Chairman

APPENDIX A
CONTACT INFORMATION

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Coastal Protection and Restoration Authority Board
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DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF:

February 27, 2014

Regional Planning and
Environment Division, South
New Orleans Environmental Branch

Reid Nelson, Director
Office of Federal Agency Programs
Advisory Council on Historic Preservation
Old Post Office
1100 Pennsylvania Ave., NW, Suite 809
Washington, D.C. 20004

Dear Mr. Nelson:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), is consulting for development of a Programmatic Agreement (PA) for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction System (WSLP) Study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate.

The proposed undertakings of the WSLP Study have the potential to effect historic properties. The WSLP Study was first authorized in 1971 and experienced many variations and delays, but now finds further development to be directed by the USACE SMART Feasibility Study Process. A draft Integrated Feasibility Report and Environmental Impact Statement for the WSLP study is available for review at http://www.mvn.usace.army.mil/Portals/56/docs/PD/Projects/WSLP/WSLPFINAL.pdf.

The CEMVN is currently funding a cultural resources survey for an approximately 18.5 mile, 550-foot wide, proposed levee corridor (TSP C) (to include construction, adjacent drainage ditch reservoirs, and Right-of-Way), that is the largest single component of the WSLP study. This levee corridor is immediately adjacent to previous cultural resource surveys (as per Louisiana SHPO files) with negative findings, for approximately 10 linear miles. Approximately 1.8 miles of levee corridor pass through or adjacent to cultural resource site 16SJB68 (Angelina Plantation) near the Mississippi River. This site received extensive cultural resources survey in 2012 (Louisiana Site Report 22-4288), and did not locate National Register of Historic Places (NRHP) eligible resources within the proposed levee corridor. Remaining areas of corridor that remain unsurveyed are within seasonally wet lands not conducive to recoverable human activity or preserved cultural resources. No other cultural resources have been recorded within 1 miles of the TSP C levee corridor. It is anticipated that any previously unrecorded cultural resource will be located by the current survey underway for the WSLP study.

Remaining undertakings of the WSLP Study are defined as "non-structural" and were not sufficiently designated in time to be included within the currently-conducted cultural resources survey, but are thought to be similarly low-probability to affect cultural resources. Existing Louisiana Highway 3125 has an elevated roadway, and will serve as a low berm to prevent storm water from affecting any resources to its south. A series of flap gates will be integrated under the roadway to allow natural water-flow as necessary and not artificially create flood damages. Site 16SJ1 is a prehistoric mound site on private property, considered eligible for the NRHP and approximately 600 feet south of Highway 3125. Two other sites located within 1000 feet of 16SJ1 are 16SJ50 (prehistoric midden; NRHP eligibility undetermined) and 16SJ51 (prehistoric mound; NRHP eligibility undetermined), located approximately 500 feet and 250 feet south of Highway 3125, respectively. The other recorded cultural resource within ½ mile of Highway 3125 within WSLP system is 16SJ56 (historic trash dump; NRHP ineligible according to SHPO). Highway 3125 also crossed the property boundaries of Wilton (16SJ20) and Helvetia (16SJ21) Plantations, portions of which are considered eligible for the NRHP; however according to cultural resources survey in 2011 (Louisiana Site Report 22-3017) no NRHP eligible portion is located in areas of potential effect by proposed flap gates under Highway 3125.

Protective low berms will be built around residences in the small communities of Gramercy and Grand Point, and similarly were not sufficiently designated in time to receive a cultural resources survey. A total of 3 berms with approximate 15-foot basal footprint are proposed. Total length of berms proposed is approximately 6.5 miles. These berm footprints are also thought to be of low probability to affect cultural resources because of: 1) their distance (ca. 1.4, 1.5, and 2.5 miles at closest) to the Mississippi River natural levee and its more stable soils; 2) their closer proximity to seasonally wet soils; 3) the lack of an identified cultural resource by any proximate cultural resources survey; and 4) their overlap on previously developed land likely to have disturbed any previously existing cultural resource.

The SMART Feasibility Study Process implemented by USACE designates that the WSLP Study should next seek Congressional approval for construction and move to Preliminary Engineering Design (PED) of proposed features, using information and risks now extant. Discussion for a Programmatic Agreement to be formed is considered as follows:

1) Any cultural resource that may be found during the currently ongoing cultural resources survey will not have opportunity for NRHP testing if such is required by findings.
2) Borrow Material for the TSP C levee is expected to come from Bonnet Carre Spillway and has been previously coordinated for Section 106. Any change of borrow source must be coordinated for Section 106.
3) Mitigation for swamp or bottomland hardwoods that may be destroyed during construction activities, is proposed for an area near the Amite River Diversion canal. This location has not been coordinated for Section 106, and therefore must be coordinated for Section 106.

4) Although considered low potential lands to contain cultural resources, the flap gates to be placed along Highway 3125 are not sufficiently configured to determine if they may impact a cultural resource. PED should designate that no construction take place within agreed distance from sites 16SJ1, 16SJ50, and 16SJ51. Section 106 coordination should be agreed once offset from previously-existing Highway 3125 is known.
5) Although considered low potential lands to contain a cultural resource, the protective berms around Gramercy and Grand Point have not been coordinated for Section 106, and therefore must be coordinated for Section 106.
6) Currently proposed features leave approximately 80 homes outside of the WSLP system. 33 of these homes are calculated to require lifting to include them within the desired protection from a 100-year storm event. Any homes to be raised should be examined to determine if raising would adversely affect any existing NRHP status.

Maps and information that are helpful to familiarize with project area, are enclosed. A teleconference has been scheduled for March 6, 2014, at 10 a.m. central time, and the agenda and call-in information will be provided by email.

The point of contact at the CEMVN is Dr. Paul Hughbanks. You can reach him at the above address or by phone at (504) 862-1100 or by e-mail at Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter will be submitted to Dr. Tom McCulloch, tmcculloch@achp.gov.

Sincerely,

Sandra Sills

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

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

REPLY TO
ATTENTION OF:

February 27, 2014

Regional Planning and
Environment Division, South
New Orleans Environmental Branch

Ms. Pam Breaux
State Historic Preservation Officer
Department of Culture, Recreation, & Tourism
P.O. Box 44247
Baton Rouge, LA 70804

Dear Ms. Breaux:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), is consulting for development of a Programmatic Agreement (PA) for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction System (WSLP) Study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate.

The proposed undertakings of the WSLP Study have the potential to effect historic properties. The WSLP Study was first authorized in 1971 and experienced many variations and delays, but now finds further development to be directed by the USACE SMART Feasibility Study Process. A draft Integrated Feasibility Report and Environmental Impact Statement for the WSLP study is available for review at http://www.mvn.usace.army.mil/Portals/56/docs/PD/Projects/WSLP/WSLPFINAL.pdf.

The CEMVN is currently funding a cultural resources survey for an approximately 18.5 mile, 550-foot wide, proposed levee corridor (TSP C) (to include construction, adjacent drainage ditch reservoirs, and Right-of-Way), that is the largest single component of the WSLP study. This levee corridor is immediately adjacent to previous cultural resource surveys (as per Louisiana SHPO files) with negative findings, for approximately 10 liner miles. Approximately 1.8 miles of levee corridor pass through or adjacent to cultural resource site 16SJB68 (Angelina Plantation) near the Mississippi River. This site received extensive cultural resources survey in 2012 (Louisiana Site Report 22-4288), and did not locate National Register of Historic Places (NRHP) eligible resources within the proposed levee corridor. Remaining areas of corridor that remain unsurveyed are within seasonally wet lands not conducive to recoverable human activity or preserved cultural resources. No other cultural resources have been recorded within 1 miles of the TSP C levee corridor. It is anticipated that any previously unrecorded cultural resource will be located by the current survey underway for the WSLP study.

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Sincerely,

for Sandra Stiles
Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

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

REPLY TO
ATTENTION OF:

February 27, 2014

Regional Planning and
Environment Division, South
New Orleans Environmental Branch

Mr. Jerome Zeringue, Executive Director
Coastal Protection and
Restoration Authority Board of Louisiana
P.O. Box 94004
Office of Governor-Coastal, 4th Floor
Baton Rouge, LA 70804

Dear Mr. Zeringue:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), is consulting for development of a Programmatic Agreement (PA) for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction System (WSLP) Study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate.

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The point of contact at the CEMVN is Dr. Paul Hughbanks. You can reach him at the above address or by phone at (504) 862-1100 or by e-mail at Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter will be submitted to Ms. Elizabeth Jarrell, elizabeth.jarrell@la.gov and Ms. Elizabeth Davoli, elizabeth.davoli@la.gov.

Sincerely,

Sandra Stiles

for Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

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

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

MAY 0 3 2013

Ms. Pam Breaux
State Historic Preservation Officer
Department of Culture, Recreation and Tourism
Office of Cultural Development
P.O. Box 44247
Baton Rouge, Louisiana 70804

Re: West Shore Lake Pontchartrain Hurricane Protection Project, St. John the Baptist and St. Charles Parish, Louisiana.

Dear Ms. Breaux:

The U.S. Army Corps of Engineers, New Orleans District (The Corps) has been in process of collecting data to select an alignment for construction of a levee in St. Charles and St. John the Baptist Parish, intended to protect the citizens of these parishes from storm surges that have shown able to cause extreme flooding. No construction has yet taken place on the ground, and the Corps has developed three alignments that appear most suitable given the various interests of federal and local governments. Each of these alignments begins at the western guide levee of the Bonnet Carre Spillway, and then diverge in different paths to protect various amounts of land and urban settlement. An image showing each of these three alignments is enclosed in this letter, for your review.

The Corps has been studying the need for this protection levee for many years, and in 2001 requested that Earth Search, Inc. conduct a cultural resources survey of an alignment very similar to Alignment A (Report 22-2559; Wilson et al. 2003). No cultural resources were located as a result of this survey. Alignments C and D have not received specific cultural resources surveys, although the Corps has reviewed available records of previous surveys or previously recorded cultural resources, and found that large portions of these alignments have been partially covered by other surveys without finding cultural resources. However, the Corps does intend to continue collecting information as to the potential effects caused by the construction of any protection levee, as well as potential effects of weather events after any levee is in place. This information will continue to be compared to known cultural resource locations and surveys. The Corps will continue consultation in compliance with Section 106 of the National Historic Preservation Act.

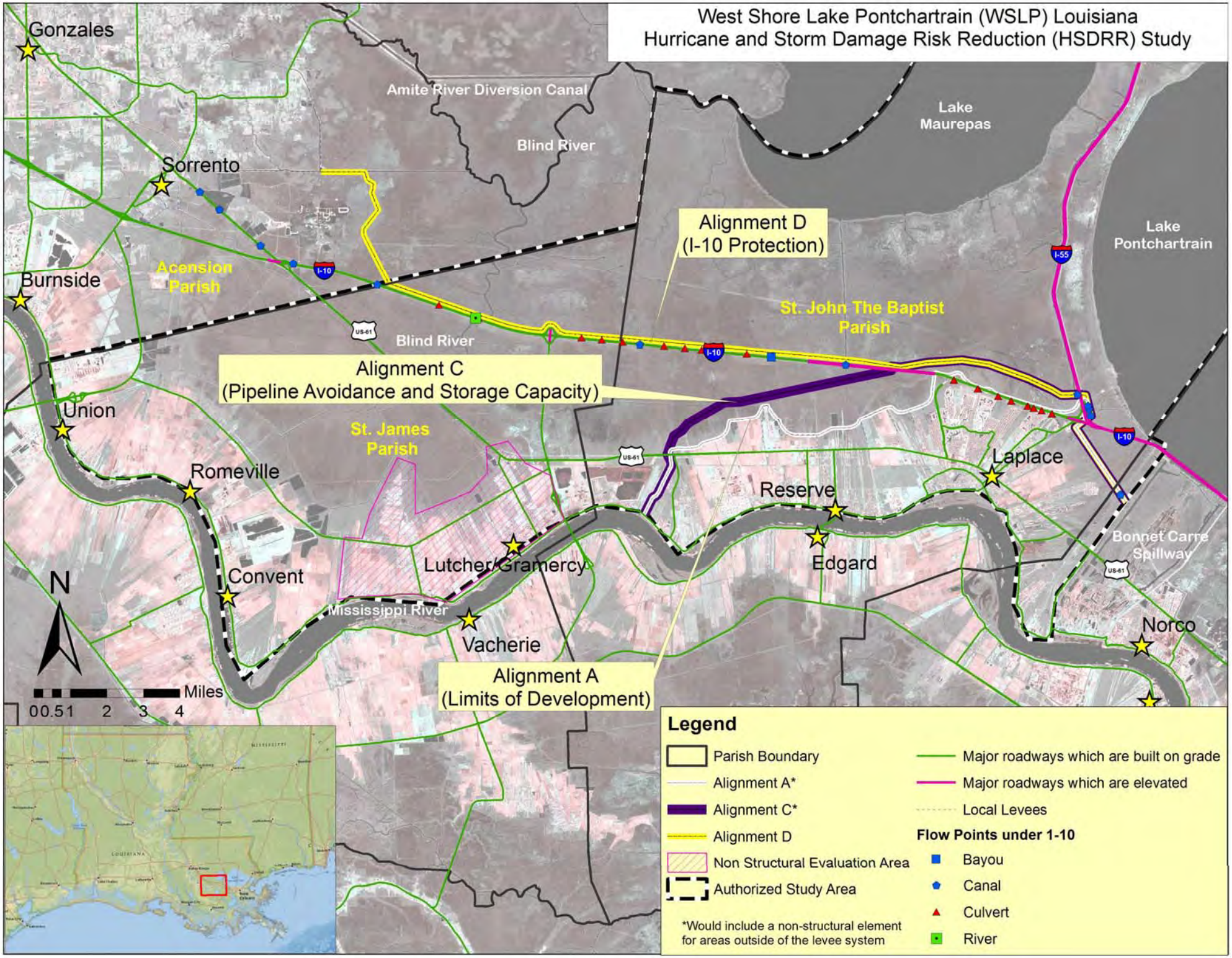
The Corps has sent this letter with intention to inform you of the current status of this project and our continuing efforts to be aware of any potential to affect historic resources. If you have concerns with this method and area of investigation, we invite you to notify us of those concerns so that we may be fully aware of them as this project proceeds. Please contact project archaeologist Dr. Paul Hughbanks, (504) 862-1100, Paul.J.Hughbanks@usace.army.mil, with any questions or comments.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures


West Shore Lake Pontchartrain (WSLP) Louisiana
Hurricane and Storm Damage Risk Reduction (HSDRR) Study
Gonzales
Amite River Diversion Canal
Blind River
Lake Maurepas
Lake Pontchartrain
Sorrento
Alignment D
(I-10 Protection)
Acension Parish
Burnside
St. John The Baptist Parish
Blind River
Alignment C
(Pipeline Avoidance and Storage Capacity)
Union
St. James Parish
Romeville
Laplace
Reserve
Bonnet Carre Spillway
Edgard
Lutcher/Gramercy
Convent
Mississippi River
Vacherie
Norco
Alignment A
(Limits of Development)
N
Miles
00.51 2 3 4
Legend
Parish Boundary
Alignment A*
Alignment C*
Alignment D
Non Structural Evaluation Area
Authorized Study Area
*Would include a non-structural element for areas outside of the levee system
Major roadways which are built on grade
Major roadways which are elevated
Local Levees
Flow Points under 1-10
Bayou
Canal
Culvert
River

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Carlos Bullock, Chairman
Alabama-Coushatta Tribe of Texas
571 State Park Rd 56
Livingston, TX 77351

Dear Chairman Bullock:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

The CEMVN has determined that implementation of the selected TSP for each study has the potential to cause effects on historic properties and proposes to develop two PAs to establish Section 106 consultation procedures tailored to the accelerated schedules required by the USACE SMART Feasibility Study Process. The undertakings have been summarized in previous Section 106 consultation correspondence and are detailed in the draft Integrated Feasibility Report and Programmatic Environmental Impact Statement for the SWC LA study, available electronically for review at http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx and the draft Integrated Feasibility Report and Environmental Impact Statement for the WSLP study, available electronically for review at http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain.

A teleconference has been scheduled for March 10, 2014, and the agenda and call-in information will be provided by email. We request that you inform us of your desire to participate as a consulting party in these PAs. Given the accelerated schedules, CEMVN requests that consultation for the development of the PAs utilize a combination of email and teleconferences.

As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; rebecca.hill@usace.army.mil. An electronic copy of this letter and all future correspondence pertaining to the development of the PAs will be provided electronically to Mr. Bryant J. Celestine, Historic Preservation Officer, Alabama Coushatta Tribe of Texas, celestine.bryant@actribe.org.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Brenda Shemayme Edwards, Chairwoman
Caddo Nation of Oklahoma
P.O. Box 487
Binger, OK 73009

Dear Chairwoman Edwards:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; rebecca.hill@usace.army.mil. An electronic copy of this letter and all future correspondence pertaining to the development of the PAs will be provided electronically to Mr. Robert Cast, Tribal Historic Preservation Officer, Caddo Nation of Oklahoma, rcast@caddonation.org.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

John Paul Darden, Chairman
Chitimacha Tribe of Louisiana
P.O. Box 661
Charenton, LA 70523

Dear Chairman Darden:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; rebecca.hill@usace.army.mil. An electronic copy of this letter and all future correspondence pertaining to the development of the PAs will be provided electronically to Mrs. Kimberly Walden, M. Ed., Cultural Director/Tribal Historic Preservation Officer, Chitimacha Tribe of Louisiana, kswalden@chitimacha.gov.

Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Gregory E. Pyle, Chief
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702-1210

Dear Chief Pyle:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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Sincerely,

Joan M. Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Kevin Sickey, Chief
Coushatta Tribe of Louisiana
P.O. Box 818
Elton, LA 70532

Dear Chief Sickey:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

B. Cheryl Smith, Principal Chief
Jena Band of Choctaw Indians
P.O. Box 14
Jena, LA 71342

Dear Principal Chief Smith:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; rebecca.hill@usace.army.mil. An electronic copy of this letter and all future correspondence pertaining to the development of the PAs will be provided electronically to Ms. Dana Masters, Tribal Historic Preservation Officer, Jena Band of Choctaw Indians, jbc.thpo106@aol.com, and Ms. Lillie McCormick, Environmental Director, Jena Band of Choctaw Indians, lmmccormickjbc@centurytel.net.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Phyliss J. Anderson, Chief
Mississippi Band of Choctaw Indians
P.O. Box 6257
Choctaw, MS 39350

Dear Chief Anderson:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Leonard M. Harjo, Principal Chief
Seminole Nation of Oklahoma
P.O. Box 1498
Wewoka, OK 74884

Dear Principal Chief Harjo:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

James Billie, Chairman
Seminole Tribe of Florida
6300 Stirling Road
Hollywood, FL 33024

Dear Chairman Billie:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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Sincerely,

Joan M. Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

MARCH 7, 2014

REPLY TO
ATTENTION OF

Regional Planning and
Environment Division, South

Earl J. Barbry, Sr., Chairman
Tunica-Biloxi Tribe of Louisiana
P.O. Box 1589
Marksville, LA 71351

Dear Chairman Barbry:

The United States Army Corps of Engineers, New Orleans District (CEMVN), is continuing consultation to develop Programmatic Agreements (PAs) for two studies, the Southwest Coastal Louisiana (SWC LA) study and the West Shore Lake Pontchartrain (WSLP) study, in accordance with 36 CFR § 800.14(b) of the regulations implementing Section 106 of the National Historic Preservation Act. We invite you to participate in the consultation for the development of these two separate PAs.

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As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; rebecca.hill@usace.army.mil. An electronic copy of this letter and all future correspondence pertaining to the development of the PAs will be provided electronically to Mr. Earl Barbry, Jr., Cultural Director, Tunica-Biloxi Tribe of Louisiana, earlii@tunica.org.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Carlos Bullock, Chairman
Alabama-Coushatta Tribe of Texas
571 State Park Rd 56
Livingston, TX 77351

Dear Chairman Bullock:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), has prepared an Integrated Draft Feasibility Report and Environmental Impact Statement (Integrated Draft Report) for the West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study. The Integrated Draft Report is available electronically for review at http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain, and hard copies are available upon request.

In partial fulfillment of responsibilities under Executive Order 13175, the National Environmental Policy Act (NEPA), and Section 106 of the National Historic Preservation Act, the CEMVN offers you the opportunity to review and comment on the potential of the proposed action described in the Integrated Draft Report to significantly affect protected tribal resources, tribal rights, or Indian lands. Consultation for the proposed action was initiated in a letter dated May 3, 2013.

The Integrated Draft Report proposes potential solutions to reduce damages from hurricane and tropical storm surge for residents in St. Charles, St. John the Baptist and St. James Parishes, Louisiana. Without action, an estimated 62,900 residents and 20,000 residential structures; 1,900 non-residential structures; and 165 public and quasi-public facilities will be at risk to damage from hurricane and tropical storm surge damages.

Eleven management measures were crafted to address storm surge. Structural and nonstructural features included levees, elevating buildings, and restoring cypress swamp. Measures were combined into a dozen alternative plans. A focused array of four alternative plans was evaluated under SMART Planning. Alternatives A and C are comprised of non-structural measures and levee alignments. A third plan (Alternative D) consists of a levee and flood wall alignment. A no-action plan is the basis to compare benefits and environmental impacts.

Alternative C is the Tentatively Selected Plan (TSP). Feasibility-level design will commence after the SMART Planning Agency Decision Milestone and will finish before a Final

Report. The TSP is an 18.27-mile risk reduction system around the communities of Montz, Laplace, Reserve, and Garyville with non-structural components in St. James Parish. The alignment of the TSP is shown in Figure 3-6 of the Integrated Draft Report. The risk of storm surge damage would be reduced for over 7,000 structures and four miles of I-10 located in the system. Inclusion of this segment of I-10 would help maintain a major emergency evacuation and re-entry route for residents of southeast Louisiana, including residents in the New Orleans metropolitan area. The TSP also includes non-structural measures for 1,571 structures in the communities of Gramercy, Lutcher, and Grand Point that are located outside of the proposed levee system. It is estimated that these non-structural measures would include elevation of 1,481 structures and acquisition of 90 structures. Implementation of non-structural features will be developed in more detail during feasibility level of design and analysis during which time an economic analysis will be conducted based on economic reaches. In developing the plan, consideration with be given to community cohesion and the requirements of E.O. 12898.

The structural component of the system would consist of earthen levees, floodwalls (T-walls), floodgates, drainage structures, and pump stations located along the alignment. The preliminary level of design, based on modeling for a 1 percent AEP storm event includes levee elevations that would range from +13.5 NAVD88 on the eastern reaches near the Bonnet Carré Spillway to +7.0 NAVD88 in the western portion of the project area. They would be constructed with 3:1 side slopes with a 10-foot crown width. Construction of levees would involve the placement of 3,100,000 cubic yards of compacted and uncompacted clay (borrow) material on top of 3,400,000 square yards of geotextile fabric. Approximately 26,124 cubic yards of aggregate limestone would be used to build a road on the levee crown. A conveyance canal at a depth of - 10 ft. NAVD88 would be situated along the levee. Floodwalls would be located under the I-10/I- 55 interchange and other areas where space is limited. Nine floodwall sections would span 5,304 linear feet over the length of the system. The system would include 2,080 feet of drainage gates, 288 feet of roadway gates, two railway gates, and thirty-six pipeline crossings. Four pump stations would be located along the alignment to ensure the project does not adversely impact local drainage. Design parameters will be further refined during feasibility level design and analysis which may result in changes to the design parameters; however, the TSP is anticipated to reduce risk for at minimum a 1 percent AEP storm event but not exceed a 0.5 percent AEP storm event.

The TSP would maintain hydrologic connectivity to the extent practicable through the use of water control structures except during closure for hurricane and tropical storm surge events. When the system is closed, pumps would operate on average for 1.7 storm events per year, which equates to closure of structures on average 8.5 days per year. The structural alignment would directly convert approximately 856 acres to uplands including approximately 775 acres of hydric soils, 14.8 acres of water bottoms, and 55.4 acres of prime farmlands. Approximately 8,424 acres of wetlands could be indirectly impacted due to enclosing the project area within the levee system. Further investigation is required to determine if cultural resources are located

within any part of the footprint. Additional environmental investigations will be performed during feasibility-level design and analysis. The estimated cost of the TSP is $880,851,070. The BCR for the TSP is equal to 1.63 to 1 with annualized net benefits equal to approximately $23,000,000.

Section 106 Consultation

Formal Section 106 consultation pursuant to 36 CFR § 800.3(c) has been initiated with the Louisiana State Historic Preservation Officer (SHPO) and eleven federally-recognized Tribes with an interest in USACE undertakings within the boundaries of CEMVN. The Choctaw Nation of Oklahoma has requested additional information regarding the undertaking, and the CEMVN will continue consultation with the SHPO and federally-recognized Tribes. With selection of the TSP as presented in the Integrated Draft Report, the CEMVN will now proceed with the identification and evaluation of historic properties, the results of which will be coordinated with the SHPO and federally-recognized Tribes in a continuation of Section 106 consultation.

Integrated Draft Report

Finally, I would like to offer my apologies for an oversight resulting in an error on page 7-2 of the Integrated Draft Report. You may note that both federally-recognized Tribes and non-federally- recognized tribes are included in Table 7.1: List of report recipients, and that the Mississippi Band of Choctaw Indians was inadvertently omitted. No disrespect was intended, and actions have already been taken to ensure that this is corrected for the final report.

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As always, should you have any questions or concerns about the proposed action or the SMART Planning framework, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; Rebecca.Hill@usace.army.mil. You may also contact the project archaeologist Dr. Paul Hughbanks with any questions or comments at (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter will be provided to Mr. Bryant J. Celestine, Historic Preservation Officer, Alabama Coushatta Tribe of Texas, celestine.bryant@actribe.org.

Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Brenda Shemayme Edwards, Chairwoman
Caddo Nation of Oklahoma
P.O. Box 487
Binger, OK 73009

Dear Chairwoman Edwards:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), has prepared an Integrated Draft Feasibility Report and Environmental Impact Statement (Integrated Draft Report) for the West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study. The Integrated Draft Report is available electronically for review at http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain, and hard copies are available upon request.

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within any part of the footprint. Additional environmental investigations will be performed during feasibility-level design and analysis. The estimated cost of the TSP is $880,851,070. The BCR for the TSP is equal to 1.63 to 1 with annualized net benefits equal to approximately $23,000,000.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

John Paul Darden, Chairman
Chitimacha Tribe of Louisiana
P.O. Box 661
Charenton, LA 70523

Dear Chairman Darden:

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Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Gregory E. Pyle, Chief
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702-1210

Dear Chief Pyle:

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Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Kevin Sickey, Chief
Coushatta Tribe of Louisiana
P.O. Box 818
Elton, LA 70532

Dear Chief Sickey:

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

B. Cheryl Smith, Principal Chief
Jena Band of Choctaw Indians
P.O. Box 14
Jena, LA 71342

Dear Principal Chief Smith:

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As always, should you have any questions or concerns about the proposed action or the SMART Planning framework, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; Rebecca.Hill@usace.army.mil. You may also contact the project archaeologist Dr. Paul Hughbanks with any questions or comments at (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter will be provided to Ms. Dana Masters, Tribal Historic Preservation Officer, Jena Band of Choctaw Indians, jbc.thpo106@aol.com, and Ms. Lillie McCormick, Environmental Director, Jena Band of Choctaw Indians, lmmccormickjbc@centurytel.net.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Phyliss J. Anderson, Chief
Mississippi Band of Choctaw Indians
P.O. Box 6257
Choctaw, MS 39350

Dear Chief Anderson:

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Sincerely,

Joan M. Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

John Berrey, Chairman
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74363

Dear Chairman Berrey:

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Leonard M. Harjo, Principal Chief
Seminole Nation of Oklahoma
P.O. Box 1498
Wewoka, OK 74884

Dear Principal Chief Harjo:

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In partial fulfillment of responsibilities under Executive Order 13175, the National Environmental Policy Act (NEPA), and Section 106 of the National Historic Preservation Act, the CEMVN offers you the opportunity to review and comment on the potential of the proposed action described in the Integrated Draft Report to significantly affect protected tribal resources, tribal rights, or Indian lands. Consultation for the proposed action was initiated in a letter dated May 3, 2013.

The Integrated Draft Report proposes potential solutions to reduce damages from hurricane and tropical storm surge for residents in St. Charles, St. John the Baptist and St. James Parishes, Louisiana. Without action, an estimated 62,900 residents and 20,000 residential structures; 1,900 non-residential structures; and 165 public and quasi-public facilities will be at risk to damage from hurricane and tropical storm surge damages.

Eleven management measures were crafted to address storm surge. Structural and nonstructural features included levees, elevating buildings, and restoring cypress swamp. Measures were combined into a dozen alternative plans. A focused array of four alternative plans was evaluated under SMART Planning. Alternatives A and C are comprised of non-structural measures and levee alignments. A third plan (Alternative D) consists of a levee and flood wall alignment. A no-action plan is the basis to compare benefits and environmental impacts.

Alternative C is the Tentatively Selected Plan (TSP). Feasibility-level design will commence after the SMART Planning Agency Decision Milestone and will finish before a Final

Report. The TSP is an 18.27-mile risk reduction system around the communities of Montz, Laplace, Reserve, and Garyville with non-structural components in St. James Parish. The alignment of the TSP is shown in Figure 3-6 of the Integrated Draft Report. The risk of storm surge damage would be reduced for over 7,000 structures and four miles of I-10 located in the system. Inclusion of this segment of I-10 would help maintain a major emergency evacuation and re-entry route for residents of southeast Louisiana, including residents in the New Orleans metropolitan area. The TSP also includes non-structural measures for 1,571 structures in the communities of Gramercy, Lutcher, and Grand Point that are located outside of the proposed levee system. It is estimated that these non-structural measures would include elevation of 1,481 structures and acquisition of 90 structures. Implementation of non-structural features will be developed in more detail during feasibility level of design and analysis during which time an economic analysis will be conducted based on economic reaches. In developing the plan, consideration with be given to community cohesion and the requirements of E.O. 12898.

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within any part of the footprint. Additional environmental investigations will be performed during feasibility-level design and analysis. The estimated cost of the TSP is $880,851,070. The BCR for the TSP is equal to 1.63 to 1 with annualized net benefits equal to approximately $23,000,000.

Section 106 Consultation

Formal Section 106 consultation pursuant to 36 CFR § 800.3(c) has been initiated with the Louisiana State Historic Preservation Officer (SHPO) and eleven federally-recognized Tribes with an interest in USACE undertakings within the boundaries of CEMVN. The Choctaw Nation of Oklahoma has requested additional information regarding the undertaking, and the CEMVN will continue consultation with the SHPO and federally-recognized Tribes. With selection of the TSP as presented in the Integrated Draft Report, the CEMVN will now proceed with the identification and evaluation of historic properties, the results of which will be coordinated with the SHPO and federally-recognized Tribes in a continuation of Section 106 consultation.

Integrated Draft Report

Finally, I would like to offer my apologies for an oversight resulting in an error on page 7-2 of the Integrated Draft Report. You may note that both federally-recognized Tribes and non-federally- recognized tribes are included in Table 7.1: List of report recipients, and that the Mississippi Band of Choctaw Indians was inadvertently omitted. No disrespect was intended, and actions have already been taken to ensure that this is corrected for the final report.

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Please review the Integrated Draft Report and provide comments. The official closing date for receipt of comments will be 45 days from the date on which the Notice of Availability of the Draft EIS appears in the Federal Register. Please send comments or questions on the Draft Integrated Report the U.S. Army Corps of Engineers, New Orleans District, Attention: Dr. William P. Klein, Jr., P.O. Box 60267, New Orleans, Louisiana 70160-0267. Telephone: (504) 862-2540; FAX: (504) 862-2088. Comments may also be provided electronically to the study web site at http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain.

As always, should you have any questions or concerns about the proposed action or the SMART Planning framework, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; Rebecca.Hill@usace.army.mil. You may also contact the project archaeologist Dr. Paul Hughbanks with any questions or comments at (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter will be provided to Ms. Natalie Harjo, Tribal Historic Preservation Officer, Seminole Nation of Oklahoma, harjo.n@sno-nsn.gov.

Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

James Billie, Chairman
Seminole Tribe of Florida
6300 Stirling Road
Hollywood, FL 33024

Dear Chairman Billie:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), has prepared an Integrated Draft Feasibility Report and Environmental Impact Statement (Integrated Draft Report) for the West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study. The Integrated Draft Report is available electronically for review at http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain, and hard copies are available upon request.

In partial fulfillment of responsibilities under Executive Order 13175, the National Environmental Policy Act (NEPA), and Section 106 of the National Historic Preservation Act, the CEMVN offers you the opportunity to review and comment on the potential of the proposed action described in the Integrated Draft Report to significantly affect protected tribal resources, tribal rights, or Indian lands. Consultation for the proposed action was initiated in a letter dated May 3, 2013.

The Integrated Draft Report proposes potential solutions to reduce damages from hurricane and tropical storm surge for residents in St. Charles, St. John the Baptist and St. James Parishes, Louisiana. Without action, an estimated 62,900 residents and 20,000 residential structures; 1,900 non-residential structures; and 165 public and quasi-public facilities will be at risk to damage from hurricane and tropical storm surge damages.

Eleven management measures were crafted to address storm surge. Structural and nonstructural features included levees, elevating buildings, and restoring cypress swamp. Measures were combined into a dozen alternative plans. A focused array of four alternative plans was evaluated under SMART Planning. Alternatives A and C are comprised of non-structural measures and levee alignments. A third plan (Alternative D) consists of a levee and flood wall alignment. A no-action plan is the basis to compare benefits and environmental impacts.

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Report. The TSP is an 18.27-mile risk reduction system around the communities of Montz, Laplace, Reserve, and Garyville with non-structural components in St. James Parish. The alignment of the TSP is shown in Figure 3-6 of the Integrated Draft Report. The risk of storm surge damage would be reduced for over 7,000 structures and four miles of I-10 located in the system. Inclusion of this segment of I-10 would help maintain a major emergency evacuation and re-entry route for residents of southeast Louisiana, including residents in the New Orleans metropolitan area. The TSP also includes non-structural measures for 1,571 structures in the communities of Gramercy, Lutcher, and Grand Point that are located outside of the proposed levee system. It is estimated that these non-structural measures would include elevation of 1,481 structures and acquisition of 90 structures. Implementation of non-structural features will be developed in more detail during feasibility level of design and analysis during which time an economic analysis will be conducted based on economic reaches. In developing the plan, consideration with be given to community cohesion and the requirements of E.O. 12898.

The structural component of the system would consist of earthen levees, floodwalls (T-walls), floodgates, drainage structures, and pump stations located along the alignment. The preliminary level of design, based on modeling for a 1 percent AEP storm event includes levee elevations that would range from +13.5 NAVD88 on the eastern reaches near the Bonnet Carré Spillway to +7.0 NAVD88 in the western portion of the project area. They would be constructed with 3:1 side slopes with a 10-foot crown width. Construction of levees would involve the placement of 3,100,000 cubic yards of compacted and uncompacted clay (borrow) material on top of 3,400,000 square yards of geotextile fabric. Approximately 26,124 cubic yards of aggregate limestone would be used to build a road on the levee crown. A conveyance canal at a depth of - 10 ft. NAVD88 would be situated along the levee. Floodwalls would be located under the I-10/I- 55 interchange and other areas where space is limited. Nine floodwall sections would span 5,304 linear feet over the length of the system. The system would include 2,080 feet of drainage gates, 288 feet of roadway gates, two railway gates, and thirty-six pipeline crossings. Four pump stations would be located along the alignment to ensure the project does not adversely impact local drainage. Design parameters will be further refined during feasibility level design and analysis which may result in changes to the design parameters; however, the TSP is anticipated to reduce risk for at minimum a 1 percent AEP storm event but not exceed a 0.5 percent AEP storm event.

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Section 106 Consultation

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Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

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

AUGUST 23, 2013

REPLY TO ATTENTION OF

Regional Planning and
Environment Division, South

Earl J. Barbry, Sr., Chairman
Tunica-Biloxi Tribe of Louisiana
P.O. Box 1589
Marksville, LA 71351

Dear Chairman Barbry:

The United States Army Corps of Engineers (USACE), New Orleans District (CEMVN), has prepared an Integrated Draft Feasibility Report and Environmental Impact Statement (Integrated Draft Report) for the West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study. The Integrated Draft Report is available electronically for review at http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain, and hard copies are available upon request.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Carlos Bullock, Chairman
Alabama-Coushatta Tribe of Texas
571 State Park Rd 56
Livingston, TX 77351

Dear Chairman Bullock:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

The purpose of this letter is to initiate consultation for the WSLP LA HSDRR study, in partial fulfillment of responsibilities under Executive Order 13175, the National Environmental Policy Act, and Section 106 of the National Historic Preservation Act. The CEMVN offers you the opportunity to review and comment on the potential of the proposed action to significantly affect protected tribal resources, tribal rights, or Indian lands.

Study Authority and History of Investigation

The WSLP LA HSDRR study was initiated by two authorizations, one by the House of Representatives in 1971 and another by the Senate in 1974. Several formulations and reports have been accomplished since the original authorizations. In 1996 Congress authorized funding for a general investigation into hurricane and flood protection in St. James, St. John the Baptist, and St. Charles parishes in the area west of the Bonne Carré Spillway as part of the Lake Pontchartrain and Vicinity, Louisiana Authority. Subsequently, a feasibility study was initiated and the preliminary findings were presented to the PLD and St. John Parish in 1998. One of the eight alignments from the preliminary findings and an additional alignment presented by the PLD were chosen for further investigation and in 2003, the USACE presented alignment and

cost options to the PLD and St. John the Baptist Parish for these two alternatives. No consensus could be reached on which alignment to pursue and the study was halted. In 2006, the PLD developed a third alignment for consideration by the USACE and St. John the Baptist Parish. A preliminary screening level analysis was completed in 2007, and the PLD and the USACE agreed to re-initiate the feasibility study and an EIS.

Study Area

The WSLP LA HSDRR study area is located in St. Charles, St. John the Baptist and St. James parishes, Louisiana (see enclosed Figure 1). The study area is bounded on the east by the west guide levee of the Bonnet Carré Spillway, on the north by Lake Pontchartrain and Lake Maurepas, on the west by the St. James Parish line and on the south by the Mississippi River. The study area includes residential, commercial, industrial and undeveloped land. The southern portion of the study contains the communities of LaPlace, Reserve, Garyville, Gramercy, Lutcher and Convent. Most of the northern portion is occupied by the Maurepas Swamp Wildlife Management Area and includes sections of Interstate Highway 10 (I-10) and I-55.

Proposed Alignments

Thirty-two alignments were identified and screened based on objectives and constraints and local conditions, including pipeline avoidance and storage and infrastructure concerns, reducing the number of alignments to twelve. These twelve alignments were ranked based on their ability to meet the study objectives and avoid constraints, and the top four alignments that met evaluation criteria were carried forward for evaluation. An additional non-structural alternative was developed.

The final array of alternatives include the No Action Alternative; Alternative A: Spillway to Hope Canal/Mississippi River and Non-Structural Alternative; Alternative C: Spillway to Hope Canal/MS River (Pipeline Avoidance) and Non-Structural Alternative; Alternative D: Spillway to Ascension Parish (I-10 Protection) without Non-Structural Alternative; and Alternative E: Non-Structural Alternative (see enclosed Figure 2).

Section 106 Consultation

This letter initiates formal Section 106 consultation pursuant to 36 CFR § 800.3(c). The majority of the authorized study area is within the Maurepas Swamp, although the study area also contains natural levee of the Mississippi River. Upon selection of the tentatively selected plan and the identification of historic properties, in accordance with 36 CFR § 800.4, the CEMVN will continue Section 106 consultation. Also enclosed is a copy of the 3 May 2013 CEMVN letter to the Louisiana State Historic Preservation Officer.

Your response to this letter, including any information your office may wish to provide at this time concerning the proposed undertaking and its potential to significantly affect protected tribal resources, tribal rights, or Indian lands is greatly appreciated. Please also notify us of any other interested party who may wish to participate in this consultation.

As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; Rebecca.Hill@usace.army.mil. You may also contact the project archaeologist Dr. Paul Hughbanks with any questions or comments at (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter with enclosures will be provided to Mr. Bryant J. Celestine, Historic Preservation Officer, Alabama Coushatta Tribe of Texas, celestine.bryant@actribe.org.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Brenda Shemayme Edwards, Chairwoman
Caddo Nation of Oklahoma
P.O. Box 487
Binger, OK 73009

Dear Chairwoman Edwards:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

John Paul Darden, Chairman
Chitimacha Tribe of Louisiana
P.O. Box 661
Charenton, LA 70523

Dear Chairman Darden:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Gregory E. Pyle, Chief
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, OK 74702-1210

Dear Chief Pyle:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Kevin Sickey, Chief
Coushatta Tribe of Louisiana
P.O. Box 818
Elton, LA 70532

Dear Chief Sickey:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

B. Cheryl Smith, Principal Chief
Jena Band of Choctaw Indians
P.O. Box 14
Jena, LA 71342

Dear Principal Chief Smith:

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Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Phyliss J. Anderson, Chief
Mississippi Band of Choctaw Indians
P.O. Box 6257
Choctaw, MS 39350

Dear Chief Anderson:

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Sincerely,

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Enclosures

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

May 3, 2013

Regional Planning and
Environment Division, South

John Berrey, Chairman
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74363

Dear Chairman Berrey:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

The purpose of this letter is to initiate consultation for the WSLP LA HSDRR study, in partial fulfillment of responsibilities under Executive Order 13175, the National Environmental Policy Act, and Section 106 of the National Historic Preservation Act. The CEMVN offers you the opportunity to review and comment on the potential of the proposed action to significantly affect protected tribal resources, tribal rights, or Indian lands.

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Your response to this letter, including any information your office may wish to provide at this time concerning the proposed undertaking and its potential to significantly affect protected tribal resources, tribal rights, or Indian lands is greatly appreciated. Please also notify us of any other interested party who may wish to participate in this consultation.

As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; Rebecca.Hill@usace.army.mil. You may also contact the project archaeologist Dr. Paul Hughbanks with any questions or comments at (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter with enclosures will be provided to Ms. Jean Ann Lambert, Tribal Historic Preservation Officer, Quapaw Tribe of Oklahoma, jlambert@quapawtribe.com.

Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Leonard M. Harjo, Principal Chief
Seminole Nation of Oklahoma
P.O. Box 1498
Wewoka, OK 74884

Dear Principal Chief Harjo:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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As always, should you have any questions or concerns about the proposed action, you may contact Ms. Rebecca Hill; Archeologist/Tribal Liaison; U.S. Army Corps of Engineers, New Orleans District; (504) 862-1474; Rebecca.Hill@usace.army.mil. You may also contact the project archaeologist Dr. Paul Hughbanks with any questions or comments at (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil. An electronic copy of this letter with enclosures will be provided to Ms. Natalie Harjo, Tribal Historic Preservation Officer, Seminole Nation of Oklahoma, harjo.n@sno-nsn.gov.

Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

James Billie, Chairman
Seminole Tribe of Florida
6300 Stirling Road
Hollywood, FL 33024

Dear Chairman Billie:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

REPLY TO
ATTENTION OF

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

May 3, 2013

Regional Planning and
Environment Division, South

Earl J. Barbry, Sr., Chairman
Tunica-Biloxi Tribe of Louisiana
P.O. Box 1589
Marksville, LA 71351

Dear Chairman Barbry:

The United States Army Corps of Engineers (USACE) and the Pontchartrain Levee District (PLD) have initiated an investigation into the feasibility of providing hurricane and storm damage risk reduction to residents living in the area west of the Bonnet Carré Spillway between the Mississippi River and Lakes Pontchartrain and Maurepas and the St. James Parish line. The New Orleans District (CEMVN) is preparing a West Shore-Lake Pontchartrain (WSLP) Integrated Feasibility Study/Environmental Impact Statement (Integrated Report), which will describe all aspects of the WSLP Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) study, from its inception, through the evolution of the various alternatives, the discussion of potential impacts to all applicable natural, socioeconomic and cultural resources, to the decision to recommend a preferred alternative.

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Sincerely,

Joan M Exnicios

Joan M. Exnicios
Chief, Environmental Planning Branch

Enclosures

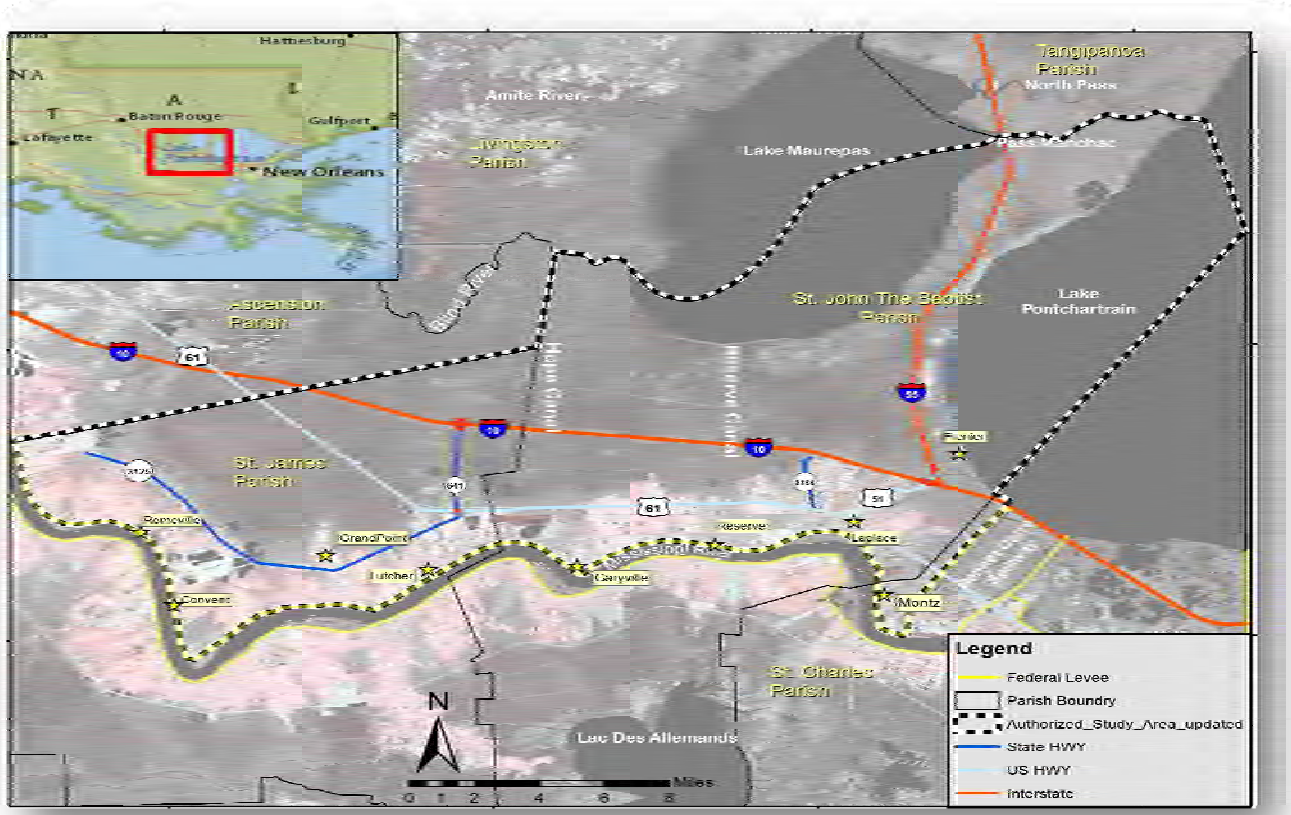

Figure 1. West Shore-Lake Pontchartrain Louisiana Hurricane and Storm Damage Risk Reduction Study Area.

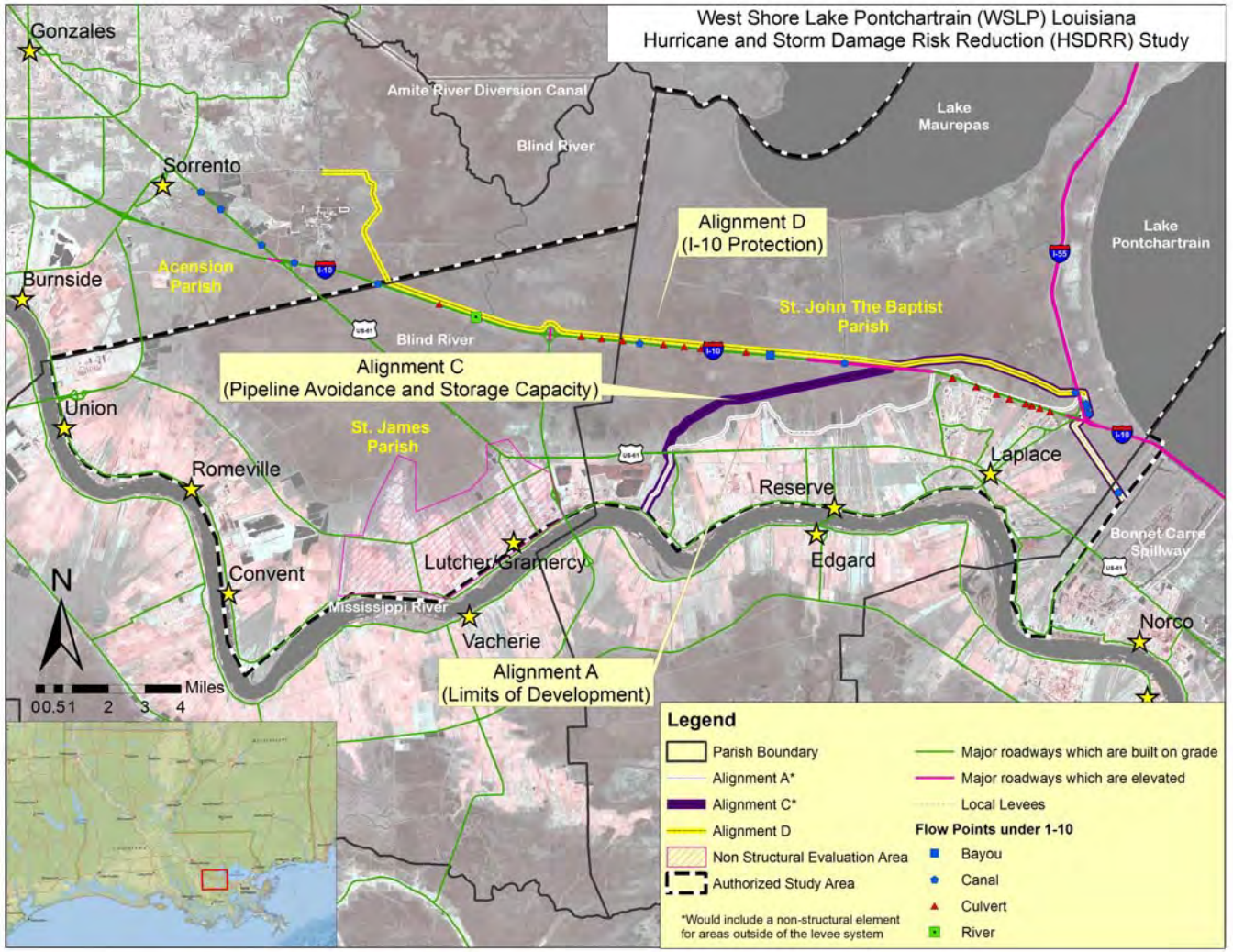

Figure 2. West Shore-Lake Pontchartrain Louisiana Hurricane and Storm Damage Risk Reduction Study Final Array of Alternatives.

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex G

U.S. Fish and Wildlife Service Final Coordination Act Report

Dayan, Nathan S MVN

From: Breaux, Catherine M MVN
Sent: Monday, May 12, 2014 9:50 AM
To: Dayan, Nathan S MVN; Walther, David
Cc: Stiles, Sandra E MVN; Gilmore, Tammy H MVN
Subject: RE: Change to the mitigation plan. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Nathan,

Thanks for continuing to coordinate with us. As stated below the mitigation plan has been changed to eliminate the Milton component and replacing those mitigation needs by expanding the Lutcher Farmland component. The Service agrees with this change and has no need to develop a Supplemental FWCA letter in response to this mitigation change. We appreciate your continued coordination in regards to the Sprague's pipit.

Thanks,

Cathy Breaux (CEMVN-PD-P)
Fish and Wildlife Service
PO Box 60267
(504) 862-2689
(504) 862-1892

-----Original Message-----
From: Dayan, Nathan S MVN
Sent: Saturday, May 10, 2014 4:55 PM
To: Breaux, Catherine M MVN; Walther, David
Cc: Stiles, Sandra E MVN; Gilmore, Tammy H MVN
Subject: Change to the mitigation plan. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Cathy/Dave
Please see the update mitigation plan. The Milton component was eliminated and the equivalent AAAHUs (131) were found by expanding the Lutcher Farmland component. 445 acres of open water will not be converted to swamp rather an additional 302 acres of farmland (348 total acres) will be converted to swamp.

We have determined that the farm fields may be suitable habitat for the candidate species Sprague’s pipit. If any of these birds are present they would be forced to permanently relocate. The USACE will consult with USFWS when the species is listed.

Please inform us if an this change will require an addendum to Final CAR? If so I really need it by Wed morning.

Nathan Dayan
Fishery Biologist
RTS Environmental Compliance
US Army Corps of Engineers

United States Department of the Interior

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

April 28, 2014

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

Dear Colonel Hansen:

Please reference the "West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study." The study was authorized by resolutions adopted by the U.S. House Committee on Public Works on July 29, 1971, and the U.S. Senate Committee on Public Works September 20, 1974. The Fish and Wildlife Service (Service) has prepared five Planning-Aid Reports dated January 21, 1985, June 30, 1987, April 3, 1997, May 4, 2001, and October 9, 2012, for previous reconnaissance studies, one letter for a Notice of Intent dated January 9, 2009, and a Draft Fish and Wildlife Coordination Act (FWCA) Report in June 2013.

This final report contains a description of existing fish and wildlife resources in the project area, discusses future with-project (FWP) and future without-project (FWOP) habitat conditions, identifies fish and wildlife-related impacts, and provides recommendations to improve the proposed West Shore, Lake Pontchartrain project. This report constitutes the final report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The Service has coordinated with National Marine Fisheries (NMFS) and Louisiana Department of Wildlife and Fisheries (LDWF); their comments have been incorporated into this final report.

We appreciate the cooperation of your staff on this study. Should your staff have any questions regarding the enclosed report, please have them contact Ms. Catherine Breaux (504/862-2689) of this office.

Sincerely,

Jeffrey D. Weller
Supervisor
Louisiana Ecological Services Office

Enclosures

cc: Environmental Protection Agency, Dallas, TX
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
Coastal Protection and Restoration Authority (CPRA), Baton Rouge, La
Natural Resources Conservation Service, Alexandria, LA
Pontchartrain Levee District, Lutcher, LA

United States Department of the Interior

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

April 28, 2014

Robert Barham
Secretary
Louisiana Department of Wildlife and Fisheries
Post Office Box 98000
Baton Rouge, Louisiana 70898-9000

Dear Mr. Barham:

Attached is the Final Fish and Wildlife Coordination Act Report on the "West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study." This report constitutes the final report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The Fish and Wildlife Service has incorporated your agency's comments into the final report prior to its submission to the U.S. Army Corps of Engineers. Should your staff have any questions regarding this report, please have them contact Catherine Breaux (504/862-2689) of this office.

Sincerely,

for Jeffrey D. Weller
Supervisor
Louisiana Ecological Services Office

United States Department of the Interior

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

April 28, 2014

Mr. Richard Hartman
Branch Chief
Habitat Conservation Division
National Marine Fisheries Service
c/o Louisiana State University
Baton Rouge, Louisiana 70803-7535

Dear Mr. Hartman:

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Jeffrey D. Weller
Supervisor
Louisiana Ecological Services Office

Final Fish and Wildlife Coordination Act Report
for the
West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study in Ascension, St. Charles, St. James, and St. John the Baptist Parishes, Louisiana

SUBMITTED TO
NEW ORLEANS DISTRICT
U.S. ARMY CORPS OF ENGINEERS
AND
PONTCHARTRAIN LEVEE DISTRICT

PREPARED BY
CATHERINE BREAUX
FISH AND WILDLIFE BIOLOGIST

U.S. FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
LAFAYETTE, LOUISIANA
APRIL 2014
U.S. FISH AND WILDLIFE SERVICE – SOUTHEAST REGION

TABLE OF CONTENTS

FIGURES AND TABLES

INTRODUCTION

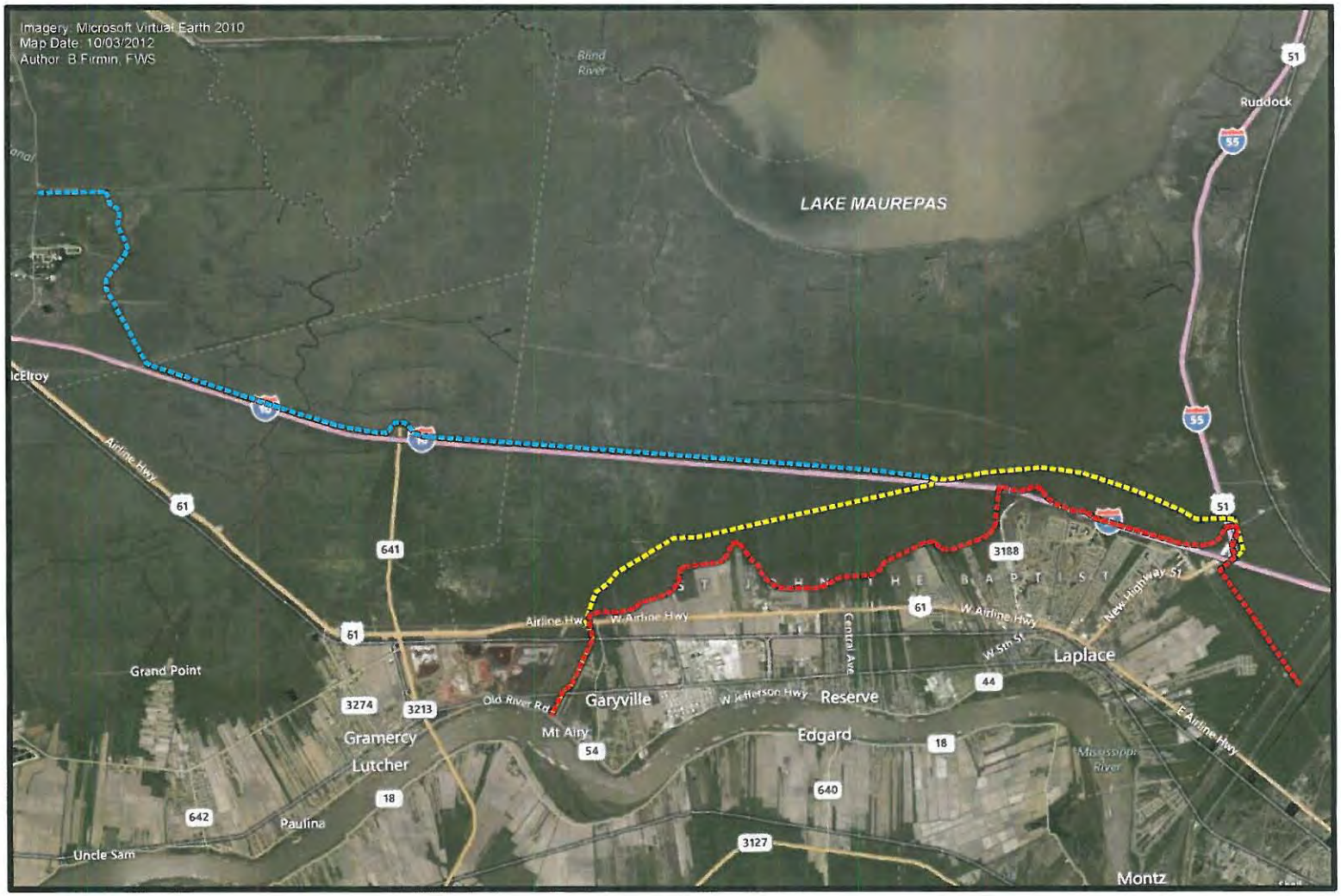
The U.S. Army Corps of Engineers (Corps) is conducting a study; the "West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study" (WSLP) in Ascension, St. Charles, St. James, and St. John the Baptist Parishes, Louisiana, to determine the feasibility of providing Federal hurricane protection to the western shore of Lake Pontchartrain. The study was authorized by resolutions adopted by the U.S. House Committee on Public Works on July 29, 1971, and the U.S. Senate Committee on Public Works September 20, 1974. The Fish and Wildlife Service (Service) has prepared five Planning-aid Reports dated January 21, 1985, June 30, 1987, April 3, 1997, May 4, 2001, and October 9, 2012, for previous reconnaissance studies and one letter for a Notice of Intent dated January 9, 2009. This final report contains a description of existing fish and wildlife resources in the project area, discusses future with-project (FWP) and future without-project (FWOP) habitat conditions, identifies fish and wildlife-related impacts, and provides recommendations to improve the proposed West Shore, Lake Pontchartrain project. This report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The Service has coordinated with National Marine Fisheries (NMFS) and Louisiana Department of Wildlife and Fisheries (LDWF); their comments have been incorporated into this final report.

The study area is bounded by the Bonnet Carré Spillway to the east, the Mississippi River to the south, Lakes Pontchartrain and Maurepas to the north, and St. James Parish/Ascension Parish line to the west. The communities in this area include Laplace, Reserve, Gramercy, Lutcher, Garyville, Riverland Heights, and Carrollwood. The Louisiana Department of Wildlife and Fisheries (LDWF) manages the Maurepas Swamp Wildlife Management Area (WMA), which contains a majority of the swampland adjacent to and within the project area.

According to an August 2012 map provided by the Corps, there are three preliminary levee alignments which have been identified through previous reconnaissance and feasibility studies that are being considered for the Tentatively Selected Plan (TSP) (Figure 1). Generally, those alignments extend from the west guide levee of the Bonnet Carré Spillway to the vicinity of Hope Canal north of Garyville in St. John the Baptist Parish. Alignment A generally follows the wetland/non-wetland interface from LaPlace to Hope Canal. Alignment C generally follows an existing pipeline corridor north of Alignment A. Alignments A and C both tie into the Mississippi River levee. Alignment D generally follows the Interstate Highway 10 (I-10) corridor and extends outside the original study area into Ascension Parish to tie into an existing non-federal levee.

In the screening of the structural plans the planning team decided that it would not be feasible to extend Alternative A or C into St. James Parish. To address remaining storm surge damages west of Hope Canal non-Structural features have been added to Alternatives A and C. These features include nonstructural berms around the small communities in Gramercy, Grand Point South, and Grand Point North. In addition to the berms north of Highway (Hwy) 3125 the Corps is recommending to use Hwy

Figure 1. Proposed alignments for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study



3125 as a nonstructural feature by providing one-way flapgates on existing culverts to address surge flow through culverts under the highway. The remaining 33 at risk structures will be raised.

Alternative C has been selected as the TSP. Alternative C begins at the West Guide Levee of the Bonnet Carre Spillway and goes west to the United States Highway (US) -51 Interchange where it turns north across US-51 and parallels along a pipeline transmission corridor. At I-10 near the Belle Terre exit, Alternative C crosses the interstate and follows the pipeline corridor through the wetlands until it reaches the St. John/St. James Parish line. At that point the alignment turns southward and extends to the location where the ground elevation is equal to or higher than the levee design crest elevation (near the Mississippi River Levee). This alignment was added to evaluate the feasibility of avoiding multiple pipeline and utility crossings. The nonstructural component was added for areas west of Hope Canal.

The alignment consists largely of earthen levees, but does contain T-walls for crossings of roadways and pipelines. There are also a number of pump stations and environmental control structures associated with the alignment. The total distance of the alignment is estimated at 18.27 miles. There is a need for approximately 3,100,000 cubic yards of earthwork fill, 3,365,000 square yards of geotextile, nearly 26,000 cubic yards of aggregate limestone road, 5,300 linear feet of T-Walls, 300 linear feet of flood gates, 200 linear feet of drainage gates, and 2 railroad gates. There are 4 pumping stations associated with Alignment C. The levee system would primarily be a gravity drainage system with pumps operated only during storm events. With approximately 1.7 storm events per year the gravity drainage would be closed for approximately 8.5 days every year.

DESCRIPTION OF FISH AND WILDLIFE RESOURCE CONDITIONS

The dominant forested habitat types in the study area are bottomland hardwoods and swamp. Vegetation commonly found in these wetland areas includes sugarberry, red maple, sweetgum, American elm, black willow, green ash, overcup oak, Nuttall oak, and American sycamore in the bottomland hardwood habitat and bald cypress, tupelogum, blackgum, lizard's tail, swamp lily, buttonbush, swamp privet, and duckweeds in the swamp habitat. Scattered portions of upland hardwoods, scrub/shrub uplands, and scrub/shrub wetlands also are found along and within the developed areas. Except for Lake Pontchartrain, Lake Maurepas, and the Mississippi River, which border the study area, most of the open water within the study area consists mainly of tidal streams, canals, and ditches. The shallower open water areas may support submerged and/or floating aquatic vegetation such as coontail, pondweeds, naiads, fanwort, water hyacinth, pondweeds, American lotus, and widgeongrass.

Development for residential, commercial, and industrial purposes is located immediately adjacent to U.S. 61 and along the Mississippi River levee. Agriculture, primarily sugarcane production, is also extensive within that portion of the study area. Residential and commercial development is also becoming extensive between U.S. 61 and I-10, as wetlands are drained and/or filled to accommodate growth. Most of U.S. 61 and portions of I-10 are not elevated above the swamps they cross thus impacting the hydrology of those swamps. The wetland complex they cross is part of the largest contiguous wetland area in Louisiana.

The fresh and low-salinity water of the study area supports many commercially and recreationally important fishes such as largemouth bass, black crappie, sunfishes, catfishes, freshwater drum,

buffalos, and gars. The low-salinity waters and wetlands of the study area also provide habitat for many species of estuarine-dependent fishes and shellfishes including southern flounder, sand seatrout, spotted seatrout, Atlantic croaker, striped mullet, Gulf menhaden, blue crab, and white shrimp. Decaying plant material (detritus) is carried by surface runoff and tidal action from the study area wetlands into the adjacent estuarine waters, substantially contributing to the detritus-based food web that supports a high level of estuarine-dependent finfish and shellfish productivity.

The coastal marshes and forested wetlands of the Lake Pontchartrain Basin have been identified by the North American Waterfowl Management Plan (NAWMP), Gulf Coast Joint Venture (GCLV): Mississippi River Coastal Wetlands Initiative as a key waterfowl wintering area. The Gulf Coast is the terminus of the Central and Mississippi Flyways and is therefore one of the most important waterfowl areas in North America, providing both wintering and migration habitat for significant numbers of the continental duck and goose populations that use both flyways. The Mississippi River Coastal Wetlands Initiative area is dominated by coastal marsh, forested swamps, and seasonally flooded bottomland hardwoods that provide habitat for several species of wintering waterfowl. Wood ducks are the primary waterfowl species in forested wetlands, while other ducks (e.g., mallard, American widgeon, gadwall, and lesser scaup) use those forested habitats to a lesser degree. One strategy to achieving the goals and objectives of the GCJV is to maintain the existing functions and values of those habitats and prevent additional losses and degradation of those wetlands (Wilson 2002). Numerous other game birds are present in or adjacent to the study area, including American coot, rails, gallinules, wood duck, common snipe, and American woodcock. Non-game bird species also utilize the study area marshes, including least bittern, pied-billed grebe, black-necked stilt, American avocet, killdeer, black-bellied plover, willet, and various species of sandpipers, gulls, and terns. The study area supports many resident and transient hawks and owls including red-shouldered hawk, barn owl, common screech owl, great horned owl, and barred owl. Winter residents include red-tailed hawk, northern harrier, and American kestrel, while the Mississippi kite, swallow-tailed kite and broad-winged hawk are common summer residents. In addition, the project area supports many species of resident and migratory passerine birds. Some neo-tropical migrants that are currently experiencing a population decline (e.g., white-eyed vireo, northern parula) are dependent on large forested acreage to successfully reproduce. Also, present are cuckoos, swifts, hummingbirds, nighthawks, woodpeckers, and the belted kingfisher.

Important game mammals occurring in the project area include white-tailed deer, eastern cottontail, swamp rabbit, gray squirrel, and fox squirrel. Commercially important furbearers include muskrat, nutria, river otter, raccoon, and mink. Other mammals expected include various species of insectivores, bats, rodents, and the nine-banded armadillo.

Numerous amphibians are expected to occur on stream and lake edges, ponds, and in forested wetlands of the study area including lesser siren, three-toed amphiuma, Gulf Coast toad, eastern narrow-mouthed toad, spring peeper, green treefrog, cricket frog, and bullfrog. Commercially important reptiles found in the streams, canals, and open water areas include American alligator, snapping turtle, alligator snapping turtle, smooth softshell turtle, spring softshell turtle, and diamondback terrapin. Other reptiles commonly found in the project area include red-eared turtle, painted turtle, Mississippi mud turtle, stinkpot, green anole, broad-headed skink, various water snakes, western ribbon snake, speckled kingsnake, and the western cottonmouth.

Threatened and Endangered Species

The Gulf sturgeon (*Acipenser oxyrhynchus desotoi*), federally listed as a threatened species, is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwannee River, Florida. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. On March 19, 2003, the Service and the National Marine Fisheries Service (NMFS) published a final rule in the Federal Register (Volume 68, No. 53) designating critical habitat for the Gulf sturgeon in Louisiana, Mississippi, Alabama, and Florida. Portions of the Pearl and Bogue Chitto Rivers, Lake Pontchartrain east of the Lake Pontchartrain Causeway, all of Little Lake, The Rigolets, Lake St. Catherine, and Lake Borgne within Louisiana were included in that designation. While sturgeon have been documented in study area waterways, those waterways are not designated critical habitat.

The pallid sturgeon (*Scaphirhynchus albus*) is an endangered, bottom-oriented, fish that inhabits large river systems from Montana to Louisiana. Within this range, pallid sturgeon tend to select main channel habitats in the Mississippi River and main channel areas with islands or sand bars in the upper Missouri River. In Louisiana it occurs in the Atchafalaya and Mississippi Rivers, and below Lock and Dam Number 3 on the Red River (with known concentrations in the vicinity of the Old River Control Structure Complex.

Entrainment issues associated with dredging operations in the Mississippi and Atchafalaya Rivers and through diversion structures off the Mississippi River are two potential effects that should be addressed in future planning studies and/or in analyzing current project effects. We recommend the following to minimize potential impacts to pallid sturgeon associated with dredging to ensure protection of the pallid sturgeon: (1) the cutterhead should remain completely buried in the bottom material during dredging operations. If pumping water through the cutterhead is necessary to dislodge material or to clean the pumps or cutterhead, etc., the pumping rate should be reduced to the lowest rate possible until the cutterhead is at mid-depth, where the pumping rate can then be increase; (2) during dredging, the pumping rates should be reduced to the slowest speed feasible while the cutterhead is descending to the channel bottom. Should the proposed project directly or indirectly affect the pallid sturgeon or its habitat, further consultation with this office will be necessary.

Federally listed as an endangered species, West Indian manatees (*Trichechus manatus*) occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). Manatee occurrences appear to be increasing, and 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. Should the proposed project involve activity in the aquatic environment in those areas during summer months, further consultation with this office will be necessary.

Candidate Species

The Sprague's pipit (*Anthus spragueii*), is a candidate species for federal listing as a threatened or endangered species. Candidate species are those taxa for which the Service has on file sufficient information regarding biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions. Sprague's pipit is a small (4 to 6 inches in length) passerine bird with a plain buffy face, a large eye-ring, and buff and blackish streaking on the crown, nape, and under parts. It winters in Louisiana, arriving from its northern breeding grounds in September and remaining until April. Migration and wintering ecology of this species is poorly known, but Sprague's pipit exhibits a strong preference for open grassland (i.e., native prairie) with native grasses of intermediate height and thickness, and it avoids areas with too much shrub encroachment. Its use of an area is dependent upon habitat conditions. This species is a ground feeder and forages mainly on insects but will occasionally eat seeds.

There is currently no requirement under the Endangered Species Act for consultation regarding project impacts on candidate species. In the interest of conserving the Sprague's pipit, we encourage you to avoid project activities that would adversely affect this species or its habitat. Should it be federally listed as threatened or endangered in the future, however, further consultation on project impacts to this species could then be necessary.

Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (BGEPA)

The proposed project area forested wetlands may provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), which was officially removed from the List of Endangered and Threatened Species as of August 8, 2007. However, the bald eagle remains protected under the MBTA and BGEPA. There are approximately 28 known bald eagle nests in the study area. Comprehensive bald eagle survey data have not been collected by the Louisiana Department of Wildlife and Fisheries (LDWF) since 2008, and new active, inactive, or alternate nests may have been constructed within the proposed project area since that time. Bald eagles typically nest in large trees located near coastlines, rivers, or lakes that support adequate foraging from October through mid-May. In southeastern Louisiana parishes, eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water. During any project construction, on-site personnel should be informed of the possible presence of nesting bald eagles in the vicinity of the project boundary, and should identify, avoid, and immediately report any such nests to this office. If a bald eagle nest occurs or is discovered within 1,500 feet of the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: http://www.fws.gov/southeast/es/baldeagle. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary.

The proposed project would be located in an area where colonial nesting waterbirds may be present in the project area as well as borrow area, specifically the Bonnet Carre borrow site. There are approximately 6 known nesting bird colonies in the study area. Colonies may be present that are not currently listed in the database maintained by LDWF. That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new,

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

Managed Areas and Restoration Projects

The LDWF operates the Maurepas Swamp WMAs which encompasses over 100,000 acres of wetlands in and around the study area. Unavoidable direct and indirect impacts to the Maurepas Swamp WMA should be mitigated for on the WMA. In addition, the Maurepas Swamp WMA could be considered for mitigation of unavoidable impacts to other swamp areas. Please contact the LDWF, Region 7 Office (225/765-2360), for further information regarding any additional permits that may be required to perform work on that WMA.

In addition, two federally approved wetland mitigation banks are located within the study area including the Sawgrass Bayou Mitigation Area owned by Blind River Properties (Mr. Dale Martin, 225/698-2700), and Lake Maurepas Mitigation Area owned by Stream Properties, LLC (Mr. Jeff Peterson, 337/433-1055, ext. 20). If the proposed project entails work within or adjacent to those bank sites, or if an alternative could potentially alter the hydrology of those sites, then the bank sponsors and the mitigation interagency review team should be contacted.

There is one Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) project, River Reintroduction into Maurepas Swamp (PO-29) currently in Phase I in the study area. Any potential impacts to this CWPPRA project would need to be addressed.

Subsidence, sea level rise, and hydrologic modifications coupled with the isolation of project area wetlands from the natural overflow of the Mississippi River that formerly sustained these wetlands, has begun to lead to the long-term degradation of the quality and quantity of project area wetlands. Projects such as the above CWPPRA have the goal of restoring some of the natural overflow processes.

EVALUATION METHODOLOGY

To expedite the planning process, and be consistent with the new Corps SMART Planning Procedures, impacts were preliminarily determined utilizing existing information about the project area from the Coastwide Reference Monitoring System (CRMS) as a surrogate for habitat quality. Once a TSP was chosen, a feasibility-level habitat analysis using Wetland Value Assessment (WVA) methodology was conducted on the TSP. The detailed habitat analysis information was then used to analyze and compare previous alternatives to confirm the correct plan was selected.

To quantify anticipated project impacts to fish and wildlife resources, the Service used the WVA methodology. The WVA was developed to evaluate restoration projects proposed for the Coastal Wetlands Planning, Protection and Restoration Act and was modified through the Corps Certification Process for appropriateness of use in the Corps planning process.

In the WVA methodology, habitat units fluctuate in response to changes in habitat quality, represented by the Habitat Suitability Index (HSI), and/or quantity (acres); those changes are predicted for various target years over the project life (i.e., 50 years), for future without-project and future with-project scenarios. Target years (TY) were selected for this analysis to capture the effects of important biological events. For all the habitat assessments, the products of the resulting HSI values and acreage estimates were then summed and annualized for each habitat type to determine the Average Annual Habitat Units (AAHUs) available. The net change (increase or decrease) in AAHUs under future with-project conditions, compared to future without-project conditions, provides a quantitative comparison of anticipated project impact/benefits in AAHUs. Further explanation of how impacts/benefits are assessed with WVA and an explanation of the assumptions affecting HSI values for each target year are available for review at the Fish and Wildlife Service's (Service) Lafayette, Louisiana, field office.

PROJECT IMPACTS

Construction of Alternative C will result in the direct loss of approximately 1,236 acres (-691 AAHUs) of swamp and bottomland hardwoods (BLH) and encloses 8,521 acres (-498 AAHUs) of valuable swamp habitat for a total of 9,757 acres (-1189 AAHUs) of direct and indirect acres (Table 1). Although Alternative C has a greatly reduced the number of total impacted acres compared to Alternative D (57,343 acres) it is still significantly greater than Alternative A (3,941 acres).

Alternative C will provide levee protection for Laplace, Reserve, Garyville and nonstructural protection west of Hope Canal. This alternative is the second least environmentally damaging alternative while providing protection to the same communities in the study area. With Alternative C there will be some impacts to the Maurepas Swamp WMA and potentially some impacts to the CWPPRA River Reintroduction into Maurepas Swamp (PO-29) project. However, Alternative C avoids a myriad of pipeline and utility crossings and is expected provide additional storm water storage capacity for exceedence events (i.e. where a storm event is greater than the design elevation of the levee and overtopping or levee failure results) in the enclosed wetland area thus decreasing the potential of flooding nearby developed areas.

Table 1. West Shore Lake Pontchartrain Acres Summary of Unavoidable Direct and Indirect Impacts for Intermediate Relative Sea Level Rise.

WVA titles/groupings		Initial Acres	AAHUs
Direct swamp	East	253	-142.2
	Central	540	-288.4
	West	319	-164.8
Total Direct Swamp		**1112**	**-595.3**
Indirect Swamp	East	2325	-110.6
	Central	4383	-322.9
	West	1724	-60.9
Total Indirect Swamp		**8432**	**-494.5**
Direct BLH		123	-95.5
Indirect BLH with impacts		89	-3.1
Non-Structural Direct Swamp		1	-0.3
	TOTAL	**9757**	**-1188.7**

Note: Totals may be slightly off due to automatic rounding of spreadsheets.

Hydrologic modeling indicates that the project design would have minimal changes to tidal flows or stages to protected-side swamps. To accomplish this, culverts would be included within the levee system in order to retain hydrologic connectivity between the protected and unprotected areas. All locations with pump stations or drainage structures will be connected to a flood side ditch and a protected side canal that will parallel the entire levee. The canal will be used to maintain existing connection between swamps located both inside and outside of the levee system. The protected side canal will also serve as a redundancy connection if one of the pump stations failed during a flood event.

Based on the 2008 to 2012 water level range data for the CRMS stations CRMS0059 and CRMS5373 the swamps are seasonally flooded in the west and semi-permanently flooded in the central and eastern portion of the project area (Louisiana Office of Coastal Protection and Restoration, 2013). The wetlands of the study area that will be enclosed by the proposed levee alignment have moderate to low water flow/exchange due to the many berms (e.g., U.S. 61 and I-10) scattered throughout the area. Maintaining flow/exchange may be possible if there are enough openings for water exchange. However delays (resulting in more standing water) in water movement are expected as well as an elimination of overbank flows on existing interior berms.

In addition to the potential impact to water exchange in the protected-side swamp, the Service is concerned about reduced future water exchange due to Sea Level Rise (SLR) requiring increased structure closures. For the purposes of this project, the habitat evaluation team (HET) assumed the trigger for structure closures would be tropical storm events and the elevation trigger would be adjusted as sea level rises. Therefore, the project sponsor would not close the system more often due to higher day-to-day sea level rise impacts. However, there is concern for potential reduced future water exchange due to relative SLR (RSLR) requiring increased structure closures. The

frequency and duration of gate closures is expected to increase due to area-wide stage increases caused by RSLR thereby, leading to potential substantial affects to wetlands enclosed by the levee system. The HET agreed that if the sponsor/operator sees a higher level of sea level rise and starts to see increased soil saturation/flooding in developed areas, they may want to change the operations to close the structures during high tides. A change in operations would be considered a separate project purpose and authorization (i.e., not storm related flooding), and would require new National Environmental Policy Act (NEPA) documentation or a permit approval. If a change in operation due to RSLR is realized, it is currently unknown how water levels within the system would be managed but there is a potential for substantial additional indirect impacts to swamp and fish and wildlife resources to occur. These additional impacts would need to be evaluated and mitigated via future NEPA documentation.

If the proposed levee and/or operation of structures increases flood frequency and water depth the bald cypress swamp will become stressed which could result in a reduction in diversity and productivity (Krauss et. al. 2009). Increased water depth can also reduce the transfer of oxygen to roots. Over time, a stressed swamp could convert to marsh and/or open water. Reduced water exchange in the enclosed wetlands would lead to further water quality deterioration in the Lake Pontchartrain Basin by eliminating or reducing the filtering capacity of those wetlands. The potential wetland habitat impact to the largest remaining continuous forested wetlands in Louisiana would result in the reduction of resident fish and wildlife, reduced important wintering habitat for waterfowl and other migratory birds that use the Central and Mississippi Flyways, and reduced nursery habitat and detritus input important to the maintenance of estuarine-dependent fish and shellfish production

There will be approximately 205 acres of direct impact and 241 acres of indirect impacts made to the Maurepas Swamp WMA, which is equivalent to -123 AAHUs (Table 2). Impacts to the WMA should be mitigated for on WMA lands and specifically the indirect hydrologic impacts should be remediated with hydrologic improvements on the WMA as well as replacement of lost swamp.

Table 2. Unavoidable Direct and Indirect Impacts to the Maurepas Swamp Wildlife Management Area Determined Under Intermediate Relative Sea Level Rise.

	East		Central		West		TOTAL	Total
	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	acres	AAHUS
Direct	110.56	-62.1	70.99	-37.9	23.08	-11.9	204.6	-112.0
Indirect	160.51	-7.6	11	-0.8	69.68	-2.5	241.2	-10.9
TOTAL	271.07	-69.8	81.99	-38.7	92.76	-14.4	445.8	-122.9

Note: Totals may be slightly off due to automatic rounding of spreadsheets.

Developmental pressures on enclosed forested wetlands would likely increase with levee construction due to the reduced threat of flooding in the area but that would also be dependent on the proposed operation of pumps. According to the Corps Civil Works Program Five-Year Development Plan for Fiscal Year 2011 to Fiscal Year 2015, national flood damages are increasing and that is attributed to population migration to the coasts and development of floodplains, thus creating apparent contradiction between flood damage reduction investments and national flood damages (Corps of Engineers, 2011). Induced development of the protected-side wetlands would not be conducive with the Corps' plan to reduce flood damages and also utilize this area for flood

storage capacity during storms exceeding the project design. Another apparent inconsistency between programs is the planning of restoration projects while at the same time levees are being proposed to enclose floodplain habitat and permits are issued for development in these floodplains. More consistency between these programs needs to address the conflicting approaches between restoration and future development. Therefore, the Corps and local sponsor should acquire adequate protection of the enclosed wetlands to ensure and maintain preservation of those areas in perpetuity via the purchase of non-development easements and local flood zoning ordinances.

It is expected that three potential borrow sources will be used for this project: the Bonnet Carre borrow area located north of Airline Highway in St. Charles Parish, Louisiana; the Big Shake borrow site located in St. James Parish, a 441-acre actively-farmed sugarcane fields between LA-44 and LA-3125 in a rural area; and the River Bend II borrow site located at LaPlace, St. John the Baptist Parish which is currently used for sugarcane farming and has 7.39 acres of non-wetland bottomland hardwood (BLH) habitat located within the proposed site. All three sites have environmental clearance via environmental documentation. The Bonnet Carre site was documented in the 2007 "Final Phase I Environmental Site Assessment, Bonnet Carre Borrow Area, North of Airline Highway, St. Charles Parish, Louisiana." The Big Shake site is documented in the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS) Individual Environmental Report (IER) 30 Decision Record dated September 2009. The River Bend II site is documented in the HSDRRS IER 35 Decision Record dated October 2011. If the proposed project needs more borrow than the already environmentally cleared borrow sites please consider that the Corps has almost completed full implementation of the newly-authorized protection levels for hurricane and flood protection projects in the Greater New Orleans area. The combined need for borrow necessary to complete authorized flood protection improvements and construction of other proposed and implemented Federal and non-Federal hurricane and flood protection levees may have diminished local availability. The search for levee-building material has been typically conducted on a project-by-project basis, and has led to the least-expensive and easiest sources for borrows material, which is usually located within wetlands and/or bottomland hardwoods adjacent to the proposed levee. Use of such on-site sources often has adverse impacts on wetlands and is frequently inconsistent with coastal restoration efforts. Use of those sites will be counterproductive with respect to minimizing wetland impacts and attaining the goal of increasing non-structural hurricane protection within a sustainable ecosystem. The Service's priority selection process for borrow material outlined in our August 7, 2006, letter to the Corps regarding the Greater New Orleans Hurricane and Storm Damage Risk Reduction project should be utilized (Appendix A). The Service recommends further investigation of the identified potential borrow areas (map provided via a March 2013 email) that are likely to have minimal impacts to fish and wildlife areas identified on that map should be investigated first as potential borrow sources.

SERVICE POSITION AND RECOMMENDATIONS

The Service would prefer to see selection of the least environmentally damaging alterative which is Alternative A. However, we recognize and understand the logic and reasoning for selecting Alternative C, which includes avoidance of the costly relocation of pipelines and utilities and is expected to provide additional storm water storage capacity for exceedence events thus decreasing the flooding potential of nearby developed areas. Construction of Alternative C will result in the direct loss of approximately 1,236 acres (-691 AAHUs) of swamp and BLH and encloses 8,521 acres (-498 AAHUs) of valuable swamp habitat for a total of 9,757 acres (-1189 AAHUs) of direct and indirect acres.

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 wetlands for fish and wildlife and the relative scarcity of that habitat type on a basin-wide scale, that habitat type is designated as Resource Category 2, the mitigation goal for which is no net loss of in-kind habitat value.

For those features that undergo additional design work during the Pre-construction Engineering and Design phase (PED) the Corps should coordinate that work with the Service and other natural resource agencies in accordance with the FWCA. Funding for such work may also be necessary.

We appreciate the Corps' consideration of our recommendations below for the WSLP project. Provided that the below recommendations are included and adequately addressed in the final feasibility report and pending our review of the adaptive management component of the mitigation plan and resolution of any additional recommendations, the Service does not oppose implementation of the TSP.

The Service respectfully requests the following recommendations are implemented concurrently with project implementation:

1. The Service and LDWF recommend that the unavoidable direct and indirect (including hydrologic) impacts (approximately 446 acres and -123 AAHUs of total WMA impacts) to the wetlands within the Maurepas Swamp WMA be mitigated on the WMA lands, specifically by making hydrologic improvements as well as replacement of lost swamp.
    a. In the Corps' Blind River Swamp Restoration Project (SWAMP2) mitigation plan it states that the Corps intends to "Verify that the Livingston Parish Coastal Impact Assistance Program (CIAP) project was built, and that those hydraulic modifications when combined with this planting plan will produce the proposed AAHUs." The Service and LDWF recommend the Corps state that if the hydraulic modifications are not made (or only partially made) as part of the proposed CIAP project that the SWAMP2 mitigation will include the hydraulic modifications as a project feature with detailed engineering, adaptive management and monitoring to be developed during the PED phase. The Service and LDWF recognize that since this feature may

not be part of the mitigation plan, adaptive management and monitoring plans do not need to be developed at this time.

b. We recommend that the Corps continue coordination on the proposed mitigation with LDWF and the Service throughout further development and design.

2. Over 8,000 acres of swamp will be enclosed within the levee of Alternative C. The proposed alternative may alter natural periods of inundation or soil saturation in the impounded wetlands and could prove detrimental to their function and longevity. Therefore, the Service recommends;
    a. That because of our concern about the limited number of proposed culvert openings not being adequate to maintain existing water exchange in regard to water depth, delays in water movement, and impacts to water quality; the Corps undertake, if necessary, the installation of additional culverts and/or water control structures in the levee to ensure adequate water exchange while maintaining that all structures should be closed only in advance of tropical storms.
    b. That hydrologic gauges be placed and maintained in appropriate locations to assist in determining future impacts to enclosed swamps. These gauges could be supported or cost-shared through existing activities such as through the US Geological Survey (USGS) or CRMS.
    c. To aid in water quality improvements, any pumping stations associated with the project should not discharge directly into canals or other open water bodies, but rather into wetland systems that can assimilate nutrients being discharged.

3. Operational plans for floodgates and water control structures should be developed to maximize the open cross-sectional area for as long as possible. Development of water control structure operation manuals or plans should be done in coordination with the Service and other natural resource agencies.

4. The trigger for structure closures would be tropical storm events. Therefore, the project would not close the system more often due to higher day-to-day sea level rise impacts. If the sponsor/operator sees a higher level of sea level rise and starts to see increased soil saturation/flooding in developed areas, they may want to change the operations to close the structures at high tides. A change in operations would be considered a separate project purpose and authorization and would require a new NEPA documentation and/or a permit approval for this operation change. If a change in operation due to RSLR is realized, it is unknown at present, how water levels within the system would be managed so there is a potential for substantial additional indirect impacts to swamp and fish and wildlife resources to occur. If the system is closed more often due to higher RSLR impacts, the Service recommends additional impacts be evaluated and mitigated.

5. The Service recommends preservation of enclosed wetlands be ensured (in perpetuity) via the purchase of non-development easements and local flood zoning ordinances. Providing perpetual preservation of enclosed wetlands would also guarantee flood storage areas within the levee system.
    a. If the Corps declares the enclosed wetlands will be used as a flood storage area, the Service recommends that the Corps determine and designate the flood storage area

within the levee system that the nonfederal sponsor will be responsible for maintaining.

6. Alternative C could potentially have impacts to the CWPPRA River Reintroduction into Maurepas Swamp (PO-29) project. The Service recommends close coordination with the planning objectives and planning team of that restoration project and that any potential impacts to this CWPPRA project be addressed.

7. If it becomes necessary to use borrow sources other than the previously proposed environmentally cleared sites, the Service recommends investigating potential borrow sources based on the map identifying potential borrow areas that are likely to have minimal impacts to fish and wildlife resources that we provided, via a September 9, 2008, letter and based on our priority selection process for borrow material outlined in our August 7, 2006, letter to the Corps regarding the Greater New Orleans Hurricane and Storm Damage Risk Reduction project (Appendix A) should be utilized (please contact Cathy Breaux (504)862-2689 or David Walther (337)291-3122 for more information).

8. The enclosure of wetlands within the proposed levee is necessary to avoid pipeline and utility relocations and to provide for floodwater storage. Full, in-kind compensation (quantified as Average Annual Habitat Units) is recommended for unavoidable direct (levee footprint) adverse impacts and indirect habitat value losses (enclosed wetlands) on forested wetlands associated with levee construction. To help ensure that the proposed mitigation features meet their goals, the Service provides the following recommendations.
    a. If applicable, a General Plan should be developed by the Corps, LDWF, and the Service in accordance with Section 3(b) of the Fish and Wildlife Coordination Act for mitigation lands.
    b. Continued mitigation planning should be closely coordinated with the Service, LDWF, and other interested natural resource agencies and should include any additional losses identified during future engineering and design studies.
    c. Mitigation measures should be constructed concurrently with the flood damage reduction features that they are mitigating (i.e., mitigation construction should be initiated no later than 18 months after levee construction has begun). Completion of mitigation means that interim success criteria have been achieved.
    d. If mitigation is not implemented concurrent with levee construction, the amount of mitigation needed should be reassessed and adjusted to offset temporal losses of wetlands.
    e. The Corps should remain responsible for the required mitigation until the mitigation is demonstrated to be fully compliant with interim success and performance criteria. At a minimum, this should include compliance with the requisite vegetation, elevation, acreage, and dike gapping criteria.
    f. The acreage restored and/or managed for mitigation purposes, and adjacent affected wetlands, should be monitored over the project life. This monitoring should be used to evaluate project impacts, the effectiveness of the compensatory mitigation measures, and the need for additional mitigation should those measures prove insufficient.

9. The Service recommends enough money be set aside for adaptive management to address potential impacts of the enclosed wetlands. The Service, LDWF, and other natural resource agencies should be consulted in the development of plans and specifications for all mitigation features and any monitoring and/or adaptive management plans. In addition, the Service recommends the Monitoring and Adaptive Management Plan, as it is further developed, be provided to the Service, NMFS, and LDWF for review, comment, and input.

10. Alignment C will occur partly within the boundaries of Maurepas Swamp WMA. Please coordinate all activities within the WMA with LDWF. Please contact Mr. Christian Winslow (985-543-4781 or cwinslow@wlf.la.gov) and Mr. Mike Windham at 504-284-5268 or cwindham@wlf.la.gov for more information about appropriate WMA authorizations.

11. Blind River is a Louisiana designated Natural and Scenic River. The Corps must obtain authorization from the LDWF, Scenic Rivers Program prior to initiating any of the proposed activities within or adjacent to the banks of Blind River. Scenic Rivers Coordinator Keith Cascio can be contacted at (318) 343-4045 or kcascio@wlf.la.gov.

12. The Corps should coordinate closely with the Service, LDWF, and other fish and wildlife conservation agencies throughout the pre-construction engineering and design phase of project features including levees, floodgates, environmental water control structures, and operation plans to ensure that those features are designed, constructed and operated consistent with wetland restoration purposes and associated fish and wildlife resource needs, and to update and finalize impacts and to develop an adequate mitigation plan.

13. West Indian manatees (*Trichechus manatus*) occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). During in-water work in areas that potentially support manatees all personnel associated with the project should be instructed about the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. Additionally, personnel should be instructed not to attempt to feed or otherwise interact with the animal, although passively taking pictures or video would be acceptable. For more detail on avoiding contact with manatee contact this office. Should a proposed action directly or indirectly affect the West Indian manatee, further consultation with this office will be necessary.

14. Avoid adverse impacts to nesting bald eagles and wading bird colonies through careful design project features and timing of construction. The Service and LDWF recommend that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies and bald eagles during the nesting season (i.e., September 1 through February 15 for wading bird nesting colonies and October through mid-May for bald eagles).

15. If proposed project features, including adaptive management features, are changed significantly or are not implemented within one year of the Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with the Service and NMFS to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their critical habitat.

16. Costs and tasks associated with the Service's involvement in future planning and construction phases should be coordinated with the Service prior to the finalization of the project management plan or similar documents (e.g., decision management plan).

Should you or your staff have any questions, or if you would like to meet with us regarding the content of this report, please contact Mrs. Catherine Breaux (504/862-2689) of this office.

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Appendix A

The Service's priority selection process for borrow material as outlined in our August 7, 2006, letter to the Corps

This information is provided in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), Fish and Wildlife Coordination Act (FWCA, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).

Through the efforts of Task Force Guardian, the Corps restored Hurricane Katrina-damaged hurricane/flood protection projects to their authorized or previously permitted/constructed protection levels. Identification of borrow areas needed to complete those repairs utilized a protocol that prioritized selection of those sites in the following order: existing commercial pits, upland sources, previously disturbed/manipulated wetlands within a levee system, and low-quality wetlands outside a levee system. The Service supports the use of such protocols to avoid and minimize impacts to wetlands and bottomland hardwoods within project areas. Avoidance and minimization of those impacts helps to provide consistency with restoration strategies and compliments the authorized hurricane protection efforts. Such consistency is also required by Section 303(d)(1) of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA).

Accordingly, the Service recommends that prior to utilizing borrow sites every effort should be made to reduce impacts by using sheetpile, floodwalls or deep soil mixing to decrease levee widths wherever feasible. In addition, the Service recommends that the following protocol be adopted and utilized 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-trees) or non-forested wetlands (e.g., wet pastures), excluding marshes;

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

3. Sites 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-trees) or non-forested wetlands (e.g., wet pastures), excluding marshes;

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

Notwithstanding this protocol, the location, size and configuration of borrow sites within the landscape is also critically important. Coastal ridges, natural levee flanks and other geographic features that provide forested/wetland habitats and/or potential barriers to hurricane surges should not be utilized as borrow sources, especially where such uses would diminish the natural functions and values of those landscape features.

To assist in expediting the identification of borrow sites, the Service recommends that immediately after the initial identification of a new borrow site the Corps should initiate informal consultation with the Service regarding potential impacts to federally listed threatened or endangered species. To aid you in complying with those proactive consultation responsibilities, the Service has enclosed a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District.

The Service offers the following additional recommendations for reducing borrow site impacts on fish and wildlife resources and, where feasible, enhancing those resources. However, these additional recommendations should not be implemented if they would result in the expansion of existing borrow pits or construction of new borrow pits in wetlands or bottomland hardwoods.

1. A minimum of 30 percent of the borrow pits edge should slope no greater than 5 horizontal (H):1 vertical (V), starting from the water line down to a depth of approximately 5 feet.

2. Most of the woody vegetation removed during clearing and grubbing should be placed into the deepest parts of the borrow pits and the remaining debris should be placed in the water along the borrow pit shorelines, excluding those areas where the 5H:1V slope, per recommendation 1, have been constructed.

3. Following construction, perimeter levees (if constructed) around each borrow pit should be gapped at 25-foot intervals with an 8-foot-wide breach, the bottom elevation of which should be level with the adjacent natural ground elevation.

When avoidance and minimization of bottomland hardwood and wetland impacts is not practicable, all unavoidable net losses of those habitats should be fully offset via compensatory mitigation. Such compensatory mitigation should be sited within the watershed and/or hydrologic unit where the impact occurred, and should be completed concurrently with borrow operations, or as soon thereafter as possible.

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex H

U.S. Fish and Wildlife Service Scoping / Planning Aid Letter

United States Department of the Interior

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

January 9, 2009

Colonel Alvin B. Lee
District Engineer
Attention: Mr. Bill Klein, CEMVN-PM-RS
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee:

The U.S. Fish and Wildlife Service (Service) has reviewed the Department of the Army, Corps of Engineers (Corps), Notice of Intent (NOI) to prepare a Draft Environmental Impact Statement (DEIS) for the West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study. The NOI was published in the Federal Register (Volume 73, No. 235, pg. 74150) on December 5, 2008 (Department of Interior No. ER86/1259). The study was authorized by resolutions adopted by the House Committee on Public Works on July 29, 1971, and the Senate Committee on Public Works September 20, 1974. The Fish and Wildlife Service has prepared three Planning-aid Reports dated January 21, 1985, June 30, 1987, and April 3, 1997, for previous reconnaissance studies on this proposed project. The Service submits the following comments in accordance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321 et seq.), the Migratory Bird Treaty Act (MBTA, 40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d), the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Corps is conducting a study to determine the feasibility of providing Federal hurricane protection to the western shore of Lake Pontchartrain. Four preliminary levee alignments have been identified through previous reconnaissance and feasibility studies. Generally, those alignments extend from the west guide levee of the Bonnet Carré Spillway to the vicinity of Hope Canal north of Garyville in St. John the Baptist Parish, with one alternative alignment extending into Ascension Parish to tie into an existing non-federal levee. The study area is bounded by the Bonnet Carré Spillway to the east, the Mississippi River to the south, Lakes Pontchartrain and Maurepas to the north, and St. James Parish/Ascension Parish line to the west.

DESCRIPTION OF FISH AND WILDLIFE RESOURCE CONDTIONS

DESCRIPTION OF FISH AND WILDLIFE RESOURCE CONDTIONS

The dominant forested habitat types in the study area are bottomland hardwoods and swamp. Vegetation commonly found in these wetland areas includes sugarberry, red maple, sweetgum, American elm, black willow, green ash, overcup oak, Nuttall oak, and American sycamore in the bottomland hardwood habitat and baldcypress, tupelogum, blackgum, lizard's tail, swamp lily, buttonbush, swamp privet, and duckweeds in the swamp habitat. Scattered portions of upland hardwoods, scrub/shrub uplands, and scrub/shrub wetlands also are found along and within the developed areas. Except for Lake Pontchartrain, Lake Maurepas, and the Mississippi River, which border the study area, most of the open water within the study area consists mainly of tidal streams, canals, and ditches. The shallower open water areas may support submerged and/or floating aquatic vegetation such as coontail, pondweeds, naiads, fanwort, water hyacinth, pondweeds, American lotus, and widgeongrass.

Development for residential, commercial, and industrial purposes is located immediately adjacent to U.S. 61 and along the Mississippi River levee. Agriculture, primarily sugarcane production, is also extensive within that portion of the study area. Residential and commercial development is also becoming extensive between U.S. 61 and I-10, as wetlands are drained and/or filled to accommodate growth.

The fresh and low-salinity water of the study area supports many commercially and recreationally important fishes and shellfishes such as largemouth bass, black crappie, sunfishes, catfishes, freshwater drum, buffalos, and gars. The low-salinity waters and wetlands of the study area also provide habitat for many species of estuarine-dependent fishes and shellfishes including southern flounder, sand seatrout, spotted seatrout, Atlantic croaker, striped mullet, Gulf menhaden, blue crab, and white shrimp. Decaying plant material (detritus) is carried by surface runoff and tidal action from the study area wetlands into the adjacent estuarine waters, substantially contributing to the detritus-based food web that supports a high level of estuarine-dependent finfish and shellfish productivity.

The coastal marshes and forested wetlands of the Lake Pontchartrain Basin have been identified by the North American Waterfowl Management Plan (NAWMP), Gulf Coast Joint Venture (GCLV): Mississippi River Coastal Wetlands Initiative as a key waterfowl wintering area. The Gulf Coast is the terminus of the Central and Mississippi Flyways and is therefore one of the most important waterfowl areas in North America, providing both wintering and migration habitat for significant numbers of the continental duck and goose populations that use both flyways. The Mississippi River Coastal Wetlands Initiative area is dominated by coastal marsh, forested swamps, and seasonally flooded bottomland hardwoods that provide habitat for several species of wintering waterfowl. Wood ducks are the primary waterfowl species in these forested wetlands, while other ducks (e.g., mallard, American widgeon, gadwall, and lesser scaup) use these habitats to a lesser degree. One strategy to achieving the goals and objectives of the GCJV is to maintain the existing functions and values of those habitats and prevent additional losses and degradation of those wetlands (Wilson 2002). Numerous other game birds are present in or adjacent to the study area, including American coot, rails, gallinules, wood duck, common snipe, and American woodcock. Non-game bird species also utilize the study area marshes, including

least bittern, pied-billed grebe, black-necked stilt, American avocet, killdeer, black-bellied plover, willet, and various species of sandpipers, gulls, and terns. The study area supports many resident and transient hawks and owls including red-shouldered hawk, barn owl, common screech owl, great horned owl, and barred owl. Winter residents include red-tailed hawk, northern harrier, and American kestrel, while the Mississippi kite, swallow-tailed kite and broad-winged hawk are common summer residents. In addition, the project area supports many species of resident and migratory passerine birds. Some neo-tropical migrants that are currently experiencing a population decline (e.g., white-eyed vireo, northern parula) are dependent on large forested acreage to successfully reproduce. Also, present are cuckoos, swifts, hummingbirds, nighthawks, woodpeckers, and the belted kingfisher.

Important game mammals occurring in the project area include white-tailed deer, eastern cottontail, swamp rabbit, gray squirrel, and fox squirrel. Commercially important furbearers include muskrat, nutria, river otter, raccoon, and mink. Other mammals expected include various species of insectivores, bats, rodents, and the nine-banded armadillo.

Numerous amphibians are expected to occur on stream and lake edges, ponds, and in forested wetlands of the study area including lesser siren, three-toed amphiuma, Gulf Coast toad, eastern narrow-mouthed toad, spring peeper, green treefrog, cricket frog, and bullfrog. Commercially important reptiles found in the streams, canals, and open water areas include American alligator, snapping turtle, alligator snapping turtle, smooth softshell turtle, spring softshell turtle, and diamondback terrapin. Other reptiles commonly found in the project area include red-eared turtle, painted turtle, Mississippi mud turtle, stinkpot, green anole, broad-headed skink, various water snakes, western ribbon snake, speckled kingsnake, and the western cottonmouth.

Threatened and Endangered Species

The Gulf sturgeon (Acipenser oxyrhynchus desotoi), federally listed as a threatened species, is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwannee River, Florida. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Spawning occurs in coastal rivers between late winter and early spring (i.e., March to May). Adults and sub-adults may be found in those rivers and streams until November, and in estuarine or marine waters during the remainder of the year. Sturgeon less than two years old appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters. Habitat alterations such as those caused by water control structures that limit and prevent spawning, poor water quality, and over-fishing have negatively affected this species.

On March 19, 2003, the Service and the National Marine Fisheries Service (NMFS) published a final rule in the Federal Register (Volume 68, No. 53) designating critical habitat for the Gulf sturgeon in Louisiana, Mississippi, Alabama, and Florida. Portions of the Pearl and Bogue Chitto Rivers, Lake Pontchartrain east of the Lake Pontchartrain Causeway, all of Little Lake, The Rigolets, Lake St. Catherine, and Lake Borgne within Louisiana were included in that

designation. While sturgeon have been documented in study area waterways, those waterways are not designated critical habitat.

Federally listed as an endangered species, West Indian manatees (*Trichechus manatus*) occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). Manatee occurrences appear to be increasing, and 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. 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. Should the proposed project involve activity in the aquatic environment in those areas during summer months, further consultation with this office will be necessary.

Other Federal Trust Species

The project-area forested wetlands may provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), which was officially removed from the List of Endangered and Threatened Species on August 8, 2007. Bald eagles nest in Louisiana from October through mid-May. Eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water in the southeastern Parishes. Areas with high numbers of nests include the Lake Verret Basin south to Houma, the marsh/ridge complex south of Houma to Bayou Vista, the north shore of Lake Pontchartrain, and the Lake Salvador area. Eagles also winter, and infrequently nest, in mature pine trees near large lakes in central and northern Louisiana. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (i.e., organochlorine pesticides and lead).

Breeding bald eagles occupy "territories" that they will typically defend against intrusion by other eagles, and that they likely return to each year. A territory may include one or more alternate nests that are built and maintained by the eagles, but which may not be used for nesting in a given year. Potential nest trees within a nesting territory may, therefore, provide important alternative bald eagle nest sites. Shoreline trees or snags located near large waterbodies provide the visibility and accessibility needed to locate aquatic prey. Bald eagles are vulnerable to disturbance during courtship, nest building, egg laying, incubation, and brooding. Disturbance during this critical period may lead to nest abandonment, cracked and chilled eggs, and exposure of small young to the elements. Human activity near a nest late in the nesting cycle may also cause flightless birds to jump from the nest tree, thus reducing their chance of survival.

Although the bald eagle has been removed from the List of Endangered and Threatened Species, it continues to be protected under the MBTA and the BGEPA. The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. A copy of the NBEM Guidelines is available at:

<http://www.fws.gov/southeast/es/baldeagle/NationalBaldEagleManagementGuidelines.pdf>. Those guidelines recommend: (1) maintaining a specified distance between the activity and the nest (buffer area); (2) maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. 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 a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: http://www.fws.gov/southeast/es/baldeagle. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary. The Division of Migratory Birds for the Southeast Region of the Service (phone: 404/679-7051, e-mail: SEmigratorybirds@fws.gov) has the lead role in conducting such consultations. Should you need further assistance interpreting the guidelines or performing an on-line project evaluation, please contact this office.

The proposed study area is known to support colonial nesting waterbirds. Colonies may be present that are not currently listed in the database maintained by the Louisiana Department of Wildlife and Fisheries (LDWF). That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new, comprehensive coast-wide survey is conducted to determine the location of newly-established nesting colonies, we recommend that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season. To minimize disturbance to colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants, all activity occurring within 1,000 feet of a rookery should be restricted to the non-nesting period (i.e., September 1 through February 15, exact dates may vary within this window depending on species present). In addition, we recommend that on-site contract personnel be informed of the need to identify colonial nesting birds and their nests, and should avoid affecting them during the breeding season.

Management Areas

As you are aware, the Maurepas Swamp Wildlife Management Area (WMA) is located within the study area. Please contact the LDWF, Region 7 Office (225/765-2360), for further information regarding any additional permits that may be required to perform work on that WMA.

In addition, two federally approved wetland mitigation banks are located within the study area including the Sawgrass Bayou Mitigation Area owned by Blind River Properties (Mr. Dale Martin, 225/698-2700), and Lake Maurepas Mitigation Area owned by Stream Properties, LLC (Mr. Jeff Peterson, 337/433-1055, ext. 20). If the proposed project entails work within or adjacent to those bank sites, or if an alternative could potentially alter the hydrology of those sites, then the bank sponsors should be contacted.

POTENTIAL SIGNIFICANT IMPACTS

Depending on the alignment, construction of a flood protection levee has the potential to result in the direct loss and enclosure of valuable swamp and bottomland hardwood habitats. Developmental pressures on enclosed forested wetlands would likely increase with levee construction due to the reduced threat of flooding in the area. Reduced water exchange in the enclosed wetlands would lead to further water quality deterioration in the Lake Pontchartrain Basin by eliminating or reducing the filtering capacity of those wetlands. Wetland habitat losses would reduce populations of resident fish and wildlife, reduce important wintering habitat for waterfowl and other migratory birds, and reduce nursery habitat and detritus input important to the maintenance of estuarine-dependent fish and shellfish production.

PROBLEMS, OPPORTUNITIES, AND PLANNING OBJECTIVES

The most significant fish and wildlife related problem in the study area and throughout coastal Louisiana is the rapid loss of valuable wetland habitat. Between 1956 and 1978, baldcypress-tupelogum swamp within the Lake Pontchartrain Basin declined by 43,596 acres and total marsh declined by 79,232 acres (Bahr et al. 1983). During that same period, estuarine open water increased by more than 140,300 acres. This transition from vegetated wetlands to open water is believed to be associated with navigation and flood control projects, oil and gas exploration and extraction activities, shoreline erosion, subsidence, and saltwater intrusion. Between 1978 and 1988, over 23,000 acres of swamp between Lake Pontchartrain and Lake Maurepas were converted to marsh, due to the above factors. Land loss in those swamps in the next 20 years should reach approximately 1,200 acres. Approximately, 3,500 acres of marsh and nearly 6,300 acres of swamp are projected to be lost by the year 2045 (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993).

As a part of the 2004, Louisiana Coastal Area Ecosystem Restoration Study (LCA Plan) several near-term restoration projects have been identified for this hydrologic basin including the Blind River Diversion project and Hope Canal diversion project, which is also being evaluated under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) program. The goals of those restoration projects along with the coastal flood protection goals of the proposed study are interrelated and necessitate an integrated solution. Those projects should be designed in collaboration with one another to ensure that a system-wide solution for coastal flood protection and restoration for the Lake Pontchartrain basin is achieved.

Deteriorating water quality in the Lake Pontchartrain Basin is at least partially correlated to the loss of that basin's wetlands; hence, a reduction in the waste assimilation capacity of the area is another problem adversely affecting fish and wildlife in the study area. According to Schurtz et al. (1984), factors adversely affecting water quality in Lake Pontchartrain are those related to urban development and urban pollution, altered land use patterns, and hydrologic modifications within the lake's watershed.

Water quality deterioration may be minimized by preserving remaining wetlands via limiting

urban expansion and associated pollution discharges into wetlands. To that end, in order to discourage further wetland loss, the proposed hurricane protection levee should be at or as close to the wetland/non-wetland interface as possible. Should some wetlands be unavoidably enclosed within the levee, the integrity of present hydrologic regimes should be maintained via installation of water control structures in the levee to ensure adequate water circulation. Preservation of enclosed wetlands could be ensured via the purchase of non-development easements or local flood zoning ordinances. Furthermore, any pumping stations associated with the project should not discharge directly into canals or other open water bodies, but rather into wetland systems that can assimilate those nutrients being discharged.

The Corps is currently planning and implementing the construction of hurricane and flood protection projects to their newly-authorized protection levels for the Greater New Orleans area. It is currently estimated that approximately 75 million cubic yards of material would be needed to achieve the authorized level of protection for that project. The combined need for borrow necessary to complete authorized flood protection improvements and construction of proposed Federal and non-Federal hurricane and flood protection levees may exceed local availability. The searches for levee-building material has been conducted on a project-by-project basis, and has led to the least-expensive and easiest sources for borrow material, which are usually located within wetlands and/or bottomland hardwoods adjacent to the proposed levee. Use of such on-site sources often has adverse impacts on wetlands and is frequently inconsistent with coastal restoration efforts. Use of those sites will be counterproductive with respect to minimizing wetland impacts and attaining the goal of increasing non-structural hurricane protection within a sustainable ecosystem.

In order to address the above problems and opportunities, the Service recommends that the following planning objectives and constraints be included in any further planning of hurricane protection features for the study area:

1. Preserve and/or minimize impacts to wetlands and bottomland hardwoods in the study area.

2. The Service's priority selection process for borrow material outlined in our August 7, 2006, letter to the Corps regarding the Greater New Orleans Hurricane and Storm Damage Risk Reduction project (enclosed) should be utilized. In addition, the Service provided, via a September 9, 2008, letter, a map identifying potential borrow areas that are likely to have minimal impacts to fish and wildlife resources. Areas identified on that map should be investigated first as potential borrow sources.

3. Coordinate with the planning objectives and planning team of the LCA Plan near-term restoration projects identified for the Lake Pontchartrain Basin, particularly the Hope Canal Diversion project.

4. Avoid impacts to threatened and endangered species and their habitat.

FISH AND WILDLIFE CONSERVATION MEASURES

Implementation of the proposed levee could potentially have significant direct impacts on fish and wildlife resources. Of equal concern is the potential for loss, via future development, of fish and wildlife habitat enclosed by the levee. The Service believes that project plans can be designed to mitigate those negative impacts.

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's Mitigation Policy (Federal Register Volume 46, No. 15, January 23, 1981) supports and adopts this definition of mitigation and considers its specific elements to represent the desirable sequence of steps in the mitigation planning process. That policy identifies four resource categories that are used to insure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved.

Considering the high value for fish and wildlife and the relative scarcity of the forested wetlands potentially impacted by the proposed levee, those wetlands have been designated Resource Category 2 habitats. The mitigation goal for habitats in this resource category is no net loss of in-kind habitat value. This goal could best be achieved via loss avoidance; in this case, realigning the levee such that forested wetlands lost to levee construction would be minimized and forested wetlands would not be enclosed within the levee.

If the enclosure of wetlands within the proposed levee is necessary to provide for floodwater storage, mechanisms for protecting enclosed wetlands and for compensating habitat value losses associated with levee construction would have to be developed. Preservation of enclosed wetlands might be accomplished by installing water control structures in the levee that could be properly operated to ensure adequate water exchange. Further, protection of the enclosed wetlands from future development (thus preserving floodwater storage areas) could be ensured via purchase of non-development easements. Compensation for wetland habitat value losses associated with levee construction would likely involve acquisition and management of another similar wetland area. Detailed mitigation needs will be determined in the feasibility stage.

1. Mitigate impacts to wetlands and bottomland hardwoods by:

    A. Incorporating hurricane protection features (e.g., floodwalls, etc.) that would minimize impacts to fish and wildlife habitat;

    B. Requiring that hurricane protection levees follow, as closely as possible, the wetland/non-wetland interface and limiting hurricane protection to existing

urban developments;

C. Requiring that borrow needed for levee construction be taken from non-forested, non-wetland areas [the Service's priority selection process for borrow material should be utilized, and areas identified on the Service's potential borrow map should be investigated (enclosures)];

D. Installing an adequate number of water-control structures in hurricane protection levees that enclose wetlands to maintain normal water exchange and preclude drainage (such structures should be closed only in advance of tropical storms);

E. Acquiring non-development easements on enclosed wetlands to ensure their continued use as floodwater storage areas and to preclude any secondary development;

F. Incorporating water quality improvements by routing urban runoff through enclosed wetlands and discharging any pumped water into floodside wetlands;

F. Ensuring adequate internal drainage exists within the leveed area to prevent levees from compounding existing flooding problems, thus leading to future flood control projects with a resulting loss of wetlands and fish and wildlife resources; and,

G. Implementing measures to compensate for unavoidable losses of wetland habitat values.

2. Avoid impacts to endangered or threatened species and their habitats.

3. Avoid impacts to active wading bird rookeries. Avoid construction activities within 1,500 feet of any active wading bird rookery during the nesting season.

UPCOMING FISH AND WILDLIFE ACTIVITIES

The following data will be needed to enable the Service to conduct a detailed analysis of project impacts on fish and wildlife resources and to formulate measures to mitigate any losses to those resources.

1. Identification of any new alternatives to be considered, including detailed project plans (e.g., a written description and map) for those alternatives.

2. An estimate of current, future-with and future-without-project development rates within the project area(s), presented in 10-year intervals, to be impacted by alternatives being considered.

3. Identification of habitats, by type and acreage, to be impacted by various

alternatives being considered. That data should also be presented in 10-year intervals.

We look forward to assisting the Corps in the documentation of existing conditions, development of alternatives, and assessment of effects of project alternatives on Federal trust resources during the subsequent feasibility study. 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

Enclosures

cc: DOI, OEPC, Washington, D.C. (Attn.: Loretta Sutton)
DOI, OEPC, Albuquerque, NM (Attn.: Steven Spencer)
FWS, BAP & HC (ERT), Arlington, VA (Attn.: Stefanie Stavrakas)
FWS, Atlanta, GA (Attn.: Richard Warner)
EPA, Dallas, TX
NMFS, Baton Rouge, LA
LDWF, Region 7 Office, Baton Rouge, LA
LDWF, Baton Rouge, LA (Attn.: Heather Finley)
LDWF, Natural Heritage Program, Baton Rouge, LA

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United States Department of the Interior

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

October 9, 2012

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 Fish and Wildlife Service (Service) is submitting this Planning-aid Letter (PAL) based upon recent information provided by the U.S. Army Corps of Engineers' (Corps) Project Delivery Team (PDT) for the West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study (WSLP) in Ascension, St. Charles, St. James, and St. John the Baptist Parishes, Louisiana. The Service is aware that the Corps plans to choose a Tentatively Selected Plan (TSP) by the end of 2012, and we submit the following recommendations for consideration in that project development decision in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). This PAL does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act.

The Corps is conducting a study to determine the feasibility of providing Federal hurricane protection to the western shore of Lake Pontchartrain. The study area is bounded by the Bonnet Carré Spillway to the east, the Mississippi River to the south, Lakes Pontchartrain and Maurepas to the north, and St. James Parish/Ascension Parish line to the west. The communities in this area include Laplace, Reserve, Gramercy, Lutcher, Garyville, Riverland Heights, and Carrollwood. The Louisiana Department of Wildlife and Fisheries manages the Maurepas Wildlife Management Area (WMA), which consists of a majority of the swampland within the project area.

According to an August 2012 map provided by the PDT, there are three preliminary levee alignments which have been identified through previous reconnaissance and feasibility studies that are being considered for the TSP (Figure 1). Generally, those alignments extend from the west guide levee of the Bonnet Carré Spillway to the vicinity of Hope Canal north of Garyville in St. John the Baptist Parish. Alignment A generally follows the wetland/non-wetland interface from LaPlace to Hope Canal. Alignment C generally follows en existing pipeline corridor north of Alignment A. Alignments A and C both tie into the Mississippi River levee. Alignment D generally follows the Interstate Highway 10 (I-10) corridor and extends outside the original project study area into Ascension Parish to tie into an existing non-federal levee.

For descriptions of fish and wildlife resource conditions, threatened and endangered species, other species of management concern, and existing management areas within the project study area, please reference the Service's January 9, 2009, letter (enclosed) in response to the Corps' Notice of Intent to prepare a Draft Environmental Impact Statement. Those descriptions and concerns have not changed since our 2009 letter. Please note that the Service will provide guidelines for in-water work in areas that potentially support the endangered West Indian manatee (*Trichechus manatus*) to avoid and minimize impacts to that species during project construction. Also, on September 11, 2009, the Service published two federal regulations establishing the authority to issue permits for non-purposeful bald eagle take (typically disturbance) and eagle nest take when recommendations of the National Bald Eagle Management Guidelines (http://www.fws.gov/southeast/es/baldeagle/NationalBaldEagleManagementGuidelines.pdf) cannot be achieved. Should you need further assistance interpreting the guidelines, avoidance measures, or performing an on-line project evaluation to determine whether application for a permit is necessary, please contact this office.

Depending on the alignment, construction of a flood protection levee has the potential to result in the direct loss and enclosure of valuable swamp and bottomland hardwood habitats. Developmental pressures on enclosed forested wetlands would likely increase with levee construction due to the reduced threat of flooding in the area. Reduced water exchange in the enclosed wetlands would lead to further water quality deterioration in the Lake Pontchartrain Basin by eliminating or reducing the filtering capacity of those wetlands. Wetland habitat losses would reduce populations of resident fish and wildlife, reduce important wintering habitat for waterfowl and other migratory birds, and reduce nursery habitat and detritus input important to the maintenance of estuarine-dependent fish and shellfish production.

The Service recommends implementation of Alignment A because it discourages wetland loss by enclosing the least amount of wetlands, involves the least amount of direct wetland impacts due to construction, and has the least impact to the Maurepas WMA (Table 1). If implementation of Alignment A is determined to be infeasible, then the Service would support Alignment C because it is the next least-damaging alternative to Alignment A (Table 1). The Service discourages selection of Alignment D because of the amount and quality of forested wetlands that would be enclosed, the amount of direct impacts to high quality forested wetlands that would be affected during construction, the alteration of the present hydrologic regime over a much larger area of high quality fish and wildlife habitat, the enclosure of the southern portion of the Maurepas WMA (Table 1, Figure 2), and the impacts to two proposed coastal restoration projects (i.e., the Convent to Blind River Diversion and the Hope Canal Freshwater Reintroduction).

The Service is aware that Alignments A and C do not provide protection to the entrance and exit ramps to I-10 at its intersections with United States Highway 61 (Hwy 61) and Louisiana State Highway 641 (Hwy 641), which undergo flooding during excessive rainfall events as well as during major storm events. Those alignments would also not provide flood protection to structures within St. James Parish, which are included within the study area and for which that Parish would like flood protection. In order to provide maximum consideration to the conservation of fish and wildlife habitats, as well as to address the goals of the proposed study, the Service recommends that the Corps consider installing localized ring levees at I-10 and its intersections with Hwy 61 and Hwy 641 to eliminate flooding and to maintain evacuation and emergency vehicle routes between

Baton Rouge and New Orleans. We also recommend extending Alignment C along either: (1a) the wetland/non-wetland interface up to Louisiana State Highway 3125 (Hwy 3125) west of Grand Point; or (1b) Hwy 61 to its intersection with I-10. The Service proposes Alignments C-1a and C-1b (Table 1, Figure 2), along with the localized ring levees, as possible alternatives to Alignment D. Those additional alternatives would allow for reducing and minimizing impacts to fish and wildlife resources while providing flood protection for structures within St. James Parish as well as the major highway intersections that allow ingress and egress to the affected areas and maintain evacuation and emergency routes between Baton Rouge and New Orleans. The Service is willing to work with the Corps on a finalized alternative alignment.

Table 1. Proposed alignments and the Service's recommended alignment revisions for consideration as alternatives to Alignment D.

ALIGNMENT	LENGTH*	ENCLOSED WETLANDS*	IMPACTS, ISSUES, and PROTECTION
Alignment A	19 miles	5 square miles	• Least damaging alternative • Encloses minimal amount of wetlands • Least impacts to Maurepas WMA • No impacts to Convent/Blind River Diversion • Impacts to Hope Canal Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville
Alignment C	19 miles	16 square miles	• Second least damaging alternative • Encloses additional wetlands • Small impacts to Maurepas WMA • No impacts to Convent/Blind River Diversion • Impacts to Hope Canal Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville
Alignment C-1a	29 miles	20.5 square miles	• Encloses additional wetlands • Few impacts to Maurepas WMA • No impacts to Convent/Blind River Diversion • Impacts to Hope Canal Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville, Gramercy, Lutcher, Grand Point
Alignment C-1b	28 miles	61 square miles	• Encloses extensive wetland areas • Impacts the southwestern portion of Maurepas WMA • Impacts to Hope Canal Diversion need to be addressed • Impacts to Convent/Blind River Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville, Gramercy, Lutcher, Grand Point, Convent, Romeville
Alignment D	27 miles	79 square miles	• Encloses greatest amount of wetlands • Impacts southern portion of Maurepas WMA • Impacts to Hope Canal Diversion need to be addressed • Impacts to Convent/Blind River Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville, Gramercy, Lutcher, Grand Point, Convent, Romeville

* Unrefined estimates using ArcMap® and Corps' estimates from their Feasibility Scoping Meeting information.

Regardless of which alignment the Corps chooses as the TSP, the Service recommends that (1) the integrity of present hydrologic regimes be maintained via installation of water control structures in the levee to ensure adequate water circulation, and (2) preservation of enclosed wetlands be ensured in perpetuity via the purchase of non-development easements and/or local flood zoning ordinances. Providing perpetual preservation of enclosed wetlands would also provide for flood storage areas within the levee system during excessive rainfall events. The Service also recommends that any pumping stations associated with the project should not discharge directly into canals or other open water bodies, but rather into wetland systems that can assimilate those nutrients being discharged.

The Corps has almost completed full implementation of the newly-authorized protection levels for hurricane and flood protection projects in the Greater New Orleans area. The combined need for borrow necessary to complete authorized flood protection improvements and construction of other proposed and implemented Federal and non-Federal hurricane and flood protection levees may have diminished local availability. The searches for levee-building material have been conducted on a project-by-project basis, and have led to the least-expensive and easiest sources for borrow material, which are usually located within wetlands and/or bottomland hardwoods adjacent to the proposed levee. Use of such on-site sources often has adverse impacts on wetlands and is frequently inconsistent with coastal restoration efforts. Use of those sites will be counterproductive with respect to minimizing wetland impacts and attaining the goal of increasing non-structural hurricane protection within a sustainable ecosystem. The Service's priority selection process for borrow material outlined in our August 7, 2006, letter to the Corps regarding the Greater New Orleans Hurricane and Storm Damage Risk Reduction project (enclosed) should be utilized. In addition, the Service provided, via a September 9, 2008, letter, a map (enclosed) identifying potential borrow areas that are likely to have minimal impacts to fish and wildlife resources. Areas identified on that map should be investigated first as potential borrow sources. The Service will provide an updated map that is more specific to the subject study area.

We appreciate the Corps' consideration of our recommendations for further development of a TSP for the proposed project. Should you or your staff have any questions, or if you would like to meet with us regarding the content of this letter, please contact Ms. Brigette Firmin (337/291-3108) of this office.

Sincerely,

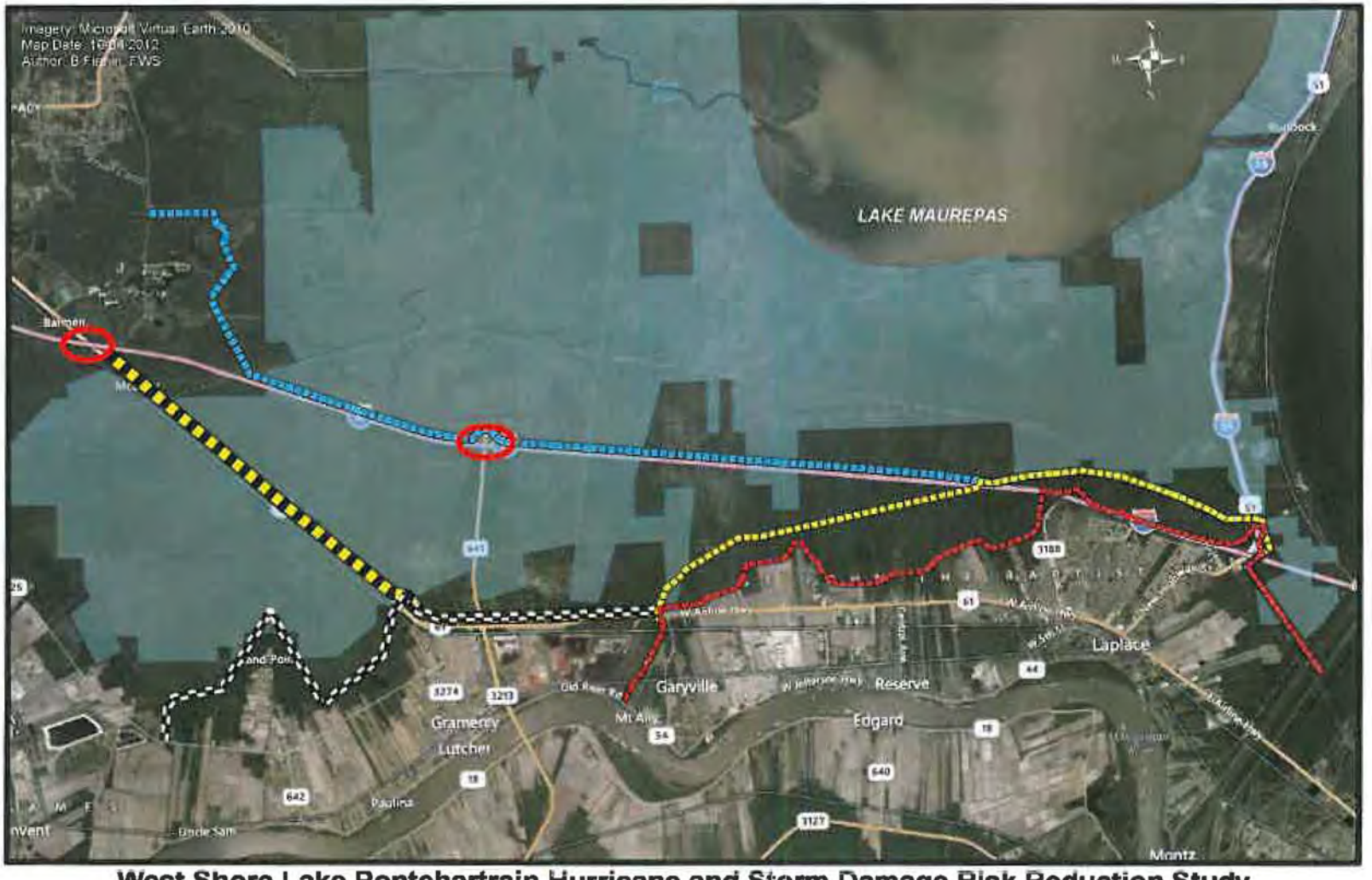
Jeffrey D. Weller
Supervisor
Louisiana Ecological Services Office

Enclosures

cc: EPA, Dallas, TX
LDWF, Baton Rouge, LA
CPRA, Baton Rouge, LA
LDNR, Coastal Management Division, Baton Rouge, LA

Figure 1. Currently proposed alignments for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.

Figure 2. Proposed revised alignments for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506
August 7, 2006

Colonel Richard P. Wagenaar
District Commander
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Wagenaar:

As you know, the U.S. Fish and Wildlife Service (Service) is assisting the U.S. Army Corps of Engineers (Corps) in assessing impacts of, and mitigation requirements for, borrow sites which are needed to complete authorized improvements, and to construct Federal and non-Federal hurricane/flood protection levees in southern Louisiana. These improvements to hurricane and flood control projects are authorized by the Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico (Public Laws 109-148, PL 84-99 and PL 109 234 (4th supplemental)). This letter is provided in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), Fish and Wildlife Coordination Act (FWCA, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), but it does not constitute the final report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act.

Through the efforts of Task Force Guardian, the Corps has restored Hurricane Katrina-damaged hurricane/flood protection projects to their authorized or previously permitted/constructed protection levels. Identification of borrow areas needed to complete those repairs utilized a protocol that prioritized selection of those sites in the following order: existing commercial pits, upland sources, previously disturbed/manipulated wetlands within a levee system, and low-quality wetlands outside a levee system. The Service supports the use of such protocols to avoid and minimize impacts to wetlands and bottomland hardwoods within project areas. Avoidance and minimization of those impacts helps to provide consistency with restoration strategies and compliments the authorized hurricane protection efforts. Such consistency is also required by Section 303(d)(1) of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA).

Accordingly, the Service recommends that prior to utilizing borrow sites every effort should be made to reduce impacts by using sheetpile and/or floodwalls to increase levee heights wherever feasible. In addition, the Service recommends that the following protocol be adopted and utilized 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-trees) or non-forested wetlands(e.g., wet pastures), excluding marshes;

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

3. Sites 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-trees) or non-forested wetlands(e.g., wet pastures), excluding marshes;

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

Notwithstanding this protocol, the location, size and configuration of borrow sites within the landscape is also critically important. Coastal ridges, natural levee flanks and other geographic features that provide forested/wetland habitats and/or potential barriers to hurricane surges should not be utilized as borrow sources, especially where such uses would diminish the natural functions and values of those landscape features.

To assist in expediting the identification of borrow sites, the Service recommends that immediately after the initial identification of a new borrow site the Corps should initiate informal consultation with the Service regarding potential impacts to federally listed threatened or endangered species. To aid you in complying with those proactive consultation responsibilities, the Service has enclosed a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District.

The Service offers the following additional recommendations for reducing borrow site impacts on fish and wildlife resources and, where feasible, enhancing those resources. However, these additional recommendations should not be implemented if they would result in the expansion of existing borrow pits or construction of new borrow pits in wetlands or bottomland hardwoods.

1. A minimum of 30 percent of the borrow pits' edge should slope no greater than 5 horizontal (H):1 vertical (V), starting from the water line down to a depth of approximately 5 feet.

2. Most of the woody vegetation removed during clearing and grubbing should be placed into the deepest parts of the borrow pits and the remaining debris should be placed in the water along the borrow pit shorelines, excluding those areas where the 5H:1V slope, per recommendation 1, have been constructed.

3. Following construction, perimeter levees (if constructed) around each borrow pit should be gapped at 25-foot intervals with an 8-foot-wide breach, the bottom elevation of which should be level with the adjacent natural ground elevation.

When avoidance and minimization of bottomland hardwood and wetland impacts is not practicable, all unavoidable net losses of these habitats should be fully offset via compensatory mitigation. Such compensatory mitigation should sited within the watershed and/or hydrologic unit where the impact occurred, and should be completed concurrently with borrow operations, or as soon thereafter as possible.

The combined need for borrow necessary to complete authorized improvements to and construction of Federal and non-Federal hurricane/flood protection levees, and the potential construction of levees capable of withstanding a category 5 hurricane, will require substantial amounts of borrow. It is highly likely such amounts would exceed local availability. In the case of ongoing hurricane/flood protection projects (e.g., Morganza to the Gulf) the search for levee-building material has been conducted primarily on project-by-project basis. In the context of such project-by-project searches for borrow material, the least-expensive and easiest sources of borrow material are usually located within wetlands and/or bottomland hardwoods, adjacent to the proposed levee. Such on-site sources, however, often involve adverse impacts to wetlands, thus exacerbating the overall wetland loss problem in all coastal basins, especially those in the deltaic plain of southeast Louisiana. In short, while such on-site sources are relatively inexpensive, they will frequently be inconsistent with coastal restoration efforts and, to the extent that wetlands will be adversely impacted, use of those sites will be counterproductive with respect to minimizing wetland impacts and attaining the goal of increasing non-structural hurricane protection within a sustainable ecosystem.

Large-scale, off-site borrow sources could have the potential to reduce environmental impacts from levees and expedite project-by-project environmental review. Such potential "programmatic" borrow sources could include uplands along the Mississippi River, beneficial use of sediments dredged for navigation purposes (including the mining of disposal sites), the Mississippi River, and offshore deposits (e.g., Ship Shoal). As part of the planning process, we recommend that the Corps begin investigating the practicability of various large-scale, off-site borrow sources and actively involve all resource agencies with the Protection and Restoration Office's Borrow Team efforts.

Programmatic planning would be essential to identify borrow sites of acceptable quantity and quality, while avoiding and/or minimizing adverse environmental impacts. We therefore recommend that a plan be developed that integrates borrow resources, uses, and needs for various programs and activities. Guiding principles should be developed to identify borrow resources, borrow-site designs, and prioritize uses to avoid competing for resources, maximize benefits with those resources, and avoid adverse environmental impacts.

We appreciate the opportunity to provide this planning-aid letter and would be pleased to assist your agency in further identification of potential borrow sources. Should you or your staff have any questions regarding this letter, please contact David Walther (337/291-3122) of this office.

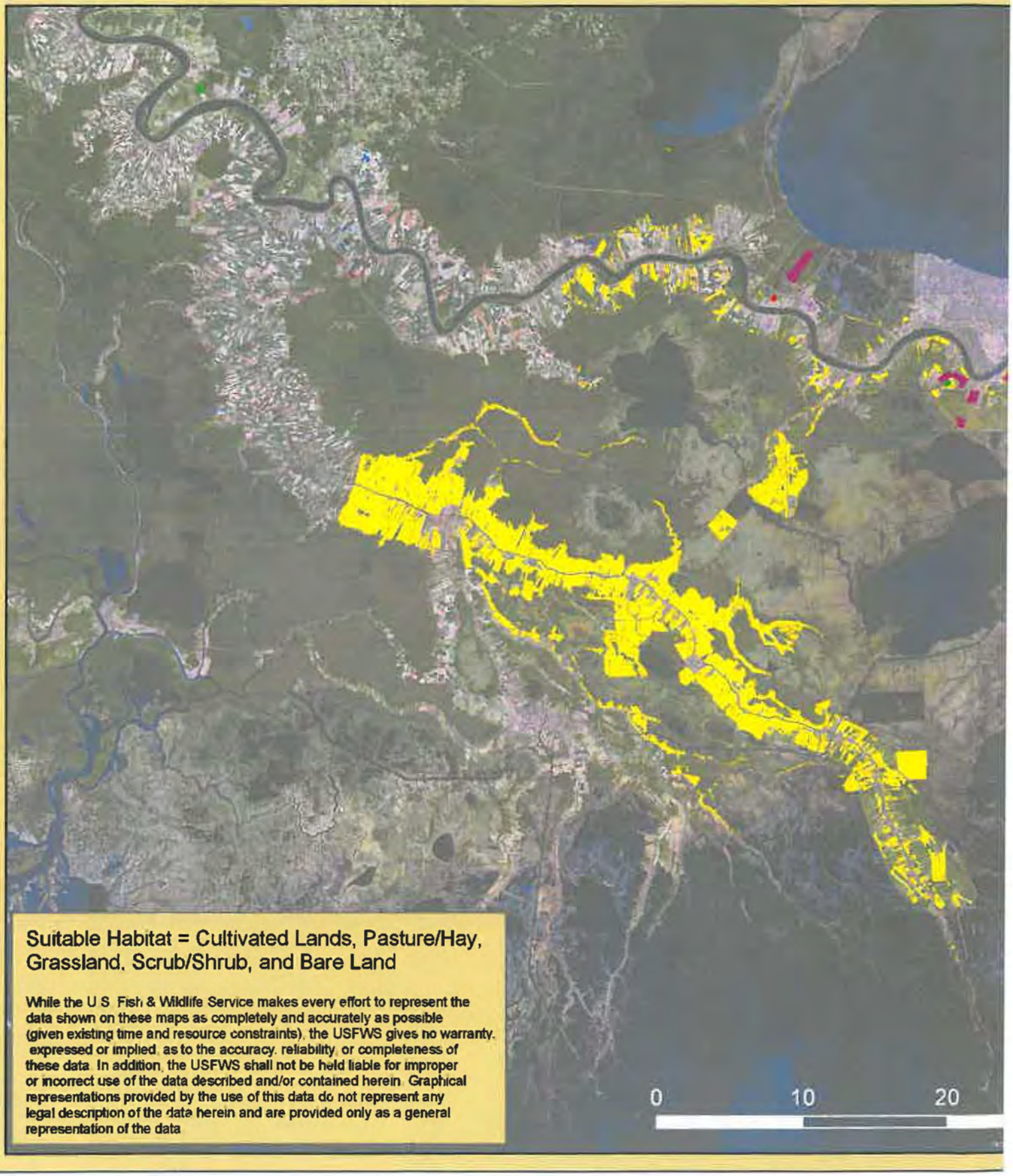
Sincerely,

Russell C. Watson
Supervisor
Louisiana Field Office

Enclosure

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

U.S. Fish & Wildlife Service



WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex I

Technical, Institutional and Public Significance of Relevant Resources

Table I-1: Significance of relevant resources located within the project area.

Resource	Institutionally Significant	Technically Significant	Publicly Significant
Soils, Water bottoms, Prime and Unique Farmlands	Council on Environmental Quality (CEQ) memorandum dated August 11, 1980, entitled "Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act (NEPA)"; Executive Order 11990 - Protection of Wetlands; Agriculture and Food Act of 1981 (Public Law 97-98) containing the Farmland Protection Policy Act (PL 97-98; 7 U.S.C. 4201 *et seq.*).	Technically significant in determining soils engineering and environmental suitability, based on their physical and chemical properties, for proposed activities. Water bottoms are technically significant because the estuarine bottom sediment characteristics (water bottoms) benthic organismal distribution and is an integral component of the benthic boundary layer.	Significant to the public for determining suitability of construction capabilities, agriculture suitability, and suitability for septic tank type disposal of sanitary waste.
Hydrology	NEPA of 1969; Clean Water Act of 1972; Storm damage Control Act of 1944; Coastal Barrier Resources Act of 1982; Rivers and Harbors Act of 1899; River and Harbor and Storm damage Control Act of 1970; Watershed Protection and Storm damage Prevention Act of 1954; Submerged Lands Act of 1953; Coastal Zone Management Act of 1972; Safe Drinking Water Act of 1974; Estuary Protection Act of 1968; Resource Conservation and Recovery Act of 1976; Comprehensive Environmental Response, Compensation and Liability Act of 1980; Executive Order 11988 Floodplain Management.	Civil Works water resources development projects typically impact (positively or negatively) the interrelationships and interactions between water and its environment.	Publicly significant because the public demands clean water, hazard-free navigation, and protection of estuaries and floodplain management.
Water Quality	Clean Water Act of 1972; Pollution Prevention Act of 1990, the Safe Drinking Water Act of 1974; Water Resources Planning Act of 1965.	Technically significant to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.	Publicly significant because of the desire for clean water and water-related activities such as boating, swimming, fishing, and as a source of potable water.
Vegetation Resources	Coastal Barrier Resources Act of 1982; Coastal Zone Management Act of 1972; Emergency Wetlands Resources Act of 1986; Estuary Protection Act of 1968; Fish and Wildlife Conservation Act of 1980; Fish and Wildlife Coordination Act of 1958; NEPA of 1969; North American Wetlands Conservation Act of 1989; the Water Resources Development Acts of 1976, 1986, 1990, and 1992; Executive Order 13186 - Migratory Bird Habitat Protection.	Technically significant because they are a critical element of the barrier shoreline habitats. Vegetation resources serve as the basis of productivity, contribute to ecosystem diversity, provide various habitat types for fish and wildlife, and are an indicator of the health of coastal habitats.	Publicly significant because of the high priority that the public places on their aesthetic, recreational, and commercial value.
Wildlife Resources	NEPA of 1969; Coastal Zone Management Act of 1972; Estuary Protection Act of 1968; Fish and Wildlife Coordination Act of 1958; Migratory Bird Conservation Act of 1929; Migratory Bird Treaty Act of 1918; Endangered Species Act of 1973; Fish and Wildlife Conservation Act of 1980; North American Wetlands Conservation Act of 1989; Executive Order 13186 - Migratory Bird Habitat Protection; Marine Mammal Protection Act of 1972.	Technically significant because they are a critical element of the barrier shoreline ecosystem, they are an indicator of the health of various coastal habitats, and many wildlife species are important recreation and commercial resources.	Publicly significant because of the high priority that the public places on their aesthetic, recreational, and commercial value.

Table I-1: Significance of relevant resources located within the project area.

Resource	Institutionally Significant	Technically Significant	Publicly Significant
Aquatic Resources	National Environmental Policy Act of 1969; Coastal Zone Management Act of 1972; Estuary Protection Act of 1968.	Technically significant because plankton provide a major, direct food source for animals in the water column and in the sediments; are responsible for at least 40 percent of the photosynthesis occurring on the earth; important for their role in nutrient cycling; plankton productivity is a major source of primary food-energy for most estuarine systems throughout the world; and phytoplankton production is the major source of autochthonous organic matter in most estuarine ecosystems (Day et al. 1989).	Publicly significant because plankton constitute the lowest trophic food level for many larger organisms important to commercial and recreational fishing. There is also public health concern with noxious plankton blooms (red and brown tides) that produce toxins, and large-scale blooms can lead to hypoxic conditions, which can result in fish kills.
Fisheries	Fish and Wildlife Coordination Act of 1958; Endangered Species Act of 1973; Magnuson-Stevens Fishery Conservation and Management Act of 1976; Coastal Zone Management Act of 1972; Estuary Protection Act of 1968.	Technically significant because they are a critical element of many valuable freshwater and marine habitats, they are an indicator of the health of various freshwater and marine habitats, and many fish species are important commercial resources.	Publicly significant because of the high priority that the public places on their esthetic, recreational, and commercial value. Fisheries resources in the project area include marine and estuarine finfish and shellfish.
Essential Fish Habitat	Magnuson-Stevens Fishery Conservation and Management Act of 1976.	Technically significant because it includes those waters and substrate necessary to Federally-managed fish species for spawning, breeding, feeding or growth to maturity.	Publicly significant because of the high value that the public places on seafood and the recreational and commercial opportunities it provides.
Threatened and Endangered Species	Endangered Species Act of 1973; Marine Mammal Protection Act of 1972; Bald Eagle Protection Act of 1940.	Technically significant because the status of such species provides an indication of the overall health of an ecosystem.	Publicly significant because of the desire of the public to protect them and their habitats.
Cultural and Historic Resources	National Historic Preservation Act of 1966; Abandoned Shipwreck Act of 1987; Archeological Resources Protection Act of 1979; National Environmental Policy Act of 1969.	Technically important because of their association or linkage to past events, to historically important persons, and to design and/or construction values; and for their ability to yield important information about prehistory and history.	Publicly important because preservation groups and private individuals support their protection, restoration, enhancement, or recovery.
Recreational Resources	Federal Water Project Recreation Act of 1965; Land and Water Conservation Fund Act of 1965.	Technically significant because of the high economic value of recreational activities and their contribution to local, state, and national economies.	Publicly significant because of the high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana, and the large per-capita number of recreational boat registrations in Louisiana.
Air Quality	Clean Air Act of 1963, as amended, and the Louisiana Environmental Quality Act of 1983, as amended.	Air quality is technically significant because of the status of regional ambient air quality in relation to the National Ambient Air Quality Standards (NAAQS).	Air quality is publicly significant because of the desire for clean air and public health concerns expressed by many citizens.
Socioeconomic and Human Resources	National Environmental Policy Act of 1969; Estuary Protection Act of 1968; Clean Water Act of 1972; Rivers and Harbors Act of 1899; Watershed Protection and Storm damage Protection Act of 1954. Executive Order 12898 of 1994 – Environmental Justice.	Technically significant because the social and economic welfare of the Nation may be positively or adversely impacted by the proposed action; the social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by proposed actions.	Publicly significant because of the public's concern for health, welfare, and economic and social well-being from water resources projects; also public concerns about the fair and equitable treatment of all people

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Environmental Compliance Laws

Table J-1: Relevant Environmental Federal Statutory Authorities and Executive Orders. (Note: this list is not complete or exhaustive.)	
Abandoned Shipwreck Act of 1987	Marine Mammal Protection Act of 1972
American Indian Religious Freedom Act of 1978	Marine Protected Areas (EO 13158) of 2000
Anadromous Fish conservation Act of 1965	Marine Protection, Research, and Sanctuaries Act of 1972
Antiquities Act of 1906	Migratory Bird Conservation Act of 1929
Archeological Resources Protection Act of 1979	Migratory Bird Treaty Act of 1918
Archeological and Historical Preservation Act of 1974	Migratory Bird Habitat Protection (EO 13186) of 2001
Bald Eagle Protection Act of 1940	National Environmental Policy Act of 1969
Clean Air Act of 1970	National Historic Preservation Act of 1966
Clean Water Act of 1977	Native American Graves Protection and Repatriation Act of 1990
Coastal Barrier Improvement Act of 1990	Neotropical Migratory Bird Conservation Act of 2000
Coastal Barrier Resources Act of 1982	Noise Control Act of 1972
Coastal Wetlands Planning, Protection, and Restoration Act of 1990	Nonindigenous Aquatic Nuisance Prevention and Control Act of 1996
Coastal Zone Management Act of 1972	North American Wetlands Conservation Act of 1989
Comprehensive Environmental Response, Compensation, and Liability Act of 1980	Oil Pollution Act of 1990
Consultation and Coordination with Indian Tribal Governments (EO 13175) of 2000	Outer Continental Shelf Lands Act of 1953
Emergency Planning and Community Right-to-Know Act of 1986	Pollution Prevention Act of 1990
Emergency Wetlands Restoration Act of 1986	Prime and Unique Farmlands, 1980 CEQ Memorandum
Endangered Species Act of 1973	Protection and Enhancement of the Cultural Environment (EO 11593) of 1971
Environmental Quality Improvement Act of 1970	Protection and Enhancement of Environmental Quality (EO 11991) of 1977
Estuaries and Clean Water Act of 2000	Protection of Children from Environmental Health Risks and Safety Issues (EO 13045) of 1997
Estuary Protection Act of 1968	Protection of Cultural Property (EO 12555) of 1986
Estuary Restoration Act of 2000	Protection of Wetlands (EO 11990) of 1977
Exotic Organisms (EO 11987) of 1977	Reclamation Projects Authorization and Adjustments Act of 1992
Farmland Protection Policy Act of 1981	Recreational Fisheries (EO 12962) of 1995
Federal Actions to Address Environmental Justice in Minority Populations & Low-Income Populations (EO 12898) of 1994	Resource Conservation and Recovery Act of 1976
Federal Emergency Management (EO 12148) of 1979	Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186) of 2001
Federal Facilities Compliance Act of 1992	Rivers and Harbors Acts of 1899 and 1956
Federal Land Policy and Management Act of 1976	River and Harbor and Flood Control Act of 1970
Federal Water Pollution Control Act of 1972	Safe Drinking Water Act of 1974
Federal Water Project Recreation Act of 1965	Submerged Land Act of 1953
Fish and Wildlife Conservation Act of 1980	Sustainable Fisheries Act of 1996
Fish and Wildlife Coordination Act of 1934	Toxic Substances Control Act of 1976
Flood Control Act of 1944	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
Floodplain Management (EO 11988) of 1977	Water Resources Development Acts of 1976, 1986, 1990, 1992, and 2007
Food Security Act of 1985	Water Resources Planning Act of 1965
Greening of the Government Through Efficient Energy Management (EO 13148) of 2000	Watershed Protection & Flood Prevention Act of 1954
Historic Sites Act of 1935	Water Pollution Control Act Amendments of 1972
Historical and Archeological Data-Preservation Act of 1974	Wild and Scenic River Act of 1968
Indian Sacred Sites (EO 13007) of 1996	Wilderness Act of 1964
Invasive Species (EO 13112) of 1999	
Land & Water Conservation Fund Act of 1965	
Magnuson-Stevens Fishery Conservation and Management Act of 1976	

Table J-2: Relevant Environmental State Statutory Authorities.

(Note: this list is not complete or exhaustive.)	
Air Control Act	Louisiana Threatened and Endangered Species and Rare & Unique Habitats
Archeological Treasury Act of 1974	Protection of Cypress Trees
Louisiana Coastal Resources Program	Water Control Act
Louisiana Scenic Rivers Act of 1988	

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Mitigation Plan

(Includes the Adaptive Management and Monitoring Plan)

APPENDIX A - ANNEX K

West Shore of Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study
Mitigation and Adaptive Management Plan
April 2014

1. INTRODUCTION

A SMART Planning approach was used to assemble the mitigation plan by drawing from many existing reports for restoration actions in nearby swamps. The mitigation plan to compensate for project-related direct and indirect impacts to swamp and Bottomland-Hardwood-Wet (BLH) is a feature of the recommended West Shore Lake Pontchartrain hurricane and storm damage risk reduction project (Project).[1] The plan complies with the requirements of the Water Resources Development Acts of 1986 and 2007, US Army Corps of Engineers (USACE) regulations, and mitigation standards.

2. MITIGATION OBJECTIVES

The objective of the mitigation plan is to restore swamp and BLH habitat to fully compensate for Project-related impacts. Wetland Value Assessment (WVA) models were run on the Project levee footprint to determine the functions and values of the impacted habitats. These results are expressed in Average Annual Habitat Units (AAHU) in Table K-1. The models predict that approximately 1,189 AAHUs would be lost due to direct and indirect habitat impacts over the 50-year period of analysis. This impact sets the mitigation requirement that must be delivered by the mitigation plan.

Table K-1. Wetland habitat impacts.

Habitat	Direct Impacts		Indirect Impacts		Total Impacts[2]	
	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs
Swamp[3]	1,112	595	8,432	495	9,544	1,090
Bottomland Hardwood	124	96	89	3	213	99
Total	***1,236***	***691.1***	***8,521***	***497.6***	***9757***	***1,189***

Six mitigation plan components will provide the required compensation for habitat impacts.

- The first feature mitigates for BLH impacts through the construction of a project that creates BLH in the Bonnet Carré Spillway.[4]

[1] Plan details will be further developed in Preconstruction Engineering and Design. USACE will coordinate with agencies, the Non-Federal Sponsor, and others during design to refine and modify the plan if necessary.
[2] Figures are rounded up.
[3] Includes 1.1 acres of impacts from berm features.
[4] This plan was developed as an alternative considered in the Lake Pontchartrain and Vicinity Hurricane and Storm Damage Risk Reduction System, Programmatic Individual Environmental Report for mitigation. This alternative was recommended as a backup measure to the recommended plan, but is no longer needed as a backup. (U.S. Army

- Five components collectively compensate for Project swamp impacts. The components are:
    - Purchasing credits from a swamp mitigation bank
    - Blind River Diversion Canal Swamp Restoration[5]
    - Bonnet Carré Swamp Restoration[6]
    - Maurepas Crawfish Ponds Swamp Restoration
    - Lutcher Polder Farmlands Swamp Restoration

Table K-2 lists the mitigation plan components, the acreage of each component, and the net gain in AAHUs from each component over a 50-year period of analysis.

Table K-2. Mitigation plan components.

Mitigation Project ID*	Proposed Components	Acres	Net Gain AAHUs[7]
BLH1	Bonnet Carré Bottomland Hardwood Restoration	156	99
SWMP1	Swamp Mitigation Bank Credit Purchase	n/a	72
SWMP2	Blind River Swamp Restoration	1,040	339
SWMP3	Bonnet Carré Swamp Restoration	310	121
SWMP4	Maurepas Crawfish Ponds Restoration	1,161	407
SWMP6	Lutcher Polder Farmlands Swamp Restoration	348	151
TOTAL		3,015	1,189

**SWMP5 (Milton Island Swamp Restoration) was removed from the plan; the 131 AAHUs from that site will be accomplished by expanding the acres at SWMP6.*

WVA modeling indicates that the total net gain from the proposed mitigation plan will be 1,189 AAHUs, while the total net loss resulting from all Project habitat impacts is 1,189 AAHUs. This indicates that the mitigation plan would fully compensate for the lost functions/values due to constructing and operating the Project.

3. MITIGATION WORK PLAN

The work plan components are identified in Table K-2 and described in Sections 3.1 – 3.6.[8] The first component, BLH1, described in Section 3.1, mitigates for the Project's BLH impacts.

Corps of Engineers, 2013. Programmatic Individual Environmental Report #36 for Lake Pontchartrain and Vicinity - Mitigation. See Appendix K. Bonnet Carré BLH-WET Restoration Project).

[5] This plan was originally developed as part of a Louisiana Coastal Area project called the Amite River Diversion Canal Hydrologic Modification. It entailed cutting gaps in a spoil bank and railroad embankment, dredging conveyance channels and planting vegetation. The project was not recommended in the LCA plan. A portion of the plan is being developed by Livingston Parish under the Coastal Impact Assistance Program. The tree plantings feature has been expanded to use as a mitigation project. Depending on the final CIAP project, some additional features may be developed during preconstruction engineering and design for the West Shore mitigation plan.

[6] This plan is as an alternative considered in the Lake Pontchartrain and Vicinity Hurricane and Storm Damage Risk Reduction System, Programmatic Individual Environmental Report for mitigation. This alternative was recommended as a backup measure to the recommended plan, but is no longer needed as a backup. See U.S. Army Corps of Engineers, 2013. Programmatic Individual Environmental Report #36 for Lake Pontchartrain and Vicinity. Appendix L. Bonnet Carré Swamp Restoration: Mitigation for LPV HSDRRS General Swamp Impacts.

[7] Required acre and AAHUs amounts are rounded up.

[8] Mitigation plans have been developed to a feasibility level of detail. Work during preconstruction engineering and design may result in refinements to the plans or necessitate additional planning to satisfy mitigation requirements.

Project swamp impacts will be mitigated by SWMP1, SWMP2, SWMP3, SWMP4, and SWMP6 described in Sections 3.2 – 3.6. The government will plant trees in connection with BLH1, SWMP2, SWMP3, SWMP4, and SWMP6. Section 3.7 describes the project planting designs. The plan components are shown in Figures K-1- K-5.[9]

Mitigation will be constructed concurrently with the other Project features. To the extent practicable, the initial mitigation construction will be started within 12 months of the original construction impacts. USACE will be responsible for initial construction of each mitigation feature and will cost-share the cost of such construction with the non-Federal sponsor as an item of total project cost in accordance with the terms of the Project Partnership Agreement (PPA). As soon as the initial construction of a mitigation feature, or of a functional portion of a mitigation feature, is completed by the USACE contractor, the District Commander will provide the non-Federal sponsor with a notice of initial construction completion (INCC) for that feature or for the functional portion of that feature. Thereafter, the non-Federal sponsor shall be responsible for the operation, maintenance, and repair, (OMR) of the INCC'd mitigation feature or functional portion thereof and all cost of the OMR of the INCC'd features or functional portion will be borne by the non-Federal sponsor.

However, on a cost-shared basis and subject to the availability of funds, USACE will continue to monitor the INCC'd mitigation features or functional portions and report its findings until such time as USACE determines that the initial success criteria have been attained for each such INCC'd mitigation feature, or functional portion. USACE monitoring of the completed mitigation features, or functional portions, will determine whether additional construction, or replanting, or invasive/nuisance species control is necessary to attain the initial success criteria. USACE mitigation construction, replanting, invasive/nuisance species control and eradication, monitoring, and reporting efforts that are conducted prior to its determination that initial success criteria have been attained shall be deemed to be an item of total project cost and shall be cost-shared with the non-Federal sponsor in accordance with the terms of the PPA.

The mitigation success criteria for this plan have been identified in section 6 of this document and include three categories. These categories are initial[10], intermediate, and long-term. Once initial success criteria are met for all of the resources associated with each INCC'd mitigation feature or functional portion, USACE will provide the non-Federal sponsor with a final notice of construction completion (FNCC) for the mitigation feature or functional portion. Thereafter, all activities for monitoring, reporting, replanting, and the eradication and control of invasive/nuisance will be deemed to be an item of operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) cost and will be entirely borne by the non-Federal Sponsor.

If, after meeting initial success criteria, USACE determines that the mitigation feature or functional portion fails to meet its intermediate and/or long-term ecological success criteria, USACE in consultation with other agencies and the Non-Federal Sponsor, will determine whether operational changes would be sufficient to achieve ecological success criteria. All

[9] The referenced figures are provided at the end of this appendix.

[10] Only the following initial success criteria, as identified in Section 6 of this Mitigation Plan, will be used in the determination of FNCC: General Construction, No. 1; Native Vegetation, No. 2A. and B.; Invasive and Nuisance Species, No. 3.A. and B; and Topography, No 4.

operational changes will be deemed to be the OMRR&R responsibility of the non-Federal sponsor and all costs of such operational changes will be borne by the Non-Federal Sponsor. Examples of operational changes necessary to attain intermediate or long-term success criteria, could include, but would not be limited to actions such as thinning or controlling. If, instead, USACE determines that structural changes are necessary to achieve ecological success, USACE will implement appropriate adaptive management measures in accordance with the contingency plan outlined in this report. The provisions set forth in this paragraph are applicable to the entire proposed mitigation program (Mitigation and Adaptive Management (AM) plan) discussed herein.

3.1 BONNET CARRÉ BOTTOMLAND HARDWOOD RESTORATION (BLH1)

The Bonnet Carré Spillway was built between 1928 and 1931. During Mississippi River floods the project allows the diversion of flood waters into Lake Pontchartrain to relieve flood heights downriver. Some areas in the spillway are ideal sites for creating BLH habitat.

A BLH mitigation site has been identified in the spillway between Highway 61 and Interstate 10. The sites are in a severely disturbed area cleared and excavated to acquire borrow material. These activities have drastically altered normal topography, creating both depressions and ridges and have cleared prior wetland forests. Invasive and nuisance plant species, particularly black willow, have colonized these areas. The mitigation project will restore topography and BLH forest, thereby increasing the habitat functions and values. A secondary objective is to eradicate and control re-infestation by invasive and nuisance plant species to help to ensure the restored forests provide habitat and habitat functions and values typical of such forests.

The project would create 156 acres of BLH forests with dredged material and tree plantings. See Figure K-1 for an area map and details of the mitigation features. Proposed activities include the beneficial placement of dredged material from levee construction.

The BLH1 project features are:

- Clear and grub woody vegetation within the mitigation sites before fill placement. This includes mechanized removal of invasive and nuisance plants. Degrade certain existing earthen mounds and ridges within each site to the final target grade elevation. Perimeter ridges at each site will be left in place at this stage to serve as containment berms.

- Eradicate invasive/nuisance plant species within the sites through ground-based application of appropriate herbicides to the target species, prior to fill placement. Follow-up eradication before initial planting of native species within these features, as necessary.

- Placement of fill within the sites as necessary to attain the desired final target grade elevation of approximately 2.0 to 3.0 feet NAVD88. The fill material would be dredged from within the Project right of way and hauled in trucks to the mitigation site.[11]

[11] This is a different borrow plan than described in the LPV PIER. This beneficial use plan takes advantage of available materials from construction of the West Shore levee. The material is a by-product of muck out construction performed before placing levee grade fill material along the alignment.

- Final grading within the mitigation features after the fill deposited in these features has settled to the desired final target elevation, prior to initial planting of the features. This grading will be performed to remove any earthen ridges that remain projecting above the target grade elevation, thereby creating a relatively level surface.
- Plant native BLH canopy and midstory species in the sites.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

3.2 PURCHASE OF SWAMP MITIGATION BANK CREDITS (SWMP1)

The feasibility study documented a sufficient number of mitigation bank credits within the Pontchartrain Basin to partially offset a portion of Project impacts to swamp habitat.

Existence of swamp mitigation bank credits was confirmed for planning purposes using data from existing in-basin banks. Specific banks were not identified. The Regulatory In lieu fee and Bank Information Tracking System (RIBITS) (http://geo.usace.army.mil/ribits/index.html) tracks data on all currently approved banks in the basin.

Before the first levee construction contract is advertised, available mitigation banks and credits will be assessed to compensate for a portion of swamp impacts. The amount of credits purchased may be more or less than currently identified in Table K-2. If more credits are available then more may be purchased. If fewer credits are available then additional plans will be developed to construct mitigation projects. Specific monitoring of mitigation success criteria following acquisition of bank credits will be conducted in accordance with the terms of the applicable Mitigation Banking Instrument.

The purchase of mitigation bank credits will be implemented by the USACE, subject to the availability of appropriations. Purchase of mitigation bank credits is deemed to be an item of total project cost and, as such, will be cost shared with the Non-Federal Sponsor in accordance with the provisions of the PPA.

3.3 BLIND RIVER SWAMP RESTORATION (SWMP2)

A project site in Livingston Parish, west of the Blind River, has been identified to plant swamp vegetation. See Figure K-2 for a map of the area and mitigation details.[12] Key parts of the restoration plan are:

[12] As noted earlier, this plan draws from an LCA report on the Amite River Diversion Canal Hydrologic Modification. A portion of the plan, involving gapping a spoil bank and an abandoned railroad embankment, is being developed by Livingston Parish. That project will improve hydrologic connection in the swamp and create favorable conditions for planting swamp trees in the mitigation area. During preconstruction engineering and design

- Verify that the Livingston Parish CIAP project was built, and that those hydraulic modifications when combined with this planting plan will produce the proposed AAHUs. If this is not verified then the details of the mitigation measure will be revised to accomplish the required mitigation.

- Plant native swamp canopy and midstory species on 1,040 acres.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

3.4 BONNET CARRÉ SWAMP RESTORATION (SWMP3)

A mitigation site for swamp habitat has been identified within the Bonnet Carré Spillway between Highway 61 and Interstate 10. The project would create 310 acres of swamp using beneficial placement of dredged material and tree plantings. Creating swamp would provide benefits to wildlife and fisheries. See Figure K-3 for a map of the area and details of the mitigation features. Dredged material would be hauled and placed in existing shallow open water areas in the spillway.

Key elements of the SWMP3 project include:

- Clear and grub woody vegetation within the sites before fill placement. This will include mechanized removal of invasive and nuisance plant species. Degrade certain existing earthen mounds and ridges within each site to the final target grade elevation. Perimeter ridges at each site will be left in place at this stage to serve as containment berms.

- Eradicate invasive/nuisance plants within the sites through ground-based application of appropriate herbicides to the target species, prior to fill placement. Follow-up eradication before the initial planting of native swamp species within these features, as necessary.

- Place fill in the mitigation sites to a final target grade elevation of approximately 1.5 to 2.0 feet NAVD88. Use fill material obtained from the Project levee right of way.[13]

- Final grading within the sites after the fill deposited in these features has settled to the desired final target elevation, prior to initial planting of the features. This grading will be performed to remove any earthen ridges that remain projecting above the target grade elevation, thereby creating a relatively level surface in the mitigation features.

- Follow-up eradication before the initial planting of native swamp species within these features, as needed. There will likely be multiple invasive/nuisance plant species eradication events during various years after the initial planting event. These may take place even beyond the attainment of the initial success criteria.

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the USACE will assess the completed Livingston Parish project and determine if additional features are needed to support the likelihood of a successful tree planting mitigation project.

[13] This is a different borrow plan than described in the LPV PIER. This beneficial use plan takes advantage of available materials from construction of the West Shore levee. The material is a by-product of muck out construction performed before placing levee grade fill along the alignment. Material will be trucked to the site.

- Plant native swamp canopy and midstory species in the sites after final grading.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

3.5 MAUREPAS CRAWFISH PONDS SWAMP RESTORATION (SWMP4)

Mitigation sites for swamp habitat have been identified at former crawfish ponds in the upper Maurepas basin. The project would restore 1,161 acres of swamp through land grading and tree plantings. See Figure K-3 for a map of the area and project details.

Key elements of the SWMP4 include:

- Clear and grub woody vegetation within the sites before grading. This will include mechanized removal of invasive and nuisance plant species.
- Degrade existing earthen mounds and levees within each site to a final target elevation approximately 1.5 to 2.0 feet NAVD88. Grading will remove former water management levees that were used to manage the crawfish ponds. Removal of these levees is intended to create a uniform elevation and to enable open exchange of water with adjacent swamps.

- Eradicate invasive/nuisance plants within the sites through ground based application of appropriate herbicides to the target species. Follow-up eradication before the initial planting of native swamp species as necessary.

- Plant 1,161 acres with native swamp canopy and midstory species after grading.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

3.6 LUTCHER POLDER FARMLAND SWAMP RESTORATION (SWMP6)

A mitigation site for swamp habitat has been identified near Lutcher. The project would restore 348 acres of swamp through land grading and tree plantings. Creating swamp would provide benefits to wildlife and fisheries. See Figure K-4 for a map of the area and project details.

Key elements of the SWMP6 project include:

- Clear and grub woody vegetation within the sites before grading. This will include mechanized removal of invasive and nuisance plant species.
- Mechanically grade sites to a final target elevation approximately 1.5 to 2.0 feet NAVD88.

- Degrade existing earthen mounds and levees within each site to a final target elevation approximately 1.5 to 2.0 feet NAVD88. Grading should remove former water management levees. Removal of these levees is intended to create uniform elevation and to enable open exchange of water with adjacent swamps.
- Eradicate invasive/nuisance plants within the sites through ground based application of appropriate herbicides to the target species. Follow-up eradication before the initial planting of native swamp species as necessary.

- Plant 348 acres with native swamp canopy and midstory species.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

3.8 INITIAL PLANTING OF BLH1 AND SWMP2 – SWMP6 PROJECTS

BLH Planting Design

Install BLH canopy tree species on 9-foot centers (538 seedlings per acre). The BLH Canopy species planted will follow Table K-3. The plants should consist of 60% hard mast-producing species and 40% soft mast-producing species. Site conditions (hydrologic regime, soils, composition of existing native canopy species, etc.) and plant stock availability may necessitate deviations from the species lists or the percent composition. Any deviations would first be approved by the USACE and Non-Federal Sponsor (NFS).

Install midstory species on 18-foot centers (134 seedlings per acre). Midstory species planted will follow Table K-4. The species used and the proportion of the total midstory species percent composition may vary depending on site conditions (composition and frequency of existing native midstory species, hydrologic regime, soils, etc.) and available stock. Deviations would first be approved by the USACE in coordination with agencies and NFS.

The following guidelines apply to all BLH planting stock for use at mitigation sites:

- Trees will be at least a year old and 2 feet tall.

- Trees will have a minimum root collar diameter of 3/8 inch and a root length of at least 8-10 inches with 4-8 lateral roots.

- Stock must be from a registered licensed regional nursery/grower and of a regional eco-type species properly stored and handled to ensure viability.

- Install plants from December through March 15 (planting season/dormant season).

- Planting will avoid monotypic rows (goal is to have spatial diversity).

- Protection devices such as wire-mesh fencing or plastic seedling protectors will be installed around each seedling to help minimize herbivory.

Table K-3. Plant List for Native Canopy Species - BLH.[14]		
Common Name	**Scientific name**	**Percent Composition**
Hard Mast-Producing Canopy Species (60% of Total Canopy Plants Installed)		
Nuttall oak	*Quercus nuttalli, Q. texana*	40%
Willow oak	*Quercus phellos*	30%
Water oak	*Quercus nigra*	10%
Overcup oak	*Quercus lyrata*	10%
Water hickory	*Carya aquatica*	10%
Soft Mast-Producing Canopy Species (40% of Total Canopy Plants Installed)		
Drummond red maple	*Acer rubrum* var. *drummondii*	20%
Sugarberry	*Celtis laevigata*	20%
Green ash	*Fraxinus pennsylvanica*	20%
American elm	*Ulmus americana*	20%
Common persimmon	*Diosypros virginiana*	10%
Bald cypress	*Taxodium distichum*	10%

Table K-4. Plant List for Native Midstory Species - BLH.		
Common Name	**Scientific name**	**Percent Composition**
Saltbush	*Baccharis halimifolia*	10%
Buttonbush	*Cephalanthus occidentalis*	10%
Mayhaw	*Crataegus opaca*	20%
Green hawthorn	*Crataegus viridis*	20%
Possumhaw	*Ilex decidua*	10%
Dahoon holly	*Ilex cassine*	10%
Wax myrtle	*Myrica cerifera, Morella cerifera*	20%

Swamp Planting Design

Install swamp canopy tree species on 9-foot centers (538 seedlings per acre). The swamp canopy species planted will follow Table K-5. Site conditions (hydrology, soils, composition of native canopy species, etc.) and plant stock availability may necessitate deviations from the species lists or the percent composition. Any deviations would first be approved by the USACE and NFS.

Install midstory species on 18-foot centers (134 seedlings per acre). Midstory species planted will follow Table K-6. The species used and the proportion of the total midstory plantings

[14] Percent composition values indicated represent the percentage of the total plants installed for each category.

species percent composition may vary depending on site conditions (composition and frequency of existing native midstory species, hydrologic regime, soils, etc.) and available stock. Deviations would first be approved by the USACE in coordination with agencies and NFS. The following guidelines apply to all planting stock for use at swamp mitigation sites:

- Trees will be at least a year old and 3 feet tall.
- Trees will have a minimum root collar diameter of 3/8 inch and a root length of at least 8-10 inches with 4-8 lateral roots.
- Stock must be from a registered licensed regional nursery/grower and of a regional eco-type species properly stored and handled to ensure viability.

- Install plants from December through March 15 (planting season/dormant season).

- Planting will avoid monotypic rows (goal is to have spatial diversity).

- Protection devices such as wire-mesh fencing or plastic seedling protectors will be installed around each seedling to help minimize herbivory.

Table K-5. Plant List for Native Canopy Species - Swamp.[15]

Common Name	Scientific name	Percent Composition
Bald cypress	*Taxodium distichum*	55%
Tupelogum	*Nyssa aquatica*	20%
Green ash	*Fraxinus pennsylvanica*	10%
Bitter pecan	*Carya x lecontei*	10%
Drummond red maple	*Acer rubrum* var. *drummondii*	5%

Table K-6. Plant List for Native Midstory Species - Swamp.

Common Name	Scientific name	Percent Composition
Buttonbush	*Cephalanthus occidentalis*	50%
Swamp privet	*Forestiera acuminata*	20%
Possumhaw	*Ilex decidua*	10%
Wax myrtle	*Myrica cerifera, Morella cerifera*	10%
American snowbell	*Styrax americanus*	10%

4. MITIGATION MANAGEMENT PLAN

This section generally describes the management activities for all of the mitigation projects excluding the purchase of mitigation bank credits. The primary management activity is the short-term and long-term eradication and control of invasive and nuisance plants. The potential for replanting trees to meet initial success criteria are highlighted as well. Other activities may include thinning trees and vegetation to manage timber stands for optimal ecological benefit.

[15] Percent composition values indicated represent the percentage of the total plants installed for each category.

Table 7 provides a generic overview of the potential activities. Specific schedules for each project will be fully developed during preconstruction engineering and design.

Table K-7: Overview of Mitigation Management Activities.		
Estimated Year	**Activity**	**Responsible Party**
0	Construction – initial eradication of invasive/nuisance species	USACE
0	Construction – pre-planting eradication	USACE
0	Construction – post-planting eradication	USACE
1	Initial success period – two eradication events	USACE
2	Initial success period – two eradication events	USACE
3	Initial success period – two eradication events	USACE
4	Initial success period – one eradication event	USACE
1-4	Potential replanting if initial success criteria are not met	USACE
5	Intermediate success period – one eradication event	NFS
9	Intermediate success period – one eradication event	NFS
13	Intermediate success period – one eradication event	NFS
17	Intermediate success period – one eradication event	NFS
15-20	Potential Timber Management	NFS
21	Intermediate success period – one eradication event	NFS
25	Long-Term success period – one eradication event	NFS
30	Long-Term success period – one eradication event	NFS
35	Long-Term success period – one eradication event	NFS
40	Long-Term success period – one eradication event	NFS
45	Long-Term success period – one eradication event	NFS
50	Long-Term success period – one eradication event	NFS

Invasive and Nuisance Plant Eradication

The actual frequency of invasive/nuisance plant eradication events will vary by mitigation site. The frequency and intensity of these events will be determined based on the degree of invasive/nuisance plant infestation observed during monitoring and inspections. The methods used to eradicate invasive and nuisance plant species will vary by site and time period. Mechanized clearing and removal may be used before the initial plantings, using equipment such as hydro-axes, gyro-tracs, bulldozers, etc. Hand-held equipment such as chain saws and machetes may be used. It is doubtful that mechanized clearing/removal of invasive/nuisance plants will be employed once the initial plantings occur. Instead, invasive/nuisance plants will be eradicated using ground-based applications of appropriate herbicides to the target plants. The specific equipment (e.g. backpack sprayers, hand application, hypo-hatchet, tube-injector, ATVs with boom sprayers, etc.) and methods (e.g. cut stump treatment, basal bark application, hack and squirt, etc.) used to apply the herbicides will be determined by the contractor.

Ground-based applications of herbicides would also be employed to treat any stumps or other above-ground portions of invasive/nuisance plants remaining after mechanized clearing and removal. Ground-based herbicide applications will typically occur during the early part of the growing season in cases where there will be one or two events during a year, and will typically

occur again during the latter part of the growing season in cases where there will be two application events in a year.

Vegetation Re-Planting

Short-term management activities may include re-planting events after the initial planting of native canopy and midstory species. It was assumed that these events, involving the re-planting of approximately 20% of the total number of canopy species and 20% of the total number of midstory species installed, may be needed to satisfy native vegetation success criterion 2.B (see Section 6). If the initial success criterion is satisfied re-planting will not occur. The USACE will be responsible for performing the re-planting events discussed above, including provision of the necessary plants. The cost of this re-planting will be shared with the Non-Federal Sponsor. The NFS after the initial success criterion are met will be responsible for any subsequent re-plantings required to meet mitigation success criteria and the cost for such re-plantings will be borne solely by the NFS.

Timber Management

After meeting the initial planting success criteria, it may be determined that the density of living native canopy species and/or living native midstory species are excessive in one or more of the mitigation sites. This determination would be made by the USACE and NFS in coordination with resource agencies 15 to 20 years after the initial plantings based on site monitoring.

If it is decided that timber management efforts are necessary, the NFS will develop a Timber Stand Improvement/Timber Management Plan, and associated long-term success criteria, in coordination with the USACE and agencies. Following approval of the plan by USACE, the NFS will perform the necessary thinning operations and demonstrate these operations have been successfully completed. Timber management activities will only be allowed for the purposes of ecological enhancement of the mitigation site.

5. LAND ACQUISITION & PRESERVATION OF MITIGATION FEATURES

The land in the Bonnet Carré spillway encompassing the proposed mitigation features themselves, as well as the land areas required for mitigation construction access and future mitigation maintenance/management access is owned by the Federal government (i.e. USACE). NFS will be responsible for OMRR&R of the mitigation features which lie within the Bonnet Carré Spillway. The Government will provide an outgrant to perform OMRR&R of the mitigation site.

The NFS will be required to preserve and protect the mitigation features in perpetuity. This requirement will be assured via the Project Partnership Agreement (PPA) between the USACE and the NFS, as well as through appropriate language in the Operations, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) manual prepared for this project by USACE and provided to the NFS.

Various lands must be acquired for the Blind River mitigation features, for areas required for construction access, borrow sites, and for future mitigation maintenance/management access. Properties will be acquired by the NFS or by the Government for the NFS.

Required properties could be privately owned or owned by a government agency. In areas that are owned by a government agency other than the USACE, the NFS will sign an interagency agreement allowing the USACE to build mitigation features. Areas that are privately owned will be acquired in accordance with the requirements of Public Law 91-646. Each property to be acquired will be appraised and the owner will be offered the market value of property. Owners will be given an opportunity to negotiate the property sale prices. If the Non-Federal Sponsor and the owner are not able to come to an amicable agreement on price or if the title of the property is not clear, the acquisition will be completed through the expropriation process.

The NFS will acquire fee over the sites (other than the Government-owned Bonnet Carré Spillway). Depending on the ownership size and the mitigation feature to be acquired, the owner may be able to explore and develop minerals through directional drilling. In the development of the appraisal, the appraiser will consider the impact of the acquisition on the remaining property. In some instances, mineral rights may need to be subordinated. Until the final boundaries of the features are identified and ownership search is conducted, this cannot be determined.

Access routes to the features as well as areas for equipment/contractor staging will be acquired by the NFS as temporary work area easements. The same could be true for certain borrow sites. Such easements allow the Government the exclusive use of the property for a specified duration. These areas would be appraised and the owner would negotiate with the NFS the sale price.

All real estate acquisition will be accomplished in the name of the Non-Federal Sponsor. The NFS will grant the USACE right of entry to perform work. Features, with the exception of the Bonnet Carré Spillway, will remain in the ownership of the NFS who will be responsible for operation and maintenance. Temporary use sites will revert to owners after easements expire.

6. MITIGATION SUCCESS CRITERIA

Mitigation success criteria have been identified for the mitigation construction projects (BLH1, SWMP2, SWMP3, SWMP4, and SWMP6). These criteria do not apply to any credits purchased from mitigation banks because the banks are subject to meeting the requirements of specific mitigation banking instruments.

The specific criteria information is presented chronologically in Table K-8 along with the designation of the responsible party for each activity. After the table the success criteria are displayed by category and point in time beginning with mitigation project construction.

Construction periods will vary by project depending upon the required activity and the size of the project. Smaller projects with fewer construction elements will be constructed faster than longer more involved projects. All construction activity is currently described as year zero. All other success criteria are linked to years beginning at year one which is designated as one growing

season after completing the initial planting. Specific criteria and schedules will be developed for each project site during preconstruction engineering and design.

Modifications to mitigation success criteria could become necessary for various reasons. Proposed modifications to any success criteria must first be approved in writing by the USACE after coordination with the IET and NFS.

Table K-8: Overview of Mitigation Success Criteria.

Year	Activity	Success Criteria			Responsible Party
		Initial	Intermediate	Long-Term	
0	Construction – site prep.	x			USACE
0	Construction – site filling.[16]	x			USACE
0	Construction – eradicate invasive and nuisance species.	x			USACE
0	Construction – plantings.	x			USACE
0	Construction – site final work.	x			USACE
1	Minimum average survival of 50% of planted canopy species.	x			USACE
1	Minimum average survival of 85% of planted midstory species.	x			USACE
1	Demonstrate that 85% of the total area in swamp projects (BLH1, SWMP3-6) is within 0.5 feet of the target surface elevation.	x			USACE
4	Minimum average density of 300 living native canopy species per acre in swamp sites		x		NFS
4	Density of 120-150 living native hard-mast producing species per acre in BLH1.		x		NFS
4	Achieve a minimum average density of 85 living native midstory species per acre (planted midstory and/or naturally recruited native midstory species) in BLH1.		x		NFS
4	Demonstrate that vegetation satisfies USACE hydrophytic vegetation criteria.		x	x	NFS
4	In a year having essentially normal rainfall, demonstrate that the water table is less than or equal to 12 inches below the soil surface for a period of at least 14 consecutive days.		x		NFS
10	Attain a minimum average cover of 80% by planted canopy species and/or naturally recruited native canopy species.		x	x	NFS
10	In a year having essentially normal rainfall, demonstrate that the mitigation features are irregularly inundated or soils are saturated to the soil surface for a period ranging from 7% to 13% of the growing season.			x	NFS

[16] If needed.

Table K-8: Overview of Mitigation Success Criteria.					
Year	**Activity**	**Success Criteria**			**Responsible**
15	Achieve a minimum average density of 75 living native plants per acre in the midstory stratum (planted midstory and/or naturally recruited native midstory species).		x		NFS
15-20	If necessary, develop a Timber Management Plan, and associated long-term success criteria.			x	NFS
25	Average cover by native species in the midstory stratum 20% - 50%.			x	NFS
25	Average cover by native species in the understory stratum (ground cover stratum) 30% - 60%.			x	NFS
1-50	Maintain areas to be essentially free of invasive and nuisance plant species immediately following all eradication events. Assure that the total average vegetative cover accounted for by invasive and nuisance species each constitute less than 5% of the total average plant cover during periods between maintenance events.	x	x	x	USACE until initial success criteria are satisfied. NFS after initial success criteria are satisfied.

The mitigation plan ecological success criteria are described in the following sub-sections. The criteria apply to all USACE constructed mitigation projects in this plan except as noted.

1. General Construction

A. Complete all necessary initial clearing, grubbing, earthwork, grading, and related construction in accordance with the mitigation work plan and in accordance with final project plans and specifications. This requirement classifies as an initial success criterion.

2. Native Vegetation

A. Complete initial planting of canopy and midstory species in accordance with Section 3.8. This requirement classifies as an initial success criterion.

B. One Year After Completing Initial Plantings (at end of first growing season following the year plants are first installed).

- Achieve a minimum average survival of 50% of planted canopy species. The surviving plants must approximate the species composition and the species percentages specified in the planting designs. These criteria apply to the initial plantings as well as any subsequent re-plantings necessary to achieve the initial success criteria.

- Achieve a minimum average survival of 85% of planted midstory species. The surviving plants must approximate the species composition percentages specified in the planting

designs. These criteria will apply to the initial plantings as well as any subsequent re-plantings necessary to achieve this initial success requirement.

C. Four Years After Completing Initial Plantings.

- Achieve a minimum average density of 300 living native canopy species per acre (planted trees and/or naturally recruited native species). These classify as intermediate success criteria.

- Achieve a minimum average density of 120 living, native, hard mast-producing species in the canopy stratum but no more than approximately 150 living hard-mast producing species in the canopy stratum (planted trees and/or naturally recruited native canopy species). The remaining trees in the canopy stratum must be comprised of soft mast-producing native species. These criteria will thereafter remain in effect for the duration of the overall monitoring period.

- Achieve a minimum average density of 85 living native midstory species per acre (planted midstory and/or naturally recruited native midstory species).
- Demonstrate that vegetation satisfies USACE hydrophytic vegetation criteria. This requirement will thereafter remain in effect for the duration of the overall monitoring period.

D. Within 10 Years After Completing Initial Plantings.

- Attain a minimum average cover of 80% by planted canopy species and/or naturally recruited native canopy species. This criterion will thereafter remain in effect for the duration of the overall monitoring period. This requirement to meet the specified minimum average cover within 10 years following completion of initial plantings classifies as an intermediate success criterion. The requirement to meet the specified minimum average cover for the duration of the overall monitoring period classifies as a long-term success criterion.

E. 15 Years After Completing Initial Plantings.

- Achieve a minimum average density of 75 living native plants per acre in the midstory stratum (planted midstory and/or naturally recruited native midstory species). This requirement classifies as an intermediate success criterion.

F. 25 Years After Completing Initial Plantings.

- Average cover by native species in the midstory stratum must be greater than 20% but cannot exceed 50%. This criterion will apply for the duration of the overall monitoring period.[17]

- Average cover by native species in the understory stratum (ground cover stratum) must be greater than 30% but cannot exceed 60%. This criterion will thereafter remain in effect for the duration of the overall monitoring period.

- The requirements above classify as long-term success criteria.

[17] The requirement that criteria remain in effect for the duration of the overall monitoring period may need to be modified due to factors such as the effect of sea level rise on vegetative cover. Proposed modifications must first be approved by the USACE in coordination with the NFS and agencies.

3. Invasive and Nuisance Vegetation

A. Complete the initial eradication of invasive and nuisance plant species. This requirement classifies as an initial success criterion.

B. Maintain all areas such that they are essentially free from invasive and nuisance plant species immediately following eradication events. Ensure that the total average vegetative cover accounted for by invasive and nuisance species each constitute less than 5% of the total average plant cover during periods between eradication events. This requirement classifies as an initial success criterion.

C. Maintain all areas such that they are essentially free from invasive and nuisance plant species immediately following eradication events. Ensure that the total average vegetative cover accounted for by invasive and nuisance species each constitute less than 5% of the total average plant cover during periods between eradication events. This requirement classifies as an intermediate and long-term success criterion.

4. Topography[18] (applies only to BLH1, SWMP3, SWMP4, and SWMP6)

A. In the year after initial construction activities are completed (i.e. year following completion of initial clearing, grubbing, and fill placement); demonstrate that at least 85% of the total area within each feature is within approximately 0.5 feet of the proposed target surface elevation. This requirement classifies as an initial success criterion.

5. Hydrology[19] (applies only to, SWMP3, SWMP4, and SWMP6)

A. In a year having essentially normal rainfall, demonstrate that the water table is less than or equal to 12 inches below the soil surface for a period of at least 14 consecutive days. This requirement classifies as an intermediate success criterion.

B. In a year having essentially normal rainfall, demonstrate that the mitigation features are irregularly inundated or soils are saturated to the soil surface for a period ranging from 7% to approximately 13% of the growing season. Note that this success criterion is more of a goal than it is a specific criterion; hence, some latitude is allowed as regards attaining this criterion, which classifies as a long-term success criterion.

7. MONITORING AND REPORTING

[18] There is no expectation that repair, rehabilitation and replacement would be needed on the surface elevation therefore there is no intermediate or long term success criteria. If a situation occurs after FNCC, other than from RSLR, where the topography changes and the initial success criteria is no longer met, the NFS is responsible for the repair, rehabilitation, and replacement of the topographic features and the cost will be entirely borne by the non-Federal Sponsor.

[19] There is no initial success criterion for hydrology because the timing of the monitoring can only occur during an essentially normal rainfall year. This criterion will not be used in the determination of FNCC.

7.1 STANDARD MITIGATION MONITORING AND REPORTING

7.1.1 "Time Zero" Monitoring Report (Monitoring Report #1)

Shortly after completing all initial mitigation construction activities (e.g. initial eradication of invasive and nuisance plants, initial vegetation planting, completion of initial earthwork, grading, etc.), the mitigation site will be monitored and a "time zero" or "baseline" monitoring report prepared. Information provided will include the following items from all project sites:

- A detailed discussion of all mitigation activities completed.
- A description of the various features and habitats within the mitigation site.
- A plan view drawing of the mitigation site showing the approximate boundaries of the different mitigation features, monitoring transect locations, sampling plot locations, photo station locations, and piezometer and staff gage locations.
- An as-built survey of finished grades in the mitigation features, along with an assessment of whether the topography success criterion has been satisfied. The topographic as-built survey may be conducted using LiDAR or conventional ground-survey methods. Note that this topographic survey would be performed prior to the initial planting of mitigation features and would be evaluated by the USACE prior to installing plants. If this evaluation indicates the topography success criterion has been achieved, then plants would be installed. However, if the evaluation indicates success has not been achieved, supplemental topographic alterations would be performed by the USACE, a second as-built topographic survey of the affected areas would be conducted after completing of the supplemental topographic alterations, and plants would not be installed until the topography success criterion is achieved. Should this scenario arise, the time-zero monitoring report would not be submitted until the year plants are installed.
- A detailed inventory of all canopy and midstory species planted, including the number and size of each. In addition, provide a breakdown itemization indicating the number of each species planted in each separate mitigation feature within the mitigation site and correlate this itemization to the various areas depicted on the plan view drawing of the mitigation site.

7.1.2 Additional Monitoring Reports

All monitoring reports generated after the initial "time zero" report will provide the following information unless otherwise noted:

- A plan view drawing of the mitigation site showing the approximate boundaries of the different mitigation features, monitoring transect locations, sampling plot locations, photo station locations, and piezometer and staff gage locations.
- A brief description of maintenance and/or management and/or mitigation work since the previous monitoring report along with a discussion of any other significant occurrences.

- Photos documenting site conditions at the time of monitoring. Photos will be taken at permanent stations in each site. Two photos will be taken at each station with the view of each always oriented in the same general direction from one monitoring event to the next.

  The estimated number of permanent photo stations in each mitigation feature is provided below (complete details will be prepared in preconstruction engineering and design):

  Bonnet Carré Bottomland Hardwood (BLH1)
  - BLH feature BC28 = 3 photo stations.
  - BLH feature BC29 = 3 photo stations.
  - BLH feature BC30 = 5 photo stations.
  - BLH feature BC31 = 3 photo stations.

  Blind River Swamp (SWMP2)
  - Blind River Swamp feature 1 = 6 photo stations.
  - Blind River Swamp feature 2 = 12 photo stations.

  Bonnet Carré Swamp (SWMP3)
  - Swamp feature BC24 = 12 photo stations.
  - Swamp feature BC25 = 6 photo stations.
  - Swamp feature BC26 = 7 photo stations.
  - Swamp feature BC27 = 4 photo stations.

  Maurepas Crawfish Ponds (SWMP4)
  - Maurepas Crawfish Ponds = 12 photo stations.

  Lutcher Polder Swamp (SWMP6)
  - Lutcher Polder Swamp = 18 photo stations.

- Quantitative plant data from permanent monitoring plots in the Bonnet Carré Bottomland Hardwood mitigation site measuring 90 feet X 90 feet in size. Data recorded in each plot will include: number of living planted canopy species present and the species composition; number of living planted midstory species present and the species composition; average density of all native species in the canopy stratum, the total number of each species present, and, for BLH restoration features only, the wetland indicator status of each species; average percent cover by native species in the canopy stratum; average density of all native species in the midstory stratum, the total number of each species present, and, for BLH restoration features only, the wetland indicator status of each species; average percent cover by native species in the midstory stratum; average percent cover accounted for by invasive plant species (all vegetative strata combined); average percent cover accounted for by nuisance plant species (all vegetative strata combined).

  The number of permanent monitoring plots in each BLHH mitigation site will be as follows:

  Bonnet Carré Bottomland Hardwood (BLH1)
  - BLH feature BC28 = 1 plot.

- BLH feature BC29 = 2 plots.
- BLH feature BC30 = 3 plots.
- BLH feature BC31 = 1 plot.

- Quantitative plant data collected from permanent monitoring plots in the swamp sites measuring approximately 80 feet X 80 feet in size. Data recorded in each plot will include: number of living planted canopy species present and the species composition; number of living planted midstory species present and the species composition; average density of all native species in the canopy stratum, the total number of each species present, and the wetland indicator status of each species; average percent cover by native species in the canopy stratum; average density of all native species in the midstory stratum, the total number of each species present, and the wetland indicator status of each species; average percent cover by native species in the midstory stratum; average percent cover accounted for by invasive plant species (all vegetative strata combined); average percent cover accounted for by nuisance plant species (all vegetative strata combined). In addition to these data, the following information will be recorded for native tree species in the canopy stratum: the average diameter at breast height (DBH; expressed in inches) of bald cypress trees; average DBH of all other native tree species excluding bald cypress; the average total basal area of living native trees (expressed in square feet per acre). The DBH of planted canopy species will not need to be documented until the average DBH of these trees reaches two inches. Total basal area data will also not need to be documented until such time that the average total basal area is estimated to exceed approximately 100 square feet per acre. The number of permanent monitoring plots in each swamp mitigation site will vary based upon project size. A standard of one plot for every 50 acres should be used.

- Quantitative plant data collected from permanent transects sampled using the point-centered quarter method with sampling points established at approximately 100-foot intervals along the course of each transect. Data recorded from the sampling transects will include: average density of living planted canopy species present and the species composition; average density of living planted midstory species present and the species composition; average density of all native species in the canopy stratum along with the species composition and the wetland indicator status of each species; average percent cover by all native species in the canopy stratum; average density of native species in the midstory stratum and the total number of each species present, and the wetland indicator status of each species; average percent cover by native species in the midstory stratum; average height of native species in the midstory stratum; if present, average percent cover accounted for by invasive and nuisance species present in the canopy and midstory strata (combined).

  The number of permanent transects and sampling points along each transect for each mitigation feature will be as follows:

  <u>Bonnet Carré Bottomland Hardwood (BLH1)</u>
  - BLH feature BC28 = 1 transect with 20 sampling points.
  - BLH feature BC29 = 1 transect with 20 sampling points.
  - BLH feature BC30 = 1 transect with 27 sampling points.
  - BLH feature BC31 = 1 transect with 20 sampling points.

Blind River Swamp (SWMP2)

- 5 transects, each with 20 sampling points.

Bonnet Carré Swamp (SWMP3)

- Swamp feature BC24 = 1 transect with 20 sampling points, 1 transect with 21 sampling points, and 1 transect with 28 sampling points.
- Swamp feature BC25 = 2 transects, each with 20 sampling points.
- Swamp feature BC26 = 2 transects, each with 20 sampling points.
- Swamp feature BC27 = 1 transect with 30 sampling points.

Maurepas Crawfish Ponds (SWMP4)

- 6 transects with 20 sampling points.

Lutcher Polder Swamp (SWMP6)

- 7 transect with 20 sampling points.

- Quantitative data concerning plants in the understory (ground cover) will be gathered from sampling quadrats. These quadrats will be established at each of the sampling points established along the point-centered quarter transects discussed above. Each quadrat will be approximately 6.5 feet X 6.5 feet in size. Data recorded from the sampling quadrats will include: average percent cover by native understory species; composition of native understory species and the wetland indicator status of each species; average percent cover by invasive plant species; average percent cover by nuisance plant species.

The number of sampling quadrats for each mitigation feature will be as follows:

Bonnet Carré Bottomland Hardwood (BLH1)

- BLH feature BC28 = 20 quadrats.
- BLH feature BC29 = 20 quadrats.
- BLH feature BC30 = 27 quadrats.
- BLH feature BC31 = 20 quadrats.

Blind River Swamp (SWMP2)

- 75 quadrats.

Bonnet Carré Swamp (SWMP3)

- Swamp feature BC24 = 49 quadrats.
- Swamp feature BC25 = 40 quadrats.
- Swamp feature BC26 = 40 quadrats.
- Swamp feature BC27 = 30 quadrats.

Maurepas Crawfish Ponds (SWMP4)

- 100 quadrats

Lutcher Polder Farmlands (SWMP6)

- 140 quadrats

- A summary of rainfall data collected during the year preceding the monitoring report based on rainfall data recorded at a station located on or in close proximity to each mitigation site. Collecting and reporting of rainfall data will end once all hydrology success criteria are met.

- A summary of water table elevation data collected from piezometers, possibly coupled with staff gages, installed within the mitigation features. Data (water table elevations) will be collected at least bi-weekly. Once the monitoring indicates the water table may be rising to an elevation that would meet hydrologic success criteria, water table elevations will be collected on a daily basis until it is evident the success criteria has been satisfied. The schedule of water table elevation readings can shift back to a bi-weekly basis for the remainder of the monitoring period. Once hydrology success criteria have been satisfied, water table monitoring will no longer be required. However, monitoring reports generated subsequent to the attainment of success criteria will include a general discussion of water levels and hydroperiod based on qualitative observations.

  The number of piezometers in each mitigation feature will be as follows:

Bonnet Carré Bottomland Hardwood (BLH1)

- BLH feature BC28 = 2 piezometers.
- BLH feature BC29 = 3 piezometers.
- BLH feature BC30 = 4 piezometers.
- BLH feature BC31 = 2 piezometers.

Blind River Swamp (SWMP2)

- Blind River Swamp feature SE1 = 2 piezometers.
- Blind River Swamp feature SE2 = 3 piezometers.

Bonnet Carré Swamp (SWMP3)

- Swamp feature BC24 = 8 piezometers.
- Swamp feature BC25 = 4 piezometers.
- Swamp feature BC26 = 4 piezometers.
- Swamp feature BC27 = 3 piezometers.

Maurepas Crawfish Ponds (SWMP4)

- 8 piezometers.

Lutcher Polder Farmlands (SWMP6)

- 7 piezometers.

- Various qualitative observations will be made in the site to help assess the status and success of mitigation and maintenance activities. These observations will include: general estimates of the average percent cover by native plant species in the canopy, midstory, and understory

strata; general estimates of the average height of planted canopy and midstory species; general estimates of the average percent cover by invasive and nuisance plant species; general estimates concerning the growth of planted canopy and midstory species; general observations concerning the colonization by volunteer native plant species. General observations made during the course of monitoring will also address potential problem zones, general condition of native vegetation, trends in the composition of the plant communities, wildlife utilization as observed during monitoring, and other pertinent factors.

- A summary assessment of all data and observations along with recommendations for actions to help meet mitigation and management/maintenance goals and mitigation success criteria.

- A brief description of anticipated maintenance/management work to be conducted during the period from the current monitoring report to the next monitoring report.

7.1.3 Monitoring Reports Following Re-Planting Activities

Re-planting of certain areas within the mitigation features may be necessary to ensure attainment of applicable native vegetation success criteria. Any monitoring report submitted following completion of a re-planting event must include an inventory of the number of each species planted and the stock size used. It must also include a depiction of the areas re-planted, cross-referenced to a listing of the species and number of each species planted in each area.

7.1.4 Monitoring Reports Involving Timber Management Activities

Where timber management activities (thinning of trees and/or shrubs in the canopy and/or midstory strata) have been approved by the USACE in coordination with the IET, monitoring will be required in the year immediately preceding and in the year following completion of the timber management activities (i.e. pre-timber management and post-timber management reports). These reports must include data and information that are in addition to the typical monitoring requirements. The Non-Federal Sponsor's proposed Timber Stand Improvement/Timber Management Plan must include the proposed monitoring data and information that will be included in the pre-timber management and post-timber management monitoring reports. The proposed monitoring plan must be approved by the USACE in coordination with the IET prior to the monitoring events and implementation of the timber management activities.

7.2 DISTRICT CONSULTATION REPORTS & USACE CIVIL WORKS PROJECT MITIGATION DATABASE REPORTS

Section 2036(a) of WRDA 2007 requires the USACE to conduct annual consultation with appropriate Federal and State agencies to assess the success of mitigation plans and to prepare annual reports summarizing consultation results. To satisfy these requirements, annual District Consultation Reports will be prepared and submitted to the USACE Mississippi Valley Division. Each report will provide the following information:

- List of the types of mitigation implemented.
- Describe the mitigation; include acres implemented and any acres remaining.
- Describe the consultation process (steps to consult with Federal and State agencies).

- Discuss consultation status, the agencies involved and the outcome. If consultation is complete, describe the outcome as one of the following: no action needed; no response from Federal or state agencies on consultation; on schedule with no adaptive management implemented due to consultation, or on schedule with adaptive management implemented due to consultation; behind schedule with adaptive management implemented due to consultation, or; behind schedule for reasons not related to consultation.
- Discuss the outcome of consultation (if completed) to include: an assessment of the likelihood that the mitigation will achieve the success criteria specified in the mitigation plan (copy of plan provided); the projected timeline for achieving mitigation success, and; any recommendations for improving the likelihood of success.

Mitigation data and information will be entered into the USACE Civil Works Project Mitigation Database annually. The database specifies the required data and information.

7.3 MITIGATION MONITORING & REPORTING SCHEDULE AND RESPONSIBILITIES: STANDARD MONITORING AND REPORTING

Monitoring work will typically take place in late summer, but may be delayed until later in the growing season due to site conditions or other circumstances. Monitoring reports will be submitted by December 31 of each year of monitoring. Monitoring reports will be provided to the USACE, the NFS, and the agencies comprising the IET.

Table K-9 indicates the currently anticipated monitoring report schedule and the party responsible for conducting the monitoring and preparing the report. Specific schedules will be developed for each project site during preconstruction engineering and design.

Table K-9. Standard mitigation monitoring report schedule and monitoring responsibility.

Year	Monitoring Report Number	Party Responsible for Monitoring and Reporting
0 (start of construction – baseline monitoring)	N/A	N/A
0 (completion of initial construction activities)	N/A	N/A
0 (complete final earthwork construction; fill areas at target grade)	N/A	N/A
0 (Complete the initial eradication of invasive and nuisance plant species.)	1 (Time Zero Report)	USACE
0 (complete initial plantings early in year; complete construction)	1 (Time Zero Report)	USACE
1 (Maintain all areas such that they are essentially free from invasive and nuisance plant species)	2	USACE
1 year after initial plantings	2	USACE
1-4 (re-planting, if necessary)	2A*	USACE*
6	2B*	USACE*
7	3	NFS
10	4	NFS
15	5	NFS
20	6	NFS

Table K-9. Standard mitigation monitoring report schedule and monitoring responsibility.		
Year	**Monitoring Report Number**	**Party Responsible for Monitoring and Reporting**
25	7	NFS
30	8	NFS
35	9	NFS
40	10	NFS
45	11	NFS
50	12	NFS
*Reports 2A and 2B would be produced only if re-planting is needed as determined by monitoring report #2.		

The USACE will be responsible for conducting the monitoring events and preparing the associated monitoring reports until such time that the following initial success criteria are achieved (criteria follow numbering system used in success criteria section):

1. General Construction – A.
2. Native Vegetation – A and B.
3. Invasive & Nuisance Vegetation – A and B
4. Topography – A.

Monitoring events associated with the above will include the "time zero" (first or baseline) monitoring event plus annual monitoring events thereafter until the mitigation monitoring responsibility is transferred to the NFS. The Non-Federal Sponsor will be responsible for conducting the required monitoring events and preparing the associated monitoring reports after the USACE has demonstrated the initial success criteria listed above have been achieved.

Once monitoring responsibilities are transferred to the NFS, the next monitoring event will take place during the year that attainment of success criterion 2.C (native vegetation criterion applicable 4 years after completion of initial plantings) must be demonstrated. Thereafter, monitoring will typically be conducted every 5 years throughout the 50-year period of analysis.

If the initial success criteria for planted species are not achieved (i.e. the 1-year survival criteria specified in native vegetation success criterion 2.B), a monitoring report will be required for each consecutive year until two annual sequential reports indicate that all survival criteria have been met (i.e. that corrective actions were successful). The USACE will be responsible for conducting this additional monitoring and preparing the monitoring reports. The USACE will be responsible for the purchase and installation of supplemental plants needed to attain this success criterion.

If the native vegetation success criteria specified for 4 years following completion of initial plantings are not achieved (i.e. native vegetation success criteria 2.C), a monitoring report will be required for each consecutive year until two annual sequential reports indicate that these criteria have been satisfied. The NFS will be responsible for conducting this additional monitoring and preparing the monitoring reports. The NFS will also be responsible for the purchase and installation of supplemental plants needed to attain these success criteria.

If timber management activities are conducted by the NFS in the mitigation features, the NFS will be responsible for conducting the additional monitoring and preparing the associated monitoring reports necessary for such activities (e.g. one monitoring event and report in the year immediately preceding timber management activities and one monitoring event and report in the year that timber management activities are completed).

Monitoring reports 2A and 2B in Table K-7 will only be necessary if the second monitoring report indicates that native vegetation success criterion #2.B has not been achieved, thereby requiring re-planting in Year #5. If re-planting is not necessary, there would be no monitoring in years 5 and 6. It is assumed that some re-planting will be needed. The schedule provided in the table does not account for the need to physically adjust topography once final construction activities have been completed. Should adjustments be necessary to achieve topographic success criteria, then the monitoring schedule presented would likely require adjustments.

Although the USACE will be responsible for conducting the work for monitoring reports 1, 2, 2A, and 2B and will be responsible for preparing these reports, the costs for these activities will be cost shared with the NFS. The costs associated with conducting the monitoring and preparing monitoring reports for all subsequent monitoring reports will be solely borne by the NFS.

It is not feasible at this time to accurately estimate the actual calendar year when mitigation construction activities will be initiated. This explains why the years indicated in the preceding table are not actual calendar years. This mitigation plan will be revised in PED to include a monitoring / reporting schedule using calendar years.

Once monitoring responsibilities have transferred to the NFS, the NFS will retain the ability to modify the monitoring plan and the monitoring schedule if necessary due to unforeseen events or to improve the information provided through monitoring. Twenty years following completion of initial plantings, the number of monitoring plots and/or monitoring transects that must be sampled during monitoring events may be reduced substantially if it is clear that mitigation success is proceeding as anticipated. Any significant modifications to the monitoring plan or the monitoring schedule must first be approved in writing by the USACE. Changes will be coordinated in advance with the IET.

7.4 MITIGATION MONITORING & REPORTING SCHEDULE AND RESPONSIBILITIES: DISTRICT CONSULTATION REPORTS AND USACE CIVIL WORKS PROJECT MITIGATION DATABASE REPORTS

The USACE is responsible for preparing and submitting all District Consultation Reports. These reports will be submitted annually beginning in the year the mitigation construction begins and continuing throughout the 50-year period of analysis. The date for submittal of each report will be in accordance with guidance provided by MVD and/or USACE Headquarters. Presently, guidance requires annual reports be submitted 14 working days before October 1st.

The agencies involved in the consultation process will include, at a minimum: USACE, Mississippi Valley Division, New Orleans District; the Non-Federal Sponsor; US Fish and Wildlife Service; Louisiana Department of Natural Resources. The USACE will be responsible

for conducting the consultation until the mitigation monitoring responsibilities are transferred to the NFS. Thereafter, the NFS will be responsible for conducting the consultation and for providing results of the consultation to USACE (i.e. NFS will be responsible for obtaining and providing to USACE all information necessary to prepare the District Consultation Report).

The USACE New Orleans District (CEMVN) is responsible for inputting information into the USACE Civil Works Mitigation Project Database for this project. This information will be input on an annual basis beginning in the year the mitigation is implemented and continuing throughout the 50-year period of analysis. The information will be input by the deadline(s) established by HQUSACE. The USACE will be responsible for gathering the information necessary for database input until the mitigation monitoring responsibilities are transferred to the NFS. Thereafter, the NFS will be responsible for gathering this information and providing it to CEMVN for input.

7.5 COST OF MITIGATION MONITORING AND REPORTING

The total cost of monitoring and reporting addressed herein is estimated to be $9.765 M. This preliminary estimate includes all mitigation monitoring and reporting costs throughout the 50-year period of analysis. This estimate includes the cost of conducting the additional monitoring required due to the need for one re-planting event following the initial planting event. It was assumed that one re-planting event would be necessary to meet the initial survival success criteria for planted native vegetation. If this assumption is erroneous, the estimated monitoring and reporting cost would decrease (a reduction in the Federal share of total cost). These cost estimates do not account for any further topographic alterations following completion of the final mitigation construction activities since it is not anticipated that such physical alterations will be necessary. If this assumption is violated, the estimated mitigation monitoring and reporting cost would increase due to the need for additional monitoring/reporting events. Note that this cost estimate does not include additional monitoring and reporting costs incurred if the adaptive management plan is implemented.

8. CONTINGENCY PLAN (ADAPTIVE MANAGEMENT)

This AM Plan is for the compensatory mitigation project related to unavoidable impacts due to construction of the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction project (WSLP). The Water Resources Development Act (WRDA) of 2007, Section 2036 (a) and USACE implementation guidance for Section 2036 (a) (CECW-PC 31 August 2009 Memorandum: “Implementation Guidance for Section 2036 (a) of the Water Resources Development Act of 2007 (WRDA 2007) – Mitigation for Fish and Wildlife and Wetland Losses”) requires a contingency plan i.e., adaptive management and monitoring plans be included in all mitigation plans for fish and wildlife and wetland losses.

Adaptive Management Planning

AM planning elements include development of a Conceptual Ecological Model (CEM), identification of key project uncertainties and associated risks, evaluation of mitigation plans for AM actions and the identification of potential AM actions (contingency plan) to better ensure the

mitigation project meets identified success criteria. The AM Plan is a living document that can and will be refined, if and as necessary, for revisions to the Project Mitigation Plan.

The level of detail in this AM Plan is based on the best currently available information developed as part of the Mitigation Plan and the Final EIS. The mitigation projects are described in Table K-2 on page K-2 of the Mitigation Plan and include BLH restoration in the Bonnet Carré, and swamp restoration at the Bonnet Carré, Blind River, Maurepas crawfish ponds, and Lutcher Polder farmlands. Swamp impacts would also be partially mitigated via purchase of mitigation credits from a mitigation bank; the specific mitigation bank has yet to be determined.

Conceptual Ecological Model

A CEM was developed to identify the major stressors and drivers affecting the proposed mitigation types (see table K-10). The CEM does not explain all possible relationships of potential factors influencing the sites. Rather, the CEM presents only those relationships and factors deemed most relevant to achieving the required acres/average annual habitat units (AAHUs). Furthermore this CEM represents the current understanding of these factors and will be updated and modified, as necessary, as new information becomes available. Stressors and drivers identified in the CEM were used during the plan formulation process to evaluate relative risks associated with each mitigation alternative.

Table K-10. Conceptual Ecological Model

Mitigation Project/ Issues, Driver	BLH1	SWMP1*	SWMP2	SWMP3	SWPM4	SWMP6
Hydrology (water table; wet/dry days; soil inundation, opening Bonnet Carré during flood events, Lake Pontchartrain)	+/-	NA	+/-	+/-	+/-	+/-
Vegetative Invasive Species	-	NA	-	-	-	-
Herbivory	-	NA	-	-	-	-
Subsidence	-	NA	-	-	-	-
Storm Surge	-	NA	-	-	-	-
Sea Level Rise	-	NA	-	-	-	-
Runoff	-	NA	-	-	-	-
Topography (elevation)	+/-	NA	-	-	-	-

Key to Cell Codes: - = Negative Impact/Decrease + = Positive Impact/Increase +/- = Duration dependent

*NA = not applicable; SWMP1 entails purchase of swamp credits from mitigation bank; hence issues and drivers are accounted for by the mitigation bank

Ecological success criteria establish mitigation performance requirements for each mitigation project. Site monitoring, data analysis and reporting help assess whether or not mitigation features are meeting the established ecological success criteria. In cases where monitoring indicates that a project is not meeting the ecological success criteria, a corrective action plan

(adaptive management) will be developed and implemented. If the initial success criteria are not attained then contingency plans are initiated and cost shared. If the initial success criteria are met, but later monitoring indicates intermediate or long-term project performance problems, then contingency plans are collaboratively developed but implemented by the NFS at their cost.

Adaptive management plans may be modified based on monitoring and other findings. Changes to the plans would be developed by the NFS in coordination with USACE and agencies. Changes would be coordinated with HQUSACE before they are finalized and implemented.

Sources of Uncertainty and Associated Risks

A fundamental tenet underlying AM is decision making and achieving desired project outcomes in the face of uncertainties. There are many uncertainties associated with mitigation and restoration of the coastal systems. The project delivery team (PDT) identified the following uncertainties during the planning process.

- Climate change, such as relative sea level rise, drought conditions, and variability of tropical storm frequency, intensity, and timing
- Subsidence and water level trends
- Opening of the Bonnet Carré due to flood events
- Uncertainty Relative to Achieving Ecological Success:
    - Water, sediment, and nutrient requirements
    - Magnitude and duration of wet/dry cycles for BLH
    - Nutrients required for desired productivity
    - Growth curves based on hydroperiod and nutrient application
    - Tree and marsh litter production based on nutrient and water levels
    - Tree propagation in relation to management/regulation of hydroperiod
    - Adjustment of hydrologic manipulations (railroad embankment cuts in SWMP2)
- Uncertainty Relative to Implementability
- Reliability and Resiliency of Design
- Self-Sustainability of Project Once Ecological Success Criteria are Achieved
- Long-Term Sustainability of Project Benefits
- Adaptability

Adaptive Management Evaluation

Mitigation projects for unavoidable impacts of implementing Alternative C (Recommended Plan) were evaluated against the potential need for AM actions. The AM Team, in coordination with the PDT, determined that uncertainties and risk elements identified for mitigation project features had been avoided, minimized or reduced. During plan formulation mitigation alternatives were analyzed, screened, and compared against a robust set of screening criteria (including Risk and Reliability) resulting in selection of mitigation plans which had the least amount of residual risks.

To further reduce uncertainties and diminish potential future risks the below listed items were incorporated into the WSLP mitigation plan and will be incorporated into the Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) plan to better ensure project success.

- Planting Guidelines for swamp and BLH canopy and midstory species

- General monitoring guidelines for Mitigation Project success
- Guidelines for Clearing, Grading, and other Earthwork Activities
- Specified Success Criteria (i.e., mitigation targets)
- Invasive Species Control
- Hydrologic Enhancement
- Supplementary Plantings as required (contingency)
- Corrective actions to meet ecological success as required (contingency)

Bonnet Carré Spillway Projects

The Bonnet Carré spillway has been opened ten times or an average of once every 8.1 years.[20] The number of years between openings varied from as little as two to as much as 23 years. There have been four times when the number of years between openings has been four years or less. This history indicates a probability of roughly 40% that the time between openings may be less than or equal to four years. The spillway has 350 bays and the number of bays opened during openings varied from 160 to 350, while the number of days the spillway has been opened during each opening event has varied from 13 days to 75 days and has averaged approximately 42 days. When all spillway bays are opened, the depth of standing water in the mitigation sites can reach as much as 12 feet, although such peak stages generally last only two to three days.

Planted BLH species would be best able to tolerate flooding events during spillway openings once the trees are 6 to 7 years old. Planted swamp species would be best able to tolerate spillway opening during flood events once the trees are 5 to 6 years old. Recent plantings of mostly cypress in the spillway have survived being submerged by floodwaters at one year of and and again at four years of age. Given the probability of a spillway opening within 4 years or less after the initial plantings, the contingency plan (adaptive management) for the Bonnet Carré Spillway projects assumes that the canopy and midstory species initially planted may have to be re-planted[21] on two separate occasions. The first re-planting event assumes that the spillway would be open within 4 years after initially planting seedlings. The second re-planting event assumes that the spillway could open again within 4 years of the first re-planting event.

The two adaptive management re-planting events would each involve total re-planting of both the canopy and the midstory species in accordance with the initial planting specifications. Adaptive management would require two annual monitoring events and reports after each re-planting event. Adaptive management of the Bonnet Carré sites would be implemented only if a spillway opening results in failure to achieve initial success criteria. The adaptive management plan assumes the need for a re-planting event and monitoring plus a second re-planting event and monitoring. It is possible that success criteria will be met obviating the need for any re-planting and monitoring.

If spillway openings damage or destroy the BLH1 or SWMP3 mitigation project features twice during the initial success evaluation period, the USACE will collaborate with the NFS and

[20] A spillway opening in 1994 was conducted as part of the evaluation of a Bonnet Carré freshwater diversion. It released approximately 14,000 cubic feet per second into the spillway. This opening was not a flood control opening and is not counted in this analysis.

[21] Cypress may not need to be replanted, but a cost was developed for the possibility.

agencies to develop new mitigation plans at sites outside of the Bonnet Carré Spillway. These could range from purchasing available mitigation bank credits to formulating new plans at sites similar to the ones at SWMP2, SWMP4, and SWMP6. Planning, design, construction, management and initial success monitoring for these new projects would be cost shared.

Other Swamp Restoration Projects

Contingency plans (adaptive management) for the Blind River (SWMP2) site are similar to the replanting protocols identified for the Bonnet Carré swamp mitigation sites. However, the risk of prolonged deep water submergence during floods is deemed to be much less frequent and intense. Flood events that introduce river water into the Blind River area are expected and the swamp tree species planted are ecologically suited to tolerate river flooding.

Contingency plans (adaptive management) for the Maurepas Crawfish Ponds (SWMP4), and Lutcher Polder Farmland (SWMP6) sites are similar to the replanting protocols identified for the Bonnet Carré swamp mitigation sites. However, the risk of prolonged riverine flooding at these sites is considered extremely unlikely given their locations.

The Maurepas and Lutcher sites are far removed from the potential direct impact of any spillway openings. However, these sites are located in a sub-basin connected to the Blind River. Floods in the area may occur during high rains or from backwater flooding. Such events in these areas are infrequent. Associated elevated water levels are generally slow in velocity and short in duration. Any flood related plant impacts are expected to be minimal and within the ecological tolerance of the planted swamp species.

Contingency plans for the Blind River (SWMP2) involves plantings of swamp canopy and midstory species which may require an additional re-planting as a contingency to the uncertainty of a drowning swamp that has little hydrologic connectivity. In addition, the hydrologic manipulation feature of making cuts into existing remnant railroad grades may require one additional cut or closure of a cut to insure that hydrologic responses are appropriate to restoring this swamp.
Monitoring reports will provide information about success criteria and may document events, conditions or trends that could trigger adaptive management actions. These actions may involve more tree plantings, herbivory control, or actions to introduce or manage water in the swamps. More complete adaptive management plans will be developed during the preconstruction engineering and design phase of the Project. Currently monitoring for an ecological success criteria is estimated to cost $4.09M and an adaptive management plan if needed is estimated to cost $2.27M. Both of these costs have been included in the total project cost estimate.

9. FINANCIAL ASSURANCES

Financial assurances are required to ensure the mitigation project will be successful. The Project Partnership Agreement (PPA) between the Non-Federal Sponsor and the Federal Government provides the required financial assurance for the project. If the NFS fails to perform, the USACE has the right to complete, operate, maintain, repair, rehabilitate or replace any project feature.

Such action would not relieve the NFS of responsibility to meet obligations and would not preclude the US from pursuing any remedy at law or equity to ensure performance.

10. DEFINITION OF TERMS

Growing Season As used herein, the growing season is considered to be the period from April through October of any given year, although some deviation from this typical range is allowed.

Interagency Environmental Team (IET) The "Interagency Environmental Team" has staff from the USACE and the following resource agencies; US Fish and Wildlife Service, National Marine Fisheries Service, US Environmental Protection Agency, State of Louisiana Office of Coastal Protection and Restoration, Louisiana Department of Natural Resources, Louisiana Department of Wildlife and Fisheries.

Invasive Plant Species All plants identified as invasive or as non-indigenous (exotic) in the following two sources:

Louisiana Aquatic Invasive Species Task Force. 2005. State Management Plan for Aquatic Invasive Species in Louisiana, Appendix B. Invasive Species in Louisiana (plants). Center for Bioenvironmental Research, Tulane & Xavier Universities, New Orleans, LA.

Barataria-Terrebonne National Estuary Program (BTNEP). 2012. Exotic Invasive Species of the Barataria-Terrebonne, Invasive Species in Louisiana. BTNEP, Thibodaux, LA.

Including: Japanese climbing fern (*Lygodium japonicum*), tall fescue (*Festuca arundinacea*), chinaberry (*Miscanthus sinensis*), Brazilian vervain (*Verbena litoralis* var. *brevibrateata*), coral ardisia (*Ardisia crenata*), Japanese ardisia (*Ardisia japonica*), cogon grass (*Imperata cylindrical*), golden bamboo (*Phyllostachys aurea),* and rescuegrass (*Bromus catharticus*).

Native Plant Species Plants that are not classified as invasive species and are not considered nuisance species.

Non-Federal Sponsor (NFS) Refers to the Coastal Protection and Restoration Authority Board.

Nuisance Plant Species Nuisance species are native species deemed detrimental due to their potential adverse competition with desirable native species. Nuisance plant species identified for the projects include; dog-fennel (*Eupatorium capillifolium, Eupatorium compositifolium*), marsh thoroughwort (*Eupatorium leptophyllum*), late-flowering thoroughwort (*Eupatorium serotinum*), common ragweed (*Ambrosia artemisiifolia*), giant ragweed (*Ambrosia trifida*), cattail (*Typha* spp.), grapevine (*Vitis* spp.), wild balsam apple (*Momordica charantia*), climbing hempvine (*Mikania scandens, M. micrantha*), pepper vine (*Ampelopsis arborea*), common reed (*Phragmites australis*), catbrier (*Smilax* spp.), blackberry (*Rubus* spp.), blue vervane (*Verbena hastata*), white vervane (*Verbena urticifolia*), wingstem (*Vervesina alternifolia*), frostweed (*Verbesina virginica*), tall ironweed (*Vernonia gigantea*), black willow (*Salix nigra*), and box elder (*Acer negundo*). After the placement of fill and initial plantings, the preceding list may be expanded to include other nuisance plant species. Additions to the list would be based on the results of the standard monitoring reports. USACE in coordination with the NFS and IET will determine

whether a particular species should be considered as a nuisance species and therefore eradicated or controlled.

Piezometer Typically a small-diameter observation well employed to measure water elevations in the surficial aquifer (water table elevations). Piezometers will be built in accord with the following: *U. S. Army Corps of Engineers. 2005. Technical standard for water-table monitoring of potential wetland sites. ERDC TN-WRAP-05-02. Vicksburg, MS: U.S. Army Engineer Research and Development Center*.

Planting Season This is considered the period from December 15 through March 15 (some deviation allowed).

Point-Centered Quarter Method A plot-less method of forest sampling. Use of this method will be in general compliance with: *Cottam, Grant and J. T. Curtis. 1956. The use of distance measures in phytosociological sampling. Ecology, 37(3):451-460.*

USACE Hydrophytic Vegetation Criteria Satisfying USACE hydrophytic vegetation criteria (i.e. plant community is dominated by hydrophytic vegetation) shall mean that sampling of the plant community demonstrates that one or more of the hydrophytic vegetation indicators set forth in the following reference is achieved: *USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0); ERDC/EL TR-10-20. USACE Engineer Research and Development Center, Vicksburg, MS.*

Wetland Indicator Status of Plant Species A means of classifying the estimated probability of a species occurring in wetlands versus non-wetlands. Indicator categories include; obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). The wetland indicator status of a particular plant species shall be as it is set forth in the following reference using the Region 2 listing. If USACE adopts a new list in the future it will apply. *Lichvar, Robert W. and J.T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0. USACE, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH and BONAP, Chapel Hill, NC.*

Figure K-1: Bonnet Carré Spillway Bottomland Hardwood Restoration and Bonnet Carré Spillway Swamp Restoration

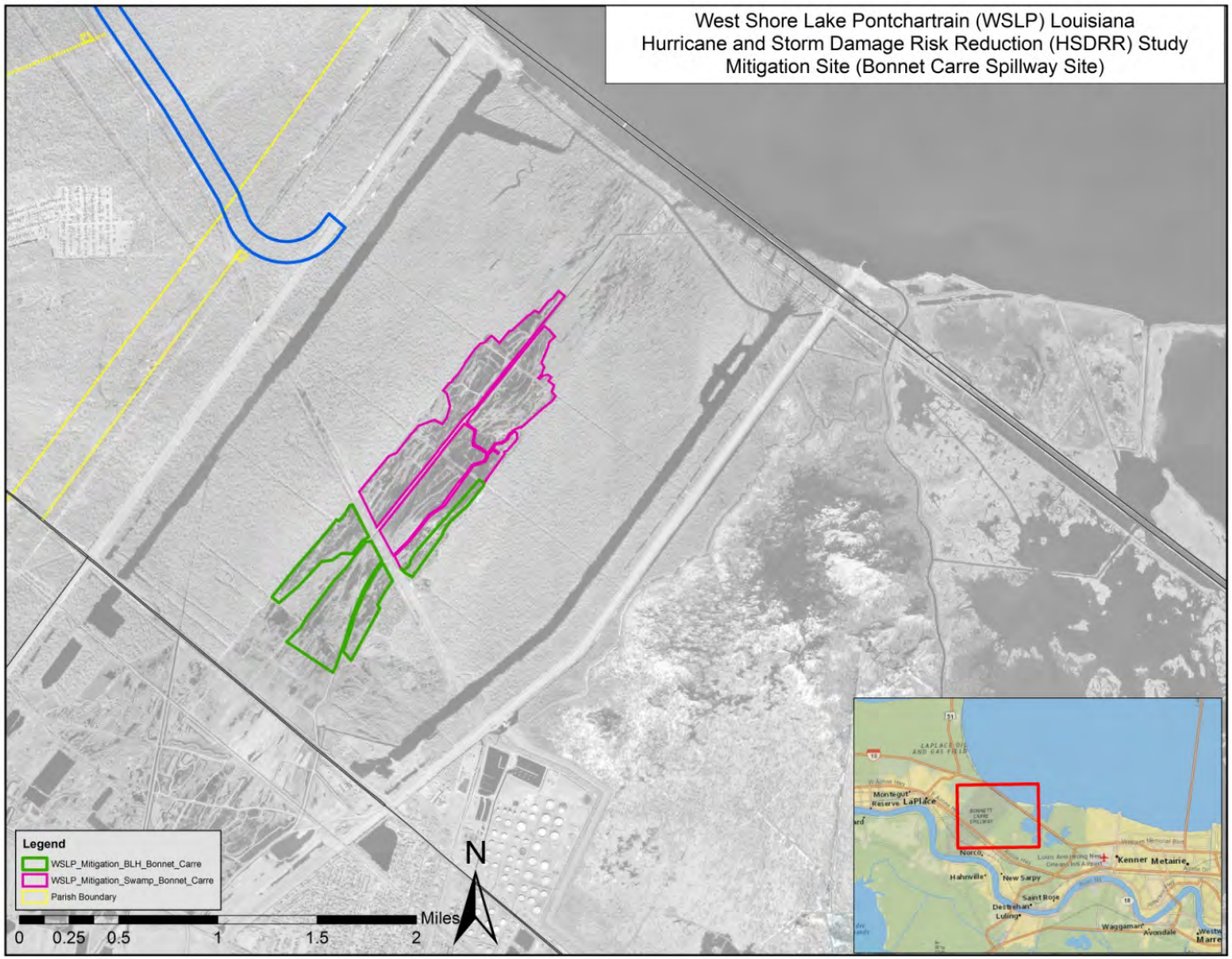


Figure K-2: Blind River Swamp Restoration

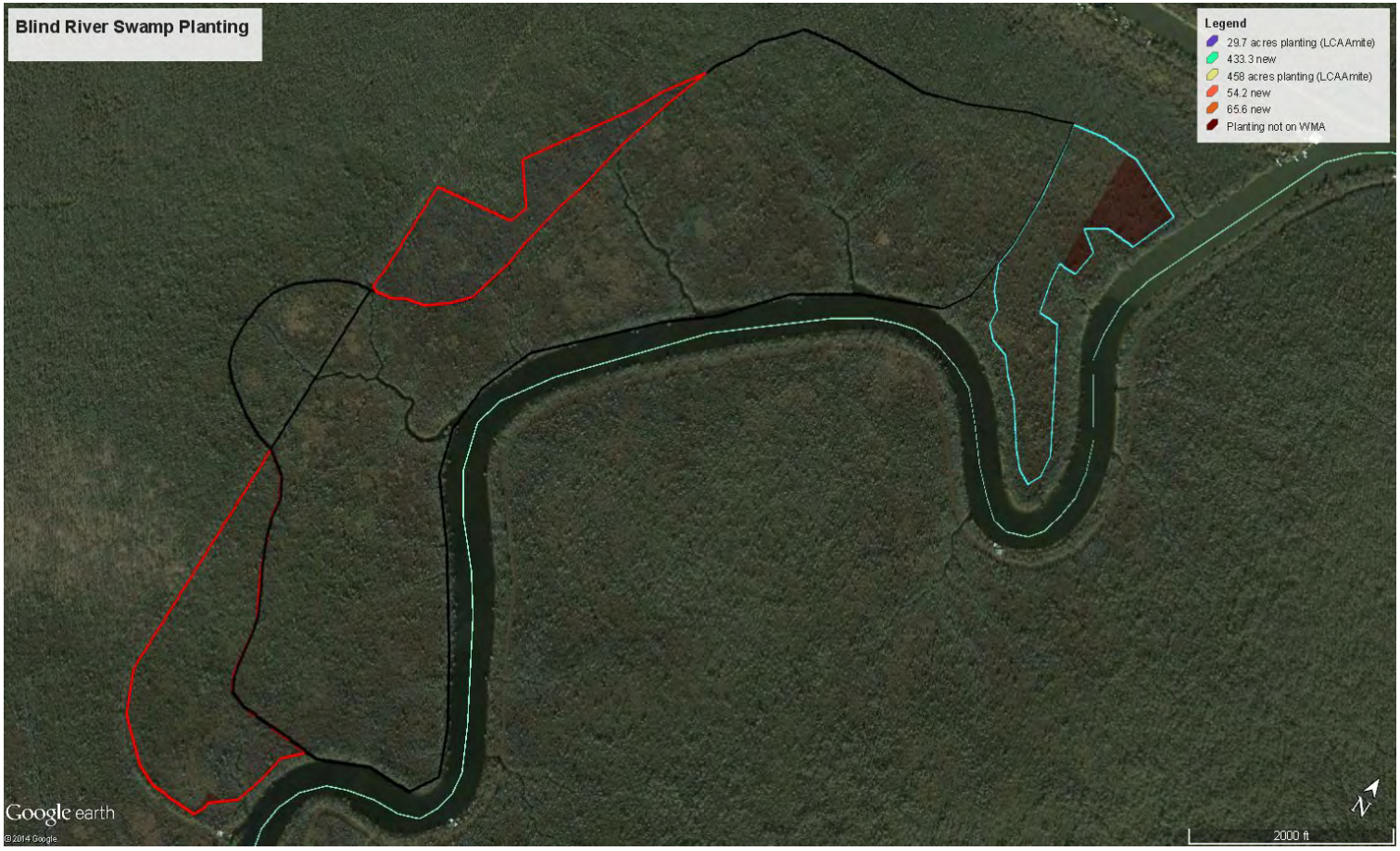
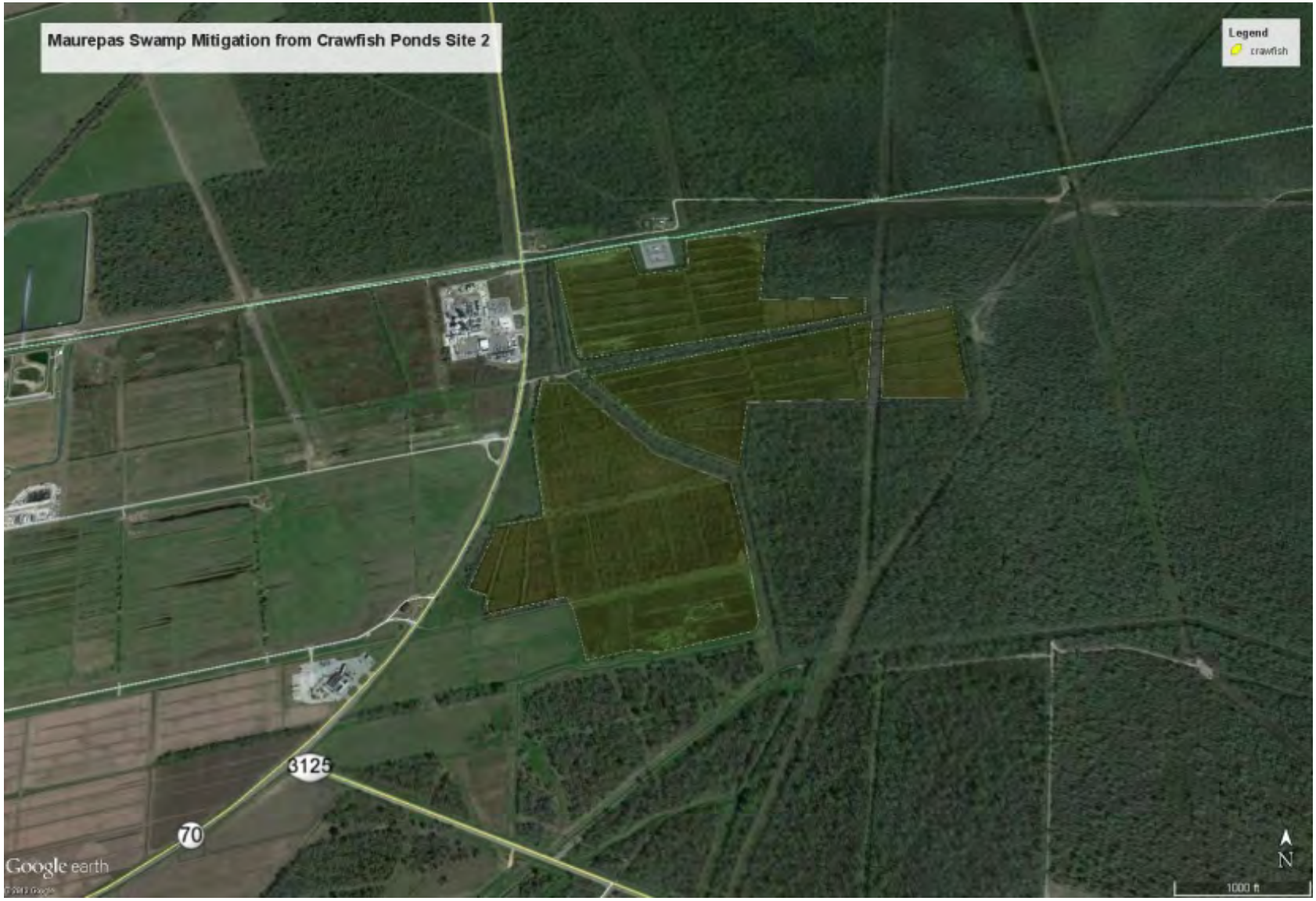


Figure K-3: Maurepas Crawfish Ponds Swamp Restoration (Sites 1, 2 and 3)


Maurepas Swamp Mitigation from Crawfish Ponds Site 2
Legend
crawfish
3125
70
Google earth
N
1000 ft

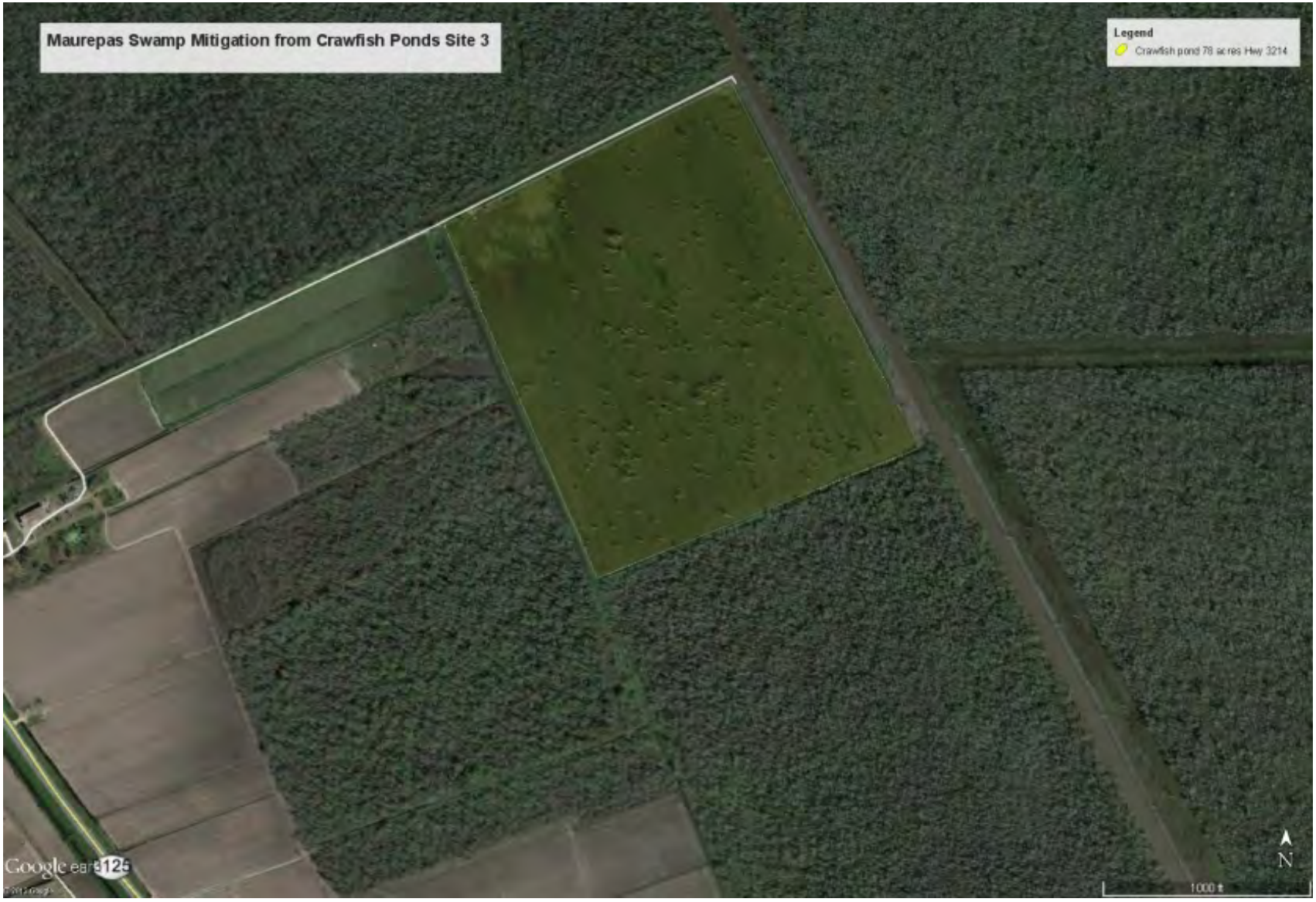
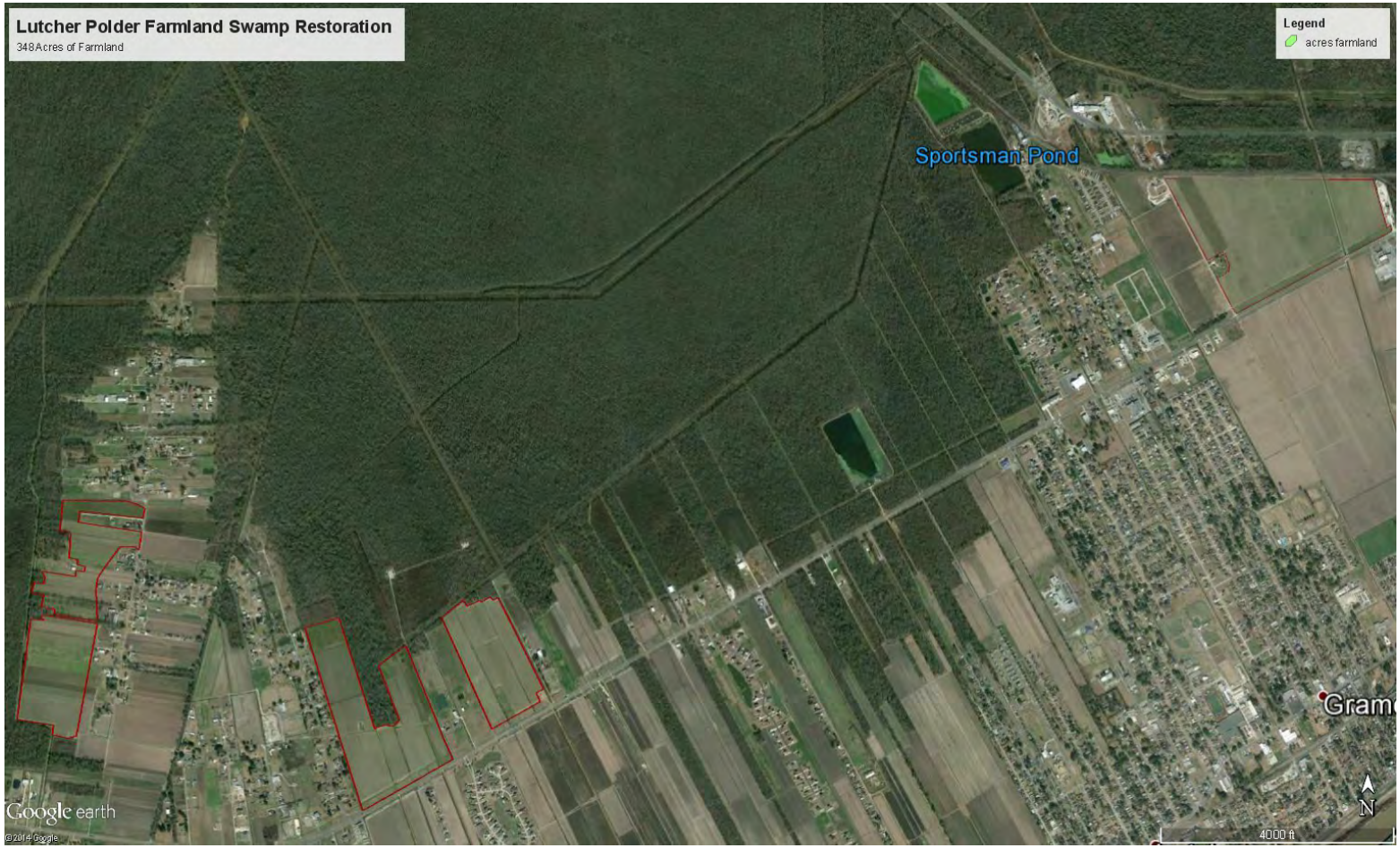

Maurepas Swamp Mitigation from Crawfish Ponds Site 3
Legend
Crawfish pond 78 acres Hwy 3214
Google earth
N
1000 ft

Figure K-4: Lutcher Polder Farmland Swamp Mitigation



WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex L

Adaptive Management and Monitoring Plan

(Included in the Mitigation Plan in Annex K)

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex M

Water Quality Analysis

West Shore-Lake Pontchartrain, Louisiana
Hurricane Protection Project

Water Quality Assessment

West Shore-Lake Pontchartrain, Louisiana
Hurricane Protection Project

Water Quality Assessment

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1.0 Affected Environment

1.1 Introduction

This resource is institutionally significant because of the Clean Water Act, as amended, the Pollution Prevention Act, the Safe Drinking Water Act, and the Water Resources Planning Act, regulations which provide for the protection of U.S. waters for the purposes of drinking, recreation, and wildlife. This resource is technically significant for the purposes of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. This resource is publicly significant because of the desire for clean water and water-related activities such as boating, swimming, fishing, and as a source of potable water for human and animal consumption.

1.1.1 Study Area Description

The study area is located in the southwestern portion of the Pontchartrain basin, a 9,700 square mile drainage basin connected to the Gulf of Mexico (Keddy et al. 2007). The northern basin includes sloping uplands, while the lower basin is estuarine, and in the northern limits of the Mississippi River delta plain (Blum and Roberts 2012). Primary surface water sources of the basin include the major tributaries of lakes Maurepas and Pontchartrain (the Tchefuncte, Tangipahoa, Amite-Comite, and Tickfaw rivers). Lakes Maurepas, Pontchartrain, and Borgne are the major estuarine embayments linking the basin to the Gulf of Mexico. Natural passes connecting these lakes include North Pass and Pass Manchac between lakes Maurepas and Pontchartrain, and Pass Rigolets and Chef Menteur Pass between lakes Pontchartrain and Borgne; the Inner Harbor Nagivation Canal (IHNC), Gulf Intracoastal Waterway (GIWW), and Mississippi River Gulf Outlet (MRGO) provide artificial connections between lakes Pontchartrain and Borgne, and the Gulf of Mexico (McCorquodale et al. 2009). The estuarine end of the basin also receives freshwater input from the adjacent Pearl River, and from episodic diversions of Mississippi River water for flood control. It includes swamp which transitions to marsh of increasing salinity regime eastward surrounding the lakes, followed by open bay and barrier islands on the eastern limits of the estuary.

The study area is bounded to the south and west by the Mississippi River, to the north by the St. James and St. John the Baptist Parish boundaries, and to the east by the western guide levee of the Bonnet Carré Spillway and the St. John the Baptist Parish boundary (Figure 1.1). This area, having a total footprint of approximately 234,000 acres, includes 1,250 acres of developed lands, 480 acres of undeveloped lands, approximately 113,000 acres of wetlands, and approximately 119,000 acres of open water. Wetlands in the area are largely comprised of environmentally stressed second-growth bald cypress-tupelo swamp.

1.1.2 Project Descriptions

The proposed project (Figure 1.1) is intended to provide hurricane storm damage risk reduction for communities on the east bank of the Mississippi River, in study area parishes (St. James and St. John the Baptist). The proposed levee alignment includes the construction of approximately 18.3 miles of hurricane storm damage risk reduction in the form of levees, t-walls, and several gated structures. In addition, the project includes several berms and floodproofing of structures in areas outside of the proposed levee.

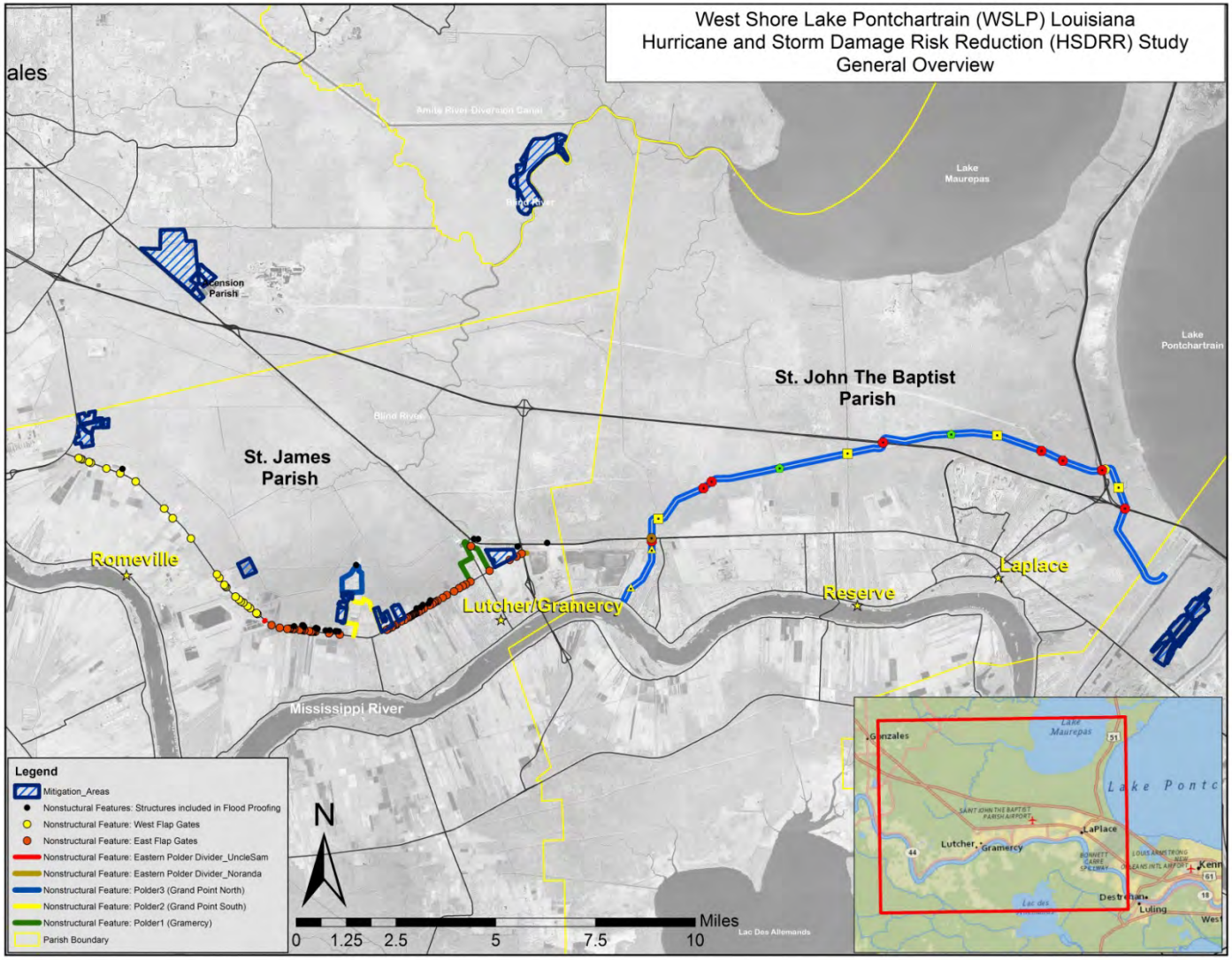

Figure 1.1. Study area and project features

Throughout this Annex the term "nonstructural" is used to describe the "berms" element and road with flap gates element as-well as the raising of homes and flood proofing of individual structures. In the main document "berms" element and road with flap gates element are no longer part of the nonstructural plan but part of a structural plan identified as localized storm surge reduction measures in St. James Parish.

Because the proposed project would enclose adjacent wetlands, artificial drainage would be included in the project in the form of gravity drainage structures and canals located adjacent to the proposed levee on both its protected and flood side, in order to reduce project impacts to water exchange between protected and flood side wetlands and waterbodies, in turn, reducing project impacts to hydrology, biology, and water chemistry.

Mitigation for the proposed hurricane protection project includes previously developed projects: Mitigation Bank (SWMP1) ,the Blind River Swamp Restoration (SWMP2), Bonnet Carré Spillway Swamp Mitigation (SWMP3), Bonnet Carré Spillway Bottomland Hardwood Mitigation (BLH1), Maurepas Crawfish Ponds Mitigation (SWMP4), and Lutcher Polder Farmlands Swamp Mitigation (SWMP6) projects.

The SWMP3 and BLH1 projects include creation of swamp and bottomland hardwood forest habitat within the Bonnet Carré Spillway, while the SWMP2 project entails tree plantings for enhancement of existing swamp habitat, and the SWMP4 and SWMP6 projects include creation of swamp habitat in existing abandoned agricultural land, (see USACE 2010a, 2013b for project details).

1.1.3 Study Area Water Quality Influences

Study area water quality is influenced by basin elevations, surface water budget, land cover and use, coastal and geological processes, and regional weather. The study area is in the southwestern portion of a basin consisting of uplands to the north and estuary to the south, with increasing estuary salinity eastward. As described in earlier, the basin is influenced by several rivers which provide freshwater to estuarine lakes connected to each other and, ultimately, to the Gulf of Mexico via several major passes.

The estuary has experienced hydromodification via the construction of canals and embankments. Major waterways within the estuary include the IHNC, MRGO, and GIWW. The estuary was formerly (1963-2009) connected to the Gulf of Mexico via the MRGO, which resulted in increased salinities (Sikora and Kjerive 1985; Tate et al. 2002); a rock barrier near Hopedale currently provides a hydrologic disconnect at normal water levels. The estuary has also been subjected to canal construction for oil exploration and cypress logging (Keddy et al. 2007). These canals and their associated spoil banks can modify local flow and drainage patterns. Additionally, road and railroad beds, as well as hurricane risk reduction features, provide hydraulic barriers within the estuary.

The basin includes upland forest and agricultural land north of the estuary, wetlands and open water within the estuary, development and agriculture along the Mississippi River corridor, and urban areas in greater New Orleans and Baton Rouge, and near the northern shorelines of lakes Pontchartrain and Maurepas (Demcheck et al. 2004). Tributaries of these lakes receive runoff from a mixture of non-developed, agricultural, and urban lands, having water quality characteristics associated with land cover and use. Undeveloped, forested areas in the northern basin contain aquatic communities associated with excellent water quality, while agricultural and urban areas have streams with water chemistry reflecting anthropogenic sources, including regional farming practices, treated and untreated sanitary inflows, and stormwater runoff. Increasing development in the watershed of study area tributaries has led to changes in stream discharge and/or water quality (Brown et al. 2010; Wu and Xu 2007; Turner et al. 2002;

Patil and Deng 2008; Southwick et al. 2002).

Chemical transformations occurring in the estuary can be biologically mediated by estuary wetlands. Wetlands have the ability to remove constituents such as nutrients, suspended sediments, organic matter, and metals from the water column, but can also serve as a source for these constituents, depending on factors such as duration of exposure to chemical loadings, wetland type, and hydrologic conditions (Mitsch and Gosselink 2000). Louisiana wetlands are not uniform in their ability to assimilate constituents (Rabalais et al. 1995).

A diversity of wetland types exist within the estuary, and are distributed based on surface water salinity as well as historical and current ground elevations. These wetlands are affected by marine and geological processes such as tidal variation, subsidence, and marine reworking of sediments (Gosselink 1984). Recently, anthropogenic factors are believed to have led to accelerated deterioration of estuary wetlands. In the study area, subsidence and impoundment has led to excessive flooding in the Maurepas Swamp, which prevents seed germination and recruitment of primary overstory tree species (Baldcypress and Water Tupelo), and can lead to tree stress and mortality (Keddy et al. 2007).

Regional and continental weather can also influence estuary water quality. For example, variations in precipitation, temperature, and wind direction can affect level of estuary marine influence, flow direction, water level, and wetlands biogeochemistry (Gosselink 1984). The estuary is periodically affected by tropical activity and the diversion of Mississippi River flood waters, which can lead to the influx of large volumes of salt- and/or freshwater. Recently, major hurricanes have affected the area approximately once every three years (in 2005, 2008, and 2011), while the influx of Mississippi River water through the Bonnet Carré Spillway for flood relief occurred in 1997, 2008, and 2011. Timing and amount of precipitation can also affect water quality. For example, Demcheck et al. (2004) found that pesticide and nutrient concentrations in Louisiana streams can vary seasonally based on timing of fertilizer and pesticide application. In the study area, a drought from spring 1999 to summer 2001 is believed to have contributed to an increased mortality rate of forested wetland tree species (Keddy et al. 2007).

1.2 Methods, Criteria, and Guidelines for Evaluation of Sediment and Water Quality

1.2.1 Water Quality

1.2.1.1 Louisiana Water Quality Inventory

The Clean Water Act (CWA) established a process for states to develop information on the quality of their water resources. Section 305(b) requires that each state develop a program to monitor the quality of its surface and groundwater, and prepare a report describing the status of its water quality. Section 303(d) requires states to list impaired waterbodies where water quality standards are not met and designated uses are not fully supported, and to develop a Total Maximum Daily Load (TMDL) for those waterbodies. The *Louisiana Water Quality Inventory Report: Integrated Report* (LDEQ 2013), prepared by the Louisiana Department of Environmental Quality (LDEQ), is the current form of biennial reporting of the status of Louisiana waters in accordance with CWA

sections 305(b) and 303(d).

For the purpose of water quality monitoring and assessment and development of TMDLs, Louisiana is divided into twelve major basins, and each basin is further divided into subsegments. This subsegment approach divides the state's waters into discrete hydrologic units. The subsegment system within each basin provides a framework for evaluating state waters. Subsegments are periodically added or removed as water quality standards related to a subsegment or group of subsegments are revised.

Section 305(b) of the Clean Water Act requires, among other items, a water quality assessment for each subsegment, which includes a description of each subsegment and the extent to which their waters provide for the protection and propagation of fish and wildlife and allow for recreational activities in and on the water (USEPA 2011). All assessments are prepared using existing and readily available water quality data and information in order to comply with rules and regulations under Section 305(b) of the Clean Water Act.

Subsequently, Section 303(d) of the Clean Water Act requires the identification, listing, and ranking for development of Total Maximum Daily Loads (TMDLs) for waters that do not meet applicable water quality standards after implementation of technology-based controls. By definition, a TMDL is the maximum amount of a pollutant that can be discharged into a water body from all sources (both point and non-point) and still maintain water quality standards.

Louisiana Water Quality Standards (*LAC 33:IX.1123*) define eight designated uses for surface waters, including: primary contact recreation; secondary contact recreation; fish and wildlife propagation; drinking water supply; oyster propagation; agriculture; outstanding natural resource; and limited aquatic life and wildlife use. Principal designated uses for Louisiana waterbodies include primary contact recreation, secondary contact recreation, and fish and wildlife propagation. The definitions for these primary uses are:

- *Primary Contact Recreation*—any recreational or other water contact activity involving prolonged or regular full-body contact with the water and in which the probability of ingesting appreciable amounts of water is considerable. Examples of this type of water use include swimming, skiing, and diving.
- *Secondary Contact Recreation*—any recreational or other water contact activity in which prolonged or regular full-body contact with the water is either incidental or accidental, and the probability of ingesting appreciable amounts of water is minimal. Examples of this type of water use include fishing, wading, and boating.
- *Fish and Wildlife Propagation*—the use of water for aquatic habitat, food, resting, reproduction, cover, and/or travel corridors for any indigenous wildlife and aquatic life species associated with the aquatic environment. This use also includes the maintenance of water quality at a level that prevents damage to indigenous wildlife and aquatic life species associated with the aquatic environment and contamination of aquatic biota consumed by humans. The use subcategory of *limited aquatic life and wildlife* recognizes the natural variability of aquatic habitats, community requirements, and local environmental conditions. *Limited aquatic life and wildlife* use may be

> designated for water bodies having habitat that is uniform in structure and morphology, with most of the regionally expected aquatic species absent, low species diversity and richness, and/or a severely imbalanced trophic structure. Aquatic life able to survive and/or propagate in such water bodies includes species tolerant of severe or variable environmental conditions. Water bodies that might qualify for the *limited aquatic life and wildlife* use subcategory include intermittent streams, and naturally dystrophic and man-made water bodies with characteristics including, but not limited to, irreversible hydrologic modification, anthropogenically and irreversibly degraded water quality, uniform channel morphology, lack of channel structure, uniform substrate, lack of riparian structure, and similar characteristics making the available habitat for aquatic life and wildlife suboptimal.

Designated uses and criteria for each subsegment are listed in the Louisiana Water Quality Standards. Designated uses have a specific suite of ambient water quality parameters used to assess their support. Data and information collected from within or immediately downstream of a subsegment are used to evaluate each subsegment's designated uses. Where more than one parameter and criterion define a designated use, support for each use is defined by the designated use's poorest performing (most severely impaired) parameter. Likewise, where data from more than one sample station are available, the most severely impaired station is used to make the assessment.

Following statistical determination of a water body's designated use support, along with a determination of the chemical parameters in the subsegment which might be impaired, a determination is then made as to which Integrated Report Category (IRC) the suspected water body impairment combination (WIC) should be placed in. A WIC is a single impairment affecting one subsegment. Based on the IR Category, it is possible that either a TMDL is required, or has been completed, for a particular subsegment.

In addition to use of numerical data, LDEQ regional staff members are asked for input regarding significant suspected sources of impairment, or whether impairment due solely to natural sources is occurring. Numerical data alone can suggest impairment for some Louisiana water bodies when in fact there is no impairment or the impairment is due exclusively to natural causes. Using best professional judgment, regional staff members familiar with the area suggest one or more suspected source for a subsegment's impairment.

Total maximum daily loads (TMDLs) indicate that the majority of the pollutant load entering state waters comes from nonpoint sources of pollution; therefore, LDEQ is implementing a watershed-based approach to reducing those loads in the water bodies where TMDLs have been completed. Presently, LDEQ utilizes both regulatory and non-regulatory mechanisms to control nonpoint sources of pollution. Urban storm water for cities with populations of 50,000 or greater and construction sites of one acre or more are regulated through the Louisiana Pollutant Discharge Elimination System (LPDES) permit program. Home sewage treatment systems are regulated through the LDHH. LDEQ's Water Quality Assessment Division (WQAD) currently houses the state's Nonpoint Source Management Program, which has been successful in implementing voluntary programs for forestry and agricultural sources of pollution. This has been done through coordination with other concerned agencies, such as the Louisiana Department

of Agriculture and Forestry (LDAF), the U.S. Natural Resource Conservation Service (NRCS), and the Louisiana State University (LSU) AgCenter. LDEQ will continue to monitor state waters through the four-year cyclic process to determine whether the current implementation strategy is successful in restoring and maintaining water quality and the designated uses within Louisiana.

1.2.1.2 Louisiana Pollutant Discharge Elimination System (LPDES)

Louisiana's water quality regulations require permits for the discharge of pollutants from any point source into waters of the state of Louisiana. This surface water discharge permitting system is administered under the Louisiana Pollutant Discharge Elimination System (LPDES) program.

LPDES permits are official authorization developed and promulgated by the Office of Environmental Services of LDEQ. The LPDES permit establishes the wasteload content of wastewaters discharged into waters of the state. The permitting process allows the state to control the amounts and types of wastewaters discharged into its surface waters, in order to meet water quality standards. In 1996, LDEQ assumed responsibility for administering the permitting, compliance, and enforcement activities of the National Pollutant Discharge Elimination System (NPDES) from the U.S. Environmental Protection Agency (USEPA).

1.2.1.3 Louisiana Nonpoint Source Management Plan

Nonpoint source pollution is a type of pollution which is generated during rainfall events, and includes, among other things, agricultural and urban runoff. Section 319 of the Clean Water Act requires that states develop a nonpoint source management plan to reduce and control nonpoint sources of pollution from the various types of land uses that contribute to water quality problems across the United States. Louisiana has determined that agriculture, forestry, urban runoff, home sewage systems, sand and gravel mining, construction, and hydromodification all contribute to nonpoint source pollution problems across the state. Nonpoint source pollution is the largest remaining type of water pollution that needs to be addressed within Louisiana, and across the nation, in order to restore full support for designated uses of impaired waterbodies.

Louisiana’s Nonpoint Source Program is managed by the LDEQ, and the goal of the program is to provide education regarding nonpoint source pollution and nonpoint source pollution prevention. The state of Louisiana has applied for and received Section 319 funds to implement both statewide and watershed projects to address nonpoint source pollution.

1.2.1.4 Water Quality Criteria

Water quality criteria are elements of state water quality standards expressed as constituent concentrations, levels, or narrative statements representing the quality of water supporting a particular designated use. When criteria are met, water quality will protect the designated use. Louisiana has both general and numeric criteria in *LAC 33:IX.1113*. General criteria are expressed in a narrative form and include aesthetics, color, suspended solids, taste and odor, toxic substances (in general), oil and grease,

foam, nutrients, turbidity, flow, radioactive materials, and biological and aquatic community integrity. Numeric criteria are generally expressed as concentrations or scientific units and include pH, chlorides, sulfates, total dissolved solids, dissolved oxygen, temperature, bacteria, and specific toxic substances.

The USEPA has published national criteria recommendations for a number of substances, and states may incorporate these without modifications into their water quality standards. However, while states generally use USEPA guidance and recommendations in developing and adopting their own criteria, they are allowed the flexibility to develop their own methodology as well. USEPA guidance is under continuous development and revision. States review and incorporate these developments and revisions into their water quality standards as appropriate.

Aquatic life criteria are designed to protect all aquatic life, including plants and animals, and include two types of criteria: acute, for short-term exposures (e.g., spills); and chronic for long-term or permanent exposures. One or both of the acute and chronic criteria may be related to other water quality characteristics, such as pH, temperature, or hardness. Separate criteria are developed for fresh and salt waters. The federal water quality standards regulations allow states to develop numerical criteria or modify USEPA's recommended criteria to account for site-specific or other scientifically defensible factors.

Human health criteria provide guidelines that specify the potential risk of adverse effects to humans due to substances in the water. Factors considered include body weight, risk level, fish consumption, drinking water intake, and incidental ingestion while swimming. Categories of criteria are then developed for each toxic substance for public drinking water supply, non-drinking water (swimming), and non-swimming water.

1.3 Study Area Historical and Existing Water Quality

1.3.1 Literature Review

Increasing development within the Pontchartrain basin with minimal regard for maintaining environmental quality during most of the twentieth century is cited as the primary cause of historical degradation of estuary waters (Hastings 2009). Associated pollution sources include sewage discharges into estuary tributaries, increased urbanization and farming, mining of waterbottoms, and oil and gas activities. While in recent decades many of these sources (particularly sewage discharges, shell dredging in Lakes Maurepas and Pontchartrain, and oil and gas exploration) have been curtailed, urbanization and farming continue, and in some areas is increasing (Patil and Deng 2008, Brown et al. 2010, Turner et al. 2002, Wu and Xu 2007).

Historical study area water quality is depicted in several references which include the review of data from basin tributaries and estuary lakes and passes. Garrison (1999) provides a summary of general parameters, major ions, nutrients, trace metals, and organic compounds for water quality data collected in Lake Maurepas between 1943 and 1995 (detected parameters are summarized in Table 1.1). Overall, the summary suggests the lake has historically been freshwater and oligotrophic, with generally low contaminant levels.

Table 1.1. Lake Maurepas historical water quality summary (source: Garrison[1999])

Group	Parameter	Units	Lake Maurepas, in Middle			Pass Manchac at Lake Maurepas		
			Percentile			Percentile		
			25th	50th (Median)	75th	25th	50th (Median)	75th
Physical properties	Specific Conductance	µmhos/cm	159	281	684	2120	2550	3700
	pH	SU	7	7.2	7.3	6.5	6.6	6.8
	Water Temperature	°C	16.8	21.5	26.5			
	Dissolved Oxygen	mg/L	7.2	7.8	9.1			
	Dissolved Solids					1230	1470	2150
Major cations	Calcium (Dissolved)	mg/L	5.9	7.2	11	20	24	38
	Magnesium (Dissolved)		3.6	5.8	13	36	46	72
	Sodium (Dissolved)		17	25	52	320	410	590
	Potassium (Dissolved)		2.5	3.1	4.7	11	15	30
Major Anions	Alkalinity, Total as CaCO3	mg/L	18	21	25			
	Sulfate (Dissolved)		10	17	32	89	120	150
	Chloride (Dissolved)		29	60	180	580	720	1100
Nutrients	Nitrate + Nitrite, Total as Nitrogen	mg/L	0.09	0.18	0.31			
	Phosphorus, Total as Phosphorus		0.09	0.11	0.14			
Trace Metals	Copper (Dissolved)	µg/L	<2	2	4			
	Iron (Dissolved)		50	140	230			
Organic Compounds	2,4-D (Total)	µg/L	0.03	0.04	0.06			

Sikora and Kjerve (1985) and Tate et al (2002) both reviewed pre- and post-MRGO salinity trends in the Pontchartrain estuary, with the monitoring site closest to the study area included in the review located on the western end of Pass Manchac. Findings suggest average salinities in Pass Manchac increased by 0.2-0.4 PPT post-MRGO. Sikora and Kjerve (1985) suggested that increased salinities were likely the result of short-lived influxes of high-salinity water. Both of these studies utilized data from prior to the 1999-2001 drought suspected of contributing to elevated salinities in the study area.

Patil and Deng (2008) investigated water quality and sediment load of the Amite River, the largest tributary of the Pontchartrain estuary, located on the northern border of the study area and to the west of Lake Maurepas. Median dissolved oxygen concentration in the lower Amite River decreased by 1 mg/L when comparing 1975-1990 and 1991-2005 monitoring data (6.8 mg/L vs. 5.7 mg/L), despite decreased median nutrient (nitrate plus nitrite, total phosphorus) concentrations between the same time periods, which was attributed to discontinued use of phosphate detergents and adoption of best management practices for agriculture and forestry in the watershed. Median total organic carbon and total suspended solids increased between time periods, suggesting factors other than nutrient enrichment, such as continued sand and gravel mining in the upper Amite River, and increased urbanization of the greater Baton Rouge area, may be responsible for the reduction in dissolved oxygen concentrations. Recently, a TMDL for organic enrichment and low dissolved oxygen levels was developed for this the Lower Amite River subsegment, with the associated report suggesting that increased conveyance in the Amite River diversion canal is contributing to reduced water velocities (and, therefore, increasing stagnation) in the lower river, which has served to concurrently reduce dissolved oxygen concentrations (LDEQ 2011).

Several studies within the study area were conducted in support of the diversion of Mississippi River water into the Maurepas Swamps (e.g., Lee Wilson and Associates 2001, Shaffer et al. 2003, Hoeppner et al. 2008, Lane et al. 2003, Shaffer et al. 2009), and include some discussion of study area water quality. Lane et al. (2003) provides a summary of water quality for surface water samples collected monthly from April to October 2000 (during the 1999-2001 drought in southern Louisiana) in the Blind River, Hope Canal, Dutch Bayou, Reserve Canal, and Lake Maurepas. Ranges of averages

for measured parameters are as follows: nitrate plus nitrite – 0-0.5 mg/L, total nitrogen – 0.35-0.9 mg/L, ammonium – 0-0.03 mg/L, chlorophyll a – 2-21 µg/L, phosphate – 0.015-0.95 mg/L, total phosphorus – 0.03-0.13 mg/L, total suspended solids – 9-44 mg/L, salinity – 2.2-9 PPT. Because of drought conditions during the sampling period, the data included in the study may not be representative of general water quality conditions in the study area. The remaining studies referenced include descriptions of the condition of swamp habitat as it relates to water quality. In general, studies show correlation between elevated salinities in the swamps surrounding Lake Maurepas and high rates of tree mortality in the years following the 1999-2001 drought, as well as increased plant production with combined nutrient addition and herbivory control. These studies primarily suggest that river water diversions during droughts may prevent some areas around the lake from experiencing high mortality rates of primary overstory tree species during times of elevated surface water salinities, and that increasing nutrient inputs (e.g., with diversions) while controlling for herbivory on a watershed scale may lead to increased swamp aboveground productivity.

1.3.2 Louisiana Water Quality Inventory

To provide a general assessment of study area historical water quality, a review of historical water quality inventories for subsegments within the study area was conducted. Table 1.2 and Figure 1.2 depict all subsegments included in the study area.

Table 1.2. Study area subsegments

Subsegment	Subsegment Description	Type	Size
040401	Blind River-Amite River Diversion canal to mouth at Lake Maurepas (Scenic)	River	5
040403	Blind River-Source to confluence with Amite River Diversion Canal (Scenic)	River	20
040404	New River-Headwaters to New River Canal	River	24
040601	Pass Manchac-Lake Maurepas to Lake Pontchartrain	River	7
040602	Lake Maurepas	Estuary	91
041001	Lake Pontchartrain-West of La. Hwy. 11 Bridge (Estuarine)	Estuary	559

Clean Water Act Section 305(b) assessments of study area subsegments, for each reporting period between 1998 and 2012, were included in the review. For each subsegment, an average designated use support value was calculated. The calculated average support values were a function of designated use and level of support. Support levels for each combination of subsegment, year, and designated use were as follows:

0: subsegment not supporting designated use
1: subsegment fully supporting designated use

The average support value calculated for each subsegment serves as a simplistic representation for subsegment health with respect to designated uses (with zero being the least healthy value possible, and one being the most). In order to develop a visual representation of the long-term health of each subsegment with respect to designated uses, the average support values for subsegments were color-coded, with breakpoints of 0.5 and 0.75. Table 1.3 and Figure 1.2 illustrates the average support values for each subsegment.

Table 1.3. Subsegment average support values, 1998-2012

Subsegment	Average of Support, 1998-2010
040401	0.46
040403	0.50
040404	0.17
040601	0.88
040602	0.45
041001	0.74

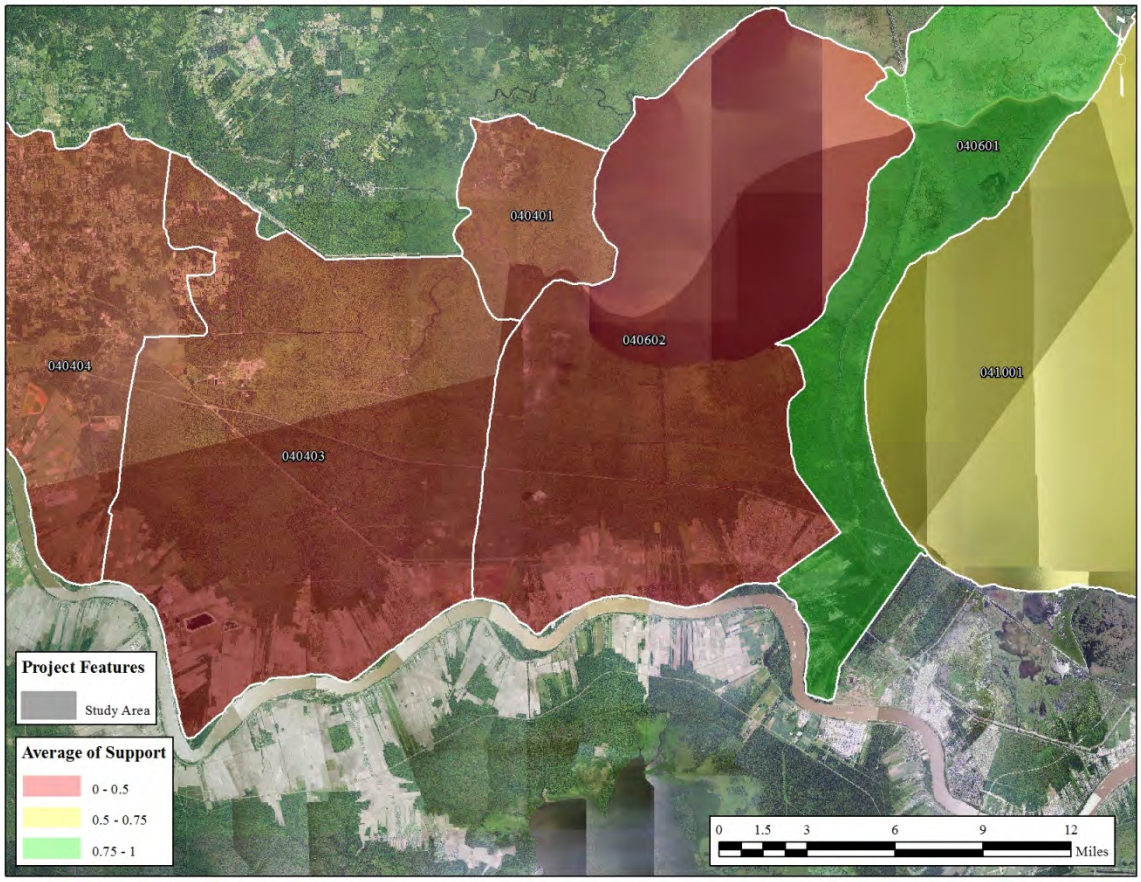

Figure 1.2. Map of study area subsegments and subsegment average support values

Long-term average support values reveal that impairments are commonplace in subsegments west of the Maurepas landbridge, and less common eastward.

To determine the most prevalent water quality issues present in the study area, historical Section 305(b) assessments were reviewed to determine the most significant causes and sources of subsegment impairment (Appendix Tables A.1 and A.2). Between 1998 and 2012, the most commonly suspected causes were non-native aquatic plants, low dissolved oxygen, mercury, fecal coliform, total phosphorus, sedimentation/siltation, and elevated turbidity, while the most commonly suspected sources were unknown sources, atmospheric deposition, introduction of non-native organisms, on-site treatment systems, wetland habitat modification, and site clearance for land development/redevelopment.

The most current (2012) 303(d) list for the study area is depicted in Table 1.4. Ordered by decreasing frequency cited, suspected causes of impairment include non-native aquatic plants, low dissolved oxygen, mercury, elevated turbidity, and fecal coliform, while suspected sources of impairment include wetland habitat modification, introduction of non-native organisms, atmospheric deposition, unknown sources, on-site treatment systems, natural sources, and agriculture.

Table 1.4. Study area 2012 303(d) list

Subsegment	Impaired Use for Suspected Cause	Suspected Cause of Impairment	Suspected Source of Impairment	IR Category	TMDL Priority
040401	FWP	Dissolved Oxygen	Wetland Habitat Modification	IRC 5	L
		Mercury	Atmospheric Deposition	IRC 4a	
			Source Unknown	IRC 4a	
		Non-Native Aquatic Plants	Introduction of Non-native Organisms	IRC 4b	
		Turbidity	Wetland Habitat Modification	IRC 4a	
	ONR	Turbidity	Wetland Habitat Modification	IRC 4a	
	PCR	Water Temperature	Natural Sources	IRC 5	L
			Wetland Habitat Modification	IRC 5	L
040403	FWP	Dissolved Oxygen	Agriculture	IRC 5	L
			Wetland Habitat Modification	IRC 5	L
		Mercury	Atmospheric Deposition	IRC 4a	
				IRC 5	L
			Source Unknown	IRC 4a	
				IRC 5	L
		Non-Native Aquatic Plants	Introduction of Non-native Organisms	IRC 4b	
040404	FWP	Dissolved Oxygen	On-site Treatment Systems	IRC 5	L
		Non-Native Aquatic Plants	Introduction of Non-native Organisms	IRC 4b	
	PCR	Fecal Coliform	On-site Treatment Systems	IRC 5	H
040602	FWP	Non-Native Aquatic Plants	Introduction of Non-native Organisms	IRC 4b	

Both historical 305(b) assessments and current 303(d) lists suggest primary study area water quality problems relate to hypoxia. As a further to this suggestion, as mentioned earlier, in 2011 a TMDL report was prepared for the lower Amite River watershed (located just north of subsegments partially included in the study area) to address organic enrichment and low dissolved oxygen.

1.3.3 LPDES Permitted Discharges

Figure 1.3 depicts locations of point source discharges permitted under the LPDES. There are a total of 123 LPDES permitted discharges in the study area, nearly all of which are located along the Mississippi River corridor. It is likely that most of these permitted discharges occur in the Mississippi River, which is currently only connected to the study area (its easternmost extent) when the Bonnet Carré Spillway is opened during flood stages on the river. There are a total of 26 toxic release inventory (TRI) permitted discharges in the study area, most (except for two) are also LPDES permitted discharges. Again, it is likely most of these permitted discharges go into the Mississippi River. Permitted discharges more relevant to the study are more likely to occur in major tributaries of the Pontchartrain Basin that feed into Lake Maurepas, such as the Amite and Tickfaw Rivers.

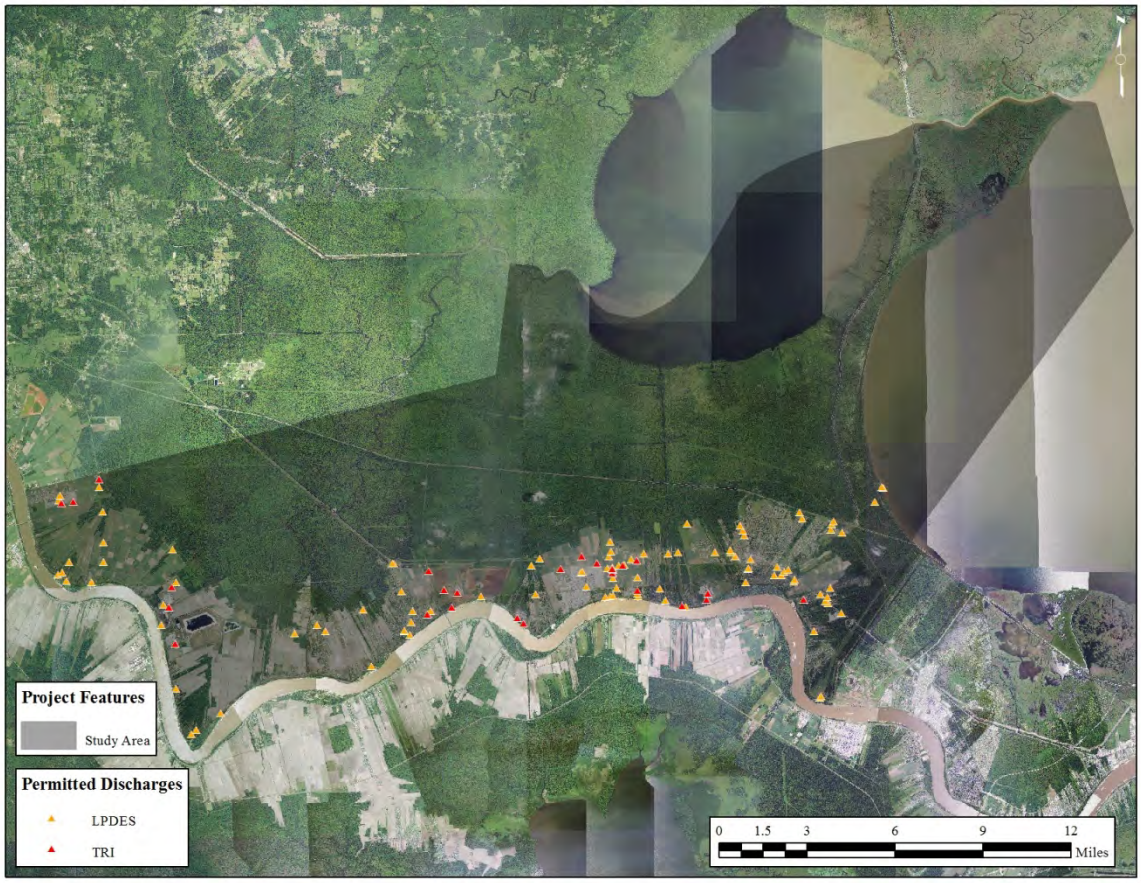

Figure 1.3. Study area LPDES permitted discharges

1.3.4 Water Quality Monitoring

1.3.4.1 Introduction

Long-term water quality monitoring in the study area has been conducted by the Louisiana Department of Environmental Quality (LDEQ). Table 1.5 and Figure 1.4 depict monitoring station locations and monitoring time periods, while Appendix Table A.3 includes monitoring metadata for each station.

Table 1.5. Long-term water quality monitoring station information

Station ID	Station Description	Subsegment	Latitude	Longitude	Monitoring Period	
					Begin	End
36	Pass Manchac at Manchac, Louisiana	040601	30.281389	-90.400278	1978	2011
117	Blind River near Gramercy, Louisiana	040403	30.100000	-90.735278	1978	1998
155	Mississippi Bayou north of Reserve, Louisiana	040602	30.123889	-90.582500	1991	1998
1102	Blind River near confluence with Lake Maurepas	040401	30.217222	-90.599444	2001	2010

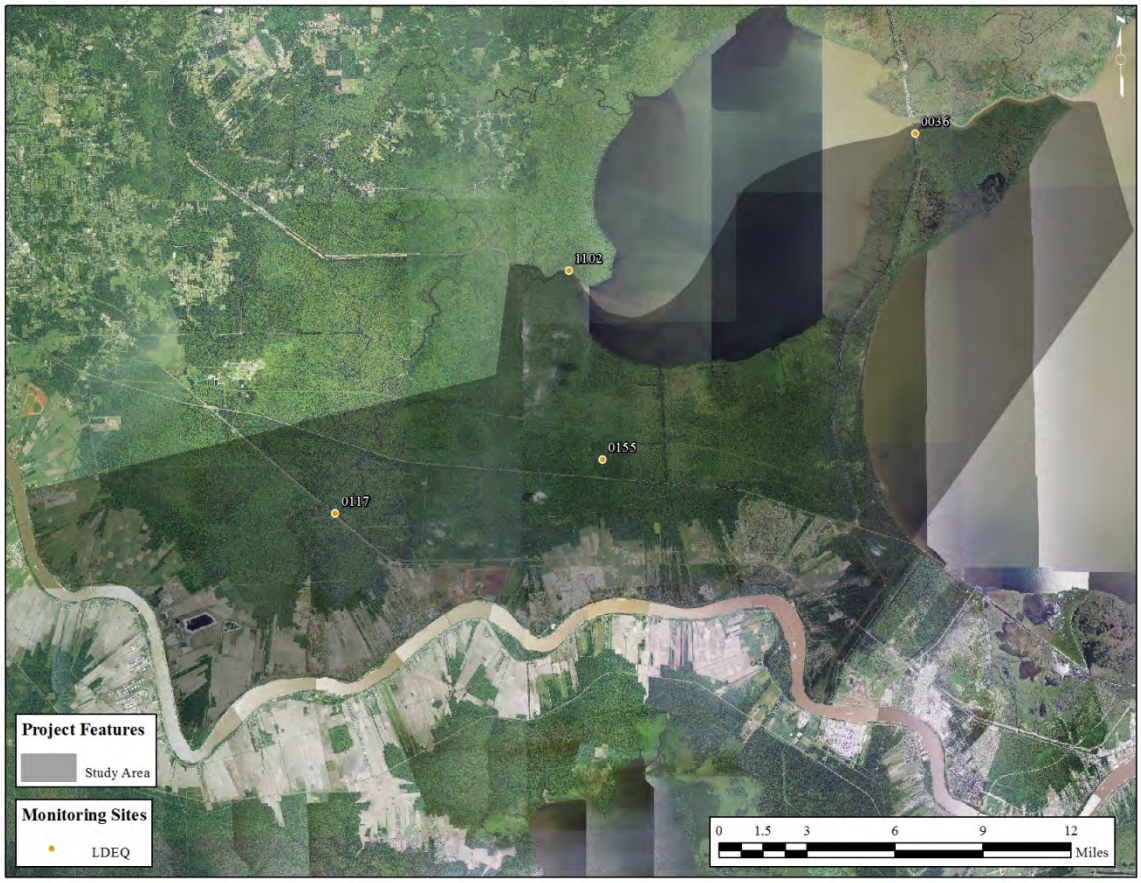

Figure 1.4. Study area long-term water quality monitoring station locations

1.3.4.2 Summary of Water Quality Monitoring Data

Monitoring parameters selected for data summary are listed in Table 1.6; more detailed information concerning these parameters is available in Appendix Table A.4. Parameters were selected for summary based on the need for a general depiction of study area water quality (i.e., conventional parameters), frequency of citation as a suspected cause of impairment in the study area, water quality concerns in the study area highlighted in available literature discussed elsewhere in this assessment, and duration and continuity of dataset.

Table 1.6 – Monitoring parameters selected for data summary

Chemical Class	Parameter
Inorganic/General Chemistry	Alkalinity
	Carbon, Total Organic
	Chloride, Ion Chromatograph
	Conductivity
	Dissolved Oxygen
	Dissolved Oxygen, Percent Saturation
	Dissolved Solids, Total
	Nitrogen, Nitrate + Nitrite
	Oxygen Demand, Chemical
	pH
	Turbidity
Metals	Nickel
N/A	Fecal Coliform
	Suspended Solids, Total

For each long-term monitoring station in the study area, data was summarized by means of boxplots (overall and seasonal), quantile plots, and trend analysis (Appendix Figures A.1-A.42).

Overall boxplots (Appendix Figures A.1-A.14) reveal the differences between the monitoring stations based on salinity gradient and habitat. For example, stations 117 and 155, located in the Maurepas swamps, generally contain higher alkalinity, fecal coliform, and dissolved nickel, and lower dissolved oxygen, while station 36 contains elevated chloride, conductivity, and total dissolved solids relative to all other stations. The most notable characteristics of the boxplots were the high alkalinity and low dissolved oxygen at swamp sites, along with the high chloride and conductivity concentrations for the Pass Manchac station relative to other stations. For stations 117 and 155, the lower and upper quartiles of dissolved oxygen concentrations were below the state water quality criteria for freshwater of 5 mg/L.

Seasonal boxplots (Appendix Figures A.15-A.28) reveal trends for several parameters. Highest alkalinity values for stations 117 and 155 occur in summer, while highest total organic carbon concentrations for these stations follow in the fall. For dissolved oxygen, at all sites summer concentrations were lowest, while winter concentrations were highest. Chloride, conductivity, and total dissolved solids follow similar seasonal patterns at all sites, which includes generally increasing concentrations from winter to fall (winter<spring<summer<fall). For stations 117 and 155 and all seasons except winter, and station 1102 in summer, both the lower and upper quartiles of dissolved oxygen concentrations were below the state water quality criteria for freshwater of 5 mg/L.

In general, quantile plots (Appendix Figures A.28-A.42) for all parameters and stations have high correlation coefficients (note: for some parameters, data was log transformed to improve correlation coefficients). Of the 45 regression curves, 45 had a correlation coefficient greater than 0.9, and 32 had a coefficient greater than 0.95. Particularly for parameters where a large proportion of the data was below reporting limits (e.g., Fecal Coliform, nitrate plus nitrite, nickel), correlation coefficients were low, and data was skewed, suggesting nonparametric methods of trend analysis (e.g., Kendall's Tau) may be more appropriate.

Trend analysis using linear regression may be most meaningful for parameters with a normal data distribution and longer/larger data record (including alkalinity, total organic carbon, chloride, chondictivity, dissolved oxygen, total dissolved solids, turbidity, and total suspended solids, for stations 36 and 117). Several parameters, including alkalinity, chloride, pH, turbidity, and total suspended solids, suggest decadal-scale cycling of water quality. Overall, correlation coefficients were very low (less than 0.05) for the larger data record stations, with the exception of alkalinity (0.0563, negative regression slope) and chloride (0.056, positive regression slope) for station 36, suggesting increasing marine influence in the Pass Manchac area between 1978 and 2011.

2.0 Environmental Consequences

2.1 No Action Alternative (Future without Project Conditions)

Direct Impacts: There would be no direct impacts from implementing the No Action Alternative.

Indirect Impacts: Water quality trends in the study area are expected to continue without the proposed project. In particular, existing dissolved oxygen trends, as well as existing trends in salinity gradients, would be expected to continue. Additionally, without the proposed project, there would be an increased risk of flooding of the Mississippi River corridor in the study area, and drainage of floodwaters into waterbodies connected to the Maurepas Swamp and Lake Maurepas is a possibility. If this were to occur, a large volume of diluted urban and agricultural runoff characterized by elevated nutrients, metals, and organics could be introduced into the Maurepas Swamps and Lake Maurepas, similar to the introduction of urban floodwaters from New Orleans into Lake Pontchartrain following Hurricanes Katrina and Rita in 2005 (Farris et al. 2007) .

Cumulative Impacts: Without the proposed project, study area would still be affected by the following:

Development: Including oil and gas development within the study area; the continued increasing development of the Amite River watershed and other watersheds which influence study area water quality; existing and future Federal, state, and municipal flood-damage reduction projects; and continued agricultural and forestry activities and associated management practices.

Development in the Amite River watershed combined with policy on waterbottom mining within the river are expected to have a significant influence on future water quality conditions for Amite River water entering the project area. Further watershed development could lead to increasing frequency of impairment of the lower Amite River for low dissolved oxygen, as well as an increasing influence of urbanization on Amite River water quality. Improved policy on waterbottom mining within the river could offset some of the impacts of development on parameters such as dissolved oxygen and turbidity.

The study area vicinity includes the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (GNOHSDRRS) and the Mississippi River and Tributaries (MR&T) Flood Risk Reduction System. These systems serve to reduce the risk of

flooding of developed areas during the catastrophic events that frequent coastal Louisiana, including tropical activity and flooding on the Mississippi River. As flooding of developed areas can have significant water quality impacts, these systems serve to reduce water quality impacts of development, although concurrently they further encourage development in areas vulnerable to natural disaster, thus potentially enhancing water quality impacts in the case of flooding of developed areas during catastrophic events.

Impacts to water quality in association with the GNOHSDRRS are described in the system's Comprehensive Environmental Document (USACE 2013a). Temporary water quality impacts during system construction included elevated suspended sediments during construction activities and storm water runoff, while projected long-term impacts were associated in the document with hydromodification, levee expansion into the aquatic environment (including expansion into wetlands areas), and construction of impervious surfaces on formerly undeveloped landscapes.

For the MR&T system, study area water quality impacts would be expected to be similar in quality to the temporary water quality impacts associated with GNOHSDRRS construction. However, because there are few waterbodies on the protected side of the MR&T alignment in the study area, these impacts would generally be of limited quantity.

For both systems, future levee lifts would be expected to have impacts similar to those described in the previous paragraphs; however, for the GNOHSDRRS, projected impacts associated with levee expansion into the aquatic environment may be less significant, as during future upgrades there may be less wetland area subject to levee fill as a result of chronic wetland loss in the Greater New Orleans vicinity.

Restoration Efforts: The LCA Convent Blind River and the Maurepas Swamp Diversion projects are included within the study area (USACE 2010b, LCWCRTF 2002). These projects have the potential to locally reduce salinity stress and temporarily improve dissolved oxygen levels; however, concurrently they have the potential to generate significant changes in wetlands biogeochemistry, some of which may negatively affect wetland plant community resiliency (e.g., see Swarzenski et. al 2005). Additionally, the recent MRGO closure may influence study area water quality by reducing slightly area salinities during salinity intrusion events (e.g., during a drought).

Federal and state water quality management programs: Programs such as those described in this assessment would continue with the purpose of improving water quality and reducing the frequency of impairment of study area waterbodies. Programs to address land use practices in the Mississippi River watershed and associated river water quality impacts may be particularly important in determining study area water quality, because of the multiple Mississippi River diversion projects that would affect the study area (Broussard 2008).

Coastal deltaic processes: The study area would continue to be impacted by coastal deltaic processes associated with a transgressive delta, such as subsidence, erosion, and habitat conversion. The Maurepas Swamp area is anticipated to continue in its decline while converting to marsh and open water, in turn affecting local water quality conditions.

Climate: Future changes in atmospheric temperature are anticipated to impact sea-level, and may also impact frequencies of tropical activity (Mousavi et. al 2011), with anticipated impacts to water quality (e.g., increasing frequency of salinity intrusion events, flooding of study area communities).

2.2 Future with Project Conditions

2.2.1 Proposed projects

Direct Impacts: The proposed hurricane storm damage risk reduction project includes construction of approximately 18.3 miles of levee and 6.8 miles of berms, and would directly impact the areas within the proposed footprints which currently consist of wetlands and open water. These areas would be converted into upland habitat, and would no longer provide for surface water quality. As coastal wetlands are known to benefit water quality—for example, as a source or sink for constituents—these benefits would no longer exist within the proposed levee and berm footprints coincident with existing aquatic habitat.

Direct impacts to water quality associated with the proposed project would also be related to construction activities, including the placement of fill and construction materials for project construction, and runoff from construction areas. Because fill material and construction materials are anticipated to be relatively free of contaminants, discharge of these materials into existing adjacent surface waters and wetlands is not anticipated to lead to significant adverse effects on aquatic organisms present at the construction sites.

Construction activities are expected to result in localized increases in turbidity associated with runoff of construction materials. To minimize construction-related impacts, a Stormwater Pollution Prevention Plan (SWPPP) will be implemented for construction activities. SWPPPs will be prepared in accordance with good engineering practices emphasizing storm water Best Management Practices and complying with Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology. The SWPPP will identify potential sources of pollution which may reasonably be expected to affect storm water discharges associated with the construction activity. In addition, the SWPPP will describe and ensure the implementation of practices which are to be used to reduce pollutants in storm water discharges associated with the construction activity and to assure compliance with the terms and conditions of this permit (USEPA 2012).

Placement of dredged material for the proposed SWMP3, and BLH1 projects, as well as land grading for the proposed SWMP4 and SWMP6 projects, is expected to result in some temporary changes in water chemistry for adjacent waters, such as lowered dissolved oxygen, elevated biochemical oxygen demand, elevated turbidity, and elevated nutrients, and oxidation of reduced metals species. Following construction activities, impacts of dredged and graded material on water quality would dissipate.

Indirect Impacts: The proposed hurricane storm damage risk reduction project would indirectly impact study area water quality. Although gravity drainage structures are being incorporated into project design to minimize changes in flow and water level between the flood and protected side of the proposed levee alignment, water exchange between the

flood and protected side may be modified, leading to localized areas of stagnation and reduced salinities behind the levee alignment, along with local areas of increased salinity on the flood side of the alignment.

Any expansion of development in the area could lead to additional point and nonpoint discharges within the hurricane and storm damage risk reduction system, which could further degrade water quality, especially on the protected side of the proposed alignment. The protected side of the proposed alignment includes urban and agricultural (primarily surgarcane farming) areas; typical runoff quality for these land uses is described in Frederick 2011, Southwick et al. 2002, and Demcheck et al. 2004, and includes characteristics such as elevated metals, nutrients, and pesticides.

Hydrology plays a major role in biogeochemical cycling in wetlands (Mitsch and Gosselink 2000), which in turn can affect water quality. Operation of these structures is expected to have a significant impact on biogeochemical cycling for wetlands in the study area, particularly on the protected side of the proposed levee alignment. This could be beneficial or detrimental, depending on the operation of gates and tidal exchange structures and impediment of flow caused by the proposed project.

Beneficial indirect water quality impacts of the proposed mitigation projects would largely be relegated to within the project footprints, and would likely relate to changes in biogeochemical cycling from establishment of swamp and bottomland hardwood forest habitat in existing agricultural lands, open water areas, and low quality wetlands areas.

Cumulative Impacts: The proposed projects, combined with other coastal activities (such as those included in the cumulative impacts discussion section for future without project conditions), would cumulatively impact study area water quality, both beneficially and detrimentally. For example, it is foreseeable that the proposed project may impact the attainment of state water quality standards in the study area, leading to changes in regulation of point and nonpoint source discharges within the area, particularly on the protected side of the proposed alignment. This is an issue that needs to be addressed by MVN and LDEQ, so as to avoid impacting the attainment of State water quality standards in the future. Although the intent of the proposed alignment is to minimize impacts to water circulation and water levels, and operation of drainage features may change with changes in sea-level.

The combination of the proposed hurricane storm damage risk reduction project, the LCA CBRD project, and the Maurepas Swamp Diversion project could complicate study area water quality and hydrology, particularly for the protected side of the proposed alignment. Both an increase in water input from the Mississippi River and changes in drainage patterns for the protected side of the proposed alignment could lead to significant impacts to the biogeochemistry of the wetlands of the Maurepas Swamp.

For the SWMP3 and BLH1 projects, because of the small footprint of the proposed projects and their relative isolation from major waterbodies, water quality impacts in synergy with other projects and activities in the area would generally be minor. In the case of an opening of the Bonnet Carré Spillway (part of the MR&T Flood Risk Reduction System), water quality conditions within the footprint of these mitigation

projects would largely be temporarily supplanted by those of the Mississippi River. In addition, if mitigation sites are not sufficiently established in the event of a significant spillway opening, it is possible that the sites would be eroded, thus eliminating any water quality functions and characteristics associated with the mitigation projects.

For the SWMP2 project, development in the Amite River watershed combined with policy on waterbottom mining within the river are expected to have a significant influence on future water quality conditions for Amite River water entering the project area. Further watershed development could lead to increasing frequency of impairment of the lower Amite River for low dissolved oxygen, as well as an increasing influence of urbanization on Amite River water quality. Improved policy on waterbottom mining within the river could offset some of the impacts of development on parameters such as dissolved oxygen and turbidity.

For the SWMP4 and SWMP6 projects, local development may affect quality of created swamp. Local runoff in these areas from urban areas and agricultural lands (primarily utilized for sugarcane) may contain elevated levels of metals, nutrients, pesticides, and other organic contaminants capable of being assimilated by and augmenting these created wetlands (e.g., see Demcheck et al. 2004, Southwick et al. 2002). Future development in areas adjacent to these mitigation sites could enhance runoff quality.

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West Shore-Lake Pontchartrain, Louisiana
Hurricane Protection Project

Water Quality Assessment

Appendix

West Shore-Lake Pontchartrain, Louisiana
Hurricane Protection Project

Water Quality Assessment

Appendix

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Table A.1. Count of suspected causes of impairment, 1998-2012

Suspected Cause of Impairment	Count
Non-Native Aquatic Plants	24
Dissolved Oxygen	21
Mercury	20
Fecal Coliform	12
Total Phosphorus	10
Sedimentation/Siltation	10
Turbidity	9
Copper	7
Pathogen Indicators	6
Metals	5
Flow Alteration	4
Nitrate/Nitrite	4
Chloride	4
Total Dissolved Solids	4
Total Nitrogen	3
Nutrients	2
Sulfates	2
Other Habitat Alterations	2
Pesticides	2
Oil and Grease	2
Water Temperature	1

Table A.2. Count of suspected sources of impairment, 1998-2012

Suspected Source of Impairment	Count
Source Unknown	30
Atmospheric Deposition	18
Introduction of Non-native Organisms	16
On-site Treatment Systems	10
Wetland Habitat Modification	9
Site Clearance for Land Development/Redevelopment	9
Urban Runoff	4
Agriculture	4
Natural Sources	4
Recreational Activities	4
Flow Alteration	3
Groundwater Loadings	3
Land Disposal	2
Petroleum/Natural Gas Activities	2
Industrial Point Source Discharges	2
Municipal Point Source Discharges	2
Animal Feeding Operations	2
Construction	1
Upstream Sources	1

Table A.3. Long-term water quality monitoring parameters

Chemical Class	Parameter	Station ID			
		36	117	155	1102
Inorganic/General Chemistry	Alkalinity	X	X	X	X
	Carbon, Total Organic	X	X	X	X
	Chloride, Ion Chromatograph	X	X	X	X
	Chlorophyll-a				X
	Color	X	X	X	X
	Conductivity	X	X	X	X
	Dissolved Oxygen	X	X	X	X
	Dissolved Oxygen, Percent Saturation	X	X		X
	Dissolved Solids, Total	X	X	X	X
	Hardness, as CaCO3	X	X	X	X
	Nitrogen, Ammonia	X			X
	Nitrogen, Kjeldahl	X	X	X	X
	Nitrogen, Nitrate + Nitrite	X	X	X	X
	Oxygen Demand, Chemical	X	X		
	pH	X	X	X	X
	Phosphorus, Total	X	X	X	X
	Salinity	X	X	X	X
	Sodium	X			X
	Sulfate	X	X	X	X
	Temperature, Water	X	X	X	X
	Turbidity	X	X	X	X
Metals	Arsenic	X	X	X	X
	Cadmium	X	X	X	X
	Chromium	X	X	X	X
	Copper	X	X	X	X
	Lead	X	X	X	X
	Mercury	X	X	X	
	Nickel	X	X	X	X
	Zinc	X			X
N/A	Fecal Coliform	X	X	X	X
	Secchi Depth	X	X	X	X
	Solids, Total Percent of Wet Sample	X	X		
	Stream Depth				X
	Suspended Solids, Total	X	X	X	X
	Total Coliform	X	X		
Semi-Volatile Organic Compounds	Dichlorobenzene, 1,2-	X			X
	Dichlorobenzene, 1,3-	X			X
	Dichlorobenzene, 1,4-	X			X
	Dichloroethene, 1,1-	X	X	X	X
	Trichlorobenzene, 1,2,3-				X
Volatile Organic Compounds	Benzene	X	X	X	X
	Bromoform	X	X	X	X
	Bromomethane	X	X	X	X
	Carbon Tetrachloride	X	X	X	X
	Chlorobenzene	X	X	X	X
	Chlorodibromomethane	X	X	X	X
	Chloroethane	X	X	X	X
	Chloroethyl Vinyl Ether, 2-	X	X	X	
	Chloroform	X	X	X	X
	Chloromethane	X	X	X	X
	Dichlorobromomethane	X	X	X	X
	Dichloroethane, 1,1-	X	X	X	X
	Dichloroethane, 1,2-	X	X	X	X
	Dichloroethylene, trans-1,2-	X	X	X	X
	Dichloropropane, 1,2-	X	X	X	X
	Dichloropropene, cis-1,3-	X	X	X	X
	Dichloropropene, trans-1,3-	X	X	X	X
	Ethylbenzene	X	X	X	X
	Methyl Tertiary Butyl Ether (MTBE)	X			X
	Methylene Chloride	X	X	X	X
	Tetrachloroethane, 1,1,2,2-	X	X	X	X
	Tetrachloroethylene	X	X	X	X
	Toluene	X	X	X	X
	Trichloroethane, 1,1,1-	X	X	X	X
	Trichloroethane, 1,1,2-	X	X	X	X
	Trichloroethylene	X	X	X	X
	Trichlorofluoromethane	X	X	X	X
	Vinyl Chloride	X	X	X	X
	Xylene, o-				X
	Xylenes, m- and p-				X

Table A.4. Long-term water quality monitoring metadata for selected parameters

Chemical Class	Parameter	Station ID											
		36			117			155			1102		
		n	Begin	End	n	Begin	End	n	Begin	End	n	Begin	End
Inorganic/General Chemistry	Alkalinity	270	1978	2011	156	1978	1998	45	1991	1998	36	2001	2010
	Carbon, Total Organic	237	1978	2001	174	1978	1998	44	1991	1998	18	2001	2006
	Chloride, Ion Chromatograph	272	1978	2011	179	1978	1998	45	1991	1998	36	2001	2010
	Conductivity	403	1978	2011	258	1978	1998	87	1991	1998	69	2001	2010
	Dissolved Oxygen	275	1978	2011	195	1978	1998	45	1991	1998	37	2001	2010
	Dissolved Oxygen, Percent Saturation	78	1978	2011	120	1978	1989				25	2006	2010
	Dissolved Solids, Total	269	1978	2011	171	1978	1998	45	1991	1998	36	2001	2010
	Nitrogen, Nitrate + Nitrite	276	1978	2011	194	1978	1998	45	1991	1998	36	2001	2010
	Oxygen Demand, Chemical	143	1978	1990	127	1978	1990						
	pH	352	1978	2011	240	1978	1998	45	1991	1998	37	2001	2010
	Turbidity	273	1978	2011	186	1978	1998	45	1991	1998	36	2001	2010
Metals	Nickel	98	1991	2011	43	1991	1998	45	1991	1998	11	2001	2010
N/A	Fecal Coliform	258	1978	2011	172	1978	1998	43	1991	1998	36	2001	2010
	Suspended Solids, Total	268	1978	2011	173	1978	1998	45	1991	1998	36	2001	2010

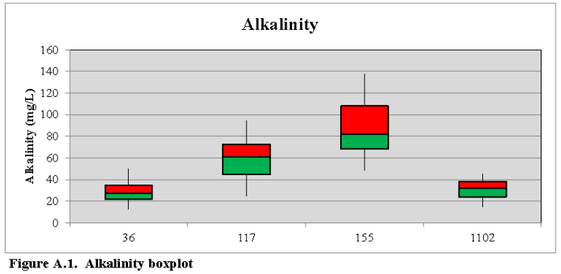


Figure A.1. Alkalinity boxplot

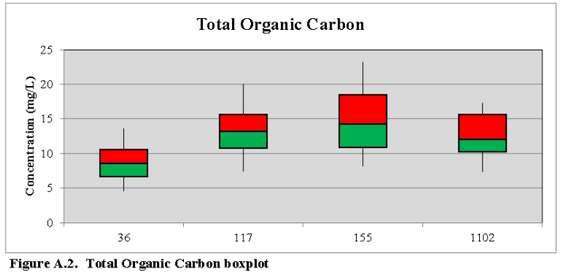


Figure A.2. Total Organic Carbon boxplot

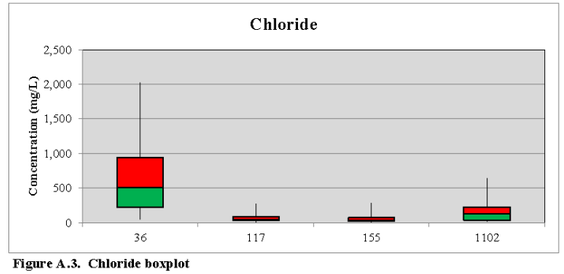


Figure A.3. Chloride boxplot

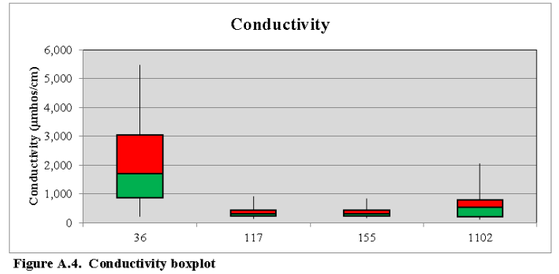


Figure A.4. Conductivity boxplot

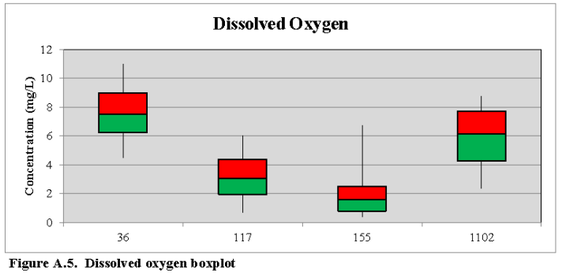


Figure A.5. Dissolved oxygen boxplot

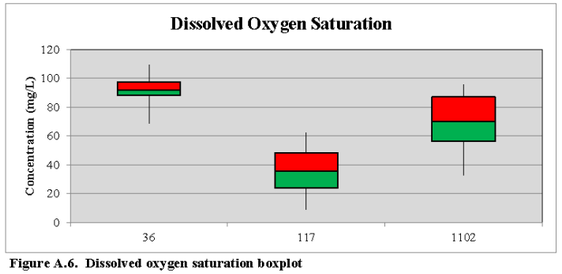


Figure A.6. Dissolved oxygen saturation boxplot

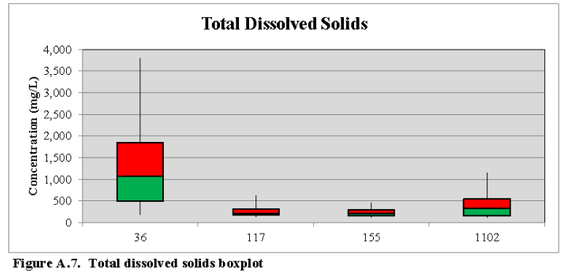


Figure A.7. Total dissolved solids boxplot

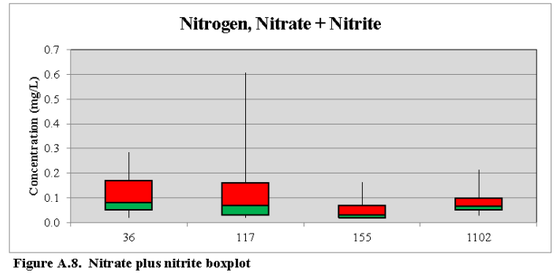


Figure A.8. Nitrate plus nitrite boxplot

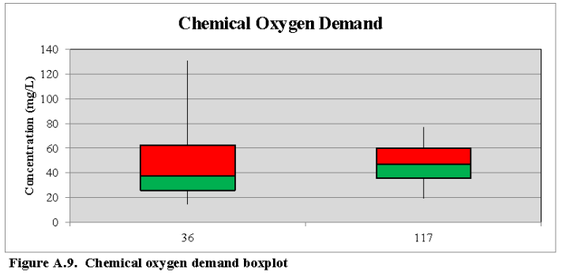


Figure A.9. Chemical oxygen demand boxplot

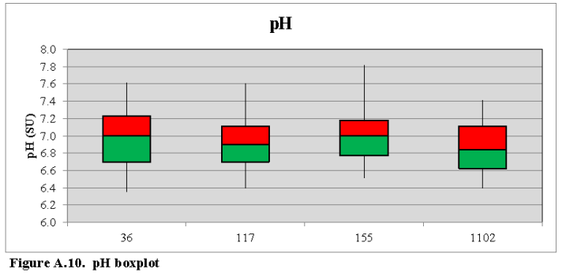


Figure A.10. pH boxplot

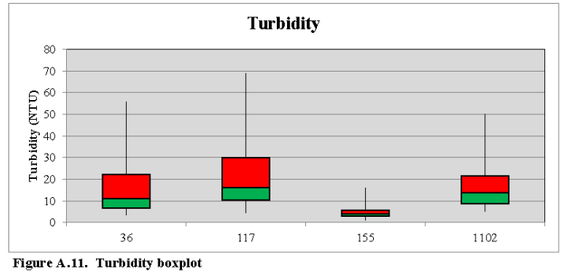


Figure A.11. Turbidity boxplot

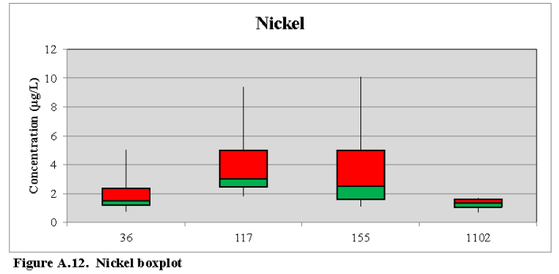


Figure A.12. Nickel boxplot

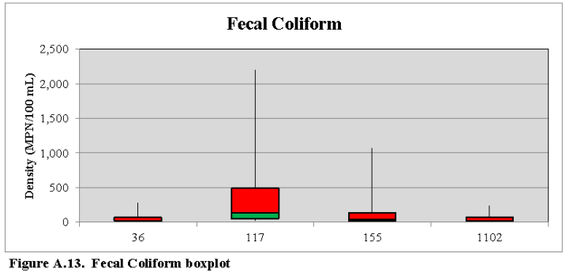


Figure A.13. Fecal Coliform boxplot

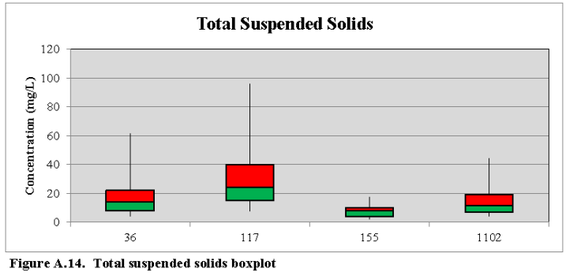


Figure A.14. Total suspended solids boxplot

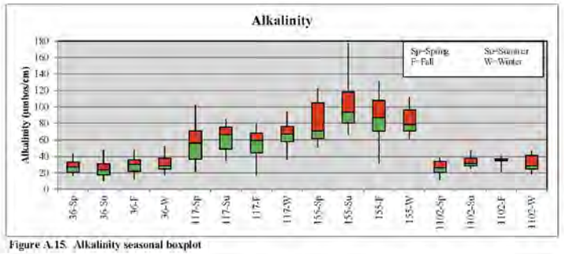


Figure A.15. Alkalinity seasonal boxplot

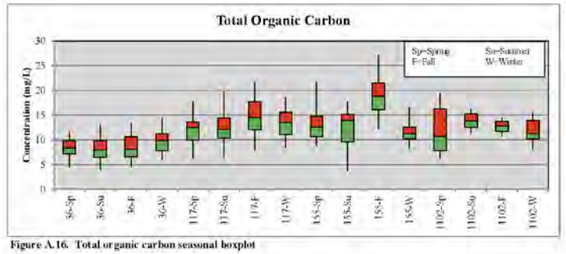


Figure A.16. Total organic carbon seasonal boxplot

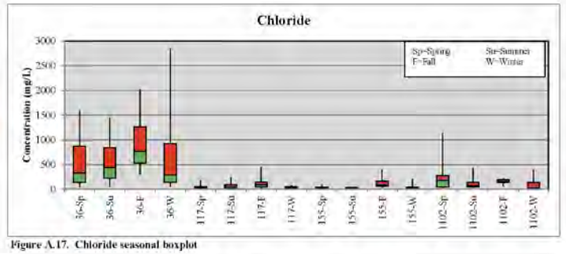


Figure A.17. Chloride seasonal boxplot

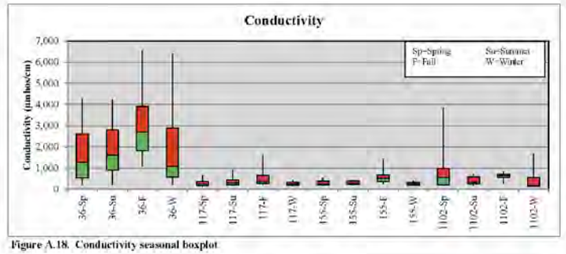


Figure A.18. Conductivity seasonal boxplot

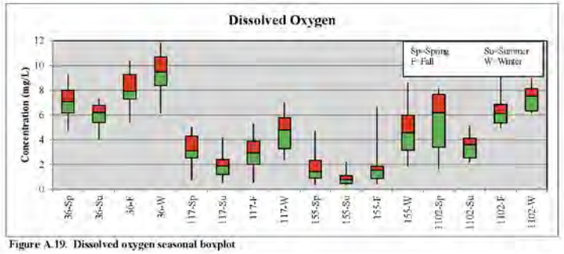


Figure A.19. Dissolved oxygen seasonal boxplot

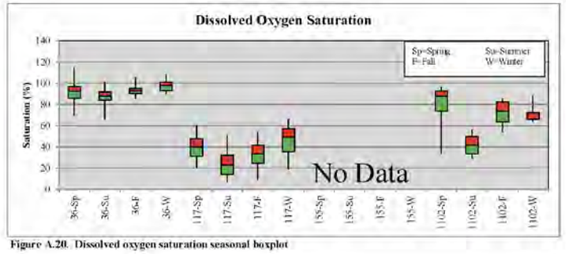


Figure A.20. Dissolved oxygen saturation seasonal boxplot

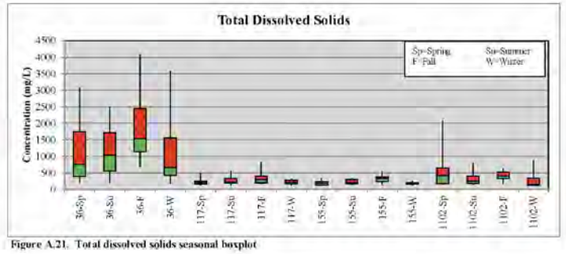


Figure A.21. Total dissolved solids seasonal boxplot

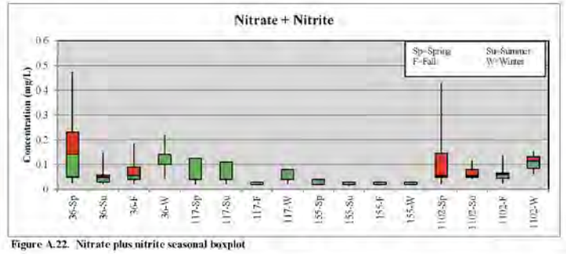


Figure A.22. Nitrate plus nitrite seasonal boxplot

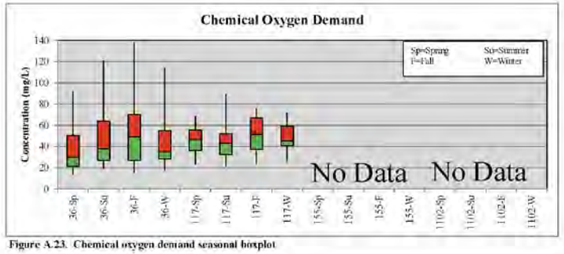


Figure A.23. Chemical oxygen demand seasonal boxplot

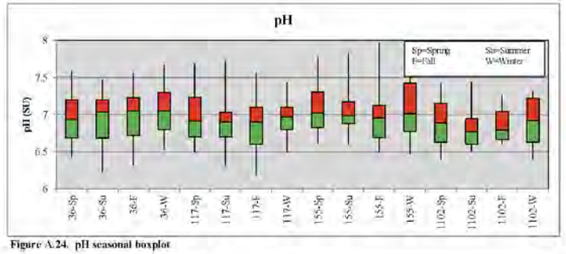


Figure A.24. pH seasonal boxplot

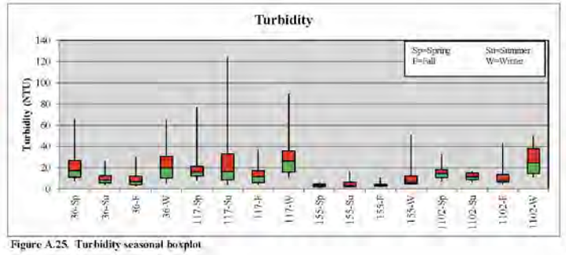


Figure A.25. Turbidity seasonal boxplot

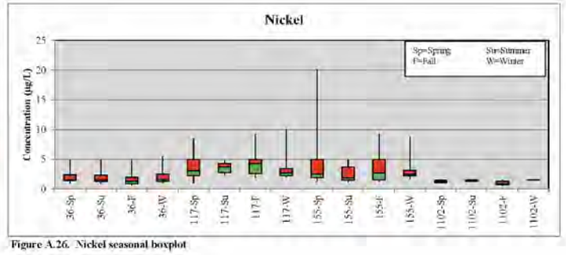


Figure A.26. Nickel seasonal boxplot

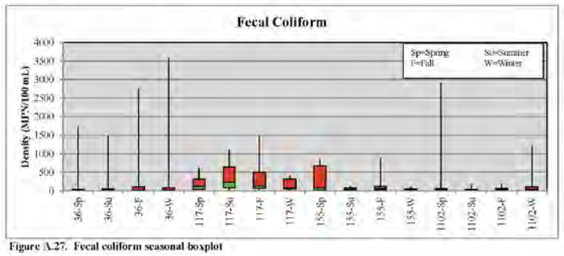


Figure A.27. Fecal coliform seasonal boxplot

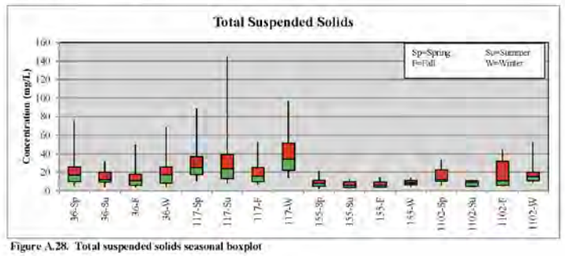


Figure A.28. Total suspended solids seasonal boxplot

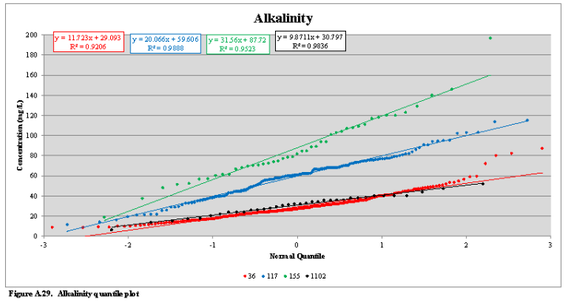


Figure A.29. Alkalinity quantile plot

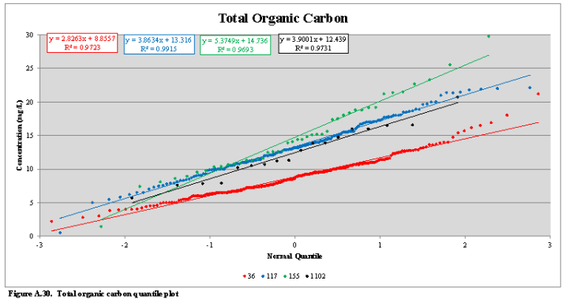


Figure A.30. Total organic carbon quantile plot

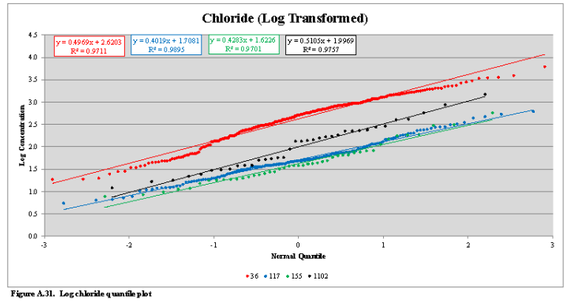


Figure A.31. Log chloride quantile plot

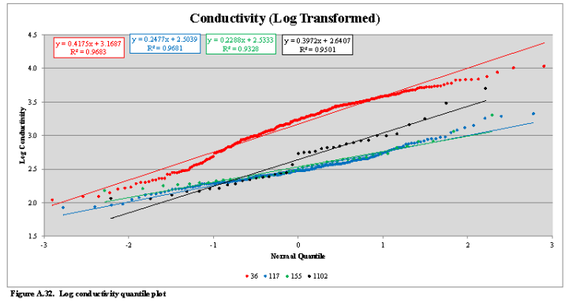


Figure A.32. Log conductivity quantile plot

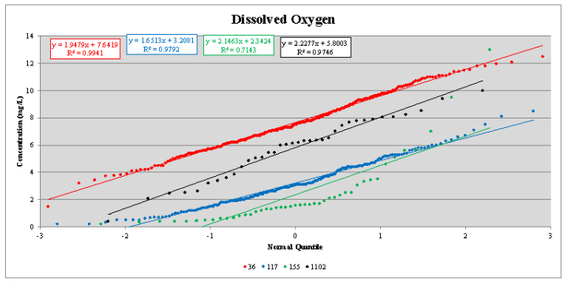


Figure A.33. Dissolved oxygen quantile plot

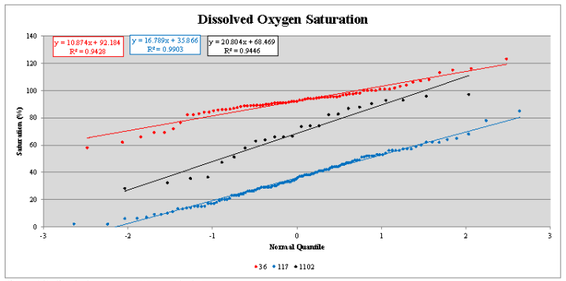


Figure A.34. Dissolved oxygen saturation quantile plot

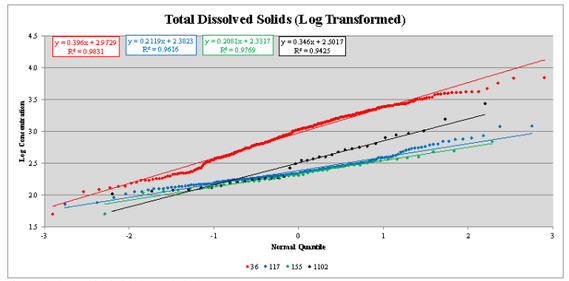


Figure A.35. Log total dissolved solids quantile plot

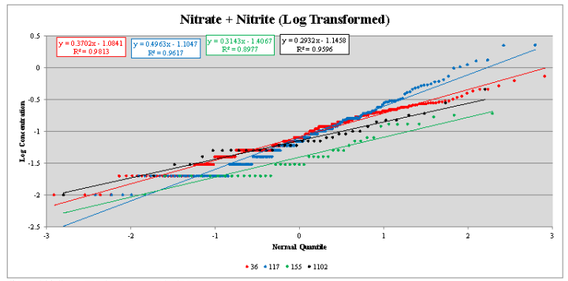


Figure A.36. Log nitrate plus nitrite quantile plot

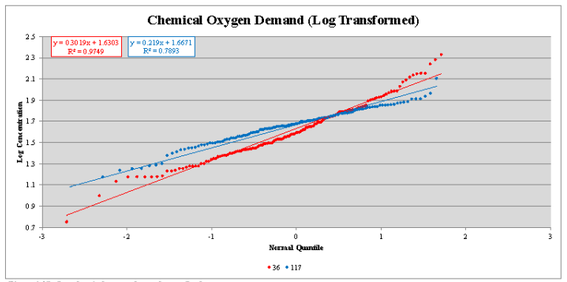


Figure A.37. Log chemical oxygen demand quantile plot

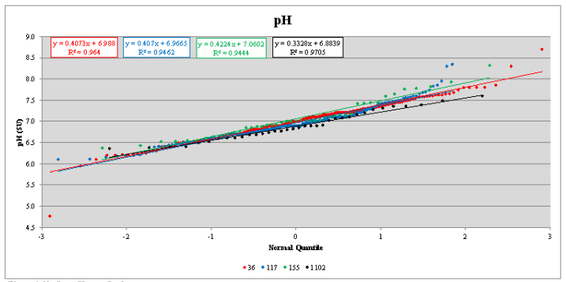


Figure A.38. Log pH quantile plot

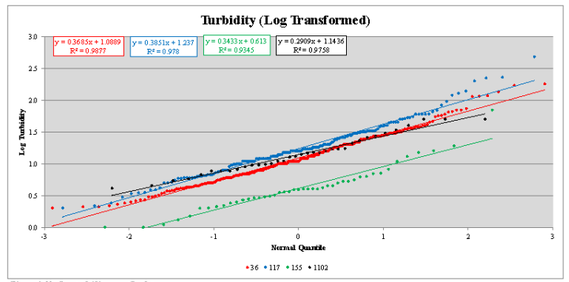


Figure A.39. Log turbidity quantile plot

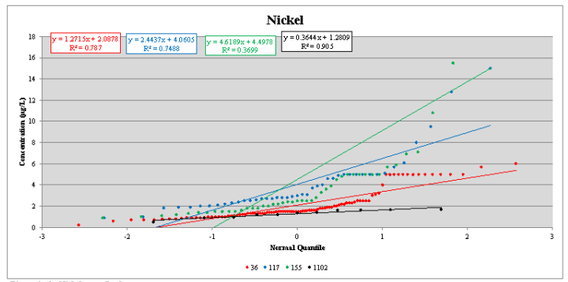


Figure A.40. Nickel quantile plot

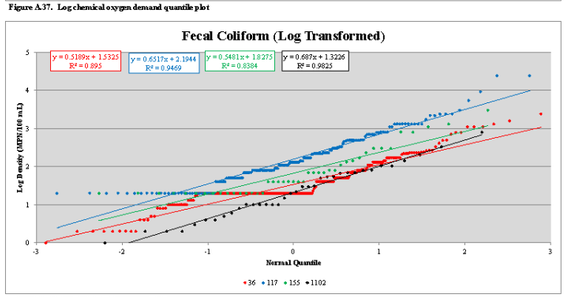


Figure A.41. Log Fecal Coliform quantile plot

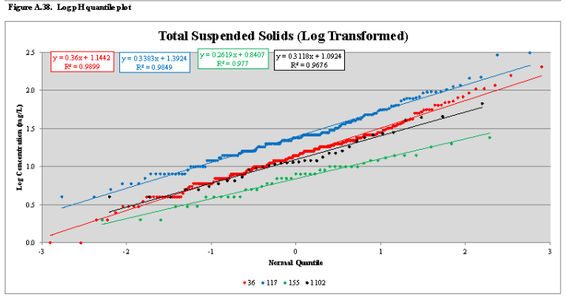


Figure A.42. Log total suspended solids quantile plot

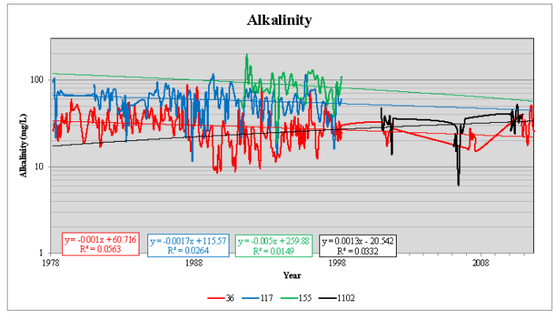


Figure A.43. Alkalinity trend

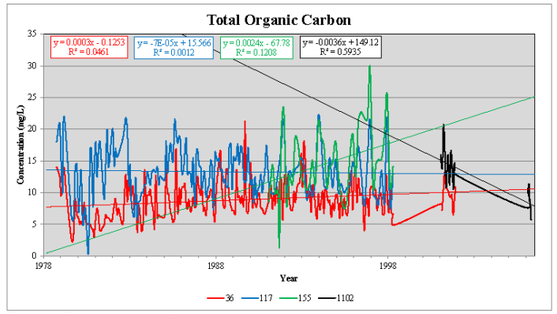


Figure A.44. Total organic carbon trend

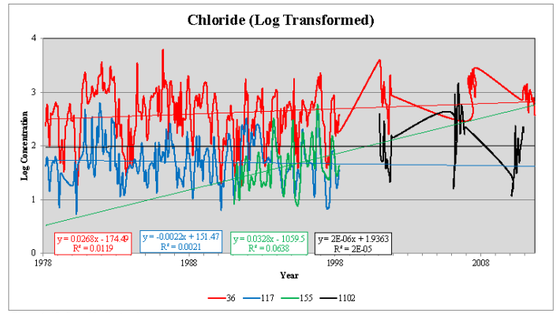


Figure A.45. Log chloride trend

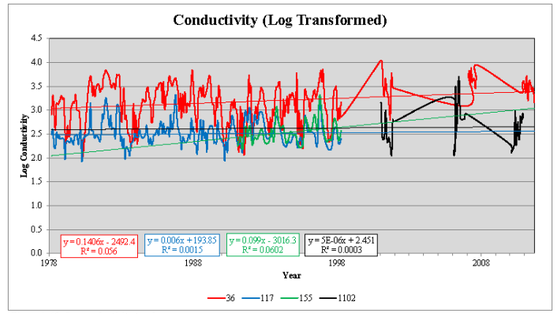


Figure A.46. Log conductivity trend

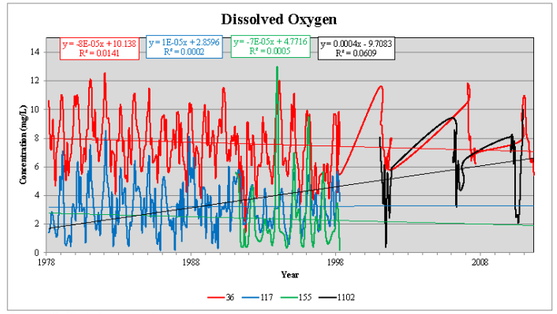


Figure A.47. Dissolved oxygen trend

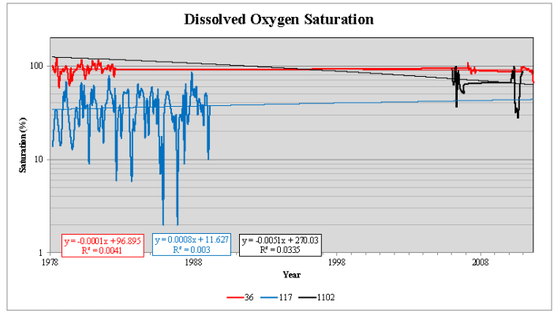


Figure A.48. Dissolved oxygen saturation trend

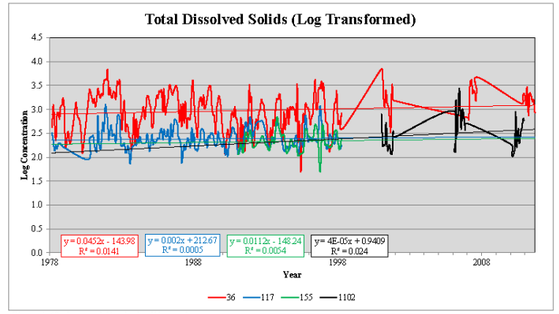


Figure A.49. Log total dissolved solids trend

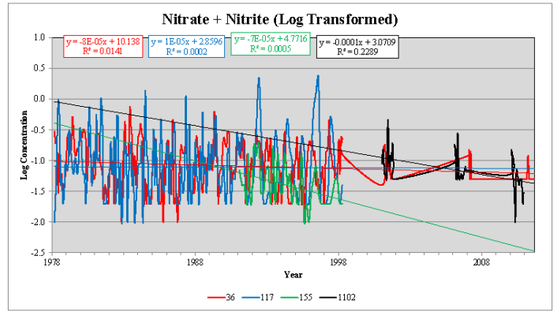


Figure A.50. Log nitrate plus nitrite trend

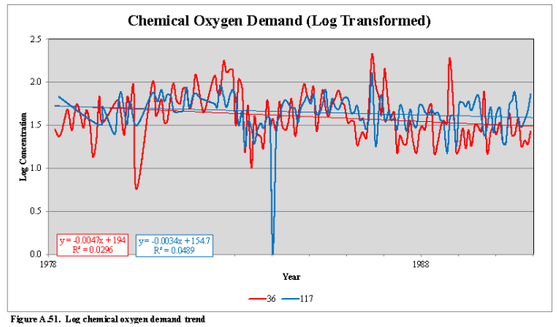


Figure A.51. Log chemical oxygen demand trend

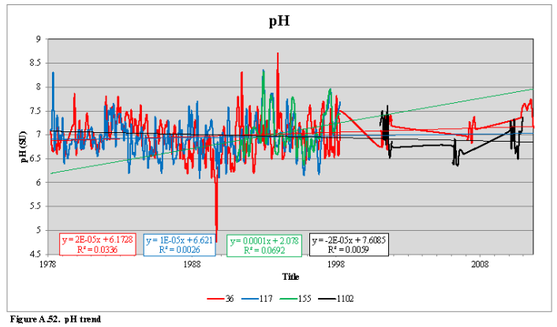


Figure A.52. pH trend

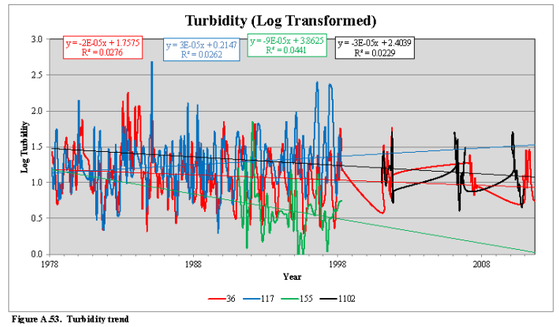


Figure A.53. Turbidity trend

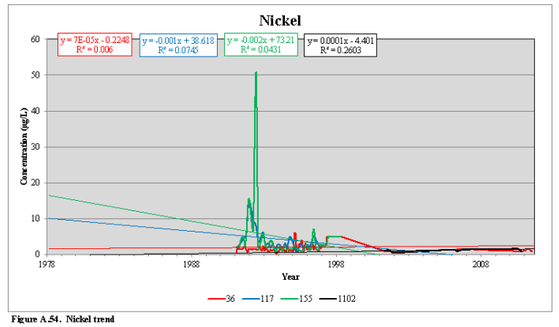


Figure A.54. Nickel trend

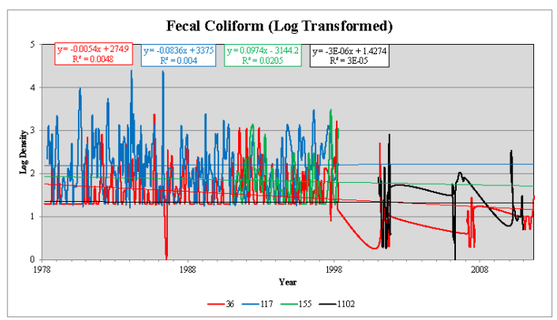


Figure A.55. Log fecal coliform trend

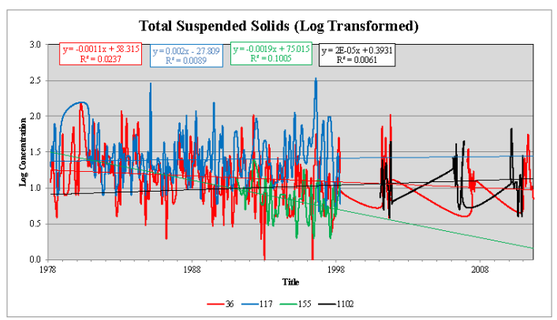


Figure A.56. Log total suspended solids trend

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex N

Threaten and Endangered Species Coordination

From:	Breaux, Catherine M MVN
To:	Dayan, Nathan S MVN; Walther, David
Cc:	Stiles, Sandra E MVN; Gilmore, Tammy H MVN
Subject:	RE: Change to the mitigation plan. (UNCLASSIFIED)
Date:	Monday, May 12, 2014 9:49:52 AM

Classification: UNCLASSIFIED
Caveats: NONE

Nathan,

Thanks for continuing to coordinate with us. As stated below the mitigation plan has been changed to eliminate the Milton component and replacing those mitigation needs by expanding the Lutcher Farmland component. The Service agrees with this change and has no need to develop a Supplemental FWCA letter in response to this mitigation change. We appreciate your continued coordination in regards to the Sprague's pipit.

Thanks,

Cathy Breaux (CEMVN-PD-P)
Fish and Wildlife Service
PO Box 60267
(504) 862-2689
(504) 862-1892

-----Original Message-----
From: Dayan, Nathan S MVN
Sent: Saturday, May 10, 2014 4:55 PM
To: Breaux, Catherine M MVN; Walther, David
Cc: Stiles, Sandra E MVN; Gilmore, Tammy H MVN
Subject: Change to the mitigation plan. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Cathy/Dave

Please see the update mitigation plan. The Milton component was eliminated and the equivalent AAAHUs (131) were found by expanding the Lutcher Farmland component. 445 acres of open water will not be converted to swamp rather an additional 302 acres of farmland (348 total acres) will be converted to swamp.

We have determined that the farm fields may be suitable habitat for the candidate species Sprague's pipit. If any of these birds are present they would be forced to permanently relocate. The USACE will consult with USFWS when the species is listed.

Please inform us if an this change will require an addendum to Final CAR? If so I really need it by Wed morning.

Nathan Dayan
Fishery Biologist
RTS Environmental Compliance
US Army Corps of Engineers
New Orleans District
504-862-2530

United States Department of the Interior

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

May 7, 2014

Ms. Joan M. Exnicios
Chief, New Orleans Environmental Planning Branch
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Exnicios:

Please reference your office's April 7, 2014, electronic mail requesting our concurrence with your revised determination that implementation of the proposed West Shore of Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study (WSLP) and its' associated mitigation is not likely to adversely affect any threaten or endangered species or their critical habitat. This letter provides our comments in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), 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.).

We concur with you determination that the proposed project is not likely to adversely affect the West Indian manatee and Gulf sturgeon because they are unlikely to be encountered in the habitat impacted by the proposed project (primarily forested wetlands). Subsequently, ESA consultation should be reinitiated should the proposed project features change significantly or are not implemented within one year of the last ESA consultation with this office to ensure that the proposed project does not adversely affect any federally listed threatened or endangered species or their habitat.

Because all of the proposed sites are in areas where bald eagles and/or water birds may nest, we recommend that a qualified biologist inspect the proposed mitigation sites for the presence of undocumented nesting sites during the nesting season during future planning phases. In addition, we recommend prior to any work on-site contract personnel be informed of the need to identify nesting birds and their nests, and should avoid affecting them during the breeding season. If nests are located you should contact our office for additional information on measures necessary to avoid impacting such nesting sites.

We will continue to work closely with your staff to ensure that fish and wildlife resources are conserved. Toward that end, please have your staff advise Mr. David Walther (337/291-3122) if you or your staff has any questions regarding this matter.

Sincerely,

Jeffrey D. Weller
Field Supervisor
Louisiana Ecological Services Office

cc: LA Dept. of Wildlife and Fisheries, Baton Rouge, LA

From: Gilmore, Tammy H MVN
To: Walther, David; Breaux, Catherine M MVN
Subject: WSLP T&E coordination
Date: Monday, April 07, 2014 11:27:00 AM
Attachments: revised WSLP T&E coordination.docx

Cathy and Dave,

Based on review of existing data, it is the opinion of Corps of Engineers New Orleans District (CEMVN) that implementation of the WSLP HSDRR project, as revised, is not likely to adversely affect any known threatened or endangered species, critical habitat, Bald eagles or colonial nesting water birds. Please review the information attached and inform us whether or not you agree with our finding.

Thanks,

Tammy Gilmore
Biologist/Environmental Resource Specialist
US Army Corps of Engineers, New Orleans District
(504) 862-1002

West Shore-Lake Pontchartrain, Louisiana
Hurricane and Storm Damage Risk Reduction (HSDRR) Project

Project Description

The final selected risk reduction system for the WSLP study includes the construction of an 18.27-mile (96,481 ft) levee system around the communities of Montz, Laplace, Reserve and Garyville. The levee system would consist of earthen levees, floodwalls (T-Walls), floodgates, drainage canals, flood side ditch for hydraulic connectivity for wetlands north and south of the recommended plan, drainage structures and pump stations located along the alignment. The final selected risk reduction system also includes the construction of nonstructural components in St. James Parish consisting of berms, culverts with flap gates and raising of structures. A mitigation plan has been developed to address the direct impacts to approximately 1,236 acres of forested wetlands and the associated indirect impacts.

Structural

The construction of the levee system would begin at the upper guide levee of the Bonnet Carre Spillway, north of an underground utility pipeline right of way and US-61. The levee would head northwest paralleling the pipeline right of way and pass under I-10. Past I-10 the levee would enclose the I-10 and I-55 interchange and cross US-51. It would then track north of I-10 and a pipeline transmission corridor. Past the Belle Terre/I-10 exit, the levee would pass back under I-10 and parallel the pipeline corridor through wetlands until it crosses Hope Canal. The levee would then turn south; cross the pipeline transmission corridor and then extend to the Mississippi River Levee System (MRL).

Non-structural

The non-structural components would consist of three Polders, flood control under LA 3125 and raising of structures. Polder 1 would consist of a 10,086 lf nonstructural berm In the Gramercy area, north of Hwy 3125. The berm would also include two floodgates to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 217 cfs, would be included as part of the nonstructural berm system to remove any rainfall during the surge event.

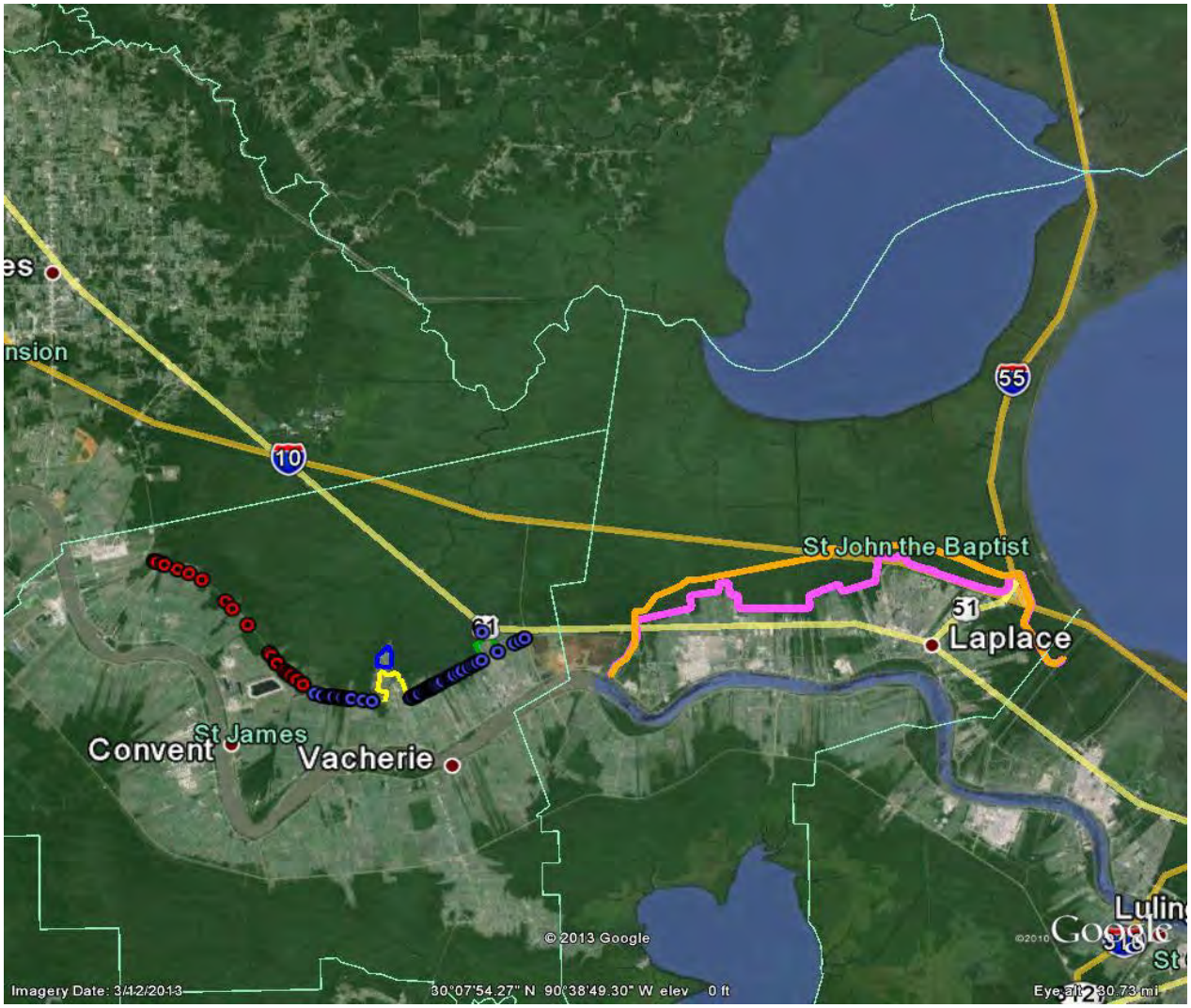
Polder 2, called~~,~~ Grand Point South would tie into HWY 3125. The berm would be 14,488 lf. The berm would also include one floodgate to allow existing drainage to flow through the berm when not under surge events. A temporary system pump, approximately 382 cfs, would be included as part of the nonstructural berm system to remove any rainfall during the surge event.

Polder 3 consists of a 10,314 lf complete ring berm around the structures in the northern portion of Grand Point. A temporary system pump, approximately 140 cfs, would be included as part of the nonstructural berm system to remove any rainfall during the surge event.

The flood control under LA 3125 would consitst of 145 flap gate culvert closures, two flood gates and two small berms. The total length of these berms are approximately 645 lf.

33 structures with a first floor elevation less than the 6.5 ft NAVD 88 would be outside of the previously discussed non-structural features. These 33 structures would be raised to the stage associated with the 2070 100-year event.

Structural and Non-structural Project Features



Mitigation Plan

Proposed Mitigation Components	Acres
Bonnet Carre Bottomland Hardwood Restoration	156
Swamp Mitigation Bank Credit Purchase	n/a
Blind River Swamp Restoration	1,040
Bonnet Carre Swamp Restoration	310
Maurepas Crawfish Ponds Restoration	1,161
Milton Island Swamp Restoration	445
Lutcher Polder Farmlands Swamp Restoration	46
Total	3,158

Bonnet Carre Bottomland Hardwood Restoration (Figure K-1)

- Clear and grub woody vegetation within the mitigation sites before fill placement. This includes mechanized removal of invasive and nuisance plants. Degrade certain existing earthen mounds and ridges within each site to the final target grade elevation. Perimeter ridges at each site will be left in place at this stage to serve as containment berms.

- Eradicate invasive/nuisance plant species within the sites through groundbased application of appropriate herbicides to the target species, prior to fill placement. Follow-up eradication before initial planting of native species within these features, as necessary.

- Placement of fill within the sites as necessary to attain the desired final target grade elevation of approximately 1.5 feet NAVD88. The fill material would be dredged from within the Project right of way and hauled in trucks to the mitigation site.

- Final grading within the mitigation features after the fill deposited in these features has settled to the desired final target elevation, prior to initial planting of the features. This grading will be performed to remove any earthen ridges that remain projecting above the target grade elevation, thereby creating a relatively level surface.

- Plant native BLH canopy and midstory species in the sites.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

Swamp Mitigation Bank Credit Purchase

Before the first levee construction contract is advertised, available mitigation banks and credits will be assessed to compensate for a portion of swamp impacts. The amount of credits purchased may be more or less than currently identified in Table K-2. If more credits are available then more may be purchased. If fewer credits are available then additional plans will be developed to construct mitigation projects. Specific monitoring of mitigation success criteria following acquisition of bank credits will be conducted in accordance with the terms of the applicable Mitigation Banking Instrument.

Blind River Swamp Restoration (Figure K-2)

- Verify that the Livingston Parish CIAP project was built, and that those hydraulic modifications when combined with this planting plan will produce the proposed AAHUs. If this is not verified then the details of the mitigation measure will be revised to accomplish the required mitigation.

- Plant native swamp canopy and midstory species on 1,040 acres.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

Bonnet Carre Swamp Restoration (Figure K-1)

- Clear and grub woody vegetation within the sites before fill placement. This will include mechanized removal of invasive and nuisance plant species. Degrade certain existing earthen mounds and ridges within each site to the final target grade elevation. Perimeter ridges at each site will be left in place at this stage to serve as containment berms.

- Eradicate invasive/nuisance plants within the sites through groundbased application of appropriate herbicides to the target species, prior to fill placement. Follow-up eradication before the initial planting of native swamp species within these features, as necessary.

- Place fill in the mitigation sites to a final target grade elevation of approximately 0.5 feet NAVD88. Use fill material obtained from the Project levee right of way

- Final grading within the sites after the fill deposited in these features has settled to the desired final target elevation, prior to initial planting of the features. This grading will be performed to remove any earthen ridges that remain projecting above the target grade elevation, thereby creating a relatively level surface in the mitigation features.

- Follow-up eradication before the initial planting of native swamp species within these features, as needed. There will likely be multiple invasive/nuisance plant species eradication events during various years after the initial planting event. These may take place even beyond the attainment of the initial success criteria.

- Plant native swamp canopy and midstory species in the sites after final grading.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

<u>Maurepas Crawfish Ponds Restoration (Figure K-3)</u>

- Clear and grub woody vegetation within the sites before grading. This will include mechanized removal of invasive and nuisance plant species.

- Degrade existing earthen mounds and levees within each site to a final target elevation approximately 0.5 feet NAVD88. Grading will remove former water management levees that were used to manage the crawfish ponds. Removal of these levees is intended to create a uniform elevation and to enable open exchange of water with adjacent swamps.

- Eradicate invasive/nuisance plants within the sites through groundbased application of appropriate herbicides to the target species. Follow-up eradication before the initial planting of native swamp species as necessary.

- Plant 1,161 acres with native swamp canopy and midstory species after grading.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

Milton Island Swamp Restoration (Figure K-4)

- Construct containment dikes around the restoration site.

- Dredge material from Lake Pontchartrain and pump it to the restoration site. Place fill in the mitigation sites to a final target grade elevation of approximately 0.5 feet NAVD88.

- Eradicate any invasive/nuisance plants within the site through groundbased application of appropriate herbicides to the target species.

- Plant 445 acres of native swamp canopy and midstory species.
- Install nutria guards on all planted trees to protect against herbivore tree loss.

Lutcher Polder Farmlands Swamp Restoration (Figure K-5)

- Clear and grub woody vegetation within the sites before grading. This will include mechanized removal of invasive and nuisance plant species.

- Mechanically grade sites to a final target elevation approximately 0.5 feet NAVD88.

- Degrade existing earthen mounds and levees within each site to a final target elevation approximately 0.5 feet NAVD88. Grading should remove former water management levees that were used in the crawfish ponds. Removal of these levees is intended to create uniform elevation and to enable open exchange of water with adjacent swamps.

- Eradicate invasive/nuisance plants within the sites through groundbased application of appropriate herbicides to the target species. Follow-up eradication before the initial planting of native swamp species as necessary.

- Plant 46 acres with native swamp canopy and midstory species.

- Install nutria guards on all planted trees to protect against herbivore tree loss.

- As necessary, follow-up eradication of invasive/nuisance plant species through ground-based application of appropriate herbicides. There will likely be multiple eradication events performed during various years after construction.

Mitigation Project Location and Features

Figure K-1: Bonnet Carre Spillway Bottomland Hardwood Restoration and Bonnet Carre Spillway Swamp Restoration

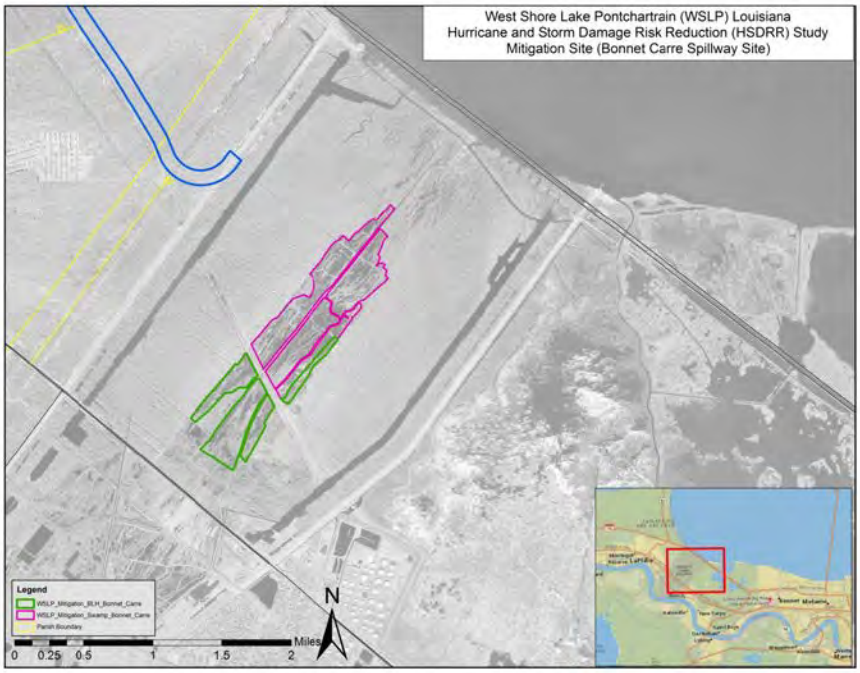


Figure K-2: Blind River Swamp Restoration

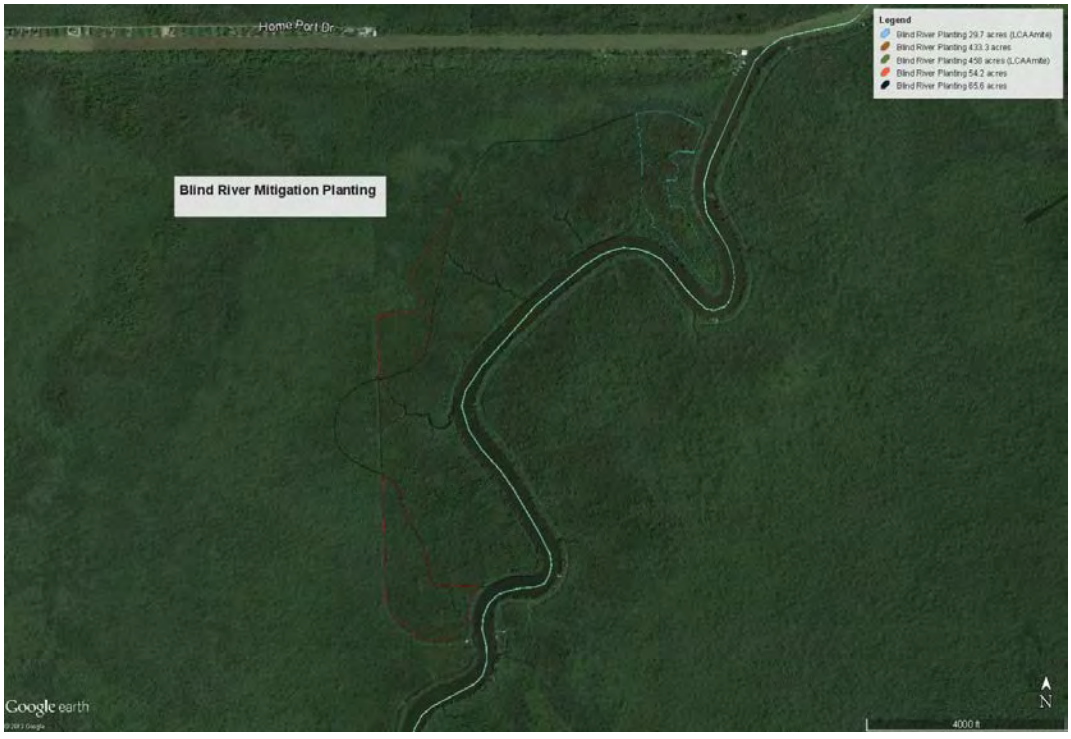


Figure K-3: Maurepas Crawfish Ponds Swamp Restoration

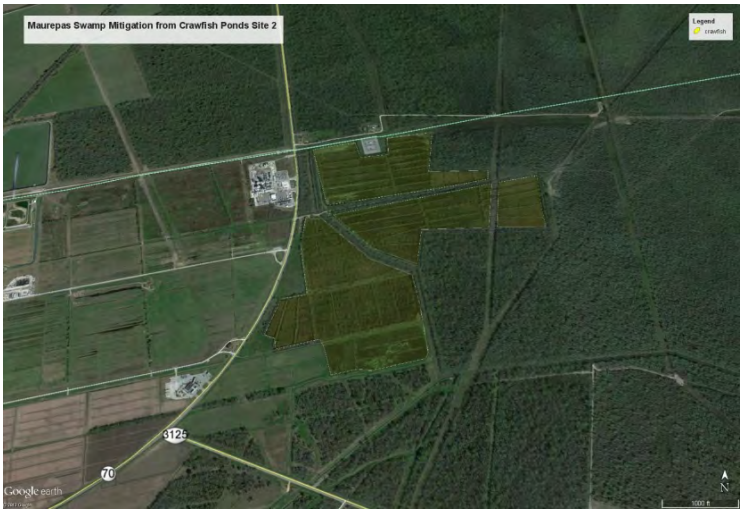


Figure K-4: Milton Island Swamp Restoration

Figure K-5: Lutcher Polder Farmland Swamp Mitigation

Impacts to Threatened and Endangered Species

Seven threatened and endangered species; the Gulf sturgeon (*Acipenser oxyrhynchus desotoi*), the West Indian manatee (*Trichechus manatus*), the green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricate*), Kemps (*Lepidochelys kempii*), Leatherback (*Dermochlys coriacea*) and Loggerhead (*Caretta caretta*) sea turtles one candidate species; the Spraque's Pipit (*Anthus spragueii*) and one delisted species; the bald eagle (*Haliaeetus leucocephalus*), are known to occur or occasionally enter the area. The area is also known to support colonial nesting water birds (e.g., herons, egrets, and others).

Based on review of existing data, preliminary field surveys, the rarity of occurrences and the use of BMPs, CEMVN has determined that alternative C is not likely to adversely affect any of the listed species or their critical habitat, bald eagles or colonial nesting water birds. The Amite River Diversion Canal (ARDC) Modification, Louisiana Coastal Area, EIS, LPV Mitigation PIER #36, and LPV Mitigation at Milton TIER #36, along with the associated T&E coordination were utilized to determine the effects of the mitigation plan at Amite, Bonnet Carre and Milton Island and are therefore incorporated by reference in the WSLP EIS.

Alternative C would directly impact (destroy) the following acres of habitats potentially utilized by listed species, the bald eagle and colonial nesting water birds: a total of 1,236 acres of primarily forested wetlands along the reach of the proposed structural alignment and 1 acre associated with the non-structural features. Other, adjacent forested wetlands and swamp habitats are available for use by listed species, the bald eagle and colonial nesting water birds. Direct impacts associated with the mitigation for the proposed project would be the temporary and localized displacement of listed species, colonial nesting water birds and bald eagles during construction of BLH and swamp habitats. Once final plantings are complete, these newly constructed habitats would be available for use by these species.

There are existing bald eagle nests in the area; however, based on information provided by USFWS, all nests are beyond 1,500 feet from the proposed project alignments. Two potentially active water bird rookeries exist within 1,000 feet of the proposed alignments. Before construction the USFWS and CEMVN will survey the area to confirm if the rookeries are active or not. USFWS guidelines would be utilized during construction to avoid any impacts to the above described species, if encountered.

Alternative C could potentially indirectly degrade up to approximately 8,887 acres of primarily forested wetlands/swamp habitats potentially utilized by listed species, the bald eagle and colonial nesting water birds. However, preliminary hydrologic modeling indicates that the project design would have minimal changes to flows or stages on either the protected or unprotected sides. Access into and out of the project area would not be significantly impacted for the bald eagle or colonial nesting water birds. Gulf sturgeon and the West Indian Manatee would be temporarily restricted from entering the proposed action area on average about 8.5 days per year due to closing gates and culverts in preparation for storm surge events. However, it is highly unlikely that these species would navigate these routes considering the location and the shallow water conditions in the area where the gates and culverts would be constructed. The indirect impacts resulting from mitigation would be the benefit of restoring approximately 3,002 acres of swamp habitat and 156 acres of BLH habitat for utilization by colonial nesting water birds and bald eagles. BMPs and guidelines from USFWS and NMFS would be followed in order to avoid and minimize any impacts to the manatee, Gulf sturgeon and sea turtles.

MIGRATORY BIRD TREATY ACT and

BALD AND GOLDEN EAGLE PROTECTION ACT

BEST MANAGEMENT PRACTICES

Colonial nesting wading birds (including but not limited to, herons, egrets, and Ibis), seabirds/water-birds (including, but not limited to terns, gulls, Black Skimmers, and Brown Pelicans) and bald eagles are known to roost, forage and nest in the project area. The birds and their nests are protected by the Migratory Bird Treaty Act (MBTA) and must not be disturbed or destroyed. As such, in areas near known rookeries, nesting prevention measures may be necessary in order to insure the success of the nesting season. These measures would be developed by CEMVN in coordination with USFWS and LDWF and would be implemented by a trained biologist. The nesting activity period extends from 15 February through 1 September for colonial nesting wading and seabirds/water birds, and September to May for bald eagles. Therefore, the nesting prevention measures should begin well before February.

CEMVN and USFWS biologists will conduct surveys prior to construction to determine the presence and/or location of any eagle's nests, colonial nesting wading/water birds and/or rookeries and if nesting prevention measures would be necessary. Nest prevention measures shall be intended to deter birds from nesting within applicable the designated buffer zone of construction areas without physically harming birds or disturbing any existing nests. Nest prevention measures may be used in combination and/or adjusted to be most effective.
At minimum, nest prevention measures shall include, but not be limited to the following:

- Flagging/Streamers
- Vehicular/Pedestrian Traffic
- Clapping and Yelling
- Horn Blowing

Once work has commenced, the presence of nesting eagles, wading birds and/or seabirds/water-birds within the minimum distances from the work area, as specified in paragraph entitled "No Work Distances", shall be immediately reported to the Environmental Technical Manager, Ms. Tammy Gilmore, of the U.S. Army Corps of Engineers at (504) 862-1002 email address tammy.h.gilmore@usace.army.mil

No Work Distances

No-work distance restrictions are as follows:

- o Terns, Gulls, and Black Skimmers -650 feet;
- o Colonial nesting wading birds -1,000 feet; and,
- o Brown Pelicans -2,000 feet; and,
- o Bald Eagles -660 feet.

Coordination by the New Orleans District personnel with the U.S. Fish and Wildlife Service may result in a reduction or relaxing of these no-work distances depending on the species of birds found nesting at the work site and specific site conditions.

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex O

Air Quality Analysis

From:	Linda (Brown) Hardy
To:	"Joseph.musso@usace.army.mil"; Dayan, Nathan S MVN
Cc:	Yasoob Zia
Subject:	[EXTERNAL] DEQ SOV 140428/0520 Crawfish Pond #1 and Blind River Projects
Date:	Friday, May 16, 2014 9:37:40 AM

May 16, 2014

Joan M. Exnicios, Chief

USACE Environmental Compliance Branch

P.O. Box 60267

New Orleans, LA 70160-0267

Joseph.musso@usace.army.mil <mailto:Joseph.musso@usace.army.mil>

Nathan.S.Dayan@usace.army.mil

RE: 140428/0520

Crawfish Pond #1 and Blind River Projects

Army Corps of Engineers Funding

Ascension & Livingston Parishes

Dear Ms. Exnicios:

The Department of Environmental Quality (LDEQ), Business and Community Outreach Division has received your request for comments on the above referenced project.

After reviewing your request, the Department has no objections based on the information provided in your submittal. However, for your information, the following general comments have been included. Please be advised that if you should encounter a problem during the implementation of this project, you should immediately notify LDEQ's Single-Point-of-contact (SPOC) at (225) 219-3640.

· Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project.

* If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
* If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.

* All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-9371 to determine if your proposed project requires a permit.

· If your project will include a sanitary wastewater treatment facility, a Sewage Sludge and Biosolids Use or Disposal Permit application or Notice of Intent may be required. Additional information may be obtained on the LDEQ website at http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx <http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx> or by contacting the LDEQ Water Permits Division at (225) 219- 9371.

* If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly regarding permitting issues. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.
* All precautions should be observed to protect the groundwater of the region.
* Please be advised that water softeners generate wastewaters that may require special limitations depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.
* Any renovation or remodeling must comply with LAC 33:III.Chapter 28, Lead-Based Paint Activities; LAC 33:III.Chapter 27, Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation); and LAC 33:III.5151, Emission Standard for Asbestos for any renovations or demolitions.
* If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, Ascension and Livingston Parishes are classified as nonattainment with the National Ambient Air Quality Standards. However, since your general conformity determination shows that the proposed VOC and NOx emissions will be less than the de minimis levels, the Department has no objections to implementation of this project.

Please send all future requests to my attention. If you have any questions, please feel free to contact me at (225) 219-3954 or by email at linda.hardy@la.gov.

Sincerely,

Linda M. Hardy

Technical Assistant to the Deputy Secretary

Louisiana Department of Environmental Quality

Office of the Secretary

P.O. Box 4301

Baton Rouge, LA 70821-4301

Ph: (225) 219-3954

Fax: (225) 219-3971

Email: linda.hardy@la.gov <mailto:linda.hardy@la.gov>

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

REPLY TO
ATTENTION OF:

APR 10 2014

Regional Planning and
Environment Division, South
Coastal Environmental
Compliance Branch

Ms. Linda Hardy
LA Department of Environmental Quality
Office of the Secretary
Business and Community Outreach and Incentives Division
P. O. Box 4301
Baton Rouge, LA 70821-4301

Dear Ms. Hardy:

The U.S. Army Corps of Engineers (Corps) is proposing a hurricane and storm damage risk reduction project that consists of constructing earthen levees, concrete floodwalls, floodgates, pump stations, and drainage structures. All of the construction features are located in areas that are in attainment status for air quality. In addition, the Corps proposes several mitigation features that will accompany the construction features. Two of the mitigation features are located in parishes that are in non-attainment status for ozone. They are the Maurepas Crawfish Pond #1 site in Ascension Parish and the Blind River site in Livingston Parish. Both Ascension and Livingston Parishes are two of the five parishes in Louisiana that have been designated by the U.S. Environmental Protection Agency as non-attainment areas for ozone. Since the proposed federal activities in the ozone non-attainment area are subject to the State's general conformity regulations as promulgated under LAC 33:III.14.A, Determining Conformity of General Federal Actions to State or Federal Implementation Plans, a general conformity applicability determination has been made by estimating the total of direct and indirect volatile organic compound (VOC) and nitrogen oxide (NO_X) emissions that may be created during the mitigation projects. Enclosed are the calculations for VOC and NO_X emissions for the proposed mitigation projects in the ozone non-attainment areas.

The Crawfish Pond #1 mitigation project includes the use of a diesel-powered backhoe and bull dozers along with gasoline-powered all-terrain vehicles to create swamp-like conditions. The Blind River mitigation project includes the use of gasoline-powered boats to transport personnel and equipment to the site in order to hand-plant a variety of trees. The attached calculations presume both mitigation projects would be completed within one year. As calculated, the Crawfish Pond #1 mitigation project in Ascension Parish and the Blind River mitigation project in Livingston Parish would each produce a total of less than one ton of VOC and NO_X emissions which is far below the 100 tons per year *de minimis* threshold.

We respectfully request that you review the attached information and offer your comments so that we may move forward with the proposed mitigation projects. If you have any questions regarding the air quality information, please contact Mr. Joseph Musso of our Coastal Environmental Compliance group at (504) 862-2280.

Sincerely,

Joan M. Exnicios
Chief, Environmental Planning Branch

Attachments

West Shore Lake Pontchartrain
Maurepas Crawfish Pond #1 Mitigation Site
Ascension Parish, LA

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Backhoe	1	168	8	15	20160
Diesel Bull Dozer	2	145	8	35	81200

Assumptions for Combustible Emissions				
Type of Construction Equipment	Number of Units	miles/day	days/yr	Total miles/yr
All Terrain Vehicle	6	5	39	1170

Table 2
Emission Factors for Compression Ignition Engines

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Backhoe	0.338	5.652	0.0007	0.0124
Diesel Bull Dozer	0.338	5.652	0.0007	0.0124

Emission Factors for Spark Ignition Engines

Type of Construction Equipment	VOC g/mile	NOx g/mile	VOC lbs/mile	NOx lbs/mile
All Terrain Vehicle	2.400	0.410	0.0053	0.0009

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model

Table 3
Annual VOC and NOx Emissions Totals

Total Calculated Emissions		
Type of Construction Equipment	VOC tons/yr	NOx tons/yr
Diesel Backhoe	0.0071	0.1250
Diesel Bull Dozer	0.0284	0.5034
Gasoline All Terrain Vehicle	0.0031	0.0005
TOTALS	0.0386	0.6289

Emissions Formula: (lbs/hp-hr)x(hp)x(hr/day)x(days/year)x(# units)/2000 lbs/ton = Tons/yr
Emissions Formula for ATV: (lbs/mile)x(miles/day)x(days/year)x(# units)/2000 lbs/ton = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at this type of wetlands construction project.

West Shore Lake Pontchartrain
Blind River Mitigation Site
Livingston Parish, LA

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Gasoline Outboard Motor	6	75	4	47	84600

Table 2
Emission Factors for Spark Ignition Engines

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Gasoline Outboard Motor	3.530	5.820	0.0078	0.0128

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's NONROAD2010 model

Table 3
Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Gasoline Outboard Motor		0.3299	0.5414
	TOTALS	0.3299	0.5414

Emissions Formula: (lbs/hp-hr)x(hp)x(hr/day)x(days/year)x(# units)/2000 lbs/ton = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at this type of wetlands mitigation project.

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex P

USACE responses to Public Comments

***The Comments in this table have been given a Unique File Identifier and may be paraphrased or summarized. The full comment can be found in Annex Q - Public Comments and Public Meeting Transcripts, labeled with their appropriate Unique File Identifier**

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
CD _9-18-2013_1_David Vitter	What is a true timeline of when the project will start?	The project requires construction authorization and the appropriation of construction funds. A continuous funding stream is needed to complete this project within the anticipated timeline, which requires continuing appropriations from Congress and the State of Louisiana in order to fund the detailed design phase and fully fund construction contracts. Subject to project authorization, funding, and regulatory approval, the schedule assumes a complete risk reduction system in place by 2020, with additional levee lifts so that the entire system meets its initial risk reduction levels by year 2035.
CD _9-18-2013_1_David Vitter	Are public hearings being held and/or scheduled to allow input from landowners likely to be affected by the project?	The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
CD _9-18-2013_1_David Vitter	Is the project, in fact, going to necessitate the use of property that we currently own?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	Can the proposed levee or wall be construction 1 mile closer towards Lake Pontchartrain or along the existing rail road line?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	When, and in what manner, will I be notified as to any planned or proposed use of my property?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	When, and in what manner, will I be notified that any portion of my land will be subject to condemnation?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	What is the timeline on when construction may directly affect my property?	The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
CD _9-18-2013_1_David Vitter	How long may the project last on our site?	The Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. A detailed construction schedule will be developed in PED. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
CD _9-18-2013_1_David Vitter	How wide and tall is the wall going to be through my property?	T-walls will only be used in locations of pipeline crossing and drainage structures. The heights vary by levee reach. Details on the specific heights can be found in the engineering appendix.
CD _9-18-2013_1_David Vitter	Has an Environmental Impact Study been done on how the levee ill affect the wetlands and animals in our area and on my land?	The Draft Environmental Impact Statement (EIS) that was sent to the public for review described the direct, indirect and cumulative impacts to wetlands, wildlife, fisheries, and water quality, due to the implementation of the tentatively selected plan. A final EIS provides for detail examination of those impacts due to the recommended plan. These documents specially spells out direct and indirect impacts by the project over the entire study area.
CD _9-18-2013_1_David Vitter	How much materials, equipment, and crew will be placed at our site?	Temporary work areas will be mainly focused on the proposed levee ROW. Any additional temporary work area easements if needed would be developed during PED, but the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
CD _9-18-2013_1_David Vitter	How much of my land will need to be cleared to make way for the levee or wall?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	Will any of our Cypress trees be cut down or removed from my property?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	Will a wall or levee be placed through our property?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	How will the Corp get the materials to the work site?	Levee access areas will be mainly focused on the proposed levee ROW. Any additional accesses areas if needed would be developed during PED, but the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area.
CD _9-18-2013_1_David Vitter	Will the Corp be using my land or water ways during construction .	Levee access areas will be mainly focused on the proposed levee ROW. Any additional accesses areas if needed would be developed during PED, but the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area.
CD _9-18-2013_1_David Vitter	Will flood gates be used on all waterways that are being affected y the proposed protection?	The proposed design is included in the engineering appendix of the final report. Any loss of existing use of the waterways by stakeholders will evaluated during PED. The Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area.
CD _9-18-2013_1_David Vitter	Can the proposed project be pushed closer and along HWY 51 with access to Frenier rd?	The Corps in PED will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Minor design changes may take place at that time.
CD _9-18-2013_1_David Vitter	In what manner may I communicate with the Corp of Engineers with regard to their plan and possible ways to minimize the potential damage to our business?	The Corp's Public Office can be contacted directly: (504) 862-2201 or email AskTheCorps@usace.army.mil The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
CD _9-18-2013_1_David Vitter	In what manner will we be compensated if our buildings and grounds must be raised as a result of the project?	The Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. If there are any impacts, landowners will be notified in writing if any mitigation actions will needed to take place.
CD _9-18-2013_1_David Vitter	Will my business be able to operate on our site and have access to our waterways and surrounding waterways, as well as maintain its current frontage the highway, during the construction of the proposed levee or wall?	Any loss of existing use of the waterways by stakeholders will evaluated during PED. The Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area.
CD _9-18-2013_1_David Vitter	In what manner will we be compensated for any loss of business suiting from project?	Any loss of existing use of the waterways by stakeholders will evaluated during PED. The Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area.
CD _9-18-2013_1_David Vitter	In what manner will we be compensated for loss of land, Cypress Trees removed or cleared, and cost to rebuild the marsh and wetlands that are disturbed?	The project recommendation is subject to project authorization, funding and regulatory approval before final design plans and construction activities can begin. During the preconstruction and detailed engineering phase, the Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area of the recommended plan. Impacted landowners will be notified in writing, and will be offered fair market value for the land interest required for the project.
CD _9-18-2013_1_David Vitter	Will we be compensated for loss of business due to an inability to conduct tours directly caused by the hurricane protection?	Any loss of existing use of the waterways by stakeholders will evaluated during PED. The Corps will work to avoid, minimize and reduce impacts to landowners and existing infrastructure in the area. In the event, that property is acquired from you for construction of the project, compensation for such property will be made in accordance with Public Law 91-646. Prior to initiation of acquisition activities, the Corps of Engineers will conduct public meetings to generally explain the acquisition process. Subsequently, meetings will be held with impacted landowners to discuss individual situations.
FED _10-1-2013_1_NMFS	NMFS1: NMFS does not object to hurricane protection to reduce risk to life or property, or to the proposed levee alignment. However, we find the draft EIS lacks information necessary to demonstrate adverse wetland impacts would be fully offset through the implementation of an adequate mitigation plan. Specifically, adverse wetland impacts are not quantified by the Wetland Value Assessment methodology determined acceptable under USACE guidelines for Louisiana habitats. In addition, the mitigation plan included in Appendix A, Annex K, proposes conceptual mitigation ideas only which also have not been assessed or quantified to determine benefits. Lacking an assessment of impacts and benefits, it is unclear how the USACE can determine wetland impacts would be fully offset in compliance with the Clean Water Act. Lacking an adequate assessment of mitigation benefits, or a discussion which clearly identifies the potential for long term wetland impacts if mitigation is inadequate, it is unclear how the draft EIS fully complies with NEPA requirements. Finally, the proposed mitigation plan does not have sufficient information to demonstrate compliance with the 12 "items" required by mitigation regulations. This information is necessary for project planning purposes, including alternatives analysis, and equally important for public disclosure of the type and location of the mitigation	Potential project-induced impacts of the Recommended Plan to wetlands and other resources have been quantified by the Wetland Value Assessment (WVA) methodology during the Feasibility-Level Analysis phase. Findings from the WVA analysis were utilized to determine compensatory mitigation which would compensate for unavoidable project-induced impacts. A mitigation plan (Appendix A Annex K) has been developed in coordination with resource agencies. Mitigation benefits were also assessed utilizing WVA methodology. The mitigation plan will include the 12 “items” required to demonstrate compliance with 33 CFR 332.4(c) including: objectives, site protection instrument, baseline information, work plan, maintenance plan, performance standards, monitoring requirements, financial assurances, site selection factors, credit determination, long-term management plan and adaptive management plan. Findings from the above been utilized for the completion of the Clean Water Act Section 401 Water Quality Certification (Appendix A Annex A) and Section 404(b)(1) (Appendix A Annex A2), and the Coastal Zone Consistency Determination (Appendix A Annex B). All of are presented for public comment in this Final Report.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
FED _10-1-2013_1_NMFS	NMFS2: NMFS is concerned the source of more than 3 million cubic yards of borrow material for levee construction is not identified, and associated impacts discussed, in the draft EIS. Unless there is a commitment to not obtain borrow from wetlands or other sensitive habitats, NMFS believes failure to discuss or disclose what could be a significant environmental impact is a violation of NEPA. We encourage the USACE to use non-wetland borrow locations to the maximum extent practicable. If the USACE determines wetland impacts associated with borrow sources are unavoidable, a discussion and quantification of such wetland impacts (and mitigation costs) should be included in a supplemental draft EIS for this project	Borrow sources have been identified and associated impacts of removing and using the borrow have been addressed in the Final Report. WVAs were developed for the borrow sources and mitigation is included in the project. The USACE intends to obtain borrow from non-wetland or other sensitive habitats to the maximum extent practicable. Unavoidable impacts associated with borrow sources have been fully quantified, discussed and appropriate compensatory mitigation provided; all of which is discussed in this Final Report.
FED _10-1-2013_1_NMFS	NMFS3: While direct wetland impacts have been quantified for the TSP in terms of acreage, NMFS does not agree sufficient information has been provided to demonstrate indirect impacts to more than 8,000 acres of enclosed wetlands would not occur.	Due to the uncertainty of characterizing potential indirect impacts without having conducted a WVA analysis, indirect impacts were characterized as a range between 5 to 75 percent; in addition professional judgment and existing WVAs from restoration projects in the area in combination with data Coastal Restoration Monitoring Stations (CRMS) within the study area were used to determine a single estimate of approximately 15 % of potentially indirectly-impacted acreage. A WVA analysis was conducted during the feasibility-level analysis phase of this study and included in the final report. The WVA analysis predicts a 34% negative indirect impact to the enclosed wetlands rather than the 15% used in the draft report.
FED _10-1-2013_1_NMFS	NMFS4: The draft Adaptive Management and Monitoring Plan has not been finalized, but at present, only includes monitoring of mitigation plan success and corrective actions to be taken if such actions do not result in anticipated benefits. The draft Adaptive Management and Monitoring Plan does not include efforts to evaluate whether project implementation results in adverse impacts to enclosed wetlands. The final EIS should include an Adaptive Management and Monitoring Plan, developed in coordination with the natural resource agencies, which evaluates the impact of levee construction and water control structure operations on enclosed wetlands. NMFS recommends sufficient funds be included in the overall cost projection to sufficiently address adaptive management and monitoring needs for the enclosed wetlands and the mitigation areas.	The Adaptive Management and Monitoring Plan has been finalized in coordination with the natural resources agencies during the feasibility -level analysis phase and is included in the Final Report including detailed costs. Drainage canals have been incorporated into the levee design to maintain hydrologic connectivity between the wetlands on the protected side and non-protected side of the structure. Additionally, pumping stations will be designed to provide sufficient capacity to address any potential that project construction could interrupt pre-existing drainage patterns. Any unavoidable impacts to the enclosed wetlands will be compensated for through construction of various mitigation features within the basin. As described in the mitigation plan (see Appendix A , Annex K), USACE intends to monitor and adaptively manage all mitigation projects in accordance with the provisions of that plan. Any monitoring or adaptive management activities in the wetlands on the protected side of the levee would exceed the project purpose and would fall outside of the authorization.
FED _10-1-2013_1_NMFS	NMFS5: According to the draft EIS, under both intermediate and high sea level rise scenarios, in 50 years all structures providing drainage between enclosed wetlands and exterior waters would be closed the vast majority of the time. However, no discussion is provided to identify how water levels in enclosed wetlands would be managed. The final EIS should identify and discuss this issue.	Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.
FED _10-1-2013_1_NMFS	NMFS6: Chapter 2, Section 2.4.5 Essential Fish Habitat, Page 2-24. NMFS agrees project implementation would not adversely impact essential fish habitat (EFH). As such, an EFH assessment is unnecessary. NMFS recommends this section be deleted from the final EIS. Likewise, NMFS recommends Section 4.3.5 also be removed from the final EIS.	Certain resources are considered significant and should always be discussed in a NEPA document where that resource may occur. It is our opinion that in coastal Louisiana EFH is one of those resources. No change to chapter 2 has occurred. Additional information on impacts to EFH has been included in chapter 5 specifically for impacts from some of the mitigation sites.
FED _10-1-2013_1_NMFS	NMFS7: Chapter4, Section 4.3.2 Vegetation Resources, Page 4-12. Wording in the second paragraph indicates Alternative C would directly impact 719 acres of wetlands, while Table 4-2 indicates 775 acres of wetlands would be impacted. The correct numbers should be provided in the final EIS.	Table 5-1 includes the correct direct, indirect, and total acres impacted (both the draft and final feasibility acres) for swamp and BLH under Alternative C.
FED _10-24-2013_1_EPA	Comment EPA1: We appreciate the Corps' efforts to streamline the planning and review process, such as the Corps' SMART planning process, however EPA believes there is important information lacking in the Draft EIS. Using this process, the Corps has integrated the environmental analysis in a shortened draft Feasibility Report and EIS. We believe the Corps can use this approach to provide concise, accessible NEPA documents that succinctly disclose the potentially significant impacts of project alternatives. EISs that are more readable can both improve the decision making process and help inform and engage the affected public. With regard to this Draft EIS, our specific concerns focus on the nature and extent of the direct, indirect and cumulative adverse environmental impacts associated with the TSP, Alternative C, and the lack of information in the Draft EIS assessing those effects. The Draft EIS also does not effectively assess the potential environmental impacts of alternative levee alignments. Such information is essential for making an informed decision regarding the environmental acceptability of the alternatives under consideration. Using the SMART planning approach, the Corps is selecting a preferred alternative prior to conducting sufficient environmental impact assessment on other reasonable options.	Concur, there is a lack of some detailed information in the draft EIS regarding the nature and extent of the potential direct, indirect and cumulative impacts pending selection of the Recommended Plan upon which detailed hydrological modeling and WVA habitat analysis would be conducted. However, do not concur that the USACE has selected a preferred alternative prior to conducting sufficient environmental impact analysis on reasonable options. The use of the existing CRMS monitoring site vegetation information within the project area, as well as the professional knowledge and understanding of the project area by team members was sufficient to develop and screen amongst the measures and alternatives developed for this legacy project. Please see section 3.9.3 for an additional screening based feasibility level WVA analysis. This analysis verified or choice of the TSP.
FED _10-24-2013_1_EPA	Comment EPA2: However, as you move toward a final decision for this project, EPA believes it is essential that the planning effort consider more fully the means to avoid, minimize, and mitigate environmental impacts, particularly with respect to coastal wetlands.	Response: Concur. By conducting a WVA habitat analysis and utilizing more detailed hydrologic modeling results, a detailed compensatory mitigation plan for the proposed action was developed and is included in this final report.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
FED _10-24-2013_1_EPA	Comment EPA3: As currently proposed, the proposed levee would enclose over 16 square miles of wetlands, and the Draft EIS provides limited information on how the enclosure will affect the functions and values of these wetlands. While the Draft EIS indicates that the levee would be constructed to maintain hydrologic connectivity between the enclosed wetlands and the surrounding swamps, and Lakes Maurepas and Pontchartrain, detailed information on this critical project feature is not provided. Instead, the Draft EIS only provides a general statement that hydrologic connectivity would be maintained by constructing culverts with sluice gates in the new levee to join with existing culverts under Interstate 10, with no supporting detailed information on the locations and design of these new culverts.	Response: Concur. More detailed hydrologic information regarding project features, including locations and design of culverts to maintain hydrologic connectivity, is provided in this final report. This information can be found in sec. 5.1 as part of the Levee System, and on figure 5-2.
FED _10-24-2013_1_EPA	Comment EPA4: The Draft EIS also reports that preliminary modeling shows only "minimal changes to flows" (p. 4-14), with no additional details on how that modeling was conducted or the results (although the Draft EIS does present the results for modeling at one location, showing a 25% reduction in flows (p. 4-1)). EPA believes it is essential that the Final EIS more fully describe and demonstrate how hydrologic connectivity will be maintained.	Response: Concur. The Final Report provides more detailed information regarding hydrologic connectivity, structure operations and how hydrologic connectivity of the Recommended Plan will be maintained. This information can be found in sec. 4.1.1 Hydrologic Flows.
FED _10-24-2013_1_EPA	Comment EPA5: Moreover, the Final EIS should include an assessment of the potential for relative sea level rise to result in an increase in the closure frequency of the gates and culverts. Other Corps levee studies in Louisiana have shown that such increased frequency of closure can convert an open levee system into one that is increasingly closed, resulting in potentially significant adverse environmental impacts.	Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.
FED _10-24-2013_1_EPA	Comment EPA6: The EPA is also concerned that the Draft EIS does not consider measures to restrict development on wetlands enclosed behind the levees. The Feasibility Report indicates that Alternative C was tentatively selected, in part because these enclosed wetlands would reduce the residual flood risks due to floodwater overtopping the levee. This would allow floodwaters to fill these wetlands first before inundating populated areas. Considering this concern:, EPA recommends the purchase of non-development easements and/or the implementation of local flood zoning ordinances to limit development in these areas.	Response: Do not concur. Existing local building codes would still required developments to build above the 100 yr stage for rainfall impacts, and with an open levee system, the stage is still going to increase over time because of RSLR impacts. Existing local building codes would require significant amounts of fill material for new developments. These areas would still be in jurisdictional wetland and would required compensatory mitigation for impacting these areas. These two factors and the existing available upland areas for development; at a much lower cost, would limit the development in these areas. Additional information can be found in section 6.18 of the main report
FED _10-24-2013_1_EPA	Comment EPA7: Moreover, the Draft EIS does not provide information regarding alternative locations for the source of the levee-building material should the primary source not be sufficient. EPA recommends additional information regarding alternative borrow sites, as well as the development of site selection criteria to ensure that sites with wetlands and/or bottomland hardwoods are not used.	Response: Concur. Any additional borrow will come from pre-approved borrow sites in the Bonnet Carre spillway. These site have been reviewed for all applicable laws and includes avoidance of wetland and BLH. This information is included in section 5.1 of this final document.
FED _10-24-2013_1_EPA	*Comment* EPA8: Finally, EPA is concerned that the Draft EIS provides limited information regarding potential mitigation measures to compensate for wetland losses, and does not provide information to demonstrate compliance with the Clean Water Act Section 404(b)(1) Guidelines (especially the Guidelines' requirements that proposed discharges of dredged or fill material must be the least environmentally damaging practicable alternative).	Response: Concur. The Final Report includes a detailed Mitigation and Adaptive Management and Monitoring Plan (Appendix A Annex K) for unavoidable project-induced impacts to wetlands. The Final Report will also include a detailed Clean Water Act Section 401 Water Quality Certification (Appendix A Annex A) and Section 404(b)(1) (Appendix A Annex A2), and the Coastal Zone Consistency Determination (Appendix A Annex B) in relationship to construction and operation of the Recommended Plan.
FED _10-24-2013_1_EPA	Comment EPA9: Clean Water Action Section 404(b)(1) Guidelines--The Corps has identified Alternative C as the tentatively selected plan (TSP) prior to determining whether it complies with the Clean Water Act Section 404(b)(1) Guidelines (Guidelines). The Guidelines require that discharges of dredged or fill material be the least environmentally damaging practicable alternative. However, based on information in the Draft EIS, Alternative A appears to be significantly less environmentally damaging than Alternative C. Alternative A would result in direct impacts, i.e., filling to create the new levee, to approximately 376.55 acres of wetlands, whereas Alternative C would have direct impacts to 775.13 acres of wetlands. Alternative C also has a substantially greater potential for indirect wetland impacts. Alternative A would enclose approximately 5 square miles of wetlands, whereas Alternative C would enclose approximately 16 square miles of wetlands. Alternative A provides annual benefits equivalent to Alternative C and protects the same number of properties, the same communities, and the same length of highway. According to Table 3-3, the estimated implementation costs of these alternatives are roughly equal. Alternative A would cost approximately $887.6 million, whereas Alternative C would cost $880.9 million. At least in terms of cost, Alternative A would appear to be practicable. EPA recommends the Final EIS provide an evaluation of how the TSP would comply with the Guidelines' requirements.	Response: Concur, the Final Report provides an additional screening (section 3.9.3) based feasibility level WVA analysis. The conclusion of that analysis: Alternative D has the greatest habitat impacts (approximately 2,080 AAHUs more than Alternative C), highest mitigation costs, the lowest BC ration, and lowest net benefits. Alternatives A and C are comparable in total impacts, with Alternative A having a total impact of approximately 151 AAHUs less. Alternative C has less direct impact, while Alternative A has fewer indirect impacts. Both Alternative A and C are considered environmentally acceptable alternatives, and provide benefits to the same number of structures. Alternative C has the lowest total cost (including mitigation), the highest BC ratio, and highest net benefits. Alternative C would have less residual risk and increased safety, consistent with the 2006 USACE Interagency Performance Evaluation Task Force (IPET) report on the performance of the Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System; and would minimize oil and gas pipeline crossings (36 crossings for Alternative C versus 70 crossings for Alternative A). This analysis show the Recommended Plan would comply with the Clean Water Action Section 404(b)(1) Guidelines as a least environmentally damaging practicable alternative.

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FED _10-24-2013_1_EPA	Comment EPA10: Residual Risk and Enclosed Wetlands--The decision to view the enclosure of wetlands as an important part of a risk reduction project could lead to further loss and degradation of coastal wetlands.	Response: Do not concur. Existing local building codes would still required developments to build above the 100 yr stage for rainfall impacts, and with an open levee system, the stage is still going to increase over time because of RSLR impacts. Existing local building codes would require significant amounts of fill material for new developments. These areas would still be in jurisdictional wetland and would required compensatory mitigation for impacting these areas. These two factors and the existing available upland areas for development; at a much lower cost, would limit the development in these areas. Additional information can be found in section 6.18 of the main report
FED _10-24-2013_1_EPA	Comment EPA11: Based on our review of the Draft EIS, it is unclear to what extent the residual risks associated with each alternative were analyzed and quantified. EPA recommends clarifying this issue, including examining ways to further reduce residual risk associated with Alternative A (e.g., by elevating properties inside the levee system and/or increasing internal pumping capacity), calculating how much undeveloped land would need to be included within the levee system in order to adequately reduce residual risk, and determining the amount of wetland area that would adequately mitigate residual risk and providing technical evidence to support the findings.	Further attempts reduce residual risk associated with Alternative A would only further reduce the NED cost to benefit ratio with limiting returns. This is not a reasonable and implementable alternative. Including items such as elevating properties inside the levee system and/or increasing internal pumping capacity or creating retention ponds would have significant cost and would not provide any significant NED benefits due to the fact that the potential for exceedance events occur above the 100 yr frequency. The residual risk reduction afforded by Alignment C is not a project feature. It is only an incidental benefit for avoiding the pipelines.
FED _10-24-2013_1_EPA	Comment EPA12: Wetlands enclosed within a levee system are at increased risk of being converted for development purposes. Such induced development would add to cumulative wetland losses, reduce flood storage capacity, and increase properties at risk. However, the Draft EIS does not evaluate the potential for induced development in enclosed wetlands. Moreover, the Draft EIS does not describe how enclosed wetlands would be protected from future development. If enclosed wetlands are determined to be a necessary residual risk reduction feature in order to maintain the appropriate level of public safety, EPA recommends these wetlands be permanently protected by acquisition or conservation servitude.	Response: Do not concur. The USACE does not consider that wetlands enclosed by the proposed action would necessarily result in induced development. The USACE also does not concur that any enclosed wetlands should be permanently protected by acquisition or a by conservation servitude. A. Existing local building codes would still required developments to build above the 100 yr stage for rainfall impacts, and with an open levee system, the stage is still going to increase over time because of RSLR impacts. Existing local building codes would require significant amounts of fill material for new developments. These areas would still be in jurisdictional wetland and would required compensatory mitigation for impacting these areas. These two factors and the existing available upland areas for development; at a much lower cost, would limit the development in these areas. Additional information can be found in section 6.18 of the main report
FED _10-24-2013_1_EPA	Comment EPA13: Estimating Mitigation Costs-- By making a TSP selection using a limited environmental assessment, the Corps may have excluded relevant mitigation costs	Response: Concur. The TSP reported in the Draft Report was determined using primarily existing information sufficient to develop reasonable alternatives and determining a tentatively selected plan. This included an estimation of the cost for mitigation based existing data and professional judgment. The Final Report includes a detailed environmental assessment for the recommended plan as well as detailed Mitigation Plan.
FED _10-24-2013_1_EPA	EPA14: We recommend that the Final EIS estimate the number of environmental structures needed for each alternative in order to more accurately calculate and compare benefit-to-cost ratios.	Chapter 5 of the Final Report includes the number of environmental structures needed for the Recommended Plan. The location and number of environmental structures for Alternative A and C can be found on figure 3-1.
FED _10-24-2013_1_EPA	EPA15: The Draft EIS also states that "[a]t this stage, mitigation costs for indirect impacts remain uncertain due to limited hydrologic information and lack of a full wetland value assessment". (Section 3.6, page 3-1 0) We recommend the Corps consider whether limitations in the assessment of potential wetland mitigation costs could be significant relative to the benefit-to cost ratios for each alternative.	The Final Report provides an additional screening (section 3.9.3) based on the feasibility level WVA analysis.
FED _10-24-2013_1_EPA	EPA16: The selection of Alternative C as the TSP is in part based on the Corps finding that it maximizes net project benefits. According to the Draft EIS, Alternative A would provide a 1.48 benefit-to-cost ratio, while Alternative C would provide a 1.63 benefit-to-cost ratio. Given information limitations pertaining to environmental structures, adverse impacts, mitigation, and other factors, we recommend that the Corps re-evaluate the benefit-to-cost ratio.	The benefit to cost ratio was refined for the Recommended Plan and presented in the Final Report (chapter 5 and the Appendix D - Economic). The detailed re-assessment of the benefit-to-cost ratios for other alternatives in the final alternative array would not provide any additional information sufficient to change the selection of the TSP, because any uncounted costs would be equal to both Alternatives C and A, therefore their relative ranking on the basis of net benefits would remain unchanged.
FED _10-24-2013_1_EPA	EPA17: As was done for the Greater New Orleans Hurricane and Storm Damage Risk Reduction System, we would strongly encourage the Corps to use non-wetland borrow locations to the maximum extent practicable. Should the Corps determine that wetland impacts associated with borrow sources are unavoidable, an estimate of such potential wetland impacts (and mitigation costs) should be included in the Final EIS for this project. Other Corps levee NEPA documents in coastal Louisiana have identified specific locations for borrow material including the programmatic EIS for Morganza and the numerous reports prepared for the expedited NEPA process on the post-Katrina New Orleans levee upgrades. Regardless of the language in the appendix, the Draft EIS clearly states that the Corps retains the option to use undisclosed locations with undisclosed impacts. Borrow site wetland impacts can be significant. This is a major deficiency in the impact analysis for WSLP.	Borrow sources have been identified and associated impacts of removing and using the borrow have been addressed in the Final Report. WVA were developed for the borrow sources and mitigation is included in the project. The USACE intends not to obtain borrow from non-wetland or other sensitive habitats to the maximum extent practicable. Unavoidable impacts associated with borrow sources have been fully quantified, discussed and appropriate compensatory mitigation provided; all of which is discussed in this Final Report.Any additional borrow will come from pre-approved borrow sites in the Bonnet Carre spillway. These site have been reviewed for all applicable laws and includes avoidance of wetland and BLH. This information is included in section 5.1 of this final document.Borrow sources have been identified and associated impacts of removing and using the borrow have been addressed in the Final Report. WVA were developed for the borrow sources and mitigation is included in the project. The USACE intends not to obtain borrow from non-wetland or other sensitive habitats to the maximum extent practicable. Unavoidable impacts associated with borrow sources have been fully quantified, discussed and appropriate compensatory mitigation provided; all of which is discussed in this Final Report.Any additional borrow will come from pre-approved borrow sites in the Bonnet Carre spillway. These site have been reviewed for all applicable laws and includes avoidance of wetland and BLH. This information is included in section 5.1 of this final document.

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FED _10-24-2013_1_EPA	EPA18: The Corps has correctly acknowledged the potential for indirect impacts to enclosed wetlands and has attempted to quantify these impacts in the Draft EIS. However, the effort to do so with limited information highlights the remaining uncertainty regarding this critical component of the WSLP study. For example, it is unclear how the Corps estimated an indirect habitat reduction of 15% for enclosed wetlands.	The uncertainty related to indirect habitat reductions resulted from the use of preliminary hydrologic modeling and use of existing CRMS monitoring stations data, instead of the typical Wetland Value Assessment data. Based upon this uncertainty, a range from 5 to 75 percent of potential indirect impacts was developed to address this uncertainty. The use of 15 percent for characterizing indirect impacts was based upon two primary factors: 1) our understanding of the area's ecosystem dynamics developed during intensive investigations on ecosystem dynamics for restoration projects such as the LCA Small Diversion at Convent/Blind River, LCA Amite River Diversion Canal Modification and the CWPPRA Maurepas Diversion; and 2) preliminary engineering designs and the expectation that the engineering design would maximize inclusion of hydrologic interchange features, to the extent practicable, within the levee system. The Final Report provides an additional screening (section 3.9.3) based feasibility level WVA analysis.
FED _10-24-2013_1_EPA	EPA19: According to the Draft EIS, hydrologic modeling indicates that the proposed levee could cause a 25% reduction in interchange between flood and protected-side wetlands in at least some portion of the enclosed area. (Section 4.1.1, Page 4-1) It is unclear how this estimate was determined without first specifying the number of how many environmental structures would be constructed. It is also not clear how this modeling result relates to the assumed 15% habitat reduction discussed above. Nevertheless, a 25% reduction in hydrologic exchange would have substantial adverse impacts to the enclosed wetlands, and is not consistent with statements that hydrologic connectivity would generally be maintained between enclosed wetlands and the surrounding swamp. We would also note that this estimate of reduced exchange does not include potential future increases in environmental structure closure due to the combined effects of sea level rise and subsidence	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. This information can be found in sec. 4.1.1 Hydrologic Flows.
FED _10-24-2013_1_EPA	EPA20: The assessment of potential indirect wetland impacts does not include an analysis of potential increases in the frequency of environmental structure closures due to relative sea level rise (RSLR) over the life of the project. The Corps has determined that the environmental structures would be closed approximately 8.5 days per year and would otherwise remain open to minimize hydrologic disruption. These closures would occur when water levels outside the levee system meet a certain elevation (or risk) threshold. As has been noted in other Corps levee studies, RSLR can lead to a significant increase in the number of days that such a threshold is met and the environmental structures are closed. Structures originally designed to maintain hydrologic connectivity between enclosed and flood-side wetlands would be increasingly closed, further impounding and isolating interior wetlands	The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.
FED _10-24-2013_1_EPA	EPA21: In this regard, there are similarities between this project and the Corps' Morganza to the Gulf levee system. Both would enclose large wetland areas and include environmental structures intended to reduce hydrologic disruption. In response to comments by EPA and others, the Revised Programmatic EIS for the Morganza to the Gulf system includes the finding that under certain RSLR scenarios, increased closure frequency could have significant adverse impacts to wetlands, fisheries, and water quality. Despite acknowledging these environmental risks in the Morganza to the Gulf study, the Draft EIS for the WSLP study does not include a similar analysis.	Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.
FED _10-24-2013_1_EPA	EPA22: According to the Draft EIS, the data used by the Corps to assess the wetland quality in impacted areas is derived from two monitoring stations (one of which did not provide complete information relative to salinity and/or water levels). We believe this limited data is not sufficient to evaluate potential impacts, especially given the relatively large area of wetlands that would be enclosed, the complexity of assessing indirect wetland impacts, and the importance of minimizing wetland losses. In addition, the tool used for this assessment is based on herbaceous vegetation whereas the vast majority of the potentially enclosed wetlands are forested. The Draft Feasibility Report and EIS acknowledges that this approach is "not ideal", and commits to conducting a full feasibility-level habitat analysis at a later point. (Section 4.3.2, Page 4-14).	The use of the CRMS monitoring stations, as well as previous WVAs from the LCA Small Diversion at Convent/Blind River as well as the professional judgment and experiences of team members who participated in this study; in addition to WVAs from the EPA-sponsored CWPPRA Project Maruepas Diversion project is consistent with the SMART planning process of using existing information sufficient to enable a comparison of the alternatives within the final alternative array and determine a tentatively selected plan. Potential project-induced impacts of the Recommended Plan to wetlands and other resources have been quantified by the Wetland Value Assessment (WVA) methodology during the Feasibility-Level Analysis phase. Findings from the WVA analysis were utilized to determine compensatory mitigation which would compensate for unavoidable project-induced impacts. A mitigation plan (Appendix A Annex K) has been developed in coordination with resource agencies. Mitigation benefits were also assessed utilizing WVA methodology. The mitigation plan will include the 12 "items" required to demonstrate compliance with 33 CFR 332.4(c) including: objectives, site protection instrument, baseline information, work plan, maintenance plan, performance standards, monitoring requirements, financial assurances, site selection factors, credit determination, long-term management plan and adaptive management plan. Findings from the above been utilized for the completion of the Clean Water Act Section 401 Water Quality Certification (Appendix A Annex A) and Section 404(b)(1) (Appendix A Annex A2), and the Coastal Zone Consistency Determination (Appendix A Annex B). All of are presented for public comment in this Final Report.

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FED _10-24-2013_1_EPA	EPA23: The Draft EIS states that the "project would provide for the protection of protected side wetlands, potentially extending their lifespan and their water quality functions" (Section 4.1.3, Page 4-4). No data is provided to support this assertion, which is contrary to statements elsewhere in the document regarding potential adverse impacts to enclosed wetlands. The Draft EIS further states that closure of the levee system during storms "could provide some reduction of the potential ecological stresses associated with saltwater intrusion..." While we fully recognize that portions of the Maurepas Swamp have been stressed by salinity, it is unclear, based on the limited available data, whether this is the case for the portion of the swamp that would be enclosed by the proposed levee. We recommend that the Final EIS provide additional data and analysis to support this conclusion that the proposed levee could benefit enclosed wetlands.	The following text was deleted from Section 4.1 of the main report "The project could provide for some level of protection of protected side wetlands from salinity, thereby potentially extending their lifespan and their water quality functions" No environmental benefits for enclosing wetland have been claimed for this project.
FED _10-24-2013_1_EPA	EPA24: We recommend that the Final EIS clearly describe how the proposed WSLP levee would be consistent with the Corps' efforts to undo hydrologic disruption and impoundment elsewhere in the swamp.	A flood side ditch and a protected side canal would parallel the entire levee length. The canals would be used to maintain the existing connection between swamps inside and the swamps outside the levee system.
FED _10-24-2013_1_EPA	EPA25: Air Quality Impacts--Chapter 2 of the Draft EIS states that air quality for the three parish area (St. Charles, St. John the Baptist, and St. James, Louisiana) is in attainment of all National Ambient Air Quality Standards and a general conformity determination is not required, and therefore air quality will not be further discussed. EPA believes it is especially important that information regarding the potential air quality impacts during the any construction phase of the project and related mitigation measures are fully discussed (i.e., mitigation measures for Particulate Matter (PM)/dust control, air quality impacts of construction vehicles etc.) As presented on Page 3-7 of Chapter 3, Alternative A construction would require roughly.	Coordination with Louisiana Department of Environmental Quality Mr. Yasoob Zia, air quality for the three parish project area (St. Charles, St. John the Baptist, and St. James, Louisiana) is in attainment of all National Ambient Air Quality Standards and a general conformity determination is not required. Additional air quality information is provided in Chapter 5 for the mitigation sites that are in Parishes that are not in attainment.
FED _10-24-2013_1_EPA	EPA26: EPA also recommends the use of best management practices (BMP)s for PM10 and fugitive dust control (e.g., gravel roads, soil wetting practices, limiting access, traffic and speed reduction). To further reduce potential air quality impacts, the responsible agencies should also include a Construction Emissions Mitigation Plan (Plan) and adopt this Plan in the Record of Decision (ROD). The Final EIS should discuss specific actions including dust ordinances on the parish level, educational outreach tools, and tools to minimize the residents' exposure to PM10 for St. Charles, St. John the Baptist and St. James Parishes, as applicable. In addition to measures included in the Draft EIS and applicable local, state, or federal requirements, EPA recommends that mitigation measures (as applicable) be included in the Plan in order to reduce impacts associated with emissions of PM, and other pollutants from any planned structural and non structural activities, and possible future modifications to the roadway system. Specific information on mobile and stationary source control can be found at: http://www.epa.gov/otan/nonroad-diesel.htm; http://www.epa.gov/ttncatc1/dir1/fmepmtech.pdf	BMPs to avoid, minimize and reduce potential impacts related to particulate matter as well as fugitive dust control will be utilized during construction in parishes that are not in attainment.
FED _10-24-2013_1_EPA	EPA27: The EPA recommends the Final EIS include an inventory of GHG emissions associated with construction of the proposed project.	Reviews to date have found that GHG emissions from the recommended action will have small potential effects compared to the no action plan. The main emissions of concern would be from the inclusion pump stations with the recommended plan. The pump stations are expected to only operate 8.5 days per year for storm events and are not expected to produce any environmental effects related to GHG that would trigger or require a detailed discussion in the EIS.
FED _10-24-2013_1_EPA	EPA28: CLIMATE CHANGE--Given the emphasis by the President in appropriately addressing climate change, including rebuilding infrastructure, EPA recognizes the importance of the Draft EIS's consideration of how climate change could potentially influence the proposed project in terms of its effectiveness over time in reducing flood risk. By including and considering additional analysis regarding potential indirect impacts, the Corps can help ensure the region is rebuilt in a way that makes it more resilient and better able to withstand future storms and other risks posed by a changing climate. EPA looks forward to continuing to work with the Corps of Engineers and incorporate the President's climate change adaptation goals, strengthening the resiliency of our coastal communities, and addressing the nation's pressing infrastructure needs.	Comment noted

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FED _10-24-2013_1_EPA	EPA29: ENVIRONMENTAL JUSTICE ISSUES-- Section 2.3.8 of the Draft EIS is not clear whether locations outside the protection of the levee system would experience induced flooding and whether any of these locations would be identified as having potential environmental justice concerns. Additionally, the Draft EIS is also not clear in specifying what the additional outreach methods include and whether they have occurred (p. 2-15). Information on percent minority and percent low income populations was absent from Table 2-12 for Garyville, Louisiana.	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. The additional outreach methods used include canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses.
FED _10-24-2013_1_EPA	EPA30: According to Section 6.20, one public meeting was held specific to environmental justice issues on May 21,2013 in Lutcher. The Draft EIS does not provide information as to what issues were identified at this meeting or who attended. The Draft EIS also does not indicate whether there were outreach efforts in Reserve, Louisiana which was identified in the Draft EIS as a potential environmental justice concern in Section 2.3.8.	Many of the concerns of the public were not environmental justice specific, but were more general as to what could be done about the rain induced flooding issues the communities currently experience; as well as how the proposed project would impact their homes and businesses. Additional public meeting information can be found in the Environmental Appendix, while not specifically identified as environmental justice, most comments addressed similar issues and concerns with flooding. Outreach efforts in Reserve included sending informational flyers being to residents detailing meeting locations and where they could get more information about the study.
FED _10-24-2013_1_EPA	EPA31: EPA recommends that the Final EIS 1) clarify the information for Garyville in Table -12, 2), clarify outreach methods listed in 2.3.8, particularly for Reserve, Louisiana, and 3) describe the issues and attendees at the May 21, 2013 public meeting. EPA also requests that the Corps clarify whether there are locations outside the protection of the levees that would experience induced flooding because of their construction and whether these locations have potential environmental justice concerns	Information has been updated for Garyville in the table. See comment to EPA30 on outreach efforts in Reserve, LA and issues posed.
FED _10-24-2013_1_EPA	EPA32: ENVIRONMENTAL JUSTICE REFERENCE COMMUNITIES-- The reference communities used in the analysis are comprised of extremely high percentages (61% for St. John Parish) of minority populations (Tables 2-10, 11, and 12). This appears to artificially dilute the representation of minority populations. Furthermore, the reference communities are not large enough to provide an accurate reference. For example, in St. John Parish, almost the entire reference community (total pop of 45,824) is comprised of the towns being analyzed (total pop of 42,449). They are essentially comparing the towns to themselves, not to a reference community. We recommend choosing alternative reference communities for inclusion in the Final EIS.	To avoid diluting the represented populations in the study area, the team conducted neighborhood canvasses as information flyers were handed to residents. It was determined that it was appropriate to compare the communities using census tracts and block groups and comparing them to parish populations for the east bank of the Mississippi River in the project vicinity. These outreach efforts took place in April and May of 2013, with the team observing that much of the area was not as densely population as expected. While identified as predominately minority, the majority of homes and residents observed were of a mixed population. Canvassing also allowed the team to count the number of homes and businesses (estimated at 33) that would be impacted by the project at different flood years (50, 100, and 200) and compare it to other areas with levees (i.e. Reserve). The number of homes that would be impacted in that time frame was minimal. Per discussions with EPA on February 20, 2014, the EPA panel agreed that this methodology was appropriate and recommended that additional methods be used when comparing majority minority populations such as the meaningfully greater analysis on future studies. The Corps concurred with the recommendation.
FED _10-24-2013_1_EPA	EPA33: ENVIRONMENTAL JUSTICE ANALYSIS METHODOLOGIES--Section 2.3.8 of the Draft EIS uses the 50% analysis for minority population identification, but not the meaningfully greater analysis. CEQ guidance explains that minority populations should be identified where either the 50% or meaningfully greater analyses are met, not 'either or' EPA recommends the Final EIS provide an explanation for the use of a 20% greater threshold for the identification of low-income populations and also what constitutes 'low income', e.g. individuals below Census poverty threshold, etc.	See above comment to EPA32 for use of meaningfully greater analysis and justification for using 50% percent analysis in a population area not as densely populated as expected. The 20% poverty threshold was used as recommended by the Department of Health and Human Services and was appropriate for this study. The EPA panel agreed in a meeting on February 20, 2014 that this was appropriate.
FED _10-24-2013_1_EPA	EPA34: The fact that the majority of the study area is comprised of racial or ethnic minorities should not negate the existence of disproportionate impacts, as the Draft EIS appears to conclude. (Section 2.3.8) A majority minority population study area may indicate that impacts are disproportionately falling on minority populations. Please clarify in the Final EIS.	Please see comment to EPA32-33. Further clarification is discussed in Section 2.3.8.
FED _10-24-2013_1_EPA	EPA35: The Environmental Justice analysis of impacts from the various alternatives is limited. Analysis of Alternative C states that incremental direct and indirect impacts would result in cumulative impacts to environmental justice populations, but does not describe what these impacts might be or analyze any mitigation measures to address these impacts. Also, the existing discussion of direct and indirect impacts is limited (Section 4.2.8). Please clarify in the Final EIS	As the project plans have changed, the cumulative impacts have been revised. Many of the direct and indirect impacts to the communities are discussed in the overall Economics section with the Environmental Justice sections focused primarily on those impacts that could be perceived as disproportionate when compared to other areas that did receive levee protection. Corps recommendation that the full economic and environmental justice sections be reviewed together for a full context of study impacts to residents.
FED _10-24-2013_1_EPA	EPA36: Section 4.2.8 of the Draft EIS states, that for Alternative C, properties in environmental justice communities eligible for acquisition may contribute to impacts on community cohesion due to the removal of a portion of the population. The Draft EIS then states that this population removal could potentially cause the collapse of the entire community. No further explanation or details are provided in the EIS regarding this issue. If these impacts do not similarly apply to the affected general population, then it appears they could be disproportionately high and potentially adverse. The EPA recommends further discussing this potential and, if necessary, considering appropriate mitigation measures in the Final EIS.	Acquisition of property is addressed in Appendix C- Real Estate section of the final report. The EJ analysis did not show specific disproportionate or adverse impacts to minority and/or low-income residents due to property acquisition as all residents, regardless of race or income would receive equal consideration if acquisition is necessary. Additionally, as participation in any acquisition program is strictly voluntary, quantification of impacts cannot be adequately assessed or predicted.

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FED _10-24-2013_1_EPA	EPA37: ENVIRONMENTAL JUSTICE MITIGATION MEASURES--Mitigation measures for impacts to environmental justice populations are not discussed. Section 2.3.8 of the Draft EIS identifies two communities that qualify as environmental justice communities; Lutcher and Reserve. The Draft EIS proposes further outreach efforts to these communities. While further outreach is appropriate, it is not sufficiently discussed. EPA recommends the Final EIS identify appropriate mitigation measures for these potential impacts.	Public involvement efforts are ongoing and will continue through the study process. We anticipate additional public meetings within the identified communities once they have reviewed the final report to address questions. As of May 2014, there have been no specific EJ concerns expressed by the resident's additional findings from outreach efforts and analysis.
FED _10-24-2013_1_EPA	EPA38: TRIBAL RESOURCES-- EPA recommends that complete descriptions of government to government and NHPA consultation activities be incorporated in the Final EIS, including correspondence to and from Tribal governments and other consultation-related documents. These documents would demonstrate fulfillment of Tribal consultation duties by the Corps and show the level of Tribal government engagement in both processes.	Description of government to government and NHPA consultation activities, including correspondence to and from Tribal governments and other consultation-related documents have been included in the Final Report (Appendix A Annex F) to demonstrate the fulfillment of Tribal consultation actions by the Corps as well as show the level of Tribal Government coordination.
FED _9-25-2013_1_USFWS	USFWS1: Although Alternative C has a greatly reduced number of total impacted acres compared to Alternative D (57,343 acres), it is still significantly greater than Alternative A (3,941 acres).	the Final Report provides an additional screening (section 3.9.3) based feasibility level WVA analysis. The conclusion of that analysis: Alternative D has the greatest habitat impacts (approximately 2,080 AAHUs more than Alternative C), highest mitigation costs, the lowest BC ration, and lowest net benefits. Alternatives A and C are comparable in total impacts, with Alternative A having a total impact of approximately 151 AAHUs less. Alternative C has less direct impact, while Alternative A has fewer indirect impacts. Both Alternative A and C are considered environmentally acceptable alternatives, and provide benefits to the same number of structures. Alternative C has the lowest total cost (including mitigation), the highest BC ratio, and highest net benefits.
FED _9-25-2013_1_USFWS	USFWS 2: To maintain hydrologic exchange/connectivity between the protected (interior) and non-protected (exterior) side wetlands, culverts are proposed to be included within the levee system. Currently, these measures have not been fully developed and there is still uncertainty and debate on whether maintaining existing flow/exchange can be achieved.	Hydrologic exchange/connectivity structures have been further developed and designed during feasibility-level analysis phase to reduce the uncertainty regarding proposed risk reduction system and its operation effects on water flows and exchange. The results of this design and operations can be found in Chapter 5 of this report.
FED _9-25-2013_1_USFWS	USFWS3: Interior drainage modeling (including rainfall) has not yet been conducted to determine if the proposed levee would increase the depth, duration and frequency of interior swamp inundation. The preliminary modeling on tidal exchange, which is not a driving factor for these swamps, showed some reduction in exchange between the interior and exterior wetlands and a slight lag time in the timing of tidal flows comparing the future without project (FWOP) and future with project (FWP) scenarios. If the proposed levee increases flood frequency and water depth, the bald cypress swamp will become further stressed which could result in a reduction in diversity, productivity, and vigor (Krauss et. al. 2009). Therefore, the U.S. Fish and Wildlife Service is concerned that the proposed levee may have deleterious effects on the interior swamp. The impacts to interior wetlands may be more greatly exacerbated with increased Sea Level Rise (SLR) because the hydrology would rely on a pumped system. The potential wetland habitat impacts to the largest remaining continuous forested wetlands in Louisiana would result in the reduction of resident fish and wildlife, reduced important wintering habitat for waterfowl and other migratory birds that use the Central and Mississippi Flyways, and reduced nursery habitat and detritus input important to the maintenance of estuarine-dependent fish and shellfish production.	Additional interior drainage modeling, including consideration of rainfall and increased sea level rise and subsidence (Relative Sea Level Rise), was conducted during the feasibility-level analysis phase. Results from this feasibility-level analysis was used in refining the hurricane and storm surge damage risk reduction system design and operation, and documented in the Final Report. Designs and structure operational guidelines will be further developed to avoid, minimize and reduce to the maximum extent practicable potential project-induced deleterious effects on enclosed wetlands. Unavoidable project-induced impacts would be subject to compensatory mitigation. This information can be found in sec. 4.1.1 Hydrologic Flows.
FED _9-25-2013_1_USFWS	USFWS4: In addition to the impact to water exchange in the protected-side swamp, the FWS is concerned about reduced future water exchange due to SLR requiring increased structure closures. The frequency and duration of gate closures is expected to increase due to area-wide stage increases caused by relative SLR thereby leading to potential substantial affects to wetlands enclosed by the levee system. These potential impacts have not yet been fully determined but are expected to be analyzed during the remaining feasibility phase of the study. By the end of the period of analysis (i.e., 50 years), under the high SLR scenario, all gates could be closed all of the time, similarly under the intermediate SLR scenario there may be almost complete structure closures. At present, it is unknown how water levels within the system would be managed so there is a potential for substantial additional indirect impacts to swamp and fish and wildlife resources to occur. Even with SLR we do not anticipate a corresponding increase in salinities; reasons for this assumption are addressed in our first specific comment.	Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.

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FED _9-25-2013_1_USFWS	USFWS5: Developmental pressures on enclosed forested wetlands would likely increase with levee construction due to the reduced threat of flooding in the area but that would also be dependent on the proposed operation of pumps. According to the Corps Civil Works Program Five-Year Development Plan for Fiscal Year 2011 to Fiscal Year 2015, national flood damages are increasing and that is attributed to population migration to the coasts and development of floodplains, thus creating an apparent contradiction between flood damage reduction investments and national flood damages (Corps of Engineers, 2011). Stimulated development of the protected-side wetlands would not be consistent with the Corps of Engineers' plan to reduce flood damages and also utilize this area for flood storage capacity during storms exceeding the project design	Development will continue to occur throughout the area and into the future with or without implementation of the proposed action. The proposed action would not further induce development any greater than what is already occurring or would occur into the future without project conditions. The area has several thousand acres of undeveloped land, as well as undeveloped lots and acreage within existing subdivisions. Hence, there is no inconsistency between the USACE's programs for flood damage reduction investments and increasing opportunities for national flood damages. The enclosed wetlands are not a project feature and residual risk calculations do not include them for this project. Existing local building codes would still required developments to build above the 100 yr stage for rainfall impacts, and with an open levee system, the stage is still going to increase over time because of RSLR impacts. Existing local building codes would require significant amounts of fill material for new developments. These areas would still be in jurisdictional wetland and would required compensatory mitigation for impacting these areas. These two factors and the existing available upland areas for development; at a much lower cost, would limit the development in these areas. Additional information can be found in section 6.18 of the main report
FED _9-25-2013_1_USFWS	USFWS6: Another apparent inconsistency between programs is the planning of restoration projects at the same time levees are being proposed to enclose floodplain habitat and permits are issued for development in these floodplains. More consistency between these programs needs to address the conflicting approaches between restoration and future development. Therefore, the Corps and local sponsor should acquire adequate protection of the enclosed wetlands to ensure and maintain preservation of those areas in perpetuity via the purchase of non-development easements and local flood zoning ordinances	The USACE's planning teams for the LCA ecosystem restoration studies/projects (LCA Small Diversion at Convent/Blind River (CBRD) and LCA Amite River Diversion Canal Modification (ARDC) projects), the CWPPRA Maurepas Diversion study planning team and the WSLP study planning teams have been working with each other since the inception of each of these projects. For example, the environmental manager for both of the referenced LCA restoration projects and the WSLP study is the same individual who, along with other team members, have been actively engaged to ensure coordination with between these projects. The planning teams for the WSLP and CWPPRA Maurepas Diversion studies have closely coordinated including development of project features such as tying the proposed Maurepas Diversion guide levees with the WSLP risk reduction system features. Lessons learned from the LCA studies regarding the Maurepas Swamp ecosystem dynamics have been included into the WSLP study as part of the mitigation. The apparent inconsistency between these projects/programs is the need to provide hurricane and storm surge damage risk reduction for human populations at risk living adjacent to the Maurepas Swamp ecosystem that is presently undergoing habitat fragmentation and conversion to marsh and open water due to a number of natural and man-made problems. The WSLP Recommended Plan alignment minimizes, to the maximum extent practicable, adverse potential impacts to significant human and natural resources. The WSLP Recommended Plan includes measures to maintain hydrologic exchange/connectivity between the protected (interior) and non-protected (exterior) side wetlands. In addition, closure of the risk reduction system during storm events would prevent more saline waters associated with hurricane and storm surge events as well as increasing relative sea level rise levels from adversely impacting enclosed wetlands. Furthermore, the use of some of the enclosed swampland area for residual risk reduction in case of overtopping during storms exceeding project design would continue into the future. Any development of the area would require applicants to go through the Clean Water Act Section 404 permitting process to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Should development of the residual risk reduction area occur, appropriate mitigation would be required to offset the impacts to wetlands and the hurricane and storm damage risk reduction system and its operation.
FED _9-25-2013_1_USFWS	USFWS7: Opinions expressed at public meetings indicate there is wide spread local support for selection of Alternative D as the recommended plan. Alternative D is a westward extension of Alternative C ending at the non-federal Laurel Ridge levee in Ascension Parish if Alternative D is selected. Not only would the negative effects of Alternative C listed above be realized, but there would be substantial more wetlands (over 57,000 acres) impacted. Since Hurricane Katrina, the FWS and other state and federal agencies have indicated the need to integrate restoration and protection in coastal Louisiana. Two diversion restoration projects that would restore swamps would be enclosed within Alternative D, thus creating a direct and indirect conflict between restoration and protection if Alternative D were chosen. The FWS feels the integration of restoration and protection is important and believes that Alternative D would not realize this goal but rather would hinder it. In addition, the FWS feels a better use of the wetlands outside of Alternative C would be for restoration. Though Alternative C is not ideal, it achieves the goal of protection with fewer impacts to restoration to a far greater extent than Alternative D. The FWS provided an October 2013 Planning Aid Letter to the Corps that presented environmentally less damaging alternatives to Alternative D. The FWS acknowledges that impacts from our proposed alternatives are greater than Alternative C and potential impacts to proposed restoration projects would still exist. However, our alternative equates to less impacts than those anticipated to occur with implementation of Alternative D. If Alternative D is further evaluated, the FWS recommends that equal consideration and analysis be given to our suggested alternative alignment/approaches to D.	The USACE New Orleans District Commander selected Alternative C as the Recommended Plan based upon several independent sources of information, including: the analysis by USACE's WSLP planning development team, and State, Parish, public, resource agencies, and affected individuals and groups comments on the Draft Report. The WSLP planning development team has considered and coordinated ongoing restoration efforts in the Maurepas Swamp into the hurricane and storm damage risk reduction efforts to the maximum extent practicable. This is evidenced as described in response to comment USFWS6 by the close coordination efforts between the WSLP and the LCA CBRD, LCA ARDC and CWPPRA Maurepas Diversion planning teams. Regarding the USFWS's October 2013 Planning Aid recommendations and concerns, the USACE has selected Alternative C as the Recommended Plan in part to avoid potential adverse impacts to the LCA CBRD authorized project. In addition, the USACE will continue to coordinate with the State of Louisiana regarding proposed study of the Maurepas Diversion. Consistent with the USFWS's concerns for utilizing the wetlands outside of Alternative C for restoration, the USACE will also consider various compensatory mitigation alternatives which would complement and/or work synergistically with ecosystem restoration measures within the Maurepas Swamp.
FED _9-25-2013_1_USFWS	USFWS8: Saltwater intrusion (i.e., salinity associated with normal tidal cycles and not with tropical storms) as an issue is raised throughout the draft report. Please see our first specific comment regarding salt water intrusion within the project area.	Response: Please see response to USFWS specific comment regarding page 2-18-19 section 2.4.2 Vegetation Resources (USFWS10) below.
FED _9-25-2013_1_USFWS	USFWS9: Given that design and evaluation of most project features has been at a programmatic level, the FWS cannot fulfill its Coordination Act responsibilities at this time. The FWS recommends that further evaluation be conducted and another Draft Report be released to the public to allow review and comments on the feasibility level design of this project.	Comment noted: USACE had determined a 2nd draft EIS is not needed.

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FED _9-25-2013_1_USFWS	USFWS10: Page 2-18-19, Section 2.4.2 Vegetation Resources: The second paragraph of this section states that the "existing ... swamp habitats ... are rapidly converting to fresh marsh and shallow open water habitats due to impounding, saltwater intrusion, and a lack of nutrient and sediment inputs." The less than optimal conditions of the forested wetlands are primarily due to a lack of sediment and nutrient inputs. Although area swamps are not in optimal condition, they are also not "rapidly" converting to fresh marsh and shallow open water. Much of the Maurepas Swamp has experienced varying levels of degradation due to being virtually cut off from any freshwater, sediment, or nutrient input. With minimal sediment and nutrient inputs and moderately high subsidence there is a lack of recruitment and reduced growth. Though salinity spikes may be a final detrimental factor in an already degraded system for some of the Maurepas Swamps, according to Coastwide Reference Monitoring System (CRMS) stations in and near Alternative C, data clearly demonstrates that over the past 5 years (2008-2013) saltwater intrusion is not an existing issue for interior Alternative C swamps even though it is also listed as a concern in the Future Without-Project Conditions and water levels are increasing due to SLR and subsidence. The CRMS data also indicates that the interior swamp of Alternative C is not in as poor condition as the area to the west (interior of Alternative D) or especially farther north and near the lake rim. The Integrated Report does not account for the recently constructed Mississippi River Gulf Outlet (MRGO) closure which reduces salinities in the Pontchartrain Basin. The potential for saltwater intrusion is based generally on trends in areas other than in the swamps surrounding Alternative C. With the closure structure in place, proposed restoration projects, and the existing data on salinity it is debatable to what extent salinity will become a problem in the future even with low or intermediate and to some extent high SLR. To date, no modeling has been done to predict future salinity -levels for project planning purposes. The FWS recommends the removal of language that indicates a benefit of this project will be to prevent saltwater intrusion and to clarify the primary factors impacting forested wetlands in the study area.	The WSLP study area includes not only those areas enclosed by the proposed alternatives, but also vast portions of the Maurepas Swamp extending from the southern shoreline of Lakes Maurepas and Pontchartrain south towards the developed area along the Mississippi River within St. Charles, St. John the Baptist and St. James Parishes. Presently there are thousands of acres located between the south shore of Lake Maurepas to Interstate 10 that have converted to marsh and open water. For example the area just north of the raised portion of I-10 and adjacent to Alternative C alignment in that area that is several hundred acres of swamp that have converted to marsh and open water. Within Alternative C alignment west of Belle Terre Blvd there are several blocks ranging in size from a few acres to over a hundred acres of swamp which has converted to marsh and open water. As demonstrated in the LCA CBRD and LCA ARDC projects, there are several hundred acres throughout the enclosed Alternative C area that are in various stages of converting from swamp to marsh and open water. Located outside and to the west of Alternative C alignment the LCA CBRD project, which is within the WSLP study area, has demonstrated additional vast areas of swamp in various stages of conversion to marsh and open water. These surrounding degraded areas, in combination with altered hydrology and other factors will continue to influence the southern Maurepas Swamp area including the Alternative C alignment area. This widespread and rapid conversion of the Maurepas Swamp to marsh and open water has been analyzed and documented in coordination with the USFWS and other resource agencies, and determined to occur within portions of the WSLP study area within 10 to 50 years in various; this has been documented in the 2010 Final EISs for the authorized LCA CBRD, LCA ARDC studies. In addition, the 2001 "Diversion into the Maurepas Swamps" report prepared for the CWPPRA project specifically states: "This study also shows the impacts of saltwater intrusion on the cypress-tupelo swamps, including significant mortalities of tupelo, red maple and ash, and suppression of tree productivity in the areas of highest salinity. Saltwater intrusion in the Maurepas swamps is impacting swamp vegetations already stressed by excessive flooding." With regard to salinity, this report states: "For reasons elaborated above (Chapter 1), the south Maurepas swamps are at lower elevation than is "natural", and in addition, freshwater inputs to the region are limited mainly to the Tickfaw River, the Amite Diversion Canal, the Blind River, and rainfall/drainage. The region therefore is and will continue to be susceptible to saltwater intrusion whenever the limited freshwater inputs are diminished." Consequently, as the Maurepas Swamp continues to experience drainage problems and hydrologic isolation, continued inundation of vast areas due man-made logging canals and railroad embankments, the lower elevations of the area, and continued increasing RSLR rates, there will continue to be significant problems associated with salinity and inundation that diversions and input of freshwater and nutrients will not be able to ameliorate and the Maurepas Swamp will continue to fragments/degrade and convert to marsh and open water,
FED _9-25-2013_1_USFWS	UFWS11: Page 3-2 and 3-2, Section 3.3 and 3.4 Management Measures Considered and Screened and Initial Array of Alternatives (respectively): The FWS provided a Planning Aid Letter (dated October 2013) that requested alternatives to Alternative D be considered (see enclosure) that were less environmentally damaging. To date the Corps has not formally acknowledged consideration of these alternatives. If alternative D is further evaluated, the FWS recommends that equal consideration and analysis be given to our suggested alternative alignments/approaches to D.	Comment noted: Alternative D was not selected.
FED _9-25-2013_1_USFWS	USFWS12: Page 4-19. Section 4.36 Threatened and Endangered Species: Because this section also addresses species protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, we recommend that the title be revised to reflect these other protected species.	The section title was revised in Final Report to reflect discussion of protected species under laws such as the Migratory Bird Treaty Act and Bald and Golden Eagle Act
FED _9-25-2013_1_USFWS	USFWS13: Page 5-5, Section 5.3 Mitigation Plan: The report acknowledges that implementation of the TSP requires compensatory mitigation for unavoidable project-induced impacts. The FWS recommends further development of the appropriate mitigation to include minimizing and/or avoiding impacts to wetlands, State wildlife management areas, and State Scenic Rivers (i.e., Blind River) and developing compensatory mitigation plans commensurate with the level of planning conducted for flood risk reduction features, as mitigation is a project feature of the TSP.	Response: Concur. The Final Report includes a detailed Mitigation and Adaptive Management and Monitoring Plan (Appendix A Annex K) for unavoidable project-induced impacts to wetlands. Mitigation planning was and will continue to include coordination with the USFWS and other resource agencies, including the Louisiana State Maurepas Wildlife Management area personnel, and did take into consideration State Scenic Rivers such as the Blind River
FED _9-25-2013_1_USFWS	USFWS14: Page 5-6, Section 5.4 Adaptive Management and Monitoring: The Corps has acknowledged that the Adaptive Management and Monitoring Plan (AM&MP) has yet to be developed. The FWS recommends enough money be included in the AM&MP to sufficiently address potential hydrologic issues as well as impacts to restoration projects if necessary. Development of that plan should be coordinated with the FWS and other natural resource agencies	Response: Concur. The Final Report includes a detailed Mitigation and Adaptive Management and Monitoring Plan (Appendix A Annex K) for unavoidable project-induced impacts to wetlands.
FED _9-25-2013_1_USFWS	USFWS15: Page 6-1 and 6-2, Sections 6.5, 6.6, and 6.8 Endangered Species Act of 1973, Bald and Golden Eagle Protection Act of 1940, and Colonial Nesting Water Birds (respectively): If this project extends greater than 1 year, the FWS recommends continued coordination for potential impacts to threatened and endangered species, bald eagles, and migratory birds	The USACE will continue to coordinate with the USFWS. If the project extends greater than 1 year, the USACE will specifically coordinate with the USFWS with regard to potential impacts to threatened and endangered species, bald eagles, and migratory bird.

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FED _9-25-2013_1_USFWS	USFWS16: Page 6-2, Section 6.10 Fish and Wildlife Coordination Act of 1934: In this section, the Fish and Wildlife Coordination Act (FWCA) Report Recommendations are not included but rather are referred to in Appendix A. Please reference the Fish and Wildlife Coordination Act where it states the FWCA Report " .... shall be made an integral part of any report ..... submitted to the Congress or to any agency or person having the authority or the power ... 1) to authorize the construction of water-resource development projects ... " The FWCA Report is often misunderstood to be a part of NEPA. However, NEPA is not a substitute for the FWCA but represents an expansion of the FWCA concept that fish and wildlife values are to be fully and equally considered and appropriately mitigated in water resource development planning. The FWS recommends that the Corps include and address the FWCA Report Recommendations in the Main Report	Responses to the USFWS FWCA recommendations are included in Chapter 6 of the Final Report. The FWCA Report will be presented in its entirety in the Appendix A Annex G.
NGO_10-08-2013_1_Gulf Restoration Network	I am writing briefly to support a Lines of Defense alignment for St John and St James Parish, and against any alignments that impound undue acreages of wetlands, such as Alignment D.	Alignment D is not in the recommended plan.
NGO_10-08-2013_1_Gulf Restoration Network	We question the completeness of a document that does not outline the borrow sources for this levee system.	As discussed in Chapter 5 all borrow will be from the creation of the flood side ditch and protected side canal, and from the Bonnet Carrie Spillway
NGO_10-08-2013_1_Gulf Restoration Network	We question the completeness of a study about floodwaters that does not include hydrological modeling of surge waters, the potential for flooding from rain, and other parameters typically associated with storm risk reduction projects.	The final map annex includes maps showing the extent of the storm surge. Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
NGO_10-08-2013_1_Gulf Restoration Network	We have seen that the Morganza to the Gulf levee will not be performing to the minimum risk reduction standard for federal insurance until 2035, due to the need to wait for the levee to settle into the soft sediments of the area. We feel that time is of the essence, and that ring levee alignments can protect human life more quickly.	Soil conditions are different than the Morganza to the Gulf Study area. The current recommendation used existing borings and collected additional borings to develop a recommendation that would maximizes net benefits consistent with protecting the Nation's environment.
NGO_10-08-2013_1_Gulf Restoration Network	The Corps should evaluate the risk reduction qualities of the cypress forests that are to be impacted, and produce a study of the actual storm likelihoods for the different alignments if the forests are included—for example, although the levee system is designed for "100-yr" or 1% protection, the Corps inclusion of the value of protective cypress forests could increase a given levee beyond this percentage	The impacts of the landscape changes can be seen by comparing the FWOP 2020 conditions to the FWOP 2070. Landscape changes are built into the surge modeling. By 2070 a large portion of the vegetated wetlands have converted to open water. Please see the Eng. Appendix related to storm surge modeling grid and assumptions.
NGO_10-08-2013_1_Gulf Restoration Network	As the Corps must consider cumulative impacts, we oppose construction of levees on existing impoundments of I-10 or highway 61. Just because flows to this area are hampered does not justify further damaging the system	Placing a levee parallel to an existing hydraulic barrier would actually reduce the potential indirect impacts to the enclosed area, hence reduce once source of cumulative impacts.
NGO_10-08-2013_1_Gulf Restoration Network	The impoundment and pumping of Cypress forests causes increases in drainage expenses over time, and these expenses are not included in the document.	There would be no additional cost to pumping due to the cypress swamp. The cost of pumping is based volume of water from a rain event. This would not change based on including the swamp. was included in the WVA. The team assumed there are enough openings for water exchange but developed a WVA that accounts for delays in water movement due to changes in RSLR over the life of the project.
NGO_10-08-2013_1_Gulf Restoration Network	We feel that the maintenance costs of these levees, including the induced subsidence and spiraling costs of drainage, are not adequately reflected in the document, and would lower cost-benefit ratios of alignments that impound undue amount of wetlands.	RSLR impacts are included in both the overall maintenance cost of the recommendation and WVA impacts.
NGO_10-08-2013_1_Gulf Restoration Network	We are concerned about impacts to the Blind River, an Outstanding Natural Resource Water, unique on the planet earth, as well as the Maurepas Swamp WMA.	Alignment D, which impacted Blind River is not in the recommended plan
NGO_10-08-2013_1_Gulf Restoration Network	The Corps must consider the induced surge that outward alignments, such as D, would have on towns like Springfield.	Alignment D is not in the recommended plan. It would be inappropriate to speculate about details of a scenario that is not recommended.
NGO_10-10-2013_1_Barry Kohl PhD	against any alignments that impound undue acreages of wetlands, such as Alignment D.	Alignment is not in the recommended plan.
NGO_10-10-2013_1_Barry Kohl PhD	This document does not constitute a Draft EIS because of the many omissions in the Report: 1) EPA has not submitted a CWA letter; 2) USF&WS report is not complete because the Service does not have adequate information from the Corps in which to respond (letter dated 6/5/13).	The Final EIS has all required information.
NGO_10-10-2013_1_Barry Kohl PhD	The environmental review process is piecemeal and the cumulative affects are not adequately addressed in the draft report, as required by NEPA.	The Final EIS has all required information.

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NGO_10-10-2013_1_Barry Kohl PhD	Will the public have another opportunity to comment on the content of the final report? Or, will it be sent to the Chief of Engineers for approval without further public input?	The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
NGO_10-10-2013_1_Barry Kohl PhD	How can an environmental evaluation be made if one of the most significant environmental issues of the project (the number and operation of environmental structures), have not been determined? The structures are necessary to preserve the environmental integrity of the enclosed wetlands. There should be a comparison for all alternatives.	More detailed hydrologic information regarding project features, including locations and design of culverts to maintain hydrologic connectivity, structure operations and how hydrologic connectivity of the Recommended Plan will be maintained is provided in this final report (Chapter 5).
NGO_10-10-2013_1_Barry Kohl PhD	The preliminary hydrologic modeling did not include rainfall. (Draft Rept., p. 4-1 & 4-11).	The final design includes rainfall impacts. Please see the Eng. Appendix
NGO_10-10-2013_1_Barry Kohl PhD	According to the Figure 2-2, the relative sea level rise (RSLR) in the project area will rise over 3.2 ft by the year 2070. This is an average (intermediate) rise with the highest projection being 4 ft in 2070. [Note: the data listed in Table 2.2 for low and intermediate RSLR do not match the curves in Fig. 2.2 for the year 2070.]	The table in the draft report had the correct information the finger has been corrected for the final report.
NGO_10-10-2013_1_Barry Kohl PhD	We question the Corps statement that gates will be closed only 8.5 days per year for the TSP. With the addition of RSLR how many days will they be closed based on the 3.2 ft rise of RSL?	The rate of closure is based on a historical storm frequency for the area. This rate would not change based on RSLR. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change
NGO_10-10-2013_1_Barry Kohl PhD	The Corps has not addressed this issue in the Draft Report. Why not? The full impacts of RSLR have not been integrated into the plan nor has the hydrology and impacts of the levees and impoundments of the wetlands been evaluated for all the alternatives.	RSLR impacts are included in both the overall maintenance cost of the recommendation and WVA impacts.
NGO_10-10-2013_1_Barry Kohl PhD	American eels are highly sought after for the Asian market and provide an economic resource for commercial fishers. "If operating plan changes close the levee system more often due to RSLR then those impacts would have to be analyzed and documented in future supplemental NEPA document" (p. 4-18). The hydrologic modeling can be done now to predict future impacts for each alternative. Why wait? Study the impacts of increased closures based on the predicted RSLR.	The current authority only can only evaluate and addresses hurricane and storm damages. Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change.
NGO_10-10-2013_1_Barry Kohl PhD	Did the environmental costs of the various alignments include the mitigation and impacts to fisheries (American eel, etc.?). Degradation of the enclosed wetlands over time should be included as a cost. Also, impacts to important fishery species should be considered.	The WVA models are habitat based models not an individual species based model. The model looks at all the functions and value of the wetland, so impacts to wildlife and fisheries were compensated for with the mitigation plan.
NGO_10-10-2013_1_Barry Kohl PhD	"Borrow material would come from the Bonne Carre' Spillway or alternative borrow sources not yet identified." (Appendix B, p. 6). The draft report states that a canal will be dug along the new levee. Will the material dredged from the canal be used as borrow for the levee system? Will the borrow meet the post-Katrina soil standards used for federal levees? If so, this should be clearly stated in the final report.	As discussed in Chapter 5 all borrow will be from the creation of the flood side ditch and protected side canal, and from the Bonnet Carrie Spillway. The material not usable for the levee from the flood side ditch and protected side canal will be use for the creation of the mitigation sites in the Bonnet Carrie spillway.
NGO_10-10-2013_1_Barry Kohl PhD	We strongly support the incorporation of the post-Katrina engineering design criteria, especially the new soil standards, into the federal levees.	The design and cost are based on the new standards
NGO_10-10-2013_1_Barry Kohl PhD	Because of the inadequacy of the draft report, the NEPA process should be restarted when the Corps' "final report" is complete. This "final report" should be re-submitted as a Draft EIS to the agencies and the public for review and comment. This will allow a proper, comprehensive evaluation of the Corps TSP and other levee alignments.	Comment noted: USACE had determined a 2nd draft EIS is not needed.

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NGO_10-21-2013_1_Susan Vuillemot LEAN	Supports NEPA process but key considerations include enviornmental justice, sea-level rise and wetlands protection. Does not support Alternative D	Comment Acknowledged, thanks for your comment.
NGO_10-25-2013_1_Environmental Defense Fund	What are the true initial costs of the alignments, based upon adequate geotechnical analysis, and of future lifts?	Cost for the recommended plan are based on a detailed feasibility design. This included the inclusion of additional geotechnical analysis
NGO_10-25-2013_1_Environmental Defense Fund	How will the alternatives perform against a reasonable range of RSLR scenarios over the life of the project and beyond?	The actual future RSLR could impact the benefits achieved by any plan. Because the final recommendation was developed using the intermediate RSLR rate, the recommended plan would provide more benefits than anticipated should the low RSLR rate result and less benefits with the high RSLR rate.
NGO_10-25-2013_1_Environmental Defense Fund	How will they interact with diversions at Blind River and Hope Canal?	Alignment is not in the recommended plan. The recommended plan would not have impacts to Blind River. The levee for the recommended plan would include a pump station very near the beginning of Hope Canal to capture drainage from the community of Garyville. This location would be at the same location as the pump station associated with the Hope Canal Diversion proposal.
NGO_10-25-2013_1_Environmental Defense Fund	What will be the locations, sizes, initial costs and ongoing operation and maintenance costs, which must be assumed by the local sponsor, of the necessary hydrological structures?	Sizes and locations of structures are discussed in Chapter 5 and the Engineering appendix of the final report. O&M cost include cost for routine maintenance drainage structure replacement
NGO_10-25-2013_1_Environmental Defense Fund	How will wetlands enclosed by Alternatives C and D be protected from induced development?	Any enclosed wetlands would be subject to existing Federal, State, and local laws and regulations regarding development of wetlands. This would include, but is not limited to: the Section 404 of the Clean Water, Coastal Zone Management Act, as well as local zoning ordinances.
NGO_10-25-2013_1_Environmental Defense Fund	Will the project, especially Alignment D, induce surge in nearby communities like French Settlement, Killian, Ponchatoula and Manchac, and indeed in lakeside St. Tammany communities?	Alignment D is not in the recommended plan. It would be inappropriate to speculate about details of a scenario that is not recommended.
NGO_10-25-2013_1_Environmental Defense Fund	Where will the needed borrow be obtained and how will the environmental effects of borrow removal be mitigated?	As discussed in Chapter 5 all borrow will be from the creation of the flood side ditch and protected side canal, and from the Bonnet Carrie Spillway. Impacts from the flood side ditch and protected side canal are already included in the levee ROW and have been included in the mitigation plan. Borrow from the Bonnet Carrie Spillway will be from existing borrow pits.
NGO_10-25-2013_1_Environmental Defense Fund	How and where will the project imprint and project indirect effects be mitigated? We note with alarm that six years after construction began, no mitigation has taken place for the HSDRRS footprint. We suggest that one way to avoid that outcome is to design this project in conjunction with a mitigating project from the 2012 Louisiana's Comprehensive Master Plan for a Sustainable Coast or the Louisiana Coastal Area plan. We also suggest that such mitigation be undertaken not based upon traditional analysis, which fails to get at underlying systemic problems, but rather in a way that changes the trajectory of system function within the Maurepas basin.	Impacts will be mitigated concurrently with construction activates
NGO_10-25-2013_1_Lake Pontchartrain Basin Foundation	Supports Alignment C consistent with multiple lines of defense. A non-structural solution may not be adequate for the developed area of St. James Parish. A St. James Parish levee deserves consideration for the developed area of St. James Parish, but the D alignment has many significant problems, and so an alternative levee alignment should be further evaluated.	Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.
NGO_10-25-2014_2_Lake Pontchartrain Basin Foundation	Adequacy of the Feasibility Report and DEIS (SMART Planning Process) The key deficiencies: · The costs for the TSP and particularly for the alignment D alternative are likely to be vastly underestimated. Since there is no estimate of the number, types or operational considerations for water control structures, it is impossible to have any remotely reliable cost estimate for Alignment D. · There is no estimate of the induced flooding for any of the alternatives. This is particularly troubling with the locally preferred plan of the D alignment, in which surge storage equal to 12% the size of Lake Pontchartrain would be enclosed. This would increase surge into nearby communities such as French Settlement, and also increase surge from "lake tilting" to areas as far away as Mandeville and Slidell. · There is no projection of indirect wetland impacts. This is particularly troubling with the locally preferred plan of the D alignment, in which 50,500 acres of wetland forest would be enclosed, and under which, with future sea level rise, would increasingly require water control structures be closed to prevent residents from flooding. This future operation is inevitable with even modest seal level rise and would increasingly change the flood periods of the swamp.	Alignment D is not in the recommended plan. It would be inappropriate to speculate about details of a scenario that is not recommended. Additional discussion was added to the final report related to induce flooding potential. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C.

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NGO_10-3-2013_2_New River Soil & Water Conservation District	Supports Alternative D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
NGO_10-3-2014_3_New River Soil & Water Conservation District	Alignment C, if chosen and implemented will alter the programs and agreements the district has with local landowners.As of this date, the New River SWCD, and the local NRCS, has not been contacted by the U.S. Army Corps of Engineers to discuss a proposal which would cause such a drastic effect on the natural resources within the district.	Both Kevin Norton and Michael Trusclair with NRCS have been coordinated with.
NGO_10-3-2015_4_New River Soil & Water Conservation District	We also ask that you consider the negative effect Option C will have on endangered species such as the Correll's false dragonhead, a perennial that has been discovered here and has the ability to grow under current conditions and soil found in StJames Parish. Perique is a unique and rare type of tobacco that comes exclusively from St James Parish.	The Correll's false dragon-head is not a listed species (http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q1HD). Alternative C would have no impact on the habitat in St. James Parish where either of these two species of plant grows. The with out and with project impacts would be the same.
NGO_10-3-2016_5_New River Soil & Water Conservation District	StJames Parish is rich in history, natural resources, culture and traditions that are irreplaceable. Option C has the potential to abolish this therefore; the New River SWCD strongly supports Option D or Alternative Alignment C-lb.	The with out and with project impacts would be the same there would be no impact to the culture of St. James Parish due to the construction of alternative C. Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.
NGO_10-7-2013_2_Marathon Petroleum Company	potential to abolish this therefore; the New River SWCD strongly supports Option D or Alternative Alignment C-lb.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
NGO_9-10-2013_2_Scott Eustis	Concerned about expedited process	Comment noted
NGO_9-10-2014_3_Scott Eustis	Support a Lines of Defense alignment (Alternative A) for St John and St James Parish, and against any alignments that impound undue acreages of wetlands, such as Alignment D.	Concur, the Final Report provides an additional screening (section 3.9.3) based feasibility level WVA analysis. The conclusion of that analysis: Alternative D has the greatest habitat impacts (approximately 2,080 AAHUs more than Alternative C), highest mitigation costs, the lowest BC ration, and lowest net benefits. Alternatives A and C are comparable in total impacts, with Alternative A having a total impact of approximately 151 AAHUs less. Alternative C has less direct impact, while Alternative A has fewer indirect impacts. Both Alternative A and C are considered environmentally acceptable alternatives, and provide benefits to the same number of structures. Alternative C has the lowest total cost (including mitigation), the highest BC ratio, and highest net benefits. Alternative C would have less residual risk and increased safety, consistent with the 2006 USACE Interagency Performance Evaluation Task Force (IPET) report on the performance of the Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System; and would minimize oil and gas pipeline crossings (36 crossings for Alternative C versus 70 crossings for Alternative A). This analysis show the Recommended Plan would comply with the Clean Water Action Section 404(b)(1) Guidelines as a least environmentally damaging practicable alternative.

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NGO_9-30-2013_1_Nucor Steel	NSLA is in the final phase of construction of a $750 million Direct Reduced Iron ("DRI") facility located in Convent, St. James Parish along the Mississippi River.Of the 150 team members, approximately 70% reside in the River Parishes and approximately 30% are from St. James Parish.Having seen firsthand, as recently as last year, the impact of flooding in the region it is imperative that the levee system be maintained/expanded to provide protection to the people and assets located in the Parish. We are currently analyzing the magnitude of potential impacts of flooding to our plant, the surrounding community, and to our teammates that live in St. James Parish.As the process moves forward, we will be engaged with other business leaders, Parish officials, and the community to fully understand the plan and how we may be affected. We would ask that the USACE evaluate not only residential impact but overall economic impact that flooding would cause on businesses and the employment in the area.	Thank you for the comment.
PAR_8-26-2013_1_Cleve Hardman	I am in receipt of your draft environmental impact statement (EIS) for the West Shore-Lake Pontchartrain Hurricane and Storm Damage Risk Reduction. The Division of Outdoor Recreation administers the Land and Water Conservation Fund (LWCF) for Louisiana. Our staff has identified seven LWCF-assisted sites within the project study area, one in St. John the Baptist Parish, six in St. James Parish and none in St. Charles Parish. Those sites are identified in the enclosed document along with GPS coordinates of each site. Our review of the draft EIS indicates none of the existing LWCF-assisted sites within the project study area would be impacted by any of the alternative plans. Indeed these sites are currently at risk unless action is undertaken to address the risk of hurricane and storm damage in this region. We stand ready to assist in any means possible toward realization of these efforts.	USACE appreciates the review of this document.
PAR_8-8-2013_1_Jason P Amato	support of Alignment D hurricane protection levee that will protect St. James Parish from flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PAR_9-10-2013_1_Timothy P Roussel	The Study area seems to be based on political boundaries and not hydrologic boundaries. Why did the Corps not study the hydrologic basin and just a part of it based on political boundaries?	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. The study was not bound by political boundaries. In reviewing the existing storm surge damages reports and storm surge modeling data, the team determined that there are limited existing damages attributed to wind-generated and tide-generated waves and currents in the far western portion of the authorized study area. As shown in Figure 2-7 of the Main Report, the 100 year still water surge elevations for 2020-Intermediate conditions are less than 3 ft NAVD 88 outside of the political boundary of St. James Parish. Based on the surge modeling and post storm damage reports, the dominant causes of damages outside of St. James Parish are not from wind-generated and tide-generated waves and currents but rather from rainfall induced flooding. Addressing any damages in these areas would have to be addressed through additional congressional authorization or other existing study authorizations.
PAR_9-10-2013_1_Timothy P Roussel	Is the public going to be provided an opportunity to review the additional analysis will be undertaken during the feasibility level design and provided in the final report before it is submitted for processing?	The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
PAR_9-10-2013_1_Timothy P Roussel	The graphics should be larger so one can understand what they are supposed to portray.	Comment Noted. All Maps have been moved to a Map Annex and are larger

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PAR_9-10-2013_1_Timothy P Roussel	There is no mention in the infrastructure write-ups about the myriad of pipelines that traverse the study area.	The pipelines database was used on the formulation of plans. They were used as cost avoidance measure, and also included in the review of plans that met the objective of "reducing the risk of damage and loss of critical infrastructure". Impacts to pipelines were investigated in the study process but there was limited empirical data to show that there are storm damages to pipelines that are mostly buried. Impacts to pipeline facilities such as transfer stations that have if damageable assets, were included the NED benefits.
PAR_9-10-2013_1_Timothy P Roussel	The report needs to do a better job explaining why when any of the levees are built that you aren't making conditions upstream or in the neighboring parishes worse. In other words, explain where the water goes.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PAR_9-10-2013_1_Timothy P Roussel	The benefit analysis seems to focus primarily on structures that are flooded, yet in the report it alludes to a number of other benefits that do not appear to be captured in the Economic Analysis.	Additional detailed has been added to the economic appendix
PAR_9-10-2013_1_Timothy P Roussel	In the report write-up there is not one mention of Perique tobacco. Perique is a type oftobacco from Saint James Parish, Louisiana, known for its strong, powerful, and fruityaroma.	The inclusion Perique tobacco as a crop damaged by storm surge was investigated in the study process but there was limited empirical data to show that the crop is damaged by storm surges events. When factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited risk for damages to Perique tobacco from storm surges, due to the fact the crop is grown outside of the hurricane season.
PAR_9-10-2013_1_Timothy P Roussel	Has there been any thought given or analysis done for a scenario of protecting and preserving the wetlands on the interior of a leveed system and managing those wetlands which would also protect the 1-10 evacuation route and accomplish another study objective?	The team was unable to convince the resource agencies that any benefit would be attributable to preventing salt-water intrusion. Beyond that, the project cannot function outside of its future authorized purpose (to close during storm surge events). Any deviation from its authorized purpose would require additional authorization or an agreed modification to the operations plan for a multipurpose project, NED and NER. Alternative C is the recommended plan based on a NED analysis.
PAR_9-10-2013_1_Timothy P Roussel	Page 1-3, middle of the page -The write-up talks about the disrupted port logistics, blocked facility access and oil refineries being shut down. It also cites the spike in fuel prices and the agricultural losses due to storm surges. Where are the potential benefits for prevention of these with protection captured in the benefit analysis? If it is not captured and reflected in the economics, why was it not captured? Please explain.	Impacts to port logistics, blocked facility access and oil refineries being shut down were investigated in the study process but there was limited empirical data to show that these facilities have discernible impacts under the future without project (FWOP) conditions and the with-project (FWP) conditions, related to NED benefit losses. Impacts to these facilities were captured in the NED benefits if damageable assets (e.g. office buildings, warehouse, processing facilities) were impacted from storm surge. Shutdown losses related to high winds associated with tropical event are not captured in the NED benefits due to the fact that they would still occur without the recommended plan.
PAR_9-10-2013_1_Timothy P Roussel	Pages 2-2 and top of 2-3 - Does the sea level rise information used in the analysis reflect the latest information developed by NOAA and released in a report dated December 2012? Earlier this year there were articles in the newspapers indicating Louisiana's coast has some of the highest sea level rise in the world. How was this latest information factored into the development of the plan?	EC 1165-2-212 specifies equations to be used in computation of possible future sea level scenarios, based on an observed historical rate of sea level change. The equation used the most recent Intergovernmental Panel on Climate Change (IPCC) projections. http://corpsclimate.us/ccaceslcurves.cfm
PAR_9-10-2013_1_Timothy P Roussel	Page 2-4- There is no mention of General Andrew Jackson having dammed Bayou Manchac at the river in 1814, to prevent the British from gaining a backdoor entrance into New Orleans. Before being severed from the river, this distributary helped nourish the Manchac swamps sutTounding Lake Maurepas. That federal action (which was never authorized by Congress) has contributed to the eventual demise of many of the wetlands in the Maurepas basin. It was the source of fresh water from the Mississippi River that nourished those wetlands. Those wetlands helped dampen the impacts of storm surges over the years. The degrading over time mentioned at the top of page 1-4 is, to a large extent, due this federal action.	Commented noted

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PAR_9-10-2013_1_Timothy P Roussel	Page 2-9 Just before Table 2-5)- Field approximations sounds like somebody's guess and gives the impression there is a lot of room for error. Why were these not measured more precisely and surveyed? Bottom of page 9 -There are a lot of other industries and businesses in the study area, (such as the Nucor plant under construction, the Gramercy Aluminum plant [formerly Kaiser], the sugar mill, etc.), please explain why those cited were selected to be highlighted in the report and the others were not.	The term "Approximately" for both the # of structures and impacts were used due to the fact that there are always uncertainty in field collected data and modeling data. The structure inventory data was collected in 2011 and 2012. The final count may vary due to demolished structures or new construction which is why the term was used. For all residential and non-residential structures detailed was collected from field and GIS observations. Information included; Address, Photograph of structure, Type of structure (e.g., single-family), Type of foundation, Floor area, First floor adjustment (foundation height), Effective age, Quality of construction, Condition of structure, Style of structure (e.g., one-story), Type of exterior wall (e.g., siding), Type of roofing, Presence of garage, Presence of fireplaces (based on visible chimney). First floor elevations (FFEs) were estimated for each structure by adding the first floor adjustment collected in the field to the ground elevation of the structure. The first floor adjustment is the difference between the adjacent ground and the front door of the structure (typically, field teams use the number of steps to estimate this value). The ground elevation was obtained using a Light Detection and Ranging (LiDAR)-based Digital Elevation Model (DEM) for the northeast quadrant of the Convent quadrangle, from the Louisiana State University's LiDAR Atlas. Non-residential structures such as industrial facilities were included in the economic evaluation. The report only highlighted facilities that were at a high risk for damages (Risk = f [(Probability of Flooding) x (Consequences)]. Industrial facilities near the MS River levee that are above the 100yr floodplain do get damaged, but they occur at low probability events, 500 yr or greater.
PAR_9-10-2013_1_Timothy P Roussel	Page 2-11, top of page. - FIRMS are already being updated and insurance premiums are rising. Without levees and protection from storm surges, people will not be able to afford the flood insurance. The impacts cited are more direct than indirect if no action or the proposed action is taken.	Comment Noted.
PAR_9-10-2013_1_Timothy P Roussel	Page 2-12- Weren't portions of I-10 inundated during Hurricane Katrina? That should be addressed in this section since it impeded flood fighting, recovery and repopulation of the area. It also sounds like damages to transportation infrastructure would be a direct impact from no action. Wasn't one of the objectives of the study to reduce the risk of damage and loss of critical infrastructure, specifically the lmrricane evacuation routes? (See page 1-6)	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.
PAR_9-10-2013_1_Timothy P Roussel	Page 2-13 - The times cited in the table for potential transportation impacts are very optimistic. To those that actually experienced the problems with trying to go anywhere, it was much worse than you are indicating. Doubling those times would probably be more accurate. How was that incorporated into the economic analysis and benefits?	Comment noted. The times were based on just a change in distance traveled. Traffic would increase travel times. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to NED impact.
PAR_9-10-2013_1_Timothy P Roussel	Page 2-26, 1.4.7 para 3 - It is noted that Tezcuco Plantation is in Ascension Parish which is outside of the "authorized" study area.	Reference was removed
PAR_9-10-2013_1_Timothy P Roussel	Page 2-29- The potential impact on pipelines should be included in the analysis. In one plan alone (Plan D), there are some 70 pipelines, many of them in St. James Parish which will essentially be outside the protected area if the TSP remains as the recommended plan. By not protecting and allowing storm surges there will be more rapid deterioration of those pipelines.	Impacts to pipelines were investigated in the study process but there was limited empirical data to show that there are storm damages to pipelines that are mostly buried. Impacts to pipeline facilities such as transfer stations, that have if damageable assets, were included the NED benefits.
PAR_9-10-2013_1_Timothy P Roussel	Page 3-7 and 3-8 - It is noted that neither Plan a nor Plan C reduce risk to infrastructure in St. James Parish. Simply put, Plans that do not accomplish this are unacceptable to us.	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure in St. James Parish, compared the TSP

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PAR_9-10-2013_1_Timothy P Roussel	Page 3-9 -We note that only Plan D provides a level of risk reduction to a segment of l-10 in St. James Parish. Since this is one of the objectives of the study and the only plan that satisfies this objective, why does this not lend added weight to Plan D being the tentatively selected plan? Please explain.	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PAR_9-10-2013_1_Timothy P Roussel	Page 3-10 - Once again, it appears that your analysis is incomplete and you are providing costs based on various assumptions which could easily change when your analysis is complete. We request the opportunity to again review your results when you complete your WV A analysis.	Please see Chapter 3 which includes the WVA analysis was conducted using habitat measurements and planning and habitat team assumptions. The team used this information to to validate the assumptions used for the draft report.
PAR_9-10-2013_1_Timothy P Roussel	Page 4-2- Altemative C has the potential to increase stages to the areas exterior to the levee. This is a recognition of induced damages in St. James, Ascension, and Livingston parishes. Given that same logic, one can surmise that all ofthe altematives considered would do likewise. How is the Corps planning to mitigate those damages? The last statement of that paragraph seems to contradict what is being admitted earlier, but in a very non-definitive manner by saying it is not anticipated. It really sounds like you just aren't sure what will happen. We request that you provide a better explanation of your rationale.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PAR_9-10-2013_1_Timothy P Roussel	~ge 4-3 - You are saying here that there is no induced flooding based on your ADCIRC model. However, in other parts of the report you say there is induced flooding. Please explain and clarify.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

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PAR_9-10-2013_1_Timothy P Roussel	Page 4-3- Since the levee alignment extends outside of the authorized project area into Ascension Parish, if this alignment were recommended, would it be acceptable to tie into a non-Federal levee that probably is designed to different standards that the current Corps standards? Where would the Federal project end, since the levee continues beyond the authorized limits of the project? A good explanation and clarification of this is requested.	Yes, would it be acceptable to tie into a non-Federal levee, but additional modeling would have to be conducted on the tie in point. In the case of Alignment D any induced stages on the existing non-Federal levee could not change the fragility of the existing levee. Any impacts would have to be mitigated for and the cost would be borne by that project. In most cases this would mean additional cost will be added to a project with no additional benefits. The federal project would still end at the tie-in point, after mitigating for any impacts. Also detailed modeling would have to show that any failure of the non-federal levee system, not related to the tie in, would not have any impacts inside the federal levee system's risk reduction area. In the case of Alignment D, additional modeling would have had to have been conducted to determine if storm surge from a failure of the non-federal levee would have entered the area behind Alignment D and impact structures.
PAR_9-10-2013_1_Timothy P Roussel	Page 4-6 -The impact of raising or acquisition of structures, particularly business structures impact not only employment but also negatively impact the tax base of the parish. There should be a map in this document that either shows the specific structures identified or at least the area where these structures are located. You obviously already know this since you claim to have a 100 percent inventory of the structures on the east bank of the parish.	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
PAR_9-10-2013_1_Timothy P Roussel	Page 4 -7 -Section 4.2.4 Transportion It is noted that only Alternative D would fully meet the stated study objective of reducing the risk and loss of critical infrastructure, more specifically the hurricane evacuation routes that are critical for New Orleans and the surrounding area for evacuation and repopulation after a storm event. Alternatives A and C would not satisfactorily accomplish this. An impassible interstate/evacuation route could potentially also contribute to loss of life. It also directly impacts post storm response as well as repopulation of the area. There also does not seem to be any benefits captured in the analysis to reflect any of this.	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.
PAR_9-10-2013_1_Timothy P Roussel	Page 4 - 8 - online 4 "storm sure damage " should be "storm surge damage"	Change has been made
PAR_9-10-2013_1_Timothy P Roussel	Page 4 - 8 - Since this is a draft feasibility report, when are the feasibility level design efforts going to be accomplished? It would seem appropriate for that to have already be done as part of the feasibility report. Ifthis is going to be accomplished later, will the public be afforded an opportunity to comment and provide feedback? If not, please explain why not.	As part of the new SMART Planning process the USACE is releasing the report earlier in the process for the public to provide additional input into the USACE formulation process before moving forward on costly designs efforts.
PAR_9-10-2013_1_Timothy P Roussel	Page 4-13 - You state that the Floristic Quality Index being used throughout the world. Why then is it not acceptable to the Corps or is the WVA system of analysis so institutionally entrenched that it must also be done. This seems, on the surface, to be duplication of analytical efforts that the taxpayers are footing the bill for. Please explain what is actually required by your Corps' regulations and by law.	The Floristic Quality Index (Swink and Wilhelm, Plants of the Chicago Region, 1994) is a calculation that is made for individual long term monitoring sites that are part of the Coastwide Reference Monitoring System (CRMS) (http://www.lacoast.gov/crms2/Home.aspx). These numbers were then interpolated using best professional judgment to apply to a larger area. The Wetland Value Assessment (WVA) models are habitat based models not an individual species based model. The model looks at all the functions and value of the wetland. These models are pier reviewed and are certified to be used for USACE project in the Gulf region.
PAR_9-10-2013_1_Timothy P Roussel	Page 4-12 -It should be clarified that Blind River is a state-designated Wild and Scenic River since there is also a similar federal program	Addition has been made
PAR_9-10-2013_1_Timothy P Roussel	Page 4- 15 - Since you did not complete a WV A, what you are presenting in the report may or may not be on target. It appears that there was a lot of rationalization done to supplemental preconceived conclusions. Once again, we want to review your results after you have completed your WVA.	Please see Chapter 3 which includes the WVA analysis was conducted using habitat measurements and planning and habitat team assumptions. The team used this information to validate the assumptions used for the draft report.
PAR_9-10-2013_1_Timothy P Roussel	Page 5-1 -The 1571 structures including the 90 that would be bought out would have a significant disruptive impact on the communities in which these are located. More detail should be included in this draft plan and that should be publicly vetted. The Corps needs to be more sensitive to the people of the area and their communities.	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
PAR_9-10-2013_1_Timothy P Roussel	Page 5-2, top of page- Suggest revising the statement to read" the BCR is 1.63 to 1 with benefits of approximately $23 million."	Section has been revised in the final version

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PAR_9-10-2013_1_Timothy P Roussel	Page 5-2 The local folks have a right to know if their property is slated to be acquired or raised. It seems like right now, you can't tell them because you really don't know. Why are you delaying doing this as part of the feasibility level design and analysis? Isn't this supposed to be a feasibility study? Why don't you have answers? The public has a right to know and if you haven't gotten far enough yet, you are premature in releasing this draft report.	The localized storm surge risk reduction measures has been modified for the final report. There are now a limited number of raising of structures in the Parish. The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
PAR_9-10-2013_1_Timothy P Roussel	Page 5-3- There is a sentence that states "the non-structural component would be less effective because structures would have to be raised to a height that would increase their risk from wind damage during a storm." That is not an acceptable solution because you are doing nothing but trading off water damage for wind damage but not realistically reducing the risk of our residents. In addition you are forcing them to accept paying higher premiums for flood insurance that no one can afford. This is problematic and unacceptable.	The localized storm surge risk reduction measures has been modified for the final report. There are now a limited number of raising of structures in the Parish.
PAR_9-10-2013_1_Timothy P Roussel	Page 5-6, top of page - When will the public have the oppotiunity to review the mitigation plan that is not included in this draft report?	The Final Mitigation Plan is included in the Appendix A of the final report. The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
PAR_9-10-2013_1_Timothy P Roussel	Appendix B Engineering Page 15- There is a reference to EC1165-2-211 dated 2009 but the latest guidance seems to be dated 1 October 2011 on the Corps publications web site. That seems to be indicate that the analysis used outdated information.	Potential Sea Level conditions are represented in the modeling system is consistent with the current USACE guidance. The EC was incorrectly cited and has been updated with the correct citation, USACE EC 1165-2-212 (2011)
PAR_9-10-2013_1_Timothy P Roussel	Appendix E Economics Page 1-3 of the main report talks about disrupted port logistics, loss production of refineries, agricultural losses, etc. Where are these benefits captured in the economic analysis for the project?	Impacts to port logistics, blocked facility access and loss of production at refineries from being shut down were investigated in the study process but there was limited empirical data to show that these facilities have discernible impacts under the future without project (FWOP) conditions and the with-project (FWP) conditions, related to NED benefit losses. We requested available information at the public meetings, but none of the areas large facilities provided information. Impacts to these facilities were captured in the NED benefits if damageable assets (e.g. office buildings, warehouse, processing facilities) were impacted from storm surge. Shutdown losses related to high winds associated with tropical event are not captured in the NED benefits due to the fact that they would still occur without the recommended plan. Agricultural losses were investigated but potential acres impacted were only identified through inundation maps, and land use maps. Studies in the past have captured benefits associated with damages to crops, but due to the nature of the crop this benefit category was not calculated and included in the NED category. The study area's major crop is sugarcane. Currently there is no empirical data to show that there are historical large scale losses of sugarcane crops in the study area. Damages to crops have to be evaluated through probabilistic method. With-out empirical data, determining flood losses associated with sugarcane is a complex determination due to the fact that is flooded sugarcane is not always total loss from storm surge flooding. If it cannot be used for sugar production, it could still be cut and reused as “seedcane". Cut flooded stalks or stalk sections, called billets, can be planted, and the stalk buds germinate and grow to produce the next crop. The use of flooded billets can help to offset the loss of sugar production vs. the cost for planting the next crop.
PAR_9-10-2013_1_Timothy P Roussel	The Initial Array of Alternatives (Section 3.4 page 3-3) identifies I2 alternative plansfor structural measures. Only 2 of the 12 plans include structural alternatives for St.James Parish. These plans are further discussed in Appendix E- Plan Formulation ofthe report. All of these plans refer to "Linkages to Past WSLP efforts"; however,none are more recent than 2007 (which predates Hurricanes Gustav, Ike and Isaac).Why are there no additional alternatives included in the study that take intoaccount recent storm or flooding events?	The past efforts covered a wide range of alignments. The team combined similar alignments and also included alignments which would have provided risk reduction to some of the most recent storm events.

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PAR_9-10-2013_1_Timothy P Roussel	We request that the USFWS Alignments C-la and C-lb, or variations thereof, be added and fully vetted through this study process.	Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.
PAR_9-10-2013_1_Timothy P Roussel	How can the impacts and benefits of each Alignment be compared if the post development conditions are not modeled? Will building Alignment C have additional impact to St. James Parish? The study models only calculates storm surge with current conditions to set levee heights. Will flood elevations rise for St. James Parish if Alignment Cis constructed? We request pre and post development storm surge modeling be performed for all Study Alignments.	In general, the potential impacts to communities outside of the proposed levee alignment would be similar with and without Alignment C. Additional ADCIRC modeling will be performed during preconstruction engineering and design to determine whether or not there will be induced flooding and to precisely estimate its magnitude. At feasibility level of design, the model uncertainty and inclusion of localized storm surge risk reduction measures adequately address the limited potential for induced damages. See Chapter 3 in the final report for additional details. Alignment D is not in the recommended plan. It would be inappropriate to speculate about details of a scenario that is not recommended.
PAR_9-25-2013_1_Jody Chenier	Resolution requesting USACE reconsider alternative selection and choose Alt. D because D is about $10.2 m more, provides a continuous protection levee and protects all the parishes.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PAR_9-26-2013_3_Timothy P. Roussel	This letter is to officially inform the USACE that St. James Parish will be providing information that will change the Benefit to Cost ratio on Table 3-5. St. James Parish is collecting information from Parish industries to determine the economic impact to their facilities during and after a flooding event. These numbers and information will give the USACE a loss of production during the occurrence or aftermath of hurricanes or other surge events if St. James Parish is not included in proposed flood protection. Please be prepared to receive this information in the next few weeks to add to the continuing study of the tentative decision by the USACE. If you require any further explanation, please do not hesitate to contact us.	We requested available information at the public meeting, but none of the areas large facilities provided information. Impacts to these facilities were captured in the NED benefits if damageable assets (e.g. office buildings, warehouse, processing facilities) were impacted from storm surge. Shutdown losses related to high winds associated with tropical event are not captured in the NED benefits due to the fact that they would still occur without the recommended plan.
PAR_9-30-2013_1_Traci A Fletcher	I am writing to express my support of the Locally Preferred Alignment D alternative contained in the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study. I feel that this alignment would be in the best interest of all entities involved and would greatly support the livelihood of Ascension Parish, St. James Parish, St. John Parish, and St. Charles Parish. I appreciate the U.S. Army Corps of Engineers favorable consideration and support of Alignment D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_10-11-2013_1_Lynda Williams	After experiencing the very close call of flooding by Hurricane Isaac in 2012, we cannot be jeopardized in any way by alternative plans that could create an environment of additional harm. Any combination of storm water and wind from the east creates a major flood worry to the Gonzales area. We already contend with major drainage from the Baton Rouge area.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_10-1-2013_1_James and Rose Lucas	We are providing you with pictures of our homes because you lack data from St. James Parish, What kind of data do you need to change your minds? Longview Subdivision is where we live and the pictures were taken during Hurricane Isaac. We didn't file FEMA claims because there was no damage. We didn't file because we filled sand bags by the thousands and set up temporary pumps.	Thank you for your comment and photos
PC_10-14-2013_1_Patrick Nerney	I urge you to reconsider and choose Plan D which would provide protection to my home and workplace. After experiencing the very close call of flooding by Hurricane Isaac in 2012, we cannot be jeopardized in any way by alternative plans that could create an environment of additional harm. Any combination of storm water and wind from the east creates a major flood worry to the Gonzales area. We already contend with major drainage from the Baton Rouge area.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_10-17-2013_1_Ryan Donadieu	the Corps of Engineers tentative selection of Alternative C is a Band-Aid approach and will only delay the inevitable. Alignment D protects Interstate-10 which is a primary evacuation route for the state, vital economics for our country, St. James Parish, other areas of St. John the Baptist Parish and parts of Ascension Parish. The cost difference in construction is approximately $10 million by utilizing some of Alignment C to stretch across part of Alignment D instead of turning back towards the Mississippi River. If Alternative C is put in place and Alternative D must be constructed afterwards, the cost of Alternative D tying into Ascension and a constructed Alternative C would be a "start over" and the project would be over $800 million again. Our forefathers had the vision to see the importance of our Parishes to our nation and crawled through the mud to build a levee along the Mississippi River. We know there is a definite need for protection provided by Alternative D. Why put off until tomorrow what may be done correctly today for greater benefits?	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_10-18-2013_1_Cheryl and John Faucheux	Alternative D is the only sensible and feasible solution. Why does governments always do short sited projects. While $10M is a lot of money the difference between $881M and $891M is justified and so much less than elevating or buying (disrupting) properties. Water has to go somewhere. The force of surge in the lakes pushes water into rivers and over banks. If Alternative C is accepted water will just keep moving west and north and then we'll be back with another study and the price will be higher.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_10-19-2013_1_Carl Monica	In 1999 the Corps and EPA planned a diversion canal along a tract of land in Mt. AIry. Five Million dollars was spent on a study that championed the proposed development that would not only save the Maurepas Swamp, but also do several other important things, one being an improvement to Garyville and Mt. Airy's drainage. There are several ways to handle the levee in the Garyville area. A meeting of knowledgeable, un political people, in the Garyville/Mt. Airy area would certainly yield more credible ideas than has, so far, been demonstrated by the Corps.	Comment Acknowledged, thanks for your comment.
PC_10-3-2013_1_Robert P Ruiz Jr	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_10-5-2013_1_Jared Mabile	I think it would be more feasible to build a pumping station in the Bonne Carre spillway the canals are already there all the water from Lake Maurepas has to drain out of Manchac Pass . If you can lower the levels in both the Lakes and put it into the Miss River it will ease all Flooding from Ascension, Livingston ,St James and St John Parish. I work on the River and it's at a low stage during all these storms and to me it makes more since to put the water where it belongs .If you build a levee it's still just putting a wall up instead of moving the water to a drain that was natural. building a pump station in the Bonne Carre spillway to pump water out of the lakes and into the Miss River would do more help for all parishes that border the lakes. I think the Hope Canal project is great if it can pump both ways	Comment Acknowledged, thanks for your comment.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_10-6-2013_1_Ryan Donadieu	I am having a hard time understanding the reasons for choosing such a reckless alternative. With Alternative C at $880 million and Alternative D at $890 million and only a $10 million cost difference is very minor in regards to the entire project. I understand maintenance costs of $500 million is a concern, however this is over fifty years. The difference between Alternative C and D is only $10 million in construction cost due some of the length of Alternative C being moved to stretch across some of Alternative D reducing the amount of distance for Alternative D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_10-7-2013_1_Kristie Hutchinson	Alt. D is the only alternative that will provide protection to St. James Parish; important to select D as it protects people, properites and businesses.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_10-7-2013_1_Rhonda Lee	One of the components of the plan is to elevate and/or acquire 1400 residential and 90 non-residential structures (page 4-8) within Gramercy/Lutcher area. One can only assume that the Paulina/Grand Point area would also be included in these numbers. The report also states "implementation of the non-structural measure will be further developed and assessed during detailed feasibility-level design and provided in the final report. " I think that the details of elevation of homes and businesses need to be addressed now and not later.	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
PC_10-7-2013_2_Alan P Cancienne	I live on the Lake side of HWY 3125. After the storm passed I didn't have water problems till the day after. It started rising and looked like it would not stop. It crossed 3125 on the south side, it took almost a week to go down. I think if Alternative C is picked over D, than St. James will get a lot more water on both sides of 3125 and it will take a lot longer to go down. Please consider Alternative D and protect both parishes. St. James has plenty room for growth. If the correct option is not picked, I think property values will suffer.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_7-26-2013_1_Garland and Sharon Poche	we implore you to consider ALIGNMENT D when making decisions about flood protection for the river parishes. If a protection levee is built only as far as St. John Parish then the flood waters from Lake Pontchartrain have no place to go but to our parish. Please think about the rich farmlands and major industries as well as households that would be affected by your plans. We pray that God gives you the courage to make the decision that will protect all people of our area from the danger of flooding from a major hurricane.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_7-26-2013_2_Dana Boudreaux	help me fight for flood protection of the homes of my family and friends by supporting Alignment D of the flood protection propositions.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_7-26-2013_3_Jennifer Madere	writing to ask that you help me fight for flood protection of our parish by supporting Alignment D of the flood protection fight.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_7-26-2013_4_Carol Bourgeois	Urge you to protect the residents of the East Bank of the Mississippi River by selcting Alignment D of the West Shore Lake Ponchartrain Hurricane and storm Damage Risk Feasibility Study	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_7-27-2013_1_Gaynell and Harris Louque Jr	Please help us by choosing Alignment D to provide hurricane protection for ALL the River Parishes, including St. James Parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_7-29-2013_1_Bernie Robichaux	implement Alignment D in regards to flood protection for St. James Parish. This will provide the most protection for the citizens of our parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_7-29-2013_2_David Robichaux	implement Alignment D in regards to flood protection for St. James Parish. This will provide the most protection for the citizens of our parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_7-30-2013_1_Chad M. Weidert	I am in support of Alignment "D" of the West Shore Lake Pontchartrain (WSLP) Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) Study.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_8-10-2013_1_Jamie Hoormann	impress upon the U.S. Army Corps of Engineers to implement Alignment D in regards to flood protection for St. James Parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_8-12-2013_1_TK NAPA	Please go with alignment D .	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_8-14-2013_1_Dean Louque	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-14-2013_2_Hanson Hotard	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-14-2013_3_Joseph Bienvenu	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-14-2013_4_Cindy Martin	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-15-2013_1_Marc St Pierre	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-15-2013_2_Kenny Martin	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-15-2013_3_Courtney Hines	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-19-2013_1_Johnathan Copponex	Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-2-2013_1_Karen Dunn	Please support Option D in the proposed flood protection plans to protect St. James Parish residents.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_8-2-2013_2_Pastor Nolan W Albert	I am in favor of Alignment D for hurricane protection for St. James Parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_8-23-2013_1_Blake Luminais	The problem with the West Shore Lake Pontchartrain selection is that the water that is prevented from entering St John parish will enter the neighboring parish of St James, which will have no protection. St James' other neighbor, Ascension Parish, has high capacity pumps which will only add to the flooding of St James. .	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_8-24-2013_1_Dean Veron	Please consider Alternative D to provide flood protection to all of us who need it. It seems like the floods keep moving further to the west of New Orleans as the years go by since the levees were built/enhanced to protect the New Orleans area. If you choose Alternative C you are going to push the flood waters to St. James and Ascension maybe even to EBR parish. What gives you the right to protect St. John and St. Charles and not us? I PAY TAXES TOO!!! Spend the money and do it right the first time.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_8-24-2013_2_Michael Corona	Where will water go now? Will it go more North West towards French Settlement? Please responnd	The risk for induced flooded was much higher with Alignment D. As discussed in Chapter 3 of the Main Report and Planning Appendix; the team investigated the potential for induced flooding impacts associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_8-24-2013_3_Harrison Troxclair	I am a resident of Lutcher in St. James Parish, Louisiana. I disagree with the flood protection plan chosen by the corps of engineers (Alternative C) This may be the cheapest and best plan for St. John Parish but this will adversely affect St. James Parish should another storm similar to Isaac hits this area in the future. Storm waters that previously would spread out over a large area and not get very deep will be funneled into this parish and Ascension Parish. U.S. Highway 51 is one this area's major evacuation route but it is barely above sea level in this parish and has had water cover it in the past. Future water levels will be higher and possibly force closure of the escape route when needed most. There are industrial plants that possibly have dangerous materials stored at ground level that would be in danger of getting flooded and dispersed throughout this area,. Are the railroad beds elevated enough in St. James Parish to remain usable if the water level rises a foot higher than it did during Isaac? This proposed route of the flood protection system would only hurt this Parish and also Ascension Parish. "Protection" would not be the correct term to describe this projection for residents outside of St. John Parish. I urge whoever is in command of this project to reconsider the choice of Alternative C. I feel that this will be the death of the East bank of St. James Parish if this is the final route chosen Thanks for allowing the citizens affected the chance to comment.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_8-25-2013_1_Shawn Brignac	I was disappointed to learn that option D was not selected. I have been living in the Gramercy for 16 years now, and lived in St. John parish for 25 years before that. Last year's hurricane Isaac was not the worst conditions of rains and tidal surge I have seen since living here in Gramercy. In 1998 tropical storm Francis dumped 24 inches of rain on us and like after every storm the water came up for about three days after. A week later hurricane George hit as a category 4 storm and the water backed up on us for three more days after it had passed. Those two systems together did not backup half as much water on us like Isaac did. After Isaac past, we didn't have any water in the streets and in our homes like in LaPlace. The water came up for about a week after, because it had no where else to go. I am not an engineer so I can't tell you why it happen but I do know things are different since St. Charles parish has a levee. I would like to sell my house, but I have three other homes for sale just on my block that has been on the market for some time now. If we won't get a levee, I would like to be paid for my home.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-26-2013_1_Casey Laiche	I'm writing to express concern over the west shore hurricane protection levee. I have seen options A,B,and C which exclude St. James Parish. The people of St. James parish need to have Alignment D to protect ST.James parish on the east bank. For Hurricane Isaac we saw water like never before and the water rose up my drive way and up to my house, if any other alignment is chosen we will surely flood drastically. Personally I cannot believe you all are considering any of the other alignments because ascension parish has pumps and levees and if St. John were to get the levee, its obvious we will be sitting on our roof tops waiting to be rescued for the next storm. Thank you for you time.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-26-2013_1_Colin Babin	To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-26-2013_2_Denise Nosacka	I beg for your support in choosing Alignment D verses the current choice. It saddens me that you would not choose to do the job right one time. If we should have the misfortune of another storm such as Isaac, and we will in time given our location in hurricane season, the current choice will cause dramatically more flooding in our area. This is an area that has not had such issues in my lifetime until now. This solution will help St. John parish just as the levee that was built in New Orleans helped them. And the neighboring parish paid greatly for that. The same domino effect will continue if you proceed as planned. I will pray that this decision changes and allows protection for ALL!	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_8-27-2013_1_Kurt Falgoust	I urge you to help achieve approval for option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_8-27-2013_10_Melissa Brignac	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-27-2013_11_Christy Bourgeois	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_12_Toni Cambre	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_13_Aimee Brignac Daigle	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_14_Casey Laiche	Please Pick Alignment D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_8-27-2013_15_Peggy Vicknair	If a levee is built to protect St. John Parish residents only, the St. James Parish residents are not being protected. What will you do about us? We can't take water from St. John Parish and Ascension Parish without drowning.....	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_8-27-2013_16_Bridget Matherne	. It saddens me to know that the residents of St. James Parish are the only ones concerned about our small community. We have been forgotten by the Corps of Engineers and by our so called leaders. We are the only ones fighting for Alignment D. The only ones who wish to see our small community prosper and not suffer from future floods. I realize that this type of sentiment is not something that registers with the government. They speak in terms of money only. Well since the term community and family aren't enough to make a difference, let me throw out a few others things that may generate some consideration of the better option, Alignment D. Supplied Pictures of flooding, too.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_17_Joseph Berthelot Jr	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_8-27-2013_18_Walter Lambert Jr	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_19_Annette Poche	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_2_GARY J Martin Jr	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_8-27-2013_20_Alvin St Pierre Jr	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-27-2013_21_Terrie Hymel RN	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_22_Kirk Deroche	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_23_Melissa D. Becnel	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_24_Heidi Bourgeois	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-27-2013_25_Leroy St Pierre	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_26_JAMES LOUQUE	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_27_Karen K Scioneaux	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_28_Irene Melancon	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-27-2013_29_Edie Lambert	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surgerisk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_3_Connie Amedee	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_30_Mickey M. Bourgeois	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_31_Stacy Bourgeois	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_4_Janelle Schexnayder	no comment-blank email	No comment was provided

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PC_8-27-2013_5_Jed Bourgeois	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_6_Mason Bland	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_7_Kelly P Keller	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-27-2013_8_Doris Brignac	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_8-27-2013_9_Adrien and Andrea Delbasty	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-28-2013_1_Kent Rooney Hymel	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-28-2013_2_Garland and Sharon Poche	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localizedstorm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-28-2013_3_Mickey Vicki Lodrigues	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_8-28-2013_4_Donna Waguespack	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-28-2013_5_Larry Babin	As residents of St .James Parish and victims of the flooding caused by Hurricane Isaac, it is critical that you choose Alignment D. This is the only plan that will prevent our homes from being flooded again. We have been residents of Admiral's Landing in Paulina for over 34 years; our home is located adjacent to Hwy 3125. Flooding due to Hurricane Isaac caused us to be out of our home for over a week thus causing damage and repairs to become more extensive. Our family enjoys both our dwelling and neighborhood and have invested a lot of hard work, time and money over the years into making it our home. We urge you to choose Alignment D for our community to prevent the floodwaters from causing the devastation of Hurricane Isaac. Alignment D is the plan that will protect all parishes that were involve in Hurricane Isaac's flooding, PLEASE do not omit St. James' residents from your Hurricane Protection Plan.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_8-30-2013__Malbrough Wilson Jr	Seeing St Charles Parish having a levee protection system, and using pumps and now St John Parish getting ready to have a levee protection system and are using pumps and having Ascension Parish using 4-6 large pumps which virtually stop the water flow at Diversion Canal and Blind River. I have aerial pictures showing the line drawn in the water at this section in heaving rain times, where the dirty, sandy water from the Diversion literally cuts off the black water from Blind River. Even more proof is you can literally watch the levels in New River through Ascension Parish drop while the water levels in St. James slowly rise!! This is fact and I challenge you do perform your "study" on this. I have driven to Ascension to witness this, I have monitored the levels at Hwy 61 and Blind River. We do not need a levee miles away from our residents. We need a levee nearer the population so that we don't have to stop water in the swamps. The Plan "C" that is proposed to St John, if we tap into this plan and run north of Hwy 61 to Gramercy, then follow the East Bank Drainage Canal from Gramercy to Convent on the south side of the canal. This would give protection to all homes on the east bank of St. James Parish. Of course flow systems and or pumping systems would need to be evaluated in areas. Systems similar to what St, John Parish has done at Reserve Canal with a weir and pump systems. Bottom line is St James Parish needs assistance as other parishes, allowing surrounding parishes to develop flood protection plans and St, James Parish sits at a stand still, we "will" flood again, and again until you guys, the government give the needed assistance.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. The final plan has been modified to include localized storm surge risk reduction measures near the developed areas discussed in your comment.
PC_8-5-2013_1_Alvin Guidry and Ada Guidry	respectfully request you do the job you were elected to do and approve "Alignment D" to protect the entire East Bank of St James Parish from flood waters. Please help save our Parish and approve "Alignment D".	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-10-2013_1_Roland and Kenisha Anderson Jr	Please secure everyone with Option D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_10_Clyde Dooley	Has the Bonnie Carrie Spillway been considered as an option to handle the surge from the Lakes? The Spillway levees may need to be raised to contain the increased head elevation	Under storm events both the MS River Level and Lake levels rise. In most cased storm surge would not be able to be directed in to the river due to the elevated river levels.
PC_9-10-2013_11_Marcelle W Nelson	Study finishes in 2014 What next? How long before approved? How long after approved do you start building? We need to know how long before we get protection. Six month out of the year we have worry.	The final feasibility study report and NEPA document, and the proposed Report of the Chief of Engineers, have currently been released for State and Agency review, as required by the Flood Control Act of 1944 as amended (33 U.S.C. 701-1). After the final review period is over and once the Chief of Engineers signs the report signifying approval of the project recommendation, the report is forwarded to the chairpersons of the Senate Committee on Environment and Public Works, and the House of Representatives Committee on Transportation and Infrastructure. The project recommendation is still subject to project authorization, funding, and regulatory approval before construction can begin. The Corp will continue to keep the public informed of actions through notices in local newspapers, on the Corps website, and on social media sites. In addition interested parties can be added to a mailing list and receive notices on anything the Corps does in a parish.
PC_9-10-2013_12_Frank Fagut	Alignment D only/ Protect the wetlands from Salt water Intruision/ Protect I-10/ Protect the people of St. James and Ascension/ It cost less than 1 POTUS vacation and would cover the maintenace for 50 year.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-10-2013_13_Diane Smith	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_16_Stuart G Schultz MD	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-10-2013_17_Donna Maurin	Alt D seems to be the best choice in my opinion	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_18_Lowell Roussel	Requests impact studies on Diversion Canal and Sorrento Pumps	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
PC_9-10-2013_19_Willie Vicknair	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_2_Kerry D Melancon	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_20_Don and Irene Melancon	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_21_Terry Brignac	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-10-2013_22_Lawrence Michel	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_23_David Michel	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_24_Jeannine Z Chauvin	I AM ALL FOR PROJECT D. It just make more sense that one would spend a little extra now. So we will all be safe from flood water. We work hard for our homes and a little protection could save all of us. Project D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-10-2013_25_Ray E Hall	I am tired of watch the gov. water money. I am 68 years old and have paid taxes for many years. Alt. C only protects a few families compared to AlT D. To do Alt C and still have to do Alg. D is stupid. I hope you have more sense than that. If done right you dont have to raise houses in protected areas, and the wetlands can be saved. A fifth grader would pick Alignment D. Are you Smarter than a fifth grader?	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

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PC_9-10-2013_26_Andrea Vitrano	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_27_Michael B Guidry	Construct ring levees arounf high lands in both Parishes	The localized storm surge risk reduction measures has been modified for the final report. There are now a limited number of raising of structures in the Parish.
PC_9-10-2013_28_Henry T Graham Jr	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_28_Kim Minvielle	NA	No comment was provided
PC_9-10-2013_29_Stephen Myers	If the PLD will implement Alt. D, why does the Corps not work with them to coordinate plans? Short-term thinking on implementing Alt. C. Overall implementation on levee system over years appears to look at immediate political and small budgets rather than larger region impacts.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_3_Michael Lowry	Elect Alignment D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_30_Mildred A Blalock	Choose Alt. D. Alignment C is a short-term fix for only a few. Do the project right from the beginning, spend taxpaers' money wisely.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-10-2013_31_Gail Roussel	New Orleans to St. John Parish and Baton Rouge to Ascension Parish are protected. That leaves St. James unprotected. Government does not care about St. James-we need protection too	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-10-2013_32_Sherryl Myers	Please implement Alt. D. I have lived in Ascension Parish 62 years, I saw higher water levels after the last hurrican that I have ever seen in my area. I attribute this to backup water caused by building levees around New Orleans higher.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_33_Armand D Zucconi	I live in the Eden Isles subdivision in East St. Tammany Parish, and I am writing this to ask the Crop to consider building a levee and lock system that would help all of the Lake Pontchartrain Basin. The levee and locks would help St. John the Baptist, St. James, unincorporated sections of Orleans, and unincorporated section of St. Tammany Parishes.	Comment Acknowledged, thanks for your comment.
PC_9-10-2013_34_Ricky Roussel	Alignment D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_4_Derald Bourgeois	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_5_Frank Vitrano	Alt.D. is the only solution	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-10-2013_6_Michael Weber	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_7_Mary Roussel	Requests protection in St. James Parish	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-10-2013_8_Bennie Cashio	Could you send out hard copies to everyone in the Parish. Not all people have a computer.	Copies of both the draft report and final report are available at local libraries
PC_9-10-2013_9_Rusty Montz	If it is only 10 million more for Alt. D stop sending money to other countries and help the US citizen's first.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-10-2013_Andrea Delbasty_Shelley Donadieu	if I'm reading this Corps of Engineer report correctly, the whole purpose of the Hurricane & Storm Damage Risk Reduction study is to reduce the damages to the studied area. It's stated that the marshes(swampland) which protect the areas are reducing over the years turning marsh into open water which reduces our protection from storm surge. The cost difference between Plan C (which they chose & gives St. James NO Protection) & Plan D which INCLUDES St. James is $10 million. A lot if you just look at cost but what about protecting all the residents! Also mentions that with rising sea levels predicted over 50 years a storm event in year 2020 would affect 219 structures expected to increase to 1571. So if you are talking about reducing damages, look at that? Imagine the loss for those families! I would think that Plan C would cause even more flooding for St. James with all the water diversion. Plan D they state that the Corps is concerned about boxing in such large areas of wetlands. What about protecting our agriculture, cohesion of our community & businesses here? We have a lot of refineries here, that if were lost, would devastate not only our area but other parts of the country. Want to think about the cost of fuel then? Port of South Louisiana in the 9th largest in the world & runs from Baton Rouge to New Orleans! Why protect only part of it and not the whole?	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-11-2013_1_Scott Eustis	Concerned over coastal swamp impounding and how is Ascension parish's decision to do things the old, bad way impacting St James and what is the Parish plan to stop their flooding of St James	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
PC_9-11-2013_10_Chassity McCormack	blank email	No comment was provided

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PC_9-11-2013_11_Scott Louque	I currently live across the street from the Paulina Fire Dept. and last year in the weeks following Hurricane Issac, I saw this community come together like I have never seen before. For weeks crowds gathered at this fire station and I'm sure at other sandbag locations to fill sandbags and transport them to their houses. The kind of effort I saw those days after Issac made me realize just how special this place and this community is. There is no telling how many houses were saved because of that effort. I hope I never have to see this community come together and put forth that kind of effort ever again. However, if you chose Alignment C, I'm afraid I will and the outcome may not be so positive next time. For this reason, I hope you consider Alignment D to help protect this community and keep our homes safe from flooding. No community should have to come together like that and fill sandbags.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-11-2013_2_John Troxler	Please reconsider and support ALIGNMENT D, if ya'll look at all the concerns presented at meeting, I feel that D will be the best solution.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-11-2013_3_Andrea Delbasty	ALTERNATIVE D is the only option; your data you provided for your decision making is incompete.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-11-2013_4_Megan Oubre	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-11-2013_5_Harrison Troxclair	I attended the meeting in Lutcher last night and was prepared to make some comments to support option D but other speakers expressed concern on the same items, namely, flooding of US highway 61, flooding of La 641 which would deny motorists access to Interstate 10. There is also the possibility that flood waters could impact railway traffic. One thing that was not discussed was the location of St. James Parish Hospital. It is located in Lutcher and the Corps has stated that some homes would be elevated if option C is chosen. If it is anticipated that flood waters could reach a depth deep enough to require elevating homes in Lutcher, then the hospital would also be in danger of flooding. Even if the Hospital itself is not flooded, the roads leading to the Hospital would probably be impassable to vehicles should another storm similar to Isaac pass through this area with option C in place.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-11-2013_6_Randy Noel	I strongly support alignment D to protect St James as well as St John the Baptist Parish. It is only 10 million dollars more, much less than raising homes under the non-structural approach in C. I am a contractor and know the cost to raise a home in St James, which does not use pilings and has support footings in their slabs incapable of spanning point loads required to raise the homes. This cost could easily top $120,000 per home and at 200 homes and businesses would cost $14,000,000 more than alignment D. In the interest of the nation's taxpayers and for future protection of River Parish citizens Alignment D makes much more sense. Also alignment D crosses fewer pipelines further lowering costs. Interstate 10 is a major evacuation route and all efforts to protect it should be exercised.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-11-2013_7_Troy Louque Jr	We built our house 6 years ago and built it to a height that at the time was considered above flood stage. My family dating back at least to my great grand parents have lived in this area for over 100 years and no one had ever seen water like we had with Hurricane Issac which was only a minor hurricane. Many people (including myself) believe that it is due to the flood walls that were built along the coast to protect Plaquemines, St Bernard, & New Orleans. This wall is forcing more water into Lakes Ponchartrain, Maurepas, & then into the swamps around Blind River. I know that our community came together and helped each other fill and place sandbags around each others homes for 3 days and nights. We even had some local guys with dump trucks and backhoes dumping sand on high ground and then carrying the bags through the 18" of water to the homes that were in need. If it were not for this, there would have been many more home in St James Parish that would have taken on water. I believe that if the Corps of Engineers goes ahead with the planned alignment "C", it will only increase the chances of flooding in St James Parish and will increase the water levels. The reason I chose to build my house and stay in St James Parish is because I felt that it was about as close to the coast that I could get without really having to worry about flooding, and now it seems that it will be inevitable unless alignment "D" is chosen. I understand that alignment "C" makes more sense to the Corps when it comes to the cost to benefit ratio. However, it does not make sense to flood out a small community unnecessarily. I have heard that it will cost up to 500 million extra dollars over 50 years to build the "D" alignment instead of "C". In the long run, this is not a lot of money when you look at the big picture especially when you consider the billions and billions of dollars that are just given to foreign countries as "aid". The community of St James Parish, LA (Paulina especially) is full of hard working Americans that have worked their entire lives for what they have. Maybe someone could check the taxpayer to citizen ratio of our community(just to see how many of us are hardworking, tax paying American citizens that are not looking for government handouts, just the help that we deserve) as compared to the other communities that already have their flood control structures in place. The United States of America should find a way to help out its own people when they are in need. Please support "Alignment "D" and everyone on the east banks of the river parishes along with the agriculture, highways, & industries will be protected now and into the future.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-11-2013_8_Nolan Albert	I support Alignment D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-11-2013_9_Dana Brady	I am asking for your consideration to help PROTECT my parish that I love so much and I want to know that we have your support of Alignment D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-12-2013_1_Paul Bair	Please see 24 comments under ID CD-9-18-2013_Vitter	Please see 24responces under ID CD-9-18-2013_Vitter
PC_9-12-2013_2_Matt Milazzo	My family and I are in support of Alignment D, this picture is of our home after hurricane Issac. In my 41 years of being a resident of St James parish I have never seen this much water in our area.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-12-2013_3_AJ Hymel	we need Alignment D to prevent St. James Parish from flooding. Ascension Parish is pumping water into the Diversion Canal which is causing Blind River to stay high in the Gramercy Area. When Isidore hit last year Blind River flooded over Hwy 61 in Gramercy making it not passable. Also, the Entergy Power Station across Hwy 61 from Noranda Aluminum in Gramercy had to be sand bagged due to the high water in that area. We had to wait an extra day for electricity because of the power station having to be sand bagged. If Alignment D is not implemented St. James Parish will be flooded like St. John Parish. Alignment D is the only option that will provide hurricane levee protection to St. James Parish citizens	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-12-2013_4_Barry Weber	Building a levee in St. John Parish and not protecting St. James Parish will put water in St. James Parish where water never has been and flood people who should never flood. With the pumps in Ascension Parish to our west and a levee in St. John Parish to our east the water will be funneled into St. James Parish and settle at elevations it should never reach. . If Alignment C is chosen the next flood will be catastrophic in St. James Parish. The decision then will be to extend the levee from St. John Parish into St. James Parish which will cost a lot more down the road. Why be reactive and put people and industry in termoil when we can be proactive and save people, property and the local economy. We have 2 major oil refineries with 15 miles of each other, one being MOTIVA on the north side of ST. James Parish and Marathon in St. John Parish. A hurricane will cause these refineries to shutdown. Getting started back up will be a priority not only for our local area but for our nation and national security. We have a large portion of our population who work at these facilities. These plants will be depending on all of their employees to be able to respond as soon as possible to repair any damage and bring these refineries back on line. If these employees are fighting to protect their homes from flooding, and caring for their families they won't be able to work at their jobs. The flooding will also affect travel, I-10 in St. James Parish will be under water and not be passable, also US 61. Both of these highways were under water in the aftermath of Hurricane Issac. Not protecting St. James Parish with Alignment D will put more water on these highways and keep them impassable for a longer period of time, keeping people from getting to their jobs and slowing down the recovery process. These refineries also depend on our highways for support businesses to provide what these refineries need from the outside to start up and run. I worked at MOTIVA and am now retired. After Hurricane Katrina we repaired our damage and was ready to start up and run after 2 weeks, but a major concern of ours was getting support businesses who supply us with things like acid, catalyst which we need to run to be able to get it to us. We assisted our suppliers anyway we could so we would be able to get back on line. Remember, staying with Alignment C, you will be causing people to flood who under todays circumstances would never see water. You will be creating a much larger problem than we have now.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-12-2013_5_Paul Leblanc	ALIMENT D IS THE ONLY LOGICAL WAY TO DO IT. IF YOU WERE LIVING IN ANY OF THE PLACES THAT THE LEVEES WERE GOING TO BE BUILT YOU WOULD WANT YOUR HOME AND LAND TO BE PROTECTED	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-13-2013_1_Blane Deroche	I hope you will reconsider the draft proposal and choose Alignment D to provide full protection to St. John, St. James and Ascension parishes.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-13-2013_2_Siggy Martin	After hurricane Karina, there were obvious reason to build protection for a city that "submerged" after the storm … there were numerous projects in New Orleans and nearby areas … there were things done in Jefferson, and in St. Charles parish a levee was built from Kenner to the east levee of the Bonnet Carré spillway. I think that hurricane Isaac was the first "test" of those improvements. I'm not an engineer, nor did I do a study to evaluate what happened, but what did happen is that we had water in St. James Parish (and St. John parish) where we NEVER had water ANY time for ANY storm, no matter the strength or speed of movement! Hurricane Isaac was a very small hurricane (bottom of scale of a category 1), and although it did move slowly, that was NOT the reason we got all this water. Obviously, it was because the water couldn't go where it did before … it was "funneled" to St. John and St. James parishes, both of which are relatively low elevation areas. It's not rocket science. Again, I understand cost, and I realize there are not "as many" people here as in St. John parish …. But guess what … we are all "people" …. We are as deserving protection as much as St. John Parish, or the city of New Orleans, for that matter. And purposely knowing that you would be flooding a lot more of us to save St. John parish and "purposely" excluding St. James parish .	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-13-2013_3_Pam Brignac	I am begging you to please consider alignment D for levee protection.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-13-2013_4_Sandra Barbier	I had some house flooding in Hurricane Isaac. It was the first time I ever experienced house flooding and it was especially frightening when I didn't know how high the water would get. Neighbors who lived here longer than I say this is the first time my area (Riverlands Subdivision) has flooded. I am undecided whether levee protection north of the community is necessary, but I am certain the restoration of wetlands along the shores of Lakes Pontchartrain and Maurepas is. Those wetlands are essential to protecting communities such as Laplace, as essential as any levee. I am sure you also know the benefits of wetlands in lessening storm surge and weakening winds. Even if levees are built, it is imperative that the wetlands be restored. Experience has cruelly shown that levees cannot be relied upon for total protection: levees can fail. Besides failure, which can result in catastrophic losses, levees are: costly to build and maintain; they require the addition of drainage stations, which St. John until now has had the luxury of not needing, and which are also costly to build and maintain, can fail and require building safe houses for crews if they are to man the stations at the most critical times. Levees lower residents' guard against protecting themselves from storms, inducing them to stay when they should evacuate and greatly raising the potential loss of life. Levees that enclose undeveloped land, especially wetlands, as the Corps' favored alignment in St. John does, encourage even more construction in vulnerable areas, putting more people and property at risk. Levees that destroy wetlands or make wetlands feasible for development are also contrary to the entire idea of protecting and restoring wetlands. As such, they are a misuse of public funds. I favor the alignment which stays closest to already developed areas of Laplace. I also support the idea of ring levees, which provide protection with fewer of the negative effects of a levee. Such a plan provides protection and does not put more people at risk. In my opinion, those who favor other plans are more interested in the expansion of land development, including development into wetlands, than they are in protecting residents. An alignment that encloses undeveloped land, especially wetlands, may appear more cost-effective now, but in the future will only raise the costs of protection, increase the number of people at risk and greatly increase the dollar value of storm damage.	The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment.
PC_9-13-2013_5_Joseph Berthelot Jr	ALTERNATIVE "D" IS THE ONLY LOGICAL PLAN TO CHOOSE. After hurricane Katrina devastated New Orleans levees, the Corps of Engineers came to St. James Parish for the materials (dirt) to rebuild the levees. St. james Parish has the dirt the Corps needed. This dirt has the correct amount of clay needed to build levees. A huge dirt pit was created in Grand Point and this materials was shipped to New Orleans for their levees. This should be considered as plus for saving our parish. The transportation cost would be much lower as the distance is much less to transport it. Also it would be immoral to take this dirt and build the levees in St. John Parish and leave St. James Parish without levees.	Cost for borrow were developed based an normal haul distance. For the purpose of the feasibility study all borrow was assumed to come from the Bonnet Carrie Spillway and from the excavation of a drainage and environmental control canal. While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-14-2013_1_Anita Michel	If only St. John Parish is protected it will destroy St. James Parish. This is a chance to help all the river parishes, lets not make into a flood war. I spent the last hurricane sandbagging for 4 nights & it was terrible. Please be responsible & do the right thing.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-15-2013_1_GARY J Martin Jr	I would like for the corps to consider alignment D. Durning hurricane Isasic we were at the grand point fire department for three days filling sandbags for people. We unloaded 21 twenty yard trucks of sand and filled approximately 150,000 sand bags for residents who needed them. We had roughly 100 people every day and night filling sand bags. People came out with trucks and trailers willing to deliver sand bags to whoever needed them. I don't understand how the federal government can say that St.James parish did not meet the necessary qualifications for federal aid because they go off of insurance claims to make that determination. How can someone sit back and watch their neighbors homes flood just so we can meet some kind of quota to get federal aid. The Paulina Grandpoint Belmont volunteer fire department is a decontamination site for Waterford 3 for emergency personnel and the fire department has to be up and running in order for Waterford 3 to start up after hurricanes. If alignment C is used and the Grandpoint fire department floods then Waterford 3 will not be able to start up which will put a huge set back in restoring electricity to the people and industries in south Louisiana.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-16-2013_1_Karen Dunn	If Alignment D isn't put into action for St. James Parish, Alignment C has non structural provisions, but they are not immediate and span over multiple years, even decades. The flooding could and/or will be induced and would occur at a much faster pace. This puts lives in danger and subjects us to repeated losses. A life is irreplaceable, end of story. Have your calculations factored in and included multiple claims for our area? Senator Vitter put a percentage of those additional miles of levee costing a mere 7% budget increase over Alignment C. The Levee Board is onboard in support of Alignment D....If federal, state and local governing agencies support Alignment D, I don't understand your hesitation to provide us the protection we seek to preserve lives and to continue our way of life with peace of mind. You have the power in your hands to do the right thing by St. James Parish, I beg of you to make Alignment D your choice.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-17-2013_1_Tina and Sean Ory	I am writing in regards to the building of levees to protect St. John Parish from future flooding. My husband Sean Ory and I have two homes here in LaPlace. Our families have lived here for over 40 years. We are asking for levee protection in the event of flooding. We along with our extended family have so many homes here that need protection. We were lucky that only 2 of the homes in our family were flooded during Hurricane Isaac including the one we lived in on Rienzi Drive. We were smart enough to purchase flood insurance after Hurricane Katrina even though we don't live in a flood zone. We are praying that the levees get built and built in a timely manner. We cannot afford to pay higher flood insurance. Our homeowner's insurance is high enough along with the large house notes. Since we have 2 homes to pay for and worry about we are even more concerned for our family and our property. We would also like to express that we feel that the levees should extend to protect St. James Parish as the flood water that we will be blocking will go to them. We feel it is only fair and not that more expensive to include their protection.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-17-2013_2_Andrea and Adrien Delbasty	Support Alternative D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-17-2013_3_Sheffard DeRoche Jr	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used bythe U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance topromote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment Dis the only option that will provide leveehurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during theevent of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join towork towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration ofthis very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-17-2013_5_Myra	I am in support of Alignment D. There were areas of St. James Parish that have never flooded in the 54 years I have lived here, until last hurricane season.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-17-2013_6_Jackie Siears	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-17-2013_7_Becky Price	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-17-2013_8_Adrien and Andrea Delbasty	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-17-2013_8_Adrien and Andrea Delbasty	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

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PC_9-18-2013_1_Deidra A Taylor	I am a lifelong resident of St. James Parish, and I strongly urge you to implement Alignment D which includes storm surge protection to St. James Parish. To me, it does not make any sense to build a levee for flood protection that would help some parishes and where that levee stops, it would drastically and negatively affect the very next parish. In other words, what would be avoided in St. Charles and St. John Parishes would devastate St. James Parish. Just recently, during Hurricane Isaac, St. James Parish experienced flooding in some areas. We, the residents of St. James Parish, certainly do not want to experience the nightmare that occurred in St. John Parish during Hurricane Isaac.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-18-2013_1_Elaine L St Pierre	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-18-2013_2_Aubrey St Pierre	Supports Alternative D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-18-2013_2_Casey Laiche	I am writing to ask to overturn alignment C and to go with alignment D which will protect everyone from lake surge and flood waters. I live in Lutcher LA and for hurricane Isaac we had water like never before, If you all decide to stay with we alignment C we WILL FLOOD. Please reconsider we all deserve alignment D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-18-2013_3_Natalie Robottom	I am a lifelong resident of St. James Parish, and I strongly urge you to implement Alignment D which includes storm surge protection to St. James Parish. To me, it does not make any sense to build a levee for flood protection that would help some parishes and where that levee stops, it would drastically and negatively affect the very next parish. In other words, what would be avoided in St. Charles and St. John Parishes would devastate St. James Parish. Just recently, during Hurricane Isaac, St. James Parish experienced flooding in some areas. We, the residents of St. James Parish, certainly do not want to experience the nightmare that occurred in St. John Parish during Hurricane Isaac.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-18-2013_4_Kenneth Ragas	As levees are built to protect additional areas from storm surge produced by hurricanes and tropical storms the surge is diverted to the next area of lease resistance. Storm surge will always build in the Breton Sound area due to the counter clockwise mechanics of tropical storms in southeast Louisiana. Eventually the Mississippi River will be the path of least resistance which will cause surge to travel upriver and top the river levees in the New Orleans area and upriver. Hurricane Katrina caused the Carrollton Street river gauge to rise to 15'. The NOLA levees are about 17'? The only way to reduce storm surge formed in Breton Sound is to direct it through large spillways across the Mississippi River Delta. The surge produced by hurricane Isaac flooded Braithwaite, Laplace and the north shore. This was partly due to the levee/wall construction after Katrina in St. Bernard and New Orleans.	Comment Acknowledged, thanks for your comment.
PC_9-19-2013_1_Bonnie L Poche	I am requesting that the US Corps of Engineers re-evaluate its tentative decisionof Alignment C and promote the only Alignment (ALIGNMENT D) that will alsoprovide hurricane levee protection to the residents, industries and highways of St.James Parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-23-2013_1_Kurt Roussel	As Chief of the Paulina Grand Point Belmont Volunteer Fire Department we are the emergency worker decontamination for Waterford 3 located on the westbank of St. Charles Parish. Our station on La 642 was close to flooding during Hurricane Issac. Our station is a designated location and has to be up and running in order for the Nuclear Plant to be restarted per emergency plans. When Hurricanes hit our area we have to be running. When Issac hit I was in constant communication with Entergy Command in Jackson Mississippi as to when we would be available (Dry and Power) to start operations. In the event we are flooded the plant could not get up and running supplying over 10% power to the grid for restoring services. I hope this is taken into consideration in support of alignment D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

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PC_9-23-2013_2_Richard St Pierre	1) Has the flood model used by the Corps been updated to simulate what happened during Hurricane Isaac? An unvalidated model cannot answer the following questions: 2) Unless this has been done, how can we have any confidence in its predictions? 3) How will the required height for the new levees be determined? 4) Even if residents choose to elevate their homes, how high will be high enough? 5) Elevated homes may sound good to the Corps, but consider the following: a) If one stays home, how can one get out if the streets are flooded for days? b) If one chooses to leave, how long will it be before they can get back home with flooded streets? c) In cases of emergencies, how does one get medical help if all streets are flooded? 6) What does St. James Parish Hospital do to protect itself from flooding? I doubt it can be elevated. 7) How are I-10 and Highway 61 kept open for emergency evacuations?	(1,2, &3)The model has been validated through multiple reviews and the model uses multiple hypothetical storms, based on different past and future storm parameters. Over 300 different are run to develop the stage frequencies. These storms are based on a common technical framework for all Federal Agencies involved in assessing hurricane-related threats to coastal communities. Risk analysis and associated uncertainties are based on storm frequencies and not on a particular storm (e.g. Betsy, Katrina, Rita, Isaac). Designs are based on the risk analysis, stage frequencies, and Hurricane and Storm Damage Risk Reduction System Design Guidelines (HSDRRS). See http://www2.mvn.usace.army.mil/ENG/PageA.asp. (4)The final localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish, but residents can always on their own choose to elevate their homes to further reduce their risk from damages in the future. The level elevation required to remove a structures from high frequency damages (100 yr and below) will vary based the location of a structure in the study area and also will vary on when the evaluation is conducted (e.g. 2020 vs 2070). Please see the 2020 and 2070 inundation maps presented in the final engineering appendix for a graphical representation of this effect. 5) a., b. & c.)When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should." 6) The final localized storm surge risk reduction measures has been modified for the final report. There is now a limited number of raising of structures in the Parish. The St. James Parish Hospital would be included in the localized storm surge risk reduction system where Hwy 3125 will be used as localized storm surge risk reduction feature. 7) Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Conflicts between flooded roadways and evacuation plans should not occur. Flooded roadways can impact egress back into developed areas, but these impact will be limited to a few hours or days. The portion of I-10 that flooded during hurricane Isaac will be addressed by the recommended plan. Only a portion of the Hwy 61 flooded for Isaac.
PC_9-23-2014_3_Richard St Pierre	Electrical Substations 1) Are plans being made to protect the substations that feed power to the residents in St. James Parish?	The modified localized storm surge risk reduction measures will address some the infrastructure impacts from storm events. The placement of flapgates along the highway will provide protection for facilities located between it and the Mississippi River levee.

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PC_9-23-2015_4_Richard St Pierre	Economic LossesHave the following been included in your estimates?1) Cost of a refinery shutdown on gasoline prices (contact the American Petroleum Institute for help on this one). Motiva in Convent can also provide assistance.2) Cost of chemical plant shutdowns in St. James Parish.3) Impact on sugar prices if sugar crops in St. James Parish are ruined due to flooding.4) Lost wages for employees who cannot go to work due to flooding (and lost tax revenue to the government; employees and businesses)5} Elevated homes will still lose their landscaping if plants/shrubs remain under water for days. Floating debris (e.g., mulch) will plug drainage systems extending the flood period and causing the local governments to spend money to clean them out.	The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place.It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property.The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place.The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered.The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place.It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property.The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place.The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered.The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place.It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property.The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place.The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered.
PC_9-25-2013_1_Jordan Baily	I live in Paulina, LA. We flooded bad during Isaac. If we are not protected by levees our town will be gone forever. I am willing to do anything it takes to save our community. Please take this into consideration.	Comment Acknowledged, thanks for your comment.
PC_9-25-2013_2_Tiffany Bourgeois	It is obvious what will happen in St. James Parish if Alternate C is the choice made by the US army corps of engineers. I will NOT flood because of Mother Nature but I WILL flood because of the decision made by the US army corp. of engineers. Encloseds are several photos but the one shown of Paulina is my neighborhood days after Isaac. This was a result of back water!	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

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PC_9-26-2013_1_Sheila Roussel	Supports Plan D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-26-2013_2_Edward Guidry	This meeting was a joke and a slap in the face for the residence of St. James Parish. It was a shut us up meeting. It takes no high price educated engineer and a many million dollar study to figure out when you build levies around the low ling areas like New Orleans, St. Charles, and St. John parishes someone else becomes the low ling area. This is surly about the number of votes for the usual corrupt politicians. I guess St. Tammany will get levies next you think you can run but you can't hide. You may get away with it in this life but in the next life you will answer to what you did and also what you did not do.	Comment Acknowledged, thanks for your comment.
PC_9-26-2013_4_Sheila Roussel	I understand the corp of engineers have tentatively chosen plan C but what I don't understand is how or why. It seems very obvious that if they proceed with the tentatively chosen plan C, they are creating a flood zone for St. James Parish. We are strongly requesting you reconsider and choose plan D. This is the most logical plan that provides protection to all of the parishes.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-29-2013_1_Brendon Ruiz	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. ArmyCorps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D.According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_9-29-2013_2_Joel Borne	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_9-29-2013_3_Marilyn Duhon	we do not need to have water dumped into our parish. Please reconsider using alignment D as this is the only way we can be protected from the water.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_9-30-2013_1_Jessica Ruiz	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-3-2013_10_Sunny Brady	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-3-2013_11_Mr and Mrs Gerald Bourgeois JR	I am asking for your assistance to promote the option of Alignment D for the West Lake Ponchartrain Hurricane Levee Protection. If we do not overturn the decision that has already been made, St. James will be the next parish to flood out during a hurricane. Do not let what happened to St. John Parish last year during Hurricane Isaac happen to the resident of St. James Parish. We fought a long 72 hours in St. James Parish sand bagging homes of our neighbors so we would not be in the same situation as our neighbors in St. John the Baptist Parish.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-3-2013_6_Susan Roussel Poirrier	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-3-2013_7_Wendy Kliebert	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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PC_9-3-2013_8_Michael Weber	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-3-2013_9_Joan Weber	I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_9-4-2013_1_Thomas Thompson	I hereby respectfully request that the attached letter and report "Why There Is No Storm Surge Protection For The Lake Pontchartrain Basin" be made a part of and included in the comments to The U.S. Army Corps of Engineers' West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study Integrated Feasibility Report and Environmental Impact Statement.	Comment Acknowledged, thanks for your comment.
PC_9-7-2013_1_Melody Deroche	As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
SD_10-02-2013_1_John A Johnny Berthelot	Is Ascension Parish included in the Federal Authorization? If so, what is then me of the bill? If not, do they need to be included, and how will being included affect the choice of alignments?	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. . Existing damages in Acsension Parish were reviewed and determined that the dominant causes of damage are not from coastal storms or ocean tidal action, but from rainfall events.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
SD_10-02-2013_1_John A Johnny Berthelot	Is it true that for Alignment D that the costs of constructing the levee are counted, but not the benefits?	The use of screening based on cost was appropriate, due to the fact that both the non-structural features associated with A&C and the level of risk reduction assumed for D were at the same level. The benefits for the non-structural features associated with A&C were actual understated. If a detailed evaluation was conducted on of the raising of homes they would actual obtained a higher level of risk reduction due to the fact that they would address damages from rainfall events associated with storm. Also Alternative D would still include residual risk due to potential failure events.
SD_10-02-2013_1_John A Johnny Berthelot	Is it true that for Alignment D that there are no benefits calculated for the protection that would be provided to 1-10? If not, why?	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.
SD_10-02-2013_1_John A Johnny Berthelot	What is the true risk of flooding for Ascension and St. James Parish with no project? How many structures will flood? To what level? Where?	Please see Chapter 2 of the final report. It provides the level of flooding throughout the study areas. Additional detail can also be found in the engineering appendix of the final report.
SD_10-02-2013_1_John A Johnny Berthelot	What are the adverse impacts to Ascension and St. James with Alignment C? How many structures will flood? To what level? Where?	In general, the potential impacts to communities outside of the proposed levee alignment would be similar with and without Alignment C. There is a margin of error in both the economic model and the storm surge modeling (ADCIRC) which is recognized by team hydrologists and economists. At feasibility level of design, the model uncertainty and inclusion of localized storm surge risk reduction measures adequately address the limited potential for induced damages. Additional ADCIRC modeling will be performed during preconstruction engineering and design to determine whether or not there will be induced flooding and to precisely estimate its magnitude. Please see Chapter 3 of the final report for additional details.
SD_10-02-2013_1_John A Johnny Berthelot	Is it true that that the construction cost difference between Alignment C ($88 M) and Alignment D ($890M) is only $10M? It seems that there would be several LARGE structures that woul be required to be constructed (Blind River Crossing and Bayou Conway Crossing) for Align D, so how is it that here is only $10M cost difference?	Cost for a structure at Blind River was included with Alignment D. The cost for the structure was similar to other structures in SE Louisiana.
SD_10-02-2013_1_John A Johnny Berthelot	The environmental impacts are substantial for any alignment, but the environment is already significantly impacted by the footprint and restriction of natural water movement by 1-10. How can a levee that parallels 110 have that much worse of an impact?	Impacts from the I-10 were incorporated in the WVA. Although large section of I-10 are not elevated there are still large areas that allow flows under the highway. Areas near Reserve Canal, MS. Bayou, Hope Canal, Blind River, Conway and a few culverts under I-10 allow flow under the highway
SD_10-02-2013_1_John A Johnny Berthelot	Is there to be a structure buy-out and elevation program in St. James and Ascension? How is it determined which structures/areas will be elevated and which will be bought-out? Has the location and number of structures been determined?	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
SD_9-17-2013_4_Gregory A Miller	Among many things that the draft report failed to consider in recommending Alternative C are: I . Post-2007 events such as the flooding from Hurricane Isaa in 2012; 2. The post-construction effects of an Alternative C alignment on our communities outside of the protected area; and 3. The resulting increased costs of non-structural measures in those communities outside the protected area.	The storm surge modeling was not based on historical storms, but statistical storm surge models. These models are verified using data collected from past storms such as Issac. The WSLP modeling data was verified using Issac data. The Localized storm surge risk reduction measures were modified for the final report.
SD_9-17-2013_4_Gregory A Miller	I fully support the locally preferred Alignment D alternative conta ned in the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study. This alignment would be in the best interest of Ascension Parish, St. James Parish, St. John the Baptist Parish and St. Charles Parish, and the entire region, including New Orleans	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.

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State_10-04-2013_1_Monica T. Salins	Economic benefits only looked at losses to residential and commercial structures. Therefore, benefits for Alternatives A & C are actually overstated and the benefits for Alternative D are understated-- thus misrepresenting the benefit to cost ratio. The report assumes exactly the same benefits for all alternatives.	The use of screening based on cost was appropriate, due to the fact that both the non-structural features associated with A&C and the level of risk reduction assumed for D were at the same level. The benefits for the non-structural features associated with A&C were actual understated. If a detailed evaluation was conducted on of the raising of homes they would actual obtained a higher level of risk reduction due to the fact that they would address damages from rainfall events associated with storm. Also Alternative D would still include residual risk due to potential failure events.
State_10-04-2013_1_Monica T. Salins	The non-structural approach does not account for losses to vehicles, farm equipment, livestock, power sub stations, gas pumps, sewerage systems, potable water systems, and other physical items that will not be elevated, cannot be elevated, or able to be evacuated prior to a storm event.	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
State_10-04-2013_1_Monica T. Salins	What about crops? A surge that recedes quickly might not cause any significant damage to any given crop, but what if water sits and recedes slowly - the crop could be lost. Also, undesired levels of salt could be permanently deposited on the land causing irreversible damage to crop land.	Agricultural losses were investigated but potential acres impacted were only identified through inundation maps, and land use maps. Studies in the past have captured benefits associated with damages to crops, but due to the nature of the crop this benefit category was not calculated and included in the NED category. The study area's major crop is sugarcane. Currently there is no empirical data to show that there are historical large scale losses of sugarcane crops in the study area. Damages to crops have to be evaluated through probabilistic method. With-out empirical data, determining flood losses associated with sugarcane is a complex determination due to the fact that is flooded sugarcane is not always total loss from storm surge flooding. If it cannot be used for sugar production, it could still be cut and reused as "seedcane". Cut flooded stalks or stalk sections, called billets, can be planted, and the stalk buds germinate and grow to produce the next crop. The use of flooded billets can help to off set the loss of sugar production vs. the cost for planting the next crop. The inclusion Perique tobacco as a crop damaged by storm surge was also investigated in the study process but there was limited empirical data to show that the crop is damaged by storm surges events. When factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited risk for damages to Perique tobacco from storm surges, due to the fact the crop is grown outside of the hurricane season.
State_10-04-2013_1_Monica T. Salins	What if someone doesn't like the idea of moving or having their house raised – they don't get protection? What if the Corps decides their house isn't worth raising? Then what would happen? Are they forced to move?	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
State_10-04-2013_1_Monica T. Salins	If the Operation and Maintenance (O&M) costs are 100% non-federal and the locals fully embrace the responsibility for these costs – why not do a "what-if" scenario of the alternatives with the O&M costs excluded and see how the benefit to cost ratios compare with just construction costs.	Per the Water Resources Planning Act of 1965 (Pub. L. 8980) and per the Economic and Environmental Principles and Guidelines for water and related land resources implementation studies, Chapter 2, OM&R costs for the alternative have to be included in the evaluation to maintain the benefit stream of the alternative.
State_10-04-2013_1_Monica T. Salins	as 50% local sponsor/owner of this study, I request that a "what-if" scenario be included and factored in the report for informative purposes to show how close Alternatives C and D actually are.	The first cost presented to the public were based on first cost, but the construction schedule between the two alternatives impacts the difference between construction costs and the total NED project costs. In this case the localized storm surge risk reduction costs are distributed over the 50 year period of analysis and applied only when the damages could occur. Due this the cost are heavily discounted for alternatives A and C compared to D which has large cost early in the period of analysis. The cost difference using the NED criteria is over $200M when including the heavily discounted cost with Alternative C. While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
State_10-04-2013_1_Monica T. Salins	Why are we being assessed mitigation costs against the project, when the report clearly indicates these wetlands will be lost by 2070 due to subsidence and sea level rise? Wouldn't you think that the protection levee would help protect the 79 square miles of wetlands? Where is the proof that the wetlands behind the levee will be lost by 2070; why doesn't the project get mitigation credits for saving 79 square miles of wetlands?	Please see Chapter 3 and the Environmental Appendix which includes the WVA analysis was conducted using habitat measurements and planning and habitat team assumptions. The team used this information to validate the assumptions used for the draft report. The FWOP conditions based on an AHUU value was compared to the FWP impacts to determine the final mitigation requirements. The final mitigation requirements reduced based on impacts that would have already been under the FWOP conditions. Impacts from the I-10 were incorporated in the WVA. Although large sections of I-10 are not elevated there are still large areas that allow flows under the highway. Areas near Reserve Canal, MS. Bayou, Hope Canal, Blind River, Conway and a few culverts under I-10 allow flow under the highway
State_10-04-2013_1_Monica T. Salins	On page 2-13, I strongly disagree that with no action there would be NO direct impact on community and regional growth.	The economic analysis shows that under the most likely future without-project condition there will be relatively small, but positive, development in the study area. Therefore, the impact of "no-action" is that there is no change in this projection.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
State_10-04-2013_1_Monica T. Salins	On page 3-12 it states that "…Alternative D poses potential uncertainties concerning impoundment of large areas of wetlands, especially if the river diversions are constructed. While it would prevent saltwater intrusion, it would risk impacting the hydrology by enclosing approximately 54,800 acres of swamp and would impact the EQ of the Maurepas WMA as well as Blind River…". Where is the evidence that the levees will damage the wetlands? I cannot find the answer within this report. It does not exist. It is the opinion of the environmental types	Please see Chapter 3 and the Environmental Appendix which includes the WVA analysis was conducted using habitat measurements and planning and habitat team assumptions. The team used this information to validate the assumptions used for the draft report. The FWOP conditions based on an AHUU value was compared to the FWP impacts to determine the final mitigation requirements. The final mitigation requirements reduced based on impacts that would have already been under the FWOP conditions.
State_10-04-2013_1_Monica T. Salins	There is reference to temporary interruption to service, inconveniences, and possible relocation of services elsewhere. I do not see where the costs associated with these impacts are accounted for in Alternative A and Alternative C. There are definitely costs associated with interruption in service – to both the service provider and the consumer.	The comment was taken into consideration for the final recommendation.The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
State_10-04-2013_1_Monica T. Salins	The Mississippi River Corridor between New Orleans and Baton Rouge is a major industrial and petro-chemical plant hub for the country. Products from these industries and plants are shipped via pipeline to all parts of the country. Alternative D provides the least impacts to these pipelines compared to Alternatives A and C, 14 pipeline crossings versus 36 versus 70, respectively. We have reviewed the pipeline relocation costs and feel these costs have not been fully evaluated. While the construction cost to relocate the pipelines was included per Engineering Appendix B, the pipeline outage cost and loss of material cost were not included. Those are significant dollar figures to leave out of this study.	The pipelines database was used on the formulation of plans. They were used as cost avoidance measure, and also included in the review of plans that met the objective of "reducing the risk of damage and loss of critical infrastructure". Impacts to pipelines were investigated in the study process but there was limited empirical data to show that there are storm damages to pipelines that are mostly buried. Impacts to pipeline facilities such as transfer stations that have if damageable assets were included the NED benefits.
State_10-04-2013_1_Monica T. Salins	PLD wants to know the incremental induced flooding impact to St. James and Ascension Parishes based upon Alternatives A and C and the cumulative induced flooding impacts to St. James and Ascension Parishes for the entire Lake Pontchartrain and Vicinity Program since the enactment after Hurricane Betsy.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. In the case of Alignment D any induced stages on the existing non-Federal levee could not change the fragility of the existing levee. Any impacts would have to be mitigated for and the cost would be borne by that project. In most cases this would mean additional cost will be added to a project with no additional benefits. The federal project would still end at the tie-in point, after mitigating for any impacts. Investigating impacts from the Lake Pontchartrain and Vicinity Program is outside the WSLP study authority.
State_10-04-2013_1_Monica T. Salins	PLD does not feel the study has included enough benefits for the protection of the federal and state highway systems in Alternative D.	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact. Although the Federal Highway Administration (FHWA) has approved computer models to calculate the amount and cost of delay, these delays have to be tied to long term NED impacts such long term housing cost due to the inability to access an area because of major roadway damage.
State_10-04-2013_1_Monica T. Salins	In Paragraph 1.3 of the study, there is discussion of the severe impacts of Hurricane Isaac on the Port of South Louisiana. I cannot find any reference in the calculation of benefits for the Port of South Louisiana in the document. Why were they excluded?	Impacts to these facilities were captured in the NED benefits if damageable assets (e.g. office buildings, warehouse, processing facilities) were impacted from storm surge. Shutdown losses related to high winds associated with tropical event are not captured in the NED benefits due to the fact that they would still occur without the recommended plan.
State_10-04-2013_1_Monica T. Salins	I could not find any impacts to industry in the document for either St. John the Baptist or St. James Parishes.	We requested available information at the public meeting, but none of the areas large facilities provided information. Impacts to these facilities were captured in the NED benefits if damageable assets (e.g. office buildings, warehouse, processing facilities) were impacted from storm surge. Shutdown losses related to high winds associated with tropical event are not captured in the NED benefits due to the fact that they would still occur without the recommended plan.
State_10-04-2013_1_Monica T. Salins	Based upon the damages to St. John the Baptist and St. James Parish during Hurricane Isaac, has the USACE compared actual losses versus the projected losses outlined in the study to determine the validity of benefit projections?	The impacts and highwater marks from Isaac were used to validate the model. The existing conditions in both the 100 yr modeled conditions were very similar to the Isaac event in some locations.

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State_10-04-2013_1_Monica T. Salins	Ascension Parish benefits have been completely ignored. PLD has been told by USACE Council that the parish could not be included since Ascension Parish was not in the authorized study area. When PLD contacted the Louisiana Congressional Delegation to include Ascension Parish in the study area, the New Orleans District requested we not change the study area because it would delay the study two years. Alternative D will provide structural protection to Ascension Parish yet benefits will not be accounted in the benefit to cost ratio but the costs have been included. This is another instance where a USACE regulation seems to run contrary to common sense.	Existing damages in Ascension Parish were reviewed and determined that the dominant causes of damage are not from coastal storms or ocean tidal action, but from rainfall events. Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
State_10-04-2013_1_Monica T. Salins	Please place these comments, observations, suggestions and questions into your report, and as 50% owner of this study, I trust that the answers to these questions and ALL of the questions submitted by ALL interested parties from the public meetings, email and U.S. Mail will be provided to this 50% owner, the Pontchartrain Levee District, within thirty (30) days after the close of comment period, on or before November 18, 2013	Final comments have been included in the final report
State_10-07-2013_1_Christopher P Knotts	It is definitely in DOTD's best interest to strongly encourage Alignment D as compared to the current recommendation from the Corps of selecting Alignment C.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
State_10-07-2013_1_Christopher P Knotts	The Report Study (surge model) seems to have not considered the rainfall intensity and duration. Hurricane Isaac's rainfall duration contributed to the flooding of I-10.	Addressing impacts from excessive rainfall events are not with study authority. Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
State_10-07-2013_1_Christopher P Knotts	Sheet No. 8 of Appendix B - Engineering states that all the structures are designed based on a 10-year, 24 hour rainfall. If any of these structures are considered as cross drains, our policy for cross drain design is ADT based (50-year when ADT > 3000, and 25-year when ADT < 3000). The size of the drainage area also determines calculation method (NRCS or USGS).	Comment noted. The design of system's cross section was based on the existing cross section. The use of the pump station is only for storm surge events. Under rainfall events the system will be left open and match the existing FWOP drainage conditions.
State_10-07-2013_1_Christopher P Knotts	Existing drainage patterns must be maintained or addressed and improved with the construction of any levee.	The existing rainfall drainage patterns will be maintained. Addressing rainfall draining problems and making improvements is outside of the study authority. Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
State_10-07-2013_1_Jimmy L Anthony	Hydrologic information being presented to the HET has been insufficient particularly with respect to flood gate and environmental structure design and operation plans. Information has been provided to the HET in a rapid manner with impractical review and comment deadlines. The cumulative impacts of structural protection to the productivity and sustainability of Maurepas Swamp, Lakes Maurepas and Pontchartrain, and Blind River are difficult to determine. Complicating the matter is the fact that only preliminary modeling efforts have been completed. Of particular concern is the high probability that flood gates and environmental structures will be closed with increased frequency and duration in the future for salinity control purposes, which strongly suggests increasing fisheries and wetland impacts over time. We suggest that these important design and operation uncertainties be resolved immediately so that reliable predictions of impacts can be determined. Additionally, environmental structures sizing should be contingent upon modeling and identified in the Draft EIS. Furthermore, with the levee in place, pumps and their operation will be significant in maintaining the health of the Maurepas Swamp WMA and Blind River, a Louisiana designated Natural and Scenic River.	Hydrologic connectivity would be maintained to the extent practicable through water control structures except during closure for hurricanes or tropical storms. When the system is closed, pumps would operate on average for 1.7 storms per year, which equates to a closure of structures on average 8.5 days per year. This expected rate of closure would be the same under a changing sea level rise conditions, due to the fact that the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. The recommendation only addresses hurricane and storm damages and the system would not close more often due to higher day-to-day sea level rise impacts. Any operational changes outside of the original project purpose; the reduction of damages caused by wind-generated and tide-generated waves and currents, would be considered a separate project purpose and authorization, and would require a new NEPA documentation and/or a permit approval for this operation change. Recent freshening trends in the lake make salinity intrusion less likely.

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State_10-07-2013_1_Jimmy L Anthony	Structure operation fisheries effects should include structure closure effects (timing and duration of closure and how this could change with time), open structure effects (changes in flow, concentrating/limiting migration corridors, and reduction in access), and how this could alter local population dynamics of aquatic species at all life stages. The Draft EIS may not have adequately addressed if and how aquatic species will be affected.	Closure of structures on average 8.5 days per year would have minimal impact on fisheries recruitment.
State_10-07-2013_1_Jimmy L Anthony	Throughout the process, it has been mentioned that other local, state, and federal wetland restoration projects in the area will reduce the impacts of salt water intrusion, and that the levee itself is a form of wetland restoration. The potential benefit that a levee would have on wetland habitat would be preventing wetland loss on the inside through erosion and scour during storm surge events. However,these sporadic storm event benefits might be contradicted by long-term wetland degradation resulting from levee hydrologic interference. It would be more appropriate to discuss the other local, state, andfederal wetland restoration projects (i.e., Convent to Blind River, Hope Canal Diversions, etc.), their interaction with the levee, and ecosystem response in a separate section; and to clarify that theserestoration projects are not part of the levee plan, although they should be incorporated. Provided that restoration projects include freshwater introductions, how these projects would influence structureoperation (closure time and duration) should be considered. Given that these state/federal coastal restoration projects are recommended as restoration for the Maurepas Swamp, we believe these restoration projects deserve more discussion in the Draft EIS. These separate local, state, and federal restoration projects are better suited to address the described coastal land loss issues than leveeconstruction, where as with levee construction the primary goal is infrastructure protection. We also recommend further detailed discussion on how the presence of a levee could negatively impact theeffectiveness of these restoration projects inside and outside of the levee (un-natural hydrologic/marsh flooding regimes, formation of stagnant/low circulation areas, high flow areasaround structures increasing erosion rates, etc).	Recent freshening trends in the lake make salinity intrusion less likely.
State_10-07-2013_1_Jimmy L Anthony	Page 3-12. Alternative D: Page 4-22. Alternative D.· Page 6-4. Section 6.16 Wild and Scenic River Act of 1968 (Rivers). Blind River is a "Natural and Scenic River," not a "Wild and Scenic River." The legislation that established the Natural and Scenic Rivers System is referred to as the "Louisiana Scenic Rivers Act" (R.S. 56: 1840-1856) not the "Wild and Scenic River Act."	Comment noted. A clarification has been made in the final report.
State_10-07-2013_1_Jimmy L Anthony	Pages 4-15 and 4-17. Multiple Sections. "However, preliminary hydrologic modeling indicates that the project design would have minimal changes to flows or stages on either the protected or unprotected sides. " This part of the document needs clarification on affects both inside and outside the system, including detailed information on how the water moves in and out of the system and locations of all rivers, bayous, streams, etc. that would be impaired. Providing a visual aid in the document may assist in planning and analysis. We would recommend such a statement be removed until further detailed analysis and modeling can be done and agreed upon by the HET.	A flood side ditch and a protected side canal would parallel the entire levee length. The canals would be used to maintain the existing connection between swamps inside and the swamps outside the levee system.
State_10-07-2013_1_Jimmy L Anthony	Page 4-18. Section 4.3.5 Essential Fish Habitat, Alternative C. "Closure of the levee system during hurricane/tropical storm surge events would reduce minor salt water intrusion into wetland habitats in the proposed levee system. This could provide some reduction of the potential ecological stresses associated with saltwater intrusion and could also help reduce the conversion of existing forested wetlands and swamps to marsh and open water habitats (EFH). " Similarly, diversions could reduce salt water intrusion. Clarification is needed here to give rise to an understanding that the sole purpose of the levee is to protect life and property not to prevent salt water intrusion into wetlands; the claim that the levee system protects the wetlands is somewhat debatable. We caution making assumptions that the levee would ease wetland loss, while although there are signs of degradation, proven restoration techniques would benefit the system naturally and still maintain the storm surge buffer. It is stated in the Draft EIS that hydrologic and fisheries impacts will be minimal because salinity modeling shows little change. Salinity models do not take into account major hydrologic and ecological characteristics such as marsh flooding frequency, increasing flow velocities, and aquatic organism access reductions that can have substantial impacts on wetland and fisheries productivity and would differ inside and outside of the proposed levee. Furthermore, discussions in this section and others may be warranted regarding potential changes in velocities as a result of gates and/or environmental structures and its effects on aquatic species passage.	There is no EFH inside the levee alignment. Closure of the levee would not have any cumulative impact.
State_10-07-2013_1_Jimmy L Anthony	Economics. Appendix D. Discussion, in this section or another, may be warranted regarding potential loss of recreational and commercial hunting, fishing, and boating opportunities and associated economic impacts as result of the proposed levee construction. This issue does not appear to be adequately addressed in the Draft EJS, especially with respect to frequency of closures. Also, the document did not seem to address navigation impacts and the possibility of boats being trapped outside the system during storm events, subsequent closures and those economic impacts.	Section 4.1.2 acknowledges that “Proposed structural measures would cause the Cajun Pride Swamp Tours temporary loss of access to the adjacent waterway until construction of boat access to the waterway is restored following construction of this reach of the project.”

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State_10-07-2013_1_Jimmy L Anthony	In the past year LDWF estimates that there were 22,673 Maurepas Swamp WMA users. Many of these users utilize small waterways to access the WMA. There are also private in holdings and these owners rely on water access. If water control structures are only provided at Blind River, Mississippi Bayou and Reserve, Hope and Conway canals, user access will certainly be disrupted. The loss of recreational access areas on and to the WMA, including Hope Canal Road, Hope Canal boat launch, and Reserve Canal launch, should be avoided, as access is already a limiting factor on the WMA. If impacts to these important public access areas are not avoidable, alternative public access (i.e., roads and launches) should be planned for. Alternative access shall be determined only after close coordination with LDWF and other stakeholders, and shall be incorporated into the project design.	Please see the details of the final design recommendation. Impacts to the WMA or other users be avoided, minimized or mitigated for.
State_10-07-2013_1_Jimmy L Anthony	Cross-Sections that have been provided to LDWF from other applicants depict Blind River, from top bank to top-bank, to be approximately 300 feet wide at 1- 10. LDWF is concerned that the proposed 40-foot wide, 20-foot deep structure is inadequate to maintain current stream flow patterns without adversely affecting hydrology (i.e., tidal flows, periodic/seasonal high flows, and depth, duration and frequency of floodplain flooding). Should Alternative D be selected, detailed analysis/modeling would need to be provided that demonstrates that the existing shoreline of Blind River is not altered by levee and gate construction. Reservoir construction is prohibited by the Louisiana Scenic Rivers Act (R.S. 56: 1853). Reservoir construction is defined in the Act as "any permanent dam or impoundment which alters the shoreline of a natural and scenic river" (R.S. 56: 1842).	Alignment D is not in the recommended plan. It would be inappropriate to speculate about details of a scenario that is not recommended.
State_10-07-2013_1_Jimmy L Anthony	The proposed levee project will result in the direct loss of forested wetlands within the Maurepas Swamp. Currently, elimination of nutrient and freshwater inputs threatens the sustainability of these forested wetland systems. LDWF believes that the most effective strategy to restore health and productivity of the Maurepas Swamp is construction of Mississippi River reintroductions into the Swamp. However, additional measures such as eliminating barriers to surface flow patterns are also needed, not only to compliment the planned river reintroductions, but also to improve current hydrologic conditions. Therefore, LDWF recommends that mitigation measures aim to enhance or improve surface hydrology, such as gapping and degrading spoil banks and other artificial impediments to sheet flow. Also, collecting available wastewater and/or storm water from surrounding communities and distributing it through the swamp could be an additional mitigation measure.	During the development of the mitigation plan both Alternative 33 and 37 of the LCA Amite project were looked at in coordination with USFWS and staff at the Maurepas WMA. It was determine that Alternative 33 is being done by the State and the hydraulic modification portion of Alt 37 was being done by Livingston Parish. At this time no other hydraulic modification projects could be found that would produce the appropriate amount of AAHUs. In the future if projects come to light they could be considered
State_10-07-2013_1_Jimmy L Anthony	In order to be considered adequate, the compensatory mitigation must reflect on short and long-term direct and indirect impacts to wetland and fisheries production, which at this time is not present in the Draft EIS. Any mitigation plan should include long-term monitoring and be adaptive in nature to account for unforeseen future impacts. Furthermore, mitigation should be financially assured and proposed to be concurrent with levee construction. It's recommended to also include a long-term fisheries monitoring plan to determine if substantial fisheries impacts are occurring from levee construction and once completed, floodgate and environmental structure operation. We look forward to continued work with USACE and resource agencies to insure that adequate and appropriate mitigation is determined and a plan included in the final EIS.	Potential project-induced impacts of the Recommended Plan to wetlands and other resources have been quantified by the Wetland Value Assessment (WVA) methodology during the Feasibility-Level Analysis phase. Findings from the WVA analysis were utilized to determine compensatory mitigation which would compensate for unavoidable project-induced impacts. A mitigation plan (Appendix A Annex K) has been developed in coordination with resource agencies. Mitigation benefits were also assessed utilizing WVA methodology. The mitigation plan will include the 12 “items” required to demonstrate compliance with 33 CFR 332.4(c) including: objectives, site protection instrument, baseline information, work plan, maintenance plan, performance standards, monitoring requirements, financial assurances, site selection factors, credit determination, long-term management plan and adaptive management plan. Any monitoring or adaptive management activities in the wetlands on the protected side of the levee would exceed the project purpose and would fall outside of the authorization.
State_10-07-2013_1_Jimmy L Anthony	Our LNHP database indicates the presence of bird nesting colonies within one mile of the western end of Alignment D. Please be aware that entry into or disturbance of active breeding colonies is prohibited by LDWF. In addition, LDWF prohibits work within a certain radius of an active nesting colony. Nesting colonies can move from year to year and no current information is available on the status of these colonies. If work for the proposed project will commence during the nesting season, conduct a field visit to the worksite to look for evidence of nesting colonies. This field visit should take place no more than two weeks before the project begins. If no nesting colonies are found within 400 meters of the proposed project, no further consultation with LDWF will be necessary. If active nesting colonies are found within the previously stated distances of the proposed project, further consultation with LDWF will be required. To minimize disturbance to colonial nesting birds, the following restrictions on activity should be observed: • For colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, roseate spoonbills, anhingas, and/or cormorants), all project activity occurring within 300 meters of an active nesting colony should be restricted to the non-nesting period (i.e., September 1 through February 15). • For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters of an active nesting colony should be restricted to the non-nesting period (i.e.,September 16 through April 1).	Alignment D is not in the recommended plan. Impacts are described in chapter 5 for the update of Alternative C, the localized storm surge risk reduction measures and mitigation areas.

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State_10-07-2013_1_Jimmy L Anthony	Finally, the Department understands that work thus far has been preliminary; however, we have concerns that some aspects of ecological impacts will be overlooked with the implementation of "Smart Planning." Additionally, we understand that there has been local support for Alignment D. While we understand why there is local support for Alignment D, as a resource agency we support the Tentatively Selected Plan (i.e., Alignment C) because it is one of the least environmentally damaging alignments. However, by limiting selection to only three alternatives, opportunity to further reduce impacts is lost. For example, Alignment D is purported to provide protection to 1-10. However, elevating more sections ofl-1 0 would also provide a secure evacuation route. Another example would be construction of ring levees around the communities located outside of Alignments A and C or extending levee Alignments A and C westward along U.S. Hwy 61 to encircle additional communities such as Lutcher and Gramercy. These types of alternatives could assist with avoiding impacts to the Maurepas Swamp and Blind River which play an important role in the livelihood of many recreational and commercial users while at the same time extending levee protection to other communities.	Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.
State_10-14-2013_2_Senator Gary Smith	Fully Supports PLD position	Comment Acknowledged, thanks for your comment.
State_10-25-2013_1_CPRA	The report states that Alternative D is estimated to enclose more wetland acres (56,228 acres) than Alternative C (8,424 acres) and therefore assumes greater negative impacts to wetlands. However, the report does not identify what the indirect negative environmental impacts will be to the wetlands and how those impacts may be calculated. The report appears to apply differing standards to wetlands under Alternative C than when considering Alternative D. Specifically, the report documents that Alternative C "would provide for the protection of protected side wetlands, potentially extending their lifespan and their water quality functions." However, the potential added value of protecting more wetland acreage is not disclosed for Alternative D. The report should clearly describe the methodology used to assess levee impacts and benefits to wetlands and be consistent in that methodology for each proposed alignment.	The Final Report provides an additional screening (section 3.9.3) based feasibility level WVA analysis. The conclusion of that analysis: Alternative D has the greatest habitat impacts (approximately 2,080 AAHUs more than Alternative C), highest mitigation costs, the lowest BC ration, and lowest net benefits. Alternatives A and C are comparable in total impacts, with Alternative A having a total impact of approximately 151 AAHUs less. Alternative C has less direct impact, while Alternative A has fewer indirect impacts. Both Alternative A and C are considered environmentally acceptable alternatives, and provide benefits to the same number of structures.
State_10-25-2013_1_CPRA	Although the report provides an outline of the area receiving non-structural measures as part of Alternative C, the report should include a detailed list of businesses and residences being elevated and the associated costs for each. Businesses such as Co Ionia] Sugar, Rain Cll, Noranda Alumina, Petrologistics, Nalco, Nucor, OxyChem, Methanex Shell Geismar, Shell Convent, and Impala, to name a few, do not appear to be included in the non-structural measures component of Alternative C. The report should document why such businesses are not included if that is the case and how the economic and disruption consequences of such exclusions are quantified. The report should also include an induced flooding analysis to document how the non-structural measures area was derived and what the impacts will be to all areas not included in the non-structural measures as part of Alternative C.	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish. Additional discussion was added to the final report related to induced flooding potential. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed.
State_10-25-2013_1_CPRA	As noted in comments submitted by the Louisiana Department of Transportation and Development, the lack of hurricane and storm damage risk reduction for US-61 and portions of 1-10 are significant. As witnessed during recent hurricanes, these roads are major hurricane evacuation and recovery routes for south Louisiana. The report should consider the economic impacts to commerce in Louisiana and the Nation if such routes are flooded with Alternative C, as seen during Hurricane Isaac. The report should also consider the incremental economic difference in emergency response and recovery costs if such routes are flooded (i.e. flying versus driving).	Impacts to highways were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the study area is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.
State_10-25-2013_1_CPRA	The final report should fully document the deterioration of culture and of community cohesion due to Alternative C with respect to elevating some residences, businesses, and public facilities but not others and how this alternative would affect future population projections, employment opportunities and economic activity. The report should also document the negative impacts to communities due to ingress and egress limitations that would be exacerbated with Alternative C.	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
State_10-25-2013_1_CPRA	The report should disclose the quantification of economic impacts to Louisiana and the Nation of Alternative C to business and industry shut-downs due to induced flooding of these businesses and induced flooding of secondary roads resulting in staffing deficiencies as compared to Alternative D. An induced flooding evaluation for the entire four parish project area should be included in the report to document water levels and water flows under Alternatives C and D so that economic impacts can be properly evaluated prior to the selection of a TSP.	Alignment D is not in the recommended plan. It would be inappropriate to speculate about details of a scenario that is not recommended. Additional discussion was added to the final report related to induced flooding potential. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C.

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State_10-25-2013_1_CPRA	Finally, Appendix A, Table 2 and Section 3.4 of the report should include the U.S. Fish and Wildlife Service (USFWS) alternatives as proposed in its October 9, 2012 letter and describe why those alternatives were screened out. In addition, any information available to date for the USFWS alternatives with respect to costs, benefits, and impacts should be included in the report to further document why those alternatives were not considered for further analysis.	Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.
State_10-25-2013_1_CPRA	Accordingly, we request that the USACE include documentation of benefits and impacts in the report for alternatives proposed to the west of Alternative C (e.g., the USFWS proposed Alignment C-la and C-tb, as noted in St. James Parish's October 2, 2013 correspondence) that provide similar levels of protection as Alternative D. Based on the information provided by stakeholders and comments received during the public meetings, we also request a reevaluation of the cost-benefit ratios calculated for Alternatives C, D, C-Ia, and C-1 b.	Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.
State_7-26-2013_5_Cleve Hardman	I am in receipt of your draft environmental impact statement (EIS) for the West Shore-Lake Pontchartrain Hurricane and Storm Damage Risk Reduction. The Division of Outdoor Recreation administers the Land and Water Conservation Fund (LWCF) for Louisiana. Our staff has identified seven LWCF-assisted sites within the project study area, one in St. John the Baptist Parish, six in St. James Parish and none in St. Charles Parish. Those sites are identified in the enclosed document along with GPS coordinates of each site. Our review of the draft EIS indicates none of the existing LWCF-assisted sites within the project study area would be impacted by any of the alternative plans. Indeed these sites are currently at risk unless action is undertaken to address the risk of hurricane and storm damage in this region. We stand ready to assist in any means possible toward realization of these efforts.	USACE appreciates the review of this document.
TOWN_10-3-2013_1_Town of Lutcher	A resolution requesting that the u. S. Corps of engineers reconsider their recommendation for the west shore Lake Ponchartrain hurricane protection levee and choose alternative D	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
TOWN_9-18-2013_1_Terry Borne	The Town of Gramercy, Louisiana, St. James Parish has reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the Corps of engineers to evaluate the different alignment options. Although Alignment Cis tentatively chosen, the Board of Aldermen and Mayor of the Town of Gramercy are requesting assistance to promote the option of Alignment D. The State of Louisiana Master Plan also shows Alignment D as the preferred plan. Alignment D is the only option that will provide levee protection to Gramercy and St. James Parish. The overturn of this decision is important to insure the safety of families, properties, and/or businesses during the event of a hurrican or tropical storm. Gramercy sustained flooding of a number of homes during Hurricane Isaac and should Alignment C be chosen, will create even greater flooding to our community. It is critical that members of our community, as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance you can provide will be greatly appreciated.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-17-2013_1_V.J. St Pierre	Supports the selection of Alt D, instead of C. $10M difference in cost is minor.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-17-2013_2_V.J. St Pierre	Wetland acreage is a concern, but wetlands would be protected from saltwater intrusion.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. In addition with the closure of the MRGO there has been a freshening trend on the west side of Lake Pontchartrain.
PC_09-17-2013_3_V.J. St Pierre	Important to build the projects quickly to help avoid impacts from BW12.	Concur
PC_09-17-2013_4_V.J. St Pierre	Recommends a phased approach - with St John and St Charles protected, while part 2 under review. Would allow protection to be built while review is ongoing.	Comment noted – Congressional Authorization would be needed for phased approach.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_09-17-2013_5_Kurt Roussel	Concern about impact of benefit from St John will result in impacts to St James	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_09-17-2013_6_Kurt Roussel	Asserts that St John needs the levee	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure in St. James Parish, compared the TSP
PC_09-17-2013_7_Kurt Roussel	Does emergency benefit category include benefits to keeping Waterford 3 online, as part of the Federal Emergency Response Plan for Waterford 3?	As discussed in Chapter 3 of the main report and the planning appendix, the updated localized storm surge risk reduction measures will address these concerns.
PC_09-17-2013_8_Kurt Roussel	Does benefit calculations include the effect of Motiva Convent refinery shutdown?	The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered.

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PC_09-17-2013_9_Kurt Roussel	Does benefit calculations include the safety to chemical industry from avoidance of a shutdown?	The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered.
PC_09-17-2013_10_Gregory Miller	Concerned that AltC does not protect ALL communities; leaves out significant parts of Ascension. Ask to recommend Alt D, for only 10M more.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_09-17-2013_11_Gregory Miller	Economic national security of petrochemical industry vulnerable	The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes are expected to be substantially the same whether or not the recommended plan is in place. It is possible that any of the alternatives considered can change the average number of days that industrial facilities are shut down. These benefits are expected to be small compared to benefits associated with flood damages avoided for physical property. The price changes in products is a regional economic effect that is not included in the estimate of national economic development benefits. Also, storm-related price changes on a national basis are expected to be substantially the same whether or not the recommended plan is in place. The effect of lost production represents potential benefits for an alternative if it can be shown that the production cannot be made up at a later point in time or that it cannot be made up by another provider at another location. No change in the potential permanent lost production, as associated wages, are expected under the alternatives considered.
PC_09-17-2013_12_Gregory Miller	Evacuation routes vulnerable - for south shore of Lake Pontchartrain and river region, all roads leading west would be vulnerable.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-17-2013_13_Gregory Miller	Environmental damage from SLR is impacting BLH and swamp. Preservation requires protection through levees to avoid further degradation from saltwater intrusion.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. In addition with the closure of the MRGO there has been a freshening trend on the west side of Lake Pontchartrain.
PC_09-17-2013_14_Gregory Miller	Economic analysis failed to include Isaac flooding in the assessment, and the post-construction impact on communities outside the alignment.	The storm surge modeling was not based on historical storms, but statistical storm surge models. These models are verified using data collected from past storms such as Issac. The WSLP modeling data was verified using Issac data. The Localized storm surge reduction measures were modified for the final report.
PC_09-17-2013_15_Gregory Miller	Economic analysis failed to include increased costs of non-structural measures in communities outside the alignment.	The storm surge modeling was not based on historical storms, but statistical storm surge models. These models are verified using data collected from past storms such as Issac. The WSLP modeling data was verified using Issac data. The Localized storm surge risk reduction measures were modified for the final report.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_09-17-2013_16_Ricky Delatte	Concern that just changing the areas where flooding is expected. Blind River will flow into area, regardless of alignment,	The localized storm surge risk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish. Additional discussion was added to the final report related to induced flooding potential. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed.
PC_09-17-2013_17_Ricky Delatte	Suggest new alignment along Western bank f Lake Pontchartrain (into Tpahoa parish) with 2 locks/pumping stations, covers Lake Maurepas and surrounding area. Better than incremental cost of SJBP, then St James, the Ascension. Follow railroad all the way to Ponchatoula from BC spillway.	This alignment went would have the potential to have a significantly greater direct and indirect impact on Swamp and Bottom land hard woods. Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. The addition of navigable locks would also substantially increase the cost of the project.
PC_09-17-2013_18_Ruby White	Request for information on zoning, BW12, insurance rates (referred by Varisco to Robottom/ local planning)	Comment noted – Your local parish representatives should provide you that information.
PC_09-17-2013_19_Jimmy Brazan / Timmy Roussel	Concerns about St James being left out, funnel effect towards St. James parish. Will result in street flooding, sewer backing up, regardless of non-structural. Recommend Alt D.	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. The additional outreach methods used include canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses.
PC_09-17-2013_20_Jimmy Brazan / Timmy Roussel	Concerns that highway access will be cut off with Alt C.	No transportation corridor will be closed permanently. There may be temporary closures during construction and during storm events.
PC_09-17-2013_21_Jimmy Brazan / Timmy Roussel	Concern that electrical power will be cut off with Alt C in times of hurricane.	A levee will not change the chance that a wind event will knock out electrical service to an area.
PC_09-17-2013_22_Jimmy Brazan / Timmy Roussel	Concern that Alt C is a piecemeal approach. Desired a comprehensive flood protection plan	The final document is a comprehensive storm risk reduction plan for the study area.
PC_09-17-2013_23_Jimmy Brazan / Timmy Roussel	Need economic analysis broken down into layman's terms.	Comment noted
PC_09-17-2013_24_Paul Bair	Concern that levee alignment will split property in half, and will result in shutdown of Cajun Pride Swamp tours business.	Please see responses to unique identifier CD _9-18-2013_1_David Vitter for concerns about Cajun Prides Swamp tours.
PC_09-17-2013_25_Scott Eustis, Gulf Restoration Network	Essence of the problem is that we need levees, we need to elevate behind the levees, and wetlands (esp Maurepas wetlands) to protect humans and the levees.	Comment noted
PC_09-17-2013_26_Scott Eustis, Gulf Restoration Network	Alt C divides communities, pits communities against environment.	Comment noted
PC_09-17-2013_27_Scott Eustis, Gulf Restoration Network	Document is rushed to completion.	Comment noted
PC_09-17-2013_28_Scott Eustis, Gulf Restoration Network	Did not account for subsidence in the documents. And the cost associated with that.	Subsidence and other comments of RSLR were considered in the developing the plan.
PC_09-17-2013_29_Scott Eustis, Gulf Restoration Network	Did not account for appropriate drainage in the plan.	The design of system's cross section was based on the existing cross section. The use of the pump station is only for storm surge events. Under rainfall events the system will be left open and match the existing FWOP drainage conditions.
PC_09-17-2013_30_Scott Eustis, Gulf Restoration Network	Did not account for the benefits of MLOD.	Existing swamp in front of levee was accounted for in Modeling.

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PC_09-17-2013_31_Tony Schexnayder	Rainwater not accounted for in plan	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
PC_09-17-2013_32_Tony Schexnayder	Alt C will result in induced flooding for St James. Recommend Alt D.	The risk for induced flooded was much higher with Alignment D. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_09-17-2013_33_Tony Schexnayder	Evacuation routes will be impacted, increasing risk to human life and safety.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-17-2013_34_Tony Schexnayder	Suggest pumping excess water to the river. Like Romeville area canals.	Comment noted
PC_09-17-2013_35_Dr. Annrose Guarino	Subsidence evidence for generations. Recommend railroad levee choice.	This alignment went would have the potential to have a significantly greater direct and indirect impact on Swamp and Bottom land hard woods. Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. The addition of navigable locks would also substantially increase the cost of the project.
PC_09-17-2013_36_Dr. Annrose Guarino	Absent a railroad alt, asks for St James to be included (Alt D)	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-17-2013_37_Reynold Hernandez	Alt D will not have the environmental impact feared, because water flows north towards the swamp. Will still provide the environmental benefit of storm surge reduction. (Same as the old Alt B). Alt D will have same impact as what is in place with I-10 - no difference.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area.
PC_09-17-2013_38_Wayne Naquin	Alt D is recommended. But blocking surge at Chef's pass (or Rigolet's pass) would be a better solution.	There is no data that suggests blocking storm surge at Chef's pass via the 'Barrier Plan' would reduce storm surge for the western portions of the basin, specifically the West Shore study area. The Barrier Plan was initially recommended for the Lake Pontchartrain and Vicinity project but was shelved in favor of the risk reduction system that is currently in place. Any alternatives having to do with a barrier plan are well outside of the study authority for the West Shore project which is specific to St. Charles, St. John the Baptist, and St. James parishes.
PC_09-17-2013_39_Latonya Cressy	Request for a physical model to show differences between alternative alignments.	Comment noted
PC_09-17-2013_40_Mike Sharpe	Does alternative assessment include non-residential structures, as well (industry, commercial)? Varisco answered - yes.	Non-residential structures are considered in the economic analysis.
PC_09-17-2013_41_Dina Martin	Fled New Orleans after Katrina, to safer LaPlace, to an area that had not flooded in >30 years. 7 years later, flooded again. Dislike Alts A and C. Wants to help community survive.	Comment noted.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_09-17-2013_42_Arthur Jones	Prefers Alt D for the extra 10M, to improve project for adjacent communities.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-17-2013_43_Arthur Jones	Life safety is concern, worth more than 10M, which would be spent anyway on Fed side.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-17-2013_44_Sylvia Dunn	Concern that additional study will delay construction, until St James floods, too.	Concern noted
PC_09-17-2013_45_James Stephens	Alt C, or any alt that does nto go to St James, will impact economic development as developers will decline to invest in unprotected property.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-17-2013_46_Everett Powell	Can there be a phased approach to the construction, to begin construction earlier?	Comment noted – Congressional Authorization would be needed for phased approach.
PC_09-17-2013_47_Everett Powell	What is the time frame for construction (Varisco - it is up to the deciders in Congress), and will that affect residents (Varisco - yes. But the public meeting is a vehicle to get the opinions to Congress. But can also voice concerns to representatives.	Congressional Authorization and appropriations would be needed before construction could begin.
PC_09-17-2013_48_Natalie Robottom	Alignment D is the selection for full congressional delegation, including a letter from Sen Vitter. Will continue to work to get approval and funding.	Congress could authorize and appropriate funds for Alternative D.
PC_09-17-2013_49_Anthony Waguespack	Alignment D is best. And extend it to Gonzales or Baton Rouge, for better protection	Congress could authorize additional study to extend the study area.
PC_09-17-2013_50_Steve Wilson	Alternative D is preferred plan	Comment noted
PC_09-17-2013_51_Steve Wilson	Environmental concerns with destroying wetlands	Comment noted
PC_09-17-2013_52_Steve Wilson	40 years of study is not a 'rush study'	Comment noted
PC_09-17-2013_53_Tony Schexnayder	Request to make it personal, and not just economic	Comment noted
PC_09-10-2013_1_Karen Dunn	Rain and street flooding also a problem, not just storm surge	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.

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PC_09-10-2013_2_Karen Dunn	Backflooding an additional impact, required out of pocket expenses.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorization allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
PC_09-10-2013_3_Karen Dunn	Concerned about rezoning, and changing of insurance requirements after the fact. Moving out is not an option (husband is in sherriff's office, with residency requirement)	Comment noted – Your local parish representatives should provide you that information.
PC_09-10-2013_4_Karen Dunn	Non-structural is a problem for the cost burden	Comment noted
PC_09-10-2013_5_Karen Dunn	Non-structural is a problem for emergency access.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction
PC_09-10-2013_6_Karen Dunn	Submitted pictures and elevation levels for Corps consideration in making decision.	Thanks for the additional information.
PC_09-10-2013_7_Louis Kliebert	Concerns about plan for Convent substation if underwater (power failure) - impact to St James	As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_09-10-2013_8_Louis Kliebert	Concerns about evacuation - if 61, 3125, and I-10 all flood, how will traffic pass?	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-10-2013_9_Timmy Roussel	Concern about saltwater intrusion affecting the Perique tobacco - unique cultural heritage. (Prime/unique farmland?)	Agricultural losses were investigated but potential acres impacted were only identified through inundation maps, and land use maps. Studies in the past have captured benefits associated with damages to crops, but due to the nature of the crop this benefit category was not calculated and included in the NED category. The study area's major crop is sugarcane. Currently there is no empirical data to show that there are historical large scale losses of sugarcane crops in the study area. Damages to crops have to be evaluated through probabilistic method. With-out empirical data, determining flood losses associated with sugarcane is a complex determination due to the fact that is flooded sugarcane is not always total loss from storm surge flooding. If it cannot be used for sugar production, it could still be cut and reused as "seedcane". Cut flooded stalks or stalk sections, called billets, can be planted, and the stalk buds germinate and grow to produce the next crop. The use of flooded billets can help to off set the loss of sugar production vs. the cost for planting the next crop. The inclusion Perique tobacco as a crop damaged by storm surge was also investigated in the study process but there was limited empirical data to show that the crop is damaged by storm surges events. When factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited risk for damages to Perique tobacco from storm surges, due to the fact the crop is grown outside of the hurricane season.
PC_09-10-2013_10_Henry Friloux	Protection of tri-parish business and industrial facilities, so they don't have to shut down, is critical. Federal impact, not just local. Alt C leaves exposed areas.	As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_09-10-2013_11_Henry Friloux	I-10 as evacuation route for New Orleans. Needs to be protected. Recommend Alt D.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-10-2013_12_Henry Friloux	Will provide economic data to help.	Thanks for the additional information.

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_09-10-2013_13_Lionel Bailey	Concerned that Alt C selection decision was made, and public input/NEPA inputs were not included in the predetermined position. Recommend Alt D.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-10-2013_14_Willy Martin	President Obama stated that the flooding that happened with Isaac should not happen again. And Alt C does not do that.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-10-2013_15_Willy Martin	Agricultural comment, Perique. But also sugar cane and soybeans.	Agricultural losses were investigated but potential acres impacted were only identified through inundation maps, and land use maps. Studies in the past have captured benefits associated with damages to crops, but due to the nature of the crop this benefit
PC_09-10-2013_16_Willy Martin	Concerned that economic evaluation did not capture economic benefits from emergency response costs - evacuation routes of I-10, 61, 3125	A reduction in traffic delays, associated with emergency response activities following a tropical storm surge, is a potential economic benefit that can be attributable for each of the alternatives considered in this study. However, compared to the reduction in physical damages to property, this category is expected to represent a relatively small portion of total economic benefits. Also, since the computation of these benefits were not needed to confirm the economic justification of the project, the development of a regional traffic delay model needed to compute these benefits was not pursued. With respect to the use of major state and Federal highways for pre-storm evacuation, none of the plans would provide economic benefits since these routes are closed to traffic within a minimum of 24 hours prior to tropical storm landfall and cannot be used whether or not a levee system is in place.
PC_09-10-2013_17_Willy Martin	Concerned that economic evaluation did not include damages prevented from floodfighting effort that saved property.	Damages are forecasted using a combination of storm surge modeling and an interior rainfall model that predicts water levels associated with various types of storms. These are theoretical storms and are not based on actual events. Therefore, if flood-fighting prevented damages attributable to existing storms like Isaac occur, it in no way prevents or reduces the amount of forecasted damages via the Corps' modeling.
PC_09-10-2013_18_Jude Cambre	Recommends Alt D. Alt C is a crucifixion.	Comment noted
PC_09-10-2013_19_Pat Barker	Alt C will result in a change to the flood zone maps, making a no-flood zone into a flood zone. Alternative D recommended.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_09-10-2013_20_Thomas Marcantel	Railroad track alignment - Lake side of the tracks recommend building an alignment there. Levee along lakefront. Lock at Manchac pass	This alignment went would have the potential to have a significantly greater direct and indirect impact on Swamp and Bottom land hard woods. Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. The addition of navigable locks would also substantially increase the cost of the project.
PC_09-10-2013_21_Thomas Marcantel	Railroad alignment would require a pump, but would avoid the competition among parishes for induced damages.	The potential to cause induced damages on Tangipahoa and St. Tammany Parish from this alignment would have to be investigated.
PC_09-10-2013_22_Thomas Marcantel	Economic impact to industry and business needs to be captured.	Impacts to industry and business were part of the economic analysis.
PC_09-10-2013_23_Ed Price	Alt D best for St James and Ascension.	Comment noted

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PC_09-10-2013_24_Shelley Donadieu	If Alt C is selected for community cohesion and agri benefits, why is St John more worthy than St James and Ascension?	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity.
PC_09-10-2013_25_Shelley Donadieu	Flood fighting kept St James from flooding; that should not be a determining factor in deciding on an alternative.	Damages are forecasted using a combination of storm surge modeling and an interior rainfall model that predicts water levels associated with various types of storms. These are theoretical storms and are not based on actual events. Therefore, if flood-fighting prevented damages attributable to existing storms like Isaac occur, it in no way prevents or reduces the amount of forecasted damages via the Corps' modeling.
PC_09-10-2013_26_Shelley Donadieu	Marshes are a barrier for St John. Why not equal treatment for St James?	Comment noted
PC_09-10-2013_27_Shelley Donadieu	Even small communities have a reason to be protected: industry (sugar cane, ag, refineries, Zapp's, sugar refineries)	Impacts to industry and business were part of the economic analysis.
PC_09-10-2013_28_Shelley Donadieu	Transportation needs to be protected - to benefit other larger communities. Roads at risk of flooding.	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.
PC_09-10-2013_29_Barry Waguespack	Successful flood fighting saved his house, but increasing annually the surge since built house - outside of flood zone - in 2000.	Comment noted
PC_09-10-2013_30_Adele Berthelot	Alt D recommended	Comment noted
PC_09-10-2013_31_Adele Berthelot	Recommend adding gypsum from Mosaic gypsum mounds to make the levees impermeable to lower the cost. (Gypsum currently viewed as waste product)	At this time, gypsum is considered a waste product and not considered as a type of soil that can be used in the construction of a levee. Any new type of material to be used in a levee would need to undergo significant tests and environmental clearances before it could be utilized in construction of an earthen levee.
PC_09-10-2013_32_Robert Foucheux	Alt D recommended. Alt C will allow more water into parish.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. In the case of Alignment D any induced stages on the existing non-Federal levee could not change the fragility of the existing levee. Any impacts would have to be mitigated for and the cost would be borne by that project. In most cases this would mean additional cost will be added to a project with no additional benefits. The federal project would still end at the tie-in point, after mitigating for any impacts. Investigating impacts from the Lake Pontchartrain and Vicinity Program is outside the WSLP study authority.
PC_09-10-2013_33_Robert Foucheux	Rigolets barrier recommended.	There is no data that suggests blocking storm surge at Chef's pass via the 'Barrier Plan' would reduce storm surge for the western portions of the basin, specifically the West Shore study area. The Barrier Plan was initially recommended for the Lake Pontchartrain and Vicinity project but was shelved in favor of the risk reduction system that is currently in place. Any alternatives having to do with a barrier plan are well outside of the study authority for the West Shore project which is specific to St. Charles, St. John the Baptist, and St. James parishes.
PC_09-10-2013_34_Robert Foucheux	Alt C will constitute a taking, violating Article V of the Constitution.	Comment noted

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PC_09-10-2013_35_Brandon Gravois	56 inches of rain annual on average, 2012 was 70. Prior to Isaac, got 12". During storm, another 12 inches. All retention was full. And then surge hit on the 3rd/4th day. Need help more than just locals sandbagging.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authorizing allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
PC_09-10-2013_36_Brandon Gravois	Evacuation/traffic problems because of 61 and 10 closure. All traffic through 3125, jammed and prevented sand trucks in. Alt D would protect the evac routes, as well.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction
PC_09-10-2013_37_Brandon Gravois	61 has 4 culverts with one bridge; otherwise would have been like St John.	Thanks for the information.
PC_09-10-2013_38_Brandon Gravois	Additional gages needed, to provide on-the-ground information for dissemination to parishes and emergency personnel.	Comment noted.
PC_09-10-2013_39_Glenn Vicknair	GNO HSDRRS responsible for flooding in SJBP - unintended consequences. Likewise, if Alt C is selected and built, water will go to St James.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. In the case of Alignment D any induced stages on the existing non-Federal levee could not change the fragility of the existing levee. Any impacts would have to be mitigated for and the cost would be borne by that project. In most cases this would mean additional cost will be added to a project with no additional benefits. The federal project would still end at the tie-in point, after mitigating for any impacts. Investigating impacts from the Lake Pontchartrain and Vicinity Program is outside the WSLP study authority.
PC_09-10-2013_40_Glenn Vicknair	Non-structural emphasis is not enough.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_41_Glenn Vicknair	Wildlife impacts are overblown - fishing in Blind River was never any good, anyway. Project overestimates the impacts to wildlife for Alt D.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_42_Dennis Troxclair	Community cohesion value not adequately valued.	The updated localized storm surge risk reduction measures eliminate impacts to community cohesion.
PC_09-10-2013_43_Dennis Troxclair	Non-structural lifts are under-costed - 30k per house, 1500 homes, 45 million dollars. (10M to extend, 10<45, QED.)	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure in St. James Parish, compared the TSP
PC_09-10-2013_44_Dennis Troxclair	St James growing community. Project undervalues future development, and the impact of flood insurance on this area will kill development.	Comment noted. A clarification has been made in the final report.
PC_09-10-2013_45_Dennis Troxclair	Flood insurance will disproportionately impact poor, will make them unable to sell, build, develop, or even just live there.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_46_Dennis Troxclair	Recommend Alt D.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_47_Jason Amato	Nonstructural is a nonstarter with Alt C. Evacuation issues will ensue.	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure in St. James Parish, compared the TSP
PC_09-10-2013_48_Jason Amato	Transportation benefits not being captured - interstate, highways, railroads open	Impacts to I-10 were investigated in the study process but in the review of the sections of I-10 in St. James Parish showed that when factoring in the probability of flooding (when and how often does flooding occur in a particular location) and consequences (potential damages associated with flooding), there is limited NED benefits to be gained. Flooding of large segments of I-10 does occur, but not until later in the study period. Even with flooding of the roadway, the impacts would only be temporary impacts. Large NED benefits related to roadway flooding are only typically gained when roadways are washed out and impacts such as road closures are long lasting. The loss of the I-10 twin spans after Katrina is an example of this scenario. The nature of the flooding in the future is not consistent with this condition. The inclusion of the potential transportation impacts in the report were included to show that there could be impact but they may not be related to a NED impact.
PC_09-10-2013_49_Jason Amato	Benefits not captured for industry staying open.	Impacts to industry and business were part of the economic analysis.
PC_09-10-2013_50_Jason Amato	Use Katrina as a model for the benefits of protecting homes. Calculate the benefits for preventing such a stiuation.	A suite of 120 storms is run and re-run to simulate conditions for a range of storms in the study area. This is applied to the 50 year planning window that the Corps investigates and damages (and the resultant reduction of damages were a risk reduction system in place) is calculated. Therefore, the reduction of damages over time is calculated as presented in both the draft and final reports.

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PC_09-10-2013_51_Jason Amato	Alt D or B. Not C	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_52_Kurt Roussel	Recommend Alt D.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_53_Kurt Roussel	Backwater flooding from diversion canal. Should be extended to the lake, not Blind R.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_54_Kurt Roussel	Houses that are raised will result in more houses to protect.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_55_Kurt Roussel	Inverse correlation between water in St John, St James: when St John waters receded (8") St James increased (8")	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_56_Kurt Roussel	Without Alignment D. we will become St James Retention Pond.	Additional discussion was added to the final report. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .01-.02 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. In the case of Alignment D any induced stages on the existing non-Federal levee could not change the fragility of the existing levee. Any impacts would have to be mitigated for and the cost would be borne by that project. In most cases this would mean additional cost will be added to a project with no additional benefits. The federal project would still end at the tie-in point, after mitigating for any impacts. Investigating impacts from the Lake Pontchartrain and Vicinity Program is outside the WSLP study authority.
PC_09-10-2013_57_Max Nassar	NEPA process requires that multiple considerations in decision making, one of which is cost. Presentation shows cost as ONLY driver.	The human and natural environment not just cost has been considered in this document.
PC_09-10-2013_58_Max Nassar	Cost to St James not considered	Economic impacts to St. James have been considered.
PC_09-10-2013_59_Max Nassar	Should combine the Blind River and WSLP projects for NEPA compliance.	The USACE's planning teams for the LCA ecosystem restoration studies/projects (LCA Small Diversion at Convent/Blind River (CBRD) and LCA Amite River Diversion Canal Modification (ARDC) projects), the CWPPRA Maurepas Diversion study planning team and the WSLP study planning teams have been working with each other since the inception of each of these projects. The apparent inconsistency between these projects/programs is the need to provide hurricane and storm surge damage risk reduction for human populations at risk living adjacent to the Maurepas Swamp ecosystem that is presently undergoing habitat fragmentation and conversion to marsh and open water due to a number of natural and man-made problems. The WSLP Recommended Plan alignment minimizes, to the maximum extent practicable, adverse potential impacts to significant human and natural resources. The WSLP Recommended Plan includes measures to maintain hydrologic exchange/connectivity between the protected (interior) and non-protected (exterior) side wetlands. In addition, closure of the risk reduction system during storm events would prevent more saline waters associated with hurricane and storm surge events as well as increasing relative sea level rise levels from adversely impacting enclosed wetlands.
PC_09-10-2013_60_Max Nassar	Emergency costs and costs from impacts to business and industry not well represented. Use Norco (Cat Cracker explosion) for calculating value to nation of preventative measures.	As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_09-10-2013_61_Max Nassar	Support Alt D.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_62_Mark Anderson	Support Alt D. Neighbors don't flood neighbors. Everyone wants it.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_63_Kirk Deroche	Oil refineries staying open requires Alt D	As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_09-10-2013_64_Kirk Deroche	If we build a canal on the other side, combined with Alt D, put locks in to keep freshwater in Shell Beach area out there, help environment, benefit the residents, improve wildlife through improved circulation	Comment Acknowledged, thanks for your comment.

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PC_09-10-2013_65_Denise Nosacka	Support Alt D. Water has to go somewhere, and if not St John, will impact St James.	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. Additional outreach methods used included canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses. .
PC_09-10-2013_66_Denise Nosacka	Emergency costs and costs from impacts to business and industry not well represented. Shut down costs will impact lots of people.	Emergency costs and costs from impacts to businesses and industry was included in the Economic analysis.
PC_09-10-2013_67_Alvin St Pierre	Community cohesion value not adequately valued.	The updated localized storm surge risk reduction measures eliminate impacts to community cohesion.
PC_09-10-2013_68_Alvin St Pierre	7th Graders sandbagging, people working together, keeping industry running.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_69_Alvin St Pierre	Alt D recommended	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_70_Ryan Donadieu	Incorrect assessment of cost for raising homes - 160k for a 2500 sqft. 1571 homes, 256 million. Adjusting for future costs (not able to fund all right now) inflation will more than cover the 10M difference.	The localized storm surgerisk reduction measures have been modified for the final report. There are now a limited number of raising of structures in the Parish.
PC_09-10-2013_71_Ryan Donadieu	O&M costs should not be applied.	The Corps policy and guidelines requires all feasibility reports to disclose the full cost of operating and maintaining a federal project.
PC_09-10-2013_72_Ryan Donadieu	Levee impacts on saltwater encroachment will be beneficial to marsh, not negative impacts. Hope canal, freshwater diversion will provide freshwater for swamps.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. In addition with the closure of the MRGO there has been a freshening trend on the west side of Lake Pontchartrain.
PC_09-10-2013_73_Ryan Donadieu	FWOP will include saltwater in the swamp if nothing done. Levee will protect it.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. In addition with the closure of the MRGO there has been a freshening trend on the west side of Lake Pontchartrain.
PC_09-10-2013_74_Ryan Donadieu	Alt D recommended	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_75_Terry Borne	As mayor of Gramercy, it was horrifying to watch Isaac - 15 houses lost.	Comment noted
PC_09-10-2013_76_Terry Borne	Alt D recommended, otherwise, will be worse next time.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_77_Robert Roussel	Refinery shutdown costs not captured, or the recommended plan would not be Alt D. Dept of Energy called after Katrina, concerned about the cost to the nation if not opened again immediately.	As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas.
PC_09-10-2013_78_Robert Roussel	Emergency transport on I-10 disallowed people to get back to the refineries to get them back on line.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-10-2013_79_Robby Lear	12 plans of action in Appendix K dated between 2007 and 80s - nothing after Gustav or Isaac. Lessons learned were not incorporated.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_80_Robby Lear	USFWS letter offered two additional alternatives not addressed except in the letter. Why not further investigated? Reduction in impacts to Maurepas wetlands (56k acres to 13k) - $200M difference.	Alignments C-la and C-lb were review as part of the study process but they were not included because the alternatives would have similar benefits and cost as Alignment D. Also, the indirect impacts maybe limited with these Alignments but the direct impact were estimated to be greater due to the fact that the total length of the alignment is greater than D.

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PC_09-10-2013_81_Robby Lear	Surge modeling appears to only figure the needed levee heights, but does not address pre-development and post-development flooding for each alternative (Alt D will provides ull protection, and induced flooding will be zero)	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. Additional outreach methods used included canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses. .
PC_09-10-2013_82_Robby Lear	If post-levee construction modeling of the flood is done at different levee elevations, what does that do to the community and the flooding?	The updated localized storm surge risk reduction measures eliminate impacts to community cohesion.
PC_09-10-2013_83_Dalton Johnson	St John gets flood protection, St James gets flood. Inequity for Alt C pointed out.	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. Additional outreach methods used included canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses. .
PC_09-10-2013_84_Barry Waguespack	Invested 30k in creating a non-structural alternative to raising (floodwall around house) still need to be there to close gate, rather than evacuating.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-10-2013_85_Woody Pollet	Medical treatments are needed, and when road closures prevent evacuation to different facilities, the result is tragic. Consider this in deciding, and choose Alt D.	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."
PC_09-10-2013_86_Katy Isabel	Mission of the Army is to protect people of the US; one community not more deserving of protection than another.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_87_Katy Isabel	Community is important, and is not valued enough in this project. Alternative D would do that.	The updated localized storm surge risk reduction measures eliminate impacts to community cohesion.
PC_09-10-2013_88_Pat Tremonte	Environmental degradation is is real in the area around Lake Pontchartrain. Surround the lakes, stop the water. Best solution.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. In addition with the closure of the MRGO there has been a freshening trend on the west side of Lake Pontchartrain.

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PC_09-10-2013_89_Shelly Warren	Previous public meeting requested a harder look at Alt D. Came back still recommending Alt C. Was there any further evaluation done? Does not seem that there was.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_09-10-2013_90_Brandon Gravois	Diversion canals (New Hope and Romeville) produce 2200 cfs. During wet years, this will provide surplus water, which would lead to flooding in the event of a storm.	Comment Acknowledged, thanks for your comment.
PC_09-10-2013_91_Willy Martin, Jr.	Induced flooding has not been explained well, and the results are not trusted.	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. Additional outreach methods used included canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses. .
PC_09-10-2013_92_Willy Martin, Jr.	Benefits from reduced road closures have not been quantified well.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events. The final plan has been modified to include localized storm surge risk reduction measures near the developed areas discussed in your comment.
PC_09-10-2013_93_Willy Martin, Jr.	Economic effects on industry for the nation have not been well quantified, or Alt D would have been selected.	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure in St. James Parish, compared the TSP
PC_09-10-2013_94_Timmy Roussel	Community will get data needed to affect final decision.	This Final Document is the source of additional information and data.
PC_41549_1_Randy Clouatre	Alt D is preferred.	Comment Acknowledged, thanks for your comment.
PC_41549_2_Randy Clouatre	Economic development and industry benefits need to be considered	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure in St. James Parish, compared the TSP

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PC_41549_3_Randy Clouatre	Concerns about induced flooding for St James as part of Alt C	As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages. Additional outreach methods used included canvassing of neighborhoods, as well as public meetings that were not always specific to environmental justice, yet provided ample opportunity for the public to comment and be involved in the planning process. Appropriate public involvement strategies will continue to be used as the project progresses. .
PC_41549_4_Bill Roux	Ascension parish benefits not included because outside of authority. Skewed benefits. Alt D would better serve St John, St James, and Ascension	A 100% structure inventory was collected and analyzed in St. James parish. This data was used to develop the localized storm surge risk reduction measures that are part of the recommended plan. As for Ascension, benefits could have been calculated and captured there but after overlaying storm surge grids with existing topographical information, it was concluded that very little damage would occur in Ascension Parish. In places that could have been susceptible to storm surge, there are local levees (such as the Laurel Ridge Levee) that reduce risk to storm surge and from flooding of the Amite River.
PC_41549_5_Bill Roux	Submitted data from economic sources (Moody's, GIS, NED manual). Increased 19% land area, huge population increase, households, and equivalent benefits are not properly accounted for.	Comment Acknowledged, thanks for your comment.
PC_41549_6_Bill Roux	Additional data submitted to show additional affec ted areas that should be considered as part of the project area: Panama/Conway, lower part of the parish.	Comment Acknowledged, thanks for your comment.
PC_41549_7_Bill Roux	East Ascension Drainage Board and Parish Council recommend Alt D	Comment Acknowledged, thanks for your comment.
PC_41549_8_Bill Roux	Expressed belief that levees do not hurt wetlands behind them - as long as there is water interchange allowed between interior and exterior of system.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area.
PC_41549_9_Clint Cointment	Wetlands little impacted by levees already in place; additional levees will not indirectly impact them.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. Each layer of hydraulic barrier causes a cumulative effect on the wetlands behind them. We accounted for this in the existing conditions of the wetlands and are mitigating for the value of the wetlands as they exist with full or limited access.
PC_41549_10_Clint Cointment	Saltwater intrusion through Lk Pontch and Maurepas a bigger environmental issue. Levees will benefit by preventing the SWI.	FALSE
PC_41549_11_Clint Cointment	Cost-benefit analysis questioned, as Ascension and St James residences not included in the assessment, as well as future development.	A 100% structure inventory was collected and analyzed in St. James parish. This data was used to develop the localized storm surge risk reduction measures that are part of the recommended plan. As for Ascension, benefits could have been calculated and captured there but after overlaying storm surge grids with existing topographical information, it was concluded that very little damage would occur in Ascension Parish. In places that could have been susceptible to storm surge, there are local levees (such as the Laurel Ridge Levee) that reduce risk to storm surge and from flooding of the Amite River.
PC_41549_12_Clint Cointment	No change in cost from C to D, but protection is greater for residences, structures, economics, business. Not all captured benefits.	There is an increase in cost and environmental impacts from Alternative C to Alternative D.
PC_41549_13_Clint Cointment	Protection of evacuation routes not properly captured.	A reduction in traffic delays, associated with emergency response activities following a tropical storm surge, is a potential economic benefit that can be attributable for each of the alternatives considered in this study. However, compared to the reduction in physical damages to property, this category is expected to represent a relatively small portion of total economic benefits. Also, since the computation of these benefits were not needed to confirm the economic justification of the project, the development of a regional traffic delay model needed to compute these benefits was not pursued. With respect to the use of major state and Federal highways for pre-storm evacuation, none of the plans would provide economic benefits since these routes are closed to traffic within a minimum of 24 hours prior to tropical storm landfall and cannot be used whether or not a levee system is in place.
PC_41549_14_Clint Cointment	Loss of life prevention worth the additional increment (10M is less than 1% of overall cost)	When severe weather strikes it's critical to think about your safety and your family's safety. Local emergency planning is the responsibility of the State of Louisiana and local municipalities. The USACE encourages you to listen carefully to the direction of local officials and prepare to evacuate if it becomes necessary. Only stay at home if you have NOT been ordered to evacuate by local officials. Listen to local officials and be ready to evacuate. Evacuation plans by locals should be enacted well before the occurrence of storm surges into an area. Residents could be requested to evacuate even behind a levee. The main purpose of a levee is for the protection of property not life or limb. Durations of flooding in street will be highly depended on the type of storm event. Access may be limited into areas for other reasons not related to flooding (e.g. debris, downed power lines). The State of Louisiana's Emergency Preparedness Guide states that "You should be prepared to sustain yourself and your family away from your home for several days or, in a worst-case scenario, several weeks or even months. The guide also advises that the "government agencies may not be able to react as quickly as you think they should."

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PC_41549_15_Kent Schexnaydre	Risk of I-10 closure, Hwy 61, and railroad. Not included costs to rail in calculations.	A reduction in traffic delays, associated with emergency response activities following a tropical storm surge, is a potential economic benefit that can be attributable for each of the alternatives considered in this study. However, compared to the reduction in physical damages to property, this category is expected to represent a relatively small portion of total economic benefits. Also, since the computation of these benefits were not needed to confirm the economic justification of the project, the development of a regional traffic delay model needed to compute these benefits was not pursued. With respect to the use of major state and Federal highways for pre-storm evacuation, none of the plans would provide economic benefits since these routes are closed to traffic within a minimum of 24 hours prior to tropical storm landfall and cannot be used whether or not a levee system is in place.
PC_41549_16_Kent Schexnaydre	Industry risks, especially indirect, is not captured well.	Impacts to pipelines were investigated in the study process but there was limited empirical data to show that there are storm damages to pipelines that are mostly buried. Impacts to pipeline facilities such as transfer stations, that have if damageable assets, were included the NED benefits.
PC_41549_17_Kent Schexnaydre	Cumulative benefits - tying into Ascension Parish system is not captured well in benefit calculations	Comment Acknowledged, thanks for your comment.
PC_41549_18_Kent Schexnaydre	Environmental impact will be less than calculated for Alt D. Interstate impacts already in place; just combined with levee impacts.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. Each layer of hydraulic barrier causes a cumulative effect on the wetlands behind them. We accounted for this in the existing conditions of the wetlands and are mitigating for the value of the wetlands as they exist with full or limited access.
PC_41549_19_Kent Schexnaydre	Need to address water pumping into Miss R through Comite diversion or Blind R.	Per Corps ER-1105-2-100, the study was formulated as a Hurricane and Storm Damage Reduction study based on the two WSLP congressional resolutions. This authority allows for federal participation in studies designed to reduce damages caused by wind-generated and tide-generated waves and currents along the Nation's ocean coasts, Gulf of Mexico, Great Lakes, and estuary shores. The authority extends only that distance up-stream where the dominant causes of damage are coastal storms or ocean tidal action (or Great Lakes water motion) and wind-generated waves. The authorization does not address damages caused by stream flows from rainfall events.
PC_41549_20_Kent Schexnaydre	If Blind R pump station is prohibitively expensive, preventative measure of levee (Alt D) would be preferable.	Comment Acknowledged, thanks for your comment.
PC_41549_21_Henry Graham	Louisiana Chemical Assn facilities have access to plans for $16B in new facilities investments. Will not be protected by Alt C.	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure, and businesses in St. James Parish, compared the TSP
PC_41549_22_Henry Graham	Protecting the people in the corridor will have indirect impacts that are important to the nation: gasoline, plastics, fuels, critical ingredients.	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure, and businesses in St. James Parish, compared the TSP
PC_41549_23_Henry Graham	Transportation not protected, and risk of these costs are not included in the report.	A reduction in traffic delays, associated with emergency response activities following a tropical storm surge, is a potential economic benefit that can be attributable for each of the alternatives considered in this study. However, compared to the reduction in physical damages to property, this category is expected to represent a relatively small portion of total economic benefits. Also, since the computation of these benefits were not needed to confirm the economic justification of the project, the development of a regional traffic delay model needed to compute these benefits was not pursued. With respect to the use of major state and Federal highways for pre-storm evacuation, none of the plans would provide economic benefits since these routes are closed to traffic within a minimum of 24 hours prior to tropical storm landfall and cannot be used whether or not a levee system is in place.
PC_41549_24_Henry Graham	All costs seem to be included, but not all of the benefits captured. Alt D protects 2x people, facilities, roads and infrastructure.	The localized storm surge risk reduction measures have been modified for the final report. The berms in the recommendation would provide additional risk reduction to infrastructure, and businesses in St. James Parish, compared the TSP

Unique file Identifier**	Comment (may be paraphrased or summarized)	Final Response
PC_41549_25_Henry Graham	Master Plan for CPRA had >12 factors in decision matrix, not just B/C. Recommended D. Urge you to reconsider.	While the Corps understands that Alternative D provides risk reduction to a larger area, the Corps' recommendation has to be consistent with the Water Resources Planning Act of 1965 (Pub. L. 89-80). The Corps has to recommend a plan that reasonably maximizes net national economic development (NED) benefits while still protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. As presented in Chapters 5 and 8 of the final report, Alternative C is the NED plan that maximizes net benefits consistent with protecting the Nation's environment. The Corps acknowledges that the NED plan may not fully address other Federal, State, and local concerns, such as future infrastructure impacts related to subsidence and sea level rise, the report, consistent with Pub. L. 89-80 still presents Alternative D as a plan investigated and shown to be above unity. As discussed in Chapter 3 of the main report and Planning Appendix, the Corps in response to comments related to areas vulnerable to flooding, the team further developed localized storm surge risk reduction measures that would address this concern. The final recommendation includes measures in St. James Parish that would prevent the flooding of these areas. As discussed in Chapter 3 of the Main Report and Planning Appendix, the team investigated the potential for induced flooding impacts in St. James associated with levee feature proposed in St. John the Baptist Parish. A review of surge models of with-project conditions found that increased stages ranged between .1-.2 feet of water over a 50-year period, which is within the current model uncertainty. There is always fundamental uncertainty with the modeling, but due to the limited acres of wetlands enclosed with Alternative C versus Alternative D, the potential for impacts to communities outside of the a levee area would be similar with and without Alternative C. There is a higher risk related to induced flooding associated with Alternative D due to the larger acres enclosed. Additional precision modeling will be performed during preconstruction engineering and design to precisely estimate its magnitude, but at this point, the model uncertainty and inclusion of localized storm surge risk reduction measures with Alternative C adequately addresses the limited potential for induced damages.
PC_41549_26_Monica Salins	If O/M is 100% Non-fed, then a sensitivity analysis should be done to see which is a better plan, exclusive of O&M costs. If locals will absorb O&M, then should not be a selecting function.	The Corps policy and guidelines requires all feasibility reports to disclose the full cost of operating and maintaining a federal project.
PC_41549_27_Monica Salins	Request the 'what if' scenario be done to show difference in plan construction costs.	Comment Acknowledged, thanks for your comment.
PC_41549_28_Monica Salins	If Maurepas swamp is declining to convert to open water under FWOP, what purpose does mitigation serve? Levee will protect better than FWOP, without mitigation. And credit the project with 79 miles of wetlands.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. Each layer of hydraulic barrier causes a cumulative effect on the wetlands behind them. We accounted for this in the existing conditions of the wetlands and are mitigating for the value of the wetlands as they exist with full or limited access.
PC_41549_29_Monica Salins	Disagree that no-action will have no impact on community and regional growth. Simple impacts from BW-12 will be a major adverse impact to community and regional growth. Not advocating development of wetlands, but ag lands? Should be allowed to develop.	Comment Acknowledged, thanks for your comment.
PC_41549_30_Monica Salins	Disagree with indirect and cumulative impacts to the wetlands. Impacts already incurred from I-10 'levee'. Culverts do not allow passage of water, and levee would further protect fragile wetlands. Not impact them negatively.	Enclosing the wetlands behind the levee limits their value and function to aquatic species that may no longer be able to access the area. Each layer of hydraulic barrier causes a cumulative effect on the wetlands behind them. We accounted for this in the existing conditions of the wetlands and are mitigating for the value of the wetlands as they exist with full or limited access.
PC_41549_31_Monica Salins	No evidence provided that levee building will damage the wetlands. Opinion of environmental agencies, not science.	Comment Acknowledged, thanks for your comment.
PC_41549_32_Monica Salins	Counter-example: LPV, St Charles polder, cypress are bare adjacent to Lake Ponchartrain, healthy behind the St Charles levee.	Comment Acknowledged, thanks for your comment.
PC_41549_33_Monica Salins	Counterexample #2 - inside LGM levee, open water outside the levee, healthy, vibrant forested wetlands inside.	Comment Acknowledged, thanks for your comment.
PC_41549_34_Monica Salins	Risk to industry that is not accounted for. Least impact to pipelines (relocations) used to ship products across the country.	Impacts to pipelines were investigated in the study process but there was limited empirical data to show that there are storm damages to pipelines that are mostly buried. Impacts to pipeline facilities such as transfer stations that have if damageable assets, were included the NED benefits.
PC_41549_35_Monica Salins	Pipeline relocations not fully evaluated. Pipeline outage cost and loss of material cost not included. Only construction costs. Does not capture full impact of costs.	Impacts to pipelines were investigated in the study process but there was limited empirical data to show that there are storm damages to pipelines that are mostly buried. Impacts to pipeline facilities such as transfer stations that have if damageable assets, were included the NED benefits.
PC_41549_36_Monica Salins	Relocations costs borne by locals, and needs to be fully captured, to give the correct assessment of costs to the sponsor.	Relocation costs are included in the Economic analysis.
PC_41549_37_Monica Salins	Request answers to questions and all others by 30 days after the comment period - November 18, 2013.	This document provides responses to all comments.
PC_41549_38_Monica Salins	Alignment D recommended. The partnership - of equals - between local and federal depends on the Corps listening to the stakeholders.	Comment Acknowledged, thanks for your comment.

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED FINAL FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex Q

Public Comments and Public Meeting Transcripts

***Please see Annex P to find the response to each of these comments. They can be located using the Unique File Identifier labeled on each of the documents in this annex.**

U.S. ARMY CORPS OF ENGINEERS

PUBLIC MEETING COMMENTS

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IN RE: West Shore Lake Ponchartrain Hurricane and Storm Damage Risk Reduction Study Integrated Draft Feasibility Report and Environment Impact Statement

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ABOVE-ENTITLED MEETING

WAS HELD ON SEPTEMBER 10, 2013, AT THE

LUTCHER HIGH SCHOOL AUDITORIUM

1910 WEST MAIN STREET

LUTCHER, LOUISIANA

MODERATOR: MR. RENE POCHE

REPORTED BY: ANNETTE ROSS, CCR, RPR

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APPEARANCES

PANEL MEMBERS:

Colonel Rick Hansen, Commander, Army Corps of Engineers New Orleans District

Mr. Jeff Varisco, Project Manager, WSLP

MR. Greg Miller, Branch Chief

ANNETTE ROSS, CCR NO. 93001,
Certified Court Reporter, in
And for the State of Louisiana

* * * * *

INDEX OF PUBLIC SPEAKERS

INDEX (CONT'D)

TRANSCRIPT OF PUBLIC COMMENTS

MS. KAREN DUNN:

First, I want to start off by, I will never look at a news story again and wonder how someone ended up in a flood zone, how did they build there.

Most people tonight are going to share their Isaac stories, but my story goes back to pre-construction. It does not take a named storm or a tropical depression to wreak havoc. All it takes is one storm to stall out over a certain area.

May 1995, there were floods. April '95, we signed a building contract and began construction on our home.

Before permits could be obtained, there was a major rain event on May 8th, 1995. Contractor was unable to start construction for an additional five to nearly six weeks, we were told the reason being the parish was busy dealing with the aftermath, that they -- we were unable to obtain a municipal address to proceed.

We found the highest point and we built above those flood markings. Once assigned, the permits were obtained, and we formed our slab on July 4th.

Heavy thunderstorms and unnamed storm flooding, that has caused issues with us in the past, the storms. Street covers over, the yard fills up, renders me unable

to use my car at times until it runs off.

Major storm issues, with Isaac flooding, along come familiar names -- Katrina, Rita, Gustav -- all causing some type of damage. New roof with Katrina and Rita. Gustav brought minor outside damages. And we lost more trees. We were lucky. For Isaac, we had some cosmetic damages. We weathered the storm.

But then comes the back flooding. With the back flooding comes sandbagging. Thank God this community came together and helped each other, they sandbagging pumping, property loss -- everybody stuck together -- none of which was covered. All of our losses were out of pocket.

My place of employment sustained damages. My business is housed in that building. I was displaced in my business for two months waiting for repairs to be finished. Because so many people were flooded, resources were short.

Personal responsibility for carrying flood insurance. It has never been mandatory for me to carry flood insurance, but I knew I could never be without flood insurance. I would never want to become a tax burden on our society. I work. I own a business. I am a contributor, and I wish to remain so.

I fear the day we are rezoned and I won't be

able to meet those premiums. My husband is a 24-year-old veteran of St. James Sheriff's Office. Residency in St. James Parish is a requirement. It's our home, and we want to stay.

The final comment --

MR. POCHE:

You have about 15 seconds.

MS. DUNN:

Okay. Elevations. I'm not fond of the elevation plan because of the cost involved. I hear that it's possible we would have to share a burden of that. And the flooding may not enter the structure, but there would be no access for emergencies. We would be either shut in or shut out, and the vehicle issues would come into play.

And then, the last part, I had some pictures of the story of the flooding, front, side, up, down the street, back street, and pumping. And then I have some elevation levels of my house where, when the river crested, that tells the whole story.

MR. POCHE:

Okay. You are submitting all that for the Corps?

MS. DUNN:

Yes. I already gave a copy. Thank you.

MR. LOUIS KLIEBERT:

I have two simple questions, and it's going to be very interesting to hear the answers that you're going to have to say.

In the town of Gramercy, with Isaac, the substation went underwater. There was no power. If the substation in Convent goes underwater, there will be no power. That means almost all, if not all, of the east bank of St. James Parish will be out of power. What are your plans to do in that if you don't build a levee?

The other one is, I passed on 61 after Isaac. They closed the road right after I passed because it was flooding. I went through flood water. And if 61 floods, the interstate floods, and 3125 floods, where are we going to pass the traffic? Thank you.

MR. TIMMY ROUSSEL:

You mentioned the bald eagle in your report when you addressed everyone. Well, you know, we have something pretty close to almost being endangered also. And it's Perique tobacco. It can't be grown anywhere else in the world, only in St. James Parish.

Perique is a type of tobacco in St. James known for its strong, powerful, and fruity aroma. When Acadians made their way into this region in 1776, the Choctaw and Chickasaw tribes were cultivating a variety

of tobacco with a distinctive flavor. A farmer named Pierre Chenet is credited with the first turning this local tobacco into what it is now known as, Perique, in 1824 through the technique of pressure fermentation.

According to William Retz (phonetic), the entire world supply of this type tobacco is grown here in St. James on an area of several hundred acres near the small communities of Grand Point, Paulina, and Belmont. This is a unique -- this is a unique agricultural crop. The production does not have an economic impact if saline storm surge waters are allowed to penetrate into the area; that crop will become history. It is imperative for this crop only grown here in St. James Parish that we can't allow that saltwater to get into the soil. Thank you.

MR. HENRY FRILOUX:

Good evening. Thank y'all very much for coming out this evening. Thank y'all for giving us the opportunity to address The Corps. My name is Henry Friloux, and I am representing the business and the industrial community of the three-parish area of St. James, St. John, and St. Charles. The River Region Chamber of Commerce represents all three of these parishes.

It is critical for the business and industrial

community that we have adequate protection to keep our businesses and the industrial facilities open and operating, continuously operating, some of them, where they don't have to shut down. A lot of times, when an industry shuts down in South Louisiana, it not only affects South Louisiana workers, but it affects workers all over the country.

But Alignment C, though it protects a lot of St. John, still leaves parts of St. John exposed and all of St. James Parish exposed. And the St. James Parish is becoming a very, very key player in the economy of this country and needs to be protected.

Also, Interstate 10, I think we brought up before, is a major evacuation route out of the New Orleans area, and protecting it is vital to making sure that we have a clear access out of this area in case of a storm. So we would consider -- we would ask you to please consider Alignment D in your evaluations.

And if you need any information, data, economic, etc., from the business community, please contact us. We would be more than happy to help you in supplying it. Thank you very much.

MR. LIONEL BAILEY:

All right. My name is Lionel Bailey. When I first walked in, I talked to Mr. Poche briefly, and I

think I kind of got under his skin, because I'm very familiar with the NEPA process. And based on that process is like being on the tail end.

The process is not designed to help you justify a decision already made. It is used to help you make informed decisions. And you guys already made a decision and want to come, I guess, on the rear end and expect to justify the decision. We strongly recommend Alternative D. Thank you.

MR. WILLY MARTIN, JR.:

Thank you. First of all, Colonel, please don't think I'm picking on you, but I want to concentrate on a few, couple of comments that were made in regards to the President making a statement about making sure this doesn't happen again. I strongly feel like, if Alignment D is not the choice, that it will happen again.

And one of the things that I learned extremely valuable is the process of the economic benefits. And we keep talking about benefits. And as I recall earlier in the evening, I asked to clarify benefits. And so some of the comments here capture those benefits.

President Roussel alluded to the unique crop of Perique tobacco. But the agricultural industry in this parish is extremely vital for us. And not only do we

affect the Perique tobacco, the sugar cane and soybeans, which is a big economic impact here.

I have been fortunate to serve this parish long enough to have dealt with every event from Andrew all the way to Isaac and every unnamed event in between. And I have seen the cost to local taxpayers in regards to just the emergency response efforts. So I don't know if we captured that factor in.

Not only the fact that we lose Interstate 10, we lose rail systems, we lose 61, I dealt with the traffic coming through Tulane, Highway 3125. I dealt with the impact that had on our local community not being able to get to the resources they needed to bring this community back to life.

So -- and I've dealt personally with the trying to recover cost from the federal level to pay for those services. So, in capturing cost, I don't know what that cost is. I would have to go back and try to get you that information.

But the lack of cost also is something we need to concentrate on, because you concentrate on figures a lot. And in the absence of claims to FEMA because of flood damages is not by lack of effort. It's because the people in this room and the people in this parish worked hard to stop flooding and protect property. And don't

punish us for our efforts.

And, last, I want to just encourage, because we are not all going to get to speak tonight and this is an emotional topic and a lot of you have a lot to say, please sit at your computers, put a lot of thought into your comments, and give The Corps what they need. They need information that they may be overlooking, that we may be forgetting. Respond by your mail. Respond by your e-mails. Put letters in the mail. And, please, I thank you for being here, for doing your part. And I trust that you are going to do it again when you get home. Thank you.

MR. JUDE CAMBRE:

I have been in this parish 75 years, and, each year, there's a storm. But the storm doesn't bring all the water. It comes in from the back.

Let me tell you people, if C option is taken, we are sunk. They need to go with "D." If they took that levee from "C" and stretched it along "D," it would come into the parish, into St. James Parish, without no additional cost. So what's up? I believe they are trying to crucify us. Thank you.

MR. PAT BARKER:

I moved into the parish six years ago, built a brand new home in a no-flood zone. And if they do "C,"

they are making me a flood zone, and that's not right.

MR. THOMAS MARCANTEL:

I'm not really supporting any of the plans, because I think I'm privy to some information that may change the scope of the whole thing. If you could, bring back that picture that you had of your plan, possibly, on the monitor.

I work for an industry, Canadian National Railroad, which is the former Illinois Central. And I do know that it's a major issue with them every time a storm comes -- name them all. Right along the lake, there's a railroad track. And, basically, that railroad industry is fed up with it being some sort of a protection levee along the lake.

Last year, in Isaac, it was washed away as in many, many other storms, the cost somewhere between $17- and $20 million to repair it. Okay?

What I'm proposing is that we think out of the box a little bit. Why can't we make a levee that doesn't impact anybody, the environment or anything else, on the lake side of Ponchartrain of that railroad track.

Collectively, and I'm here from St. John Parish, and I sense a lot of animosity from one parish to the other. You know, you're leaving me out, you're doing this, and what happens to us? And it should never, ever

be that way.

I personally think that, if we use wisdom and work together, that there's a solution. I think The Corps may not know that the industry that I worked for, for 42 years would -- I can't speak for them, but I can speak in reference to what the cause of all that is.

What I'm proposing is a levee along the lake, in conjunction with all the other parishes north of the lake get together and maybe have some kind of a lock at Manchac Pass. We have locks in the Mississippi River. It's feasible. I mean, it's proven projects that work.

We don't have to pump the water out. If there's a tidal surge, there's nowhere -- I mean, yes, you can put a pump. But you can't pump water much over the level that it is. And the tide -- in Isaac, the tide was up. And then what happened was, there was nowhere for the water to go.

You know, my yard and everybody else's right here, we nearly flooded in that subdivision we're living in. But the problem is, is that -- and I see this, that if we could just all get together. And it impacted not only the industry that I work for, but it impacted the industries up along the river. It cost hundreds of millions of dollars. I have heard my people tell us, not only did it cost them a lot of money, but it cost every

industry up and down this river was impacted.

MR. POCHE:

I need you to wrap it up.

MR. MARCANTEL:

That's it. Thank you.

MR. ED PRICE:

Thank you very much, and Thank Colonel Hansen and the staff of The Corps for being here and for what you are doing. I also want to thank the parish president and sheriff for putting this on. But most of all, I want to thank all of you all for being here tonight, because this is very important that we make a point to The Corps that Alternative D is the most feasible plan for, not just St. James Parish, but Ascension Parish, which I also represent. I represent St. James and Ascension.

And I know, on behalf of our River Parish delegation and Representative Berthelot is here tonight. I want to mention his name. I see Representative Smith is here, and they may be making a comment.

But we will work at the state level to make sure that we get the attention of our congressional delegation, as well as The Corps, and working with the Ponchartrain Levee Board and the South Louisiana Port Commission to make sure that we get the right protection for the people of St. James Parish. And we are dedicated

to that.

Our delegation will work on your behalf to make sure that that protection plan, and this is Alternative D, which we feel right now is the best alternative for this parish, that we put forth that effort and also getting funding to do that. So I thank you, and I thank all of you all for being here.

MS. SHELLEY DONADIEU:

Okay. I'm one of the residents here, and I was in an area that flooded. I read those plans that The Corps came up with. The Corps states some of the information why they're choosing Plan C had to do with the agriculture impact on St. John and also the cohesiveness of the St. John community that was impacted.

What about the cohesiveness of our community in this parish? Why isn't it enough that something is going to be done for us? You have levees that y'all are going to build in St. John. Ascension Parish has theirs. Where is all that water going to go? Right back on us.

We spent three days sandbagging down my subdivision alone. Some of my friends spent about a week pumping water out on the sandbags to get the water out to where it's not in their homes. So if we flood, we lose all of our valuables just like St. John flooded. Twenty

minutes for the water. Walked out, oh, it's a ways back. No big deal. Fifteen, twenty minutes later, it's in their homes.

Y'all talk about the marshlands being, you know, the barrier for us. The reports state that the marshlands are turning into open water. Nothing is going to slow it down for us, just like St. John. So why don't we matter enough? Yes, we're a small community. We have agriculture here. What about the cane fields here? What about Zapp's potato factory? What about the refineries? We have the sugar refineries here.

What about us, transportation throughout here? It was busier here because the roads were flooded in St. John also, so where would they travel through? Our parish. If our Parish floods, how are they going to get where they have to go?

MR. BARRY WAGUESPACK:

I live in Ascension Parish right out of Sorrento on Highway 70. I have been having my property for 13 years. In '01, Alicia came. Water came up to the slab on the house. When I built in 2000, I was not in a flood zone.

There was another storm came. I sandbagged, but no water. That was a good thing. But then Isaac came, and it was a good thing it was on a holiday weekend. I

could get some help. I put 1500 sandbags or more around my house. I had two cane field tractors running in 18 inches of water.

Now, Ascension Parish provided us filled sandbags, but they couldn't get but 100 yards from my house. So we were using cane -- high ground tractors running in 18 inches of water, pulling sandbags to the house. We saved the house. There would have been four inches of water in my house. So I want to thank all my friends that came.

It looked like every time I've had to increase the levee, it was in the middle of the night, and they all came. So I want to thank them for that. But, anyway, the old folks in that area said they have never seen that much water before. So thank you very much.

MS. ADELE BERTHELOT:

I am a homeowner in Gramercy. And, as pointed out, Plan D is the best plan. It provides protection for everyone. And it was pointed out that there is a difference of $10 million of construction cost between Plan C and Plan D.

I'd like to propose something. As a geoscientist, I am trained to think out of the box. Just down the road, Mosaic has gypsum mounds located south of 3125. The gypsum could be used as a component to mix and

create levees mixed with material that would make them impermeable and probably lower the cost. And I'm sure Mosaic would love to -- because right now it's just being stockpiled. And before that, for decades, it was just being dumped in the river.

It's not toxic. It's just NORM, natural occurring radioactive material, which is not toxic. So the gypsum could be mixed with some type of material to cause it to be impermeable. And, probably, it would lower the cost, the construction cost, of the levee. So it's just something for you to think about.

ROBERT FOUCHEUX:

(To Mr. Poche): Look, I forgive you.

(To the Panel): I have heard tonight that wildlife is more important than people. I have heard that the federal government is to be considered and not the people.

During Isaac, I lost eight properties, one in St. John and seven here in St. James. We need to stop this. We need to in fact go along with Alignment D. Alignment C will cause more water to come into our parish. This Corps of Engineers should also look at building a damn or building a gate at the Rigolets.

The proposal that y'all have would be a taking and violate Article V of the Constitution of the United

States. The Corps makes up a part of The United States. You are not an entity that does not have to serve the people. So please consider everything that's been said tonight and work for our parish.

BRANDON GRAVOIS:

I'd like to thank everybody for coming out here tonight. Well, I'm a fourth generation sugar cane farmer, and we pay attention to the weather most importantly than anything. And we always get rain throughout the year, and 56 inches of rain a year, most case average.

Well, last year we was up to 70 inches of rain. In the week before Hurricane Isaac, we received 12 inches of rain. During the storm, we received another 12 inches of rain a week later. So all our canals, bayous, ditches, drains were filled with water. After the storm, our water receded. All the fields was empty, and everything drained out. Every house was safe.

However, on the third day, fourth day, the water started coming back in with mammoth amount of water out from north of the lake. Our community pulled together really strong. All of our work crew started filling sandbags. Everybody in the parish came together and we fought this tremendous disaster and we saved a lot of homes.

So, and with that, I mean, we need -- in our sandbagging process, Highway 61 was closed, Interstate 10 was closed, so all this traffic started rerouting through 3125. And that created a traffic jam. We couldn't get trucks in with the sand. We couldn't get sandbags to the houses that needed it. So, with this, all these routes being closed, it became even monstrous for us that we came together and fought this. So we would like to go with Alternative D or something that kind of restricts the waters.

Also, I would like to say that Highway 61 has four tunnels or four culverts with one big bridge, that if we wouldn't have had 61, we would have been like St. John. It only allowed us to get a quarter-inch an hour. And we made, a couple of boys from us in Grand Point, a couple boys with the fire department, at the boat launch in the boat club, made our own gauges and we were relaying to the parish and to whoever was around, to continue to fill the sandbags and monitor the water as it come up. So consider that in your options as well. Thank you.

MR. GLENN VICKNAIR:

I was looking up Article V on my iPhone. Thank y'all for coming here. And I didn't get it, because the WiFi wasn't connected. But thank y'all for coming here

and hearing our voices.

You know, we learn from mistakes, unfortunately, in the world we live in. I know New Orleans had a lot of flooding. Some levees were built. You know, just in casual conversation with friends, we know the water's got to go somewhere. Right? Where does it go? St. John. If you do Alignment C, the water is going to go somewhere. Where is it going to go? St. James.

So it's coming. And we got you -- you know, we want you to make a good decision, Alignment D naturally. But, unfortunately, the last storm we had, first time I have been living back in David Plantation in 14 years, we had the water come up, sandbags around homes. Right? Fortunately, no water got in. The levee is built for Alignment C, it's going to happen. It's a matter of time.

I know you talked about lifting homes, homes, rates, flood insurance premiums go up. We hear it going on all over.

Wildlife, talk about that, the Environmental Act, that's fine. Right? Fishing was never good down Blind River. Sacrifices -- I'm being serious. Sacrifices got to be made, but it's not the people. Wildlife is the sacrifice that's got to be, you know, taken for this hit, for this brunt.

So we ask you to keep working with the government, our local government, state government, and make a very good conscious decision on going with Alignment D. The money, the funds, are there. We heard earlier, the President said let's not let this happen again. So please make a very good decision. Thank you.

DENNIS TROXCLAIR:

Thank you. As we look at this audience, we see everybody here is concerned. It affects every single one of us. Many of the concerns I had have been brought up already: to go underwater, I-10 has no access, 61, 3125. And, if bad enough, everything has to be diverted through River Road. You don't ever want to see that.

The biggest concern I have is, this is a community. We grew up together. We live together. Our children grew up here. We love this community. It will take $10 million to extend the levee, and we talked about elevating 1500 homes. I talked to someone. They say it's about $30,000 per home to elevate a house. If you multiply that times 1500 houses, that's $45 million. So if it's 45 million to elevate houses and it's 10 million to extend it, something doesn't add up.

And St. James is really a growing community. You look around, and houses are being built everywhere. I'm sure everybody read in the newspaper about all these

flood zones have been redone. And I read this, and it's not $2,000. They say some areas, it's going to be 2,000 percent. Nobody in this area can afford a 2,000 percent increase in flood insurance.

If you're going to build in this area and you borrow money from the bank, you're going to have to have flood insurance. These poor people that's paying on this house already, if that insurance goes up drastically, they are going to have to sell. But who's going to buy it? They're stuck. And who is going to want to build in this area that we love if you're going to take all this water and send our way? It just doesn't make sense.

The people in St. John, St. Charles, yes, they're important just like everyone in this room right here. We're all important. We love this area. Don't leave us out. Please consider Proposal D.

JASON AMATO:

Good evening, everybody. Colonel Hansen, thank you for your team coming down. When we talk about it, for me, District 2, every home north of 3125 in my district was sandbagged last time, Hurricane Isaac and all.

We talked about Alignment C. And when you talk about the nonstructural component, in my opinion, that's a nonstarter. I guarantee you, if I walk down this here

street and tell them, all the residents, we're not going to build a levee, I'm going to raise your home four foot high, I would be lucky to get out of there before it's going to be four foot deep.

So it's really isn't all about the benefits and cost and all that. I think the cost side is easy when you look about maintenance on the levee and all. I really think it's a chance for all of us just to put a dollar figure on the benefits, you know. How do you -- you need to put a dollar figure on the benefit of our interstate system and highways staying open. I think we need to put a dollar figure on the benefits of our industry and the railroad system staying open. I think we really need to work on putting a benefit on what it costs. If you remember back in Hurricane Katrina, when we tried to take care of all those poor residents who were locked out of their homes because of the floodwater. Put a cost benefit on that. But you have to try. And that's where your heart needs to come into play on that one. That's where we are going to challenge you on that one.

You know, if you think back, President Eisenhower authorized the Federal Aid Highway Act of 1956 which established a program of funding and building of our interstate systems. He saw the value for civilian

needs, support for economic development, and improved highway safety. But he also understood the military value of the interstate system, as well as its use for evacuations.

So the answer I'm getting after tonight is pretty simple. It's either Plan D from you or it's Plan B from us. Thank you.

MR. KURT ROUSSEL:

To start off with, everybody here is hard-working tax-paying Americans, and we're not asking for hand-outs. We're not that kind of community. The community banded together. We fought the flood waters of Isaac.

You know, sometimes it makes you scratch your head, we get into this. We should take a big bill to federal government, and maybe we would be looking at Alignment D. We would be sticking with that.

You know, it's the first time we ever had people evacuate to New Orleans for a hurricane. That's the first time in history. You know, the older people -- you start off with Diversion Canal. You talk to the older people in the '60s, when they the dug the Diversion Canal, they dug it on an angle and started to pull some water. Whenever Baton Rouge, Livingston Parish get all the water, three days later, the water starts backing up

and runs through Blind River. We think it should have been dug straight to the lake and not dug onto Blind River the way it is, because the backwater gets us all the time.

Besides, the City-Parish put a fifth pump on. If we raise the houses in our parish, we're going to have new houses to protect. So we really need to go with Alignment D.

Now, for the gentleman in St. John Parish, when St. John went underwater, guess who came to their aid: St. James Parish. There's no animosity between the parishes. We all need to stick together.

So after we sent rescue boats down there, just like we did for Hurricane Katrina, we sent rescue boats down for Hurricane Katrina. Every time there's a hurricane, we're always looking to help people. That's why our houses stayed as safe as they were.

Two days after St. John's water went down, I called the fire chief down there and asked him how they were making out. He said they lost eight inches of water. Guess what: We got eight inches of water. The water they lost, we got. So if we don't go to Alignment D, we're going to be a retention pond, St. James Parish Retention Pond. That's all we're going to be. Thank you.

MR. MAX NASSAR:

I heard some people do know how to pronounce my last name.

I don't have as good a memory as some other people in the audience, so I jotted some notes during the conversations. One thing that I would be interested, and I haven't read the draft report, and I'm assuming that we're somewhere between the DEIS and the FEIS in this process. Would that be right? Okay. You don't need to answer.

I would be interested in looking to see or knowing what the purpose and need is of this project relative to the NEPA process. My assumption is going to be that it's to provide hurricane protection for more than just St. John Parish.

Secondly, the NEPA process, what it calls for is for you to choose the least damaging, yet practical alternative, with cost only being one of the considerations. It seems to me, in looking at some of the figures and some of the illustrations I have seen, that cost is virtually your only consideration as opposed to being one of the considerations.

Your analysis relative to the cost of the project should also include the cost to the residents and property owners and industries and families in St. James

Parish. That is also a cost. That is a cost of we, the people.

Alternate D, the impact as identified, one of the impacts identified is the impact to the Blind River Diversion Project which hasn't even begun to be built yet. That project has just finished the EIS also, and there is no reason why -- or, actually, the NEPA process allows you to open that EIS and do a modification to that EIS so that the two projects, the levee project and the Blind River Diversion Project, could actually work in tandem and be evaluated in tandem. NEPA allows for that, and there is no reason why that shouldn't be done.

In Hurricane Isaac, just like in St. John, there was water in areas in St. James Parish that had never received water before. And that water in some cases was on the river side of 3125, which puts it in very close proximity to a number of very large industrial and chemical plants that are, as someone said earlier, that are critical to the economy and the safety and well-being of The United States.

We saw some years ago in Norco, when the Cat Cracker at Shell exploded, that the gasoline prices across the country shot up and there was a major shortage of that chemical. The industries in St. James Parish and in St. James Parish and in St. Charles Parish need to be

protected for the safety and security of The United States of America. And I think that that's all I have to say, except that I support Alternative D.

MR. MARK ANDERSON:

Colonel Hansen, we are not relatives, I know. Mr. Poche, some people call me Mr. Poche sometimes too incorrectly.

I'm going to tell you, I'm going to use relatives a little bit. Neighbors don't flood neighbors. St. John passed a resolution saying they wanted "D." I believe Ascension did the same. The surrounding parishes, they are not against going with "D." Our people help out our parish from both east and west, north and south.

What we're asking Mr. Poche to do here, since Mr. Poche is a relative of some sort, if we don't flood our roots, you know, so maybe you can get with Colonel Hansen and tell him your roots came from St. James Parish and they ain't going to be flooded.

We want "D" on the board, so keep it on the board. Don't take it off the board. Make it happen. Thank You.

MR. KIRK DEROCHE:

All right. Good evening. Thank you for hearing us. We're hearing that "D" is a little more costly than

the rest of them. By far, that would be the best option, and it would keep all the plants in this area running. We have got a major oil refinery in Convent. I haven't worked there.

But, anyways, I don't know what we are building or how we are building the levee, but if we will build a canal on the other side, go a mile or a half-mile away from the interstate, because I've got a camp not far from there on the back side. Went down there after Isaac. The interstate is basically attached to a levee now. That water would drop about a good 18 inches or so from the lake side coming to this side, coming in.

If we were to put Alignment D in, dig a canal from Ascension Parish all the way to 51 out there, or even put locks on the other side so they could drain freshwater in the Shell Beach area out there and help save some trees over there, do the environment.

Wildlife, we were talking about. We would help enhance that. We can actually get a circulation. He is talking about the freshwater diversion. That would help us. At one time we did catch a lot of fish back there, but, again, now it's just a acidy pit for decaying trees and stuff.

But if we dug a canal on the other side of Alignment D, put the lock like we are talking about, it

would enhance drainage for Ascension, St. James, and St. John Parish. And we could still have this side for our animals. The swampland would be a buffer zone from Baton Rouge all the way down.

So, the cost, you're looking at, you know, so many people versus -- you know, like y'all did in St. John Parish: just choose "C." I mean, we affect Baton Rouge draining as well. And it can only help everybody out with Alignment D. Thank you.

DENISE NOSACKA:

Okay. I came here. I have already e-mailed The Corps saying I supported Alignment D. I think everybody here knows we are not scientists, but we know water has to go somewhere and it's going to come here and it's going to come quicker.

The only thing I wanted to bring up is that people were talking about roadways in and out and things like that. And we have plants here, like several plants everywhere from Gonzales to, you know, St. Charles. And most, like me and my husband, works at one. And when a storm comes -- I think a lot of people here from this community work there -- they're stuck there. They lock in the plants. So what happens to all of the women and the families at home?

I'm home with my family and my kids trying to

figure out how we are going to get a generator and what we're going to do. And here I am last year, with my seven-year-old kid, going make sandbags in Paulina to try to help all of these people who came together.

I think the sheriff has said a point that, don't punish us because we didn't have claims, because we worked together, because we had tons of seven-year-old kids there at Paulina filling sandbags. We worked to do this. And we did it without husbands because they were stuck at work.

And a lot of y'all here work at plants. Y'all know what it's like. They are going out when a storm is passing, and they don't want to shut down now. And if the water is here, it's going to get shut down. And somebody else said, you know, after I decided to talk, that, yes, that's going to cost the country money, you know, because they are going to stop. They are going to not be able to run the way they would normally do.

That's it, anyway, last minute.

MR. ALVIN ST. PIERRE:

I just wanted to make a few comments. Most of them were made tonight. What the Corps is really looking for was that. Okay? Mr. Donadieu, I don't know if he is coming up tonight and talk, but he is getting a lot of data together. You probably read about it in the local

paper as far as giving your elevations and such that was compared to satellite data a long time ago.

There are some things you cannot put on a piece of paper that's been discussed tonight, and that's the way this community works together. There's data that came out that said that seventh graders were doing sandbags, that people were at work trying to keep their industry running. What you're going to lose across the nation because a unit went down, or the railroad risk is another thing. You can't get the product in.

I'll give you a quick story. I had to go to Gonzales on 44. I recalled a little store right there on 44, and I went to get a generator for someone. And a lot of people from New Orleans were there, and they couldn't get through. 61 was jammed up. They didn't know anything about River Road. And, of course, the interstate was locked.

So I made a comment that I could get them out. And I was the most popular person ever around at the time, because I got them to the Sunshine Bridge, got them across the river to 3127 so they could get to New Orleans. And, actually, I gave them my phone number, told them, in case they would have some issues. And, believe it or not, I guess there was 13 people that went across, and I bet you 7 of them called and thanked me for

getting them back home to New Orleans. So that goes to show you that it was jammed up big-time.

I mean, I saw it myself. Gramercy got flooded. I have never seen that before in my life as far as the Sportsman Pond. And you've got to look: These people pumped water for three to four days to keep the water out of their houses, and a lot of you in here did the same thing.

So the data that The Corps is trying to get, we're going to give them as much as we can. But the data we cannot give them is what went on after Isaac. That's impossible.

But keep sending your comments, please. Get on the Internet. Get the cards or get a copy of the cards, whatever you can do. Keep pounding on the doorway. We have congressional. We have state. Of course, the local officials are doing the same thing. Please keep going. Don't think this is the end of it. We've got to keep on, keep them -- to get Alignment D for St. James Parish. Thank you.

MR. RYAN DONADIEU:

One of the numbers that we were talking today about was the cost of elevating a home. Y'all have 300 million set aside for that, 1571 homes. I called about four different companies and found an average.

Average cost of a 2500 square foot home is $160,000 to raise one. You are looking at 256 million. So, yeah, that falls into your range of 300 million. That's if you do them all right now, immediately.

U.S. Bureau of Labor Statistics, cost of inflation, if you put that number in and you forward, from the last 25 years, you're looking at $300,000 a house within 25 years, according to inflation. So we know the cost of everything is rising. Bread was five cents at one time, right? So you know it's going to cost more in a few years, and you're not going to get them all done now. So I think your figures are a little bit too small.

You said a half-billion dollar difference in maintenance on a $10 million difference in projects. We're going to do the maintenance. That shouldn't even be applied in my eyes. $300 million of structural raisings brings a half-billion dollar accounting down to 200 million. Over 50 years, so you're looking to have 4, maybe. So your numbers keep shrinking.

As far as the wetlands, saltwater encroachment is killing our swamps, that's one of your problems that you're saying. You are worried about the wetlands being destroyed by the levee. Saltwater encroachment, in your own report, says our swamps are going away, turning into

marsh. This levee would stop it. It would protect it.

We have the Hope Canal. We have the diversion, freshwater diversion. It would keep our swamps with nutrients, with fresh water. The levee would protect it.

In your report, it says the sea level is going to rise 2.32 feet over the next 50 years. Our swamp is going to be under saltwater. We are going to lose it if we don't protect it. So right now let's protect it. I've got to say our forefathers fought for us. They used to swim in the mud. They built the levee along the Mississippi River.

They knew we had something here, one of the largest ports from Baton Rouge to New Orleans. We're the largest one in the western hemisphere. They knew we had something to fight for. Right now we have something to fight for. We have a levee on one side. We need a levee on the other side.

MR. TERRY BORNE

I kind of like the name. I'm the mayor of Gramercy, and I want to speak from the human side a little bit. You know, we talked about cost benefits and those things.

And I thought I was doing a pretty good job as the mayor of Gramercy. I was there about a year, and along comes Isaac. And we lose about 15 houses and put

about a foot of water in them. And it was devastating for me to see young children being evacuated.

If we don't get Alignment D, it's only going to be worse. It was something I'm still not over. We would appreciate that you consider "D." Thank you.

MR. ROBERT ROUSSEL:

I would like to make a comment for the record. I'm Robert Roussel. I worked in the refinery for 40 years. And, in 2005, when Katrina hit, the refineries in this area went down. And for our cost analysis, we got a call from D.C., Department of Energy: What will it take to get these refineries back on line as soon as possible?

Well, the answer is Alignment D. We couldn't get people in the refinery to get it started, because Interstate 12 -- I mean, 10 was emergency only. Every highway was down. So, hey, that's a big cost if you look at the cost of energy to the country and what it takes to start one of these big refineries up. Thank you.

MR. ROBBY LEAR:

Thank you guys for being here. My name is Robby Lear. I am a professional civil engineer. I have done many NEPA documents on your side of the table as well as this side. I understand your process, how it goes about.

My questions, I have two questions. Your screening process that was included in your Appendix K listed 12 plans of action. Those 12 plans all had references back to previous studies ranging from the mid '80s to 2007. Nothing was addressed from lessons learned after Gustav, Isaac. All of it occurred after those planning documents. Why was there no additional plan of action entered taking into those lessons learned?

I think you need to go back and look at some of your alternatives. And A, C, and D were broken out of those plans as structural, nonstructural elements. You had a letter from the U.S. Fish and Wildlife dated October of 2012 that offered two additional alternatives of which the document does not mention other than in that letter. Why were those not vetted any further within your document and within your plan document? I would like to find out what that information holds.

Most of those alternatives decreased the wetland impacts to the Maurepas swamp from 56,000 acres down to 13,000 acres. To put that in dollars, that's over $200 million. We went from 890 million to 650 million for a makeshift Alternative D, if you will, same protection for this community, less cost to the environmental impacts, two additional model that which is known costs. I strongly encourage you to go back to your

books and look at those alternatives.

My second question is storm surge modeling. You made a small mention in your engineering document in Appendix B. It seems to me that that was only done to determine levee heights for each alternative. It did not include predevelopment and post-development flooding for each alternative.

If you build "A," does that flood go up? If you build "B," does that level go up? If you build "C" and "D," these should have zero, because it gives you full protection. I think that's what everybody -- you have passionately heard what these people are expecting, something with "D."

"C," I would love to see that storm surge model and to see, if a 7-foot levee, a 9-foot levee becomes 13, 14, what does that do to this community. Thank you.

MR. DALTON JOHNSON:

My name is Dalton Johnson. From what I can understand, you are asking to take our taxpayers' dollars from St. James and build a flood protection wall in St. John. And here in St. James, our taxpayer dollars will be to give us a flood area. I don't think that's right. You are asking us to protect somebody else and not protect ourselves with our tax dollars.

MR. BARRY WAGUESPACK:

Barry Waguespack. I live in Sorrento. We were sandbagging my house for three days. I saved my house from getting four inches of water over the floor. Since then, this last March, I built a wall around my house. It's four feet concrete away from the house, a one-foot footing, three blocks high, and a two-inch cap. The masonry work, $25,000.

By the time I got the channels in the -- I got a six-foot opening in the front and the back and a generator and a pump. Well, that wall is about a $30,000 investment. And the thing about the wall versus raising the house, you had to be there to close the gate. Thank you.

MR. WOODY POLLET:

My name is Woody Pollet. I'm going to use my experience. I was sick. Four days before Katrina hit, I was in New Orleans for my first chemo treatment, took my chemo treatment, came home. Four days later, Katrina hit. I was at my house. And, of course, everybody knows what Katrina -- Ochsner's shut down. They moved everything to Baton Rouge.

And, three weeks later, I had to do another chemo. Well, we didn't have the phones, but my wife was able to drive me to Baton Rouge. I was able to get my chemo. I didn't miss it. But what happens if we don't

build "D" and we are closed in and we can't get out?

We'd have to -- I think, during the last little storm we had, St. James Parish hospital, I think, was the only hospital open between Baton Rouge and New Orleans serving the people. What happens if we can't -- the hospital floods and we can't even get to the hospital or we can't get out? The elderly people and/or sick people are going to be in a lot of trouble. Please consider that. Thank you.

MS. KATY ISABEL:

Hello. My name is Katy Isabel, and, being an accountant, I get numbers fed back, and I don't think anybody in here would disagree with me.

But I am looking at more of a personal standpoint, besides just the numbers. I'm looking at U.S. Army Corps of Engineers. The last I checked, the U.S. Army was meant to protect the people of The United States. We are those people of The United States, so I think we should get that same protection as anybody else. There doesn't have to be a war across the seas for us to matter here.

And, lastly, as a community, we are coming here as a family. We are here to protect one another, and not just our family, but our neighbors. I'm sure most of y'all aren't here from Louisiana or only come from here.

But if this was y'all's situation and if somebody was coming at y'all to potentially destroy your family, I know y'all would do everything y'all could to protect your family. So we're asking y'all to do the same and choose Alignment D.

PAT TREMONTE:

My name is Pat Tremonte. A couple of guys out here worked in refineries, talked about what happened during the storms and everything. My partner over here, he worked with me at Shell, and we saw some water do a lot of damage. I heard this man over here talk about the railroad and the damage that was done because of the water.

I remember, when I was young, I used to hunt in the swamp along Lake Ponchartrain. There is nothing there but dead wood now. Everywhere you go around any one of the lakes, it's dead wood. Now we are starting to see it on television with the Swamp People and everything else that we got nothing but dead swamp around. I kind of believe this man over here knows what he's talking about. Surround the lakes, stop the water that's causing damage to our swamps.

The same thing going on all the way down the river, point -- what you call it -- Pilot Town down there. It's washed-out marsh. I'd like you to vote for

us, please. That's all I've got to say.

MS. SHELLY WARREN:

Good evening. My name is Shelly Warren, and I am a resident of Gramercy. Two or three months ago, you all came in. We were at the KC. And, the residents, we were here, but we were not as large as we are tonight. At that time, two or three months ago, you all presented to us Alternative C. But the residents spoke and asked that you all would go back and consider the Alternative D to protect St. James Parish.

And my understanding here tonight, did you all really look into Alternative D? I didn't think you did, because if you had looked into Alternative D, you all would have came back tonight to protect St. James Parish residents.

MR. BRANDON GRAVOIS:

Well, I sit on the -- to add onto my three minutes, I sit on the Coastal Zoning Board for the parish. They came in with a permit last month about another diversion project in Garyville that will take out New Hope Canal. And, according to your alignment, it will join Alignment C., and so some of that levee is going to join with some of y'all'S levee; is that correct? And then they were talking about another diversion canal in the Romeville area.

Well, these diversion canals, each of those will produce separately 2200 cubic feet per second. Now, how will we fight more water at that kind of rate to continue to keep these swamps full? Yes, they will keep our more fish with more oxygen and trees and the whatever to keep alive; however, what about the water, the more continuous flow of water through these times in need that this parish is continually fighting for?

I mean, I understand that maybe on a dry year, maybe, keep the water coming. But maybe whenever the hurricanes and our wet years, we are already full of water. That's something we have to think about as well. So keep that in mind.

WILLY MARTIN, JR.:

I want to make one more point. I think some of it may have been covered in some of the last speakers. But one of the terms I recall learning in this process is "induced" damages, an "induced" effect. And I want to just allude back to our earlier meeting last week where I think I may requested how we come about that figure. And because of the time line that you guys were working in and being in a position to try to condense all this information, yet really have a good figure to say you have a price tag, because, first of all, we don't really know the effect of the induced flooding because of a new

levee that stops in Garyville.

We also don't know the effect of road closures that weren't closed. We were only down to three in St. James Parish, two-lane roads. You can be down to less than that.

And the work force, I'd scan this audience here and say there are probably three-quarters of the people here who have family members who work in the industry far beyond the bounds of St. James Parish.

And the effects of industry and the economic impact on industry throughout the nation as a result of refineries having issues because workers can't get to their workplaces, along with the effect of commerce in general in this area because of what we lost in favor of protecting our highways. Thank you.

MR. TIMMY ROUSSEL:

Thank you, Mr. Poche. Oh, okay.

Colonel, Colonel Hansen, I respectfully request that we possibly have another public hearing before the report is finalized towards a small public review period. You heard there's a big concern here tonight. We're going to continue to work on finding even more data to add to what you have and, hopefully, data that can affect that final decision.

Again, I want to thank y'all very much for

coming here tonight, allowing us to do this and, for sure, to all the residents of St. James Parish, thank y'all very much. It makes entirely a different perception when this many people come out versus 50 from the last time. But, again, Colonel, thank y'all. Thank y'all very much.

(End of proceedings.)

C E R T I F I C A T E

I, Annette Ross, Certified Shorthand Reporter in and for the State of Louisiana, as the Officer before whom this testimony was taken, do hereby certify:

That the proceedings as herein before set forth in the foregoing 47 pages was reported by me in stenographic machine shorthand, transcribed by me or under my personal direction and supervision, and is a true and correct transcript to the best of my ability and understanding;

That I am not of counsel, nor related to any person participating in this cause, and am in no way interested in the outcome of this event;

That the transcript has been prepared in compliance with the transcript format guidelines required by statute and by rules of the board;

That I have acted in compliance with the prohibition on contractual relationships as defined by Louisiana Code of Civil Procedure Article 1434 and in rules and advisory opinions of the board.

This certification is valid only for a transcript accompanied by my original signature and original blue stamp on this page.

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ANNETTE ROSS,

CCR NO. 93001

16th day of September, 2013

U.S. ARMY CORPS OF ENGINEERS

PUBLIC MEETING COMMENTS

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IN RE: West Shore Lake Ponchartrain Hurricane and Storm Damage Risk Reduction Study Integrated Draft Feasibility Report and Environment Impact Statement

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ABOVE-ENTITLED MEETING
WAS HELD ON SEPTEMBER 17, 2013, AT THE
ST. JOHN PARISH COMMUNITY CENTER
2900 HIGHWAY 51
LAPLACE, LOUISIANA

MODERATOR: MR. RENE POCHE

REPORTED BY: ANNETTE ROSS, CCR, RPR

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PANEL MEMBERS:

Colonel Rick Hansen, Commander, Army Corps of Engineers New Orleans District

Mr. Jeff Varisco, Project Manager, WSLP

Mr. Greg Miller, Branch Chief

ANNETTE ROSS, CCR NO. 93001,
Certified Court Reporter, in
And for the State of Louisiana

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INDEX OF PUBLIC SPEAKERS

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TRANSCRIPT OF PUBLIC COMMENTS

MR. V.J. ST. PIERRE:

Thank you, Rene and Colonel. Thank you for allowing us to have this comment period. A lot of people don't know, but Colonel Hansen is the new guy on the block. I met with him when he first came here. He came to my office. He seems like a fine gentleman, a good family man, and I'm sure he's going to pick Alignment D.

Right, Colonel? Thank you.

I am encouraged to see the much-needed and long-authorized project moving forward in a concrete way, especially with the Willowridge Phase of the St. Charles Parish West Bank Levee currently being in bid. This is welcome news for the residents of Montz, another piece of the puzzle in providing comprehensive storm protection for all our residents.

That being said, I am very disappointed that Alignment D is not -- at the time I wrote it, Colonel, I understand it was Alignment C. So I am very disappointed that Alignment D wasn't chosen from the very start. It would offer structural protection to all the three River Parishes, including St. James. St. Charles is afforded protection in all three alignments currently under consideration by The Corps. And we look forward to this project moving forward.

However, I want to make it perfectly clear, we fully support Alignment D to allow our neighbors to the west in St. James to be afforded the protection we all deserve. I don't want it to happen in St. James what happened in St. Charles Parish when Jefferson Parish Levee District extended the western vicinity of the levee to Davis Diversion Project and aimed it in our parish and the left the rest of the east bank of St. Charles Parish open to hurricane flooding.

The $10 million difference in price between the two alignments is minor compared to the overall cost and the actual impact. We fully understand that a larger number of acreage contained within Alignment D than the other alignments; however, we would argue that, due to the saltwater intrusion, the wetlands inside the levee protection are actually held there and provide a greater long-lasting term benefit to the environment than the wetlands would if left to the eventual erosion and deterioration caused by the saltwater intrusion.

Getting these flood projects -- getting these flood protection projects built is key to protecting the lives and property of the residents and businesses located in this region and even more important now that our residents are facing astronomical premium increases in flood insurance as a result of the Biggert-Waters Act.

Finally, I would ask The Corps to consider splitting the project into two phases, allowing the first phase to move forward in construction while alignment of Phase 2 is under review. This would provide flood protection for residents in St. Charles and St. John parishes and keep evacuation routes in I-10 and I-59 open before, during, and after the storm.

Gentleman, we studied this project, we analyzed it, we modeled it. Colonel, it's time to start building it. Thank you.

MR. KURT ROUSSEL:

Good evening. I just want to start off by saying I'm the local fire chief in St. James Parish. St. John, y'all definitely need a levee. We saw it firsthand. When the hurricane Isaac came through, they called for manpower from St. James. We assembled and mobilized dozens of boats and manpower to give y'all a hand. We want to be good neighbors. And we've got a lot of relatives in St. John Parish, and y'all definitely do need a levee.

Two days after that, after the water went down in St. John, I was talking to one of the local fire chiefs. He said he went down eight inches. Well, guess what: It came up on us six inches the same day.

So we're here for a benefit/cost ratio. So I've got

a little bit more information than I did last week.

One of the responsibilities of the Paulina Grand Point Belmont Volunteer Fire Department, we have an Emergency Response Plan for Waterford 3. A lot of things have to be in place for Waterford 3 to crank up a nuclear plant after a storm. One of the things in place is, they have to have an emergency worker decontamination area. And we are the area for Waterford 3.

When Hurricane Isaac hit, Jackson, Mississippi, kept calling us, wanted to know if we had power back on, restored to our station, because, according to the federal government's plan, we had to have our station active, ready to work so they could crank Waterford 3 up. So I don't know if that was taken into the cost analysis.

One other statement I wanted to make is, what about the refineries? Motiva Convent is real, real, real, real close. It wouldn't have took a whole lot more to shut that down. What would be the effect, if Motiva Convent shut down, to the U.S. economy? I'm not sure if that was a factor in there also.

Another comment was made, brought up, is, I work in a chemical plant, been there 22 years. And chemical plants run fine as long as they're running. You go to idle them or shut them down, that's when you start having

trouble. What about the safety of industry if we had to idle them down or shut them down during a storm? Thank you.

MR. GREGORY MILLER:

Thank you. I wanted to first thank you for allowing us to speak.

I also wanted to say that Senator Gary Smith, although he could not be here, he wanted me to make sure that everyone knows that we are working together on this. We are a unified front. I know I can speak for the entire delegation of the Louisiana Legislature for the River Parishes in the River Region that we are unified in this front.

Colonel Hansen, I want to thank. I am thankful to you and your staff that, 40 years after Congress enacted the legislation requesting the opportunity to review a chief report, we finally have an Integrated Draft Feasibility Report Environmental Impact Statement, which is a vital step in getting hurricane protection for this area. We know and appreciate the hard work that went into this draft report. We appreciate the Corps's calling a public meeting to give the people in our community the opportunity to address their concerns.

Chief among the concerns with the tentative selected plan of Alternative C is that it would not provide

adequate protection to all of the communities in the study area as well as significant parts of Ascension Parish. I'm asking that the Corps of Engineers recommend Alternative D, which, at a cost -- is only a cost of $10 million more. And that would address these concerns.

The entire region needs to be protected because of the vital role in the economic security to our country provided by our petrochemical industry; the Port of South Louisiana; U.S. Highway 61, Airline Highway; Interstate 10, and, most importantly, the people who live in our communities. Alternative C would leave vulnerable vital routes that are essential for all of the South Shore of Lake Ponchartrain and the River Region, including New Orleans, for evacuation, recovery, and supplying our businesses to keep our industry operating and our citizens working. The only major highways leading west out of New Orleans would be left unprotected by this plan.

While the people of this area are mindful of environmental concerns, the hardwood swamps have protected the people of this community and served as a buffer from storm surge since our relatives first settled the German Coast almost 300 years ago. And, without any levees, these swamps and the protection they provide are

already disappearing. The best way to preserve these hardwood swamps is to encapsulate these wetlands, which will protect them from further degradation as a result of saltwater intrusion.

Among many things that the draft report failed to consider in recommending Alternative C are post-2007 events, such as the flooding from Hurricane Isaac in this community in 2012; also, the post-construction effects of an Alternative C Alignment on our communities outside of the protected area and the resulting increased costs of nonstructural measures in those communities outside of the protected area.

I fully support the locally preferred Alignment D alternative contained in the study. And this alignment would be in the best interests of Ascension Parish, St. James Parish, St. John Parish, and St. Charles Parish; indeed, the entire region, including New Orleans. Please strongly consider recommending Alternative D.

Our communities want the comprehensive protection that Alternative D will provide, and they have agreed to bear any increased cost of maintaining this alignment. The benefits of having the protection provided by Alternative D will ultimately prove to outweigh any possible increased costs. Any favorable consideration in

support of Alternative D that The Corps can give would be greatly appreciated. Thank you.

MR. RICKY DELATTE:

Could you put the picture back up that shows part of Lake Ponchartrain and all the -- that one. Okay. You're talking about your Plan C and Plan D ability to help. Plan C will cover most of St. John Parish. Plan D will go into St. James Parish.

But the only thing you're doing about which way you're going is just moving the water to a different location. You still have all of Blind River and all its tributaries that which way their waters will flow.

If you take, along the railroad tracks right along the western bank of Lake Ponchartrain that runs all the way into St. Tammany -- I mean, Tangipahoa Parish, you only have to build two sets of locks and two pumping stations, and you would cover all of Lake Maurepas and all of the surrounding tributaries around. To me, that would be a whole lot cheaper than building a levee to cover St. John; then, next year, you're going to build a levee to cover St. James; then, the next year after that, you have to build another levee to cover Ascension.

If you build one levee, follow the western side of Lake Ponchartrain, you eliminate all the other levees you have to build. And you're in one place. And that's got

to be a whole lot cheaper than all this, this levee here, then this levee there and that levee there, building levee on top of levee on top of levee for what?

If you build one, you eliminate all everything coming into Lake Ponchartrain going into Lake Maurepas with one levee, two pumping stations, and two set of locks, and everything else is finished. And you start right in the back corner of the Bonnet Carre Spillway where you plan on starting C and just follow the railroad track all the way into Ponchatoula. Two locks, two pumping stations, and you can finish everything west of that. That's all I have to say for.

MS. RUBY WHITE:

Yeah. My thing is with the zoning and the insurance. I think it has probably not that much with the Corps of Engineers, but I would like to get more information on how are they going about zoning it, with the insurance rates being almost 400 percent. And I think we need more information on that, because me and also my friends, we're having issues with that.

So I don't know if the Corps of Engineers have anything to do with that, but that's some of our concerns is that, the zoning. So if I could just get the information on the zoning and get to the proper people that I need to discuss that with, I will be pleased.

MR. VARISCO:

Yes, ma'am. I think you would do best to go -- I'm looking at Natalie here too, President Robottom. I believe you can go to the local planning.

MS. WHITE:

All right. thank you.

MR. JIMMY BRAZAN:

Yes. I'm here speaking on behalf of Timmy Roussel. He couldn't make it, and he apologizes he couldn't make it.

You know, I think everyone here is saying Alignment D is the right alignment. But we are here in St. James Parish. Y'all are still looking at Alignment C. And we do appreciate everything that has been said tonight about Alignment D. And we want to Alignment C to move forward. If we can't have Alignment D, we support the levee, you know, to protect St. John Parish.

But, you know, everybody has been, you know, thanking The Corps. But I'm not here to thank The Corps. I mean, you are building a levee everywhere but St. James Parish. You are building a funnel to St. James Parish.

Now, I'm not an engineer, you know, but I do know that, if you build a levee everywhere else and you leave

us out and you funnel it, then it's going to come to us. Sooner or later, it's going to come to us.

And, yeah, you can come in our parish and you can build up a few houses, you can do a few things, but the water is going to be around the homes. The water is going to be on our streets. It's going to be, you know, in our sewer systems. And the people aren't going to have any quality of life.

The -- I don't know, the belief that you can come here and levee everything from St. John Parish to the Gulf and leave St. James out and say that we should accept that, we should be -- that you are going to take care of us, I mean, you know, I just don't buy it. You know, it's just not something that we should, in St. James Parish, accept.

And that's why you are seeing everyone here telling you that Alignment D is the place to go, because it just doesn't make good sense to leave the small section out when you can protect everyone. You are not going to have, you know, accesses. If the water comes up and they can't use 51, they can't use the interstate, you're not going to have access to St. John Parish anyway if you protected it.

If you leave the industry, the people flooded with waters all around their homes, they are not going to -- a

good possibility they won't have electricity. They won't have the ability to get in and out of their homes. And so, even if they don't flood, they are not in their homes.

So those are the issues that we have to look at. You keep saying that you don't intend to flood anyone else, that's not your intent. But we understand that's not your intent. But that's what's going to happen. You are not going to be able to leave us un-leveed and expect the water to go somewhere else. It's got to come to us.

And, I mean, you can come in our parish and piecemeal and pick up here and pick up there, but that's not what our residents want. We want a comprehensive flood protection plan that will help us.

Now, also, you talked about the breakdown of the analysis, the economic analysis. Well, look, I have looked at this thing, and I just ain't smart enough to understand it. You need to break this down in layman's terms so people can understand what they are looking at and figure out if the dollars represent what you say they represent.

Look, I know y'all are in a tough position. I know y'all have to -- certain things you have to do. But St. James Parish is, you know, in a tougher position. In order for St. James Parish to survive, we have to have

flood protection, and I just don't see this Alignment C doing anything to help us in St. James Parish. Thank you.

MR. PAUL BAIR:

First off, I would like to thank that there are some efforts being put forth to help create a hurricane system or a hurricane protection system for the tri-parish area. I'm here on behalf of myself, as Jeff discussed, and the birds and the bunnies as well.

My wife and I own Cajun Pride Swamp Tours, which, as most people know, we are about a half-mile north of I-10 on Highway 51, directly across from the Highway 55 on-ramp, at the corner of 51 and Frenier Road.

And looking at all the proposals and talking to the zoning office, each of which divided my property, 55 acres, divides the property in half, which ultimately will either shut down the business, which has been opened since 1990 and is a pretty good attraction for the area, the tri-parish area, or it's going to greatly alter what we are able to offer the guests, local residents, and the tourists visiting Southern Louisiana.

We have been there for about two and a half years. Since then, we did go through Isaac. We have 15 employees, 3 of which did have dramatic damage to their homes. Our business, we actually had six feet of water

over the property and three feet through our building. So there is a need that we'd like to address, and not just our concerns are heard about our business, that our thoughts and inputs might be -- that we have some input that can be worked with The Corps in the ultimate outline of what might happen.

It's not just our business -- my employees that live in the area, they're affected by it -- but it's also the future of my family that I have to worry about, so I thank you.

MR. SCOTT EUSTIS:

My name is Scott Eustis. I'm representing the Gulf Restoration Network, born and raised in New Orleans and a place where we have learned a lot of hard truths about living in South Louisiana. And we wish The Corps would take these opportunities, not just to have a check box here, but to communicate what exactly the levees are and what they do.

It's hard to remember the lessons of Katrina. But we do not call levees -- there's a reason we don't call levees protection anymore rather than risks, risk reduction. What we have for New Orleans and what we have for the area is the 100 Years System, which means you've still got a one in four shot over a 30-year mortgage at flooding.

So the realities is -- the reality is, we need levees around developed areas. We need to elevate behind the levees. And we need the wetlands to protect us and to protect the levees.

I hear a lot about erosion. I think, if -- we wish this document contained a lot more of the science behind Coastal Louisiana. The science shows that we're sinking. We have engaged in a massive plan to restore the coast to keep us afloat as much as we can. But the bottom line is, we need to elevate, we need levees, and we need our wetlands.

This plan is a bit rushed. And it sets communities against one another, and it sets communities against our environment, even though we all value the place that we live and don't want to see it destroyed.

The Maurepas wetlands are a treasure, a global treasure. They're what we have left. It may be impossible to mitigate what's in this place in Louisiana, which is a unique place on the planet.

So this document is a bit rushed. We would like to see more options, like, in particular, see, you know, why in the study area communities upriver are not included in elevation plan -- in the elevation plan.

You know, in New Orleans, we flooded in the '90s. Every year, we flooded growing up. We had to get new

carpet. We had to get new air-conditioning, not from the tide, but from the rain. And what's not in this document, again, are the costs of impounding a system that's sinks.

In New Orleans, we have had levee improvements recently, and we need those. And now, to fix the drainage problem, we are looking for 6 billion more dollars to try to live with the water we've got.

We are not the only community in South Louisiana. You know, people in Plaquemine are also dealing with hard choices about what they have got to deal with. St. Tammany, Terrebonne Parish, we're all looking for a new way and a better way to live with the system we've' got.

MR. POCHE:

Could we get you to wrap it up, sir.

MR. EUSTIS:

So it's hard to talk about, and that's why The Corps doesn't talk about it. It's why politicians won't talk about it, is that we need all of these things to work together. We need to appropriate drainage, we need to elevate, we need levees, and we need our wetlands working together as the lines of defense. Thank you.

MR. TONY SCHEXNAYDER:

Thank you. Just to give you a short story, when the

storm came about, I put a couple of gauges around my house. I lived in St. James Parish. The water came up during the storm. I knew that was going to happen in some areas, so I was kind of watching it. And the storm passed. The water went down a little bit.

It's so emotional, because it was the worst days. So, anyway, that Thursday, I think it was, I was hearing St. John Parish flooding, Ascension flooding. What's going to happen? Well, it's common sense. I started digging holes in my yard with a trackhoe, building levees around my house.

At that time we didn't have no help. My wife thought I was the craziest man in the world digging holes all over the yard, you know. So when she got on the phone, saying, "Man, something's going on, My husband is going crazy," before you know it, I had all kind of people at my house helping.

You know, they had farmers all out there with trucks just coming up and down helping people, all the farmers, all their laborers. People in my yard, I didn't know who they were. I talked to one guy. He was from Gonzales. He told us, "Since we are pumping water to y'all, I got to come help y'all." Pizza Hut going down the road delivering pizza, giving free pizzas out. I mean, you've got to live it, you know. It's real.

And several things I heard out here, you know. Last week I heard, "The president said, 'Do not let it happen again.'" If you build these levees, that water will come in St. James Parish. It comes -- it goes there now with no levees. So now we're going to channel that water in St. James Parish, pumping from Ascension. They're channeling the water from the other side.

I don't know if anybody took this into consideration. After the hurricane -- I lived there 53 years. I know the area pretty good. After the storm, it really didn't rain. Rainwater also floods areas that there was no water. If it would have rained during that flood time, it would have been a lot worse. There was nowhere for the water to go.

Yeah. Things I heard, you know, is like economic decision, putting dollars over people. That's kind of hard, you know. If they build levees, we don't want to flood St. James Parish out. If you don't go with D -- y'all have to know that -- I mean, it's going to channel to St. James Parish. It's -- you know that.

When a guy came in, my insurance adjuster came in, I didn't have any water at my house, because we managed it four days. I don't think I slept two hours in four days. He was telling me I'm in a Flood Zone X. And, I said, "You know, I'm not too familiar with Flood Zone X.

I know A, B, and C."

He said, "Flood Zone X is supposed to flood once in every hundred years." And I'm sure y'all have seen the pictures.

Evacuation, we're going to let everybody get out. Let's go west, right? There is no way out. I don't know if y'all been there. I took a ride down the road. 61 flooded, Airline flood -- the interstate flooded. There is no way out. There is no way out. So don't think you're going to evacuate and get out. You had better do it a week ahead of time.

MR. POCHE:

Can we get you to wrap it up, please, sir.

MR. SCHEXNAYDER:

Yes. Well, did anybody ever consider pumping this water to the river? Down in Romeville area, they got big canals that go almost to the river. That's a way out, because the water will come this way, that we could pump this water out, put it in the river, and get it somewheres else.

You know, everybody in here heard, everybody. I didn't hear anything different. But I think everybody is pointing to Plan D. And we, the people -- that sounds pretty familiar, huh? -- we want Plan D.

DR. ANNROSE GUARINO:

Good evening. My family has been here in LaPlace and in St. John Parish since 1926, when we broke up -- it was broken up, the Woodland Plantation. My grandfather was one of the strip farmers that grew vegetables almost into the lake. Recently, as family got older and older, we sold our property. Thirty acres was wetlands, where my grandfather used to be able to grow vegetables.

My point is this: We know that our land in Louisiana, and to some all over the world, is somewhat sinking. That's not news to anyone. So that, if this is happening, we may need to consider that protecting what is left, what is left of our land, and if that is because of the intrusion of the lake has moved up further and further and further, closer and closer to our nice Mississippi River natural levee, then that may be it.

My first choice, of course, I like the railroad levee choice, because it seems awfully logical to me that that would be the best way to protect everybody. But I do see that that is not a chosen path, and I would like to commend, I know, all of the science, all of the agencies, all of the communities are trying to come together today and over the past few years to solve this very complex problem.

So since that one is not really a popular choice,

St. Charles, St. John, St. James, we call ourselves the River Parishes for a reason, because we are a united community. We help each other. We have agricultural land. I personally am a resident of St. John Parish, but we have agricultural land in St. James Parish which is very valuable. Maybe there are not that many people and houses there, but there's a lot of great soil to grow the commodities on that we really do need.

So I just would like to ask. I personally am an environmentalist. I, you know, don't want to hurt any of the animals in the wild; however, I think we need to consider that our world and our land mass is changing. And we have to mitigate that the best way we can. And I would like to see St. James completely included in the protection system. Thank you so much.

MR. REYNOLD HERNANDEZ:

Good evening. About eight years ago, I had met with the then-project manager, Brett Ayer, on Leake Avenue regarding the initial alignment. At that time, we had come up with Alignment B, and in that meeting he said at that time it's in violation of the NEPA Act. I asked why, and he said, well, we would be encapsulating too much swampland at that time, which seemed to be a big concern, which was of great concern to me also.

But one thing I tried to explain to him -- they were

convinced that all the swampland in St. John Parish was fed by Lake Ponchartrain. And he asked me, "How can you come up with that?"

And I said, "Water in St. John Parish flows north," to which I got a great big laughter. I said, "Well, I didn't go to college. I didn't become an engineer or all that stuff, but I'm from here. I grew up here all my life. Who better to ask about the flow of water than people that are from here? By The Corps's own admission, the river is 16 feet higher than the lake, so which way is the water going to flow? North." We see it every time it floods. That's the direction of the travel of flow of water.

If you look at your own maps that you have at The Corps, they are labeled tupelo, cypress, oak swamps. Tupelo does not grow in saltwater. So even if we went with Alignment D, the waters coming from the river with the downflow of rainfall, the swamp's going to survive. The animals will survive. Everything is going to make it.

But it still will provide us enough crash zone, which is what The Corps is after, a crash zone for the surge to slam into the trees before it would get, you know, an area of diffusion so it won't just slap straight up against the levee. I understand that. That's great.

That's why we came up with "B," but we're still leaning on the fact of the environmental impact.

Alignment D is not going to cause any more damage to the wetlands area than the I-10 mound is doing now. The water comes in. Every rain flow we get, every storm that we get, the water is going to flow out towards the lake. The surge is going to come in, but the rain flow is going to try to go out through the north. That's just the way it is here. Appreciate it. Thank you.

MR. WAYNE NAQUIN:

My name is Wayne Naquin. I like Zone -- the Plan D y'all got. But 30 years ago, The Corps has studied about blocking the water off at Chef's Pass. That's the way to do it to keep the tide from coming in altogether. If you block it off at the Chef or Rigolets Pass, the tidal surge would not come in and you won't need all these levees. Thank you.

MS. LATONYA CRESSY:

Good evening. My name is Latonya Cressy. And I was wondering. I'm no engineer, so I'm looking at this on here. And I was wondering, the next time when you all come, is it possible, because I know people get paid to do studies where you can measure 100 feet under the ocean, that there are engineers that get paid to do that, if there was any possible way that you could make a

small -- what is it -- to replicate the area and then do like a demonstration of how the waters flow with each one of these plans so I can see it like that or so the community can see it like that, how the waters channel or flow with each one of these options? Thank you.

MR. MIKE SHARPE:

Good evening. My name is Mike Sharpe. I'm from here in LaPlace. And, you know, we've talked about a plan that includes raising the homes and structures in St. James, but we had also mentioned about community. And there's a lot more to community than just a house. There's the grocery. There's the gas station, the fire department.

So I'm wondering if The Corps's plan took into account what it would take to protect that community and to raise those structures and to make sure that the things that make a community livable during, before, during, and after the storm are protected as well?

MR. VARISCO:

Since that's a question of fact, I'll go ahead. Yes. We did not just consider the residential structures. It's also commercial and industrial. So, I mean, not to your definition of "community," but yes, we looked at other structures, besides residential, for elevation.

MS. DINA MARTIN:

I'd like to thank you for hearing my voice today.

MR. POCHE:

Can you say your name for the record, please.

MS. MARTIN:

Dina Martin. I live in LaPlace. I live west of 51, and I was ran here by Katrina. Katrina left me with some horrible memories, because all I had heard was, "The Corps of Engineers fixed the levees." No, they didn't. They band-aided the levees, and you can see what happened to us in 2005.

I was told by residents here that they had not had any flooding for 30 years. So my husband and I, we had a home that was already paid for in New Orleans. We came here. We had to start all over with the mortgage. And on the same day, August 29th, seven years to the day, we were almost flooded again.

He's the president of Summerlin Lake Homeowners Association. I'm on the board also. And all I want to know is, what happened after 30 years to cause us to have this type of flooding?

I don't believe in dollars and cents when it comes to homeowners and their properties. I believe in fixing a problem that will help families and their

families further down the road for years to come.

This Plan C, I don't care for it. I don't care for "A." I don't care for plans that will help the community survive and not go through what we went through in Orleans and the surrounding parishes in 2005. Thank you very much.

MR. ARTHUR JONES:

My name is Arthur Jones. My concern right there is with "D" and the surrounding parishes that we look at it, and like the lady said, I don't want to get caught up in dollars and cents. To me, it doesn't make sense that we go a cheap way out, looking at a $10 million difference than lives. I think it's more important to save more lives than to worry about just the $10 million if we can do with Plan D and make it safe for St. John Parish and the rest of our surrounding parishes.

We looked at in New Orleans. We know what happened out there because the levees wasn't structured well and structured right. And I'm looking at, if we go the cheap way out, somewhere down the line, we are going to spend that $10 million. If we would have lost lives in these different parishes that, and, fortunately, we didn't, we would have been over $10 million.

So I think we need to actually look at Plan D with our surrounding parishes also so that we won't get caught

up in the long run later on down the line spending that same amount of money again trying to make a better structure. So I say, let's try to make the structure firm at the first beginning so we will try to save lives. It's more important to save lives than go the cheap way out. Thank you.

MS. SYLVIA DUNN:

My name is Sylvia Dunn. And, basically, I heard a consensus in the comments that I have heard so far, and basically what they say is, do not delay the levee for further study so it gets lost in the bureaucratic shuffle. This matter has been delayed much too long. Don't wait until St. John is flooded again or until St. James is flooded to the same magnitude as St. John was.

We are not divided. We are united. We want action now. The levee delayed is just like justice being denied.

MR. JAMES STEPHENS:

Good evening. My name is James Stephens. I live in Jefferson Parish, but I own some property in St. John Parish, very close to where that levee is going to come back to go to the river. I don't know if I will be inside of that levee or outside.

The old maps that I have show that that property was

farmed years back. It holds some water now, which I attribute to I-10 holding it in and not allowing it out. But anything that's on the west side of that levee is basically going to be condemned. I don't know if mine will be inside it to be condemned or not. I understand I have to look at the real estate.

But if the levee is not run all the way up into St. James Parish, that will preclude any development along Airline Highway that may come at a future time. If it's outside the hurricane protection system, nobody wants to do anything with it or won't want to do anything with it.

If it is protected, it will allow further development. And I think the levee should go all the way into St. James and Assumption Parish -- Ascension Parish. Thank you.

MR. EVERETT POWELL:

Good evening. My name is Everett Powell. I'm a resident here in Cambridge Subdivision. I just have a couple of questions to ask the board. Number one, what's the practicality of splitting this into Phase A and B or a two-part plan?

Two, most of the residents here are really concerned about their oncoming flood insurance increases and things like that. As soon as this stuff gets started and things

start to progress, that means our rates have the possibility of dropping. A lot of these residents probably won't be here when this levee is completed, because they're going to be forced out by high insurance rates and things like that.

So my first question is, what is the practicality of splitting this in a two-part plan where we might get started a little bit earlier? And once we are through this process and a levee is started, what is the estimated amount of time on "C" or "D" from start to finish?

MR. VARISCO:

What we are under right now is the feasibility phase. And the culmination of that is the signature of the report by the Chief of Engineers in Washington. From that standpoint, that report is then provided to Congress and it's up to them to act. And so we are not really able to give you a precise time of how long it would take.

But in terms of phasing, that's also a decision that might be up to the Congress. If they decide, well, we believe that first part should be built now, they may tell us to do that, and that's what we would carry out. So it's really not a decision that's up to the folks that are studying it. It's up to the folks

that make the decisions and provide the construction dollars for a project.

MR. POWELL:

Well, that leads to my last question: Is there any way that we can effect as residents of this parish, in your opinion?

MR. VARISCO:

Certainly. That's what we are doing tonight. You're providing your opinion which is going to be included in the report. And that will be transmitted to the Chief and then along to Congress. And, also, you certainly have the right to contact your representatives and express your views.

MR. POWELL:

Thank you.

MS. NATALIE ROBOTTOM:

Parish President Robottom. First of all, all the comments are very consistent with what your representatives have been expressing. It has been a constant theme, and I want to share with you, your congressional delegation is on board with us. We had a letter from Senator Vitter. But please be aware that all of our delegation has written a letter in support of Alignment D.

Of course, how you help us is to help them advocate

for the funding. So this is one step that we are moving in. We are moving simultaneously. This is a critical step. Whether we finalize "C" or "D," this has to take place in order for us to get the money. But know that all of us are working. The same time this study is moving through, we are working on funding as well so that construction can culminate once it's approved.

But all of you have all of our support. We're going to continue to work toward Alignment D. We also are going to continue to work toward funding, which is critical. It doesn't matter if it's approved and it's a plan and The Corps accepts it, Congress accepts it. We need the money to construct it. So work with us to continue to work toward getting these projects done.

MR. ANTHONY WAGUESPACK:

Anthony Waguespack. I live in River Forest Subdivision here in LaPlace. And I just got back in my house. And I don't wish this on anybody, having to fool with the waters and stuff, having to watch the water come in.

The easiest way and the best way to prevent everyone from having to go through this is to go get -- go all the way to Gonzales for Plan D. And if you've got to go to Baton Rouge, go to Baton Rouge. But, at least, you will have everybody protected.

MR. STEVE WILSON:

Thank you, Rene. I just want to maybe answer a couple of comments that I heard. I'm glad that everybody is on board with Plan D, because, like I said before, that is what the Levee District and, I know, the parish presidents are going to continue to support through the process. We are a year away from going to Congress and then begging them to fund this levee, so keep that in mind, what Ms. Robottom was referring to.

For two things I heard that trouble me, and I want y'all to understand, we have set the Levee District and The Corps from the inception of this last feasibility study here in '04 and talked to the environmental concerns. Dr. Klein that's here tonight and knows well that we share the concerns about destroying the wetlands.

Just to respond to the comments we heard earlier, the colonel and I are set to go up in a helicopter and look at what I consider to be a model in St. Charles, where we protected the wetlands.

And the last comment I want to make, because I would pop if I didn't, is, the gentleman that said this is a rush study, I challenge you to stand at the doorway right there and address these people on their way out and tell them that 40 years is a rush study. Thank you.

MR. TONY SCHEXNAYDER:

This is what, with our final conclusion, I wanted to ask. I know y'all need your hard data. You can't put a dollar sign on what we went through, but during this time of the flood -- I'm sure y'all have got family. Y'all are welcome to come to my house. And if it's not good enough for y'all to bring your family to my house, it shouldn't be good enough for my family neither. We shouldn't have to put up with this. So sometimes you just better do the right thing to protect the people. Thank you.

(End of proceedings.)

C E R T I F I C A T E

I, Annette Ross, Certified Shorthand Reporter in and for the State of Louisiana, as the Officer before whom this testimony was taken, do hereby certify:

That the proceedings as herein before set forth in the foregoing 36 pages was reported by me in stenographic machine shorthand, transcribed by me or under my personal direction and supervision, and is a true and correct transcript to the best of my ability and understanding;

That I am not of counsel, nor related to any person participating in this cause, and am in no way interested in the outcome of this event;

That the transcript has been prepared in compliance with the transcript format guidelines required by statute and by rules of the board;

That I have acted in compliance with the prohibition on contractual relationships as defined by Louisiana Code of Civil Procedure Article 1434 and in rules and advisory opinions of the board.

This certification is valid only for a transcript accompanied by my original signature and original blue stamp on this page.

_____

ANNETTE ROSS,

CCR NO. 93001

26th day of September, 2013

U.S. ARMY CORPS OF ENGINEERS

PUBLIC MEETING COMMENTS

****

IN RE: West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study Integrated Draft Feasibility Report and Environment Impact Statement

****

ABOVE-ENTITLED MEETING
WAS HELD ON OCTOBER 2, 2013, AT THE
LAMAR DIXON EXPO CENTER GYMNASIUM
9039 S. SAINT LANDRY AVENUE
GONZALES, LOUISIANA

MODERATOR: MR. RENE POCHE

REPORTED BY: ANNETTE ROSS, CCR, RPR

JUDY P. FOUST, INC.
CERTIFIED COURT REPORTERS
145 ST. JOSEPH STREET
BATON ROUGE, LOUISIANA 70802-5739
(225) 344-2270

APPEARANCES

PANEL MEMBERS:

Colonel Rick Hansen, Commander, Army Corps of Engineers New Orleans District

Mr. Jeff Varisco, Project Manager, WSLP

Mr. Travis Creel, USACE

ANNETTE ROSS, CCR NO. 93001,
Certified Court Reporter, in
And for the State of Louisiana

* * * * *

INDEX OF PUBLIC SPEAKERS

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TRANSCRIPT OF PUBLIC COMMENTS

MR. RANDY CLOUATRE:

My name is Randy Clouatre. I'm councilman of Ascension Parish and the chairman of East Ascension Drainage. First of all, I want to thank the colonel, all of the staff, all you guys, for coming out and having a meeting with us.

We do believe that, on behalf of the drainage district, that Alignment D is very important, important for everything for us to totally close, protect the people of the southeast portion of Ascension Parish. We think that it's feasible. We think that we can work it out.

I want to take this opportunity to thank President Martinez, thank President Wilson for encouraging to back this effort, no matter what happens at the Corps level. Once again, I just want to let you know that Mr. Roux, who is our drainage director, will be up, and we will enter our comments into the project.

So, please, Colonel and staff, take every opportunity. With what we had is a short time to put together what we needed to put together to try to enter our comments into this study.

We do have possibly, before the end of the comment deadline, some more economic development comments from

our economic development group. We have a large portion of industry in Ascension Parish. And so does St. James, which we share the same swamp. So we will have that coming later.

Once again, on behalf of the people in the southeast portion of Ascension Parish, we would appreciate you taking every opportunity that you can to take a look at Alignment D and get that in hand. We will work with whatever agency is willing to bring that alignment to us. Thank you.

MR. BILL ROUX:

I'm Bill Roux, director of drainage for East Ascension Drainage District and also Ascension Parish. This is our official submittal to The Corps for Alternate D route. I am going to try to get through this pretty quick, just briefly.

Because the original legislation authorizing this study did not include Ascension Parish, no benefits to this area within Ascension Parish affected by the levee's Alternate D route were included in the benefits evaluation, although the costs were. As a result, this skewed analysis produced a B/C Ratio and Annual Net Benefits that concluded the best use of resources was for the construction of the levee as per Alignment C.

Ascension Parish and St. James Parish do not agree

with this conclusion and request the U.S. Corps of Engineers to include Ascension Parish in the evaluation area. To this end, Ascension Parish submits the following data for consideration. The following information was produced utilizing the Ascension Parish GIS Department, Moody's County Forecast Database, and the National Economic Development Procedures Manual for Flood Risk Management.

If you go to page 3, I included charts that were within your report and, what I did, just added information for Ascension Parish. If you will notice Table 1 is Land Use in the Study Area of 230,000 acres. Ascension Parish study area, if you include that, you include another 43,702 acres. That's a 19 percent increase in total acres.

If you go to No. 4, page 4, Historical and Projected Parish Population. You looked at -- I'm looking at the total for, say, 2020 and 2080 in the St. Charles, St. James, and St. John the Baptist area. You're looking at 130,000 and 152,000 respectively.

Ascension Parish is the fastest -- one of the fastest, if not the fastest growing parish, and Ascension is one of the fastest growing counties in the nation. Our projection through Moody's database projected Ascension Parish to go in 2020 to about 131,000 and, by

2080, 258,000, which is an increase of 170 percent of what y'all evaluated already.

The Existing Condition and Projected Population Within the Study Area, I used the same percentages y'all used to build conservative. We have still got a net increase from what was analyzed already, a 37 percent increase over what was projected.

The Number of Households, the same thing, goes anywhere between 90 percent -- 97 percent to 196 percent all the way up to 2080, a big increase, a big benefit if you figure this into the old ratio.

No. 6, and this is really where it comes to, to our support of Alignment D. If you look at the Equivalent Benefits, you're looking at 59,000 that was projected in your chart. But if you add a real modest 30 percent increase in benefits, and we feel it will be a lot more than when you do a full analysis, but just increasing the net benefits by 30 percent, you're looking at 77 million in benefits.

The costs don't change, because that's always figured in. B/C ratio rate is 1.67. More important than that, you're looking at an Equivalent Annual Net Benefits of 31 million compared to C of 23 million. So, again, you're looking at, roughly, a modest increase of 30 percent. You're looking at it, in our same B/C ratio,

there's a huge 25, 26 percent increase in the Net -- Annual Net Benefits.

And, again, you mentioned, Jeff, a minute ago, that that is the most significant number there. As per the National Economic Development Procedures Manual (as read by Mr. Roux):

> "The most efficient use of resources for any one project comes when the benefits exceed cost by the maximum amount. The maximum net benefits comment is, therefore, the best measure of investment, because it contributes the highest dollar value of increased output."

And, again, that goes to back to that 31 million compared to the 23 million.

Based on the data presented herein, Ascension and St. James Parishes request the inclusion of benefits to Ascension Parish gained by the construction of Alignment D of the West Shore Project. The B/C ratio, and, most importantly, the huge increase in the Equivalent Annual Net Benefits of Alignment D make the decision to recommend Alignment D an obvious choice.

Also included are maps that we figured are included in the affected areas. It affected the Panama/Conway and the canals in the lower part of the parish, and also have inundation from different elevations and, also, the

result of inundation from Isaac, Hurricane Isaac. And we also have the Resolution from East Ascension Drainage Board and Parish Council recommending D.

The last comment, real briefly, you mentioned about environmental impact. Well, we have a lot of levees within our parish, and we have a little bit of a conflict of opinion with this. We always believed that we were able to, in the past, to justify our levees by, purportedly, the opinion that the levees don't hurt the wetlands behind it.

If your operational plan takes into consideration the normal operations that allows the free flow of water back and forth just like (inaudible) did when we had the levee there before. We justified that in our other levee projects, and I think that can be justified with this too. Thank you.

MR. CLINT COINMENT:

Thank you for allowing us to come, the state, Ascension Parish residents, and local business owners. I had some concerns, because I believe one of the main sticking points is going to be wetlands. And so I just want to touch base on some of the concerns of our wetlands.

Here in Ascension Parish, we have a levee system. We see little or no impact to our wetlands as Mr. Bill

Roux mentioned. We allow for the natural water inflow and outflow during non-storm events. So that's very important that we have very little impact.

I think the thing here in Ascension that concern us more is saltwater intrusion. I noticed that, after major storms, we continue to get saltwater intrusion through Pontchartrain and the Maurepas. If you take a boat ride from Pass Manchac, you will notice very little thriving cypress trees and, almost none, sweet gum tupelo. That is caused from saltwater intrusion, and that's what leads us to constantly lose our coastal wetlands.

Actually, these levees will be a benefit to our wetlands, protecting our wetlands from the saltwater intrusion. So there is a benefit on the back side of that, keeping saltwater -- keeping our wetlands healthy.

In addition to that, I was a little concerned about the cost to benefit analysis. I believe as the previous speaker spoke on some of the issues that I don't think were computed, I think a lot of the residents in Ascension and St. James are not computed, as well as the future communities are not computed into that cost analysis.

I noticed you didn't have a change in your cost analysis from Alternates C or D. And I thought that was interesting, because, obviously, as you protect a greater

amount of citizens, structures, economics, businesses, that nature, there is a benefit to that. And that's not shown on your chart. And so that's something that stood out immediately to me.

One of the more important things is the protection of the evacuation routes. I noticed that that wasn't computed. We're talking about our two major evacuation routes of US-61 and I-10 out of New Orleans and the surrounding parishes. As we noticed in Katrina, we had damage to the twin span. We don't want to eliminate the possibility of that happening to these evacuation routes. I think that that would be a detriment.

And when we assess a cost of just over a little 1 percent that we have on the charts there of doing these levees, the first thing that comes to mind is loss of life. When we look at a cost of benefit or a cost to complete the project, 1 percent of the overall, and that's huge. I think that really needs to be noted in a percentage perspective of what we're talking about when we talk about governmental projects, 1 percent.

And I think, if we choose not to do Alternate D and we do have a loss of life, I don't think at this point we want to look back and look at a cost to benefit ratio number or a 1 percent cost to overall project and say that could have saved a life or could have destroyed our

evacuation route. So I hope you take that under consideration, and have a good day.

MR. KENT SCHEXNAYDRE:

Thank you very much. I'm Kent Schexnaydre, a local Parish councilman that is directly affected by this plan. And I appreciate y'all coming today and giving us the opportunity.

One of the things that we need to really talk about is really having some common sense about, and I know the cost to benefit ratios, what you have to go by, but to really take a look at the cost of the closure of I-10, Highway 61, and the railroad. No one has mentioned the railroad. I stood on top of the railroad when they had a foot of water on it last (inaudible), south of Sorrento during that time when all the transportation was stopped. That is very, very important in the cost/benefit ratio.

The industrial risks that indirectly is affected by storm surges of this sort, you may not directly affect the plant, and which we have many of them, but to not have the workers or the suppliers being able to access that plant is very important. And the costs that are involved are tremendous.

We have the type of existing -- common sense to tie it into the existing levee system is very important, that

the people of Ascension Parish have spent almost $200 million in the past 30 years with the levee system, and to tie into that and complete that loop would be very important.

And I think we are all concerned about the environmental impact, but I don't think the environmental impact will be as great as what everyone is talking about, because that was done already in the '60s when the interstate was built. So the environmental impact of running a levee along that interstate would only be affected for a few hours or a few days with storm surge. The rest of the time, it would be just like it is now. It would not be changed. So I think that's something that really has to be looked at.

Sooner or later, as we continue these levee improvements, we are going to have to look at pumping the water out of this system. This lake system that we have, we are going to have to get the water into the Mississippi River through the Comite Diversion and through some kind of Blind River or other diversion.

And, also, at some point in time, we will have to look at -- because they were talking about, excuse me, the Blind River pumping station being so expensive, what we were trying to stop is, the Blind River at that time was going backwards. So pumping the water out, the idea

of the rain event is not a big risk in this area as it is, we are looking at stopping the storm surge. So I think that could be compromised into having something that would be a preventive measure instead of pumping out. Thank you.

MR. HENRY GRAHAM:

Good evening. My name is Henry Graham. I'm vice president of environmental affairs and legal counsel for the Louisiana Chemical Association.

LCA's trade association, we represent over 75 -- over 65 companies and over 100 plant locations throughout Louisiana. The majority of our facilities are located in the Baton Rouge to New Orleans Corridor. We have currently at plans, not just talking about existing, the plan for over $16 billion in investments in new facilities in the areas that will not be improved by this alternative.

Alternative D is critical for our industry, because our most important resource is our people. Without our people, we cannot run our facilities. Without our facilities operating, you cannot get the gasoline you need, the plastics you need, the fuels, and the other critical ingredients that they serve our lot.

It is very important also for our facilities, not only for the operational part of our facilities, but the

transportation infrastructure. We all saw last summer the problems that we ran into when one little section of I-10 was shut down because of a flooding. Well, all you're going to do is move that problem down the interstate. If you don't take Alternative D, you still are not going to be protecting I-10. You will take away, with I-10 and 61 are the key evacuation routes for all of Southeast Louisiana, and those certainly need to be factored into your equation.

It appears, from our review, that you included the cost, but did not include many of the benefits as a result of this project. We recognize that you are limited by legislation. But at the same time, there is over half of the population would not be served by selecting Alternative C. Alternative D has more people that would be protected, twice as many people, as would Alternative C. It also has more facilities, more roads and infrastructure.

And so we caution you in your analysis to make sure that, while you are meeting the letter of the need for requirements of examining alternatives, it's very critical that you examine all of the costs and the benefits derived. We can't operate our facilities without transportation facilities, roads, railroads, shipping, loading and unloading facilities docks, and

many of those facilities would be impacted by a storm surge coming into this area.

I think Mr. Zeringue also mentioned about the Coastal Protection Restoration Authority Master Plan. We worked with a work group on that plan, and it was very important for us representing the manufacturing interest, that, as part of that plan, they considered the impact of facilities and infrastructure.

And I think, if you look at that plan, you will see there's over a dozen different factors, including protection of wildlife, protection of marsh lands, protection of infrastructure. All of those were considered. And as a result of that, the recommendation was made that Alternative D in that plan would provide sufficient protection and still provide environmental benefits.

So we urge you to consider Alternative D. We think it's a more responsible plan, and it would provide a greater protection for the citizens of Louisiana. Thank, you, sir.

MONICA SALINS:

Thank you. You know, I have been to the last couple of public meetings, and, Colonel, I would really like to thank you very much for having us here. And it was important to the people here in Ascension Parish. I

think it's important to represent all parishes, especially where this particular study is involved.

As executive director of the Pontchartrain Levee District, I reviewed the Integrated Draft Feasibility Report and Environmental Impact Statement for West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.

I offered several comments, suggestions, and questions. And when I began to compile this letter, I had a few comments, a few questions. And as the day went on, I had more. I have about ten here. I'm not going to read all 10, because now I have 15. There have been a lot of, you know, wonderful comments and no better to actually submit the comments to the people from this area.

There are a couple that I would like to touch on, though. In the presentation, Mr. Varisco, you referenced a slide comparing the plans referencing the annual cost. If the O & M -- that's operation and maintenance -- of this levee system is 100 percent non-federal and the locals fully embrace the responsibility of this cost, then why not do a what-if scenario of the alternatives, with O & M costs excluded, and see how the benefit/cost ratios would compare with just construction cost?

If that's not a federal cost, the local sponsor,

being Pontchartrain Levee District, and the parish are knowledgeable and willing to absorb the O & M cost, then why include it in the selection of alternatives? Just because regulations say so?

I understand that there are regulations, but it doesn't mean that they are correct and proper. I understand that it's not likely to get a change in the policy governing how this is computed any time soon. But as local sponsor, I request that a what-if scenario be included and factored in the report for informative purposes to show how close Alternative C and D actually are.

Page 2-7 talks about the LCA Convent Blind River Diversion Project has the potential to locally reduce stress and improve dissolved oxygen levels. So the report admits to a salinity problem. The levee would do wonders to help that. It also says that the Maurepas Swamp is expected to continue to decline and convert to open water without the project.

Why are we being assessed mitigation costs against the project when the report clearly indicates these wetlands will be lost by 2070 due to subsidence and sea level rise? Wouldn't you think that the protection levee would help protect the 79 square miles of wetlands? Where is the proof that the wetlands behind the levee

will be lost by 2070? Why doesn't the project get mitigation credits for saving 79 miles of wetlands?

Another point: On page 2-13, I strongly disagree that no action there would be no direct impact on community and regional growth. If there is no protection provided, the impact from Biggert Waters Act is going to have a major adverse impact to community and regional growth. The regional growth would come to a screeching halt and then decline. We are not advocating development of wetland areas for community growth; in fact, we have offered to purchase private wetlands and put them in public trust, but they're a vast agricultural land that could be developed.

I also disagree completely about the indirect and cumulative damages to the wetlands. I-10 already serves as a barrier to the wetlands as a "levee." The culverts underneath do not pass much water. A USACE analysis has indicated this. Unfortunately, the resource agencies have refused to accept the analysis. The Corps should be counting the benefits for protecting the marsh, not charging for mitigation for damaging it. This doesn't make any sense.

On page 3-12, it states that (as read by Ms. Salins):

"Alternative D poses potential

uncertainties concerning impoundment of large areas of wetlands, especially if the river diversions are constructed. While it would prevent saltwater intrusion, it would risk impacting the hydrology by encompassing approximately 54,800 acres of swamp and would impact the environmental quality of the Maurepas wildlife Management Area as well as Blind River, unquote.

Where is the evidence that the levees will damage the wetlands? I cannot find the answer within this report. It doesn't exist. It's the opinion of the environmental types is my opinion.

What about where the levees have helped the wetlands? Anyone can see for themselves if they drive down I-310 where the levees have helped along the Lake Pontchartrain and Vicinity Hurricane Protection Levee, St. Charles Parish polder. The cypress trees are bare and deteriorated near Lake Pontchartrain and the cypress trees are vibrant and healthy along Airline Highway behind the St. Charles Parish Hurricane Protection Levee.

There is your evidence. You can see it on the way to Grand Isle where you cross the levee in Golden Meadow. You can see it on the -- look at the aerial

photos of South Lafourche after Hurricane Rita. You can see open water outside the protection levee and healthy, vibrant, forested wetlands inside the protection levee. Again, is this a bad thing? I have not seen it first-hand, but I'm told the same vibrant wetlands exist in St. Bernard Parish and down in Plaquemines Parish.

The Mississippi River Corridor between New Orleans and Baton Rouge is a major industrial and petrochemical plant hub for the country. Products from these industries and plants are shipped via pipeline to all parts of the country. Alternative D provides the least impact to these pipelines compared to Alternatives A and C; Alternative D, for instance, 14 pipelines versus 36 crossings, versus 70 crossings, respectively.

We have reviewed the pipeline relocation costs and feel these costs have not been fully evaluated. While the construction cost to relocate the pipelines was included per Engineering, Appendix B, the pipeline outage cost and loss of material cost were not included.

Those are significant dollar figures to leave out of this study, because that is left up to us. If AT&T charges $6,000 per minute for lost time on a fiberoptic line, what is the cost for a 6-inch, 12-inch, 18-inch, 24- and larger pipelines? How many gallons of product will be wasted during the tie-in procedure, and how much

would that cost?

I could go on and on, and I won't. I will submit all my comments by next Tuesday. I have several of my pages just keep getting longer and longer. Please place these comments and these questions in your report.

And, as 50 percent owner of this study, I trust that the answers to these questions and all of the questions that have been submitted by all of the interested parties from the people within the parishes, from all the public meetings, the e-mails, and U.S. mail will be provided to Pontchartrain Levee District within 30 days after the close of the comment period. So I'm asking for the answers to all of these questions by November 18th of 2013.

Pontchartrain Levee District Department, Ascension, St. James, St. John the Baptist Parish, and St. Charles Parishes are all in agreement, and we are all in favor of Alignment D.

Colonel, you said in the beginning, Pontchartrain Levee District has been partners with you for quite some time, and we worked very well as partners for many years. And as a partner, the Pontchartrain Levee District has confidence to be treated as such, of equal rank, consideration, and compromise, when there are differences. Thank you.

(**End of Proceedings.**)

C E R T I F I C A T E

I, Annette Ross, Certified Shorthand Reporter in and for the State of Louisiana, as the Officer before whom this testimony was taken, do hereby certify:

That the proceedings as herein before set forth in the foregoing 22 pages was reported by me in stenographic machine shorthand, transcribed by me or under my personal direction and supervision, and is a true and correct transcript to the best of my ability and understanding;

That I am not of counsel, nor related to any person participating in this cause, and am in no way interested in the outcome of this event;

That the transcript has been prepared in compliance with the transcript format guidelines required by statute and by rules of the board;

That I have acted in compliance with the prohibition on contractual relationships as defined by Louisiana Code of Civil Procedure Article 1434 and in rules and advisory opinions of the board.

This certification is valid only for a transcript accompanied by my original signature and original blue stamp on this page.

_____

ANNETTE ROSS,

CCR NO. 93001

17th day of October, 2013

Town of Lutcher

St. James Parish
P. O. Box 456 Lutcher,
Louisiana 70071
Telephone: (225) 869-5823
Fax: (225) 869-9628

Mayor
Rowdy K. Scott

Aldermen
Donald J. Batiste, Sr.
Thomas D. George
Danny B. Manuel
Darlene F. Riley
Patrick P. St. Pierre

Town Clerk
Vanessa C. Roussel

Town Attorney
Wilbur W. Reynaud

Chief of Police
Dwan B. Bowser

October 3, 2013

Colonel Richard Hanson
New Orleans District
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160

Dear Colonel Hanson:

Enclosed is a copy of Resolution 13-13 which was passed at the regular meeting on Tuesday, October 1, 2013 by the Board of Aldermen of the Town of Lutcher in support of Alternative D.

Please consider this Alternative and provide hurricane protection to all in the Town of Lutcher and St. James Parish.

Thank you for your consideration in this matter.

Sincerely,

Vanessa C Roussel

Vanessa C. Roussel, MMC
Town Clerk
Town of Lutcher

Enclosure

Alderman George moved, seconded by Alderman Manuel to approve Resolution 13-13 as follows:

RESOLUTION 13-13
TOWN OF LUTCHER

A RESOLUTION REQUESTING THAT THE U. S. CORPS OF ENGINEERS RECONSIDER THEIR RECOMMENDATION FOR THE WEST SHORE LAKE PONTCHARTRAIN HURRICANE PROTECTION LEVEE AND CHOOSE ALTERNATIVE D

WHEREAS,South Louisiana has experienced an increase in flooding and flood damages in recent years from major hurricanes and other tropical weather conditions; and,

WHEREAS, the parishes of Southeastern Louisiana have worked hard to rebuild their communities and often times have shared resources, man-power, and equipment to aid and assist one another during flooding disasters; and,

WHEREAS,the economic growth and stability of our Region depends on adequate protection from storms and flooding in all of the parishes in Southeastern Louisiana; and,

WHEREAS, the recently released Corps of Engineers' West Shore Lake Pontchartrain Study recommends Alternative C as the tentatively selected plan; and,

WHEREAS, Alternative C provides for a levee from the Bonnet Carre Spillway to the Hope Canal and the Mississippi River in Garyville, Louisiana, thereby, leaving an area of approximately 10 miles from western St. John Parish to Ascension Parish without federal hurricane protection levees; and,

WHEREAS, Alternative C provides no hurricane levee protection to St. James Parish, which will force backwater flooding to Blind River and into homes, businesses, and industries within St. James Parish; and,

WHEREAS, the West Shore Lake Pontchartrain Study notes that the difference in cost from Alternative C to Alternative D is approximately $10.2 million; and,

WHEREAS, Alternative D provides a continuous hurricane protection levee from St. Charles Parish to Ascension Parish, thereby, closing the gap in the levee system and providing a complete West Shore Lake Pontchartrain Hurricane Levee System:

NOW, THEREFORE, BE IT RESOLVED, by the Board of Aldermen that the governing body of the Town of Lutcher hereby requests that the Corps of Engineers reconsider their recommendation of Alternative C and provide hurricane protection to all citizens, businesses, and industries within the River Parishes through the selection of Alternative D; and,

BE IT, FURTHER, RESOLVED that a copy of this resolution be forwarded to the members of the Louisiana Federal Delegation and the State Senator and Representatives who represent the River Region Area.

And, the resolution was declared adopted on this, the 1st day of October 2013 by a roll call vote.

Rowdy K. Scott, Mayor

CERTIFICATE

I, Vanessa C. Roussel, MMC, Town Clerk for the Town of Lutcher, do hereby certify that the

TOWN_9-18-2013_1_Terry Borne

Town of Gramercy

"THE BEST LITTLE TOWN FOR MILES AROUND."
120 North Montz Street
P. O. Drawer 340
Gramercy, Louisiana 70052
Phone 225-869-4403 • FAX 225-869-4195

September 18, 2013

Dr William P Klein Jr
US Army Corps of Engineers
Regional Planning and Environmental Div. South
New Orleans Environmental Branch
PO Box 60267
New Orleans LA 70160-0267

Dear Dr. Klein:

The Town of Gramercy, Louisiana, St. James Parish has reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the Corps of engineers to evaluate the different alignment options.

Although Alignment C is tentatively chosen, the Board of Aldermen and Mayor of the Town of Gramercy are requesting assistance to promote the option of Alignment D. The State of Louisiana Master Plan also shows Alignment D as the preferred plan. Alignment D is the only option that will provide levee protection to Gramercy and St. James Parish. The overturn of this decision is important to insure the safety of families, properties, and/or businesses during the event of a hurricane or tropical storm. Gramercy sustained flooding of a number of homes during Hurricane Isaac and should Alignment C be chosen, will create even greater flooding to our community.

It is critical that members of our community, as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance you can provide will be greatly appreciated.

Sincerely,

Terry Borne
Mayor

Enclosure

RESOLUTION 18-13

A RESOLUTION REQUESTING THAT THE U. S. CORPS OF ENGINEERS RECONSIDER THEIR RECOMMENDATION FOR THE WEST SHORE LAKE PONTCHARTRAIN HURRICANE PROTECTION LEVEE AND CHOOSE ALTERNATIVE D

WHEREAS, South Louisiana has experienced an increase in flooding and flood damages in recent years from major hurricanes and other tropical weather conditions; and,

WHEREAS, the parishes of Southeastern Louisiana have worked hard to rebuild their communities and often times have shared resources, man-power, and equipment to aid and assist one another during flooding disasters; and,

WHEREAS, the economic growth and stability of our Region depends on adequate protection from storms and flooding in all of the parishes in Southeastern Louisiana; and,

WHEREAS, the recently released Corps of Engineers' West Shore Lake Pontchartrain Study recommends Alternative C as the tentatively selected plan; and,

WHEREAS, Alternative C provides for a levee from the Bonnet Carre Spillway to the Hope Canal and the Mississippi River in Garyville, Louisiana, thereby, leaving an area of approximately 10 miles from western St. John Parish to Ascension Parish without federal hurricane protection levees; and,

WHEREAS, Alternative C provides no hurricane levee protection to St. James Parish, which will force backwater flooding to Blind River and into homes, businesses, and industries within St. James Parish; and,

WHEREAS, the West Shore Lake Pontchartrain Study notes that the difference in cost from Alternative C to Alternative D is approximately $10.2 million; and,

WHEREAS, Alternative D provides a continuous hurricane protection levee from St. Charles Parish to Ascension Parish, thereby, closing the gap in the levee system and providing a complete West Shore Lake Pontchartrain Hurricane Levee System:

NOW, THEREFORE, BE IT RESOLVED, by the Mayor and Board of Alderman, that the governing body of Town of Gramercy hereby requests that the Corps of Engineers reconsider their recommendation of Alternative C and provide hurricane protection to all citizens, businesses, and industries within the River Parishes through the selection of Alternative D; and,

BE IT, FURTHER, RESOLVED that a copy of this resolution be forwarded to the members of the Louisiana Federal Delegation and the U. S. Senators, State Senators and Representatives who represent the River Region Area.

A vote on the above resolution was as follows:

YEAS: Bourgeois, Clark, Coleman, Lee, Wiggins

NAYS: None ABSENT: None

And the resolution was adopted on this the 9th day of September, 2013

I, Lydia Z. Louque, Clerk of the Town of Gramercy, Louisiana, do hereby certify that the above is a true and correct copy of a resolution duly adopted by the Board of Aldermen of the Town of Gramercy, Louisiana, duly convened on September 9, 2013

Lydia Louque

Lydia Louque, Town Clerk

CD _9-18-2013_1_David Vitter

13-045

DAVID VITTER
LOUISIANA

DEPUTY WHIP

Environment and Public Works
Top-Ranking Republican

Armed Services

Banking, Housing, and Urban Affairs

Small Business and Entrepreneurship

United States Senate

WASHINGTON, DC 20510

September 18, 2013

WASHINGTON, D.C.
HART SENATE OFFICE BUILDING
SUITE SH-516
WASHINGTON, DC 20510
(202) 224-4623
FAX: (202) 228-5061

BATON ROUGE
858 CONVENTION STREET
BATON ROUGE, LA 70802
(225) 383-0331
FAX: (225) 383-0952

Website with E-Mail Access:
vitter.senate.gov

Colonel Richard Hansen
New Orleans District Commander
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160

Dear Colonel Hansen,

My constituent, Paul Bair, has contacted me about a problem he is having with the proposed levee alignments for St. John the Baptist Parish. He is concerned with how the proposed levee construction will affect his family's business, Cajun Pride Swamp Tours. Currently, his property is subject to being bisected by current proposals and he has listed questions about the construction of the levee that he would like answered. I have added the letter he sent to our office that includes theses questions and his concerns.

I have explained that I would bring this matter to your attention to address his concerns directly.

I would appreciate it if you would respond to Paul Bair's concern.

Thank you for your attention to this matter.

Sincerely,

David Vitter
United States Senate

Received By
CEMVN-EX
US Army Corps of Engineers
New Orleans District

SEP 20 2013

ACADIANA
2201 KALISTE SALOOM ROAD
SUITE 201
LAFAYETTE, LA 70508
(337) 993-9502
FAX: (337) 993-9567

CENTRAL LOUISIANA
6501 COLISEUM BOULEVARD
SUITE 700-A
ALEXANDRIA, LA 71303
(318) 448-0169
FAX: (318) 448-0189

NORTHEAST LOUISIANA
1651 LOUISVILLE AVENUE
SUITE 148
MONROE, LA 71201
(318) 325-8120
FAX: (318) 325-9165

NORTHWEST LOUISIANA
920 PIERREMONT ROAD
SUITE 113
SHREVEPORT, LA 71106
(318) 861-0437
FAX: (318) 861-4865

SOUTHEAST LOUISIANA
2800 VETERANS BOULEVARD
SUITE 201
METAIRIE, LA 70002
(504) 589-2753
FAX: (504) 589-2607

SOUTHWEST LOUISIANA
949 RYAN STREET
SUITE E
LAKE CHARLES, LA 70601
(337) 436-0453
FAX: (337) 436-3163

September 12, 2013

Re: Questions and concerns about the proposed Hurricane Barrier for St. Charles and St. John's Parishes and how it will affect our family's business, Cajun Pride Swamp Tours at 110 Frenier Rd., LaPlace LA 70068

To whom it may concern,

Based on the map that was in the Times-Picayune on August 25th 2013 outlining the proposed levee construction, and the attached map provided to me by the LaPlace Zoning Office, it appears that our property is subject to being bisected by the current proposal. My wife and I own P.B. Bayou Charters dba Cajun Pride Swamp Tours which is located at the intersection of Hwy 51 and Frenier Rd. You can see that the proposed levee (in yellow on attached map) will divide our property (outlined in red). As our business consists entirely of providing public tours by boat through our water ways, and the surrounding water ways, we are greatly concerned that the proposed project will dramatically alter the land, waterways, and atmosphere of what our guest have come to enjoy. The following is a list of questions that we have as to how the proposed project may affect our property, business, and livelihood before, during, and after the construction of the levee.

- What is a true timeline of when the project will start?
- Are public hearings being held and/or scheduled to allow input from landowners likely to be affected by the project?
- Is the project, in fact, going to necessitate the use of property that we currently own?
- Can the proposed levee or wall be construction 1 mile closer towards Lake Pontchartrain or along the existing rail road line?
- When, and in what manner, will I be notified as to any planned or proposed use of my property?
- When, and in what manner, will I be notified that any portion of my land will be subject to condemnation?
- What is the timeline on when construction may directly affect my property?
- How long may the project last on our site?
- How wide and tall is the wall going to be through my property?
- Has an Environmental Impact Study been done on how the levee will affect the wetlands and animals in our area and on my land?
- How much materials, equipment, and crew will be placed at our site?
- How much of my land will need to be cleared to make way for the levee or wall?
- Will any of our Cypress trees be cut down or removed from my property?
- Will a wall or levee be placed through our property?
- How will the Corp get the materials to the work site?
- Will the Corp be using my land or water ways during construction?

- Will flood gates be used on all waterways that are being affected by the proposed protection?
- Can the proposed project be pushed closer and along HWY 51 with access to Frenier Rd?
- In what manner may I communicate with the Corp of Engineers with regard to their plan and possible ways to minimize the potential damage to our business?
- In what manner will we be compensated if our buildings and grounds must be raised as a result of the project?
- Will my business be able to operate on our site and have access to our waterways and surrounding waterways, as well as maintain its current frontage to the highway, during the construction of the proposed levee or wall?
- In what manner will we be compensated for any loss of business resulting from project?
- In what manner will we be compensated for loss of land, Cypress Trees removed or cleared, and cost to rebuild the marsh and wetlands that are disturbed?
- Will we be compensated for loss of business due to an inability to conduct tours directly caused by the hurricane protection?

I fear that our family business has been given a death sentence and know it is only a matter of time before the unknown will be upon us. On a personal level, this project has a profound effect on the life of my wife and I, as well as our employees. Below are a few ways this is personally impacting us:

- Stress caused by our daily concerns on what the future has for us as this is all out of our control.
- Stress due to potential loss of revenue and the affect it will have on our employees, future wages, future projections, and future growth as a company.
- Potential loss of vendors and clients due to the uncertainty raised by the project as to the sustainability of our business.
- Stress due to the financial commitment and investment into our property with now has an unknown future.
- Stress due to debt to our vendors that is long term as we only bought the company and property 3 years ago.
- Stress of not knowing if we will have a retirement. This company is our retirement.
- Stress of not knowing if our children will have a future based on our company.

I do want to state that we are not against the proposal for the protected project. We are most definitely in favor of the project and the protection it will give the Tri-Parish. We simply want to raise our concerns, obtain answers, and ensure that all due consideration has been given as to how the project will affect us. We are a mom and pop operation with 15 employees. We are not a large company with high cash reserves and financial backing. Our operation is dependent on access to and use of the wetlands and waterways to conduct our tours. We are not able to relocate our business due to the unique services we offer which include the lands and waterways we own. Since 1990, Cajun Pride

Swamp Tours has been in operation at its site on Frenier Rd. We are a great attraction to St John's Parish and proud to be a part of the community. We love what we do, love our employees, and most all, love the land that we own. What we have, and own, is unique to Louisiana and South Louisiana especially. We hope to be a part of the community for a long, long, time and hope to be able to work with the Parish on this project and have our particular issues and concerns considered by the Army Corp of Engineers.

I appreciate your time and efforts and would love to speak to you in person concerning this matter. We would love to take you on a tour or boat ride to show you our property and address the concerns we have first hand. I can be reached at 504-485-1404 (my cell phone) to discuss this matter.

With kind regards from the bayou!

Paul Bair

Paul Bair

Owner/ manager

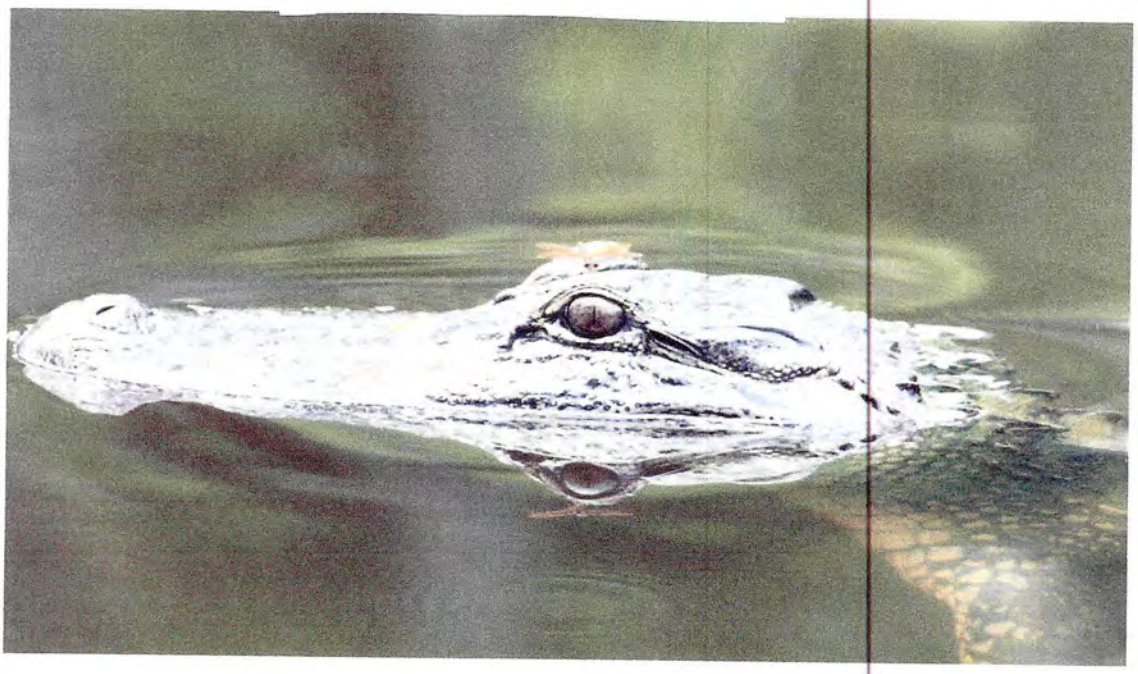
Cajun Pride Swamp Tours

110 Frenier Rd.

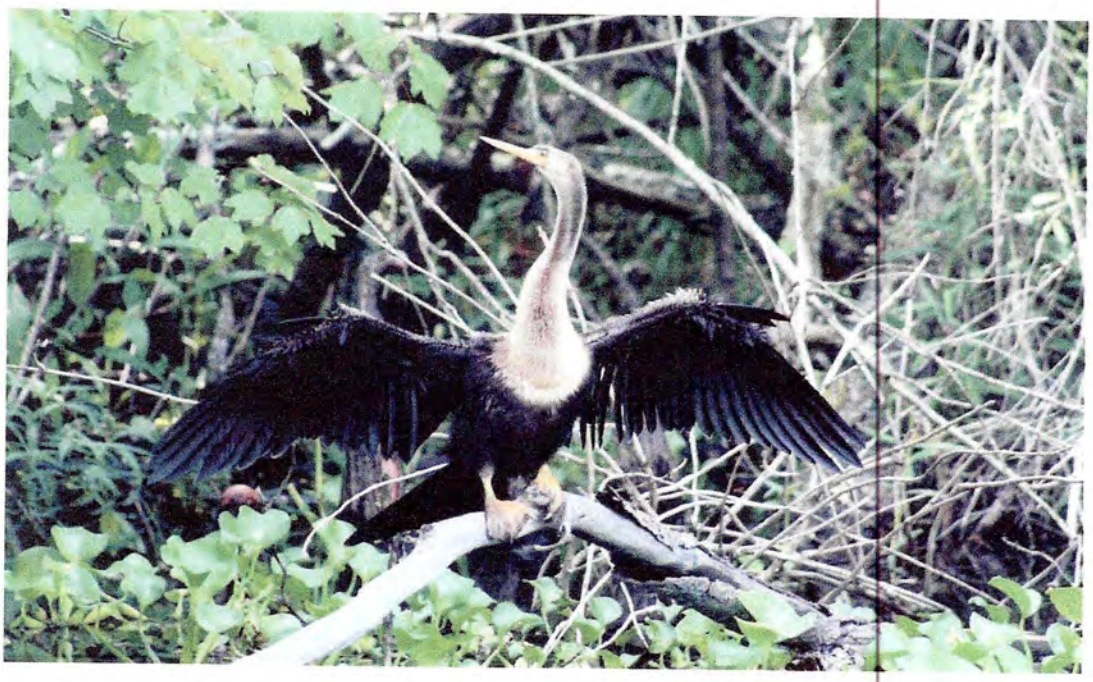
LaPlace LA 70068

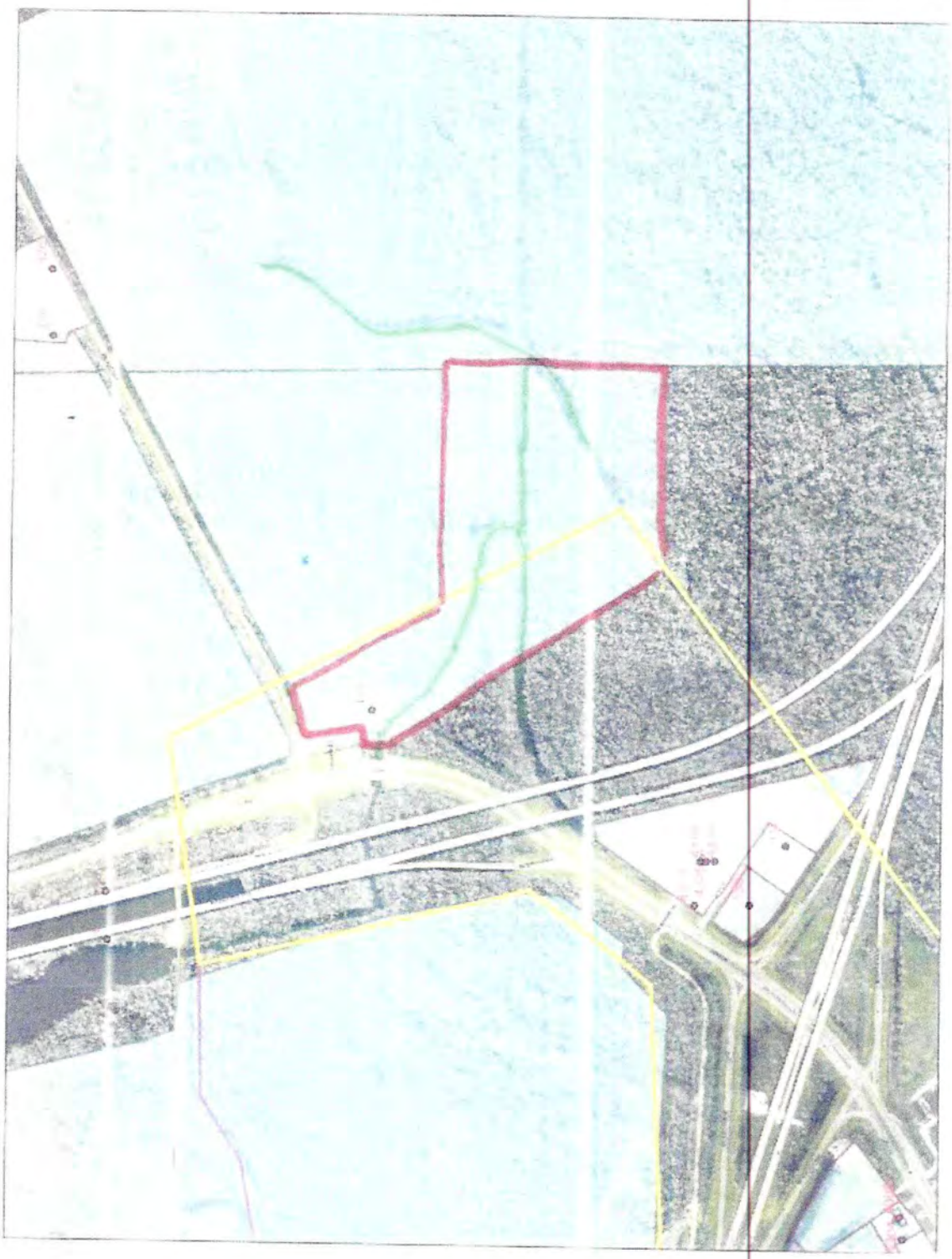
504-467-0758

CAJUN PRIDE SWAMP TOURS



Description of Cajun Pride Swamp Tour:
Located at 110 Frenier Road, LaPlace, Louisiana 70068, 800-467-0758





DESCRIPTION OF OPERATION

Cajun Pride Swamp Tours was established at this location in the 1990's to provide swamp tours into the adjacent wetlands and offer an insider look at the untouched and natural beauty of the Manchac Swamp and its inhabitants. Current facilities consist of 3 passenger boats, animal exhibit, ticket office, 8 stall restroom facility, covered and uncovered picnic area, gift shop with over 200 separate items with a swamp and New Orleans flair, and parking for multiple vehicles and or motor coaches. Daily swamp tour operations consist of conducting 1.5 to1.75 hour tours via boat through the waterways, swamps and bayous associated with the private property (55 acres) and wetlands owned and managed by Cajun Pride Swamp Tours. We conduct tours daily at 9:30am, 12:00pm, 2:15pm and 4:15pm with other tour times available upon request. Trips are narrated by USCG licensed captains and tour guides aboard 45-65 passenger custom built tour boats. We cater to local business, New Orleans tourism operators, and wholesalers.

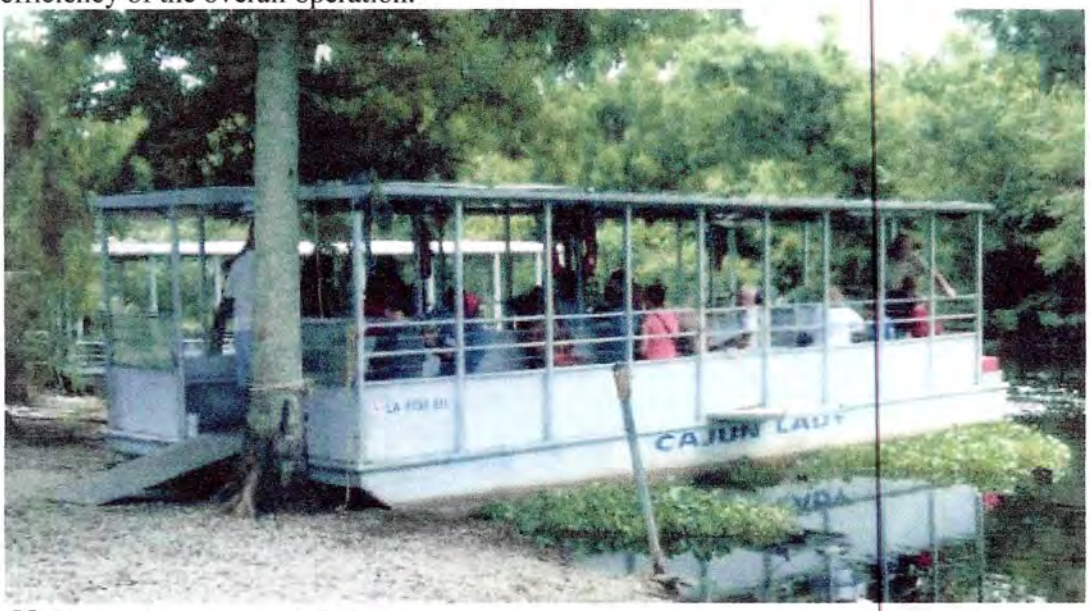
In conjunction with the swamp tour, at times when requested, we can provide catering services for groups. These catered events can be aboard tour boats, or on the premises at the covered picnic area.

COMPANY LOCATION

Our existing swamp tour business, Cajun Pride Swamp Tours, is located at 110 Frenier Road, LaPlace, Louisiana 70068, near the intersection I-10 and Hwy 51, approximately 27 miles west of New Orleans, Louisiana. The tour related facilities are sited on 55 acres of property inland area adjacent to canals that lead into wetland area. Map provided below depict the vicinity and location of the existing swamp tour facilities and the boundary of the Frenier Road, Interstate 55, and Interstate I-10.

USCG CERTIFIED VESSELS

Cajun Pride Swamp Tours consists of our land facilities as well as 3 passenger vessels docked adjacent to our parking site. Below is a list of the vessels associated with our company's daily operation. These boats were constructed with our operation solely in mind. From the draft of the vessels, type of motors used, routine maintenance of the vessels according to USCG standards, as well as company polices, all aspects of the vessels details have taken into consideration the environment, passengers/guests, and efficiency of the overall operation.



55-64 passenger swamp tour boat.

Our New 55-65 passenger tour boat... will be in services starting Oct of 2013

44-49 passenger swamp tour boat.

Swamp tour ticket office and picnic area.....seating for up to 120 guests

New 6 stall, 400 square foot restroom facility.

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

October 1, 2013 F/SER46/LA:jk
225/389-0508

Ms. Joan Exnicios, Chief
Environmental Planning and Compliance Branch
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 received your letter dated August 23, 2013, transmitting the Integrated Draft Feasibility Report and Environmental Impact Statement (EIS) titled "**West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study**." The U.S. Army Corps of Engineers (USACE) is evaluating alternatives to provide hurricane and tropical storm surge protection to residents in St. Charles, St. John the Baptist, and St. James Parishes, Louisiana.

The Corps has identified Alternative C as the Tentatively Selected Plan (TSP). Alternative C consists of approximately 18 miles of levees spanning from the West Guide Levee of the Bonnet Carré Spillway, along Interstate Highway 10, and terminating at the Mississippi River levee near Garyville, Louisiana. The TSP would directly impact approximately 775 acres and enclose 8,424 acres of forested wetlands and swamp habitats.

NMFS believes there are environmental concerns and requests additional information be included in the Final EIS. The following comments identify areas where additional information is necessary to demonstrate compliance with applicable laws and regulations pertaining to mitigation and the National Environmental Policy Act (NEPA).

General Comments

NMFS does not object to hurricane protection to reduce risk to life or property, or to the proposed levee alignment. However, we find the draft EIS lacks information necessary to demonstrate adverse wetland impacts would be fully offset through the implementation of an adequate mitigation plan. Specifically, adverse wetland impacts are not quantified by the Wetland Value Assessment methodology determined acceptable under USACE guidelines for Louisiana habitats. In addition, the mitigation plan included in Appendix A, Annex K, proposes conceptual mitigation ideas only which also have not been assessed or quantified to determine benefits. Lacking an assessment of impacts and benefits, it is unclear how the USACE can determine wetland impacts would be fully offset in compliance with the Clean Water Act. Lacking an adequate assessment of mitigation benefits, or a discussion which clearly identifies the potential for long term wetland impacts if mitigation is inadequate, it is unclear how the draft

EIS fully complies with NEPA requirements. Finally, the proposed mitigation plan does not have sufficient information to demonstrate compliance with the 12 "items" required by mitigation regulations. This information is necessary for project planning purposes, including alternatives analysis, and equally important for public disclosure of the type and location of the mitigation.

NMFS is concerned the source of more than 3 million cubic yards of borrow material for levee construction is not identified, and associated impacts discussed, in the draft EIS. Unless there is a commitment to not obtain borrow from wetlands or other sensitive habitats, NMFS believes failure to discuss or disclose what could be a significant environmental impact is a violation of NEPA. We encourage the USACE to use non-wetland borrow locations to the maximum extent practicable. If the USACE determines wetland impacts associated with borrow sources are unavoidable, a discussion and quantification of such wetland impacts (and mitigation costs) should be included in a supplemental draft EIS for this project.

While direct wetland impacts have been quantified for the TSP in terms of acreage, NMFS does not agree sufficient information has been provided to demonstrate indirect impacts to more than 8,000 acres of enclosed wetlands would not occur. The draft Adaptive Management and Monitoring Plan has not been finalized, but at present, only includes monitoring of mitigation plan success and corrective actions to be taken if such actions do not result in anticipated benefits. The draft Adaptive Management and Monitoring Plan does not include efforts to evaluate whether project implementation results in adverse impacts to enclosed wetlands. The final EIS should include an Adaptive Management and Monitoring Plan, developed in coordination with the natural resource agencies, which evaluates the impact of levee construction and water control structure operations on enclosed wetlands. NMFS recommends sufficient funds be included in the overall cost projection to sufficiently address adaptive management and monitoring needs for the enclosed wetlands and the mitigation areas.

According to the draft EIS, under both intermediate and high sea level rise scenarios, in 50 years all structures providing drainage between enclosed wetlands and exterior waters would be closed the vast majority of the time. However, no discussion is provided to identify how water levels in enclosed wetlands would be managed. The final EIS should identify and discuss this issue.

Specific Comments

Chapter 2
Section 2.4.5 Essential Fish Habitat

Page 2-24. NMFS agrees project implementation would not adversely impact essential fish habitat (EFH). As such, an EFH assessment is unnecessary. NMFS recommends this section be deleted from the final EIS. Likewise, NMFS recommends Section 4.3.5 also be removed from the final EIS.

Chapter 4
Section 4.3.2 Vegetation Resources

Page 4-12. Wording in the second paragraph indicates Alternative C would directly impact 719 acres of wetlands, while Table 4-2 indicates 775 acres of wetlands would be impacted. The correct numbers should be provided in the final EIS.

We appreciate the opportunity to review and comment on the Integrated Draft Feasibility Report and EIS. If you have questions regarding comments provided above, please direct your questions to Lisa Abernathy at lisa.abernathy@noaa.gov or by phone at (225) 389-0508, extension 209.

Sincerely,

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

October 24, 2013

Colonel Richard L Hansen
District Commander
U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Colonel Hansen:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA, and Section 404 of the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the US Army Corps of Engineers' (Corps) West Shore Lake Pontchartrain (WSLP) Hurricane and Storm Damage Risk Reduction Study Integrated Draft Feasibility Report and Environmental Impact Statement (Draft EIS). The Corps examines potential solutions to reduce damage from hurricane and tropical storm surge for residents in St. Charles, St. John the Baptist, and St. James Parishes, Louisiana, and identifies a tentatively selected plan (TSP).

Based on our review, the EPA is rating the Draft EIS as **"EC-2" (Environmental Concerns - Insufficient Information**[1]). While EPA supports the Corps' new SMART planning process as a means to expedite and focus the planning and review process for water resources projects, we believe that additional information should have been provided in the Draft EIS.

We appreciate the Corps' efforts to streamline the planning and review process, such as the Corps' SMART planning process, however EPA believes there is important information lacking in the Draft EIS. Using this process, the Corps has integrated the environmental analysis in a shortened draft Feasibility Report and EIS. We believe the Corps can use this approach to provide concise, accessible NEPA documents that succinctly disclose the potentially significant impacts of project alternatives. EISs that are more readable can both improve the decision making process and help inform and engage the affected public. With regard to this Draft EIS, our specific concerns focus on the nature and extent of the direct, indirect and cumulative adverse environmental impacts associated with the TSP, Alternative C, and the lack of information in the Draft EIS assessing those effects. The Draft EIS also does not effectively assess the potential environmental impacts of alternative levee alignments. Such information is essential for making an informed decision regarding the environmental acceptability of the alternatives under consideration. Using the SMART planning approach, the Corps is selecting a

[1] Please see http://www.epa.gov/compliance/nepa/comments/ratings.html for more information on EPA's rating system.

preferred alternative prior to conducting sufficient environmental impact assessment on other reasonable options

The EPA recognizes the vulnerability of the WSLP study area to storm surge flooding and supports implementation of hurricane risk reduction measures in the WSLP study area. We are also committed to working with you and other stakeholders to restore the Louisiana's coastal ecosystem and ensuring its vibrant environmental and economic future. However, as you move toward a final decision for this project, EPA believes it is essential that the planning effort consider more fully the means to avoid, minimize, and mitigate environmental impacts, particularly with respect to coastal wetlands.

As currently proposed, the proposed levee would enclose over 16 square miles of wetlands, and the Draft EIS provides limited information on how that enclosure will affect the functions and values of these wetlands. While the Draft EIS indicates that the levee would be constructed to maintain hydrologic connectivity between the enclosed wetlands and the surrounding swamps, and Lakes Maurepas and Pontchartrain, detailed information on this critical project feature is not provided. Instead, the Draft EIS only provides a general statement that hydrologic connectivity would be maintained by constructing culverts with sluice gates in the new levee to join with existing culverts under Interstate 10, with no supporting detailed information on the locations and design of these new culverts. The Draft EIS also reports that preliminary modeling shows only "minimal changes to flows" (p. 4-14), with no additional details on how that modeling was conducted or the results (although the Draft EIS does present the results for modeling at one location, showing a 25% reduction in flows (p. 4-1)). EPA believes it is essential that the Final EIS more fully describe and demonstrate how hydrologic connectivity will be maintained. Moreover, the Final EIS should include an assessment of the potential for relative sea level rise to result in an increase in the closure frequency of the gates and culverts. Other Corps levee studies in Louisiana have shown that such increased frequency of closure can convert an open levee system into one that is increasingly closed, resulting in potentially significant adverse environmental impacts.

The EPA is also concerned that the Draft EIS does not consider measures to restrict development on wetlands enclosed behind the levees. The Feasibility Report indicates that Alternative C was tentatively selected, in part because these enclosed wetlands would reduce the residual flood risks due to floodwater overtopping the levee. This would allow floodwaters to fill these wetlands first before inundating populated areas. Considering this concern, EPA recommends the purchase of non-development easements and/or the implementation of local flood zoning ordinances to limit development in these areas. Moreover, the Draft EIS does not provide information regarding alternative locations for the source of the levee-building material should the primary source not be sufficient. EPA recommends additional information regarding alternative borrow sites, as well as the development of site selection criteria to ensure that sites with wetlands and/or bottomland hardwoods are not used. Finally, EPA is concerned that the Draft EIS provides limited information regarding potential mitigation measures to compensate for wetland losses, and does not provide information to demonstrate compliance with the Clean Water Act Section 404(b)(1) Guidelines (especially the Guidelines' requirements that proposed discharges of dredged or fill material must be the least environmentally damaging practicable alternative).

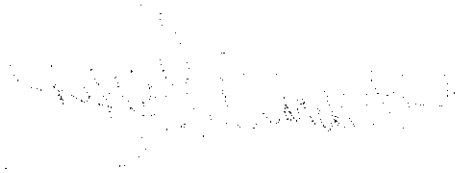
EPA has enclosed detailed comments on these and other issues that we hope will assist you in your continued efforts to address the important procedural and environmental issues surrounding this proposed project. EPA believes its concerns about the project's potential impacts and the analysis of impacts can be resolved in a timely manner and we look forward to working with you collaboratively on these important issues.

Please send our office one copy of the Final EIS and a web link or CD when it is filed electronically with EPA through e-NEPA. If you have any questions, please contact me at 214-665-8126 or my staff Rhonda Smith of my office at 214-665-8006 or by e-mail at smith.rhonda@epa.gov.

Sincerely,

Debra A. Griffin
Associate Director
Compliance Assurance and
Enforcement Division

Enclosure



DETAILED COMMENTS
ON THE
WEST SHORE LAKE PONTCHARTRAIN HURRICANE STORM
DAMAGE RISK REDUCTION STUDY
INTEGRATED DRAFT FEASIBILITY REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

CLEAN WATER ACT SECTION 404(B)(1) GUIDELINES

The Corps has identified Alternative C as the tentatively selected plan (TSP) prior to determining whether it complies with the Clean Water Act Section 404(b)(1) Guidelines (Guidelines). The Guidelines require that discharges of dredged or fill material be the least environmentally damaging practicable alternative. However, based on information in the Draft EIS, Alternative A appears to be significantly less environmentally damaging than Alternative C. Alternative A would result in direct impacts, i.e., filling to create the new levee, to approximately 376.55 acres of wetlands, whereas Alternative C would have direct impacts to 775.13 acres of wetlands. Alternative C also has a substantially greater potential for indirect wetland impacts. Alternative A would enclose approximately 5 square miles of wetlands, whereas Alternative C would enclose approximately 16 square miles of wetlands. Alternative A provides annual benefits equivalent to Alternative C and protects the same number of properties, the same communities, and the same length of highway. According to Table 3-3, the estimated implementation costs of these alternatives are roughly equal. Alternative A would cost approximately $887.6 million, whereas Alternative C would cost $880.9 million. At least in terms of cost, Alternative A would appear to be practicable. EPA recommends the Final EIS provide an evaluation of how the TSP would comply with the Guidelines' requirements.

RESIDUAL RISK AND ENCLOSED WETLANDS

With respect to safety, the Corps has found that Alternative A "risks immediate inundation of developed areas in an overtopping event…", given that portions of this levee alignment would be adjacent to existing development. (Section 3.7, Page 3-11) In contrast, Alternatives C and D would place large wetland areas between the proposed levee and developed areas, thereby providing floodwater storage if the levee were overtopped. It appears the Corps views the enclosure of wetlands behind a levee as a significant project benefit with respect to residual risk and safety. At the same time, however, the Draft EIS acknowledges that wetlands enclosed within the proposed levee could be adversely impacted due to altered hydrology. The decision to view the enclosure of wetlands as an important part of a risk reduction project could lead to further loss and degradation of coastal wetlands.

Based on our review of the Draft EIS, it is unclear to what extent the residual risks associated with each alternative were analyzed and quantified. EPA recommends clarifying this issue, including examining ways to further reduce residual risk associated with Alternative A (e.g., by elevating properties inside the levee system and/or increasing internal pumping capacity), calculating how much undeveloped land would need to be included within the levee system in order to adequately reduce residual risk, and determining the amount of wetland area

that would adequately mitigate residual risk and providing technical evidence to support the findings.

Wetlands enclosed within a levee system are at increased risk of being converted for development purposes. Such induced development would add to cumulative wetland losses, reduce flood storage capacity, and increase properties at risk. However, the Draft EIS does not evaluate the potential for induced development in enclosed wetlands. Moreover, the Draft EIS does not describe how enclosed wetlands would be protected from future development. If enclosed wetlands are determined to be a necessary residual risk reduction feature in order to maintain the appropriate level of public safety, EPA recommends these wetlands be permanently protected by acquisition or conservation servitude.

ESTIMATES OF MITIGATION COSTS

By making a TSP selection using a limited environmental assessment, the Corps may have excluded relevant mitigation costs. For the WSLP study, the Corps is proposing to include environmental structures to maintain hydrologic connectivity between enclosed and flood-side wetlands. The number, locations, and sizes of these environmental structures are critical for minimizing potential indirect impacts to wetlands. In that regard, the Draft EIS states that "[h]ydrologic information is limited, so estimates were not developed to evaluate the number of environmental structures that would be required for the alternatives" and adds that such information could "greatly increase the cost" associated with an alternative. (Section 3.7, Page 3-13). We recommend that the Final EIS estimate the number of environmental structures needed for each alternative in order to more accurately calculate and compare benefit-to-cost ratios. The Draft EIS also states that "[a]t this stage, mitigation costs for indirect impacts remain uncertain due to limited hydrologic information and lack of a full wetland value assessment". (Section 3.6, page 3-10) We recommend the Corps consider whether limitations in the assessment of potential wetland mitigation costs could be significant relative to the benefit-to-cost ratios for each alternative.

The selection of Alternative C as the TSP is in part based on the Corps finding that it maximizes net project benefits. According to the Draft EIS, Alternative A would provide a 1.48 benefit-to-cost ratio, while Alternative C would provide a 1.63 benefit-to-cost ratio. Given information limitations pertaining to environmental structures, adverse impacts, mitigation, and other factors, we recommend that the Corps re-evaluate the benefit-to-cost ratio.

ASSESSMENT OF ENVIRONMENTAL IMPACTS

According to the Draft EIS, borrow material for this project would come from the Bonnet Carré Spillway or alternative borrow sources not yet identified. Potential borrow pits will be identified during the feasibility- level design of the TSP alignment. During the Preliminary Engineering Design phase of the project, identification and environmental clearance of these pits will be finalized and right of way drawings will be prepared in anticipation of submitting a request to obtain the necessary real estate rights-of-way. As was done for the Greater New Orleans Hurricane and Storm Damage Risk Reduction System, we would strongly encourage the Corps to use non-wetland borrow locations to the maximum extent practicable. Should the

Corps determine that wetland impacts associated with borrow sources are unavoidable, an estimate of such potential wetland impacts (and mitigation costs) should be included in the Final EIS for this project. Other Corps levee NEPA documents in coastal Louisiana have identified specific locations for borrow material including the programmatic EIS for Morganza and the numerous reports prepared for the expedited NEPA process on the post-Katrina New Orleans levee upgrades. Regardless of the language in the appendix, the Draft EIS clearly states that the Corps retains the option to use undisclosed locations with undisclosed impacts. Borrow site wetland impacts can be significant. This is a major deficiency in the impact analysis for WSLP.

An effective assessment of potential indirect wetland impacts is essential to the environmental review of this proposed project. As noted above, limited hydrologic information was used in designing the proposed levee alternatives and estimating potential indirect wetland impacts. The Corps has correctly acknowledged the potential for indirect impacts to enclosed wetlands and has attempted to quantify these impacts in the Draft EIS. However, the effort to do so with limited information highlights the remaining uncertainty regarding this critical component of the WSLP study. For example, it is unclear how the Corps estimated an indirect habitat reduction of 15% for enclosed wetlands.

According to the Draft EIS, hydrologic modeling indicates that the proposed levee could cause a 25% reduction in interchange between floodand protected-side wetlands in at least some portion of the enclosed area. (Section 4.1.1, Page 4-1) It is unclear how this estimate was determined without first specifying the number of how many environmental structures would be constructed. It is also not clear how this modeling result relates to the assumed 15% habitat reduction discussed above. Nevertheless, a 25% reduction in hydrologic exchange would have substantial adverse impacts to the enclosed wetlands, and is not consistent with statements that hydrologic connectivity would generally be maintained between enclosed wetlands and the surrounding swamp. We would also note that this estimate of reduced exchange does not include potential future increases in environmental structure closure due to the combined effects of sea level rise and subsidence.

The assessment of potential indirect wetland impacts does not include an analysis of potential increases in the frequency of environmental structure closures due to relative sea level rise (RSLR) over the life of the project. The Corps has determined that the environmental structures would be closed approximately 8.5 days per year and would otherwise remain open to minimize hydrologic disruption. These closures would occur when water levels outside the levee system meet a certain elevation (or risk) threshold. As has been noted in other Corps levee studies, RSLR can lead to a significant increase in the number of days that such a threshold is met and the environmental structures are closed. Structures originally designed to maintain hydrologic connectivity between enclosed and flood-side wetlands would be increasingly closed, further impounding and isolating interior wetlands.

In this regard, there are similarities between this project and the Corps' Morganza to the Gulf levee system. Both would enclose large wetland areas and include environmental structures intended to reduce hydrologic disruption. In response to comments by EPA and others, the Revised Programmatic EIS for the Morganza to the Gulf system includes the finding that under certain RSLR scenarios, increased closure frequency could have significant adverse impacts to

wetlands, fisheries, and water quality. Despite acknowledging these environmental risks in the Morganza to the Gulf study, the Draft EIS for the WSLP study does not include a similar analysis.

According to the Draft EIS, the data used by the Corps to assess the wetland quality in impacted areas is derived from two monitoring stations (one of which did not provide complete information relative to salinity and/or water levels). We believe this limited data is not sufficient to evaluate potential impacts, especially given the relatively large area of wetlands that would be enclosed, the complexity of assessing indirect wetland impacts, and the importance of minimizing wetland losses. In addition, the tool used for this assessment is based on herbaceous vegetation whereas the vast majority of the potentially enclosed wetlands are forested. The Draft Feasibility Report and EIS acknowledges that this approach is "not ideal", and commits to conducting a full feasibility-level habitat analysis at a later point. (Section 4.3.2, Page 4-14)

The Draft EIS states that the "project would provide for the protection of protected side wetlands, potentially extending their lifespan and their water quality functions" (Section 4.1.3, Page 4-4). No data is provided to support this assertion, which is contrary to statements elsewhere in the document regarding potential adverse impacts to enclosed wetlands. The Draft EIS further states that closure of the levee system during storms "could provide some reduction of the potential ecological stresses associated with saltwater intrusion..." While we fully recognize that portions of the Maurepas Swamp have been stressed by salinity, it is unclear, based on the limited available data, whether this is the case for the portion of the swamp that would be enclosed by the proposed levee. We recommend that the Final EIS provide additional data and analysis to support this conclusion that the proposed levee could benefit enclosed wetlands.

CONSISTENCY WITH OTHER COASTAL RESTORATION EFFORTS

The Draft EIS correctly acknowledges that impoundment (via roads, railroad embankments, and spoil banks) is a cause of wetland decline in the study area. Pursuant to the Water Resources Development Act of 2007, the Corps developed a feasibility study and supplemental EIS for a project that would gap existing spoil banks in the Maurepas Swamp. This project, the Amite River Diversion Canal Modification, is designed to partially undo hydrologic disruption caused by a spoil bank along the Amite River Diversion Canal. The scientific basis for this modification project is the known potential for artificial linear features to cause indirect adverse impacts to wetlands and other aquatic resources. Thus, the Corps has both acknowledged the damage to wetlands caused by artificial hydrologic barriers and proposed measures to partially undo such damage in the Maurepas Swamp. At the same time, however, Alternative C would impound approximately 16 square miles of Maurepas Swamp wetlands (these areas are already partially impounded by Interstate 10). We recommend that the Final EIS clearly describe how the proposed WSLP levee would be consistent with the Corps' efforts to undo hydrologic disruption and impoundment elsewhere in the swamp.

AIR QUALITY IMPACTS

Chapter 2 of the Draft EIS states that air quality for the three parish area (St. Charles, St. John the Baptist, and St. James, Louisiana) is in attainment of all National Ambient Air Quality

Standards and a general conformity determination is not required, and therefore air quality will not be further discussed. EPA believes it is especially important that information regarding the potential air quality impacts during the any construction phase of the project and related mitigation measures are fully discussed (i.e., mitigation measures for Particulate Matter (PM)/dust control, air quality impacts of construction vehicles etc.)

As presented on Page 3-7 of Chapter 3, Alternative A construction would require roughly 3,100,000 cubic yards of earthen borrow material; 3,700,000 yards of geo-textile fabric; 30,000 cubic yards of aggregate limestone road; nearly 5,000 linear feet of T-walls to cross under the interstate; 1,200 linear feet of flood gates; railroad gates and pump stations. Given the enormous amount of construction activities associated with the project, EPA asks that the Final EIS fully discuss air quality impacts related to potential construction activities for the project/plan study area.

EPA also recommends the use of best management practices (BMP)s for PM_{10} and fugitive dust control (e.g., gravel roads, soil wetting practices, limiting access, traffic and speed reduction). To further reduce potential air quality impacts, the responsible agencies should also include a Construction Emissions Mitigation Plan (Plan) and adopt this Plan in the Record of Decision (ROD). The Final EIS should discuss specific actions including dust ordinances on the parish level, educational outreach tools, and tools to minimize the residents' exposure to PM_{10} for St. Charles, St. John the Baptist and St. James Parishes, as applicable. In addition to measures included in the Draft EIS and applicable local, state, or federal requirements, EPA recommends that mitigation measures (as applicable) be included in the Plan in order to reduce impacts associated with emissions of PM, and other pollutants from any planned structural and non-structural activities, and possible future modifications to the roadway system. Specific information on mobile and stationary source control can be found at: http://www.epa.gov/otaq/nonroad-diesel.htm; http://www.epa.gov/ttncatc1/dir1/finepmtech.pdf

GREENHOUSE GAS (GHG) EMISSIONS

The EPA recommends the Final EIS include an inventory of GHG emissions associated with construction of the proposed project.

CLIMATE CHANGE

Given the emphasis by the President in appropriately addressing climate change, including rebuilding infrastructure, EPA recognizes the importance of the Draft EIS's consideration of how climate change could potentially influence the proposed project in terms of its effectiveness over time in reducing flood risk. By including and considering additional analysis regarding potential indirect impacts, the Corps can help ensure the region is rebuilt in a way that makes it more resilient and better able to withstand future storms and other risks posed by a changing climate.

EPA looks forward to continuing to work with the Corps of Engineers and incorporate the President's climate change adaptation goals, strengthening the resiliency of our coastal communities, and addressing the nation's pressing infrastructure needs.

ENVIRONMENTAL JUSTICE ISSUES

Section 2.3.8 of the Draft EIS is not clear whether locations outside the protection of the levee system would experience induced flooding and whether any of these locations would be identified as having potential environmental justice concerns. Additionally, the Draft EIS is also not clear in specifying what the additional outreach methods include and whether they have occurred (p. 2-15). Information on percent minority and percent low income populations was absent from Table 2-12 for Garyville, Louisiana.

According to Section 6.20, one public meeting was held specific to environmental justice issues on May 21, 2013 in Lutcher. The Draft EIS does not provide information as to what issues were identified at this meeting or who attended. The Draft EIS also does not indicate whether there were outreach efforts in Reserve, Louisiana which was identified in the Draft EIS as a potential environmental justice concern in Section 2.3.8.

EPA recommends that the Final EIS 1) clarify the information for Garyville in Table -12, 2), clarify outreach methods listed in 2.3.8, particularly for Reserve, Louisiana, and 3) describe the issues and attendees at the May 21, 2013 public meeting. EPA also requests that the Corps clarify whether there are locations outside the protection of the levees that would experience induced flooding because of their construction and whether these locations have potential environmental justice concerns.

ENVIRONMENTAL JUSTICE REFERENCE COMMUNITIES

The reference communities used in the analysis are comprised of extremely high percentages (61% for St. John Parish) of minority populations (Tables 2-10, 11, and 12). This appears to artificially dilute the representation of minority populations. Furthermore, the reference communities are not large enough to provide an accurate reference. For example, in St. John Parish, almost the entire reference community (total pop of 45,824) is comprised of the towns being analyzed (total pop of 42,449). They are essentially comparing the towns to themselves, not to a reference community. We recommend choosing alternative reference communities for inclusion in the Final EIS.

ENVIRONMENTAL JUSTICE ANALYSIS METHODOLOGIES

Section 2.3.8 of the Draft EIS uses the 50% analysis for minority population identification, but not the meaningfully greater analysis. CEQ guidance explains that minority populations should be identified where either the 50% or meaningfully greater analyses are met, not 'either or' EPA recommends the Final EIS provide an explanation for the use of a 20% greater threshold for the identification of low-income populations and also what constitutes 'low-income', e.g. individuals below Census poverty threshold, etc.

The fact that the majority of the study area is comprised of racial or ethnic minorities should not negate the existence of disproportionate impacts, as the Draft EIS appears to

conclude. (Section 2.3.8) A majority minority population study area may indicate that impacts are disproportionately falling on minority populations. Please clarify in the Final EIS.

The Environmental Justice analysis of impacts from the various alternatives is limited. Analysis of Alternative C states that incremental direct and indirect impacts would result in cumulative impacts to environmental justice populations, but does not describe what these impacts might be or analyze any mitigation measures to address these impacts. Also, the existing discussion of direct and indirect impacts is limited (Section 4.2.8). Please clarify in the Final EIS.

Section 4.2.8 of the Draft EIS states, that for Alternative C, properties in environmental justice communities eligible for acquisition may contribute to impacts on community cohesion due to the removal of a portion of the population. The Draft EIS then states that this population removal could potentially cause the collapse of the entire community. No further explanation or details are provided in the EIS regarding this issue. If these impacts do not similarly apply to the affected general population, then it appears they could be disproportionately high and potentially adverse. The EPA recommends further discussing this potential and, if necessary, considering appropriate mitigation measures in the Final EIS.

ENVIRONMENTAL JUSTICE MITIGATION MEASURES

Mitigation measures for impacts to environmental justice populations are not discussed. Section 2.3.8 of the Draft EIS identifies two communities that qualify as environmental justice communities; Lutcher and Reserve. The Draft EIS proposes further outreach efforts to these communities. While further outreach is appropriate, it is not sufficiently discussed. EPA recommends the Final EIS identify appropriate mitigation measures for these potential impacts.

TRIBAL RESOURCES

Information in the Draft EIS indicates that Corps identified tribes that may potentially be affected by the proposed action. The Draft EIS also describes that government to government consultation as well as National Historic Preservation Act (NHPA) consultation with interested tribal governments is occurring or will occur. EPA recommends that complete descriptions of government to government and NHPA consultation activities be incorporated in the Final EIS, including correspondence to and from Tribal governments and other consultation-related documents. These documents would demonstrate fulfillment of Tribal consultation duties by the Corps and show the level of Tribal government engagement in both processes.

United States Department of the Interior

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TAKE PRIDE IN AMERICA

ER 13/572
File 9043.1

September 26, 2013

VIA ELECTRONIC MAIL ONLY

Dr. William P. Klein, Jr.
U.S. Army Corps of Engineers
New Orleans District
PO Box 60267
New Orleans, Louisiana 70160-0267

Dear Dr. Klein:

The U.S. Department of the Interior has reviewed the Integrated Draft Feasibility Report and Environmental Impact Statement for "West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study." The study, authorized by resolutions adopted by the U.S. House Committee on Public Works on July 29, 1971, and the U.S. Senate Committee on Public Works September 20, 1974, determines the feasibility of providing Federal hurricane protection to the western shore of Lake Pontchartrain. The following comments are submitted in accordance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321 et seq.), the Migratory Bird Treaty Act (MBTA, 40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d), the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Tentatively Selected Plan (TSP) is Alternative C, which is also the National Economic Development (NED) plan. Alternative C begins at the west guide levee of the Bonnet Carre Spillway and extends to Hope Canal where it turns south and terminates near the Mississippi River Levee. It is approximately 18.27 miles long and includes four pump stations. It would also require environmental control structures (culverts with flap gates) along the length of the alignment that would be operated during hurricane and tropical storm surge events. Borrow material would come from the Bonnet Carre Spillway or other alternative borrow sources not yet identified.

Construction of Alternative C will result in the direct loss of approximately 775 acres of swamp and bottomland hardwoods (BLH) and encloses 8,424 acres of swamp habitat for a total of 9,199

acres of direct and indirect impacts (Table 1). Although Alternative C has a greatly reduced number of total impacted acres compared to Alternative D (57,343 acres), it is still significantly greater than Alternative A (3,941 acres).

Table 1. West Shore Lake Pontchartrain Acres Impacted

Alternative	Direct Acres	Indirect Acres	Total Acres
Alternative A	377	3,564	3,941
Alternative C	775	8,424	9,199
Alternative D	1,115	56,228	57,343

General Comments

To maintain hydrologic exchange/connectivity between the protected (interior) and non-protected (exterior) side wetlands, culverts are proposed to be included within the levee system. Currently, these measures have not been fully developed and there is still uncertainty and debate on whether maintaining existing flow/exchange can be achieved. Interior drainage modeling (including rainfall) has not yet been conducted to determine if the proposed levee would increase the depth, duration and frequency of interior swamp inundation. The preliminary modeling on tidal exchange, which is not a driving factor for these swamps, showed some reduction in exchange between the interior and exterior wetlands and a slight lag time in the timing of tidal flows comparing the future without project (FWOP) and future with project (FWP) scenarios. If the proposed levee increases flood frequency and water depth, the bald cypress swamp will become further stressed which could result in a reduction in diversity, productivity, and vigor (Krauss et. al. 2009). Therefore, the U.S. Fish and Wildlife Service is concerned that the proposed levee may have deleterious effects on the interior swamp. The impacts to interior wetlands may be more greatly exacerbated with increased Sea Level Rise (SLR) because the hydrology would rely on a pumped system. The potential wetland habitat impacts to the largest remaining continuous forested wetlands in Louisiana would result in the reduction of resident fish and wildlife, reduced important wintering habitat for waterfowl and other migratory birds that use the Central and Mississippi Flyways, and reduced nursery habitat and detritus input important to the maintenance of estuarine-dependent fish and shellfish production

In addition to the impact to water exchange in the protected-side swamp, the FWS is concerned about reduced future water exchange due to SLR requiring increased structure closures. The frequency and duration of gate closures is expected to increase due to area-wide stage increases caused by relative SLR thereby leading to potential substantial affects to wetlands enclosed by the levee system. These potential impacts have not yet been fully determined but are expected to be analyzed during the remaining feasibility phase of the study. By the end of the period of analysis (i.e., 50 years), under the high SLR scenario, all gates could be closed all of the time, similarly under the intermediate SLR scenario there may be almost complete structure closures. At present, it is unknown how water levels within the system would be managed so there is a potential for substantial additional indirect impacts to swamp and fish and wildlife resources to occur. Even with SLR we do not anticipate a corresponding increase in salinities; reasons for this assumption are addressed in our first specific comment.

Developmental pressures on enclosed forested wetlands would likely increase with levee construction due to the reduced threat of flooding in the area but that would also be dependent on the proposed operation of pumps. According to the Corps Civil Works Program Five-Year Development Plan for Fiscal Year 2011 to Fiscal Year 2015, national flood damages are increasing and that is attributed to population migration to the coasts and development of floodplains, thus creating an apparent contradiction between flood damage reduction investments and national flood damages (Corps of Engineers, 2011). Stimulated development of the protected-side wetlands would not be consistent with the Corps of Engineers' plan to reduce flood damages and also utilize this area for flood storage capacity during storms exceeding the project design. Another apparent inconsistency between programs is the planning of restoration projects at the same time levees are being proposed to enclose floodplain habitat and permits are issued for development in these floodplains. More consistency between these programs needs to address the conflicting approaches between restoration and future development. Therefore, the Corps and local sponsor should acquire adequate protection of the enclosed wetlands to ensure and maintain preservation of those areas in perpetuity via the purchase of non-development easements and local flood zoning ordinances.

Opinions expressed at public meetings indicate there is wide spread local support for selection of Alternative D as the recommended plan. Alternative D is a westward extension of Alternative C ending at the non-federal Laurel Ridge levee in Ascension Parish if Alternative D is selected. Not only would the negative effects of Alternative C listed above be realized, but there would be substantial more wetlands (over 57,000 acres) impacted. Since Hurricane Katrina, the FWS and other state and federal agencies have indicated the need to integrate restoration and protection in coastal Louisiana. Two diversion restoration projects that would restore swamps would be enclosed within Alternative D, thus creating a direct and indirect conflict between restoration and protection if Alternative D were chosen. The FWS feels the integration of restoration and protection is important and believes that Alternative D would not realize this goal but rather would hinder it. In addition, the FWS feels a better use of the wetlands outside of Alternative C would be for restoration. Though Alternative C is not ideal, it achieves the goal of protection with fewer impacts to restoration to a far greater extent than Alternative D. The FWS provided an October 2013 Planning Aid Letter to the Corps that presented environmentally less damaging alternatives to Alternative D. The FWS acknowledges that impacts from our proposed alternatives are greater than Alternative C and potential impacts to proposed restoration projects would still exist. However, our alternative equates to less impacts than those anticipated to occur with implementation of Alternative D. If Alternative D is further evaluated, the FWS recommends that equal consideration and analysis be given to our suggested alternative alignment/approaches to D.

Saltwater intrusion (i.e., salinity associated with normal tidal cycles and not with tropical storms) as an issue is raised throughout the draft report. Please see our first specific comment regarding salt water intrusion within the project area.

Given that design and evaluation of most project features has been at a programmatic level, the FWS cannot fulfill its Coordination Act responsibilities at this time. The FWS recommends that further evaluation be conducted and another Draft Report be released to the public to allow review and comments on the feasibility level design of this project.

Specific Comments on the Integrated Draft Report

Page 2-18-19, Section 2.4.2 Vegetation Resources: The second paragraph of this section states that the "existing…swamp habitats…are rapidly converting to fresh marsh and shallow open water habitats due to impounding, saltwater intrusion, and a lack of nutrient and sediment inputs." The less than optimal conditions of the forested wetlands are primarily due to a lack of sediment and nutrient inputs. Although area swamps are not in optimal condition, they are also not "rapidly" converting to fresh marsh and shallow open water. Much of the Maurepas Swamp has experienced varying levels of degradation due to being virtually cut off from any freshwater, sediment, or nutrient input. With minimal sediment and nutrient inputs and moderately high subsidence there is a lack of recruitment and reduced growth Though salinity spikes may be a final detrimental factor in an already degraded system for some of the Maurepas Swamps, according to Coastwide Reference Monitoring System (CRMS) stations in and near Alternative C, data clearly demonstrates that over the past 5 years (2008-2013) saltwater intrusion is not an existing issue for interior Alternative C swamps even though it is also listed as a concern in the Future Without-Project Conditions and water levels are increasing due to SLR and subsidence. The CRMS data also indicates that the interior swamp of Alternative C is not in as poor condition as the area to the west (interior of Alternative D) or especially farther north and near the lake rim. The Integrated Report does not account for the recently constructed Mississippi River Gulf Outlet (MRGO) closure which reduces salinities in the Pontchartrain Basin. The potential for saltwater intrusion is based generally on trends in areas other than in the swamps surrounding Alternative C. With the closure structure in place, proposed restoration projects, and the existing data on salinity it is debatable to what extent salinity will become a problem in the future even with low or intermediate and to some extent high SLR. To date, no modeling has been done to predict future salinity levels for project planning purposes. The FWS recommends the removal of language that indicates a benefit of this project will be to prevent saltwater intrusion and to clarify the primary factors impacting forested wetlands in the study area.

Page 3-2 and 3-2, Section 3.3 and 3.4 Management Measures Considered and Screened and Initial Array of Alternatives (respectively): The FWS provided a Planning Aid Letter (dated October 2013) that requested alternatives to Alternative D be considered (see enclosure) that were less environmentally damaging. To date the Corps has not formally acknowledged consideration of these alternatives. If alternative D is further evaluated, the FWS recommends that equal consideration and analysis be given to our suggested alternative alignments/approaches to D.

Page 4-19, Section 4.36 Threatened and Endangered Species: Because this section also addresses species protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, we recommend that the title be revised to reflect these other protected species.

Page 5-5, Section 5.3 Mitigation Plan: The report acknowledges that implementation of the TSP requires compensatory mitigation for unavoidable project-induced impacts. The FWS recommends further development of the appropriate mitigation to include minimizing and/or avoiding impacts to wetlands, State wildlife management areas, and State Scenic Rivers (i.e., Blind River) and developing compensatory mitigation plans commensurate with the level of planning conducted for flood risk reduction features, as mitigation is a project feature of the TSP.

Page 5-6, Section 5.4 Adaptive Management and Monitoring: The Corps has acknowledged that the Adaptive Management and Monitoring Plan (AM&MP) has yet to be developed. The FWS recommends enough money be included in the AM&MP to sufficiently address potential hydrologic issues as well as impacts to restoration projects if necessary. Development of that plan should be coordinated with the FWS and other natural resource agencies.

Page 6-1 and 6-2, Sections 6.5, 6.6, and 6.8 Endangered Species Act of 1973, Bald and Golden Eagle Protection Act of 1940, and Colonial Nesting Water Birds (respectively): If this project extends greater than 1 year, the FWS recommends continued coordination for potential impacts to threatened and endangered species, bald eagles, and migratory birds.

Page 6-2, Section 6.10 Fish and Wildlife Coordination Act of 1934: In this section, the Fish and Wildlife Coordination Act (FWCA) Report Recommendations are not included but rather are referred to in Appendix A. Please reference the Fish and Wildlife Coordination Act where it states the FWCA Report "....shall be made an integral part of any report.....submitted to the Congress or to any agency or person having the authority or the power...1) to authorize the construction of water-resource development projects..." The FWCA Report is often misunderstood to be a part of NEPA. However, NEPA is not a substitute for the FWCA but represents an expansion of the FWCA concept that fish and wildlife values are to be fully and equally considered and appropriately mitigated in water resource development planning. The FWS recommends that the Corps include and address the FWCA Report Recommendations in the Main Report.

Literature Sited

Department of the Army, U.S. Army Corps of Engineers Civil Works Program Five-Year Development Plan for Fiscal Year 2011 to Fiscal Year 2015, 145 pages. http://www.usace.army.mil/Portals/2/docs/civilworks/5yr_devplan/fy11_5yrplan.pdf

Krauss, K.W., Duberstein, J.A., Doyle, T.W., Conner, W.H., Day, R.H., Inabinette, L.W., and Whitbeck J.L., 2009. Site Condition, Structure, and Growth of Baldcypress Along Tidal/Non-Tidal Salinity Gradients. Wetlands, Vol. 29, No. 2, June 2009, pp. 505–519.

If you have any questions or comments on this letter, please contact Mr. David Walther (337-291-3122) or Ms. Catherine Breaux (504-862-2689) of our FWS Ecological Services Field Office, Lafayette, Louisiana.

Sincerely,

Stephen R. Spencer, Ph.D.
Regional Environmental Officer

Enclosure

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United States Department of the Interior

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October 9, 2012

Colonel Edward R. Fleming
District Commander
U.S. Army Corps of Engineers
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Dear Colonel Fleming:

The Fish and Wildlife Service (Service) is submitting this Planning-aid Letter (PAL) based upon recent information provided by the U.S. Army Corps of Engineers' (Corps) Project Delivery Team (PDT) for the West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study (WSLP) in Ascension, St. Charles, St. James, and St. John the Baptist Parishes, Louisiana. The Service is aware that the Corps plans to choose a Tentatively Selected Plan (TSP) by the end of 2012, and we submit the following recommendations for consideration in that project development decision in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). This PAL does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act.

The Corps is conducting a study to determine the feasibility of providing Federal hurricane protection to the western shore of Lake Pontchartrain. The study area is bounded by the Bonnet Carré Spillway to the east, the Mississippi River to the south, Lakes Pontchartrain and Maurepas to the north, and St. James Parish/Ascension Parish line to the west. The communities in this area include Laplace, Reserve, Gramercy, Lutcher, Garyville, Riverland Heights, and Carrollwood. The Louisiana Department of Wildlife and Fisheries manages the Maurepas Wildlife Management Area (WMA), which consists of a majority of the swampland within the project area.

According to an August 2012 map provided by the PDT, there are three preliminary levee alignments which have been identified through previous reconnaissance and feasibility studies that are being considered for the TSP (Figure 1). Generally, those alignments extend from the west guide levee of the Bonnet Carré Spillway to the vicinity of Hope Canal north of Garyville in St. John the Baptist Parish. Alignment A generally follows the wetland/non-wetland interface from LaPlace to Hope Canal. Alignment C generally follows en existing pipeline corridor north of Alignment A. Alignments A and C both tie into the Mississippi River levee. Alignment D generally follows the Interstate Highway 10 (I-10) corridor and extends outside the original project study area into Ascension Parish to tie into an existing non-federal levee.

For descriptions of fish and wildlife resource conditions, threatened and endangered species, other species of management concern, and existing management areas within the project study area, please reference the Service's January 9, 2009, letter (enclosed) in response to the Corps' Notice of Intent to prepare a Draft Environmental Impact Statement. Those descriptions and concerns have not changed since our 2009 letter. Please note that the Service will provide guidelines for in-water work in areas that potentially support the endangered West Indian manatee (*Trichechus manatus*) to avoid and minimize impacts to that species during project construction. Also, on September 11, 2009, the Service published two federal regulations establishing the authority to issue permits for non-purposeful bald eagle take (typically disturbance) and eagle nest take when recommendations of the National Bald Eagle Management Guidelines (http://www.fws.gov/southeast/es/baldeagle/NationalBaldEagleManagementGuidelines.pdf) cannot be achieved. Should you need further assistance interpreting the guidelines, avoidance measures, or performing an on-line project evaluation to determine whether application for a permit is necessary, please contact this office.

Depending on the alignment, construction of a flood protection levee has the potential to result in the direct loss and enclosure of valuable swamp and bottomland hardwood habitats. Developmental pressures on enclosed forested wetlands would likely increase with levee construction due to the reduced threat of flooding in the area. Reduced water exchange in the enclosed wetlands would lead to further water quality deterioration in the Lake Pontchartrain Basin by eliminating or reducing the filtering capacity of those wetlands. Wetland habitat losses would reduce populations of resident fish and wildlife, reduce important wintering habitat for waterfowl and other migratory birds, and reduce nursery habitat and detritus input important to the maintenance of estuarine-dependent fish and shellfish production.

The Service recommends implementation of Alignment A because it discourages wetland loss by enclosing the least amount of wetlands, involves the least amount of direct wetland impacts due to construction, and has the least impact to the Maurepas WMA (Table 1). If implementation of Alignment A is determined to be infeasible, then the Service would support Alignment C because it is the next least-damaging alternative to Alignment A (Table 1). The Service discourages selection of Alignment D because of the amount and quality of forested wetlands that would be enclosed, the amount of direct impacts to high quality forested wetlands that would be affected during construction, the alteration of the present hydrologic regime over a much larger area of high quality fish and wildlife habitat, the enclosure of the southern portion of the Maurepas WMA (Table 1, Figure 2), and the impacts to two proposed coastal restoration projects (i.e., the Convent to Blind River Diversion and the Hope Canal Freshwater Reintroduction).

The Service is aware that Alignments A and C do not provide protection to the entrance and exit ramps to I-10 at its intersections with United States Highway 61 (Hwy 61) and Louisiana State Highway 641 (Hwy 641), which undergo flooding during excessive rainfall events as well as during major storm events. Those alignments would also not provide flood protection to structures within St. James Parish, which are included within the study area and for which that Parish would like flood protection. In order to provide maximum consideration to the conservation of fish and wildlife habitats, as well as to address the goals of the proposed study, the Service recommends that the Corps consider installing localized ring levees at I-10 and its intersections with Hwy 61 and Hwy 641 to eliminate flooding and to maintain evacuation and emergency vehicle routes between

Baton Rouge and New Orleans. We also recommend extending Alignment C along either: (1a) the wetland/non-wetland interface up to Louisiana State Highway 3125 (Hwy 3125) west of Grand Point; or (1b) Hwy 61 to its intersection with I-10. The Service proposes Alignments C-1a and C-1b (Table 1, Figure 2), along with the localized ring levees, as possible alternatives to Alignment D. Those additional alternatives would allow for reducing and minimizing impacts to fish and wildlife resources while providing flood protection for structures within St. James Parish as well as the major highway intersections that allow ingress and egress to the affected areas and maintain evacuation and emergency routes between Baton Rouge and New Orleans. The Service is willing to work with the Corps on a finalized alternative alignment.

Table 1. Proposed alignments and the Service's recommended alignment revisions for consideration as alternatives to Alignment D.

ALIGNMENT	LENGTH*	ENCLOSED WETLANDS*	IMPACTS, ISSUES, and PROTECTION
Alignment A	19 miles	5 square miles	• Least damaging alternative • Encloses minimal amount of wetlands • Least impacts to Maurepas WMA • No impacts to Convent/Blind River Diversion • Impacts to Hope Canal Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville
Alignment C	19 miles	16 square miles	• Second least damaging alternative • Encloses additional wetlands • Small impacts to Maurepas WMA • No impacts to Convent/Blind River Diversion • Impacts to Hope Canal Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville
Alignment C-1a	29 miles	20.5 square miles	• Encloses additional wetlands • Few impacts to Maurepas WMA • No impacts to Convent/Blind River Diversion • Impacts to Hope Canal Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville, Gramercy, Lutcher, Grand Point
Alignment C-1b	28 miles	61 square miles	• Encloses extensive wetland areas • Impacts the southwestern portion of Maurepas WMA • Impacts to Hope Canal Diversion need to be addressed • Impacts to Convent/Blind River Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville, Gramercy, Lutcher, Grand Point, Convent, Romeville
Alignment D	27 miles	79 square miles	• Encloses greatest amount of wetlands • Impacts southern portion of Maurepas WMA • Impacts to Hope Canal Diversion need to be addressed • Impacts to Convent/Blind River Diversion need to be addressed • Provides protection for Montz, Laplace, Reserve, Garyville, Gramercy, Lutcher, Grand Point, Convent, Romeville

* Unrefined estimates using ArcMap® and Corps' estimates from their Feasibility Scoping Meeting information.

Regardless of which alignment the Corps chooses as the TSP, the Service recommends that (1) the integrity of present hydrologic regimes be maintained via installation of water control structures in the levee to ensure adequate water circulation, and (2) preservation of enclosed wetlands be ensured in perpetuity via the purchase of non-development easements and/or local flood zoning ordinances. Providing perpetual preservation of enclosed wetlands would also provide for flood storage areas within the levee system during excessive rainfall events. The Service also recommends that any pumping stations associated with the project should not discharge directly into canals or other open water bodies, but rather into wetland systems that can assimilate those nutrients being discharged.

The Corps has almost completed full implementation of the newly-authorized protection levels for hurricane and flood protection projects in the Greater New Orleans area. The combined need for borrow necessary to complete authorized flood protection improvements and construction of other proposed and implemented Federal and non-Federal hurricane and flood protection levees may have diminished local availability. The searches for levee-building material have been conducted on a project-by-project basis, and have led to the least-expensive and easiest sources for borrow material, which are usually located within wetlands and/or bottomland hardwoods adjacent to the proposed levee. Use of such on-site sources often has adverse impacts on wetlands and is frequently inconsistent with coastal restoration efforts. Use of those sites will be counterproductive with respect to minimizing wetland impacts and attaining the goal of increasing non-structural hurricane protection within a sustainable ecosystem. The Service's priority selection process for borrow material outlined in our August 7, 2006, letter to the Corps regarding the Greater New Orleans Hurricane and Storm Damage Risk Reduction project (enclosed) should be utilized. In addition, the Service provided, via a September 9, 2008, letter, a map (enclosed) identifying potential borrow areas that are likely to have minimal impacts to fish and wildlife resources. Areas identified on that map should be investigated first as potential borrow sources. The Service will provide an updated map that is more specific to the subject study area.

We appreciate the Corps' consideration of our recommendations for further development of a TSP for the proposed project. Should you or your staff have any questions, or if you would like to meet with us regarding the content of this letter, please contact Ms. Brigette Firmin (337/291-3108) of this office.

Sincerely,

Jeffrey D. Weller
Supervisor
Louisiana Ecological Services Office

Enclosures

cc: EPA, Dallas, TX
LDWF, Baton Rouge, LA
CPRA, Baton Rouge, LA
LDNR, Coastal Management Division, Baton Rouge, LA

Figure 1. Currently proposed alignments for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.

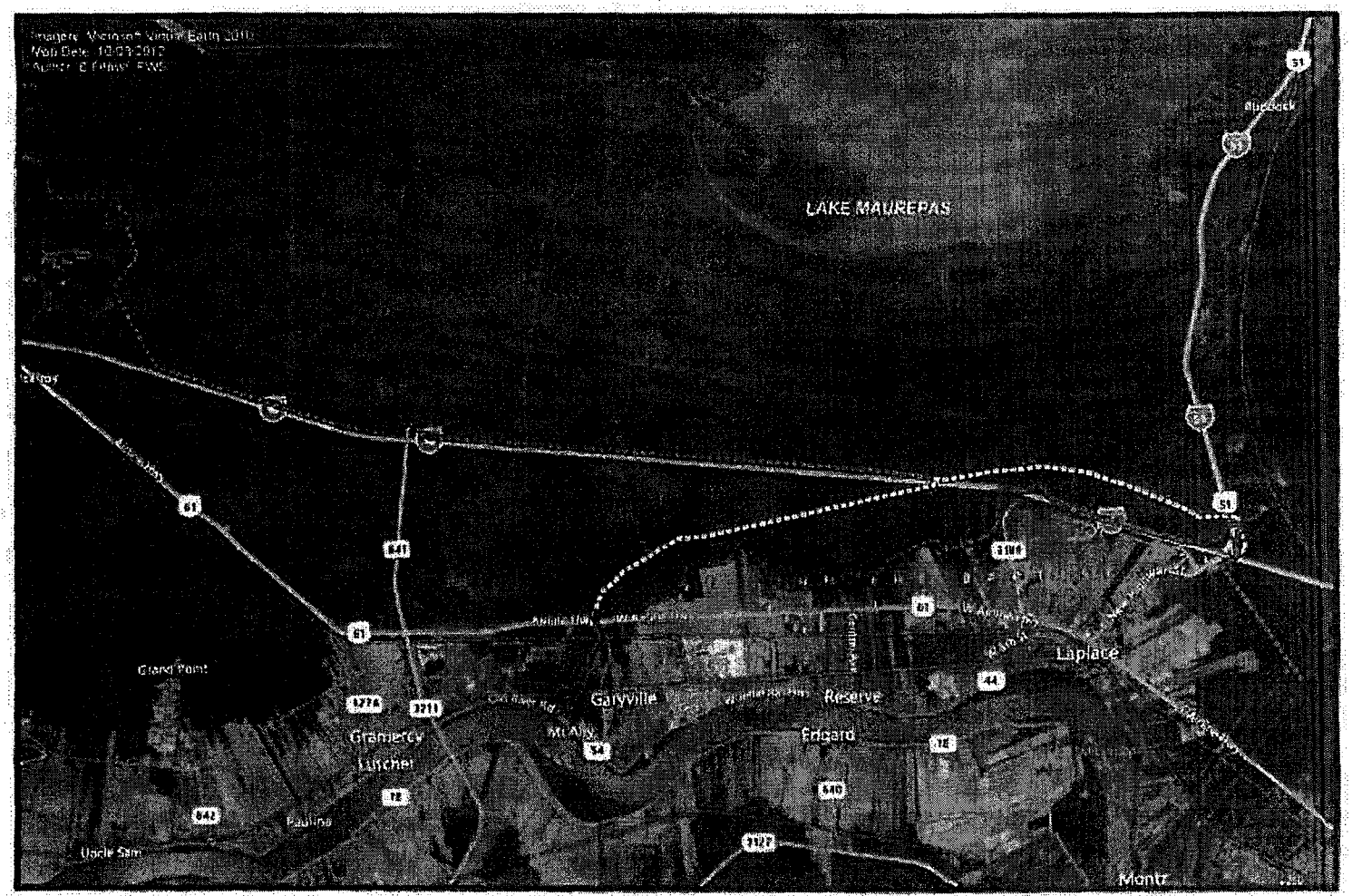
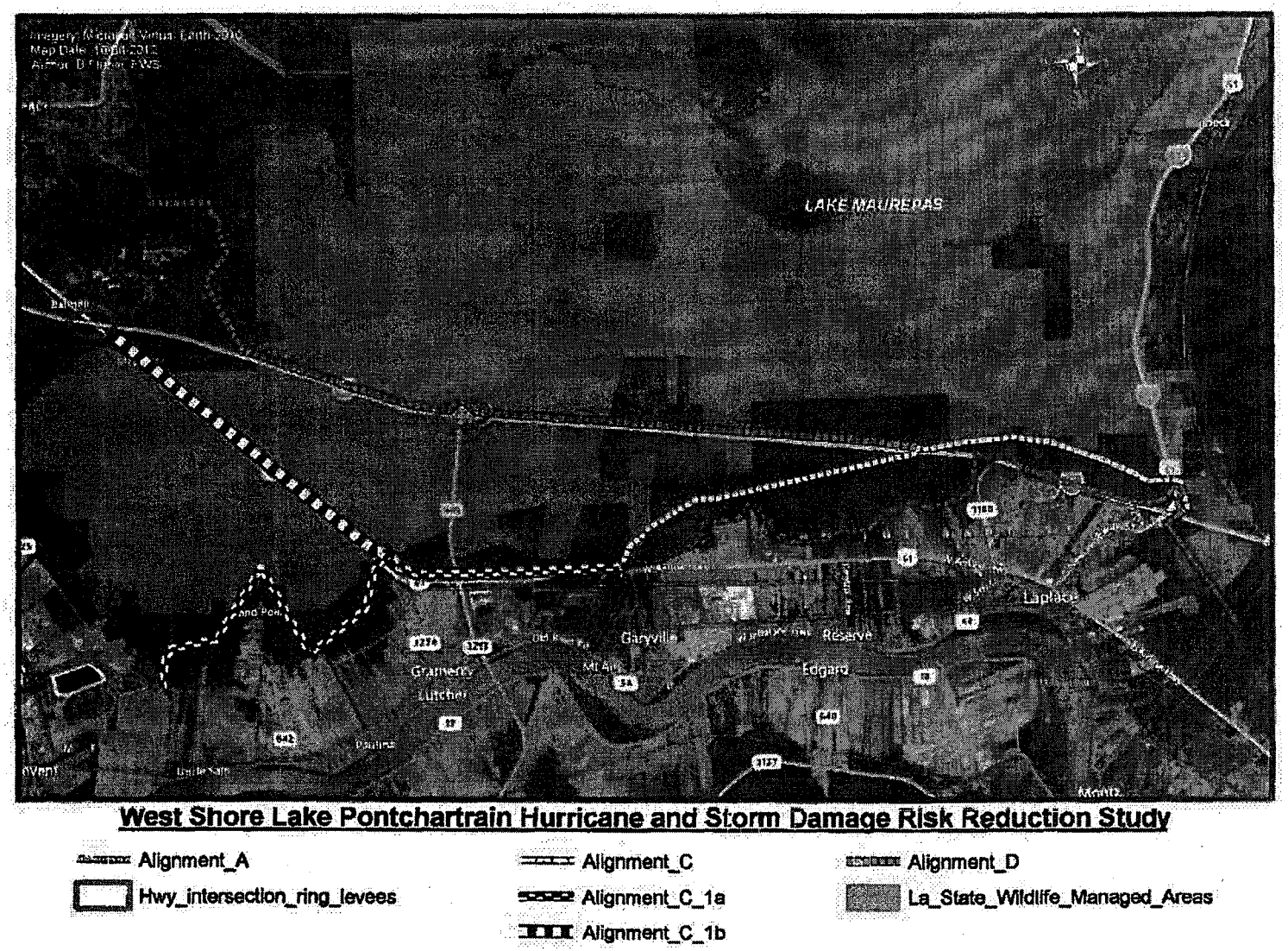


Figure 2. Proposed revised alignments for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.



GULF RESTORATION NETWORK
healthygulf.org

UNITED FOR A HEALTHY GULF

541 Julia Street, Suite 300, New Orleans, LA 70130
Phone: 504.525.1528 Fax: 504.525.0833

8 October, 2013

Dr. William P. Klein, Jr
United States Army
Corps of Engineers
New Orleans District
Post Office Box 60267
William.p.klein.jr@usace.army.mil

RE: West Shore Lake Pontchartrain DEIS and Draft Feasibility Study

Dr. Klein,

I am writing on behalf of the Gulf Restoration Network (GRN), a diverse coalition of individual citizens and local, regional, and national organizations committed to uniting and empowering people to protect and restore the resources of the Gulf of Mexico.

I am writing briefly to support a Lines of Defense alignment for St John and St James Parish, and against any alignments that impound undue acreages of wetlands, such as Alignment D.

We are happy to see the array of alternatives include the original Lines of Defense proposal, Alignment A, which we feel is most appropriate.

We feel Alignment A is most appropriate because of the low impact to wetlands, because it avoids the problem of "induced risk," and because we have seen that parishes and local landowners will often construct additional protective levees at the limits to development anyhow—for example in Terrebonne Parish. Given the limited amount of borrow, it seems wise to only build the levees once, as well as limit the impact to protective cypress forests.

We question the completeness of a document that does not outline the borrow sources for this levee system. Of course, we are opposed to borrow from wetland and water areas, as is proposed in Terrebonne. We hope that borrow material will come from the river, as was the case for the I-10 construction.

We question the completeness of a study about floodwaters that does not include hydrological modeling of surge waters, the potential for flooding from rain, and other parameters typically associated with storm risk reduction projects. We saw that the Corps could quickly evaluate the potential for the GNO HSDRRS to have induced surge after Isaac, we know it can be done.

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Given the limited amount of sand in the River, though, we are concerned that outward levee alignments, along I-10 or highway 61, will consume undue amounts of sand in their more rapid subsidence. Such alignments would seem to take longer to construct.

We have seen that the Morganza to the Gulf levee will not be performing to the minimum risk reduction standard for federal insurance until 2035, due to the need to wait for the levee to settle into the soft sediments of the area. We feel that time is of the essence, and that ring levee alignments can protect human life more quickly.

Given the immense amount of Cypress forests acreage impacted by D, it is seriously questionable whether mitigation for such damage is remotely possible for that alignment, given the unique ecological qualities as well as storm surge protection values embodied in those forests of the Pontchartrain Basin.

The Corps should evaluate the risk reduction qualities of the cypress forests that are to be impacted, and produce a study of the actual storm likelihoods for the different alignments if the forests are included—for example, although the levee system is designed for "100-yr" or 1% protection, the Corps inclusion of the value of protective cypress forests could increase a given levee beyond this percentage.

As the Corps must consider cumulative impacts, we oppose construction of levees on existing impoundments of I-10 or highway 61. Just because flows to this area are hampered does not justify further damaging the system. In fact, we are of the hope that the pair of planned River Restoration projects can add enough sediment and organic accretion that a portion of the Cypress forests can become viable again.

The impoundment and pumping of Cypress forests causes increases in drainage expenses over time, and these expenses are not included in the document. New Orleans' levee system cost over 14 billion dollars, and, while functional, the drainage system is of a flawed design for our subsiding region. There is an ongoing effort to re-design the GNO drainage system at the cost of $6 billion.

We feel that the maintenance costs of these levees, including the induced subsidence and spiraling costs of drainage, are not adequately reflected in the document, and would lower cost-benefit ratios of alignments that impound undue amount of wetlands.

We are concerned about impacts to the Blind River, an Outstanding Natural Resource Water, unique on the planet earth, as well as the Maurepas Swamp WMA.

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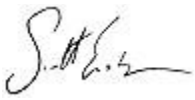
The Corps must consider the induced surge that outward alignments, such as D, would have on towns like Springfield.

I reserve the right to rely on other comments submitted for this project.

Thanks for the opportunity to comment, and please send our office notice of any updates or changes to this project.

For a healthy Gulf,
[sent via e-mail]



Scott Eustis, M.S., Coastal Wetland Specialist

Cc: Matt Rota, MEERM, Policy Director
Geri Davis, Tulane Environmental Law Clinic
John Ettinger, U.S. EPA, Region 6
Dr. John Lopez, Ph.D

Louisiana Audubon Council
1522 Lowerline St., New Orleans, Louisiana 70118-4010

October 10, 2013

U.S. Army Corps of Engineers,
CEMVN-PDN-CEP
Attention: Dr. William P. Klein
New Orleans District,
P.O. Box 60267,
New Orleans, LA 70160-0267.

Re: West Shore Lake Pontchartrain La, Hurricane and Storm Damage Risk Reduction Study; (DWSLPS), and Integrated Draft Feasibility Report and "Environmental Impact Statement" (DIFR & DEIS).

Dear Dr. Klein,

The Louisiana Audubon Council has reviewed the DWSLPS and DIFR/DEIS. We support Alignment "A" with reservations. Based on our analysis of the documents, we have concluded that the draft report does not constitute a DEIS because of omissions which are discussed below. We request that the Corps' "final report" be designated the Draft EIS and circulated to the public for review along with the required NEPA agency documents.

While we support flood protection for developed areas, we oppose alignments which will enclose significant areas of wetlands. Alignment "A" follows the wetland/non-wetland interface and encloses the least wetlands while providing protection for the developed area.

Forested wetlands should be kept outside a levee to provide surge protection for the levee system. Many studies have shown that wetlands will significantly dampen the storm surges and thus provide natural protection for levees. Studies, after Katrina, showed that the levees which had wetlands on the non-protected side suffered less damage than those that didn't.

Levees built across forested or non-forested wetlands also have long-term maintenance problems, require many more lifts and, therefore, increased long-term costs. Wetlands that are enclosed will undergo hydrologic changes which will reduce their productivity.

The mitigation estimates in the draft study range from $132 million to $1.7 billion (range for Alternative "A" through "D", in Table K-1). The mitigation for Alternative "A" has the lowest cost and encloses 5 sq. miles of wetlands. Alternative "C", the Tentatively Selected Plan (TSP), will enclose 16 sq. miles of wetlands. (USACE, 2013a).

Inadequacy of the "DIFR & DEIS":

Of concern to the Audubon Council, is the inadequacy of the Draft Feasibility Report and "DEIS". This document does not constitute a Draft EIS because of the many omissions in the Report: 1) EPA has not submitted a CWA letter; 2) USF&WS report is not complete because the Service does not have adequate information from the Corps in which to respond (letter dated 6/5/13). These agencies are waiting for the Corps' "final report" so they can submit their required NEPA documents along with those of NMFS and LDWF.

The USF&WS letter of June 5th to Col. Hansen, states: "This [FWS] document does not constitute the report of the Secretary of the Interior as required by Section 2 (b) of that Act (48 Stat. 401,

as amended; 16 USC 661 et seq.). The Service is coordinating with National Marine Fisheries (NMFS) and the Louisiana Department of Wildlife and Fisheries (LDWF); their comments will be incorporated into the final report." (Appendix A, Annex G).

The Service also stated, "Given that design and evaluation of most project features has been at the programmatic level, the Service cannot fulfill its Coordination Act responsibilities at this time." (USFWS, 2013b, p. 16).

The Corps has also acknowledged the omissions with a note at the bottom of several sections which have been left blank: "these documents, associated analyses and coordination will be completed during the feasibility-level analysis phase of this study which would occur following release of the Draft Environmental Impact Statement, and would be included in the Final Environmental Impact Statement." (USACE 2013a, Appendix A, Annex A-B).

The following are sections which the Corps states are required by NEPA process but are not included in the Draft Report.

Environmental Laws & Compliance (*NEPA Required) - in Chapter 6, DIFR

6.2 Clean Water Act of 1972 – Section 401 (Water Quality) -- Compliance will be documented in a final report.
6.3 Clean Water Act of 1972 – Section 404(b)(1) (Wetlands) -- Compliance will be documented in a final report.
6.4 Coastal Zone Management Act of 1972 (Coastal Zone Development) -- Compliance will be documented in a final report.
6.10 Fish and Wildlife Coordination Act of 1934 (Fish & Wildlife) - Incomplete, Compliance will be documented in a final report which will include NMFS and LDW&F (USF&WS letter dated 6/5/13, Appendix, Annex G).
6.11 Magnuson-Stevens Fishery Conservation and Management Act of 1976 and The Magnuson-Stevens Act Reauthorization of 2006 (Essential Fish Habitat). Incomplete
6.14 National Historic Preservation Act of 1966 (Cultural and Historic Resources). Some sites unevaluated. "CEMVN has not yet presented a formal conclusion for cultural resources . . . "

The environmental review process is piecemeal and the cumulative affects are not adequately addressed in the draft report, as required by NEPA. This appears to be as a result of the new S.M.A.R.T. planning policy which de-emphasizes environment impacts of Corps' projects and accelerates the approval process. The NEPA requirements are just inserted into a draft feasibility report to be passed off as a draft EIS. (see USACE, 2013c).

We, therefore, agree with various federal agencies that the report is deficient and we do not consider this document a draft EIS. The NEPA process should be restarted when the Corps' "final report" is complete. This "final report" should be submitted to the agencies and the public as a Draft EIS for review and comment. A proper public review will not be achieved until there is an opportunity to read the final comments of NEPA-required agency responses. Will the public have another opportunity to comment on the content of the final report? Or, will it be sent to the Chief of Engineers for approval without further public input?

Inadequacy of Hydrology Study:

The Corps has stated that the number of gates for TSP or other alternatives have not been determined. "Hydrologic information is limited, so estimates were not developed to evaluate the number of environmental structures that would be required for the alternatives." (Draft Rept., p. 3-13).

How can an environmental evaluation be made if one of the most significant environmental issues of the project (the number and operation of environmental structures), have not been determined? The structures are necessary to preserve the environmental integrity of the enclosed wetlands. There should be a comparison for all alternatives.

The preliminary hydrologic modeling did not include rainfall. (Draft Rept., p. 4-1 & 4-11).

Relative Sea level Rise and "Leaky Levees".

According to the Figure 2-2, the relative sea level rise (RSLR) in the project area will rise over 3.2 ft by the year 2070. This is an average (intermediate) rise with the highest projection being 4 ft in 2070. [Note: the data listed in Table 2.2 for low and intermediate RSLR do not match the curves in Fig. 2.2 for the year 2070.]

We question the Corps statement that gates will be closed only 8.5 days per year for the TSP. With the addition of RSLR how many days will they be closed based on the 3.2 ft rise of RSL?

This is a similar issue that we addressed in the Morganza to the Gulf Project where the Corps admitted that the water control structures would have to be closed because of RSLR.

"Under future conditions, closure frequency could increase if the closure trigger is not adjusted to account for sea level rise. For example, under existing conditions, HNC floodgate closure (based on a 2.5-ft closure stage only, not the salinity triggers) would occur approximately 1.5 days per year. If the trigger remained the same through 2085, low RSLR would require closure 5 days per year by 2035 and 168 days per year by 2085 (refer to RSLR rates in table 3-1). Intermediate RSLR would require closure for 15 days per year by 2035 and 354 days per year by 2085. High RSLR would require closure for 24 days per year in 2035 and 365 days per year in 2085. To prevent frequent structure closings, operation plans will need to be re-evaluated periodically and closure trigger elevations may need to be increased if significant sea level rise occurs." USACE (2013b, p. 81).

The Corps has not addressed this issue in the Draft Report. Why not? The full impacts of RSLR have not been integrated into the plan nor has the hydrology and impacts of the levees and impoundments of the wetlands been evaluated for all the alternatives.

The report mentions (p. 4-17) that the closure of the gates and culverts in preparation for a storm surge could have significant impact on the American eel because it is dependent on fresh and salt water for its life cycle. The alternatives which would increase the impoundments of wetlands would also increase the adverse impact on this species. American eels are highly sought after for the Asian market and provide an economic resource for commercial fishers.

"If operating plan changes close the levee system more often due to RSLR then those impacts would have to be analyzed and documented in future supplemental NEPA document" (p. 4-18). The hydrologic modeling can be done now to predict future impacts for each alternative. Why wait? Study the impacts of increased closures based on the predicted RSLR. This was done for the Morganza to Gulf project as noted above.

"It is unknown at this stage of the study process how water levels within the enclosed system would respond with regard to increase in RSLR. The magnitude of the potential for substantial additional indirect impacts to enclosed forested wetlands, swamp and EFH is also unknown." (Draft Rept., p. 4-19).

Incomplete Benefit/Cost analysis:

"At this stage mitigation costs for indirect impacts remain uncertain due to limited hydrologic information and lack of a full wetland assessment." (Draft Rept., p. 3-10).

According to the footnote for Table 5-2, "Monitoring and Adaptive Management costs are not included. " [in the cost apportionment for the TSP].

"A full economic analysis will be conducted during the feasibility level design and documented in the "final report". (Draft Rept., p. 5-4).

Did the environmental costs of the various alignments include the mitigation and impacts to fisheries (American eel, etc.?). Degradation of the enclosed wetlands over time should be included as a cost. Also, impacts to important fishery species should be considered.

All these issues (reviewed in above section) highlight the need to minimize the acreage enclosed by the levee project. Therefore, Alternative "A" would have the least adverse impact on the environment. All the environmental impacts should be quantified and included as costs in calculating the B/C ratio for each alignment.

Incomplete Report on Borrow locations:

"Borrow material would come from the Bonne Carre' Spillway or alternative borrow sources not yet identified." (Appendix B, p. 6). The draft report states that a canal will be dug along the new levee. Will the material dredged from the canal be used as borrow for the levee system?

Will the borrow meet the post-Katrina soil standards used for federal levees? If so, this should be clearly stated in the final report.

Maintaining integrity of Levee system:

We strongly support the incorporation of the post-Katrina engineering design criteria, especially the new soil standards, into the federal levees. The failure of many New Orleans levees was a result of poor soils incorporated into the federal levee system. With one weak link in the system, there could be a catastrophic failure. There is no reference in the "draft report" to the Post-Katrina soil standards which were adopted by the Corps for the New Orleans levee rebuilding. Therefore, we request that this soil standard be referenced in the "final report".

How many years will it take to build the levee system to base-year elevation once it is authorized and funded? How many lifts will it take to reach the authorized project elevation? This timeline should be included in the "final report".

We are equally concerned by closure of the environmental structures and the impacts this will have on the fisheries resources. This would not be a such a problem if fewer wetlands were included within the levee system as recommended discussed for Alternative "A". A levee built along the wetland/ non-wetland interface should have less long-term maintenance problems.

Mitigation:

"A mitigation plan for the TSP will be completed following the feasibility level design and analysis and will be included in the "final report"." (p. 5-6). The F&WS recommends that, "mitigation measures should be constructed concurrently with the flood damage reduction features." (USF&WS, 2013b, p. 14). We agree. They also recommend a conservation easement to protect and prevent the development of wetlands enclosed by the levee. (p. 13).

"At this stage of the study, we have yet to conduct a traditional habitat impact analysis using the Wetland Value Assessment (WVA) methodology." (Draft Rept., p. 4-13).

The mitigation estimates in the draft study range from $132 million to $1.7 billion (range for Alternative "A" through "D", in Table K-1). Alternative "A" will have the lowest cost since it encloses the least wetlands.

Summary:

We support Alignment "A" which would have less impact on the Maurepas Swamp WMA and the River Reintroduction into Maurepas Swamp (PO-29). It appears that the TSP (Alternative "C") is the selected plan. In our opinion, the draft report is biased toward this alternative over Alternative "A".

To provide flood protection for other up-river communities, we recommend that the Corps consider separate ring levees built on the wetland/non-wetland interface. This would be less expensive and cause much less environmental damage while providing flood protection.

Because of the inadequacy of the draft report, the NEPA process should be restarted when the Corps' "final report" is complete. This "final report" should be re-submitted as a Draft EIS to the agencies and the public for review and comment. This will allow a proper, comprehensive evaluation of the Corps TSP and other levee alignments.

Sincerely,

Barry Kohl, Ph.D.
Geologist, and President of
the La Audubon Council

cc:
Sierra Club, Delta Chapter

Gulf Restoration Network (GRN)
Atchafalaya Basin Keeper (ABK)
Louisiana Environmental Action Network (LEAN)
John Lopez, Lake Pontchartrain Basin Foundation
USF&WS, Lafayette
NMFS, Baton Rouge
National Audubon Society, Baton Rouge
EPA, Region 6, Dallas
LDW&F
La DNR
Mark Davis, Water Institute, Tulane Univ.
Oliver Houck, Tulane Univ.

References:

Kohl, B., 2013. LAC letter to Nathan Dyan re: Draft RPEIS for Morganza-to-Gulf, dated Feb. 18, 2013.

USACE 2013a. West Shore Lake Pontchartrain La, Hurricane and Storm Damage Risk Reduction Study; (DWSLPS), and Integrated Draft Feasibility Report and "Environmental Impact Statement" (DIFR & DEIS). Dated August 2013, NOD Corps.
URL: http://www.mvn.usace.army.mil/About/Projects/WestShoreLakePontchartrain.aspx

USACE 2013b. Draft Post Authorization Change (DPAC) Report Morganza to the Gulf of Mexico, Louisiana, January 2013. Included in CD distributed by NOD as MtG Item 02a., 114 pp.

USACE, 2013c. Environmental Evaluation and Compliance in SMART Planning Feasibility Studies. PowerPoint presentation on Aug 15, 2013 by E. Haberer and J. Furry, USACE Headquarters.
URL: http://planning.usace.army.mil/toolbox/smart.cfm

USF&WS, 2013a. Letter to Col Richard Hansen from Jeff Weller, Supervisor Louisiana Ecological Services Office, F&WS, Lafayette. Letter dated June 5, 2013.

USF&WS, 2013b. Draft Fish and Wildlife Coordination Act Report for WSLP Louisiana HSDRR Feasibility Study. Appendix A, Annex A, Corps DWSLPS and DIFR/DEIS, dated August 2013.

October 25, 2013

U.S. Army Corps of Engineers, CEMVN-PDN-CEP
Attention: Dr. William P. Klein
P.O. Box 60267
New Orleans, LA 70160-0267

Re: ***West Shore Lake Pontchartrain La., Hurricane and Storm Damage Risk Reduction Study; and Integrated Draft Feasibility Report and "Environmental Impact Statement"***

Dear Dr. Klein,

Providing storm risk reduction for vulnerable communities is vital for coastal Louisiana, and it is long overdue for east bank river parishes. Unfortunately, we do not believe that this Feasibility Report and Environmental Impact Statement adequately analyzes the alternatives chosen to reach that goal, nor does it provide a compelling reason to accept the proffered Tentatively Selected Plan.

It is essential to find robust, affordable and sustainable combinations of structural, non-structural and restoration strategies to determine a practical solution for storm risk reduction in this area. These strategies should work in concert with each other, as envisioned by Congress when it commissioned the Louisiana Coastal Protection and Restoration (LACPR) effort, and by the state of Louisiana when it adopted the 2012 *Comprehensive Master Plan for a Sustainable Coast*. We fully support finding a solution that is most compatible with the equally pressing need to restore the swamp forests that are integral to sustaining risk reduction measures and thereby the continued economic and cultural viability of river parish communities.

Corps of Engineers Civil Works projects should be well conceived and designed, should avoid, minimize or fully mitigate environmental impact, and should be based upon a thorough, defensible and transparent analysis. This ensures that both the federal and non-federal sponsors get the best value.

It was therefore with a sense of anticipation that we awaited the first Feasibility Report and Environmental Impact Statement to be prepared by the New Orleans District under the new SMART Planning Process, or 3x3x3 procedures, recently adopted by the Corps Civil Works program. It was our understanding that 3x3x3 was meant to streamline processes that had become encumbered by unnecessary steps and superficial overlays that contributed little to

substantive analysis and timely decision making. Our understanding was that 3x3x3 was intended to advance those most deserving civil works projects that rise to the top of a fiercely competitive national agenda. We did not understand 3x3x3 to mean simply not doing the necessary analysis, as a means to just do *less*. In practice however, this first attempt seems to have been just that—not *more with less*, just *less*.

In our opinion, residents of the river parishes are being provided a disservice by presuming that the level of analysis presented in this Report and Statement positions this project to realistically compete for the attention of a limited federal purse.

In Louisiana, we have abundant experience with projects that have been encumbered by decades of delay because the original analysis was inadequate and the cost estimates were too low, requiring re-authorization by Congress before we could even begin to compete for appropriations. Without adequate analysis, project proposals have no realistic chance of ever being built, consequently doing more harm than good to citizens that look to these projects for practicable solutions to very real risks to their lives and livelihoods. In this case insufficient analysis exists from which to draw a conclusion regarding the proposed alternatives.

We fail to understand why, for instance, there is no hydrological solution to the question of how many gates will be needed in Alternatives C and D to take care of tidal interchange, run-off, projected river diversions, and a range of projected future subsidence and sea level rise scenarios. Without that information, there can be no substantive cost comparison or measure of ecological effects. Nor can one make a judgment about whether these so-called "leaky levees" will still be operational in 50 years given relative sea level rise.

With such uncertainties, we question how any alternative could be chosen. However, if an alternative had to be chosen, then Alternative A might seem the most defensible conclusion, given its minimal impacts.

Alternative C *seems* to be a reasonable alternative to Alternative A in terms of cost and logistics. We applaud the decision to embrace non-structural solutions in a portion of the study area in Alternatives A and C. It would be helpful to have a more detailed discussion of why a continuation of an Alternative A or C type alignment into St. James and Ascension parishes was rejected for further study, inasmuch as it would be the obvious structural alternative to the highly problematic Alternative D.

More analysis is needed before the Corps proceeds with any of the Alternatives. Some questions that require resolution are:

- What are the true initial costs of the alignments, based upon adequate geotechnical analysis, and of future lifts?

- How will the alternatives perform against a reasonable range of RSLR scenarios over the life of the project and beyond?
- How will they interact with diversions at Blind River and Hope Canal?
- What will be the locations, sizes, initial costs and ongoing operation and maintenance costs, which must be assumed by the local sponsor, of the necessary hydrological structures?
- How will wetlands enclosed by Alternatives C and D be protected from induced development?
- Will the project, especially Alignment D, induce surge in nearby communities like French Settlement, Killian, Ponchatoula and Manchac, and indeed in lakeside St. Tammany communities?
- Where will the needed borrow be obtained and how will the environmental effects of borrow removal be mitigated?
- How and where will the project imprint and project indirect effects be mitigated? We note with alarm that six years after construction began, no mitigation has taken place for the HSDRRS footprint. We suggest that one way to avoid that outcome is to design this project in conjunction with a mitigating project from the 2012 Louisiana's *Comprehensive Master Plan for a Sustainable Coast* or the *Louisiana Coastal Area* plan. We also suggest that such mitigation be undertaken not based upon traditional analysis, which fails to get at underlying systemic problems, but rather in a way that changes the trajectory of system function within the Maurepas basin.

At the present time, we cannot support any of the proposed alternatives. We understand, however, the urgency of the risk reduction need for these communities. We urge the Corps to move expeditiously towards a Chief's Report, but to forestall a final choice among the Alternatives until the analysis is complete. Thank you for the opportunity to comment.

Sincerely,

Steve Cochran, Director
Mississippi River Delta Restoration Program
Environmental Defense Fund

David Muth, Director
Mississippi River Delta Restoration Program
National Wildlife Federation

Doug Meffert, Vice-President/Ex. Director
National Audubon Society/Louisiana Office

Rebecca Triche, Executive Director
Louisiana Wildlife Federation

Steven Peyronnin, Executive Director
Coalition to Restore Coastal Louisiana

LPBF
SAVE OUR LAKE
SAVE OUR COAST
LAKE PONTCHARTRAIN BASIN FOUNDATION

DATE: October 24, 2013

TO: U.S. Army Corps of Engineers, CEMVN-PDN-CEP
Attention: Dr. William P. Klein
P.O. Box 60267
New Orleans, LA 70160-0267

Re: West Shore Lake Pontchartrain La., Hurricane and Storm Damage Risk Reduction Study; and Integrated Draft Feasibility Report and "Environmental Impact Statement"

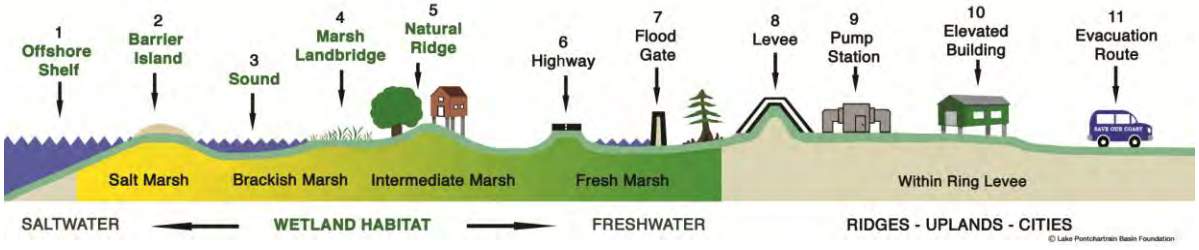
Dear Dr. Klein,

Since the horrific events of Hurricane Katrina, LPBF has researched, monitored, evaluated and advocated for a Multiple Lines of Defense strategy for coastal Louisiana. This approach was explicitly adopted in the Corps' LACPR study, and the 2007 Louisiana State Master Plan. The 2012 State master plan fully embraces the concept that coastal habitats are absolutely vital to flood protection and recommends half of the $50 B dollar budget be spent on coastal restoration to complement traditional flood protection.

Several studies, including Corps documentation, demonstrate that cypress forests are the most effective wetland habitat to reduce storm surge. This characteristic is due to the obvious nature of a cypress forest with the height, strength and girth of the wetland trees. None of the levees in Louisiana are designed to function in the direct face of normal fair weather Gulf waters, much less the direct attack of the Gulf of Mexico during a hurricane. Levees in Louisiana must benefit from the buffering effect of wetlands. On the cover of LPBF's 2008 Multiple Lines of Defense report, we included this insightful quote below which we received from a reviewer in the dire aftermath of the devastating collapse of our flood protection system facing an extreme storm event.

"It may be hubris to think we could ever engineer our way out of this fix, when nature seems so aligned against us. It is certainly hubris to think we could do it without taking nature's assistance when it is offered."

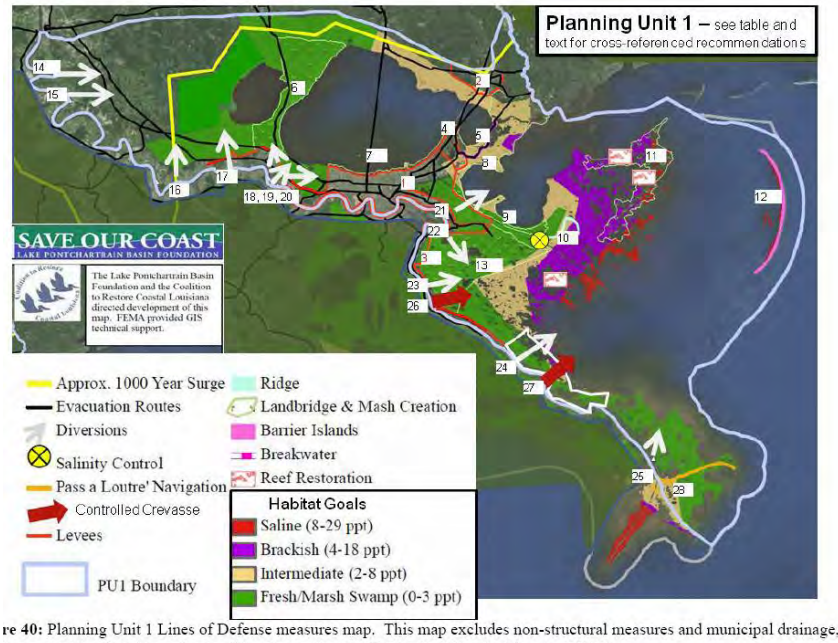
Quote from comments on the MLODS draft report by David Yeargin



It is worth reconsidering this quote for the West Shore Lake Pontchartrain Draft Feasibility Report and EIS, since, in this study area, nature is actually aligned with us to provide flood protection. Yes, it seems there may be a win-win solution.

LPBF has supported local levees to protect both north and south shore communities. The Slidell levee, St. Charles and the St. John Levees were explicitly recommended in the Comprehensive Recommendations Supporting the Use of the Multiple Lines of Defense Strategy to Sustain Coastal Louisiana 2008 Report. LPBF also supported these levees successfully on the Framework Development team for the State Master Plan. These levee alignments have a consistent and beneficial approach to flood risk reduction:

- Building near the upland interface where soils are better, thereby reducing initial costs and maintenance costs for future lifts
- Keeping as much wetlands as possible on the flood side to maintain surge storage and to maximize the surge reduction benefit of the wetlands, reducing levee height requirements and reducing risk of levee failures.
- Avoiding unnecessary impacts to wetlands which, in a regional sense, reduce surge entering the coast.



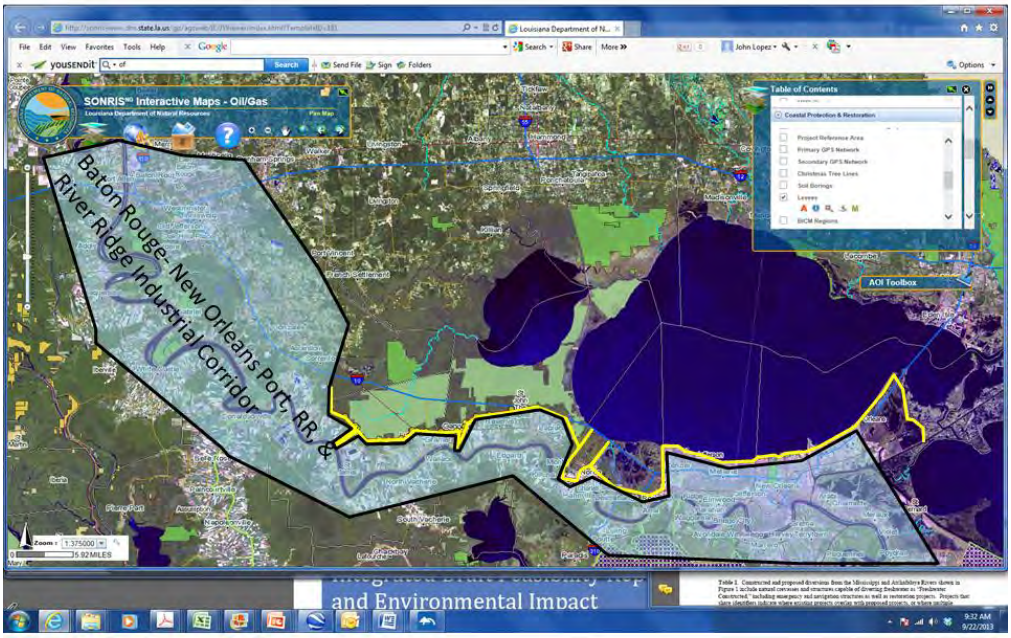
re 40: Planning Unit 1 Lines of Defense measures map. This map excludes non-structural measures and municipal drainage, h are considered an integral part of the Comprehensive Protection Plan for Planning Unit 1.

LPBF's recommendations included levees located near the upland interface including the Slidell levee and the St. John levee

For these reasons, we support the **levee component** of the C alignment in the Tentatively Selected Plan, but have concerns regarding the protection of St. James Parish which is part of the enormously valuable economic corridor extending from Baton Rouge to New Orleans. The corridor has had major recent industrial expansion, recently announced new expansions, and it is predicted that there will be enormously greater expansion in the next decade. This is because of the usual industrial fundamentals of access to cheap energy (natural gas), shipping (river and railroad), and freshwater (ground and marine). These are the fundamental assets of this corridor that drive a regional economy. St. James Parish is a small community but located within the nexus of this economic engine. Hurricane Isaac demonstrated that the River Parishes are at risk.
http://www.businessreport.com/1222013/Are_we_ready

A non-structural solution may not be adequate for the developed area of St. James Parish. Not surprisingly, the D alignment has drawn attention from the public, because it is the only levee that is within the West Shore Levee Report that would protect St. James Parish. A St. James Parish levee deserves consideration for the developed area of St. James Parish, but the D alignment has many

significant problems, and so an alternative levee alignment should be further evaluated. Most significantly, the D alignment levee will induce flooding locally and more regionally as far away as Slidell. The D alignment would enclose 79 square miles of surge storage in the form of cypress swamp. The D alignment encloses a swamp area that is the equivalent storage of 12% of Lake Pontchartrain. If there was any proposal to fill the equivalent of 12% of Lake Pontchartrain, there would be enormous outcry due to the potential effect on flooding. The swamps that would be enclosed are part of the regional storage of Lake Pontchartrain and its adjacent wetlands. However, this is just one of two major flood threats in the D alignment. The D alignment also jeopardizes the State Master Plan's Blind River Diversion proposal, which would help sustain the Maurepas Swamp, including the Maurepas Land Bridge. This diversion would help maintain and restore the cypress buffer outside of any of the proposed levees. Of course, there is also the potential damage and cost to the enclosed 79 square miles of cypress swamp. This alone may drive costs so high that the D alignment project may not be achievable.



The economic corridor from Baton Rouge to New Orleans is on the natural levee which should be considered for regional flood protection such as the possible levee alignment in yellow

The cypress swamps such as on the Maurepas Land Bridge are enormously significant in reducing surge to the Lake Maurepas rim, including bedroom communities near Baton Rouge. The Maurepas Land Bridge was identified by the Corps' LACPR report as a "Critical Landscape Feature" because of it propensity to reduce surge as evidenced by hundreds of ADCIRC models run after Hurricane Katrina. Over time with sea level rise, the greater Baton Rouge area will be threatened increasingly by surge. The D alignment would increase surge induced flooding westward toward communities of Port Vincent, Maurepas, and even further west into Ascension Parish by decreasing storage, deflecting surge and possibly accelerating the loss of the land bridge. In contrast, a levee alignment near the upland interface provides levee protection for St. James, while maintaining surge storage and accommodating for the diversion which assist further with surge protection.

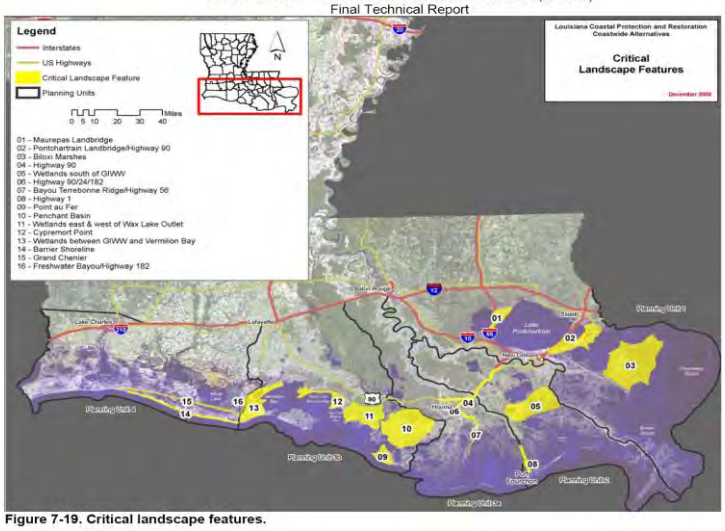
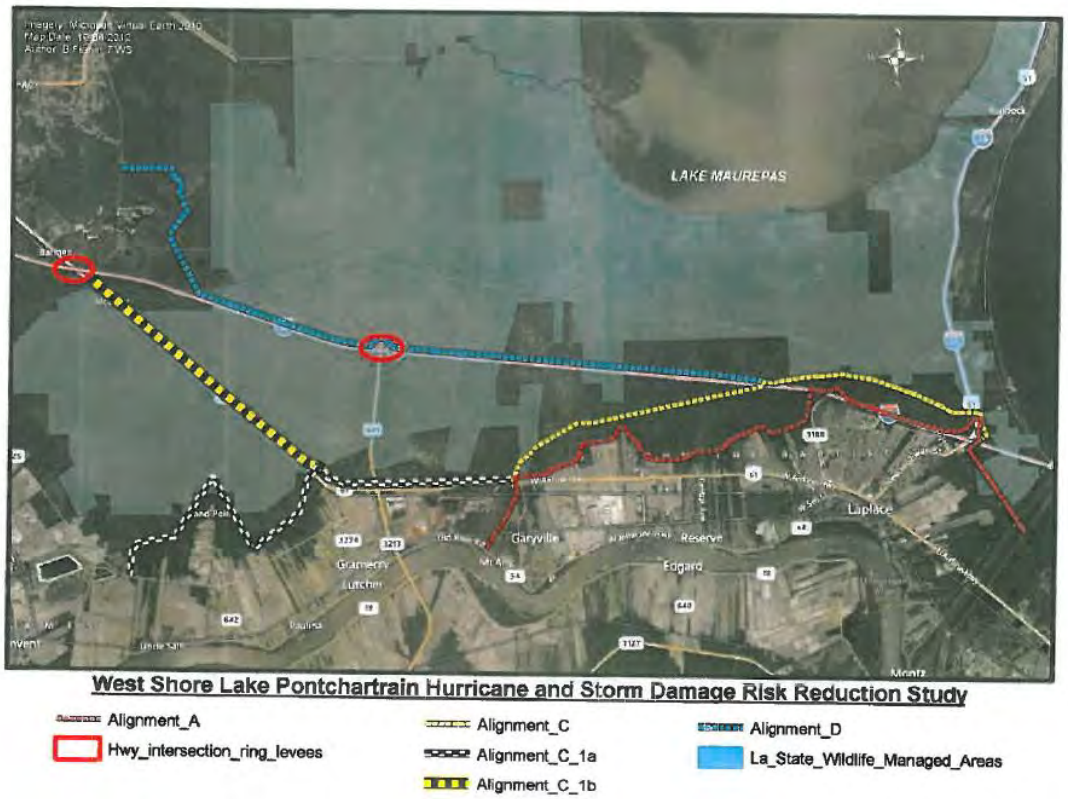


Figure 7-19. Critical landscape features.

Corps' LACPR map of Critical Landscape Features including the Maurepas Land Bridge which would benefit from the Blind River and Hope Canal Diversions.

Figure 2. Proposed revised alignments for the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.



USFWS recommendation for a levee alignment alternative for St. James Parish.

Adequacy of the Feasibility Report and DEIS (SMART Planning Process)

Aside from the communities' real needs for flood protection, it is necessary to discuss the legal aspects of the FS and DEIS. This report is the first report to be released by the New Orleans District following General Walsh's directive for reports to be complete within three years. We applaud General Walsh for recognizing the need to accelerate project development, and improvements should be made; however, it is not clear to LPBF if the General's SMART Planning Process can supersede the Congressional mandates of NEPA, in which case this report may not be actionable, or may be doomed to endless litigation by many others who see this as a dangerous national precedent. Therefore, we feel it is incumbent on LPBF to point out the apparent significant deficiencies in this report, since the current report is likely to delay flood protection.

The key deficiencies:

- The costs for the TSP and particularly for the alignment D alternative are likely to be vastly underestimated. Since there is no estimate of the number, types or operational considerations for water control structures, it is impossible to have any remotely reliable cost estimate for Alignment D.
- There is no estimate of the induced flooding for any of the alternatives. This is particularly troubling with the locally preferred plan of the D alignment, in which surge storage equal to 12% the size of Lake Pontchartrain would be enclosed. This would increase surge into nearby communities such as French Settlement, and also increase surge from "lake tilting" to areas as far away as Mandeville and Slidell.
- There is no projection of indirect wetland impacts. This is particularly troubling with the locally preferred plan of the D alignment, in which 50,500 acres of wetland forest would be enclosed, and under which, with future sea level rise, would increasingly require water control structures be closed to prevent residents from flooding. This future operation is inevitable with even modest seal level rise and would increasingly change the flood periods of the swamp.

Recommendations

1) The **levee component** of the Tentatively Selected Plan should be approved for final design and construction. Construction should start as soon as possible.

2) St. James Parish protection should be re-assessed considering two levee alignments: the D alignment and a levee alignment near the wetland upland interface (similar to what was proposed by USFWS in 2009). This assessment must consider:

- Existing local communities
- The regional economic significance of the Baton Rouge/New Orleans Corridor
- The type, number, cost, and operational requirements of either alignment to accommodate the Blind River and Hope Canal Diversions to sustain cypress outside of the levee alignment.

3) True feasibility level analysis and complete EIS with more accurate cost determination should be performed for St. James Parish alternative levee alignments.

NEW RIVER SOIL AND WATER CONSERVATION DISTRICT

P.O. BOX 72
CONVENT, LOUISIANA 70723
(225)562-2335

October 3, 2013

Regional Planning and Environment Division –South
New Orleans District Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Sir:

Established in 1945, the New River Soil & Water Conservation District (SWCD) provides free services to citizens in Ascension, St. James, and Iberville parishes east of the Mississippi River. The Conservation District is a subdivision of state government and is governed by a board of directors.

The Natural Resource Conservation Service (NRCS) works in partnership with the New River SWCD to assist landowners in designing and applying conservation practices in order to preserve and enhance their soil and water resources and in resolving the environmental challenges they may encounter on their land. Keeping landowners and the general public informed about conservation programs is a top priority of the District.

The New River SWCD would like to take this opportunity to express our concern over the proposal favored by the U.S. Army Corps of Engineers, Alignment C, which was chosen over Alignment D. As you know, Alignment D will afford levee protection to St. James Parish and lower Ascension Parish, both of which suffered severe flooding during Hurricane Isaac last year. After reviewing the known facts, data, and the development and operational goals of the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options, the District Board of Supervisors of the New River SWCD agree that Alignment D is a better option than C for the people and natural resources in our district. Another option that we support, but was not presented for our consideration, is Alternative Alignment C-1b.

Alignment C, if chosen and implemented will alter the programs and agreements the district has with local landowners. We are also concerned about the effect on the soil and water resources in St James Parish. According to the Soil and Water Resources Conservation Act of 1977 16 U.S.C. 2001-2009, alternative methods for conservation, protection, improvement, or enhancement of soil and water resources (16 U.S.C. 2005). .....are to be in conjunction with State soil and water conservation agencies, conservation districts, and appropriate citizen groups. While this Act imposes no compliance requirements on Corps projects, the Corps and the NRCS do coordinate their activities under interagency agreements. As of this date, the New River SWCD, and the local NRCS, has not been contacted by the U.S. Army Corps of Engineers to discuss a proposal which would cause such a drastic effect on the natural resources within the district. Our projects and programs should be administered in a manner that will be compatible to local government and private programs and policies protecting our natural resources.

We also ask that you consider the negative effect Option C will have on endangered species such as the Correll's false dragonhead, a perennial that has been discovered here and has the ability to grow under current conditions and soil found in St James Parish. Perique is a unique and rare type of tobacco that comes exclusively from St James Parish. Its existence has been in jeopardy more than once, first in the late 1990s and then in 2005. It may have become "extinct" but a new era for Perique has begun. St James Parish is also home to the Belmont Indian Mound (http://wikimapia.org/7274459/Belmont-Indian-Mound).

St James Parish is rich in history, natural resources, culture and traditions that are irreplaceable. Option C has the potential to abolish this therefore; the New River SWCD strongly supports Option D or Alternative Alignment C-1b . We ask you to take into consideration our knowledge and experience in working with the resources and citizens in this area as a basis for our decision.

Thank you for this opportunity to express our concerns. You may reach the New River Soil and Water Conservation District at (225)562-2335 or by contacting the Natural Resources Conservation Service at (225) 473-7638, extension 3.

Sincerely,

Ozane Gravois

Ozane Gravois, Chairman

New River Soil and Water Conservation District

Copies sent 10/9/13 FAX PD

Louisiana Refining Division

Marathon Petroleum Company LP

Post Office Box AC
Garyville, LA 70051-0849
Tel: 985.535.2241

October 8, 2013

Attn: Sandy Office of Colonel Richard Hansen
Fax #: 504-862-1259

Hi Sandy

Per our conversation of earlier today, please find attached a copy of the letter addressed to Colonel Richard L. Hansen titled "West Shore Lake Pontchartrain, Louisiana Hurricane and Storm Damage Risk Reduction Project."

The original of this letter has been Fed Ex to Colonel Richard L. Hansen's office under Fed Ex Tracking Number 7968 6336 5534.

Please confirm receipt of this fax at 985-535-7187 or jzeringue@marathonpetroleum.com.

Sincerely,

Janice T. Zeringue
Human Resources - Assistant

A. J. Anderson, Jr.
Manager
Louisiana Refining Division

Marathon Petroleum Company LP

P.O. Box AC
155 Sugar Cane Road
Garyville, LA 70051
Tel: 985.535.2241

October 7, 2013

Colonel Richard L. Hansen
Commander and District Engineer
New Orleans District
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160

SUBJECT: **West Shore Lake Pontchartrain, Louisiana**
Hurricane and Storm Damage Risk Reduction Project

Dear Colonel Hansen:

I write on behalf of Marathon Petroleum Company's Louisiana Refining Division to express support for "Alternative D" in the West Shore Hurricane Protection Project.

As you know, Alternative D provides an additional 10 miles of levee protection when compared to "Alternative C," the plan currently favored by the Army Corps of Engineers. Alternative D would protect several more local communities and critical infrastructure, including pipeline crossings and many additional miles of Interstate 10. Importantly, it is the only option that would effectively provide levee protection to St. James Parish, where many employees of our refinery in Garyville reside.

Given the additional flood protections afforded at relatively modest cost, I respectfully urge the Army Corps of Engineers to select Alternative D for the West Shore Hurricane Protection Project.

Sincerely,

Alton "Bubbie" Anderson
Division Manager

cc: The Honorable Timmy Roussel

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ~~X~~ **No** ☒ No Speaking tonight

Comments: Concerned about the expedited process
Concerned that Lines of Defense alignment not chosen because of cost of pipelining. Protect Blind River + Global price tag. Support Lines of Defense alignment - Ring Levees, not Impoundment
Impounding the land makes us sink. Makes pumping worse
Can't repeat mistakes of New Orleans + Mississippi Levee Systems → New Orleans Mardi Gras Fire Hurts Air Quality
New Orleans needs $6 Billion to fix these drainage problems
Need Levees quickly, Go with Ring Levee option

Name Scott Eustis **Affiliation** Gulf Restoration Network
Street 541 Julia St **Phone** 504 525 1528 x 21
City, St Zip New Orleans LA **Fax**
E-mail scott@healthygulf.org

NGO_9-10-2013_2_Scott Eustis

NUCOR

NUCOR STEEL LOUISIANA LLC

September 30, 2013

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

RE: Letter Offered in Support of St. James Parish for Levee System Proposal

Dear Colonel Hansen:

Nucor Steel Louisiana LLC ("NSLA") would like to extend its support of St. James Parish's efforts to have the U.S. Army Corps of Engineers ("USACE") implement further modification/expansion of the levee system within the Parish.

NSLA is in the final phase of construction of a $750 million Direct Reduced Iron ("DRI") facility located in Convent, St. James Parish along the Mississippi River. This is phase 1 of a potential 5 phase project that could total over $3 billion dollars and employee over 1000 team members. Once operational the phase 1 facility will employee 150 team members and produce 2.5 million tons of DRI to be used as a raw material source for Nucor's other divisions. Of the 150 team members, approximately 70% reside in the River Parishes and approximately 30% are from St. James Parish.

Having seen firsthand, as recently as last year, the impact of flooding in the region it is imperative that the levee system be maintained/expanded to provide protection to the people and assets located in the Parish. We are currently analyzing the magnitude of potential impacts of flooding to our plant, the surrounding community, and to our teammates that live in St. James Parish.

As the process moves forward, we will be engaged with other business leaders, Parish officials, and the community to fully understand the plan and how we may be affected. We would ask that the USACE evaluate not only residential impact but overall economic impact that flooding would cause on businesses and the employment in the area.

Sincerely,

Lester Hart
General Manager

PAR_8-26-2013_1_Cleve Hardman

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF STATE PARKS

CHARLES R. DAVIS
DEPUTY SECRETARY

STUART JOHNSON, PH.D.
ASSISTANT SECRETARY

August 26, 2013

Dr. William P. Klein, Jr.
U.S. Army Corps of Engineers
Regional Planning and Environment Div. South
New Orleans Environmental Branch
ECMVN-PDN-CEP
P.O. Box 60267
New Orleans, LA 70160-0267

Re: West Shore-Lake Pontchartrain Draft Environmental Impact Statement

Dear Dr. Klein,

I am in receipt of your draft environmental impact statement (EIS) for the West Shore-Lake Pontchartrain Hurricane and Storm Damage Risk Reduction. The Division of Outdoor Recreation administers the Land and Water Conservation Fund (LWCF) for Louisiana.

Our staff has identified seven LWCF-assisted sites within the project study area, one in St. John the Baptist Parish, six in St. James Parish and none in St. Charles Parish. Those sites are identified in the enclosed document along with GPS coordinates of each site. Our review of the draft EIS indicates none of the existing LWCF-assisted sites within the project study area would be impacted by any of the alternative plans. Indeed these sites are currently at risk unless action is undertaken to address the risk of hurricane and storm damage in this region.

We stand ready to assist in any means possible toward realization of these efforts.

Sincerely,

Cleve Hardman
Director of Outdoor Recreation

Enclosure

LWCF-Assisted Sites Within Project Study Area

Project Number	Project Name	Latitude (N)	Longitude (W)
22-00447	St. John Parish Park (East Bank)	30.07979	-90.5691
22-00451	Lutcher Park	30.050278	-90.702778
22-00473	Gramercy Park "B"	30.05465	-90.68499
22-00475	Gramercy Park "A"	30.054444	-90.691944
22-00495	Blind River Boat Ramp	30.101944	-90.735833
22-00525	Lutcher Hi Ball Park	30.0505	-90.6969
22-00828	Lutcher Park	30.050278	-90.702778

Creel, Travis J MVN

From: Jason Amato [jason.amato@stjamesla.com]
Sent: Thursday, August 08, 2013 8:47 PM
To: AskTheCorps MVN
Subject: St. James Parish - alignment D

Dear Sirs,

Please accept this email in support of Alignment D hurricane protection levee that will protect St. James Parish from flooding.

With kindest regards,
Jason P. Amato
St. James Parish Councilman
District 2

Sent from my iPad

St. James Parish Government

P. O. Box 106
Convent, Louisiana 70723-0106
(225) 562-2300 (225) 265-3156
TDD: (225) 562-8500

Timothy P. Roussel
Parish President

September 10, 2013

Colonel Richard Hansen, Commander
New Orleans District
United States Army Corps of Engineers
P. O. Box 60267
New Orleans, LA 70160-0267

Colonel Hansen:

We appreciate the Corps calling for a public hearing to allow the officials and residents of St. James Parish to address the West Shore Lake Pontchartrain Feasibility Report and Environmental Impact Statement. Thank you for the opportunity to provide information and questions towards the recommendation of the Corps moving from the Tentative Selected Plan (TSP) of Alignment C to the locally preferred plan of Alignment D. We respectfully request this material is implemented into the official record of the study.

Needless to say, St. James Parish residents are very nervous and afraid of the present situation that we are faced with, added to the datum of National Flood Insurance Program (NFIP) rules from the Biggert-Waters Act of 2012. Understand that our officials and residents together will fight for adequate structural flood protection whether done through the Corps or if we implement "our Plan B" and build levees meeting FEMA requirements. We also have for your reference three prints from different sources depicting how St. James Parish will be affected if we do not implement adequate flood protection.

Again, thank you for allowing the officials and residents of St. James Parish to participate in the 45-day comment period.

Sincerely,

Timothy P. Roussel
President
St. James Parish

TR/mog
Attachments

Comments on the Corps' West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study dated August 2013

GENERAL COMMENTS:

1. The Study area seems to be based on political boundaries and not hydrologic boundaries. Why did the Corps not study the hydrologic basin and just a part of it based on political boundaries? This alone seems to indicate a lack of understanding of the "water" problems in the area. If authority is the problem, why didn't the Corps request a Congressional Resolution that would have provided authority that would have enabled them to study the flooding problems in the hydrologic basin instead of just part of it. Furthermore, in some of the items in the environmental appendix, they seem to include Ascension Parish in the study area. This is confusing since the authority does not specifically include Ascension Parish. If you were to look at the watershed or basin, the solutions might be somewhat different that what was evaluated in this study by limiting the study area to the artificial political boundaries.

2. Throughout the report there are statements that indicate that additional analysis will be done prior to completing the final report. Is the public going to be provided an opportunity to review the additional analysis will be undertaken during the feasibility-level design and provided in the final report before it is submitted for processing? The impression one gets from reading this draft is that the Corps jumped to conclusions before completing their analysis.

3. The graphics included in the report are at a scale that they are hard to read at best if not impossible to read and understand. The graphics should be larger so one can understand what they are supposed to portray.

4. There is no mention in the infrastructure write-ups about the myriad of pipelines that traverse the study area. These are significant for distribution of energy resources and a number of them also tie into some of the industries within the study area. Many of these are designed to be buried but, in time, may be in water or exposed to saline conditions. There are both economic and safety considerations that should be addressed and included in this analysis. Structural protection for the St James Parish area would go a long way in providing for that.

5. The report needs to do a better job explaining why when any of the levees are built that you aren't making conditions upstream or in the neighboring parishes worse. In other words, explain where the water goes. There is a perception and it implies in the report that your proposed actions are making conditions worse for the neighboring parishes (Ascension and Livingston). Conditions in St. James Parish will be made worse by

implementation of the tentatively selected plan. Please clarify and explain in detail in the report.

6. The benefit analysis seems to focus primarily on structures that are flooded, yet in the report it alludes to a number of other benefits that do not appear to be captured in the Economic Analysis. For example, where are the benefits captured for roads that are protected that allow for employees to be able to access the various industries where they might be employed? Is there anywhere where the down time for industries is captured because employees can't get to their place of employment? How about the spike in fuel costs throughout the region and nation as a result of shutting down the refineries?

7. In the report write-up there is not one mention of Perique tobacco. Perique is a type of tobacco from Saint James Parish, Louisiana, known for its strong, powerful, and fruity aroma. When the Acadians made their way into this region in 1776, the Choctaw and Chickasaw tribes were cultivating a variety of tobacco with a distinctive flavor. A farmer named Pierre Chenet is credited with first turning this local tobacco into what is now known as Perique in 1824 through the technique of pressure-fermentation. According to Wiliam Rense, the entire world supply of this type of tobacco is grown in St. James Parish on an area of several hundred acres near the small communities of Grand Point, Paulina, and Belmont. This is a unique agricultural crop. The production does have an economic impact and if saline storm surge waters are allowed to penetrate into the area that crop could become history.

8. Given the recommendation of the tentatively selected plan in the draft report, one can assume that the Corps has made a conscious decision to allow the wetlands in the wildlife management area to eventually be converted to open water as sea level rises and subsidence take its toll rather than build a levee (as in Alternative D) to try to manage and maintain much of those wetlands for an extended period of time, perhaps another 100 years or so. Has there been any thought given or analysis done for a scenario of protecting and preserving the wetlands on the interior of a leveed system and managing those wetlands which would also protect the I-10 evacuation route and accomplish another study objective?

SPECIFIC COMMENTS:

Page 1-3, middle of the page - The write-up talks about the disrupted port logistics, blocked facility access and oil refineries being shut down. It also cites the spike in fuel prices and the agricultural losses due to storm surges. Where are the potential benefits for prevention of these with protection captured in the benefit analysis? If it is not captured and reflected in the economics, why was it not captured? Please explain.

Pages 2-2 and top of 2-3 - Does the sea level rise information used in the analysis reflect the latest information developed by NOAA and released in a report dated December 2012? Earlier this year there were articles in the newspapers indicating Louisiana's coast has some of the highest sea level rise in the world. How was this latest information factored into the development of the plan?

Page 2-4 – There is no mention of General Andrew Jackson having dammed Bayou Manchac at the river in 1814, to prevent the British from gaining a backdoor entrance into New Orleans. Before being severed from the river, this distributary helped nourish the Manchac swamps surrounding Lake Maurepas. That **federal action** (which was never authorized by Congress) has contributed to the eventual demise of many of the wetlands in the Maurepas basin. It was the source of fresh water from the Mississippi River that nourished those wetlands. Those wetlands helped dampen the impacts of storm surges over the years. The degrading over time mentioned at the top of page 1-4 is, to a large extent, due this federal action.

Page 2-9 (just before Table 2-5) – Field approximations sounds like somebody's guess and gives the impression there is a lot of room for error. Why were these not measured more precisely and surveyed?

Bottom of page 9 – There are a lot of other industries and businesses in the study area, (such as the Nucor plant under construction, the Gramercy Aluminum plant [formerly Kaiser], the sugar mill, etc.), please explain why those cited were selected to be highlighted in the report and the others were not.

Page 2-11, top of page. – FIRMS are already being updated and insurance premiums are rising. Without levees and protection from storm surges, people will not be able to afford the flood insurance. The impacts cited are more direct than indirect if no action or the proposed action is taken.

Page 2-12 – Weren't portions of I-10 inundated during Hurricane Katrina? That should be addressed in this section since it impeded flood fighting, recovery and repopulation of the area.

It also sounds like damages to transportation infrastructure would be a direct impact from no action. Wasn't one of the objectives of the study to reduce the risk of damage and loss of critical infrastructure, specifically the hurricane evacuation routes? (See page 1-6)

Isn't this one of the critical needs objectives?

Page 2-13 – The times cited in the table for potential transportation impacts are very optimistic. To those that actually experienced the problems with trying to go anywhere, it was much worse than you are indicating. Doubling those times would probably be more accurate. How was that incorporated into the economic analysis and benefits?

Page 2-26, 1.4.7 para 3 - It is noted that Tezcuco Plantation is in Ascension Parish which is outside of the "authorized" study area.

Page 2-29 – The potential impact on pipelines should be included in the analysis. In one plan alone (Plan D), there are some 70 pipelines, many of them in St. James Parish which will essentially be outside the protected area if the TSP remains as the recommended plan. By not protecting and allowing storm surges there will be more rapid deterioration of those pipelines.

Page 3-7 and 3-8 - It is noted that neither Plan a nor Plan C reduce risk to infrastructure in St. James Parish. Simply put, Plans that do not accomplish this are unacceptable to us.

Page 3-9 - We note that only Plan D provides a level of risk reduction to a segment of I-10 in St. James Parish. Since this is one of the objectives of the study and the only plan that satisfies this objective, why does this not lend added weight to Plan D being the tentatively selected plan? Please explain.

Page 3-10 - Once again, it appears that your analysis is incomplete and you are providing costs based on various assumptions which could easily change when your analysis is complete. We request the opportunity to again review your results when you complete your WVA analysis.

Page 4-2 – Alternative C has the potential to increase stages to the areas exterior to the levee. This is a recognition of induced damages in St. James, Ascension, and Livingston parishes. Given that same logic, one can surmise that all of the alternatives considered would do likewise. How is the Corps planning to mitigate those damages? The last statement of that paragraph seems to contradict what is being admitted earlier, but in a very non-definitive manner by saying it is not anticipated. It really sounds like you just aren't sure what will happen. We request that you provide a better explanation of your rationale.

Page 4-3 – You are saying here that there is no induced flooding based on your ADCIRC model. However, in other parts of the report you say there is induced flooding. Please explain and clarify.

Page 4-3 – Since the levee alignment extends outside of the authorized project area into Ascension Parish, if this alignment were recommended, would it be acceptable to tie into a non-Federal levee that probably is designed to different standards that the current Corps standards? Where would the Federal project end, since the levee continues beyond the authorized limits of the project? A good explanation and clarification of this is requested.

Page 4-6 – The impact of raising or acquisition of structures, particularly business structures impact not only employment but also negatively impact the tax base of the parish. There should be a map in this document that either shows the specific structures identified or at least the area where these structures are located. You obviously already know this since you claim to have a 100 percent inventory of the structures on the east bank of the parish.

Page 4 -7 - Section 4.2.4 Transportation It is noted that only Alternative D would fully meet the stated study objective of reducing the risk and loss of critical infrastructure, more specifically the hurricane evacuation routes that are critical for New Orleans and the surrounding area for evacuation and repopulation after a storm event. Alternatives A and C would not satisfactorily accomplish this. An impassible interstate/evacuation route could potentially also contribute to loss of life. It also directly impacts post storm response as well as repopulation of the area. There also does not seem to be any benefits captured in the analysis to reflect any of this.

Page 4 - 8 - online 4 "storm sure damage " should be "storm surge damage"

Page 4 – 8 - Since this is a draft feasibility report, when are the feasibility level design efforts going to be accomplished? It would seem appropriate for that to have already be done as part of the feasibility report. If this is going to be accomplished later, will the public be afforded an opportunity to comment and provide feedback? If not, please explain why not.

Page 4-13 - You state that the Floristic Quality Index being used throughout the world. Why then is it not acceptable to the Corps or is the WVA system of analysis so institutionally entrenched that it must also be done. This seems, on the surface, to be duplication of analytical effort that the taxpayers are footing the bill for. Please explain what is actually required by your Corps' regulations and by law.

Page 4-12 – It should be clarified that Blind River is a state-designated Wild and Scenic River since there is also a similar federal program

Page 4- 15 – Since you did not complete a WVA, what you are presenting in the report may or may not be on target. It appears that there was a lot of rationalization done to support preconceived conclusions. Once again, we want to review your results after you have completed your WVA.

Page 5-1 – The 1571 structures including the 90 that would be bought out would have a significant disruptive impact on the communities in which these are located. More detail should be included in this draft plan and that should be publicly vetted. The Corps needs to be more sensitive to the people of the area and their communities.

Page 5-2, top of page – Suggest revising the statement to read " thBCR is 1.63 to 1 with benefits of approximately $23 million."

Page 5- 2 The local folks have a right to know if their property is slated to be acquired or raised. It seems like right now, you can't tell them because you really don't know. Why are you delaying doing this as part of the feasibility level design and analysis? Isn't this supposed to be a feasibility study? Why don't you have answers? The public has a right to know and if you haven't gotten far enough yet, you are premature in releasing this draft report.

Page 5-3 – There is a sentence that states "the non-structural component would be less effective because structures would have to be raised to a height that would increase their risk from wind damage during a storm." That is not an acceptable solution because you are doing nothing but trading off water damage for wind damage but not realistically reducing the risk of our residents. In addition you are forcing them to accept paying higher premiums for flood insurance that no one can afford. This is problematic and unacceptable.

Page 5-6, top of page – When will the public have the opportunity to review the mitigation plan that is not included in this draft report?

Appendix B Engineering

Page 15 - There is a reference to EC1165-2-211 dated 2009 but the latest guidance seems to be dated 1 October 2011 on the Corps publications web site. That seems to be indicate that the analysis used outdated information.

Appendix E Economics

Page 1-3 of the main report talks about disrupted port logistics, loss production of refineries, agricultural losses, etc. Where are these benefits captured in the economic analysis for the project?

From Principles and Guidelines for Water Resources Implementation Studies - 1983

Each alternative plan is to be formulated in consideration of four criteria: completeness, effectiveness, efficiency, and acceptability. Appropriate mitigation of adverse effects is to be an integral part of each alternative plan.

(4) Acceptability is the workability and viability of the alternative plan with respect to acceptance by State and local entities and the public and compatibility with existing laws, regulations, and public policies.

West Shore Lake Pontchartrain
Hurricane and Storm Damage Risk Reduction Study
August 2013

1. The Initial Array of Alternatives (Section 3.4 page 3-3) identifies 12 alternative plans for structural measures. Only 2 of the 12 plans include structural alternatives for St. James Parish. These plans are further discussed in Appendix E – Plan Formulation of the report. All of these plans refer to "Linkages to Past WSLP efforts"; however, none are more recent than 2007 (which predates Hurricanes Gustav, Ike and Isaac). **Why are there no additional alternatives included in the study that take into account recent storm or flooding events?** In a planning aid letter (PAL) dated October 9, 2012, from the US Fish and Wildlife Service, additional alternatives were recommended for consideration other than the three preliminary levee alignments. Alignment C-1a extends Alignment C along the wetland/non-wetland interface up to LA3125 west of Grand Point, while Alignment C-1b extends Alignment C along Airline Highway to its intersection with I-10. Neither of these alternatives appear to have been vetted, or even considered, in your study. These alternatives meet the purpose and need statement of the study and fall within the objectives and constraints listed in the plan formulation. **We request an explanation as to why these alternatives were not considered in this study.**

2. An order of magnitude assessment of Alternatives C-1a was performed by St. James Parish to investigate its benefits and costs. The largest benefit is the elimination of a large acreage of indirect mitigation costs. According to Table K-1 in Appendix A Annex K, the Alignment D indirect mitigation costs (15%) is approximately $5,827/acre ($327,687,626 / 56,228 acres). According to the USFWS Planning Aid Letter, Alignment C-1a has enclosed wetlands of approximately 20.5 square miles (13,120 acres). This equates to an indirect mitigation cost of $76,461,260 for Alignment C-1a. All other categories used in developing costs are similar to Alignment D. Alignment C-1a's cost is close to $650 million. This drastic change in cost alone warrants additional investigation into this alignment. **We request that the USFWS Alignments C-1a and C-1b, or variations thereof, be added and fully vetted through this study process.**

3. It appears that storm surge modeling was only conducted to determine required levee elevations for each alignment. The Appendix B – Engineering, Storm Surge Modeling section discusses the process for calibrating models and including relative sea level rise. No mention of pre-development and post development modeling was made in this study. **How can the impacts and benefits of each Alignment be compared if the post development conditions are not modeled? Will building Alignment C have additional impact to St. James Parish?** The study models only calculates storm surge with current conditions to set levee heights. **Will flood elevations rise for St. James Parish if Alignment C is constructed? We request pre and post development storm surge modeling be performed for all Study Alignments.**

Congress of the United States
Washington, DC 20510

August 29, 2013

Colonel Richard Hansen, Commander
New Orleans District
United States Army Corps of Engineers
Post Office Box 60267
New Orleans, LA 70160-0267

Dear Colonel Hansen:

We appreciate the opportunity to provide comments on the West Shore Lake Pontchartrain Feasibility Report and Environmental Impact Statement. This region plays a vital role in the national economy supporting key navigation and energy industry assets such as the Port of South Louisiana, the largest volume port in the Western Hemisphere, and a number of major oil refineries. While we are encouraged by the progress that has been made on the feasibility study, we have serious concerns about the Tentatively Selected Plan (TSP) and urge you to carefully review the merits of Alternative D before submitting your recommendation.

Alternative C, with an expected cost of $881 million, will provide structural protection for 16,919 structures and four miles of Interstate 10. This cost estimate includes $305 million for non-structural measures outside the levee system that will protect 1,571 structures in the communities of Gramercy, Lutcher, and Grand Point. While Alternative D is projected to cost $10 million more, the levee system will encompass 4,921 additional structures and 11 more miles of Interstate 10. Supplemental, related benefits noted in the study for areas inside the levee system include higher property values, increased tax revenues, and a greater potential for economic growth.

Furthermore, in accordance with the authorizing language, the study area is confined to St. Charles, St. John the Baptist and St. James Parishes, wholly excluding the benefits afforded to businesses and residents in Ascension Parish that will also be protected under Alternative D. It is our understanding that this could include another 5,000 housing units and 13,000 residents, and we encourage you to make note of these associated benefits that have not been factored into the Benefit-Cost-Ratio calculation.

We recognize the Army Corps of Engineers' commitment to fully funding the feasibility study in the current fiscal year and support your efforts to complete this study in an expeditious manner. Throughout this public comment period, we know that you will determine and recommend the alignment that produces the maximum return on investment, and we look forward to assisting you in that process.

Sincerely,

Mary L. Landrieu
United States Senator

David Vitter
United States Senator

Bill Cassidy
Member of Congress

Cedric Richmond
Member of Congress

The following resolution was offered and moved for adoption by Councilman St. Pierre and seconded by Councilman Amato:

RESOLUTION 13-143
ST. JAMES PARISH COUNCIL

A RESOLUTION REQUESTING THAT THE U. S. CORPS OF ENGINEERS RECONSIDER THEIR RECOMMENDATION FOR THE WEST SHORE LAKE PONTCHARTRAIN HURRICANE PROTECTION LEVEE AND CHOOSE ALTERNATIVE D

WHEREAS, South Louisiana has experienced an increase in flooding and flood damages in recent years from major hurricanes and other tropical weather conditions; and,

WHEREAS, the parishes of Southeastern Louisiana have worked hard to rebuild their communities and often times have shared resources, man-power, and equipment to aid and assist one another during flooding disasters; and,

WHEREAS, the economic growth and stability of our Region depends on adequate protection from storms and flooding in all of the parishes in Southeastern Louisiana; and,

WHEREAS, the recently released Corps of Engineers' West Shore Lake Pontchartrain Study recommends Alternative C as the tentatively selected plan; and,

WHEREAS, Alternative C provides for a levee from the Bonnet Carre Spillway to the Hope Canal and the Mississippi River in Garyville, Louisiana, thereby, leaving an area of approximately 10 miles from western St. John Parish to Ascension Parish without federal hurricane protection levees; and,

WHEREAS, Alternative C provides no hurricane levee protection to St. James Parish, which will force backwater flooding to Blind River and into homes, businesses, and industries within St. James Parish; and,

WHEREAS, the West Shore Lake Pontchartrain Study notes that the difference in cost from Alternative C to Alternative D is approximately $10.2 million; and,

WHEREAS, Alternative D provides a continuous hurricane protection levee from St. Charles Parish to Ascension Parish, thereby, closing the gap in the levee system and providing a complete West Shore Lake Pontchartrain Hurricane Levee System:

NOW, THEREFORE, BE IT RESOLVED, by the St. James Parish Council, that the governing body of St. James Parish hereby requests that the Corps of Engineers reconsider their recommendation of Alternative C and [illegible] within the River Parishes through the selection

* * * * *

CERTIFICATE

I, Angele R. Rodrigue, Secretary of the Council of the Parish of St. James, State of Louisiana, hereby certify that the foregoing is a true and correct copy of a resolution adopted by the St. James Parish Council in regular meeting held on the 4th day of September 2013.

Signed at Vacherie, Louisiana, this the 5th day of September 2013.

Angele R. Rodrigue
Secretary

(S E A L)

2013-0327

INTRODUCED BY: V.J. ST. PIERRE, JR., PARISH PRESIDENT
ST. CHARLES PARISH COUNCIL

RESOLUTION NO. 6015

A resolution requesting the Louisiana United States Congressional delegation, Louisiana State Delegation, and the U.S. Army Corps of Engineers to consider and support the Alignment D alternative contained in the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study

WHEREAS, the U. S Army Corps of Engineers has evaluated the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study; and,

WHEREAS, the Feasibility Study did include the evaluation of protection of St. James Parish and the other River Parishes from Tropical Storm and Hurricane Storm Surge; and,

WHEREAS, the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study provided that the Locally Preferred Alignment 'D' would be in best interest to St. James Parish, Ascension Parish, St. Charles Parish and St. John the Baptist Parish; and,

WHEREAS, the impacted area includes millions of dollars of residential property in addition to heavy industrial and commercial property utilized in the production of oil, gas and chemical products critical to the nation's economy; and,

WHEREAS, the U. S. Army Corps of Engineers has tentatively chosen Alignment C and has provided a 45 day period for public comment ending October 7, 2013; and,

WHEREAS, the residents of Montz are currently without adequate flood protection and it is a priority of St Charles Parish to obtain flood protection for all residents of the Parish; and,

WHEREAS, it is crucial for the residents of St Charles Parish to contact the U. S. Army Corps of Engineers, U. S. Congressional Delegation and Louisiana State Delegation to request consideration of Alignment D.

NOW, THEREFORE, BE IT RESOLVED, THAT WE, THE MEMBERS OF THE ST. CHARLES PARISH COUNCIL do hereby strongly request the Louisiana United States Congressional delegation, Louisiana State Delegation, and the U.S. Army Corps of Engineers to consider the Alignment D alternative contained in the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study.

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the U. S. Army Corps of Engineers, Senator Mary Landrieu, Senator David Vitter, Congressman Cedric Richmond and Congressman Bill Cassidy, also State Senators Jody Amedee, Troy E. Brown, and Gary L. Smith, Jr., and Representatives Ed Price, Clay Schexnayder, Randal L. Gaines, John Berthelot, Greg Miller, and Eddie Lambert asking their assistance in this regard.

The foregoing resolution having been submitted to a vote, the vote thereon was as follows:

YEAS: SCHEXNAYDRE, FAUCHEUX, WILSON, WOODRUFF, BENEDETTO, HOGAN, COCHRAN, FLETCHER, FISHER-PERRIER
NAYS: NONE
ABSENT: NONE

And the resolution was declared adopted this 3rd day of September, 2013, to become effective five (5) days after publication in the Official Journal.

CHAIRMAN Wesley Benedetto
SECRETARY
DLVD/PARISH PRESIDENT September 5, 2013
APPROVED ✓ DISAPPROVED

PARISH PRESIDENT
RETD/SECRETARY September 5, 2013
AT 11:10a RECD BY

RESOLUTION OF
EAST ASCENSION CONSOLIDATED GRAVITY DRAINAGE DISTRICT

A RESOLUTION REQUESTING THE LOUISIANA UNITED STATES CONGRESSIONAL DELEGATION, AND LOUISIANA STATE DELEGATION, ALONG WITH THE U. S. ARMY CORP OF ENGINEERS TO CONSIDER ALIGNMENT D TO INCLUDE ASCENSION PARISH IN THE LEVEE PROTECTION PROJECT

WHEREAS, the U. S. Army Corps of Engineers has evaluated the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study; and

WHEREAS, the Feasibility Study did include the evaluation of protection of Ascension Parish and the other River Parishes from Tropical Storm and Hurricane Storm Surge; and

WHEREAS, the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study provided that the Locally Preferred Alignment 'D' would be in best interest to Ascension Parish, St James Parish, St. Charles Parish and St. John the Baptist Parish; and

WHEREAS, the impacted area includes millions of dollars of residential property in addition to billions of dollars in heavy industrial and commercial property utilized in the production of oil, gas and chemical products critical to the nation's economy; and

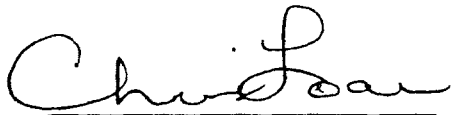
WHEREAS, the U. S. Army Corp of Engineers has tentatively chosen Alignment C and has provided a 45 day period for public comment ending October 7, 2013 ; and

WHEREAS, it is crucial for the residents of Ascension Parish to contact the U. S. Army Corp of Engineers, The Ponchartrain Levee District U. S. Congressional Delegation and Louisiana State Delegation to request consideration of Alignment D; and

NOW, THEREFORE, BE IT RESOLVED, by the East Ascension Consolidated Gravity Drainage District that the Louisiana Legislative Delegation of the United States Senate and Congress and the Louisiana State Delegation promote the consideration of Alignment 'D' which would be in the best interest of, Ascension Parish, St. James, St. Charles Parish and St. John the Baptist Parish; and

BE IT, FURTHER, RESOLVED that a copy of this resolution be forwarded to the U. S. Army Corp of Engineers, U. S. Senator Mary Landrieu, Senator David Vitter, Congressman Cedric Richmond and Congressman Bill Cassidy, also State Senator Jody Amedee, Troy Brown, and Gary Smith and Representatives Ed Price, Clay Schexnayder, Randal Gaines, John Berthelot and Eddie Lambert.

And, the resolution was declared adopted on this, 6th day of September, 2013.



Ascension Parish Council Chairman

RESOLUTION 18-13

A RESOLUTION REQUESTING THAT THE U. S. CORPS OF ENGINEERS RECONSIDER THEIR RECOMMENDATION FOR THE WEST SHORE LAKE PONTCHARTRAIN HURRICANE PROTECTION LEVEE AND CHOOSE ALTERNATIVE D

WHEREAS, South Louisiana has experienced an increase in flooding and flood damages in recent years from major hurricanes and other tropical weather conditions; and,

WHEREAS, the parishes of Southeastern Louisiana have worked hard to rebuild their communities and often times have shared resources, man-power, and equipment to aid and assist one another during flooding disasters; and,

WHEREAS, the economic growth and stability of our Region depends on adequate protection from storms and flooding in all of the parishes in Southeastern Louisiana; and,

WHEREAS, the recently released Corps of Engineers' West Shore Lake Pontchartrain Study recommends Alternative C as the tentatively selected plan; and,

WHEREAS, Alternative C provides for a levee from the Bonnet Carre Spillway to the Hope Canal and the Mississippi River in Garyville, Louisiana, thereby, leaving an area of approximately 10 miles from western St. John Parish to Ascension Parish without federal hurricane protection levees; and,

WHEREAS, Alternative C provides no hurricane levee protection to St. James Parish, which will force backwater flooding to Blind River and into homes, businesses, and industries within St. James Parish; and,

WHEREAS, the West Shore Lake Pontchartrain Study notes that the difference in cost from Alternative C to Alternative D is approximately $10.2 million; and,

WHEREAS, Alternative D provides a continuous hurricane protection levee from St. Charles Parish to Ascension Parish, thereby, closing the gap in the levee system and providing a complete West Shore Lake Pontchartrain Hurricane Levee System:

NOW, THEREFORE, BE IT RESOLVED, by the Mayor and Board of Alderman, that the governing body of Town of Gramercy hereby requests that the Corps of Engineers reconsider their recommendation of Alternative C and provide hurricane protection to all citizens, businesses, and industries within the River Parishes through the selection of Alternative D; and,

BE IT, FURTHER, RESOLVED that a copy of this resolution be forwarded to the members of the Louisiana Federal Delegation and the U. S. Senators, State Senators and Representatives who represent the River Region Area.

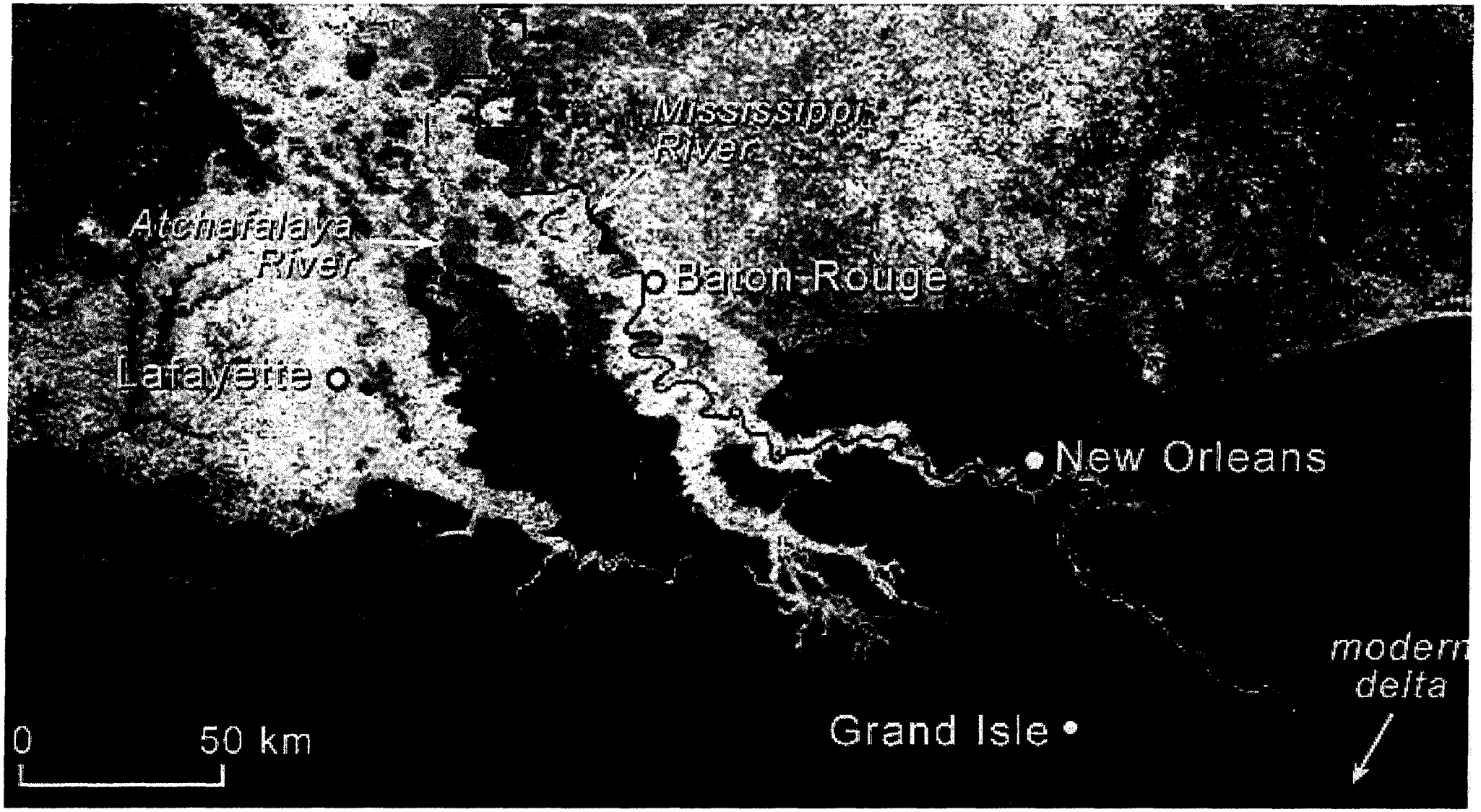
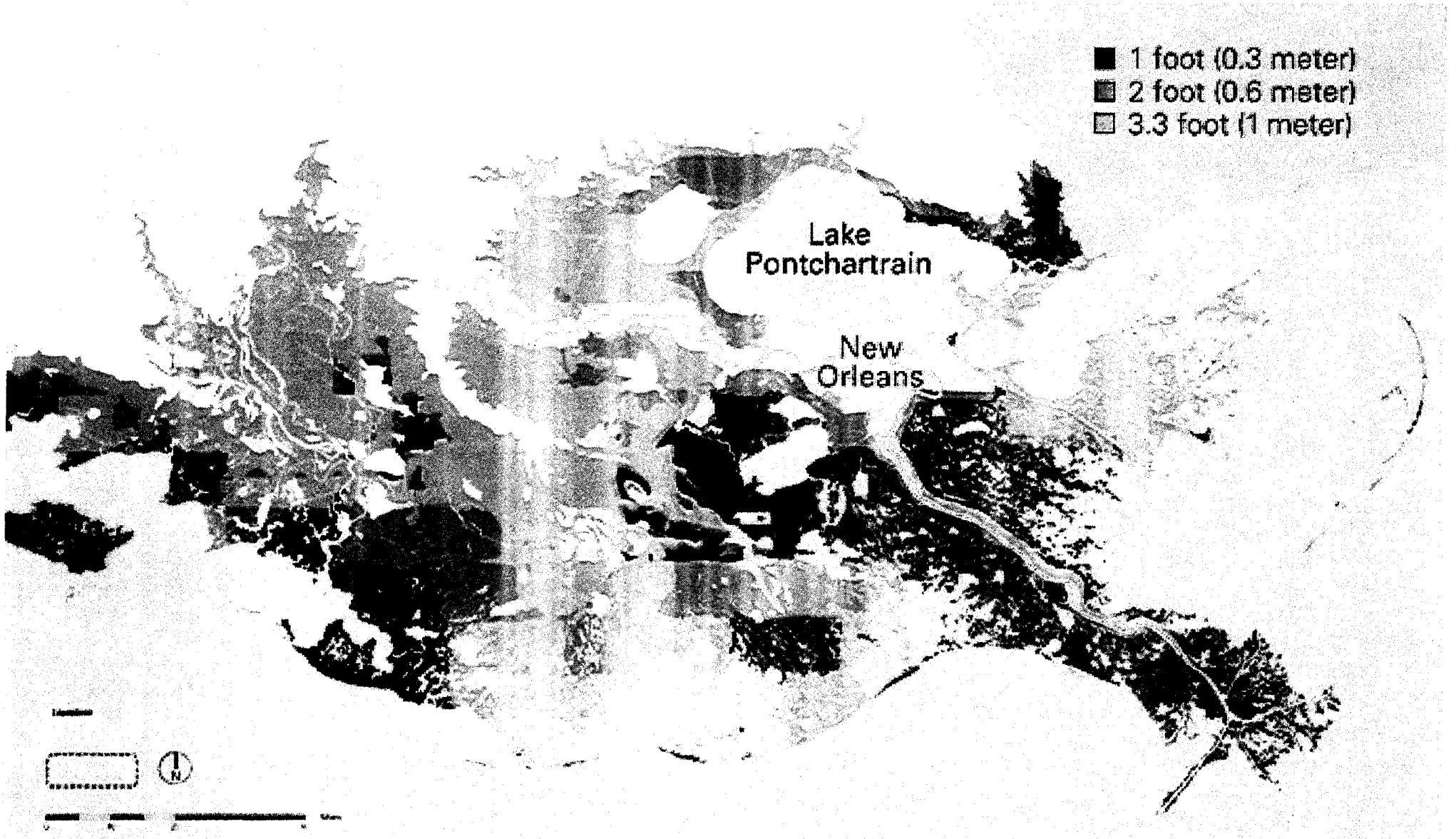

Mississippi River
Atchafalaya River
Baton Rouge
Lafayette
New Orleans
modern delta
Grand Isle
0
50 km

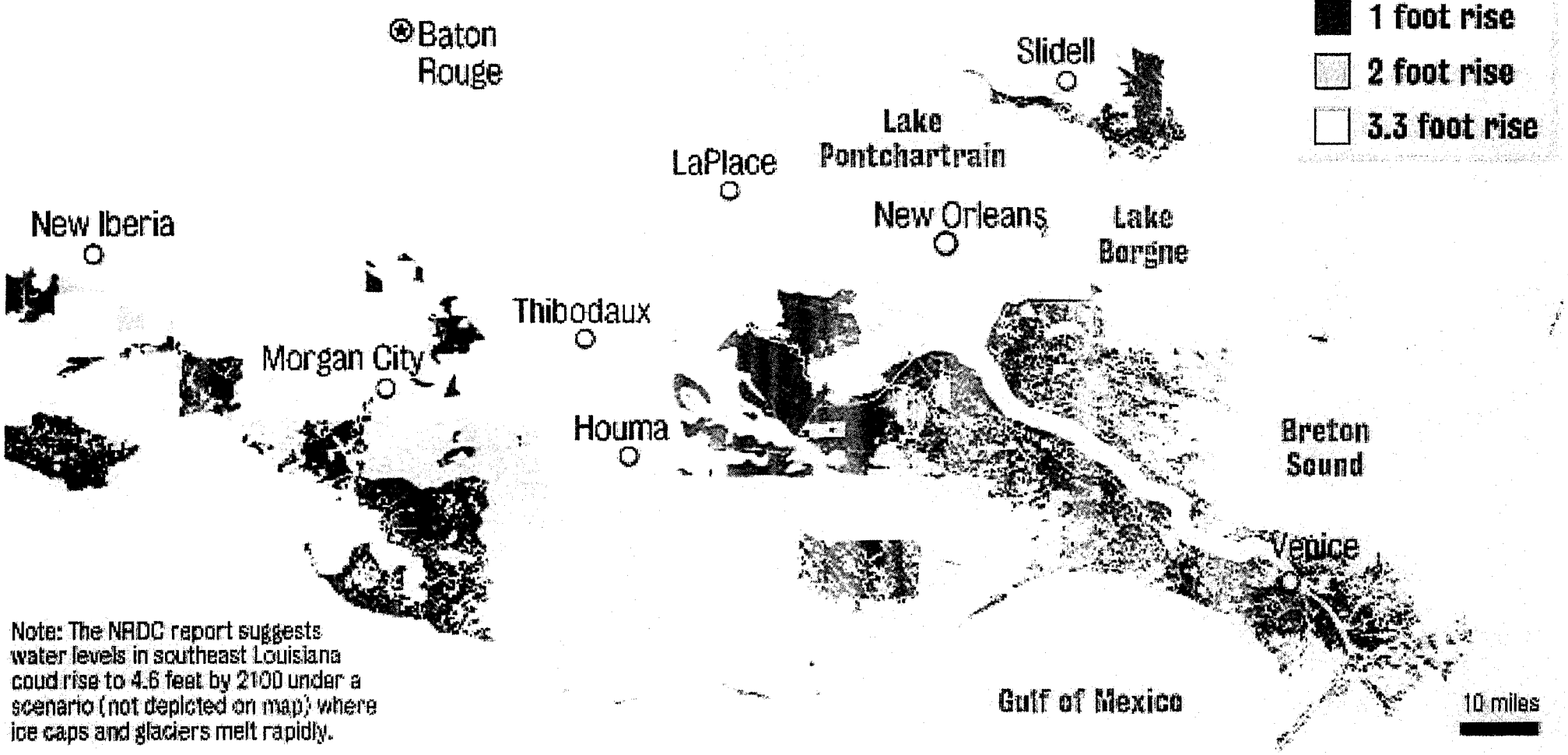
Figure 5.4: Potential wetland submersion by 2100



ource: Adapted from Carbonell and Meffert (see Appendix A)

HOW SEA LEVEL RISE COULD AFFECT SOUTHEAST LOUISIANA

Various coastal land loss scenarios depict dire future in 2100:



Note: The NRDC report suggests water levels in southeast Louisiana coud rise to 4.6 feet by 2100 under a scenario (not depicted on map) where ice caps and glaciers melt rapidly.

ource: Natural Resources Defense Council, Lincoln Institute of Land Policy

THE TIMES-PICAYUNE

PAR_9-25-2013_1_Jody Chenier

St. James Parish Government

P.O. Box 106
Convent, Louisiana 70723-0106
(225) 562-2300 (225) 265-3156
TDD: (225) 562-8500

Timothy P. Roussel
Parish President

September 25, 2013

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

Dear Dr. Klein:

Attached please find the St. James Parish Coastal Zone resolution requesting the U.S. Corps of Engineers reconsider their recommendation for the West Shore Lake Pontchartrain Hurricane Protection Levee.

If you any questions or require additional information, please feel free to contact me at (225) 562-2262.

Sincerely,

Jody P. Chenier
Director of Operations

JPC:jrl

cc: Timothy P. Roussel, St. James Parish President
St. James Parish Councilmen

A RESOLUTION REQUESTING THE U. S. CORPS OF ENGINEERS RECONSIDER THEIR RECOMMENDATION FOR THE WEST SHORE LAKE PONTCHARTRAIN HURRICANE PROTECTION LEVEE

WHEREAS, St. James Parish has experienced an increase in flooding and flood damages in recent years from major hurricanes and other tropical weather conditions; and,

WHEREAS, the economic growth and stability of St. James Parish depends on adequate protection from future storms and flooding; and,

WHEREAS, the Corps of Engineers has notified the Parish that based on the West Shore Lake Pontchartrain Study, it will recommend Alternative C as the tentatively selected plan; and,

WHEREAS, Alternative C provides for a levee from St. Charles Parish to St. John Parish, leaving an area of approximately 10 miles of St. James Parish without a federal hurricane protection levee; and,

WHEREAS, the tentatively selected plan, Alternative C, provides no hurricane levee protection to St. James Parish, which will increase backwater flooding into homes, businesses, and industries within St. James Parish; and,

WHEREAS, the West Shore Lake Pontchartrain Study notes that the difference in cost from Alternative C to Alternative D is approximately $10.2 million; and,

WHEREAS, Alternative D provides a continuous hurricane protection levee from St. Charles Parish to Ascension Parish, thereby, closing the gap in the proposed levee system:

NOW, THEREFORE, BE IT RESOLVED that the St. James Parish Coastal Zone Committee hereby requests that the Corps of Engineers reconsider their recommendation of Alternative C and provide hurricane protection to all citizens, businesses, and industries within St. James Parish through the selection of Alternative D.

On a motion offered by Brandon Gravois and seconded by LeVar Joseph, the resolution was declared adopted on this 28th day of August, 2013.

Gerald Falgoust, Chairman

Craig Calcagno

C. J. Brock

Brandon Gravois

Edward Arceneaux

Clarence Bazile

LeVar Joseph

Elton Chenier

St. James Parish Government

P. O. Box 106
Convent, Louisiana 70723-0106
(225) 562-2260
FAX (225) 562-2279
TDD: (225) 562-8500

Timothy P. Roussel
Parish President

September 26, 2013

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

RE: West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Feasibility Study

Dear Colonel Hansen:

This letter is to officially inform the USACE that St. James Parish will be providing information that will change the Benefit to Cost ratio on Table 3-5. St. James Parish is collecting information from Parish industries to determine the economic impact to their facilities during and after a flooding event. These numbers and information will give the USACE a loss of production during the occurrence or aftermath of hurricanes or other surge events if St. James Parish is not included in proposed flood protection.

Please be prepared to receive this information in the next few weeks to add to the continuing study of the tentative decision by the USACE. If you require any further explanation, please do not hesitate to contact us.

Sincerely,

Timothy P. Roussel
Parish President

cc: Mr. Steve Wilson, Pontchartrain Levee District

TR/mog

ST. CHARLES PARISH

TRACI A. FLETCHER
COUNCILWOMAN, DISTRICT VI

September 20, 2013

U.S. Army Corps of Engineers

Attention: Ms. Patricia Leroux

P. O. Box 60267

New Orleans, LA 70160-0267

RE: West Shore Lake Pontchartrain Hurricane

And Storm Damage Risk Reduction Study

Dear Ms. Leroux,

I am writing to express my support of the Locally Preferred Alignment D alternative contained in the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study. I feel that this alignment would be in the best interest of all entities involved and would greatly support the livelihood of Ascension Parish, St. James Parish, St. John Parish, and St. Charles Parish.

I appreciate the U.S. Army Corps of Engineers favorable consideration and support of Alignment D.

With warmest regards, I am

Very sincerely yours,

Traci A. Fletcher

Traci A. Fletcher

St. Charles Parish Council: District 6

Office
St. Charles Parish
P.O. Box 302
Hahnville, LA 70057
(985) 783-5000
Fax: (985) 783-2067
http://www.stcharlesparish-la.gov

Residence
411 Wild Rose Drive
Norco, LA 70079
Phone: (985) 307-0120
Fax: (985) 307-0163
Cell: (504) 579-9297
E-mail: tfletcher@stcharlesgov.net

October 5, 2013

US Army Corps of Engineers, New Orleans District
C/O Public Affairs
CEMVN-PAO
PO Box 60267
New Orleans, LA 70160-0267

To whom it may concern,

We are writing to you to voice our concerns about the proposed levee system that has been selected and is awaiting approval. As a resident of St. James Parish we are concern about the negative and possibly devastating results this plan could have on our home and our life.

Our Parish President, Mr. Timmy Roussel says you lack data from our Parish. This is a concern to us. What kind and how much data would be needed to change you're minds and have you choose Plan D which would include us?

We are providing you with pictures of the homes and streets in our subdivision for consideration as data. These pictures were taken during Hurricane Isaac (3 days after the hurricane past through and some a week after the water came in). The subdivision is called Longview Subdivision which consists of Longview Street, Carly Lane and Carolyn Drive in Paulina.

I would also like to state that if there were little or no FEMA claims filed from our area, we can assure you that it was not from a lack of devastation. In our opinion the lack of claims was due to the joint efforts of a community. Sandbags by the thousands were filled and brought to homes. Pumps were set up for those most vulnerable to water entering their homes.

We fear that if Plan D is not chosen then what we experienced during Hurricane Isaac will be nothing compared to what may happen should the proposed levee system you are considering be approved. We remain very concerned and uncertain about our future in St. James Parish.

Sincerely,

James and Rose Lucas
32474 Carolyn Drive Paulina, LA 70763

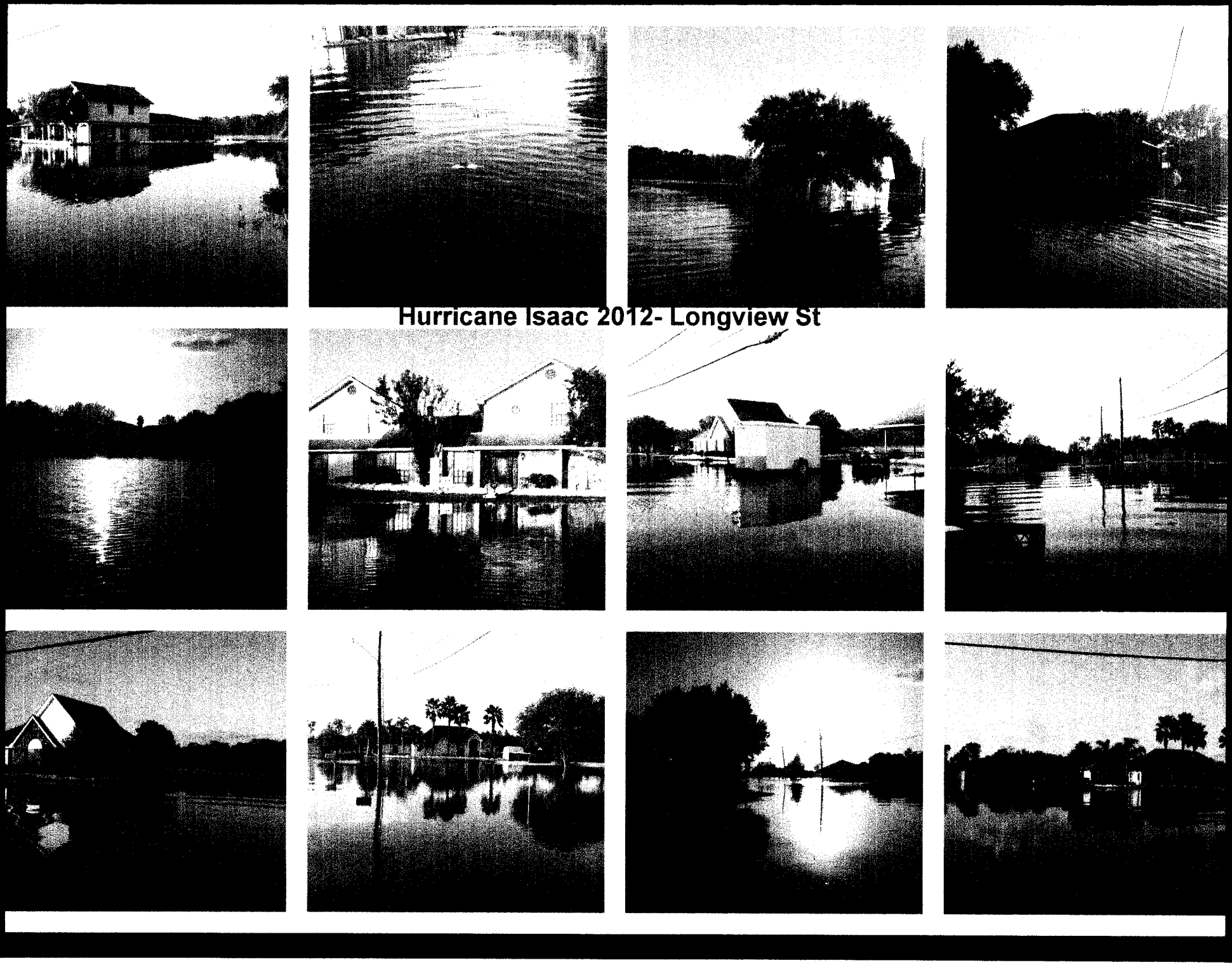





Hurricane Isaac 2012 - Longview St



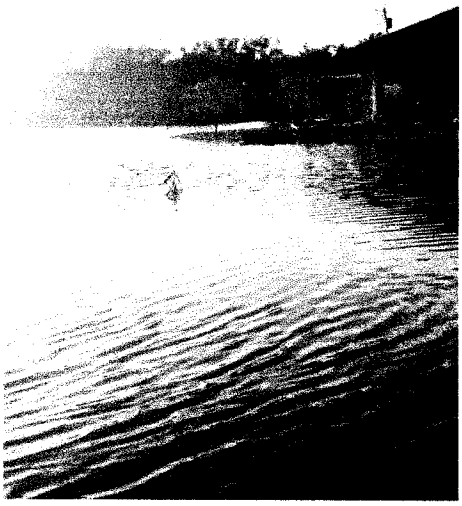


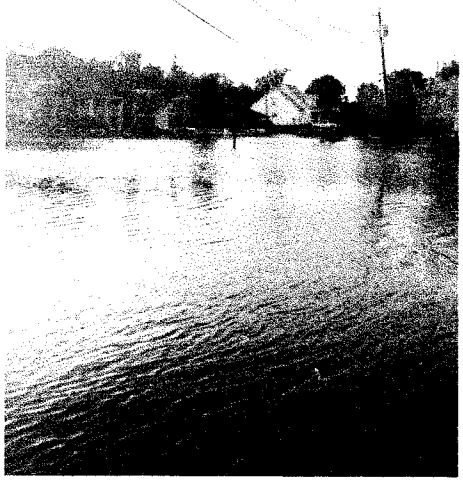



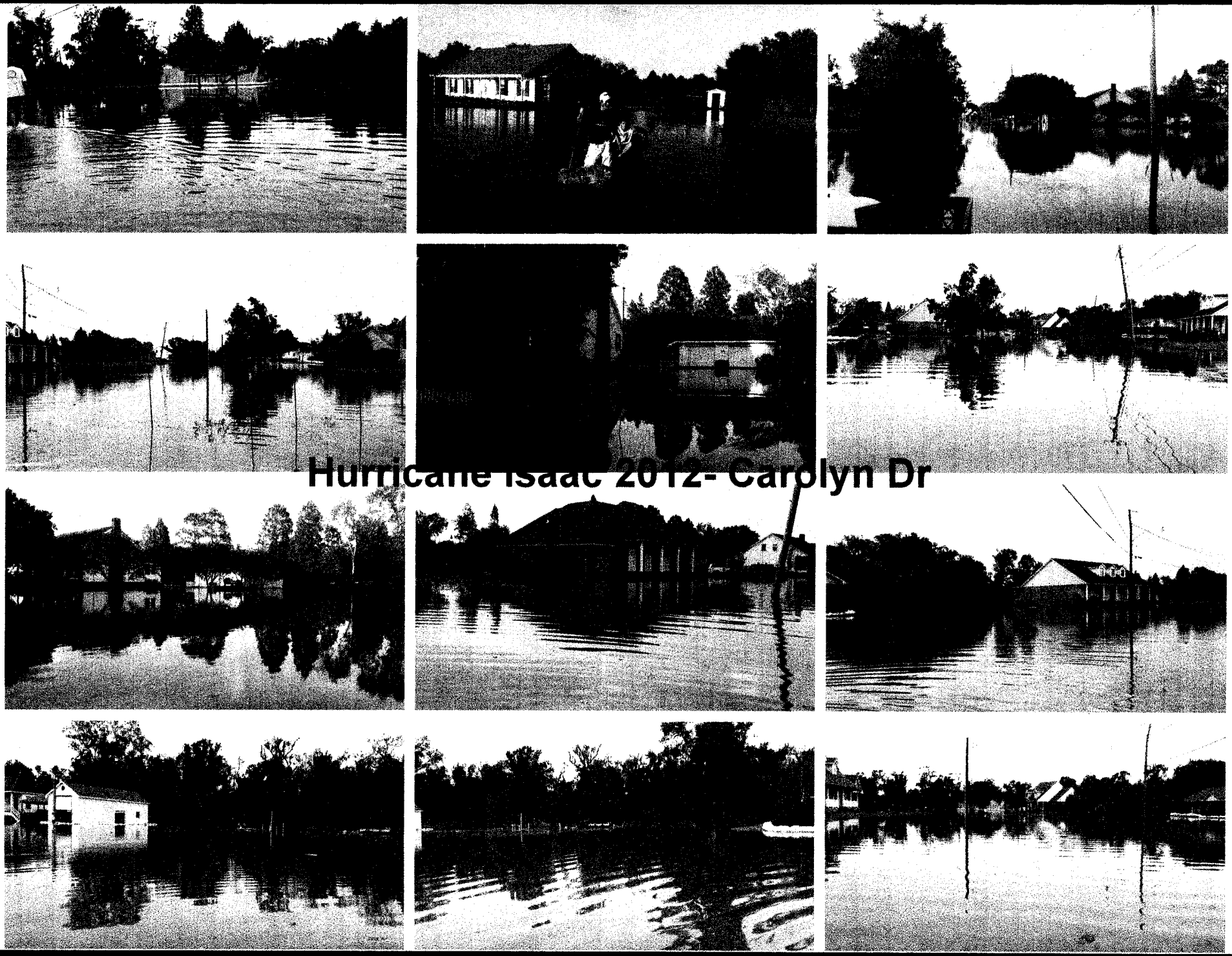
Hurricane Isaac 2012- Longview St



Hurricane Isaac 2012 - Carly Lane




Hurricane Isaac 2012- Carolyn Dr

Hurricane Isaac 2012 - one week later

Date: 10-4-13

Name: Robert P. Ruiz Jr

Address: 3652 Kenmore Dr.
Paulina, LA. 70763

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

Dear US Army Corps of Engineers:

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Robert Ruiz

Date: 10-7-13

Name: Kristie Hutchinson
Address: 2475 N. Albert
Lutcher, LA 70071

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

Dear US Army Corps of Engineers:

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Kristie 2 Hutchinson

Creel, Travis J MVN

From: GARLAND J POCHE [gspoche@bellsouth.net]
Sent: Friday, July 26, 2013 10:28 AM
To: AskTheCorps MVN; amedeej@legis.la.gov; brownte@legis.la.gov; schexnayderc@legis.la.gov; pricee@legis.la.gov
Subject: Flood protection for St.James Parish

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Corps and State Legislators,

As residents of St. James Parish Louisiana, we implore you to consider ALIGNMENT D when making decisions about flood protection for the river parishes. If a protection levee is built only as far as St. John Parish then the flood waters from Lake Pontchartrain have no place to go but to our parish. Please think about the rich farmlands and major industries as well as households that would be affected by your plans. We pray that God gives you the courage to make the decision that will protect all people of our area from the danger of flooding from a major hurricane.

St. James Parish residents,
Garland & Sharon Poche
1876 Felicity Ct.
PO Box 295
Lutcher, LA 70071

Creel, Travis J MVN

From: Wayne Boudreaux [wayne_dana@att.net]
Sent: Friday, July 26, 2013 9:38 PM
To: AskTheCorps MVN; amedeej@legis.la.gov; brownte@legis.la.gov; schexnayderc@legis.la.gov; pricee@legis.la.gov
Subject: Flood Protection

Follow Up Flag: Follow up
Flag Status: Flagged

To Whom It May Concern:

I am writing to ask that you help me fight for flood protection of the homes of my family and friends by supporting Alignment D of the flood protection propositions.

Thank you,

Dana Boudreaux

Creel, Travis J MVN

From: Jennifer Madere [jennifer.madere@yahoo.com]
Sent: Friday, July 26, 2013 9:37 PM
To: AskTheCorps MVN; amedeej@legis.la.gov; brownte@legis.la.gov; schexnayderc@legis.la.gov; pricee@legis.la.gov
Subject: Flood Protection Fight

Follow Up Flag: Follow up
Flag Status: Flagged

I am writing to ask that you help me fight for flood protection of our parish by supporting Alignment D of the flood protection fight.

Jennifer Madere

Creel, Travis J MVN

From: Carol Bourgeois [carolannebour@yahoo.com]
Sent: Friday, July 26, 2013 12:39 PM
To: AskTheCorps MVN
Subject: Support Alignment D

Follow Up Flag: Follow up
Flag Status: Flagged

As a resident of St. James Parish, I urge you to protect the residents of the East Bank of the Mississippi River by selcting Alignment D of the West Shore Lake Ponchartrain Hurricane and storm Damage Risk Feasibility Study

Carol Bourgeois
Resident of Gramercy, LA

Creel, Travis J MVN

From: Harris & Gaynell Louque [harrislouque@cox.net]
Sent: Saturday, July 27, 2013 8:54 PM
To: AskTheCorps MVN
Subject: ALIGNMENT D FOR ST JAMES PARISH

Follow Up Flag: Follow up
Flag Status: Flagged

Please help us by choosing Alignment D to provide hurricane protection for ALL the River Parishes, including St. James Parish.

Thanks for choosing Alignment D.

Gaynell & Harris Louque, Jr.

Creel, Travis J MVN

From: Bernie Robichaux [bernierobichaux@gmail.com]
Sent: Monday, July 29, 2013 7:48 PM
To: AskTheCorps MVN; pricee@legis.la.gov; schexnayderc@legis.la.gov; brownt@legis.la.gov; amedeej@legis.la.gov
Subject: Alignment D

Follow Up Flag: Follow up
Flag Status: Flagged

Please press forward to impress upon the U.S. Army Corps of Engineers to implement Alignment D in regards to flood protection for St. James Parish. This will provide the most protection for the citizens of our parish. Please support us as we support you.

Thanks,
Bernie Robichaux

Creel, Travis J MVN

From: David Robichaux [davidrobichaux@gmail.com]
Sent: Monday, July 29, 2013 7:44 PM
To: AskTheCorps MVN
Subject: Alignment D

Follow Up Flag: Follow up
Flag Status: Flagged

Please press forward to impress upon the U.S. Army Corps of Engineers to implement Alignment D in regards to flood protection for St. James Parish. This will provide the most protection for the citizens of our parish. Please support us as we support you. Thank you for all of your efforts of serving the community.

David Robichaux
St. James Parish

Creel, Travis J MVN

From: Chad.Weidert@motivaent.com
Sent: Tuesday, July 30, 2013 11:58 AM
To: AskTheCorps MVN
Subject: Support of Alignment "D"

Follow Up Flag: Follow up
Flag Status: Flagged

I am in support of Alignment “D” of the West Shore Lake Pontchartrain (WSLP) Louisiana Hurricane and Storm Damage Risk Reduction (HSDRR) Study.
Please consider Alignment “D” as the method flood protection that benefits a larger area of residents.
I am a resident of St. James Parish.

Regards,

Chad M. Weidert

Shell Chemical LP
Norco Plant, 15536 River Road, Norco, L A 70079-0010

Tel: +15044656128 6128
Email:
Internet: http://www.shell.com

Creel, Travis J MVN

From: Jamie McBride [jamiemmcbride@yahoo.com]
Sent: Saturday, August 10, 2013 11:08 AM
To: AskTheCorps MVN; amedeej@legis.la.gov; brownte@legis.la.gov; schexnayderc@legis.la.gov; pricee@legis.la.gov
Subject: Flood protection

To whom it my concern,

Please press forward to impress upon the U.S. Army Corps of Engineers to implement Alignment D in regards to flood protection for St. James Parish. This will provide the most protection for the citizens of our parish. Please support us as we support you. Thank you for all of your efforts of serving the community.

Sincerely,
Jamie Hoormann
Resident of St. James Parish

Creel, Travis J MVN

From: Napa [wanapa@bellsouth.net]
Sent: Monday, August 12, 2013 10:23 AM
To: AskTheCorps MVN
Subject: [EXTERNAL] Alingment D

Please go with alignment D . St. James parish future depends on it.

Tk

Creel, Travis J MVN

From: Louque, Dean M. (MPC) [dmlouque@marathonpetroleum.com]
Sent: Wednesday, August 14, 2013 4:34 PM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL] Flood Protection

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Thanks

Dean Louque

Paulina,La.

Creel, Travis J MVN

From: Hotard, Benny (MPC) [hbhotard@marathonpetroleum.com]
Sent: Wednesday, August 14, 2013 3:47 PM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL]

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Hanson Hotard
5327 CANATELLA ST.
Convent, La. 70723

Creel, Travis J MVN

From: Bienvenu, Joseph M. (MPC) [jmbienvenu@marathonpetroleum.com]
Sent: Wednesday, August 14, 2013 3:28 PM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL]

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Kind Regards,

Joseph Bienvenu

2207 South Nobile Street

Paulina La. 70763

Joseph Bienvenu
Mechanical Technician
Marathon Petroleum Company

Creel, Travis J MVN

From: Martin, Cindy (MPC) [ctmartin@marathonpetroleum.com]
Sent: Wednesday, August 14, 2013 8:29 AM
To: AskTheCorps MVN; brownte@legis.la.gov; amedeej@legis.la.gov; schexnayderc@legis.la.gov; pricee@legis.la.gov
Subject: [EXTERNAL] Flood Protection

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Cindy Martin

32105 Longview Street

Paulina, Louisiana 70763

Creel, Travis J MVN

From: St. Pierre, Marc J. (MPC) [mjstpierre@marathonpetroleum.com]
Sent: Thursday, August 15, 2013 12:51 PM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL]

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Marc St. Pierre
Electrical Tech Zone 4
Marathon Petroleum Company

Creel, Travis J MVN

From: Martin, Kenny M. (MPC) [kennymmartin@marathonpetroleum.com]
Sent: Thursday, August 15, 2013 11:35 AM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL] Flood Protection

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Kenny Martin
32105 Longview Street
Paulina, Louisiana 70763

Creel, Travis J MVN

From: Hines, Courtney J. (MPC) [chines@marathonpetroleum.com]
Sent: Thursday, August 15, 2013 8:48 AM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL] levee protection

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Courtney Hines

Creel, Travis J MVN

From: Copponex, Johnathan E. (MPC) [jecopponex@marathonpetroleum.com]
Sent: Monday, August 19, 2013 7:08 AM
To: AskTheCorps MVN; 'brownte@legis.la.gov'; 'amedeej@legis.la.gov'; 'schexnayderc@legis.la.gov'; 'pricee@legis.la.gov'
Subject: [EXTERNAL]

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study. To ensure my family and property are secure during the event of a hurricane or tropical storm, I am requesting your assistance to promote the option Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection for St. James Parish. Alignment A and C would begin a levee in St. Charles Parish and stop short of the St. James Parish line, leaving St. James Parish unprotected and vulnerable to flooding.

It is crucial that members of our community, as well as our local officials, congressional and state representatives join to work towards the goal of keeping the entire river region safe.

Thanks,
Johnathan Copponex
3344 La 642
Paulina La 70763

Thanks,
John Copponex

Mechanical Advisor
Marathon Petroleum Company LP
Phone# 985-535-7282
Fax# 985-742-6300
jecopponex@marathonpetroleum.com <mailto:jecopponex@marathonoil.com>

Creel, Travis J MVN

From: Karen D [kdfbmail@gmail.com]
Sent: Friday, August 02, 2013 8:37 AM
To: brownte@legis.la.gov; AskTheCorps MVN; amedeej@legis.la.gov; schexnayderc@legis.la.gov; pricee@legis.la.gov; melissa.wilkins@stjamesla.com
Subject: Choose Option D/Flood Protection Plan/St. James Parish

I reside and own a small business in St. James Parish. I live in Longview Subdivision which is located in Paulina. My area was adversely affected by Isaac. We all sandbagged and had standing water for a number of days. Residents manned pumps 24/7 to protect their homes. Some still had flood waters get into their homes. It is comforting to have the protection of the National Guard, yet still unnerving at the same time. You have to go through what we did to understand that last statement. I hope no one will have to. Please support Option D in the proposed flood protection plans to protect St. James Parish residents.

Thanking you kindly in advance for your support and cooperation in this matter.

Karen Dunn
225-206-7290 Cell
225-869-8618 Home
kdfbmail@gmail.com

Creel, Travis J MVN

From: albert739@cox.net
Sent: Friday, August 02, 2013 8:28 AM
To: AskTheCorps MVN
Subject: hurricane protection

I am in favor of Alignment D for hurricane protection for St. James Parish.

Pastor Nolan W. Albert
Home Ph. (225) 869-5135
Cell Ph. (225) 454-4483
Email: Albert739@cox.net

Creel, Travis J MVN

From: Blake Luminais [bluminais@gmail.com]
Sent: Friday, August 23, 2013 12:09 PM
To: AskTheCorps MVN; amedeej@legis.la.gov; browte@legis.la.gov; schexnayderc@legis.la.gov; info@cedricrichmond.com
Subject: [EXTERNAL] St James Parish flood protection

I writing in response to the recent announcement of the Army Corps' selection of the West Shore Lake Pontchartrain flood protection proposal. This selection only increases the flood risk of the residents of St James Parish. Although the numbers of flood claims in the parish following last storm may not have been as high as St John, hundreds of homes were in risk. Myself, along with MANY other residents of the parish, spent the days following the storm sandbagging subdivisions and stopping water from entering houses. It was a humbling experience that I wish all of you could have witnessed for yourself.

The problem with the West Shore Lake Pontchartrain selection is that the water that is prevented from entering St John parish will enter the neighboring parish of St James, which will have no protection. St James' other neighbor, Ascension Parish, has high capacity pumps which will only add to the flooding of St James. This is evident in the fact that St James parish did not flood unitl 3 days later when St John drained and Ascension pumped their water through Maurpas Swamp.

I am asking for your help to protect ALL of the residents in these flood prone areas. If not, flooding will only continue to be a domino effect from parish to parish.

Sincerely,
Blake Luminais
4387 La 3125
Paulina, LA 70763

Creel, Travis J MVN

From: dean.veron@motivaent.com
Sent: Saturday, August 24, 2013 8:29 AM
To: WSLPAdmin
Subject: [EXTERNAL] Protection levee

Follow Up Flag: Follow up
Flag Status: Completed

Please consider Alternative D to provide flood protection to all of us who need it. It seems like the floods keep moving further to the west of New Orleans as the years go by since the levees were built/enhanced to protect the New Orleans area. If you choose Alternative C you are going to push the flood waters to St. James and Ascension maybe even to EBR parish. What gives you the right to protect St. John and St. Charles and not us? I PAY TAXES TOO!!! Spend the money and do it right the first time.

Creel, Travis J MVN

From: Michael Corona [mpcoronakba@gmail.com]
Sent: Saturday, August 24, 2013 9:19 AM
To: WSLPAdmin
Subject: [EXTERNAL] Where will water go now? Will it go more North West towards French Settlement? Please responnd

Creel, Travis J MVN

From: Harrison Troxclair [htroxcl@gmail.com]
Sent: Saturday, August 24, 2013 6:53 PM
To: WSLPAdmin
Subject: [EXTERNAL] West Shore Lake Pontchartrain Study

I am a resident of Lutcher in St. James Parish, Louisiana. I disagree with the flood protection plan chosen by the corps of engineers (Alternative C) This may be the cheapest and best plan for St. John Parish but this will adversely affect St. James Parish should another storm similar to Isaac hits this area in the future. Storm waters that previously would spread out over a large area and not get very deep will be funneled into this parish and Ascension Parish. U.S. Highway 51 is one this area's major evacuation route but it is barely above sea level in this parish and has had water cover it in the past. Future water levels will be higher and possibly force closure of the escape route when needed most. There are industrial plants that possibly have dangerous materials stored at ground level that would be in danger of getting flooded and dispersed throughout this area,. Are the railroad beds elevated enough in St. James Parish to remain usable if the water level rises a foot higher than it did during Isaac? This proposed route of the flood protection system would only hurt this Parish and also Ascension Parish. "Protection" would not be the correct term to describe this projection for residents outside of St. John Parish. I urge whoever is in command of this project to reconsider the choice of Alternative C. I feel that this will be the death of the East bank of St. James Parish if this is the final route chosen Thanks for allowing the citizens affected the chance to comment.

Harrison Troxclair of 1319 Third Street, Lutcher, Louisiana 70071

E mail address: htroxcl@gmail.com

Creel, Travis J MVN

From: Shawn Brignac [shawn_brignac@yahoo.com]
Sent: Sunday, August 25, 2013 8:48 AM
To: WSLPAdmin
Subject: [EXTERNAL] River Parish Levee Option

I was disappointed to learn that option D was not selected. I have been living in the Gramercy for 16 years now, and lived in St. John parish for 25 years before that. Last year's hurricane Isaac was not the worst conditions of rains and tidal surge I have seen since living here in Gramercy. In 1998 tropical storm Francis dumped 24 inches of rain on us and like after every storm the water came up for about three days after. A week later hurricane George hit as a category 4 storm and the water backed up on us for three more days after it had passed. Those two systems together did not backup half as much water on us like Isaac did. After Isaac past, we didn't have any water in the streets and in our homes like in LaPlace. The water came up for about a week after, because it had no where else to go. I am not an engineer so I can't tell you why it happen but I do know things are different since St. Charles parish has a levee. I would like to sell my house, but I have three other homes for sale just on my block that has been on the market for some time now. If we won't get a levee, I would like to be paid for my home.

Shawn Brignac

Creel, Travis J MVN

From: casey.laiche@motivaent.com
Sent: Monday, August 26, 2013 6:23 AM
To: WSLPAdmin
Subject: [EXTERNAL] Alignment D the only choice

I'm writing to express concern over the west shore hurricane protection levee. I have seen options A,B,and C which exclude St. James Parish. The people of St. James parish need to have Alignment D to protect ST.James parish on the east bank. For Hurricane Isaac we saw water like never before and the water rose up my drive way and up to my house, if any other alignment is chosen we will surely flood drastically. Personally I cannot believe you all are considering any of the other alignments because ascension parish has pumps and levees and if St. John were to get the levee, its obvious we will be sitting on our roof tops waiting to be rescued for the next storm. Thank you for you time.

Signed a concerned citizen

Casey Laiche

Creel, Travis J MVN

From: Boyett, Ricky D MVN on behalf of AskTheCorps MVN
Sent: Monday, August 26, 2013 9:03 AM
To: WSLPAdmin
Subject: FW: [EXTERNAL] Alignment D- hurricane protection levee (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: denise nosacka [mailto:denisenosacka@bellsouth.net]
Sent: Sunday, August 25, 2013 9:26 PM
To: AskTheCorps MVN
Subject: [EXTERNAL] Alignment D- hurricane protection levee

To Whom this May Concern,
I beg for your support in choosing Alignment D verses the current choice. It saddens me that you would not choose to do the job right one time. If we should have the misfortune of another storm such as Isaac, and we will in time given our location in hurricane season, the current choice will cause dramatically more flooding in our area. This is an area that has not had such issues in my lifetime until now. This solution will help St. John parish just as the levee that was built in New Orleans helped them. And the neighboring parish paid greatly for that. The same domino effect will continue if you proceed as planned. I will pray that this decision changes and allows protection for ALL!
Thank You,
Denise Nosacka

Classification: UNCLASSIFIED
Caveats: NONE

Creel, Travis J MVN

From: Ada Guidry [adaguidry@att.net]
Sent: Monday, August 05, 2013 2:35 PM
To: AskTheCorps MVN
Subject: Fwd: Approve Alignment D

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Fwd: Approve Alignment D
Date: August 5, 2013 2:23:45 PM CDT
To: landrieum@legis.la.gov

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Fwd: Approve Alignment D
Date: August 5, 2013 2:22:53 PM CDT
To: vitterd@legis.la.gov

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Fwd: Approve Alignment D
Date: August 5, 2013 2:21:58 PM CDT
To: richmondc@legis.la.gov

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Fwd: Approve Alignment D
Date: August 5, 2013 2:15:58 PM CDT
To: amedeej@legis.la.gov

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Fwd: Approve Alignment D
Date: August 5, 2013 2:15:27 PM CDT
To: brownte@legis.la.gov

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Fwd: Approve Alignment D
Date: August 5, 2013 2:14:46 PM CDT
To: schexnayderc@legis.la.gov

Begin forwarded message:

From: Ada Guidry <adaguidry@att.net>
Subject: Approve Alignment D
Date: August 5, 2013 2:13:24 PM CDT
To: pricee@legis.la.gov

To: U. S. Army Corps of Engineers' Public Affairs Office

- U. S. Senator Mary Landrieu
- U. S. Senator David Vitter
- U. S. Congressman Cedric Richmond
- State Senator Jody Amedee
- State Senator Troy Brown
- State Representative Clay Schexnayder
- State Representative Edward Price

In regards to the West Shore Lake Pontchartrain (WSLP) Louisana Hurricane and
Storm Damage Risk Reduction (HDSRR) Study we respectfully request you do the job you were elected to do and approve "Alignment D" to protect the entire

East Bank of St James Parish from flood waters.

Please help save our Parish and approve "Alignment D".

Thank You

Alvin Guidry and Ada Guidry
2200 Kinler Street
P O Box 81
Paulina , La 70763

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☑ **No** ☐

Comments: We have lived in Paulina, Louisiana for the last 8 years and have NEVER had problems with flooding. Our family invested over 300,000 dollars in a home in Bellevue Lakes Subdivision and can not afford higher insurance premiums. We are not required to have flood insurance because we are not in a flood area. Our home is a 2 story, brick structure that will not be able to be elevated. We actually moved from the Laplace area (Foxwood Manor Subdivision) to get away from the high waters during storms. The waters will have no where to go, and will flood St. James Parish. Please secure everyone with Option D!!!

Name Roland and Kenisha Anderson, JR. **Affiliation** Marathon Oil Worker

Street 2909 Bellevue Lakes Street **Phone** 225-869-6285

City, St Zip Paulina, LA 70763 **Fax**

E-mail roland and Kenisha @ bellsouth.net

Our family deserves it, Our children deserves it, our future depends on it!

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Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: HAS THE DOUBLE CANAL SPILLWAY BEEN CONSIDERED AS AN OPTION TO HANDLE THE SURGE FROM THE LAKES? THE SPILLWAY LEVEES MAY NEED TO BE RAISED TO CONTAIN THE INCREASED HEAD ELEVATION)

Name CLYDE DOOLEY **Affiliation** _____

Street 347 N. MILLET AVE **Phone** (225) 869-8585

City, St Zip GRAMERCY, LA 70052 **Fax** _____

E-mail _____

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☒

Comments: The understanding I got from the meeting is that you all are doing a study and the study will end in 2014. After the study then what? How long will it be before it is approved? After it is approved how long will it be before you start building a levee? We need to know how long will it be before we get protection. Six months out of the year we will have to worry.

Thanks

Name Marcelle W Nelson **Affiliation** _____

Street 2517 Williamsburg Dr **Phone** (985) 287-1456

City, St Zip LaPlace, LA. 70068 **Fax** _____

E-mail mwwallaceb@yahoo.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☒

Comments: Alignment D only! Congress will send Billions of OUR money to foreign countries for AID - CHARITY Begins at home! Protect the Wetlands from Salt Water intrusion, Protect I-10 and protect the people of St. James & Ascension Parishes the cost is Less than 1 Presidential Vacation and would cover maintenance for 50 years - - JUST DO IT

Name Frank Faget **Affiliation**

Street 101 Carroll wood **Phone** 985.652 6085

City, St Zip Vacherie La 70090 **Fax** 9856521022

E-mail fcfag@yahoo.com

PC_9-10-2013_13_Diane Smith

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐ NA

Comments: Please implement Project D. It is not fair to dump/drain the water from the other parishes into St. James. It is not nice either. The oyster canes, perique and other farmers deserve Levees too. When the plants are forced to close due to high water families are imperiled.

Name Diane Smith **Affiliation** ? Citizen
Street 2294 Cypress St. **Phone** 504 638 8766
City, St Zip St Helena LA 70071 **Fax** 225 869 1985
E-mail -

PC_9-10-2013_16_Stuart G Schultz MD

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: I did not speak at the meeting on 17 Sept 2013 but I am speaking for myself OB Gyn Physician who often has to stay + take care of patients who don't evacuate. For option D

Name STUART G. SCHULTZ MD **Affiliation** Rue de Sante Womens Center
Street 99 Holly Dr **Phone** 985-652-2441
City, St Zip LAPLACE LA 70068 **Fax** 985-652-4167
E-mail STUART.SCHULTZ@ME.COM

Yes Taxpayer + Beg time tax payer

PC_9-10-2013_17_Donna Maurin

PC_9-10-2013_17_Donna Maurin

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: Alternative D seems to be the best choice in my opinion.

Name Donna Maurin **Affiliation** Rue De Sante Womens Center
Street 204 West 4th **Phone** 985-652-2441
City, St Zip Reserve, LA 70084 **Fax**
E-mail MSwings1@comcast.net

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☑

Comments: THE DIVERSION CANAL & SORRENTO PUMPS BOTH DISCHARGE INTO BLIND RIVER. THIS IS A MAJOR SOURCE OF OUR BACKWATER ISSUES. WERE IMPACT STUDIES DONE FOR THESE PROJECTS AND IF SO WHO APPROVED THEM?

FROM WHAT I AM SEEING THE ONLY WAY THAT ST. JAMES PARISH CAN FIX THIS IS LEGALLY. A CLASS ACTION LAW-SUIT MAY BE OUR ONLY ALTERNATIVE.

Name LOWELL ROUSSEL **Affiliation** RESIDENT OF ST. JAMES
Street 2499 HWY. 3125 **Phone** 225 206 4443
City, St Zip PAULINA LA. 70763 **Fax**
E-mail lroussel@r-t-i.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☑

Comments: I have been living here for seventy-eight years and have never seen water come up this high in St James Parish (east bank) for any storm. Very important to get water. Alignment D. Please note eagles do not live on the ground, they live in tall trees. Need to rebuild the marsh and barrier island to stop the storm surges.

Name Willie Vicknair **Affiliation**
Street 2192 Jefferson Hwy **Phone** (225) 869-5650
City, St Zip Lutcher, LA 70071 **Fax**
E-mail

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: I am for PLAN D – If we are not given a levee as St John and Ascension Parishes, it will create a funel effect for St. James Parish. The waters that would have normally gone to St John and the waters pumping from Ascension will be displaced to St James Parish. All this water will flood the entire parish not just 1500 homes. Industry, crops and lives will be damaged. Economic impact will be great and cause many not to recover. Please BE fair will all the citizens and make PLAN D the PLAN picked.

Name KERRY D. MELANCON **Affiliation** _____

Street P.O. Box 598 / 1187 DESOTO DR. **Phone** 225-869-4644

City, St Zip Lutcher, LA. 70071 **Fax** _____

E-mail kmelancon@yahoo.com

PC_9-10-2013_2_Kerry D Melancon

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐

Comments: Please consider Alignment D levee through St. James Parish as we need to protect our homes and our families. Without this Alignment, St. James Parish will not survive the flood waters. Please do the right alignment for all concerned.

Name Don + Irene Melancon **Affiliation** St. James Parish Residents (our entire lives)
Street P.O. Box 63 **Phone** (225) 869-8441
City, St Zip Lutcher, LA 70071 **Fax**
E-mail irenem@sjstevedore.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☑

Comments: PLEASE GO WITH ALIGNMENT "D" TO PROTECT ST. JAMES PARISH, OUR PARISH IS HOLDING FLOOD WATER MUCH LONGER NOW EVER SINCE ASCENSION PARISH PUT IN THEIR PUMPING STATIONS. ALIGNMENT "C" WOULD MAKE THIS PROBLEM WORSE.

Name TERRY BRIGNAC **Affiliation** NONE

Street 1891 THIRD STREET **Phone** (225) 869-3631

City, St Zip LUTCHER, LA. 70071 **Fax** N/A

E-mail N/A

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☐

Comments: I am living at my address for 49 years. When I purchased this land the former owner saw water on this land 1 time in 50 years. Since my ownership I have seen water many times and getting worse at each event. As neighbouring parishes build levees to [illegible] flood water on them, this increases our flood problem. To save my home from flood water, I had to construct a perimeter levee. I have increased levee height 3 times as flooding gets progressively worse. Isaac threatened to breach my 3 foot high levee such that we had to sandbag 3 cords high, pumping out leakage for duration. Since Isaac I have elevated again to about 4' high. Alignment C unacceptable, we need Alignment D.

Name LAWRENCO MICHEL Affiliation

Street 32927 LA642 NORTH Phone 1-225-869-3711

City, St Zip PAULINA, LA. 70763 Fax

E-mail

We need long term flood protection, not just a right now fix!

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Vote "D"

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐

Comments: I watched numerous people asking the Corp. for the only option that doesn't flood St. James Parish. Option "D". Col. Hanson and crew didn't have much to say. It is sad that we are ready to go to war in Syria and don't know what is going on. We would intentionally flood and destroy a parish because of the dollars. No other choice - except for "D"

Name David Michel **Affiliation**

Street 39560 Gravois St **Phone** 225-869-5233

City, St Zip Paulina LA 70763 **Fax**

E-mail Nita39560@yahoo.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☑

Comments: I am all for project D it just makes more sense that one would spend a little extra now so we will all be safe from flood water. We work hard for our homes and a little protection could save all of us. Project "D"

Name Jeannine Z. Chauvin **Affiliation** _____

Street 3412 S. Angelle **Phone** 225-206-7201

City, St Zip Paulina, LA 70763 **Fax** _____

E-mail jeannineZChauvin70763@yahoo.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☒

Comments: I am tired of watching the government waste money. I am 68 years old and have paid taxes for many years. Alignment Cony protects a few families compared to Alignment D. To do Alignment C and still have to do Alignment D, is stupid. I hope you have more sense than that.

If done right you don't have to raise houses in protected areas, and the wet lands can be saved.

A fifth grader would pick Alignment D

Are you smarter than a fifth grader?

Name Ray E. Hall **Affiliation**

Street 2621 S. Remy Robert Ave **Phone** (225) 644-7284

City, St Zip Gonzales, La 70737 **Fax**

E-mail rayehall@eatel.net

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐

Comments: Please choose alignment D. With that choice it will save a lot of people, houses and animals. Most importantly it will also give the residents ~~and~~ of St. James Parish + the following parishes that need to evacuate if necessary. Last year roads had water. I-10, Airline Hwy, Hwy 61 and 3125. Houses ~~were~~ were flooding + ~~people~~ it was hard for the residents to get the help they needed. My parents live on Hwy 61 before I was born. Elm 47 and they never flooded until last year!!

Name Andrea Vitrano **Affiliation** _____

Street 614 North Ezidore Ave **Phone** 225-869-8994

City, St Zip Gramercy, LA 70052 **Fax** _____

E-mail andrea.vitrano@yahoo.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☑

Comments: Although the plans proposed do seem effective in increasing security of the parishes of St. James and St. John. It would seem more sensible to build levees to just encompasse the high land of both parishes. It would be cheaper and easier to build levees on solid ground rather than through the swamps as proposed. This would shorten the levees. shorten the construction time of the project. Decrease overall cost. Minimize wetlands interference. Minimize Pipeline crossings. Minimize future Maintenance costs. It just makes more sense

Name Michael P. Guidry **Affiliation** St. James Parish Resident
Street 32260 LA Hwy 642 North **Phone** 225-569-4336
City, St Zip Paulina LA, 70763 **Fax**
E-mail frenko_harris@hotmail.com

PC_9-10-2013_28_Henry T Graham Jr

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☒ **No** ☐

Comments: Please incorporate my verbal comments from the meeting into the record for this issue. Alternative D will provide a greater level of protection to the citizens and industries in Ascension and St James Parishes. The additional cost will be outweighed by the benefits to those Parishes. Please examine the additional benefits derived from Alternative D, including the protection of critical infrastructure (highways, pipelines, docks, railroads and petrochemical facilities).

Name Henry T. Graham Jr. **Affiliation** La. Chemical Association
Street One American Place, Suite 2040 **Phone** (225) 376-7642
City, St Zip Baton Rouge, La. 70825 **Fax** (225) 343-1007
E-mail henry@lca.org

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐

Comments: (1) If the Pontchartrain Levee District will implement Alternative D if the Corps doesn't, why not work with them to coordinate plans?
2) Can't run plants if can't get to work without I-10 / I-61.
3) Short-term thinking on implementing ALT-C.
4) Overall implementation on Levee system over years appears to look at immediate political and small budgets rather than larger region impacts.

Name Stephen Myers **Affiliation** HOMEOWNER
Street 10621 Hwy 431 **Phone**
City, St Zip ST AMANT LA 70774 **Fax**
E-mail STEPHENCMYERS@HOTMAIL.COM

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐

Comments: Col. HANSEN You stated the Commander IN Chief told you Not to let WHAT happened IN St John happen again. I feel if you Don't elect Alignment D he will be back and tell You not to let this happen again in St JAMES It only makes Sense to extend 10 more Miles And protect Every Body. Also protect Hwy 61 And I10 I URGE you to select Alignment D.

Name MICHAEL LOWRY **Affiliation** Home owner
Street 12105 PINE **Phone** 225 869 4717
City, St Zip GRAMERCY, LA. **Fax**
E-mail LAWRYM AT BELLSOUTH.NET

PC_9-10-2013_30_Mildred A Blalock

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card I support ALIGN. "D"
I oppose ALIGN. "C"

Would you like to speak tonight? Yes ☐ No ☒

Comments: I believe ALIGN "D" would benefit a larger area and, in the long run would save tax payer time + money. ALIGN. "C" would be an enormus cost to the public + would protect only a small area. Those affected would be forced to raise their homes or be bought out. this in itself would create hardships, + a change in their way of life. It is difficult to understan why ALIGN. "C" is even being considered. It is a short term fix for only a few. Align "D", o the other hand, would protect a larger + more populated area. Why not do this project right from the beginning? Spend tax payers' money wisely; use the money allocated for the levy plus any monies appropriated to buy/raise houses + fund ALIGN. "D". I truly hope you will consider all of the ramifications of this newly proposed Levy system + vote for ALIGN. "D".

stem ↑

Name MILDRED A. BLALOCK **Affiliation** _____

Street 40369 LOOSEMORE RD. **Phone** 225/644-8604

City, St Zip GONZALES, LA. 70737 **Fax** _____

E-mail _____

I believe ALIGN. "D" would be a more effective solution for everyone involved.

PC_9-10-2013_31_Gail Roussel

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: It seems to me that the New Orleans area down to St John Parish will be spared. It seems that Baton Rouge area down to Ascension parish is covered. So where does that leave St. James Parish- we don't matter to the Government- We will again get water from both of our Neighboring Parishes- Is it fair to the residents of St. James Parishes? HELL NO! We need protection also.

Name Gail Roussel **Affiliation** Resident

Street PO Box 844 **Phone** 225-869-8667

City, St Zip Gramercy LA 70052 **Fax** _____

E-mail _____

PC_9-10-2013_32_Sherryl Myers

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☒

Comments: I am asking that you please ~~decide to~~ implement Alternative D Levee plan. I have lived in Ascension Parish 62 years. I saw higher water levels after the last hurricane than I have ever ~~can~~ in my area. I attribute this to backup water caused by building levees around New Orleans higher.

Name Sherryl Myers **Affiliation** Ascension Parish Resident

Street 10621 Hwy 431 **Phone** (225) 675-8723

City, St Zip St. Amant, La 70774 **Fax**

E-mail sherryl/myers@hotmail.com

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: Unless Plan D is chosen, we are put in a position of receiving water from Baton Rouge & Livingston due to Diversion Canal, from Lake Pontchartrain, due to levees & pumps in Orleans, Jefferson, St Charles, St John, & Ascension Parish. How is it reasonable for us to have some of the highest elevations & now we are flooding because of everyone else's water.

Plan D would also reduce to effects of salt water intrusion which harm the wetlands, which is one of your concerns. Please also consider the negative ~~economic~~ effects of Plan C to farming, & industrial economics.

Name Derald Bourgeois **Affiliation** Resident
Street 1859 Logan Ct **Phone** 225-869-5364
City, St Zip Lutcher LA 70071 **Fax**
E-mail derald@ebwins.com

PC_9-10-2013_4_Derald Bourgeois

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☒

Comments: I support Alt. D. I moved to the present location on on N. Airline in 1965. We have not had a flooding problem until Sept. 2012. Alt. D is the only solution to this problem.

Name Frank Vitrano **Affiliation**

Street 1374 N. Airlime **Phone** 225-869-3253

City, St Zip Gramercy, La 70052 **Fax**

E-mail vitranof@bellsouth.net

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? Yes ☐ No ☑

Comments: IF ALIGNMENT D IS NOT CHOSEN; I-10, HWY 61, AND HWY 3125 WILL BE SHUTDOWN, LEAVING RIVER ROAD THE ONLY EVACUATION ROUTE. ENTERGY SUBSTATION WILL ~~FOO~~ FLOOD, CAUSING LOST POWER FOR DAYS, IF NOT WEEKS. LOCAL HOSIPTAL COULD BE FLOODED. WE WILL SEE MORE WATER IF ALIGNMENT "C" IS CHOSEN, THEREFORE I CHOOSE ALIGNMENT "D"

Name MICHAEL WEBER **Affiliation** _____

Street 695 N. PINE STREET **Phone** 225-206-4801

City, St Zip GRAMERCY, LA. **Fax** _____

E-mail MJWEBER54@MAC.COM

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☐

Comments: IF IT is only 10 million more FOR AIT. D STOP Sending money To oTher countRies and help The U.S. citizen's. FiRST.

Name Rusty MonTz **Affiliation** ResidenT

Street 317 JeFFerson Hwy **Phone** 225-354-6163

City, St Zip GRAMERCY LA 70052 **Fax**

E-mail

Creel, Travis J MVN

Subject: FW: [EXTERNAL] Re: Contact (UNCLASSIFIED)

-----Original Message-----
From: Scott Eustis [mailto:scott@healthygulf.org]
Sent: Wednesday, September 11, 2013 10:26 AM
To: Varisco, Jeffrey J MVN
Subject: [EXTERNAL] Re: Contact (UNCLASSIFIED)

thanks. I will be specifically looking into the impoundments question for coastal swamps. apologies for the long email below, but here's what we are thinking off the top of my head.

I know at least impoundment and de-coupling the flood cycles encourages tallow and lowers fisheries production.

In brackish marshes in Terrebonne parish an MMS study showed it slows accretion and carbon sequestration and causes sinking of the land, even without major pumping, again probably due to the lack of flushing necessary in the estuarine system. That study led to a few mitigation banks being de-authorized.

Not sure about flooded swamps, but these relict swamps don't need more sinking, which puts ever more strain on the pumping system, in a positive feedback loop.

I know that the soils are where most of the action is, so just looking at the plant layer is not enough, and I will look into any CRMS stations in the project area. One would hope there are sediment cores, but that is only a hope.

There is the landscape scale logic, that hurricanes, like it or not, feed the system with sediments re-worked from the coastal sounds. This is the geological basis of Southwest Louisiana, but it's an important process across the Delta as well, and important to consider in the planning of the sediment diversion. Cutting the swamps off from coastal influx of sediment will also cause them to sink because they will not receive mineral sediments important for elevation.

People have to stop pretending salt water is more important than subsidence for Louisiana. Don't people remember there used to be towns in Ruddock, and on the Lake at the spillway? in St Malo? The salt water has come into the system before; the hurricane salt pulse is much less a problem than the everyday salt wedge caused by the MRGOs and ship channels through the barrier sounds.

My intuition from places like Lake Boudreau and Plaquemines Parish, as well as the failed Hammond assimilation site, is that impoundment around pollution sources is a double whammy to the structural plant life. I don't know what the sewerage situation is like in these parishes, but we question impounding wetlands along with sewerage systems, unless the outfalls are pulsed to allow for the natural drawdown periods where the plants can recover. Again, Hammond is a warning sign that flooding wetlands with nutrient rich water can eliminate the wetland if it's done incorrectly.

We can see from New Orleans that the consequences of not thinking about the contradictory nature of levees--protecting, but aggravating subsidence, can cost major money in the long

term --new orleans is looking at $6 B + to stay afloat from its own levee-induced flooding problem.

Having grown up in New Orleans, Lakeview unfortunately, we flooded nearly every year in the 90's. Flooding from rain and induced subsidence from levees is a serious cost.

I heard much complaining about the new pumps in Ascension Parish causing backup in St James; our position has ever been that the spawl development in Baton Rouge outward is endangering these areas, and probably made Isaac worse, and I'm wondering how that plays into this project. I know that is a question for the Colonel, but it's an important question in considering alternatives--how is Ascension parish's decision to do things the old, bad way impacting St James and what is the Parish plan to stop their flooding of St James?

Everything seems to hinge on water models that aren't there; and if we don't have those, we are only operating from principle, and the lines of defense principles should guide the day.

We are truth tellers, but not suicidal, at GRN. I will be the bearer of bad news next time, reminding people of sea level rise and the need to pay for these projects, that levees are not magical water-stopping barriers, and that 100 year risk reduction means a 26% shot at your home flooding over 30 years, and that subsidence is more important than salt water, all things that the state has learned to include, in its way, in its public discussion of these matters.

Cheers,

Scott

On Wed, Sep 11, 2013 at 9:31 AM, Varisco, Jeffrey J MVN <Jeffrey.J.Varisco@usace.army.mil> wrote:

> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Hi Scott,
>
> I forgot to give you my business card last night at the public meeting. My signature has all the pertinent info. If you have any questions or comments on the project, please don't hesitate to contact me.
>
> Sincerely,
>
> Jeff Varisco, PMP
> Project Manager - Projects Branch
> US Army Corps of Engineers - New Orleans District
> 504-862-2853 (office)
> 504-388-9055 (cell)
>
> Classification: UNCLASSIFIED
> Caveats: NONE

--

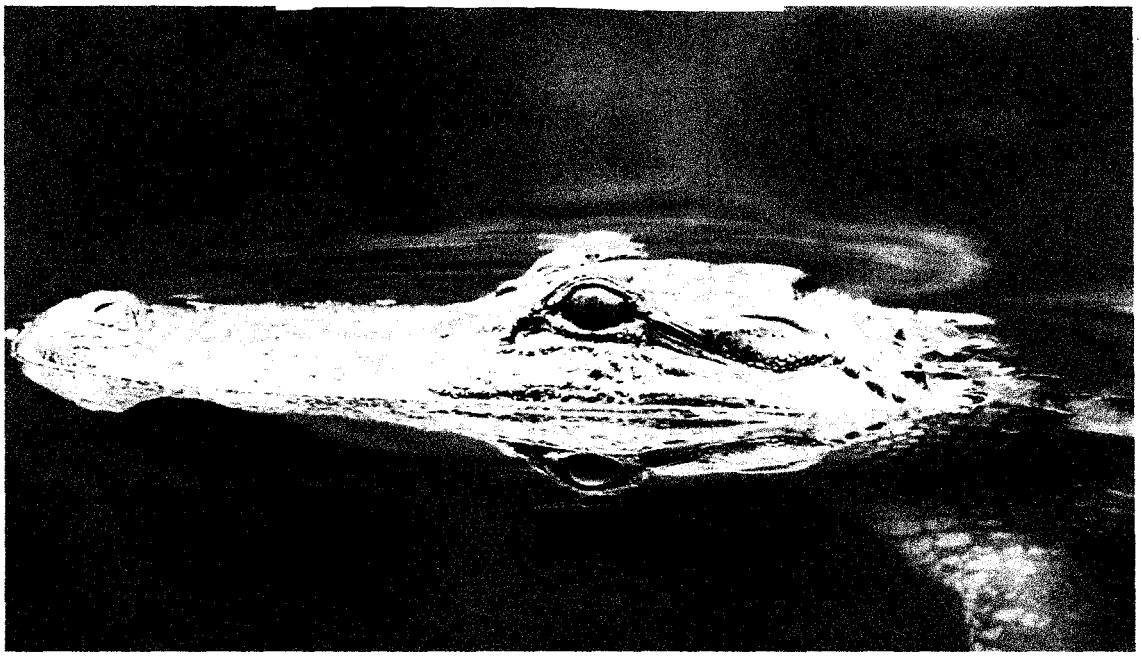
Scott Eustis, M.S.
Coastal Wetland Specialist
Gulf Restoration Network

504 237 0323
504-525-1528 x212
scott@healthygulf.org
www.healthygulf.org <http://www.healthygulf.org/>

541 Julia St, Suite 300
New Orleans, LA, 70130

Classification: UNCLASSIFIED
Caveats: NONE

CAJUN PRIDE SWAMP TOURS



Description of Cajun Pride Swamp Tour:
Located at 110 Frenier Road, LaPlace, Louisiana 70068, 800-467-0758

September 12, 2013

Re: Questions and concerns about the proposed Hurricane Barrier for St. Charles and St. John's Parishes and how it will affect our family's business, Cajun Pride Swamp Tours at 110 Frenier Rd., LaPlace LA 70068

To whom it may concern,

Based on the map that was in the Times-Picayune on August 25th 2013 outlining the proposed levee construction, and the attached map provided to me by the LaPlace Zoning Office, it appears that our property is subject to being bisected by the current proposal. My wife and I own P.B. Bayou Charters dba Cajun Pride Swamp Tours which is located at the intersection of Hwy 51 and Frenier Rd. You can see that the proposed levee (in yellow on attached map) will divide our property (outlined in red). As our business consists entirely of providing public tours by boat through our water ways, and the surrounding water ways, we are greatly concerned that the proposed project will dramatically alter the land, waterways, and atmosphere of what our guest have come to enjoy. The following is a list of questions that we have as to how the proposed project may affect our property, business, and livelihood before, during, and after the construction of the levee.

- What is a true timeline of when the project will start?
- Are public hearings being held and/or scheduled to allow input from landowners likely to be affected by the project?
- Is the project, in fact, going to necessitate the use of property that we currently own?
- Can the proposed levee or wall be construction 1 mile closer towards Lake Pontchartrain or along the existing rail road line?
- When, and in what manner, will I be notified as to any planned or proposed use of my property?
- When, and in what manner, will I be notified that any portion of my land will be subject to condemnation?
- What is the timeline on when construction may directly affect my property?
- How long may the project last on our site?
- How wide and tall is the wall going to be through my property?
- Has an Environmental Impact Study been done on how the levee will affect the wetlands and animals in our area and on my land?
- How much materials, equipment, and crew will be placed at our site?
- How much of my land will need to be cleared to make way for the levee or wall?
- Will any of our Cypress trees be cut down or removed from my property?
- Will a wall or levee be placed through our property?
- How will the Corp get the materials to the work site?
- Will the Corp be using my land or water ways during construction?

- Will flood gates be used on all waterways that are being affected by the proposed protection?
- Can the proposed project be pushed closer and along HWY 51 with access to Frenier Rd?
- In what manner may I communicate with the Corp of Engineers with regard to their plan and possible ways to minimize the potential damage to our business?
- In what manner will we be compensated if our buildings and grounds must be raised as a result of the project?
- Will my business be able to operate on our site and have access to our waterways and surrounding waterways, as well as maintain its current frontage to the highway, during the construction of the proposed levee or wall?
- In what manner will we be compensated for any loss of business resulting from project?
- In what manner will we be compensated for loss of land, Cypress Trees removed or cleared, and cost to rebuild the marsh and wetlands that are disturbed?
- Will we be compensated for loss of business due to an inability to conduct tours directly caused by the hurricane protection?

I fear that our family business has been given a death sentence and know it is only a matter of time before the unknown will be upon us. On a personal level, this project has a profound effect on the life of my wife and I, as well as our employees. Below are a few ways this is personally impacting us:

- Stress caused by our daily concerns on what the future has for us as this is all out of our control.
- Stress due to potential loss of revenue and the affect it will have on our employees, future wages, future projections, and future growth as a company.
- Potential loss of vendors and clients due to the uncertainty raised by the project as to the sustainability of our business.
- Stress due to the financial commitment and investment into our property with now has an unknown future.
- Stress due to debt to our vendors that is long term as we only bought the company and property 3 years ago.
- Stress of not knowing if we will have a retirement. This company is our retirement.
- Stress of not knowing if our children will have a future based on our company.

I do want to state that we are not against the proposal for the protected project. We are most definitely in favor of the project and the protection it will give the Tri-Parish. We simply want to raise our concerns, obtain answers, and ensure that all due consideration has been given as to how the project will affect us. We are a mom and pop operation with 15 employees. We are not a large company with high cash reserves and financial backing. Our operation is dependent on access to and use of the wetlands and waterways to conduct our tours. We are not able to relocate our business due to the unique services we offer which include the lands and waterways we own. Since 1990, Cajun Pride

Swamp Tours has been in operation at its site on Frenier Rd. We are a great attraction to St John's Parish and proud to be a part of the community. We love what we do, love our employees, and most all, love the land that we own. What we have, and own, is unique to Louisiana and South Louisiana especially. We hope to be a part of the community for a long, long, time and hope to be able to work with the Parish on this project and have our particular issues and concerns considered by the Army Corp of Engineers.

I appreciate your time and efforts and would love to speak to you in person concerning this matter. We would love to take you on a tour or boat ride to show you our property and address the concerns we have first hand. I can be reached at 504-485-1404 (my cell phone) to discuss this matter.

With kind regards from the bayou!

Paul Bair

Paul Bair

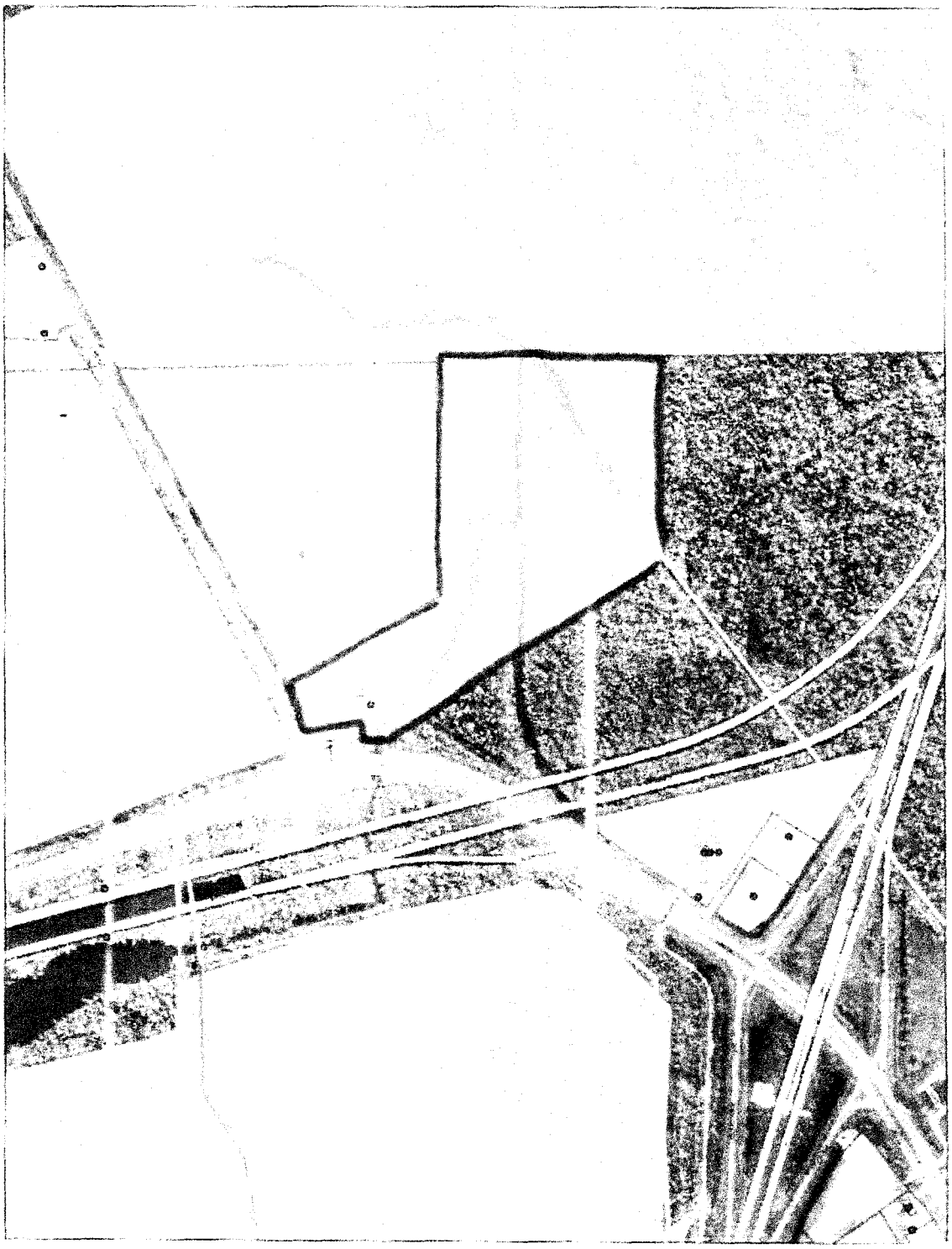
Owner/ manager

Cajun Pride Swamp Tours

110 Frenier Rd.

LaPlace LA 70068

504-467-0758



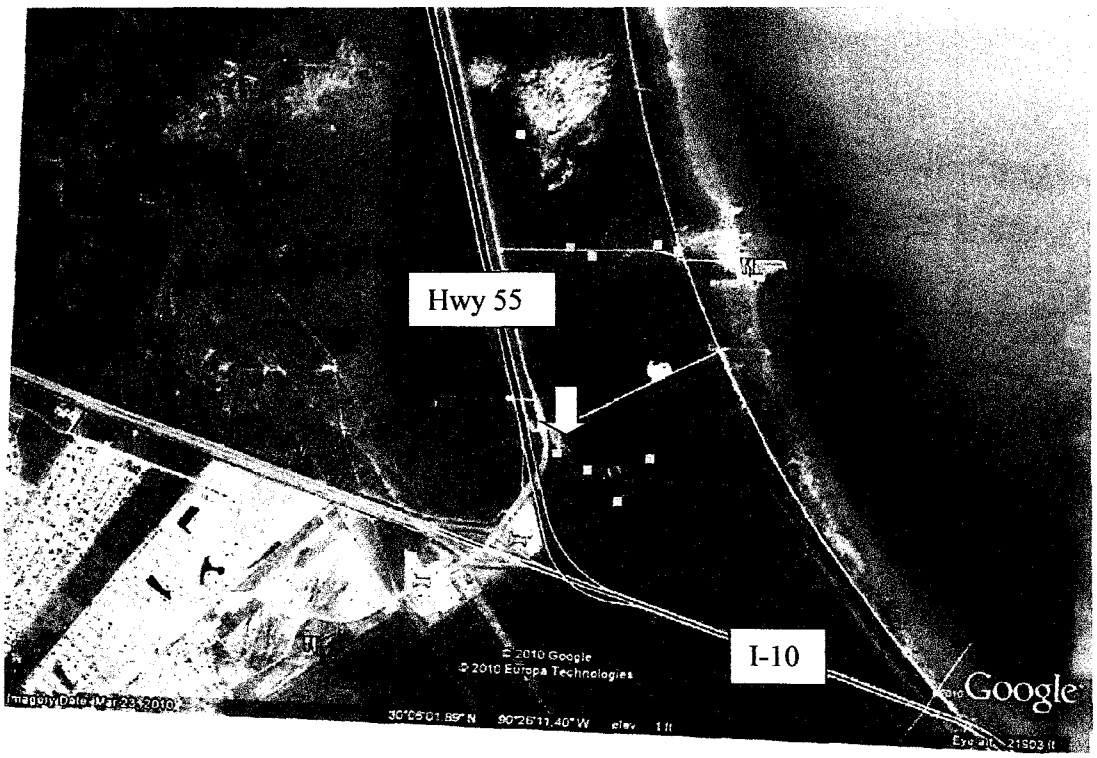
DESCRIPTION OF OPERATION

Cajun Pride Swamp Tours was established at this location in the 1990's to provide swamp tours into the adjacent wetlands and offer an insider look at the untouched and natural beauty of the Manchac Swamp and its inhabitants. Current facilities consist of 3 passenger boats, animal exhibit, ticket office, 8 stall restroom facility, covered and uncovered picnic area, gift shop with over 200 separate items with a swamp and New Orleans flair, and parking for multiple vehicles and or motor coaches. Daily swamp tour operations consist of conducting 1.5 to1.75 hour tours via boat through the waterways, swamps and bayous associated with the private property (55 acres) and wetlands owned and managed by Cajun Pride Swamp Tours. We conduct tours daily at 9:30am, 12:00pm, 2:15pm and 4:15pm with other tour times available upon request. Trips are narrated by USCG licensed captains and tour guides aboard 45-65 passenger custom built tour boats. We cater to local business, New Orleans tourism operators, and wholesalers.

In conjunction with the swamp tour, at times when requested, we can provide catering services for groups. These catered events can be aboard tour boats, or on the premises at the covered picnic area.

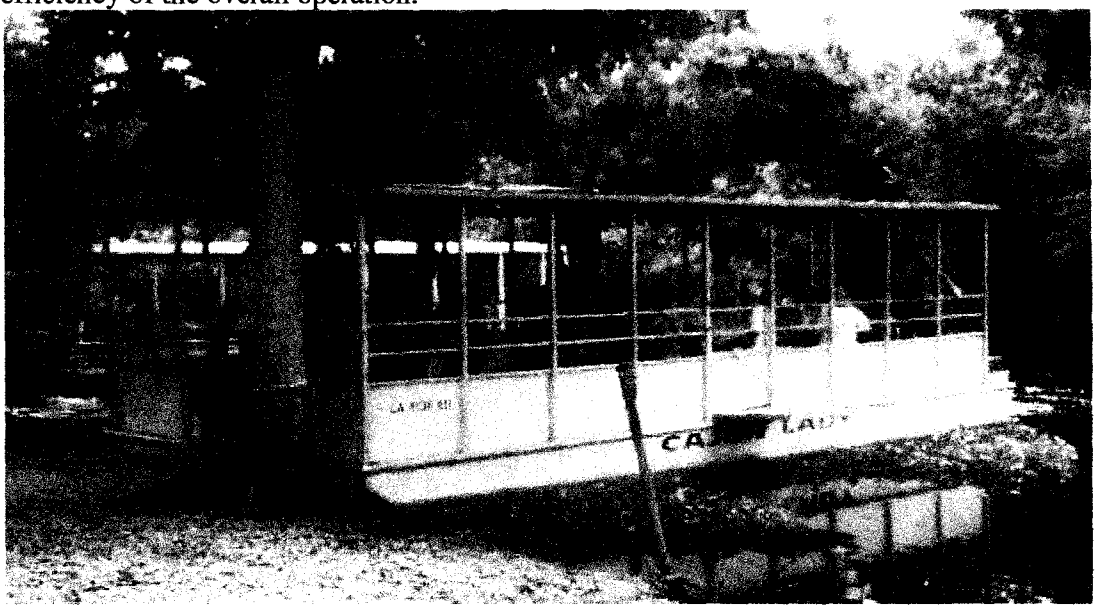
COMPANY LOCATION

Our existing swamp tour business, Cajun Pride Swamp Tours, is located at 110 Frenier Road, LaPlace, Louisiana 70068, near the intersection I-10 and Hwy 51, approximately 27 miles west of New Orleans, Louisiana. The tour related facilities are sited on 55 acres of property inland area adjacent to canals that lead into wetland area. Map provided below depict the vicinity and location of the existing swamp tour facilities and the boundary of the Frenier Road, Interstate 55, and Interstate I-10.



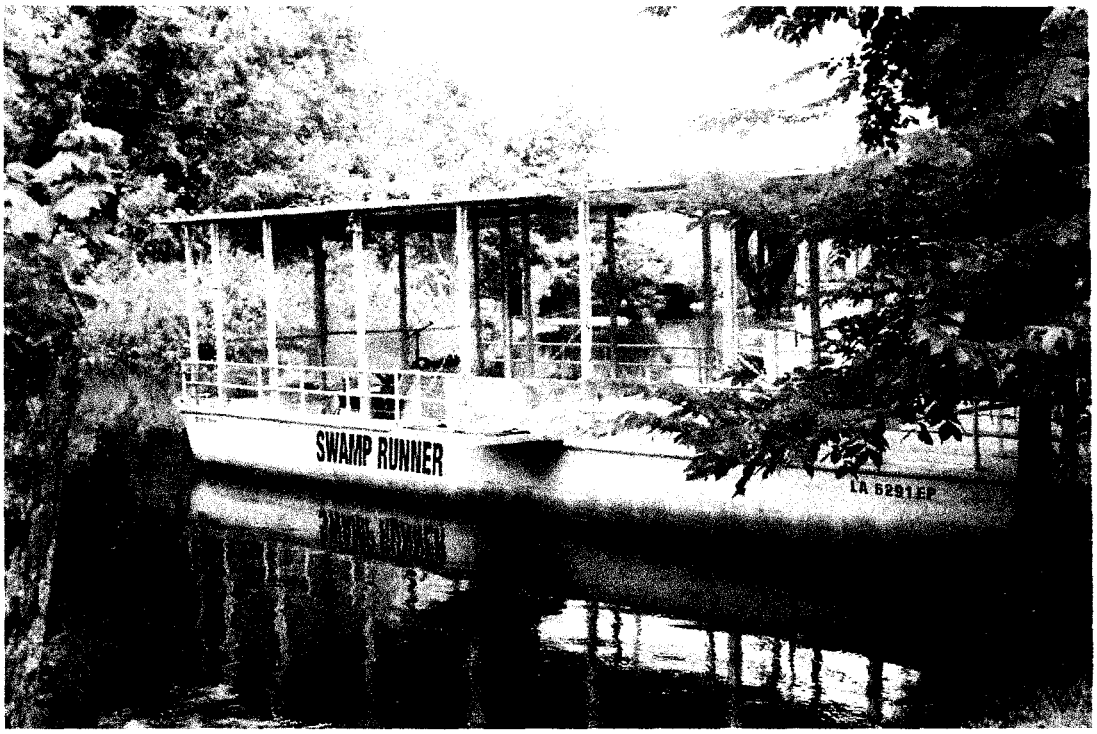
USCG CERTIFIED VESSELS

Cajun Pride Swamp Tours consists of our land facilities as well as 3 passenger vessels docked adjacent to our parking site. Below is a list of the vessels associated with our company's daily operation. These boats were constructed with our operation solely in mind. From the draft of the vessels, type of motors used, routine maintenance of the vessels according to USCG standards, as well as company polices, all aspects of the vessels details have taken into consideration the environment, passengers/guests, and efficiency of the overall operation.

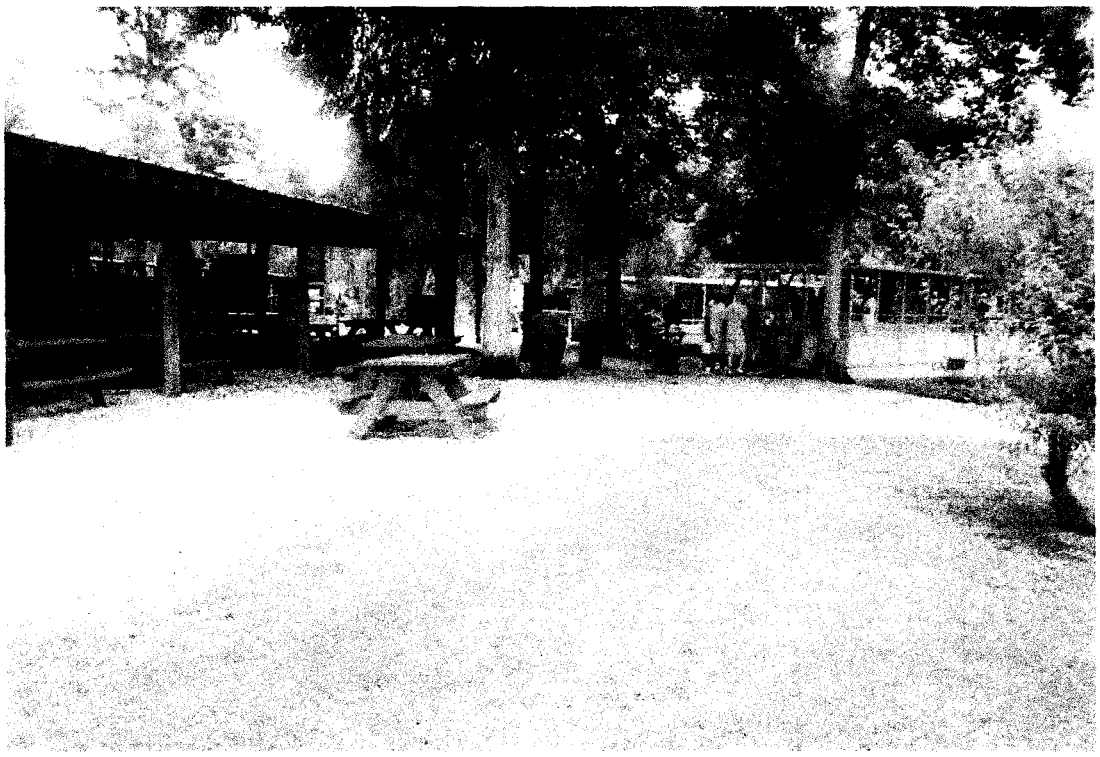


55-64 passenger swamp tour boat.

Our New 55-65 passenger tour boat... will be in services starting Oct of 2013



44-49 passenger swamp tour boat.



Swamp tour ticket office and picnic area.....seating for up to 120 guests

New 6 stall, 400 square foot restroom facility.

September 13, 2013

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P. O. Box 60267
New Orleans, LA 70160-0267

Colonel Richard Hansen,

I am a resident in the town of Lutcher, Louisiana. I was born and raised in a group of small towns all located closely together – Lutcher, Gramercy, Paulina and Grand Point. I am deeply fond of St. James Parish and our local heritage that includes festivals, sports and burning bonfires at Christmas time.

I attended the Corps of Engineers meeting on Tuesday, September 10, 2013 in Lutcher. I listened to the Corps, the Louisiana Department of Wildlife and Fisheries, and the resident's viewpoints on Alignment C and D. I would like to express some of my views with you.

After Hurricane Isaac passed through our area, electricity was shut off to the towns of Gramercy and Lutcher for three days because floodwaters endangered the electrical substation just north of US Highway 61. I have never seen the electricity shut off to the substation in all my 54 years. One resident at the meeting talked about the significant turmoil that would be caused if we were to lose all the substations on the east bank of the St. James Parish. How long would it take for floodwaters to recede so that power could be restored to the parish? Another resident brought up that losing the electrical substation forced St. James Parish Hospital to run on generator power for several days. This was the only hospital open and running for several miles. I became an emergency patient at the hospital during this time. Thank goodness they were able to remain open on generator power.

A few residents spoke on the effect of floodwaters on our high industrial area that includes not only St. James Parish but also St. John, St. Charles and Ascension Parishes. My wife and I, both employees in this industrial sector, know how much time and effort employees of these industries put in to keep them operational or start up after these events. With floodwaters affecting Interstate 10, US Highway 61, state and local highways how are people going to get to their jobsite? How are the local industries going to get back in running order? Not to mention the resources needed to start up these industries will have to be trucked into the area which would be difficult when roads are closed.

There is also the issue of our farmers with their rich soil, sugar cane, soybean and tobacco crops. If floodwaters inundate their farmland, that year's crop is destroyed since the peak of hurricane season coincides with fall harvest, not to mention the long-term affect it would have on the soil. Can you image being a farmer all your life and all of a sudden loosing your past, present and future?

There is an old saying in this area "I will give you the shirt off my back if you need it". In the aftermath of Hurricane Katrina, St. James Parish was the last stop for travelers trying to get back to New Orleans. Our parish residents helped people obtain food and gasoline, gave them a place to rest and provided a means for them to communicate with loved ones. Our shirts came off again following Hurricane Isaac by helping our neighbors, family and friends to sandbag their

homes and stand watch on floodwaters in the towns along the banks of the Mississippi River. I wish we knew how many houses were saved and man-hours spent helping neighbors in need following Hurricane Isaac.

I wish I had a crystal ball and could see if future hurricane floodwaters would affect St. James Parish from the Maurapas swamp all the way to the Mississippi River levee. No one can predict the future but at least we can try to prevent disastrous floodwaters in the future by choosing Alignment D.

One thing not mentioned at the meeting, how tragic it would be if we lose one life to floodwaters because we did not have Alignment D. The United States spends a lot of money in foreign aid to other countries. It would be very disappointing to lose an American's life in this country because of a lack of proper flood protection.

Thank you for your time in attending the meeting and hearing the residents voice their opinions on this topic and for reading this letter. I hope you will reconsider the draft proposal and choose Alignment D to provide full protection to St. John, St. James and Ascension parishes.

Sincerely,

Blane Deroche

Blane Deroche

September 17, 2013

To Whom It May Concern,

I am writing in regards to the building of levees to protect St. John Parish from future flooding. My husband Sean Ory and I have two homes here in LaPlace. Our families have lived here for over 40 years. We are asking for levee protection in the event of flooding. We along with our extended family have so many homes here that need protection. We were lucky that only 2 of the homes in our family were flooded during Hurricane Isaac including the one we lived in on Rienzi Drive. We were smart enough to purchase flood insurance after Hurricane Katrina even though we don't live in a flood zone.

We are praying that the levees get built and built in a timely manner. We cannot afford to pay higher flood insurance. Our homeowner's insurance is high enough along with the large house notes. Since we have 2 homes to pay for and worry about we are even more concerned for our family and our property.

We would also like to express that we feel that the levees should extend to protect St. James Parish as the flood water that we will be blocking will go to them. We feel it is only fair and not that more expensive to include their protection.

Respectfully,

Tina and Sean Ory
Properties:
522 Rienzi Drive
LaPlace, La. 70068
And
1108 Madewood Road
LaPlace, La. 70068

Public Comment from 17 Sept. meeting in Laplace

ST. JOHN THE BAPTIST PARISH ★ LOUISIANA ★

ST. JOHN The Baptist Parish

Felicie "Phyl" Cornman
Exec. Secretary/CRS Coordinator

102 E. Airline Hwy.
LaPlace, Louisiana 70068
Office (985) 651-5565
Direct Line (985) 359-0238
FAX (985) 653-9808
f.cornman@sjbparish.com

PC_9-17-2013_2_Andrea and Adrien Delbasty

'he «Last» Family Home

ıost Isaac floodwaters

:2366 Dr.
'aulina, La.70763

:25-937-4873

September 17, 13

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

To whom I need to convince, ALTERNATIVE D is the only option:

I was born a St. James Parish resident and I would like to stay a St. James Parish resident. My husband and I, along with our two sons, live in Paulina on 3 acres of land since 1985. We live in a beautiful Acadian style home that we built with our own hands from the ground up. We built 11 feet above sea level as an escape the hazards of living in the dangerous fish bowl of New Orleans.

I am writing to convince you that the tentatively selected plan of Alternative C is the wrong plan.

I must start with the card you sent allowing us to make comments. I feel as though you are all focused on the project and its environmental **impacts.** The Federal Government budget seems to be more important than the people of St. James Parish. Your focus seems to be "environmental **impacts.**

"What about the **human impacts**?"

I have worked in Baton Rouge for 25 years, but I will always call St. James Parish home. I would never consider living anywhere else but St. James Parish. I was born and raised here, and my extended family lives here. My sister is my neighbor and my husband's sister lives down the street. We have a family network to consistently depend on. We live in a safe neighborhood with a one of kind support system.

I feel as though **your data you provided for your decision making is incomplete.**

You will never find a more supportive and cohesive community. People in the city don't understand what we have here until they experience it firsthand. When others are in need, we all prevail to assist. During this last flood from the backwash days after Hurricane Isaac, this cohesive community protected it's residents and their homes. They all went over and beyond their call of duty as my home and many homes were threatened by mammoth amounts of back flowing water. People from this community were on their hands and knees working in all aspects to keep steadily rising back water out of our homes. From transporting farm animals to higher ground, to lifting furniture and appliances, to filling and hauling sands where needed, everyone who was available worked around the clock. From children to elderly, everyone had a common goal to provide safety and security to their families and their neighbors. The choice to try to save their home and possessions was made over the choice to abandon their homes and let the federal government pick up the bill. In the end, less insurance claims were filed due to prevention of flooding. My husband and I had to pay nearly **$20,000** out of pocket to repair damage that was not covered by insurance. My husband and I are still in the process of repairing humidity damaged to the floors in our home. We built above the ground and the home was safe from the flood waters, but the prolonged humidity from the retention water cause buckling of all of the wood under the house and hence the flooring in the interior was damaged. Sometimes I feel as though my husband and I were punished for our efforts to keep our home and our community safe.

The economic **impact** needs to also be further investigated. What will the President and America do without the Refineries? If you allow our community to flood, 75% of the parish

works in a refinery. How will they get to work if the area is flooded and how will the employees protect their homes and families? How will these men and woman get these plants up and running if their homes are flooding, their roadways are under water, and their children are unattended because schools are under water? The economic **impact** of Plan C is critical.

Plan D is obviously a better option in providing America and St. James Parish Economic Security.

I am a registered nurse that worked 12 hours shifts for weeks trying to save all of the premature babies in intensive care units from New Orleans during Katrina and again from Lafayette during Rita. I saw more devastating effects from flood waters in one month than I could have dreamed of in a lifetime. Parents were separated from their children because of flood waters. I do not ever want to think that I could be a statistic from flooding. I don't want to ever think that I am putting my life and the lives of my children at risk due to flooding.

You must protect us in St. James Parish with a levee as stated in option D. We deserve to be protected.

Where is "We the People of the United States of America?"

I feel like the Federal Government is more interested in preventing spending and protecting the environment than it is in protecting the American citizens of St. James Parish.

Who cares about a school of fish dying when a school of children will be affected by flood waters!

Who cares about salt water creeping and its effects on the environment when an American family who did the right things in protecting their home and their community gets flooded!

Who cares about the cost of Plan C being less expensive than Plan D when and entire community of American Citizens is wiped off the map from poor choices!

You should care.

You should not choose any other option than to provide St. James Parish with the safety and security they deserve as hard working American citizens.

Option D is the only option for protecting "We the People of St. James Parish!"

With great hope that you will consider Option D,

Andrea & Adrien Delbasty

andrea.delbasty@womans.org

MVD

Date: 09/17/2013

Name: SHEFFARD DEROCHE, JR.
Address: P.O BOX 297, LUTCHER, LA 70071-0297

To: U.S. ARMY CORPS OF ENGINEERS
Address: 441 G STREET NW, WASHINGTON, DC 20314-1000

Dear: MADAM OR SIR,

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Sheffard DeRoche, Jr.

Date: September 18, 2013

Name: Elaine L. St Pierre
Address: 1650 Second St.
Lutcher, LA 70071

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

Dear US Army Corps of Engineers:

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Elaine L. St Pierre

Date: September 18, 2013

Name: Aubrey A. St. Pierre

Address: 1650 Second St.
Luling, LA 70070

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

Dear US Army Corps of Engineers:

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Aubrey St. Pierre

Bonnie L Poche'
3271 LA Hwy 642
Paulina, LA 70763-2406
(225) 869-4783

September 19, 2013

US Army Corps of Engineers, New Orleans District
C/O William Klein
PDN-CEP
PO Box 60267
New Orleans, LA 70160-0267

Mr. William Klein:

As a concerned citizen of St. James Parish, I have reviewed the West Lake Shore Ponchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the US Army Corps of Engineers to evaluate different alignment options.

I am requesting that the US Corps of Engineers re-evaluate its tentative decision of Alignment C and promote the only Alignment (ALIGNMENT D) that will also provide hurricane levee protection to the residents, industries and highways of St. James Parish.

ALIGNMENT D is essential in insuring the safety of families, properties, business and industry. It is also of utmost importance to provide a SAFE HURRICANE EVACUATION ROUTE for lower lying and southern areas of Louisiana, which runs through St. James Parish. Without the protection of ALIGNMENT D, Interstate 10 and US Hwy 61 WILL flood in the event of a hurricane or tropical storm, if Alignment C is chosen. The water simply has no where else to go.

May you be reminded that the Industry of St. James Parish being shut down due to flooding will greatly affect the United States as a whole.

We, as tax paying citizens of St. James Parish also deserve the protection offered to our neighboring parishes.

Thank you for your consideration of this very important matter.

Sincerely,

Bonnie L. Poche'

Bonnie L Poche'

This meeting was a joke and a slap in the face for the residence of St. James Parish. It was a shut us up meeting. It takes no high price educated engineer and a many million dollar study to figure out when you build levies around the low ling areas like New Orleans, St. Charles, and St. John parishes someone else becomes the low ling area. This is surly about the number of votes for the usual corrupt politicians. I guess St. Tammany will get levies next you think you can run but you can't hide. You may get away with it in this life but in the next life you will answer to what you did and also what you did not do.

Name: Edward Guidry Affiliation: Home owner which has never flooded for in a 100 years

Street: 1206 Marquette Dr.

Lutcher La. 70071 Phone: 225-806-5116

guidrye@bellsouth.net

The meeting tonight will provide venues for community members to learn more about the integrated feasibility report and EIS, the draft tentatively selected plan and to provide comments regarding the project and its projected environmental impacts.

Speaker Request/Comment Card

Would you like to speak tonight? **Yes** ☐ **No** ☑

Comments: _____

SEE ATTMENT

Name _____ **Affiliation** _____

Street _____ **Phone** _____

City, St Zip _____ **Fax** _____

E-mail _____

September 26, 2013

To Whom It May Concern:

I have been a resident of St. James parish my entire life. As a wife, mother and grandmother, I am writing to express my concern about the levee protection system. After attending the meeting at Lutcher High School on September 10, 2013, I understand the corp of engineers have tentatively chosen plan C but what I don't understand is how or why. It seems very obvious that if they proceed with the tentatively chosen plan C, they are creating a flood zone for St. James Parish.

It was said in your meeting on September 10, 2013 that after hurricane Isaac, President Obama told the corp of engineers to do something so this does not happen again but did he tell them to proceed with a plan that will endanger another community? Being a resident of this parish for over 60 years, I never seen water like we had after Isaac. The water that was not a result of the storm, rather it was a result of the flooding in St. John Parish and the pumps being used in Ascension parish. This left St. James Parish the target spot.

I'm sure you have heard many stories but here's mine. My daughter and son-in-law have two small children and live on Ricky lane in Paulina. My husband and I stayed with them for hurricane Isaac. Isaac hit land Tuesday evening and lasted through most the night. Wednesday we headed home to access our damage. When we returned to my daughter's house Thursday morning we noticed high water in the ditches nearby and by Thursday evening the water was overflowing the ditches covering part of the road. On Friday we were no longer able to get to my daughter's house as the water was too high. At this point, the water was continuing to rise and they were at risk of flooding. I met my daughter on Hwy 3125 where she brought me her two kids (ages 7 & 2) on a 4 wheeler. I watched as they treaded through water that just about covered the tires of the 4 wheeler. I also observed their neighbor bringing his kids to the Hwy in a pirogue boat. I went to the local fire dept and requested they bring loads of sand to the front of the Hwy 3125 where the community pulled together and began sandbagging. This went on for endless hours. This was very emotional for me as there was nothing more I could do to help them save their beautiful home they worked so hard for. The point I am trying to get across is that St. James Parish needs protection. We need a levee system just like St. John Parish does. If Ascension parish has pumps and St. John parish has levees, where does that leave St. James Parish? What kind of protection do we have?

It is my opinion and the opinion of many others that plan D should be chosen. We are strongly requesting you reconsider and choose plan D. This is the most logical plan that provides protection to all of the parishes.

Sincerely,
Sheila Roussel

Date: 9-29-13

Name: Brendon Ruiz

Address: 3402 Riley St.

Paulina La. 70763

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

Dear US Army Corps of Engineers:

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Brendon Ruiz

Date: September 27 2013

Name: Joel Borne

Address: 2858 Garden Lakes
Paulina LA 70763

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

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As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Joel Borne

Date: 9/30/13

Name: Jessica Ruiz

Address: 3402 Riley St.
Paulina, LA 70763

US Army Corps of Engineers, New Orleans District
c/o Public Affairs
CEMVN-PAO
P.O. Box 60267
New Orleans, LA 70160-0267

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Sincerely,

Date: 9/7/2013

Name: Melody Deroche
Address: 1338 N. Oubre Ave
Paradis, La 70058

To: U.S. Army Engineer District, New Orleans
Address: 7400 Leake Avenue
New Orleans, La 70118

Dear: Sir,

As a concerned citizen of St. James Parish, I have reviewed the West Shore Lake Pontchartrain Louisiana Hurricane and Storm Damage Reduction Study used by the U.S. Army Corps of Engineers to evaluate the different alignment options. Although Alignment C is tentatively chosen, I am requesting your assistance to promote the option of Alignment D. According to the graph released by the U.S. Army Corps of Engineers, Alignment D is the only option that will provide levee hurricane protection to St. James Parish. The overturn of this decision is important in order to insure the safety of families, properties and/or businesses during the event of a hurricane or tropical storm. It is crucial that members of our community as well as our congressional and state representatives and local officials join to work towards the goal of keeping the river region safe. Any assistance or guidance you can provide will be greatly appreciated. Thank you for your consideration of this very important matter.

Sincerely,

Melody Deroche

CONGRESSIONAL CONTROL RECORD

DATE REC'D: October 3, 2013

SUBJECT NAME: Lake Pontchartrain Westshore Hurricane Protection Levee

SUSPENSE DATE: October 11, 2013 **NO: 13-047**

DATE (Letter)**: October 2, 2013** TYPE: LTR

FROM: John A. "Johnny" Berthelot
State Representative of Louisiana
District-88

FILE DESIG: **Congressional**

SUMMARY – State Rep Berthelot's letter has questions/comments regarding the Lake Pontchartrain Westshore Hurricane Protection Levee, RE: Ascension, St. James Parishes

TO: PAR (Wingate/Varisco) DATE: 3 October 2013

COMPLETED:

TO: _____ DATE: _____

LOUISIANA HOUSE OF REPRESENTATIVES

13-047

1024 S. Purpera
Gonzales, LA 70737
Email: berthelotj@legis.la.gov
Phone: 225.647.5646
225.644.7240
Fax: 225.644.7207

Appropriations
Joint Legislative Committee
on the Budget
House and Governmental Affairs
Municipal, Parochial and
Cultural Affairs

JOHN A. "JOHNNY" BERTHELOT
State Representative ~ District 88

October 02, 2013

To whom it may concern:

Please see the brief list of questions/comments Regarding the Lake Pontchartrain Westshore Hurricane Protection Levee:

1. Is Ascension Parish included in the Federal Authorization? If so, what is the name of the bill? If not, do they need to be included, and how will being included affect the choice of alignments?

2. Is it true that for Alignment D that the costs of constructing the levee are counted, but not the benefits?

3. Is it true that for Alignment D that there are no benefits calculated for the protection that would be provided to I10? If not, why?

4. What is the true risk of flooding for Ascension and St. James Parish with no project? How many structures will flood? To what level? Where?

5. What are the adverse impacts to Ascension and St. James with Alignment C? How many structures will flood? To what level? Where?

6. Is it true that that the construction cost difference between Alignment C ($880M) and Alignment D ($890M) is only $10 M? It seems that there would be several LARGE structures that would be required to be constructed (Blind River Crossing and Bayou Conway Crossing) for Align D, so how is it that there is only $10M cost difference?

7. The environmental impacts are substantial for any alignment, but the environment is already significantly impacted by the footprint and restriction of natural water movement by I-10. How can a levee that parallels I10 have that much worse of an impact?

8. Is there to be a structure buy-out and elevation program in St. James and Ascension? How is it determined which structures/areas will be elevated and which will be bought-out? Has the location and number of structures been determined?

Best Regards,

John A. Berthelot

John A. "Johnny" Berthelot
Louisiana House of Representatives
District 88

SD_9-17-2013_4_Gregory A Miller

CONGRESSIONAL CONTROL RECORD

DATE REC'D: September 19, 2013

SUBJECT NAME: West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Feasibility Study

SUSPENSE DATE: September 30, 2013 **NO: 13-044**

DATE (Letter)**: September 17, 2013** TYPE: LTR

FROM: Gregory A. Miller
State Representative of Louisiana
District-56

FILE DESIG: **Congressional**

SUMMARY – State Rep Miller recommends the Alternative D plan for West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Feasibility Study

TO: PAR (Wingate) DATE: 19 September 2013

COMPLETED:

TO: _____ DATE: _____

13-044

LOUISIANA HOUSE OF REPRESENTATIVES

9 Apple Street
P.O. Box 190
Norco, LA 70079
millerg@legis.la.gov
Phone: 985-764-9991
Fax: 985-764-9993

Civil Law and Procedure
Judiciary
House and Governmental Affairs

GREGORY A. MILLER
State Representative ~ District 56

September 17, 2013

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

RE: West Shore Lake Pontchartrain Hurricane
and Storm Damage Risk Reduction Feasibility Study

Dear Colonel Hansen,

I am thankful to you and your staff that forty (40) years after Congress enacted legislation requesting the opportunity to review a Chief's report we finally have an Integrated Draft Feasibility Report and Environmental Impact Statement and which is a vital step in getting hurricane protection for this area. We know and appreciate the hard work that went into this draft report. We appreciate the Corps calling this public meeting to give the people in our communities the opportunity to address their concerns.

Chief among our concerns with the Tentatively Selected Plan (TSP) of Alternative C is that it would not provide adequate protection to all of the communities in the study area, as well as significant parts of Ascension Parish. I am asking that the Corps of Engineers recommend Alternative D, which at a cost of only $10 million more, would address these concerns.

The entire region needs to be protected because of the vital role in the economic security our Country provided by our petrochemical industry, the Port of South Louisiana, U.S. Highway 61 (Airline Highway), Interstate 10, and, most importantly, the people who live in our communities.

Alternative C would leave vulnerable vital routes that are essential for all of the south shore of Lake Pontchartrain and the River Region, including New Orleans, for evacuations, recovery, and supplying our businesses to keep industry operating and our citizens working. The only major highways leading west out of New Orleans would be left unprotected by this plan.

While the people of this area are mindful of environmental concerns, the hardwood swamps have protected the people of this community and served as a buffer from storm surge since our relatives first settled the German Coast almost three hundred years ago, and without any levees, these swamps, and the protection they provide, are disappearing. The best way to preserve these hardwood swamps is to encapsulate these wetlands which will protect them from further degradation as a result of saltwater intrusion.

Among many things that the draft report failed to consider in recommending Alternative C are:

1. Post-2007 events such as the flooding from Hurricane Isaac in 2012;

2. The post-construction effects of an Alternative C alignment on our communities outside of the protected area; and

3. The resulting increased costs of non-structural measures in those communities outside the protected area.

I fully support the locally preferred Alignment D alternative contained in the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study. This alignment would be in the best interest of Ascension Parish, St. James Parish, St. John the Baptist Parish and St. Charles Parish, and the entire region, including New Orleans.

Please strongly consider recommending Alternative D. Our communities want the comprehensive protection and that Alternative D will provide and they have agreed to bear any increased costs of maintaining this alignment. The benefits of having the protection provided by Alternative D will ultimately prove to outweigh any possible increased costs.

Any favorable consideration and support of Alternative D that the U.S. Army Corps of Engineers can give would be greatly appreciated.

Thanking you, I remain,

Sincerely,

GREGORY A. MILLER
STATE REPRESENTATIVE, DISTRICT 56

GAM/dfl

cc: Dr. William P. Klein, Jr.

PROTECTING YOU AND YOUR FAMILY

The Board of Commissioners
OF THE
Pontchartrain Levee District

2204 ALBERT STREET • P.O. BOX 426 • LUTCHER, LA 70071
TEL: 225-869-9721 FAX: 225-869-9723 LA WATTS: 800-523-3148

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DWIGHT D. POIRRIER
SPECIAL COUNSEL

SUSAN M. SHEETS
BOARD SECRETARY

MONICA T. SALINS
EXECUTIVE DIRECTOR

October 4, 2013

VIA EMAIL AND U.S. MAIL:
Colonel Richard L. Hansen
c/o William Klein, PhD
Regional Planning and Environment Division-South
New Orleans District, U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

WSLPAdmin@usace.army.mil;

Dear Colonel Hansen and Dr. Klein:

As Executive Director of the Pontchartrain Levee District, I have reviewed the Integrated Draft Feasibility Report and Environmental Impact Statement for "West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study." I have also listened, carefully, to every comment and every concern of the residents within the parishes of St. Charles, St. John the Baptist, St. James and Ascension at the public meetings on this report and as a result, I offer several comments, observations, suggestions and questions on behalf of the Pontchartrain Levee District:

a. Economic benefits only looked at losses to residential and commercial structures. Therefore, benefits for Alternatives A & C are actually overstated and the benefits for Alternative D are understated-- thus misrepresenting the benefit to cost ratio. The report assumes exactly the same benefits for all alternatives. We know this is not actually correct.

   The non-structural approach does not account for losses to vehicles, farm equipment, livestock, power sub stations, gas pumps, sewerage systems, potable water systems, and other physical items that will not be elevated, cannot be elevated, or able to be evacuated prior to a storm event. What about crops? A surge that recedes quickly might not cause any significant damage to any given crop, but what if water sits and recedes slowly - the crop could be lost. Also, undesired levels of salt could be permanently deposited on the land causing irreversible damage to crop land. Grand

Pointe's Perique tobacco crop would be significantly vulnerable. This was a real occurrence during Hurricane Isaac.

The non-structural approach "assumes" everyone will participate. What if someone doesn't like the idea of moving or having their house raised – they don't get protection? What if the Corps decides their house isn't worth raising? Then what would happen? Are they forced to move? That's not acceptable. Families want to stay living by each other. This type of alternative should ONLY be considered as a last resort if a levee isn't viable. In this case, the cost of construction for Alternative D is only about 1% higher than C. So the adverse social impacts of going with Alternative C over Alternative D are worth 1% in cost. What? At the St. James Public Meeting a representative from the Corps told everyone present that it was the average annual costs that drove the annualized net benefits. In the Economics Appendix D, the annual expenditures for Alternatives A and C have been under estimated. It assumes the non-structural costs will be equally divided over 50 years. Why aren't the structures projected to flood by 2020 not being raised at the same time the levee is constructed. Do we really need to flood homes and businesses before we raise the structure?

b. In the presentation presented at the public meetings there was a slide "Comparing Plans" wherein it referenced "…Annual Cost." If the Operation and Maintenance (O&M) costs are 100% non-federal and the locals fully embrace the responsibility for these costs – why not do a "what-if" scenario of the alternatives with the O&M costs excluded and see how the benefit to cost ratios compare with just construction costs. If that's not a Federal cost, the local sponsor and Parishes are knowledgeable and willing to absorb the O&M costs, then why include it in the selection of alternatives? Just because some regulations say so? That does not mean it is correct or proper. I understand that it is not likely to get a change to the policy governing how this is computed any time soon but, as 50% local sponsor/owner of this study, I request that a "what-if" scenario be included and factored in the report for informative purposes to show how close Alternatives C and D actually are.

c. Page 2-7 talks about an LCA Convent Blind River Diversion (CBRD) project has the potential to locally reduce stress and improve dissolved oxygen (DO) levels, so the report admits to a salinity problem. The levee would do wonders to help that. It also says that the Maurepas Swamp is expected to continue to decline and convert to open water without the project. Why are we being assessed mitigation costs against the project, when the report clearly indicates these wetlands will be lost by 2070 due to subsidence and sea level rise? Wouldn't you think that the protection levee would

help protect the 79 square miles of wetlands? Where is the proof that the wetlands behind the levee will be lost by 2070; why doesn't the project get mitigation credits for saving 79 square miles of wetlands?

d. On page 2-13, I strongly disagree that with no action there would be NO direct impact on community and regional growth. If there is no protection provided, the impact from Biggert Waters Act is going have a MAJOR adverse impact to community and regional growth. The regional growth would come to a screeching halt and then decline. We are not advocating development of wetland areas for community growth, in fact we have offered to purchase private wetlands and put them in public trust, but there are vast agricultural land that could be developed.

e. I disagree completely about the indirect and cumulative damage to wetlands. Interstate 10 already serves as a barrier to the wetlands, as a 'levee.' The culverts underneath do not pass much water, a USACE analysis has indicated this; unfortunately the resource agencies have refused to accept the analysis. The Corps should be counting the benefits for protecting the marsh, not charging for mitigation for damaging it. That does not make sense.

   On page 3-12 it states that "…Alternative D poses potential uncertainties concerning impoundment of large areas of wetlands, especially if the river diversions are constructed. While it would prevent saltwater intrusion, it would risk impacting the hydrology by enclosing approximately 54,800 acres of swamp and would impact the EQ of the Maurepas WMA as well as Blind River…". Where is the evidence that the levees will damage the wetlands? I cannot find the answer within this report. It does not exist. It is the opinion of the environmental types.

   What about where the levees have helped the wetlands? Anyone can see for themselves if they drive down I-310 where the levees have helped along the LP&V, Hurricane Protection Levee, St. Charles Parish polder. The cypress trees are bare and deteriorated near Lake Pontchartrain and the cypress trees are vibrant and healthy along Airline Highway (U.S. Hwy. 61) behind the St. Charles Parish Hurricane Protection Levee. There is your evidence. You can see it on the way to Grand Isle when you cross the levee in Golden Meadow. Look up aerial photos of South Lafourche after Hurricane Rita and you can see open water outside the protection levee and healthy, vibrant, forested wetlands inside the protection levee. Again, this is a bad thing? I have not seen it first hand, but I am told that the same vibrant wetlands exist in St. Bernard Parish and down in Plaquemines Parish.

f. Throughout Section 4 of the report, the direct and indirect impacts of the non-structural approach is played down. There is reference to temporary interruption to service, inconveniences, and possible relocation of services elsewhere. I do not see where the costs associated with these impacts are accounted for in Alternative A and Alternative C. There are definitely costs associated with interruption in service – to both the service provider and the consumer. Reduction in tax revenues and property values is only briefly referenced as though it is an insignificant topic. This section is insulting.

g. The Mississippi River Corridor between New Orleans and Baton Rouge is a major industrial and petro-chemical plant hub for the country. Products from these industries and plants are shipped via pipeline to all parts of the country. Alternative D provides the least impacts to these pipelines compared to Alternatives A and C, 14 pipeline crossings versus 36 versus 70, respectively. We have reviewed the pipeline relocation costs and feel these costs have not been fully evaluated. While the construction cost to relocate the pipelines was included per Engineering Appendix B, the pipeline outage cost and loss of material cost were not included. Those are significant dollar figures to leave out of this study. If AT&T charges $6,000 per minute for lost time on a fiber optic line, what is the cost for 6", 12", 18", 24" and larger pipelines? How many gallons of product will be wasted during the tie-in procedure and what is that cost?

h. If Alternative A or C are constructed, what will be the induced flooding impacts on St. James and Ascension Parishes? I could not find any discussion in the study on this topic except for Real Estate Appendix C. The paragraph stated the induced flooding impacts have not been evaluated to date but will be done in the future. PLD wants to know the incremental induced flooding impact to St. James and Ascension Parishes based upon Alternatives A and C and the cumulative induced flooding impacts to St. James and Ascension Parishes for the entire Lake Pontchartrain and Vicinity Program since the enactment after Hurricane Betsy. The most recent USACE evaluation only considered the pre- and post- Hurricane Katrina induced flooding impacts which does not include any reduction of flooding/storage areas in St. Bernard, Orleans, Jefferson and St. Charles Parishes.

i. PLD does not feel the study has included enough benefits for the protection of the federal and state highway systems in Alternative D. Alternatives A and C leave 15 miles of Interstate 10 unprotected.

We all witnessed, firsthand, during Hurricane Isaac the flooding impacts to Interstate 10, US Highway 61, and LA Highway 3125. The only roadway passable was LA Highway 44 along the Mississippi River levee. Vehicles traveling to New Orleans from Baton Rouge were required to take Interstate 12 to Covington and then south across the Lake Pontchartrain Causeway Bridge. Interstate 55 was closed in Ponchatoula due to floodwaters overtopping the Interstate. The Federal Highway Administration (FHWA) has approved computer models that calculate the amount and cost of delay. We have been told that the USACE does not have an approved model to calculate delay and compute delay costs. I don't understand why a computer model approved by the FHWA, responsible for the entire nation's transportation infrastructure, cannot or has not been approved by another federal agency, USACE. Further, why was the delay cost ignored and not included just because the USACE does not have an official method to calculate the cost. An estimated cost is better than nothing, but unfortunately the study failed to consider that too.

As stated previously, Alternatives A and C leave 15 miles of Interstate 10 unprotected. PLD has been told that since the FHWA does not have an authorized project to raise or elevate that section of highway, the USACE couldn't claim benefits based upon their regulations. Are we all to assume that Interstate 10 is to be abandoned in 2070 when the subsidence and sea level rise overtop the roadway? Improvements to the Interstate system are typically funded by Federal dollars with the Federal funding share between 80% and 90%. It is clearly cheaper to build a levee than significantly raise the roadway or elevate on structure. This is another instance where a USACE regulation seems to run contrary to common sense.

j. In Paragraph 1.3 of the study, there is discussion of the severe impacts of Hurricane Isaac on the Port of South Louisiana. I cannot find any reference in the calculation of benefits for the Port of South Louisiana in the document. Why were they excluded?

k. I could not find any impacts to industry in the document for either St. John the Baptist or St. James Parishes. This is an exceptionally large benefit to the project. From our experience on the LP&V, Hurricane Protection Levee- St. Charles Parish polder, large petrochemical plants incur approximately $5,000,000.00 per day of losses for extended shutdown days beyond a typical three day hurricane shutdown. PLD, through it's consultant, have contacted industries and will forward that information to you once it is received.

l. Based upon the damages to St. John the Baptist and St. James Parish during Hurricane Isaac, has the USACE compared actual losses versus the projected losses outlined in the study to determine the validity of benefit projections?

m. Ascension Parish benefits have been completely ignored. PLD has been told by USACE Council that the parish could not be included since Ascension Parish was not in the authorized study area. When PLD contacted the Louisiana Congressional Delegation to include Ascension Parish in the study area, the New Orleans District requested we not change the study area because it would delay the study two years. Alternative D will provide structural protection to Ascension Parish yet benefits will not be accounted in the benefit to cost ratio but the costs have been included. This is another instance where a USACE regulation seems to run contrary to common sense.

Please place these comments, observations, suggestions and questions into your report, and as 50% owner of this study, I trust that the answers to these questions and ALL of the questions submitted by ALL interested parties from the public meetings, email and U.S. Mail will be provided to this 50% owner, the Pontchartrain Levee District, within thirty (30) days after the close of comment period, on or before November 18, 2013.

Pontchartrain Levee District's partners, St. Charles, St. John the Baptist, St. James and Ascension Parishes, are all in agreement and are in favor of Alignment D. Likewise, Pontchartrain Levee District has been partners with USACE for many years and as a "partner," the Pontchartrain Levee District has confidence to be treated as such - of equal rank, consideration and compromise where and when there are differences.

Very truly yours,

MONICA T. SALINS,
Executive Director

cc: PLD Board of Commissioners
CPRA
St. James Parish President, Timmy Roussel
St. John the Baptist Parish President, Natalie Robottom
Ascension Parish President, Tommy Martinez

THE BOARD OF COMMISSIONERS
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LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
PO Box 94245 | Baton Rouge, LA 70804-9245
ph: 225-379-1232 | fx: 225-379-1863

Bobby Jindal, Governor
Sherri H. LeBas, P.E., Secretary

DOTD Comments on Draft Report for West Shore Lake Pontchartrain Study

It is definitely in DOTD's best interest to strongly encourage Alignment D as compared to the current recommendation from the Corps of selecting Alignment C.

While Alignment C addresses the majority of the flooding issues in the LaPlace area that were experienced during Isaac, it is our opinion that this alignment is short-sighted and will not protect the I-10 corridor west of the Reserve Relief Canal that will be continuously exposed to an ever increasing level of flood risk in future year events due to relative sea level rise. To mitigate the I-10 flood risk for this unprotected area, DOTD will be forced to consider elevating I-10 via grade raising or an elevated bridge section or some combination thereof from the Reserve Relief Canal to the Sorrento Area or beyond unless Alignment D is selected. It is estimated that an elevated bridge section using $100/square foot for an approximate 15 mile section to Sorrento would cost between $700 Million to $1 Billion. Grade raising of the same section of I-10 to an elevation that would avoid future inundation would cost approximately $265M. It is clear that DOTD will incur significant costs in the future to mitigate I-10 flooding that could be avoided by construction of levee Alignment D. Since both roadway and levee improvements involve federal funding, it would seem logical to consider the construction costs of both to determine the most cost effective solution for flood protection of the local community and flood protection to our interstate highway system.

Under current conditions Alignment C would leave 14 miles of I-10 and US 61 pavements from I-10 at US 61 to the Reserve Relief Canal Bridge exposed to repeated and sustained flooding as well as subsequent erosion and base failure with the recession of the floodwaters. Each time an event occurs, funds and manpower would be expended to assess the damage, estimate the cost of repair, construct a repair, and a minimal mitigation for future events as is currently occurring due to Hurricane Isaac. The construction of a levee that would tie into the existing flood protection system of Ascension Parish would protect all of the I-10, the US 61corridor and the railroad that parallels US 61 for this entire length. The additional 10 miles of levee for Alignment D would raise the estimated price from $881 Million to $891 million. Elevating I-10 would be more expensive and not provide any flood protection if an elevated option was chosen, and not the same level of protection if the grade raising option was selected.

Relative sea level rise will only exacerbate the problem. Future improvements to the levee system would be much more easily constructed at a much reduced costs compared to roadway improvements which in turn reduces the long term cost of maintaining an acceptable level of protection for this area.

It is also DOTD's concern to keep I-10 open throughout Louisiana not just in Laplace. I-10 in New Orleans East before the levee and I-10 on the Northshore floods first due to the storm surge coming in from the Rigolets and Chef Pass before reaching Laplace area. Mainline I-10 in these

two areas usually rises above the floodwaters as they recede but some of the intersections have remained flooded for almost as long as Laplace in Isaac. There is also a concern at the beginning of EB Twin span for potential of being washed out or storm debris blockage at this location. Figure 1-3 on pg. 9 of the report shows areas that will flood before Laplace is affected.

If features were connected to existing flood protection and constructed further to the East along the Rigolets and Chef Pass to cutoff the surge before it even gets into Lake Pontchartrain then they would provide a larger benefit to the entire area. It would be approximately the same levee distance through marsh but the cost benefit should be greater considering it would protect all the assets around the lake including the Laplace area, entire Northshore and providing redundant protection for the Southshore. If constructed this would also provide protection to all highway assets for evacuation/reentry purposes throughout the area.

Specific Study Comments

- The Report Study (surge model) seems to have not considered the rainfall intensity and duration. Hurricane Isaac's rainfall duration contributed to the flooding of I-10.

- Sheet No. 8 of Appendix B - Engineering states that all the structures are designed based on a 10-year, 24 hour rainfall. If any of these structures are considered as cross drains, our policy for cross drain design is ADT based (50-year when ADT > 3000, and 25-year when ADT < 3000). The size of the drainage area also determines calculation method (NRCS or USGS).

- Existing drainage patterns must be maintained or addressed and improved with the construction of any levee.

State_10-07-2013_1_Jimmy L Anthony

BOBBY JINDAL
GOVERNOR

State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY

JIMMY L. ANTHONY
ASSISTANT SECRETARY

October 7, 2013

Attn: Dr. William P. Klein, Jr.
U.S. Army Corps of Engineers
Regional Planning and Environment Division South
New Orleans Environmental Branch
CEMVN-PDN-CEP
P. O. Box 60267
New Orleans, LA 70160-0267

RE: *Draft Environmental Impact Statement (EIS) - West Shore Lake Pontchartrain, Hurricane and Storm Damage Risk Reduction*
Notice Date: August 23, 2013

Dear Dr. Klein:

The staff of the Louisiana Department of Wildlife and Fisheries (LDWF) has reviewed the Draft EIS for the West Shore Lake Pontchartrain, Hurricane and Storm Damage Risk Reduction project. The Draft EIS proposes potential solutions to reduce damages from hurricanes and tropical storm surge for residents in St. Charles, St. John the Baptist and St. James Parishes. As a member of the Habitat Evaluation Team (HET), LDWF has worked closely with the U.S. Army Corps of Engineers (USACE) and other resource agencies to provide comments and recommendations throughout the "Smart Planning" process.

In general, given the abbreviated feasibility study period, the implementation of the new "Smart Planning" process and the potential for adverse impacts to hydrology, fisheries productivity, wildlife resources, water quality and wetlands, LDWF believes that the Draft EIS does not adequately address all aspects of the potentially significant long-term, indirect and cumulative impacts to these ecological services. Despite these limitations, LDWF submits the following comments in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) and as the potentially affected landowner of Maurepas Swamp Wildlife Management Area (WMA). We recommend that each of these comments be satisfactorily addressed.

General Hydrologic Comments

Hydrologic information being presented to the HET has been insufficient particularly with respect to flood gate and environmental structure design and operation plans. Information has been provided to the HET in a rapid manner with impractical review and comment deadlines. The cumulative impacts of structural protection to the productivity and sustainability of Maurepas Swamp, Lakes Maurepas and Pontchartrain, and Blind River are difficult to determine. Complicating the matter is the fact that only preliminary modeling efforts have been completed. Of particular concern is the high probability that flood gates and environmental structures will be closed with increased frequency and duration in

the future for salinity control purposes, which strongly suggests increasing fisheries and wetland impacts over time. We suggest that these important design and operation uncertainties be resolved immediately so that reliable predictions of impacts can be determined. Additionally, environmental structures sizing should be contingent upon modeling and identified in the Draft EIS. Furthermore, with the levee in place, pumps and their operation will be significant in maintaining the health of the Maurepas Swamp WMA and Blind River, a Louisiana designated Natural and Scenic River.

General Aquatic Species Comments

Structure operation fisheries effects should include structure closure effects (timing and duration of closure and how this could change with time), open structure effects (changes in flow, concentrating/limiting migration corridors, and reduction in access), and how this could alter local population dynamics of aquatic species at all life stages. The Draft EIS may not have adequately addressed if and how aquatic species will be affected.

While we appreciate all efforts and understand that everyone is operating on a compressed scheduled, we feel that potential impacts should be adequately quantified using Wetland Value Assessment (WVA) methodology prior to the release of the Draft EIS. Any attempt to assess potential impacts to wetland function or fisheries production needs to incorporate the types and number of flood gates and environmental control structures that will be present in the levee design, how these structures will be operated, how these structures could affect wetland hydrology and fish access to and from critical habitats at all life stages, and how these structures could affect the recruitment of commercially and recreationally important aquatic species. While environmental control structures have been mentioned in the Draft EIS to improve hydrologic and fisheries connectivity, it is unclear how aquatic organisms respond to/use these structures or if natural organism movement through these structures occurs. Furthermore, it should not be assumed that the mere presence of these structures is comparable to natural conditions and removes the possibility of negative impacts to the wetlands.

Compatibility w/ Planned Restoration Projects

Throughout the process, it has been mentioned that other local, state, and federal wetland restoration projects in the area will reduce the impacts of salt water intrusion, and that the levee itself is a form of wetland restoration. The potential benefit that a levee would have on wetland habitat would be preventing wetland loss on the inside through erosion and scour during storm surge events. However, these sporadic storm event benefits might be contradicted by long-term wetland degradation resulting from levee hydrologic interference. It would be more appropriate to discuss the other local, state, and federal wetland restoration projects (i.e., Convent to Blind River, Hope Canal Diversions, etc.), their interaction with the levee, and ecosystem response in a separate section; and to clarify that these restoration projects are not part of the levee plan, although they should be incorporated. Provided that restoration projects include freshwater introductions, how these projects would influence structure operation (closure time and duration) should be considered. Given that these state/federal coastal restoration projects are recommended as restoration for the Maurepas Swamp, we believe these restoration projects deserve more discussion in the Draft EIS. These separate local, state, and federal restoration projects are better suited to address the described coastal land loss issues than levee construction, where as with levee construction the primary goal is infrastructure protection. We also recommend further detailed discussion on how the presence of a levee could negatively impact the effectiveness of these restoration projects inside and outside of the levee (un-natural hydrologic/marsh flooding regimes, formation of stagnant/low circulation areas, high flow areas around structures increasing erosion rates, etc).

Specific Comments on Draft EIS

Page 3-12, Alternative D; Page 4-22, Alternative D; Page 6-4, Section 6.16 Wild and Scenic River Act of 1968 (Rivers). Blind River is a "Natural and Scenic River," not a "Wild and Scenic River." The legislation that established the Natural and Scenic Rivers System is referred to as the "Louisiana Scenic Rivers Act" (R.S. 56:1840-1856) not the "Wild and Scenic River Act."

Pages 4-15 and 4-17, Multiple Sections. *"However, preliminary hydrologic modeling indicates that the project design would have minimal changes to flows or stages on either the protected or unprotected sides."* This part of the document needs clarification on affects both inside and outside the system, including detailed information on how the water moves in and out of the system and locations of all rivers, bayous, streams, etc. that would be impaired. Providing a visual aid in the document may assist in planning and analysis. We would recommend such a statement be removed until further detailed analysis and modeling can be done and agreed upon by the HET.

Page 4-18, Section 4.3.5 Essential Fish Habitat, Alternative C. *"Closure of the levee system during hurricane/tropical storm surge events would reduce minor salt water intrusion into wetland habitats in the proposed levee system. This could provide some reduction of the potential ecological stresses associated with saltwater intrusion and could also help reduce the conversion of existing forested wetlands and swamps to marsh and open water habitats (EFH)."* Similarly, diversions could reduce salt water intrusion. Clarification is needed here to give rise to an understanding that the sole purpose of the levee is to protect life and property not to prevent salt water intrusion into wetlands; the claim that the levee system protects the wetlands is somewhat debatable. We caution making assumptions that the levee would ease wetland loss, while although there are signs of degradation, proven restoration techniques would benefit the system naturally and still maintain the storm surge buffer. It is stated in the Draft EIS that hydrologic and fisheries impacts will be minimal because salinity modeling shows little change. Salinity models do not take into account major hydrologic and ecological characteristics such as marsh flooding frequency, increasing flow velocities, and aquatic organism access reductions that can have substantial impacts on wetland and fisheries productivity and would differ inside and outside of the proposed levee. Furthermore, discussions in this section and others may be warranted regarding potential changes in velocities as a result of gates and/or environmental structures and its effects on aquatic species passage.

Page 4-18, Section 4.3.5 Essential Fish Habitat, Alternative D. This section discusses inclusion of a water control gate on Blind River, a designated Natural and Scenic River. It is mentioned that this structure may have impacts; however, there is a lack of discussion in the aquatic resources section especially with respect to fish passage through various structures or the above mentioned increased velocities. Furthermore, increased feeding opportunities at structures on bait fish could augment the natural processes. Discussions, in this section and others, may be warranted regarding potential changes in velocities as a result of gates and/or environmental structures and its effects on aquatic species passage.

Economics, Appendix D. Discussion, in this section or another, may be warranted regarding potential loss of recreational and commercial hunting, fishing, and boating opportunities and associated economic impacts as result of the proposed levee construction. This issue does not appear to be adequately addressed in the Draft EIS, especially with respect to frequency of closures. Also, the document did not seem to address navigation impacts and the possibility of boats being trapped outside the system during storm events, subsequent closures and those economic impacts.

Maurepas Swamp WMA

In the past year LDWF estimates that there were 22,673 Maurepas Swamp WMA users. Many of these users utilize small waterways to access the WMA. There are also private inholdings and these owners rely on water access. If water control structures are only provided at Blind River, Mississippi Bayou and Reserve, Hope and Conway canals, user access will certainly be disrupted.

The loss of recreational access areas on and to the WMA, including Hope Canal Road, Hope Canal boat launch, and Reserve Canal launch, should be avoided, as access is already a limiting factor on the WMA. If impacts to these important public access areas are not avoidable, alternative public access (i.e., roads and launches) should be planned for. Alternative access shall be determined only after close coordination with LDWF and other stakeholders, and shall be incorporated into the project design.

Blind River - Natural and Scenic River

Cross-Sections that have been provided to LDWF from other applicants depict Blind River, from top-bank to top-bank, to be approximately 300 feet wide at I-10. LDWF is concerned that the proposed 40-foot wide, 20-foot deep structure is inadequate to maintain current stream flow patterns without adversely affecting hydrology (i.e., tidal flows, periodic/seasonal high flows, and depth, duration and frequency of floodplain flooding). Should Alternative D be selected, detailed analysis/modeling would need to be provided that demonstrates that the existing shoreline of Blind River is not altered by levee and gate construction. **Reservoir construction is prohibited** by the Louisiana Scenic Rivers Act (R.S. 56:1853). Reservoir construction is defined in the Act as "any permanent dam or impoundment which **alters the shoreline** of a natural and scenic river" (R.S. 56:1842).

Compensatory Mitigation

The proposed levee project will result in the direct loss of forested wetlands within the Maurepas Swamp. Currently, elimination of nutrient and freshwater inputs threatens the sustainability of these forested wetland systems. LDWF believes that the most effective strategy to restore health and productivity of the Maurepas Swamp is construction of Mississippi River reintroductions into the Swamp. However, additional measures such as eliminating barriers to surface flow patterns are also needed, not only to compliment the planned river reintroductions, but also to improve current hydrologic conditions. Therefore, LDWF recommends that mitigation measures aim to enhance or improve surface hydrology, such as gapping and degrading spoil banks and other artificial impediments to sheet flow. Also, collecting available wastewater and/or stormwater from surrounding communities and distributing it through the swamp could be an additional mitigation measure.

In order to be considered adequate, the compensatory mitigation must reflect on short and long-term direct and indirect impacts to wetland and fisheries production, which at this time is not present in the Draft EIS. Any mitigation plan should include long-term monitoring and be adaptive in nature to account for unforeseen future impacts. Furthermore, mitigation should be financially assured and proposed to be concurrent with levee construction. It's recommended to also include a long-term fisheries monitoring plan to determine if substantial fisheries impacts are occurring from levee construction and once completed, floodgate and environmental structure operation. We look forward to continued work with USACE and resource agencies to insure that adequate and appropriate mitigation is determined and a plan included in the final EIS.

Bird Nesting Colonies

Our LNHP database indicates the presence of bird nesting colonies within one mile of the western end of Alignment D. Please be aware that **entry into or disturbance of active breeding colonies is**

prohibited by LDWF. In addition, LDWF prohibits work within a certain radius of an active nesting colony.

Nesting colonies can move from year to year and no current information is available on the status of these colonies. If work for the proposed project will commence during the nesting season, conduct a field visit to the worksite to look for evidence of nesting colonies. This field visit should take place no more than two weeks before the project begins. If no nesting colonies are found within 400 meters of the proposed project, no further consultation with LDWF will be necessary. If active nesting colonies are found within the previously stated distances of the proposed project, further consultation with LDWF will be required.

To minimize disturbance to colonial nesting birds, the following restrictions on activity should be observed:

- For colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, roseate spoonbills, anhingas, and/or cormorants), all project activity occurring within 300 meters of an active nesting colony should be restricted to the non-nesting period (i.e., September 1 through February 15).
- For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters of an active nesting colony should be restricted to the non-nesting period (i.e., September 16 through April 1).

Manatees

Manatees (*Trichechus manatus*) are known to occur in the surrounding water bodies of Alignment D. Manatees are large mammals inhabiting both fresh and salt water. Although most manatees are year round residents of Florida or Central America, they have been known to migrate to areas along the Atlantic and Gulf Coast during the summer months. Manatees are an endangered species protected under the Endangered Species Act of 1973 and the Federal Marine Mammal Protection Act of 1972. In Louisiana, taking or harassment of the manatee is a violation of state and federal laws. Critical habitat for manatees includes marine submergent vascular vegetation (sea-grass beds). Areas with sea-grass beds should be avoided during project activities if possible.

General Conclusions

Finally, the Department understands that work thus far has been preliminary; however, we have concerns that some aspects of ecological impacts will be overlooked with the implementation of "Smart Planning." Additionally, we understand that there has been local support for Alignment D. While we understand why there is local support for Alignment D, as a resource agency we support the Tentatively Selected Plan (i.e., Alignment C) because it is one of the least environmentally damaging alignments. However, by limiting selection to only three alternatives, opportunity to further reduce impacts is lost. For example, Alignment D is purported to provide protection to I-10. However, elevating more sections of I-10 would also provide a secure evacuation route. Another example would be construction of ring levees around the communities located outside of Alignments A and C or extending levee Alignments A and C westward along U.S. Hwy 61 to encircle additional communities such as Lutcher and Gramercy. These types of alternatives could assist with avoiding impacts to the Maurepas Swamp and Blind River which play an important role in the livelihood of many recreational and commercial users while at the same time extending levee protection to other communities.

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 Kyle Balkum at 225-765-2819 should you need further assistance.

Sincerely,

Jimmy L. Anthony
Assistant Secretary

c: CPRA, Baton Rouge, LA
LDNR, OCM, Baton Rouge, LA
EPA, Dallas, TX
USFWS, Lafayette, LA

BOBBY JINDAL
GOVERNOR

State of Louisiana

OFFICE OF THE GOVERNOR

Post Office Box 94004
Baton Rouge, LA 70804-9004

October 25, 2013

Dr. William Klein
Regional Planning and Environmental Division - South
U.S. Army Corps of Engineers, New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Dr. Klein,

In accordance with La. R.S. 49:214.3.1(B)(1)(c) and (d), the State of Louisiana hereby submits the following comments on the "West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study – Integrated Draft Feasibility Report and Environmental Impact Statement" released on August 23, 2013, which represent the official state position on this study and are consistent with those of the Coastal Protection and Restoration Authority (CPRA). As is consistent with the referenced statutes, the provisions of this letter shall supersede any inconsistent comments submitted by the state.

First, the state would like to commend the U.S. Army Corps of Engineers (USACE) for its commitment to the "West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study." While the study was authorized by resolutions of the U.S. House of Representatives Committee on Public Works in 1971 and the U.S. Senate Committee on Public Works in 1974, the recent commitments of Col. Ed Fleming and Col. Richard Hansen resulted in the expedited completion of this report. The state would also like to commend your work and that of Jeff Varisco in managing this work. We appreciate your recognition of the importance of the West Shore project.

The state recognizes the need for hurricane and storm damage risk reduction for the four parish area of St. Charles, St. John the Baptist, St. James, and Ascension Parishes. As such, we identified a proposed levee alignment similar to Alignment D in our 2012 Coastal Master Plan. After a preliminary review of the draft report that recommends Alternative C as the tentatively selected plan (TSP), we offer the following comments.

- The report states that Alternative D is estimated to enclose more wetland acres (56,228 acres) than Alternative C (8,424 acres) and therefore assumes greater negative impacts to wetlands. However, the report does not identify what the indirect negative environmental impacts will be to the wetlands and how those impacts may be calculated. The report appears to apply differing standards to wetlands under Alternative C than when considering Alternative D. Specifically, the report documents that Alternative C "would

provide for the protection of protected side wetlands, potentially extending their lifespan and their water quality functions." However, the potential added value of protecting more wetland acreage is not disclosed for Alternative D. The report should clearly describe the methodology used to assess levee impacts and benefits to wetlands and be consistent in that methodology for each proposed alignment.

- Although the report provides an outline of the area receiving non-structural measures as part of Alternative C, the report should include a detailed list of businesses and residences being elevated and the associated costs for each. Businesses such as Colonial Sugar, Rain CII, Noranda Alumina, Petrologistics, Nalco, Nucor, OxyChem, Methanex Shell Geismar, Shell Convent, and Impala, to name a few, do not appear to be included in the non-structural measures component of Alternative C. The report should document why such businesses are not included if that is the case and how the economic and disruption consequences of such exclusions are quantified. The report should also include an induced flooding analysis to document how the non-structural measures area was derived and what the impacts will be to all areas not included in the non-structural measures as part of Alternative C.

- As noted in comments submitted by the Louisiana Department of Transportation and Development, the lack of hurricane and storm damage risk reduction for US-61 and portions of I-10 are significant. As witnessed during recent hurricanes, these roads are major hurricane evacuation and recovery routes for south Louisiana. The report should consider the economic impacts to commerce in Louisiana and the Nation if such routes are flooded with Alternative C, as seen during Hurricane Isaac. The report should also consider the incremental economic difference in emergency response and recovery costs if such routes are flooded (i.e. flying versus driving).

- The final report should fully document the deterioration of culture and of community cohesion due to Alternative C with respect to elevating some residences, businesses, and public facilities but not others and how this alternative would affect future population projections, employment opportunities and economic activity. The report should also document the negative impacts to communities due to ingress and egress limitations that would be exacerbated with Alternative C.

- The report should disclose the quantification of economic impacts to Louisiana and the Nation of Alternative C to business and industry shut-downs due to induced flooding of these businesses and induced flooding of secondary roads resulting in staffing deficiencies as compared to Alternative D. An induced flooding evaluation for the entire four parish project area should be included in the report to document water levels and water flows under Alternatives C and D so that economic impacts can be properly evaluated prior to the selection of a TSP.

- Finally, Appendix A, Table 2 and Section 3.4 of the report should include the U.S. Fish and Wildlife Service (USFWS) alternatives as proposed in its October 9, 2012 letter and describe why those alternatives were screened out. In addition, any information available

to date for the USFWS alternatives with respect to costs, benefits, and impacts should be included in the report to further document why those alternatives were not considered for further analysis.

The 2012 State of Louisiana Comprehensive Master Plan for a Sustainable Coast recommended an alignment most similar to Alternative D in the draft feasibility report. This master plan was unanimously approved by the Louisiana Legislature. Although Alternative D was not selected, the state recognizes that Alternative C does include a portion of the Master Plan alignment from the Bonnet Carré Spillway to the crossing at Interstate 10 and supports moving forward with this portion of the proposed Alternative C as an interim step. However, we also support protection measures to the west of Alternative C and would like the opportunity to investigate solutions for inclusion of these measures. Accordingly, we request that the USACE include documentation of benefits and impacts in the report for alternatives proposed to the west of Alternative C (e.g., the USFWS proposed Alignment C-1a and C-1b, as noted in St. James Parish's October 2, 2013 correspondence) that provide similar levels of protection as Alternative D. Based on the information provided by stakeholders and comments received during the public meetings, we also request a reevaluation of the cost-benefit ratios calculated for Alternatives C, D, C-1a, and C-1b.

Our common priority here is addressing the unacceptable vulnerability in the West Shore scope area. The state, through the CPRA, remains committed to this project and to working with the Pontchartrain Levee District as co-non-Federal sponsors to provide a Letter of Intent for the project in the future. The state strongly believes hurricane and storm damage risk reduction is needed for St. Charles, St. John the Baptist, St. James, and Ascension Parishes and continues to support the project and believes that we can work with the USACE to ensure the best alternative is selected.

Sincerely,

Garret Graves,
Executive Assistant to the Governor for Coastal Activities

cc: Secretary Sherri Lebas, Louisiana Department of Transportation and Development
Secretary Robert Barham, Louisiana Department of Wildlife and Fisheries
Asst. Secretary Jimmy Anthony, Louisiana Department of Wildlife and Fisheries
Administrator Chris Knotts, Public Works and Water Resources Division, Louisiana Department of Transportation and Development

State_7-26-2013_5_Cleve Hardman

JAY DARDENNE
LIEUTENANT GOVERNOR

State of Louisiana

OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF STATE PARKS

CHARLES R. DAVIS
DEPUTY SECRETARY

STUART JOHNSON, PH.D.
ASSISTANT SECRETARY

August 26, 2013

Dr. William P. Klein, Jr.
U.S. Army Corps of Engineers
Regional Planning and Environment Div. South
New Orleans Environmental Branch
ECMVN-PDN-CEP
P.O. Box 60267
New Orleans, LA 70160-0267

Re: West Shore-Lake Pontchartrain Draft Environmental Impact Statement

Dear Dr. Klein,

I am in receipt of your draft environmental impact statement (EIS) for the West Shore-Lake Pontchartrain Hurricane and Storm Damage Risk Reduction. The Division of Outdoor Recreation administers the Land and Water Conservation Fund (LWCF) for Louisiana.

Our staff has identified seven LWCF-assisted sites within the project study area, one in St. John the Baptist Parish, six in St. James Parish and none in St. Charles Parish. Those sites are identified in the enclosed document along with GPS coordinates of each site. Our review of the draft EIS indicates none of the existing LWCF-assisted sites within the project study area would be impacted by any of the alternative plans. Indeed these sites are currently at risk unless action is undertaken to address the risk of hurricane and storm damage in this region.

We stand ready to assist in any means possible toward realization of these efforts.

Sincerely,

Cleve Hardman
Director of Outdoor Recreation

Enclosure

LWCF-Assisted Sites Within Project Study Area

Project Number	Project Name	Latitude (N)	Longitude (W)
22-00447	St. John Parish Park (East Bank)	30.07979	-90.5691
22-00451	Lutcher Park	30.050278	-90.702778
22-00473	Gramercy Park "B"	30.05465	-90.68499
22-00475	Gramercy Park "A"	30.054444	-90.691944
22-00495	Blind River Boat Ramp	30.101944	-90.735833
22-00525	Lutcher Hi Ball Park	30.0505	-90.6969
22-00828	Lutcher Park	30.050278	-90.702778

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED DRAFT FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex R

Wetland Value Assessment

Certification letter, Assumption and Spread Sheets

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

CECW-P

8 November 2011

MEMORANDUM FOR Director, National Ecosystem Restoration Planning Center of Expertise (ECO-PCX)

SUBJECT: Wetland Value Assessment (WVA) Models – Barrier Headland, Barrier Island, Bottomland Hardwood, Coastal Chenier, and Swamp Models - Model Approval.

1. The HQUSACE Model Certification Panel has reviewed the externally-developed WVA in accordance with EC 1105-2-412 and has determined that the Barrier Headland, Barrier Island, Bottomland Hardwood, Coastal Chenier, and Swamp Models and their accompanying documentation are sufficient to approve the models for regional use. The WVA models were developed by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Environmental Work Group, an interagency team including US Fish and Wildlife Service, National Marine Fisheries Services, US Environmental Protection Agency, Natural Resources Conservation Service, USACE, and Louisiana Office of Coastal Protection and Restoration.

2. The models were initially developed in the 1990s and have been periodically revised and updated by the CWPPRA Environmental Work Group which is led by the US Fish and Wildlife Service. Models developed by non-Federal government entities, NGOs, or academic institutions which are proposed as part of a Corps planning study can be approved for use based on an assessment of the proponent's documentation demonstrating that the model satisfies the certification criteria.

3. Battelle Memorial Institute conducted an independent review of the procedural manual, community models and associated spreadsheets to assess the technical quality and usability of the model. A number of high significance concerns with the documentation of the model were raised. Further coordination with the ECO-PCX clarified that the ECO-PCX had conducted a detailed review of the model documentation and model spreadsheets to evaluate the degree to which revisions were made based on the model review comments and responses. Adequate technical reviews have been accomplished. This approval is based on the decision of the HQUSACE Model Certification Panel which considered the ECO-PCX assessments of the models.

APPLICABILITY: This approval for use is limited to applicable projects in coastal Louisiana and eastern Texas..

HARRY E. KITCH, P.E.
Deputy Chief, Planning and Policy Division
Directorate of Civil Works

West Shore Lake Pontchartrain
Methodology and Assumptions for Determining Environmental Benefits

Early Habitat Assessment applied to Final Array

To expedite the planning process prior to release of the Draft Integrated Report, and be consistent with the new Corps SMART Planning Procedures, impacts were preliminarily determined utilizing existing information about the project area from the Coastwide Reference Monitoring System (CRMS) as a surrogate for habitat quality. Feasibility-level habitat analysis using Wetland Value Assessment (WVA) methodology should be conducted on the TSP, per the SMART Planning procedures, following release of the draft Integrated EIS and Feasibility Report for public review and be included in the final Integrated EIS and Feasibility Report.

The following information is taken from the CRMS Site Level Report Cards for sites CRMS0059 (Reserve), CRMS5373 (Hope), CRMS0039, CRMS5167, and CRMS0065 (Louisiana Office of Coastal Protection and Restoration, 2013) and was used for assessment of wetland impacts.

The CRMS Site Level Report Card presents two ecological parameters that have been developed: a floristic quality index (FQI) and hydrologic index (HI). CRMS Analytical Teams, made up of agency and academic personnel, developed these indices, and others, based on the suite of parameters available from the 2006 to 2009 CRMS dataset. The FQI is used throughout the world to determine wetland quality based on plant species composition for a geographic area of interest. The FQI developed with the CRMS data is specific to coastal Louisiana. The FQI scores from 0 to 100 are calculated for a sampling station and are based on the percent cover values and the Coefficient of Conservatism (CC score) of the species present (Cretini et al. 2012). The HI jointly assesses the suitability of two critical aspects of wetland hydrology, average salinity and percent time flooded, in maximizing vegetation primary productivity. The HI score (between 0 and 100) corresponds to the percent of maximum vegetation productivity expected to occur if the separate effects of salinity and inundation interact in a multiplicative fashion on vegetation productivity (Snedden and Swenson 2012).

Based on the CRMS locations in proximity of each alignment we used a combination of site CRMS0059 (Reserve) and CRMS5373 (Hope) for Alternatives A and C and all five sites for Alternative D. We averaged the FQI for the years 2007-2012 of each set of sites by alternative, then converted the index number into a value from 0.1 to 1.0 and then did the same for the HI for years 2008-2012. Unfortunately the HI was unavailable for sites CRMS0059 (Reserve) and CRMS0065 because those sites did not meet salinity and/or water level data completeness threshold (70% per water year) in order to calculate an HI score. In that case the HI for Alternatives A and C were averaged only with CRMS0059 (Reserve) for years 2008-2012. Next we averaged the FQI and HI numbers to obtain a single value to represent the habitat quality for

each alternative. It should be noted that the FQI is calculated on the herbaceous vegetation. The CRMS Analytical Teams have developed a Forested FQI but it is still undergoing peer review. Though the forested FQI would have been a better indication of habitat quality, we feel the herbaceous FQI will still be useful in the intent of this comparison. The results of this analysis are presented in Table 1**.** Alternative C (TSP) and Alternative A have the same average FQI and HI, which was greater than Alternative D.

Table 1. Hydro Index (HI) and Floristic Quality Index (FQI) Converted to Values Between 0.1-1.0 and Averaged for each Alternative in the Final Alternative Array. Taken from Coastwide Reference Monitoring System (CRMS) Site Level Report Cards for sites CRMS0059 **(Reserve)**, CRMS5373**(Hope)**, CRMS0039, CRMS5167, and CRMS0065 (Louisiana Office of Coastal Protection and Restoration, 2013).

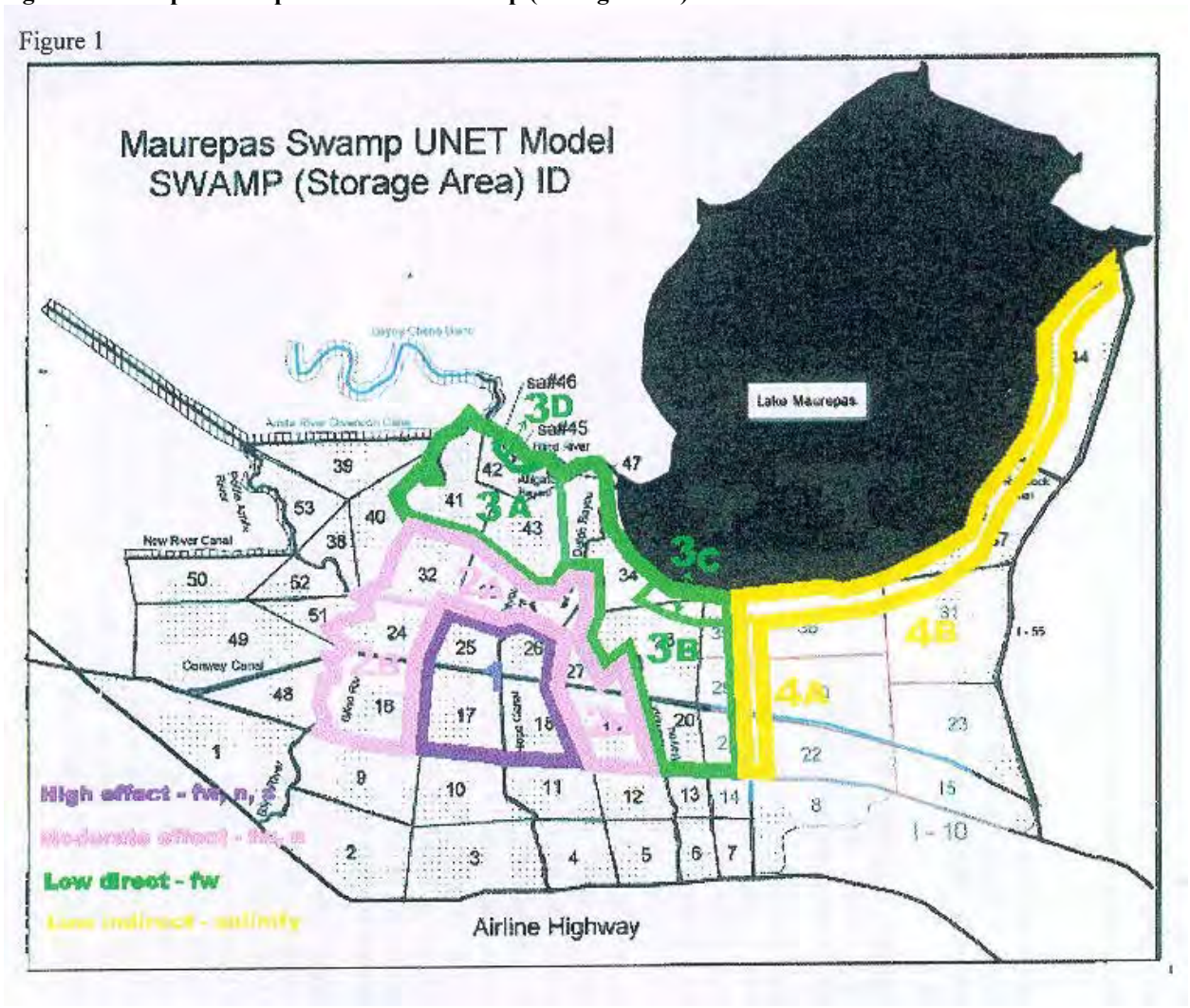
Alternative	Hydro Index (HI)	Floristic Quality Index (FQI)	Average of HI + FQI
Alternative A and C	0.864	0.197859	0.53093
Alternative D	0.769285714	0.184509	0.476898

Although this simplified approach is not ideal for assessing habitat quality, given the shortened study schedule and limitation on data gathering we felt this data driven approach is better than any other option explored. Once the TSP was selected the habitat evaluation team (HET) conducted full WVA analysis on the TSP.

Comparison to other projects

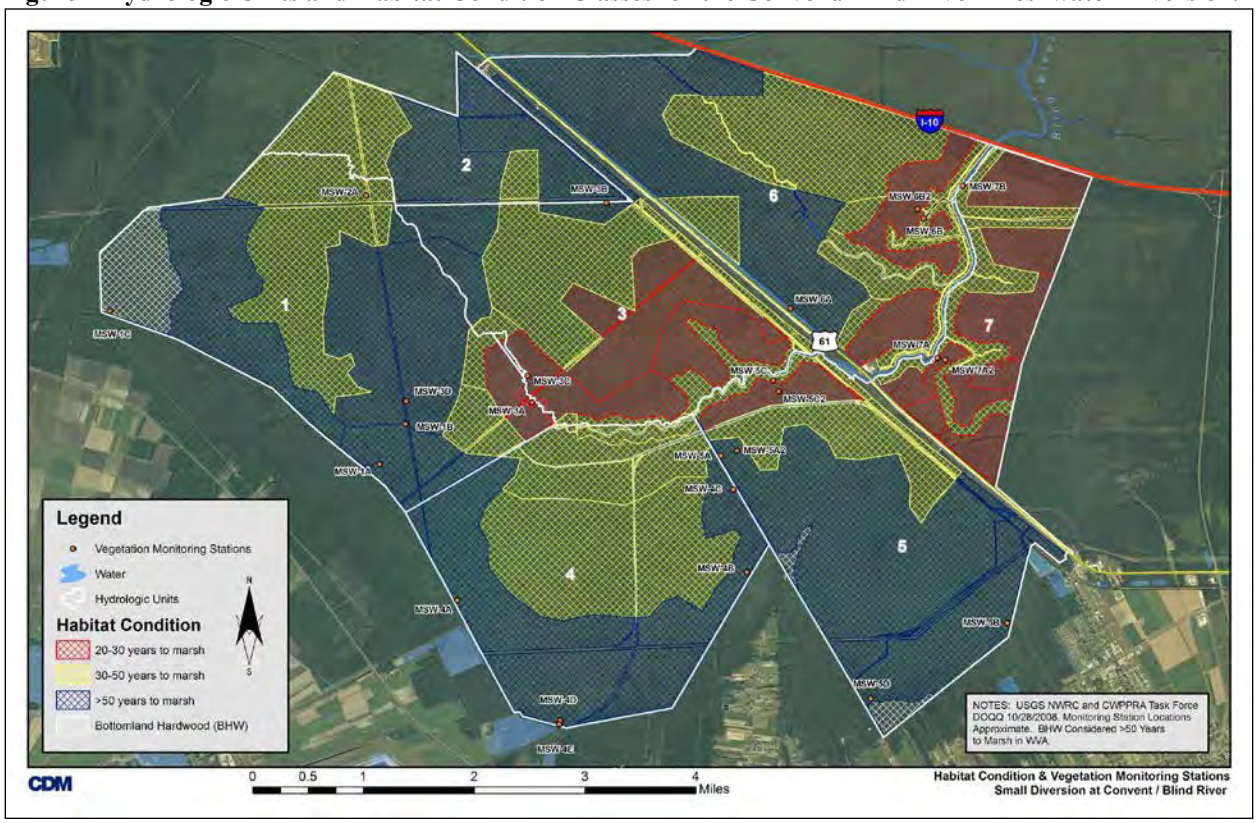
To further compare the numbers developed through the CRMS station HI and FQI with other nearby projects we looked at the following projects. These projects use HSI to represent habitat quality. HSIs are different from the CRMS HI and FQI in that the HSI look at several variables important for that habitat type, but both approaches try to indicate the quality of habitat.

Figure 1 Maurepas swamp UNET Model swamp (Storage Area) ID



From May 2001 Maurepas WVA North portion of the WSLP but within the project area
HSI for TY0.
Area 1 (purple): 0.57
Area 2A (pink): 0.47
Area 2B (pink): 0.44

Figure 2 Hydrologic Units and Habitat Condition Classes for the Convent/Blind River Freshwater Diversion.



Convent/Blind River WVA Moderate SLR located west portion of the WSLP.
HSI for TY0 of Alternative 2 (TSP) were:
20-30 years to swamp converts to marsh (red): 0.34
30-50yers swamp to marsh (yellow): 0.73
Greater than 50 years swamp to marsh (blue): 0.67

WETLAND VALUE ASSESSMENT MODEL

The Wetland Value Assessment (WVA) model, was developed under the Coastal Wetlands Planning, Protection, and Restoration program to determine benefits of proposed coastal wetland restoration projects. The 2011 version was used to assess direct and indirect impacts for project features proposed under Alignment C of this project. Further information on this model may be obtained from the U.S. Fish and Wildlife Service's Lafayette Louisiana Ecological Services Field Office (Phone: 337-291-3101).

The WVA is similar to the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures (HEP), in that habitat quality and quantity are measured for baseline conditions and predicted for future without-project and future with-project conditions. Separate models were used for cypress-tupelo swamp and Bottomland Hardwood. Instead of the species-based approach of

HEP, each WVA model utilizes an assemblage of variables considered important to the suitability of that habitat type for supporting a diversity of fish and wildlife species. As with HEP, the WVA allows a numeric comparison of each future condition and provides a quantitative estimate of project-related impacts to fish and wildlife resources.

The WVA models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated and expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of: 1) a list of variables that are considered important in characterizing fish and wildlife habitat; 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and 3) a mathematical formula that combines the Suitability Indices for each variable into a single value for wetland habitat quality, termed the Habitat Suitability Index (HSI). The WVA models assess the suitability of each habitat type for providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. This standardized, multi-species, habitat-based methodology facilitates the assessment of project-induced impacts on fish and wildlife resources.

HSI values are determined for each target year (TY). Target years, determined by the model user, represent significant changes in habitat quality or quantity were expected during the 50-year project life, under future with-project and future without-project conditions. In this study, target years of 0, 1, and 50 are evaluated for both future with project (FWP) and future without project (FWOP).

The product of an HSI value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU). The HU is the basic unit for measuring project effects on fish and wildlife habitat. Future HUs change according to changes in habitat quality and/or quantity. Results 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 each future with-project scenario, compared to future without-project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the habitat being evaluated; a net loss of AAHUs indicates that the project is damaging to that habitat type. In determining future with-project conditions, all project-related direct (construction) impacts were assumed to occur in Target Year 1.

The WVA model for swamp consists four variables: 1) stand structure; 2) stand maturity; 3) water regime; and 4) mean high salinity during the growing season. The WVA model for BLH consists of seven variables: 1) tree species composition; 2) stand maturity; 3) understory/midstory; 4) hydrology; 5) size of contiguous forested area; 6) suitability and traversability of surrounding land uses; and 7) disturbance. Changes in each variable are predicted for future without-project and future with-project scenarios over a 50-year project life.

Given the tight feasibility study schedule, the Wetland Value Assessment (WVA) methodology was selected as the most appropriate for determining project benefits. Described below are the assumptions used to determine those swamp and BLH baseline, FWOP, and FWP projections for the proposed project area.

GENERAL ASSUMPTIONS

- Period of analysis is from 2020 (TY0) to 2070 (TY50).
- TY0 is baseline.
- Environmental modeling looked at direct and indirect impacts of Alignment C to 50 years.
- The latest (2011) version of Swamp and BLH WVAs were used for the impacts analysis.
- In accordance with the Corps EC-1165-2-212, RSLR was determined using the Lake Pontchartrain at West End USGS Gauge (gage number 85625) to determine base and future subsidence and sea level rise (SLR) levels and Relative SLR (RSLR).

Table 2. Relative sea level rise in the West Shore Lake Pontchartrain project area.

Year and SLR Scenario	SLR (NAVD88 feet)	RSLR (NAVD88 feet)
2020 Low SLR	0.06	0.30
2020 Intermediate SLR	0.10	0.34
2020 High SLR	0.23	0.47
2070 Low SLR	0.33	1.81
2070 Intermediate SLR	0.85	2.32
2070 High SLR	2.47	3.95

- The future without conditions from LCA Convent Blind river assumed no net vertical accretion. We assume the same since the WSLP is adjacent to the LCA Convet Blind River area. From the LCA Convent Blind River Feasibility Study – Page 5-35 Existing conditions would persist, including no net vertical accretion of soil deposition and continued subsidence over the 50-year period of analysis.
- Target Years for both FWOP and FWP include TY0, TY1, and TY50.
- The WSLP levee could create a financial incentive to develop in enclosed areas, including wetlands. Recent significant changes in the Federal flood insurance program (stemming from passage of the Biggert-Waters Flood Insurance Reform Act) will likely have the effect of establishing dramatically lower flood insurance rates in areas within 100-year or 1% levee systems relative to those without. This could create a significant financial incentive for development in protected areas, particularly as lower lying and less protected communities migrate to safer locations (as occurred after Katrina, particularly in St. Bernard Parish). Though induced development may occur we assume it does not for the purpose of this evaluation.

Data Collected from Site Visits and CRMS Stations

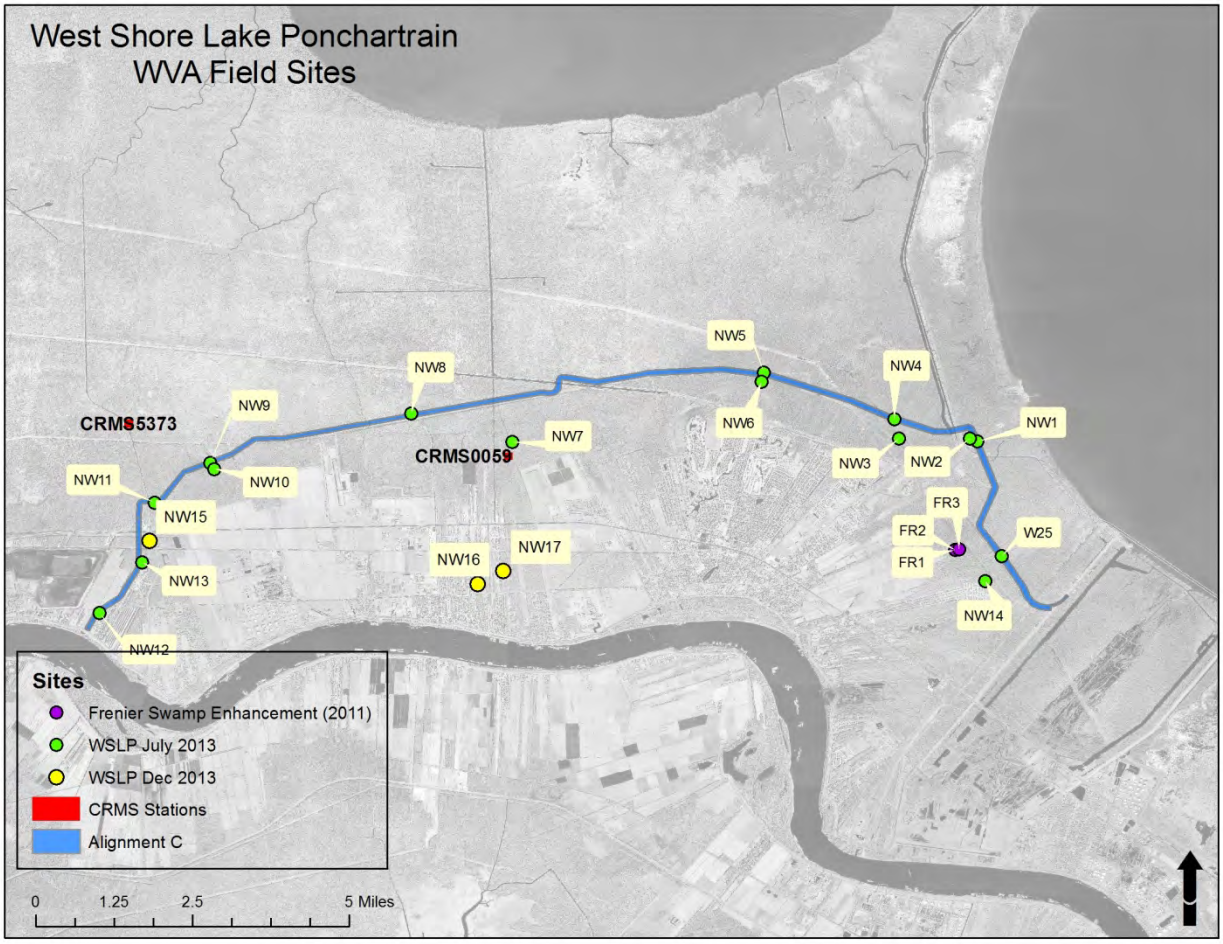
Baseline data was collected from several sites (March 2011, July 2013, and Dec 2013) and CRMS stations CRMS0059 (Reserve) and CRMS5373 (Hope). Sites were either on the proposed Alignment C (direct alignment) or interior to the alignment (indirect). See figure 3.

15 plots were visited on July 8-12, 2013, 3 of which are BLH and the rest are swamp sites. Data

was collected on three additional sites to better represent the Indirect BLH areas on Dec 2, 2013. Some were on the direct alignment and the rest were interior (between the developed area and the alignment. Three sites (visited for the Frenier Swamp Enhancement project) were previously visited in March 2011 for a potential mitigation site for the NOV HDSRRS project.

Figure 3 shows the sites visited for WVA analysis. Given the time constrains and the difficulty accessing many of the remote sites we obtained as many plots as feasible. Ideally many more plots would be preferred. Plots on the flood side of the alignment were thought not to be necessary as the project is not expected to have an impact to the flood-side swamp.

Figure 3. Wetland Value Assessment Plots and CRMS stations for "West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study" taken March 2011 and July 2013.



As we saw during the site visits from July 8 through 12, 2013 the areas in the east and central were generally more flooded than the areas to the west where it becomes BLH. This matches the data seen from the two CRMS sites. We assume that CRMS0059 (Reserve) will similar to sites W25, NW1 through NW8, NW14, and FR1, 2, 3. These are all sites in the middle and eastern portions of the direct and indirect areas. CRMS5373 (Hope) is has more similar conditions to NW9 and NW10. NW11-NW13 and NW15-NW17 are BLH sites. There are no nearby CRMS

stations that are similar to the BLH sites.

WVAs will be split into 3 sections: East, Central, and West (Figure 4) and again separated by direct (direct alignment footprint) and indirect (area between Alignment and the developed area) areas (Table 3). The data collected from W25, NW1 through NW4, NW14, and FR1, 2, 3 will be used to represent the Central and Easter portion of the direct and indirect areas. The plots (figure 3) on the direct alignment will be used for direct impacts assessment. The plots in the interior area from the 2013 site visit and the 2011 site visit will be used for the indirect impacts assessment. The CRMS0059 (Reserve) and CRMS5373 (Hope) are used where appropriate (Table 3). WVAs for each plot were developed individually then the WVAs were combined by area (listed above).

Figure 4. East, Central, and West areas for Alignment C of the "West Shore, Lake Pontchartrain, Louisiana, Hurricane and Storm Damage Risk Reduction Feasibility Study"

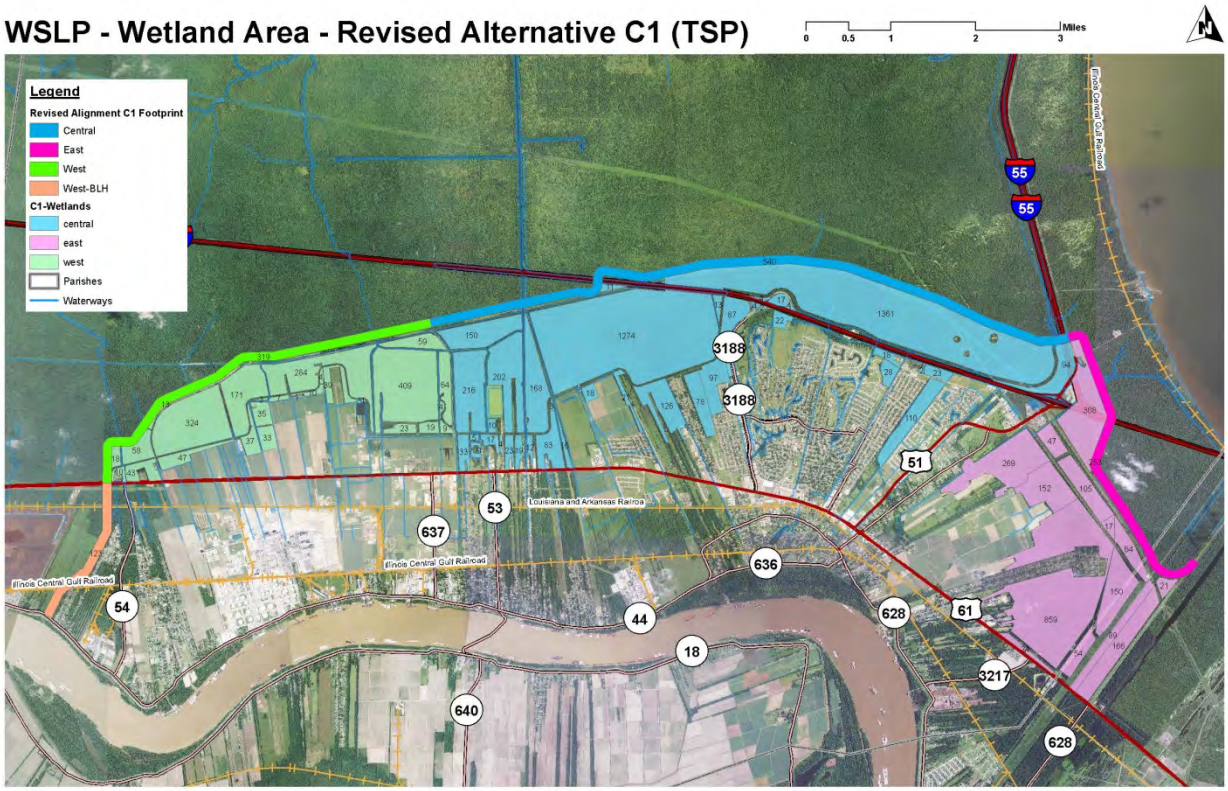


Table 3. Data from listed plots are used for baseline information in the Wetland Value Assessments.

		Acers	Field sites used
Direct swamp	East	253	W25, NW1
	Central	540	NW4, NW5, NW8
	West	319	NW9, CRMS5373
Total Direct swamp		**1112**	
Indirect Swamp	East	2325	NW2, NW14, FR1, FR2, FR3
	Central	4383	NW3, NW6, NW7, CRMS0059
	West	1724	NW10, CRMS5373
Total Indirect Swamp		**8432**	
Indirect BLH no impact		366	
Indirect BLH with impacts		89	NW15, NW16, NW17
Direct BLH		123	NW11, NW12, NW13
NonStructural Swamp		1.1	

SWAMP

Variable (V) 1 – Stand Structure:
Stand structure (V1) data was collected from all site visits and CRMS0059 (Reserve) and CRMS5373 (Hope).

Table 4. Wetland Value Assessment Swamp Model Variable 1 – Stand Structure.

	Overstory Closure		Scrub-shrub/ Midstory Cover		Herbaceous Cover
Class 1.	<33%				
Class 2.	≥33%<50%	and	<33%	and	<33%
Class 3.	≥33%<50%	and	≥33%	or	≥33%
Class 4.	≥50%<75%	and	≥33%	or	≥33%
Class 5.	≥33%<50%	and	≥33%	and	≥33%
Class 6.	≥50%	and	≥33%	and	≥33%
			OR		
	≥75%	and	≥33%	or	≥33%

Direct East Swamp
Baseline data indicates the stand structure is a Class 6 (Overstory 52%, Mid 48%, Under 45%). This area was last logged in 1956. The height of logging was in the 1920-1930s. Existing stands are currently around 70 years old. Therefore the Future conditions are expected to be lower than optimal at TY 50. Even though regeneration has been observed at present we cannot assume this will last into the future with about a 2 ft increase in RSLR for Low and Med and

about a 4ft increase for High RSLR. Based on this assumption and HET experience and best professional judgment, we reduce the class by 1 class with TY50 Low and Intermediate RSLR while we estimate TY50 High RSLR will drop by 2 classes.

FWOP
TY0 Class 6
TY1 Class 6
TY50 Class 5 Low
TY50 Class 5 Intermediate
TY50 Class 2 High

FWP
TY0 Class 6
TY1 none
TY50 none for low, intermediate, and high

Direct Central Swamp
Baseline data indicates the stand structure is a Class 6 (Overstory 68%, Mid 33%, Under 25%).

FWOP
TY0 Class 4
TY1 Class 4
TY50 Class 3 Low
TY50 Class 3 Intermediate
TY50 Class 1 High

FWP
TY0 Class 4
TY1 none
TY50 none for low, intermediate, and high

Direst West Swamp
Baseline data indicates the stand structure is a Class 3 (Overstory 39%, Mid 35%, Under 9%).

FWOP
TY0 Class 3
TY1 Class 3
TY50 Class 2 Low
TY50 Class 2 Intermediate
TY50 Class 1 High

FWP
TY0 Class 3
TY1 none
TY50 none for low, intermediate, and high

Indirect East Swamp
Baseline data indicates the stand structure is a Class 6 (Overstory 77%, Mid 52%, Under 52%).

FWOP
TY0 Class 6
TY1 Class 6
TY50 Class 5 Low
TY50 Class 5 Intermediate
TY50 Class 2 High

FWP
TY0 Class 6
TY1 Class 6
TY50 Class 4 low
TY50 Class 4 intermediate
TY50 Class 2 high

The area from the Bonnet Carre Spillway to the I-10 to I-55 exit is already hydrologically impacted by the railroad tracks and Fernier Road with only three drainage outlets. According to the RSLR shown in table 5 there is expected to be an increase of half a foot for Low and Intermediate RSLR and nearly 1 foot for High RSLR in the Indirect area when comparing the FWP to FWOP. Even with the existing restrictions with the addition of the new levee there will be a reduction in efficiency of drainage affecting water quality and increased impoundment on the protected side. Thus TY50 low and intermediate becomes class 4. High FWOP and FWP will be decreased to a class 2 with around 4 ft of RSLR.

Indirect Central Swamp
Baseline data indicates the stand structure is a Class 6 (Overstory 68%, Mid 45%, Under 61%).

FWOP
TY0 Class 6
TY1 Class 6
TY50 Class 5 Low
TY50 Class 5 Intermediate
TY50 Class 2 High

FWP
TY0 Class 6
TY1 Class 6
TY50 Class 4 low
TY50 Class 4 intermediate
TY50 Class 2 high

Assume a drop in one class from FWOP for low SLR due to changes in hydrology. Reduced efficiency of drainage due to levee will affect water quality and increase impoundment on the protected side. Thus TY50 low and intermediate becomes class 4. High FWOP and FWP will

be decreased to a class 2 with around 4 ft of RSLR.

Indirect West Swamp
Baseline data indicates the stand structure is a Class 3 (Overstory 32%, Mid 50%, Under 9%). Note: The swamp was in better condition than a Class 1 as would be indicated by the combination of one site visit (52% overstory cover) and the CRMS station (possible a low overstory, 11%, because it is right by the river where it may be atypical of the area). Based on observation we dropped the CRMS5373 (Hope) v1 data. Thus, the area would be a Class 3.

FWOP
TY0 Class 3
TY1 Class 3
TY50 Class 2 Low
TY50 Class 2 Intermediate
TY50 Class 1 High

FWP
TY0 Class 3
TY1 Class 3
TY50 Class 1 low
TY50 Class 1 intermediate
TY50 none high
(see reasoning above)

<u>V2 - Stand Maturity:</u>
Maturity (V2) stand data was collected from all site visits and both CRMS stations for baseline estimates. Projections for each site was processed through the WVA Site-Ingrowth spreadsheets. A growth factor for cypress was used to project tree growth of typical cypress swamp. The growth factor is based on a regression ($Y=-0.512X-0.1$, $R^2=$)1 derived from growth rates Visser, J.M. and C.E. Sasser,1995 and Mr. Bern Wood (Southeastern Louisiana University - SELU; working with Dr. Gary Shaffer) during a February 2010 verbal communication with the USFWS (Angela Trahan) - data was collected from Maurepas Swamp study sites. Assumed the maximum growth reduction factor occurs at a total of 4 feet of inundation, beyond which extreme tree stress and death would occur. RSLR rates were added to existing water depths (based on Lidar data) and then incorporated into the regression to obtain a change in growth rates for trees at each site. Most sites included indications of young tree recruitment. These trees were "grown-in" to each site. However with increased water levels for high SLR we assume there is no new/recruited tree growth.

In order to incorporate RSLR into the growth factor regression, the Service developed a simple spreadsheet in which the calculations are guided by the following assumptions:
1) there is a direct/ linear correlation between water depth and tree growth suppression
2) the maximum growth reduction factor is -2.15 (a more significant reduction factor would signify extreme tree stress and would equate to short-term tree death
3) the maximum growth reduction factor occurs at a total of 4 feet of inundation, beyond which

extreme tree stress and death would occur in less than 10 years (based on personal observations) 4) the minimum growth reduction factor (-0.1) occurs in areas where there are optimum hydrologic conditions (i.e., sufficient soil moisture, but no inundation)

This is an expedited best professional judgment for incorporating the relationship between RSLR and tree growth suppression.

Existing average water depths, based on water levels from LIDAR data and surface elevations (NAVD 88 feet), are +0.9 ft in the east and central areas and are +1ft (NAVD 88) in the west. CRMS stations indicated average water depths of +0.95 (CRMS0059-Reserve in the East and Central) and +1.2 (CRMS5373 (Hope) in the West). Though the CRMS data is similar, we assumed the LIDAR is more accurate as it includes representative sample over the entire indirect project area (283 points throughout the central and east and 57 points throughout the west) while the CRMS stations are limited to the station sites. Future projections of average water depths based on RSLR rates (Table 2) and existing water depths and the resulting growth rate correction factor are shown in Table 5. In addition the HET assumed the change in growth rate from FWOP to FWP was similar for Low and Intermediate RSLR (a change of 0.2) while the High had a greater difference between FWOP and FWP growth rates (a change of 1.0). This is based on the expected change in efficiency of drainage FWP (discussed above). Therefore the FWP growth rates for Med and High were adjusted to reflect this.

Table 5. Estimated water depth, based on water levels from LIDAR data and surface elevations, and Relative Sea Level Rise (NAVD88) and changes in tree growth factors based on these elevations.

EAST and Central	Existing Water Depth (ft NAVD88) (based on LIDAR)	Relative Sea Level Rise (ft NAVD88) (provided by the Corps)	Total Water Depth (ft NAVD88)	Baldcypress Growth Factor
FWOP Low	0.8775	1.81	2.69	-1.5
FWP Low	0.8775	2.21	3.09	-1.7
FWOP Med	0.8775	2.32	3.20	-1.7
FWP Med	0.8775	2.82	3.70	-1.9
FWOP High	0.8775	3.95	4.83	-2.6
FWP High	0.8775	4.85	5.73	-3.5
WEST				
FWOP Low	0.984	1.81	2.79	-1.5
FWP Low	0.984	2.21	3.19	-1.7
FWOP Med	0.984	2.32	3.30	-1.8
FWP Med	0.984	2.82	3.80	-2.0
FWOP High	0.984	3.95	4.93	-2.6
FWP High	0.984	4.85	5.83	-3.6

Direct East, Central, and West Swamp
FWOP Low, Med, and High RSLR

Table 6. Baseline (Target Year (TY) 1) and future without project (TY50) projections of diameter at breast height

(DBH) and basal area (BA) to indicate tree growth for the direct impact area in the West Shore Lake Pontchartrain Project including 3 levels of relative Sea Level Rise.

TOTAL Direct East Swamp				MED RSLR		High RSLR	
TY 1.0		FWOP (-1.5) TY50		FWOP (-1.7) TY50		FWOP (-2.6) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
17.0	53.2	15.0	338.9	14.4	331.8	15.9	308.5
4.2	13.3	4.7	107.0	4.6	104.8	4.2	81.2
12.7	39.9	10.2	231.9	9.9	227.0	11.7	227.3

TOTAL Direct CENTRAl Swamp				MED RSLR		High RSLR	
TY 1.0		FWOP (-1.5) TY50		FWOP (-1.7) TY50		FWOP (-2.6) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
15.0	205.5	13.9	421.6	12.9	380.3	12.5	233.0
7.5	102.7	6.2	189.0	5.8	170.5	6.8	127.1
7.5	102.7	7.7	232.6	7.1	209.8	5.9	110.1

TOTAL Direct West Swamp Low SLR				Med RSLR		High RSLR	
TY 1.0		FWOP (-1.5) TY50		FWOP (-1.8) TY50		FWOP (-2.6) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
20.6	2876.2	22.6	4560.7	21.1	4160.7	20.6	3213.5
3.8	536.9	5.0	1001.8	4.6	913.9	3.9	609.1
16.8	2339.3	17.6	3558.9	16.4	3246.8	16.7	2604.4

TY1 will be the same as TY0.

FWP
TY0 same as above.
TY1-TY50 none or lowest value.

Indirect East, Central, and West Swamp
FWOP and FWP Low, Med, and High RSLR

Table 7. Baseline (Target Year (TY) 1) and future without and with project (TY50) projections of diameter at breast height (DBH) and basal area (BA) to indicate tree growth for the indirect impact area in the east, central, and western portion of the West Shore Lake Pontchartrain Project including 3 levels of relative Sea Level Rise.

TOTAL Indirect East Swamp Low RSLR		Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
TY 1.0		FWOP (-1.5) TY50		FWP (-1.7) TY50		FWOP (-1.7) TY50		FWP (-1.9) TY50		FWOP (-2.6) TY50		FWP (-3.5) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
13.6	91.6	10.8	200.8	9.8	178.2	9.8	178.2	8.8	157.2	12.1	100.9	8.5	55.4
2.3	15.3	1.6	29.3	1.4	26.0	0.8	15.2	1.3	22.9	1.8	14.7	1.2	8.1
11.3	76.3	9.3	171.6	8.4	152.2	8.6	155.5	7.5	134.3	10.3	86.1	7.3	47.3

OTAL Indirect CENTRAL Swamp Low RSI		Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
TY 1.0		FWOP (-1.5) TY50		FWP (-1.7) TY50		FWOP (-1.7) TY50		FWP (-1.9) TY50		FWOP (-2.6) TY50		FWP (-3.5) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
15.8	1083.8	14.2	2201.4	13.2	1970.9	13.2	1970.9	12.2	1774.8	12.2	1142.5	10.5	509.8
0.8	54.6	1.0	158.3	0.9	141.8	1.1	168.3	0.9	127.7	0.9	82.2	0.8	36.7
15.0	1029.2	13.2	2043.0	12.2	1829.1	11.5	1720.3	11.3	1647.1	11.3	1060.3	9.8	473.1
TOTAL Indirect West Swamp Low RSLR		Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
TY 1.0		FWOP (-1.5) TY50		FWP (-1.7) TY50		FWOP (-1.8) TY50		FWP (-2.0) TY50		FWOP (-2.6) TY50		FWP (-3.6) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
21.3	2833.9	21.4	4503.8	20.4	4236.3	19.9	4106.7	18.9	3872.4	20.1	3172.2	15.8	2180.2
3.9	511.7	5.3	1107.1	5.0	1041.3	4.9	1009.5	4.7	951.9	4.9	779.7	3.9	535.9
17.5	2322.2	16.3	3421.9	15.5	3218.7	15.1	3120.2	14.4	2942.2	15.2	2410.1	12.0	1656.5

TY1 will be the same as TY0.

V3 – Water Regime:

CRMS stations were used to determine baseline water regime (V3) from water levels from 2008 to 2013 for direct and indirect area of Alignment C. There is drying mostly in the spring and summer depending on the year (Figure 6). Water levels and conditions in general appear to be slightly worse west of Alignment C which fits with the information determined above from CRMS FQI and HI and other projects nearby.

Table 8 shows the range of percent time that each CRMS site is flooded over the years 2008 through 2012 (this data for 2013 was unavailable at the time of this analysis). The max is nearly 90% of the time flooded at CRMS0059 (Reserve). CRMS5373 (Hope) floods as little as 42% of the time. On average CRMS0059 (Reserve) is flooded 20% more of the time than CRMS5373 (Hope).

Table 8. Percent of time flooded for two Coastwide Reference Monitoring Stations (CRMS) CRMS0059 **(Reserve)** and CRMS5373 **(Hope)** based on continuous hourly observations from 2008 to 2012 (2013 data was not available at the time of this analysis).

	Station		
Range	CRMS0059	CRMS5373	Both
min	64.40%	41.79%	41.79%
max	89.53%	71.20%	89.53%
avg	77.71%	54.14%	65.93%

More water fluctuation can be seen at CRMS5373 (Hope) than at CRMS0059 (Reserve) (Figure 5) though CRMS0059 (Reserve) seems to hold more water throughout the year than CRMS5373 (Hope) when compared from 2008 through 2012 for each site (Table 8).

Figure 5. Recent Water level range data for Coastwide Reference Monitoring Data (CRMS) station CRMS0059 (Reserve) **used to help determine baseline water levels and fluctuations in the eastern portion of West Shore Lake Pontchartrain Project.**

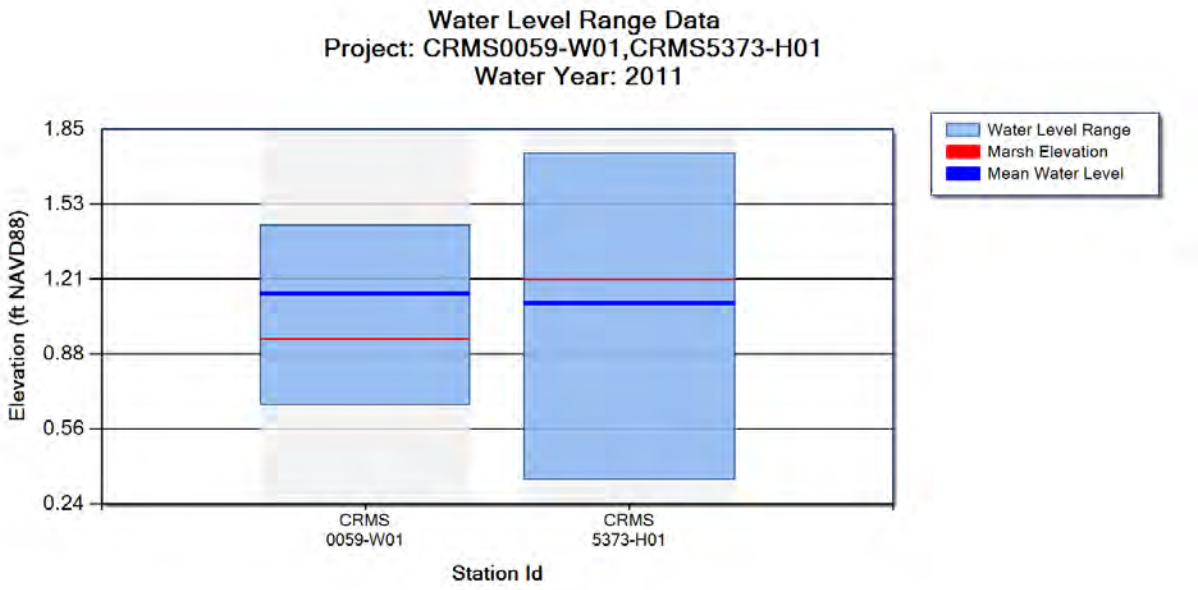
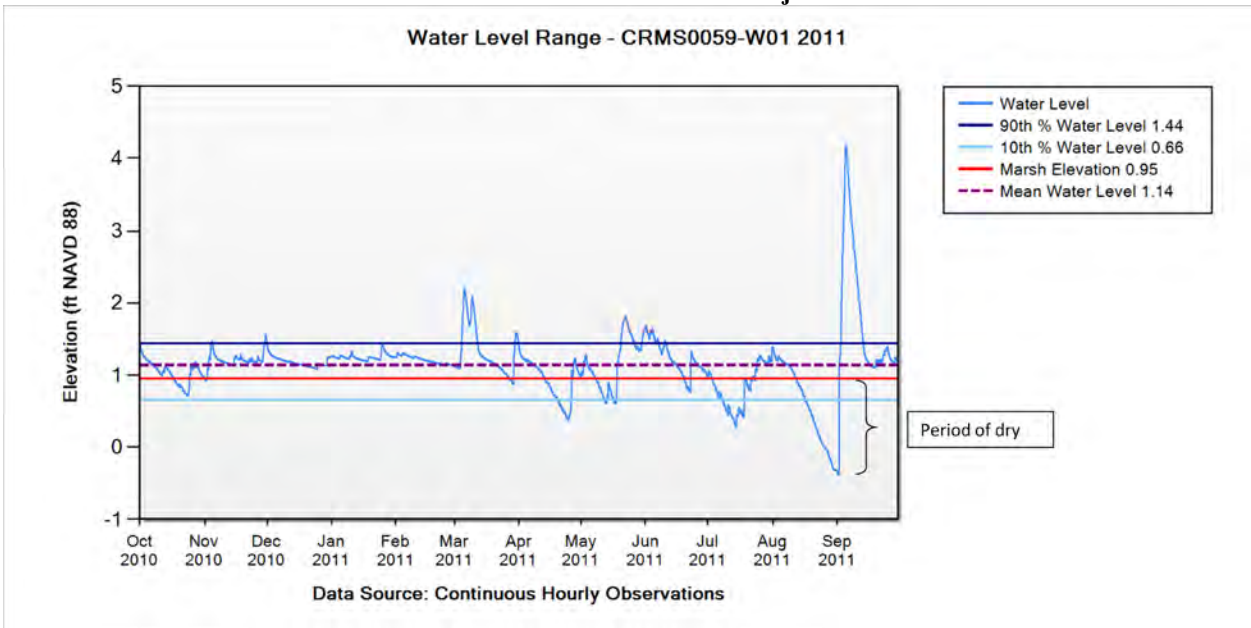
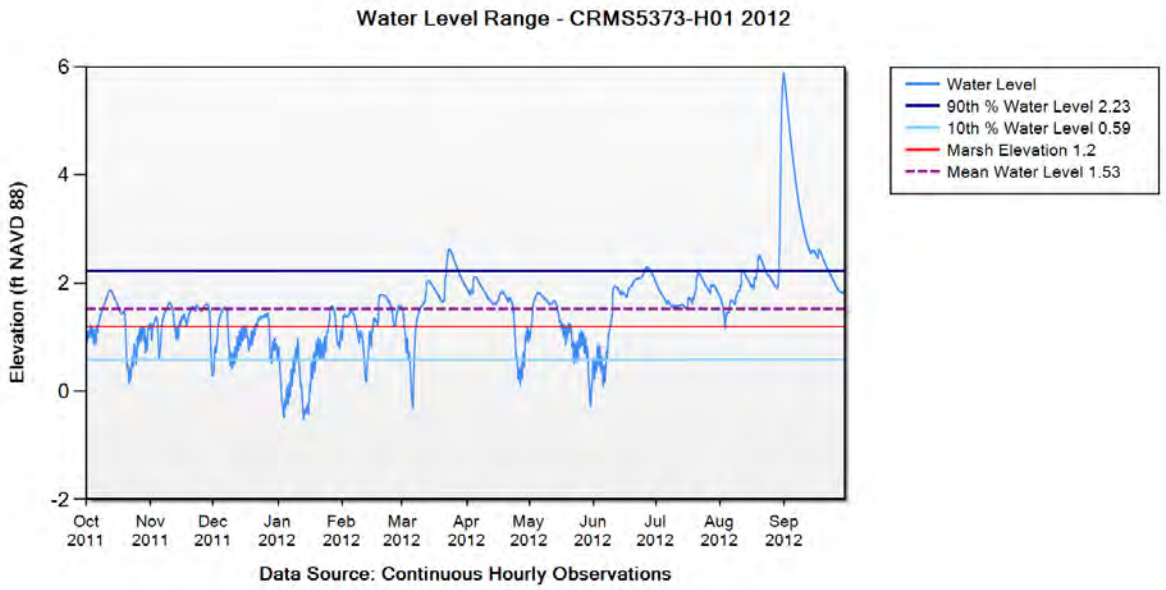
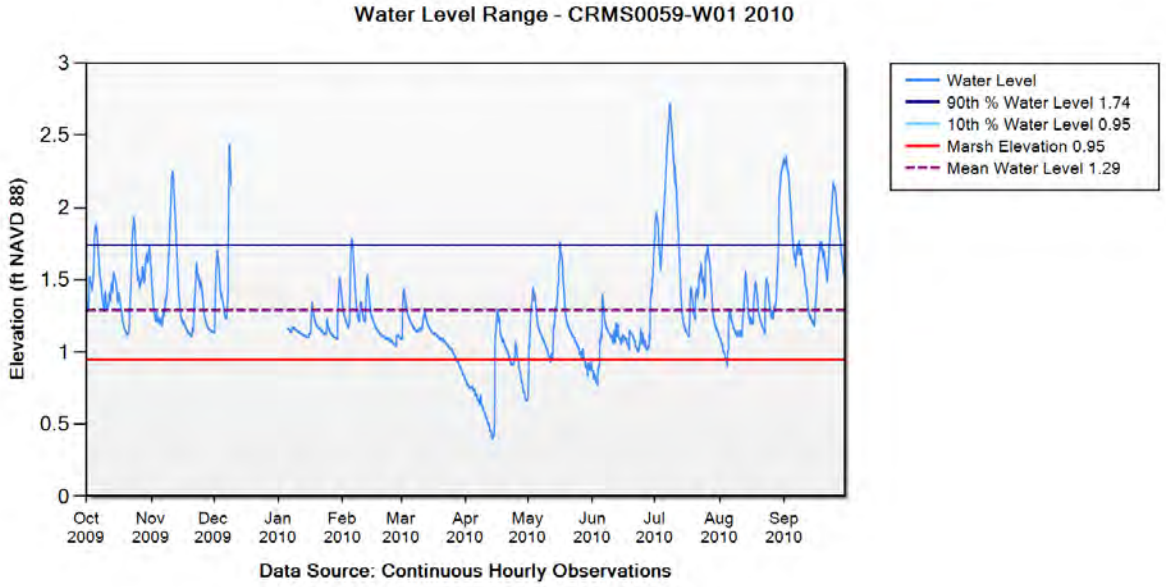


Figure 6 includes examples of the hourly water level range including swamp (refered to as marsh here) elevations. Swamp elevation is at 0.95 feet for CRMS0059 (Reserve) and 1.2 feet at CRMS5373 (Hope). Each year the amount of time water levels were below swamp elevations (dried conditions) varied from about 3 months to as much as 5 or 6 months of the year. CRMS0059 (Reserve) seemed to have less drying period than CRMS5737 which had more variation throughout the year. Below are representative years for water level from each site and representative ranges of fluctuations.

Figure 6. Examples of water level range representing various wet and dry years from Coastwide Reference Monitoring Data (CRMS) stations CRMS0059 (Reserve) **and CRMS5373** (Hope) **used to help determine baseline water levels and for the West Shore Lake Pontchartrain Project.**







Based on LIDAR data provided by the Corps the average water depth in the east and central is 0.9 ft (NAVD 88) and 1ft (NAVD 88) in the west. Swamp elevation is at 0.95 feet for CRMS0059 (Reserve) and 1.2 feet at CRMS5373 (Hope). Though the CRMS data is similar, we assumed the LIDAR is more accurate as it includes representative sample over the entire indirect project area (283 points throughout the east/central and 57 points throughout the west) while the CRMS stations are limited to the station sites. Future projections of average water depths based on RSLR rates (Table 2) and existing water depths are shown in table 5.

Table 9. Wetland Value Assessment Swamp Model Variable 3 – Water Regime.

		Flow/Exchange			
		High	Moderate	Low	None
Flooding Duration	Seasonal	1.00	0.85	0.70	0.50
	Temporary	0.9	0.75	0.65	0.40
	Semi-Permanent	0.75	0.65	0.45	0.25
	Permanent	0.65	0.45	0.30	0.10

We know from field access and aerial photography that there are several berms throughout the swamp. Thus we assume there are some restrictions to flow/exchange (moderate) in the central portion, and there is low exchange in the east and west due to the railroad and interstate, respectively.

Baseline (TY0) and TY1 water regime for Direct and Indirect Central (based on CRMS0059-Reserve) is determined to have Semi-Permanent flooding duration and moderate flow/exchange which is equivalent to an HSI of 0.65. Direct and Indirect East (also based on CRMS0059) is determined to have Semi-Permanent flooding duration and low flow/exchange (HSI 0.45) because the east is bound by the railroad tracks and Fernier Road with only three drainage outlets.

Review of the CRMS5373 (Hope) water level data indicates the area West is Seasonally flooded with a high exchange. However because this gage is adjacent to Blind River we assume the exchange may be inflated compared to the rest of Western area. In addition the western portion drainage is affected by the interstate which has designated openings. Therefore baseline water regime for Direct and Indirect West (based on CRMS5373-Hope) is determined to have Seasonal flooding with Low exchange which equates to an HSI of 0.70.

Future projections (TY50) for water regime are assumed to increase in water level and exchange based on the RSLR (Table 5). In the future without project for Low RSLR there is an expected increase in water level by 1.81 ft, Intermediate RSLR there will be an increase of 2.32 ft, and 3.95 ft is expected for high RSLR. Future with project has increases in water levels by 2.21 ft, 2.82 ft, and 4.85 ft, respectively.

FWOP projections for Direct and Indirect East, Central, and West Swamps are expected to increase by about 2 feet for Low and Intermediate RSLR and about 4 feet for High RSLR. For FWOP projections we assume the water regime changes to Permanently flooded for all areas. Central will have a High exchange, an HSI of 0.65 for all three RSLR, since that area is open and with RSLR water will exchange over existing interior berms. East and West will have a Low exchange assuming the existing railroad (east) and interstate (west) will be maintained with its existing openings (HSI 0.30).

FWP projections for Direct East, Central, and West Swamp will have no value for V3 water

regime because a levee will be in place of the swamp. For FWP V3 water regime, TY1-TY50 will go to the lowest value 0.1 (or 0 if allowed).

FWP projections for Indirect East, Central, and West Swamp will have a slightly higher increase of water level than FWOP. According to the table above there is expected to be an increase of half a foot for Low and Intermediate RSLR and nearly 1 foot for High RSLR in the Indirect area when comparing the FWP to FWOP. Therefore FWP V3 water regime projections for Low, Intermediate, and High RSLR will be Permanently flooded. For Low and Intermediate RSLR the exchange for east and west will remain Low (0.45 HSI) assuming existing infrastructure and drainage will be maintained. In Central for Low and Intermediate RSLR we assume the exchange is Moderate. This assumes there are enough openings for water exchange but accounts for delays (resulting in more standing water) in water movement. With High RSLR all areas will have Low exchange because there will be openings but the efficiency will be reduced due to high RSLR (0.3 HSI).

Note: For the purposes of this project, the HET assumed the trigger for structure closures would be under tropical storm events and the elevation trigger would be adjusted as sea level rises. Therefore, the project would not close the system more often due to higher day-to-day sea level rise impacts. However there is concerned for potential reduced future water exchange due to RSLR requiring increased structure closures. The frequency and duration of gate closures may increase due to area-wide stage increases caused by RSLR thereby leading to potential substantial affects to wetlands enclosed by the levee system. The HET agreed that if the sponsor/operator sees a higher level of sea level rise and starts to see day to day street flooding, they may want to change the operations to close the structures at high tides. A change in operations would be considered a separate project purpose and authorization, and would require a new NEPA documentation or a permit approval for this operation change. If a change in operation due to RSLR is realized, at present, it is unknown how water levels within the system would be managed so there is a potential for substantial additional indirect impacts to swamp and fish and wildlife resources to occur. These additional impacts would need to be evaluated and mitigated.

FWOP East All RSLR
TY50 0.30 perm/Low

FWOP Central All RSLR
TY50 0.65 perm/high

FWOP West All RSLR
TY50 0.30 perm/Low
We assume the interstate (in the western portion) and the railroad (in the eastern portion) will be maintained with the same existing openings.

East Direct FWP
TY0 and TY1 0.45 semi-perm/low
TY50 Low 0.0 none
TY50 Med 0.0 none
TY50 High 0.0 none

Central Direct FWP
TY0 and TY1 0.65 semi-perm/mod
TY50 Low 0.0 none
TY50 Med 0.0 none
TY50 High 0.0 none

West Direct FWP
TY0 and TY1 0.70 seas/low
TY50 Low 0.0 none
TY50 Med 0.0 none
TY50 High 0.0 none

East Indirect FWP
TY0 and TY1 0.45 semi-perm/low
TY50 Low 0.30 perm/low
TY50 Med 0.30 perm/low
TY50 High 0.30 perm/low

Central Indirect FWP
TY0 and TY1 0.65 semi-perm/mod
TY50 Low 0.45 perm/mod
TY50 Med 0.45 perm/mod
TY50 High 0.30 perm/low

West Indirect FWP
TY0 and TY1 0.70 seas/low
TY50 Low 0.30 perm/low
TY50 Med 0.30 perm/low
TY50 High 0.30 perm/low

V4 – Salinity

CRMS stations were used to determine baseline salinity (V4) from water levels from 2008 to 2013 for direct and indirect area of Alignment C. We used salinity data after 2008 to beter reflect changes resulting from the Mississippi River Gulf Outlet (MRGO) closure and other closure structures that were expected to reduce salinity in the Pontchartrain basin and the project area. Salinity was obtained from Coastwide Reference Monitoring System (CRMS) stations CRMS0059 (Reserve) and CRMS5373 (Hope) (available at http://www.lacoast.gov/crms) for years 2008 through 2013. See Figure 7 and Table 10.

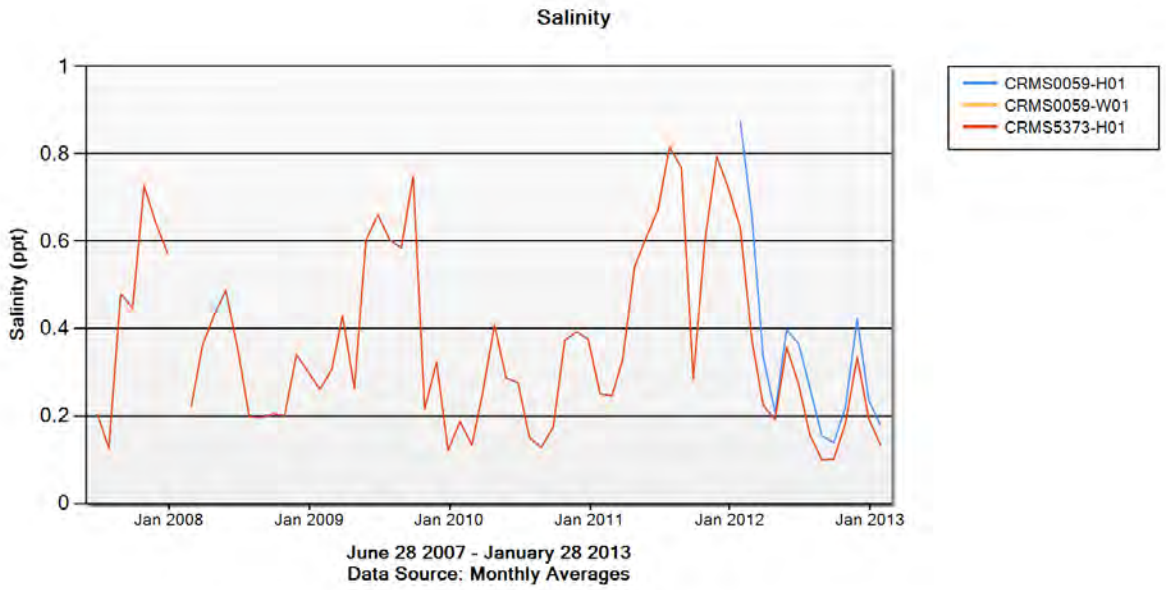
For swamp we use the mean high salinity which is from March through October. Salinity never reaches 1ppt from 2008 to 2013 and mostly is within the range of 0.2ppt-0.6ppt. The mean high salinity for March through October is 0.4ppt in the west and 0.3ppt in the east/central.

Table 10. Average annual and growing season salinity in parts per thousand (ppt) for two Coastwide Reference

Monitoring Stations (CRMS) CRMS0059 **(Reserve)** and CRMS5373**(Hope)**.

CRMS Station	CRMS0059	CRMS5373	Average for CRMS0059 and CRMS5373
avg annual Sal (ppt)	0.3	0.4	0.3
Avg growing Sal (ppt)	0.3	0.4	0.4

Figure 7. Salinity data from Coastwide Reference Monitoring Data (CRMS) stations CRMS0059 (Reserve) **and CRMS5373** (Hope) **used to help determine mean high salinity during the growing season (March 1 to October 31) for the West Shore Lake Pontchartrain Project.**



TY50 Low RSLR increase from 0.4ppt(west) or 0.3ppt(east and central) to 1ppt
Intermediate RSLR to 1.4ppt or 1.3ppt
High RSLR to 2.4ppt or 2.3ppt

BOTTOMLAND HARDWOODS

366 acres of bottomland hardwoods (BLH) were considered but taken out of the indirect impacts because they would not be influenced by the proposed action. The existing hydrologic conditions contiguous to these interior BLH would be greater than any potential impacts of the proposed action.

Hard mast producers include trees such as oaks, sweet pecan, other hickories. Soft mast and other edible seed producers include trees such as red maple, sugarberry, green ash, boxelder, common persimmon, sweetgum, honeylocust, red mulberry, American elm, cedar elm.

$\underline{V_1}$ – Tree Species Association

Class 1: Less than 25% of overstory canopy consists of mast or other edible-seed producing trees or more than 50% of soft mast present but no hard mast.

Class 2: 25% to 50% of overstory canopy consists of mast or other edible-seed producing trees, but hard mast producers constitute less than 10% of the canopy

Class 3: 25% to 50% of overstory canopy consists of mast or other edible-seed producing trees, and hard mast producers constitute more than 10% of the canopy.

Class 4: Greater than 50% of overstory canopy consists of mast or other edible-seed producing trees, but hard mast producers constitute less than 20% of the canopy.

Class 5: Greater than 50% of overstory canopy consists of mast or other edible-seed producing trees, and hard mast producers constitute more than 20% of the canopy.

Table 11. **Type of mast (hard or soft mast) produced at three Wetland Value Assessment Bottomland Hardwood Sites (BLH). Used to determine Variable 1-Tree Species Association for direct and indirect BLH areas.**

Type Mast Producing Tree	Direct BLH Site			
	NW11	NW12	NW13	Average
hard-mast	0	25	0	8
soft-mast	95	75	100	90
non-mast	5	0	0	2
	Class 4	Class 5	Class 4	Class 4

Type Mast Producing Tree	Indirect BLH Site			
	NW15	NW16	NW17	Average
hard-mast	30	50	60	47
soft-mast	70	50	40	53
non-mast	0	0	0	0
	Class 5	Class 5	Class 5	Class 5

<u>DIRECT BLH</u>

Baseline tree species association is a Class 4.

FWOP

TY0 and TY1 Class 4

TY50 Low Class 4 (maintains similar association)

TY50 Med Class 4

TY50 High Class 3 with increased RSLR we expect to see a reduction of BLH overstory (may convert more to swamp) with High SLR.

FWP

TY0 Class 4

TY50 Low, Med, and High will be the lowest value (Class 1 or 0) because it is replaced by levee.

<u>INDIRECT</u>

Baseline tree species association is a Class 5.

FWOP

TY0 and TY1 Class 5

TY50 Low Class 5 (maintains similar association)

TY50 Med Class 5

TY50 High Class 4 with increased RSLR we expect to see a reduction of BLH overstory (may convert more to swamp) with High SLR.

FWP
TY0 Class 5
TY50 Low Class 5 (maintains similar association)
TY50 Med Class 5
TY50 High Class 4 expect to see similar results to FWOP. Because of the location near developed areas and on the western portion of the indirect area we don't expect to see much change due to the project.

V2- Stand Maturity and V3 Undertory/Midstory

Table 12. Calculations used to determine direct and indirect Wetland Value Assessment Bottomland Hardwood variables V2-Stand Maturity by using diameter at breast height (DBH) and basal area (BA) to indicate tree growth and V3-Understory and Midstory percent cover for indirect and direct impacts for baseline (Target Year (TY) 1) and future projections (TY50) in the western portion of the West Shore Lake Pontchartrain Project area including future projections.

TOTAL Direct BLH Low RSLR				Med RSLR		High RSLR	
TY 1.0		FWOP (0.3) TY50		FWOP (0.1) TY50		FWOP (-0.1) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
14.5	87.7	21.3	501.6	20.2	458.8	19.2	420.1
tot	22.0	tot	54.0	tot	54.0	tot	54.0
Forest % c	71.9						
Mid % cov	72.5						
Herb % co	51.7						

TOTAL Indirect BLH Low RSLR		Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
TY 1.0		FWOP (0.3) TY50		FWP (0.1) TY50		FWOP (0.1) TY50		FWP (-0.1) TY50		FWOP (-0.1) TY50		FWP (-0.3) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
15.9	163.9	22.0	786.7	20.9	724.6	20.9	724.6	19.9	665.5	19.9	665.5	18.9	609.2
tot	31.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0
Forest % c	67.2												
Mid % cov	20.0												
Herb % co	35.0												

DIRECT
FWOP V3
TY0 and TY1 understory 52%, mid 73%
TY50 Low understory 60%, mid 80%
TY50 Med understory 70%, mid 80% (less overstory cover than Low so increase under and mid)
TY50 High under 10%, mid 20% (increased inundation prevents growth)

FWOP V2
The growth factor for the predominant trees in these BLH sites is a +0.3 (American elm, maples, American sycamore, honeylocust, and waterlocust dominated stands). For Med RSLR we

assumed a slight decrease in growth rate of these trees due to increase inundation but assumed BLH is maintained. Drainage near the levee is changed (hold more water) but due to the steep gradient near the Miss River the FWP and FWOP the difference between the two lag times would be greater causing a backwater conditions under FWP. For High RSLR we assumed majority of the BLH switched to trees species that grow more similar to cypress swamp (-0.1) which is surrounding this higher area.

FWP V2 and V3
No BLH in the project footprint.

INDIRECT
FWOP and FWP V3
TY0 and TY1 understory 35%, mid 20%
TY50 Low understory 45%, mid 30%
TY50 Med understory 55%, mid 30% (less overstory cover than Low so increase under and mid)
TY50 High under 10%, mid 20% (increased inundation prevents growth)

FWOP V2
Same as direct.

FWP V2
Slight decrease in growth rate for FWP compared to FWOP. See table 12.

V4- Hydrology
Table 13. Wetland Value Assessment Bottomland Hardwood Model Variable 4- Hydrology.

		Flow/Exchange			
		High	Moderate	Low	None
Flooding Duration	Temporary	1.00	0.85	0.70	0.50
	Seasonal	0.85	0.75	0.65	0.40
	Semi-Permanent	0.75	0.65	0.45	0.25
	Permanent/Dewatered	0.65	0.45	0.30	0.10[1]

Based on field inspection this area may receive some standing water but water table appears to lie below the surface for most of the season. Because it is higher elevation it drains well. There were several drainage ditches nearby to accommodate High water flow/exchange.

DIRECT
FWOP
TY0 and TY1 1.0 Temporarily flooded/ High exchange
TY50 Low 0.85 Seas/High
TY50 Med 0.75 Semi-perm/High

TY50 High 0.65 Perm/High

FWP
TY0 and TY1 1.0 Temp/High
TY50 Low 0.0 none
TY50 Med 0.0 none
TY50 High 0.0 none

INDIRECT
FWOP
TY0 and TY1 1.0 Temporarily flooded/ High exchange
TY50 Low 0.85 Seas/High
TY50 Med 0.75 Semi-perm/High
TY50 High 0.65 Perm/High

FWP
TY0 and TY1 1.0 Temp/High
TY50 Low 0.75 Seas/Mod
TY50 Med 0.65 Semi-perm/Mod
TY50 High 0.45 Perm/Mod

V5 – Size of Contiguous Forested Area
Class 1. 0 to 5 acres

Class 2. 5.1 to 20 acres

Class 3. 20.1 to 100 acres

Class 4. 100.1 to 500 acres

Class 5. > 500 acres

DIRECT
The alignment crosses two sections of continuous BLH. The first is about 155 acres and the portion nearest the river is about 27 acres. In this case we take a weighted average of the two areas. 155 acres (class 4 HSI=0.8) is about 85% and 27 acres (class 3 HSI=0.6) is 15%. The weighted average is an HSI of 0.77 (closest to a class 4). Rather than use a class we entered an HSI of 0.77 for baseline for this variable.

FWOP
TY0 and TY1 0.77 (or Class 4)
TY50 Low 0.77 (or Class 4)
TY50 Med 0.77 (or Class 4)
TY50 High 0.77 (or Class 4) no change expected for High SLR since forest will remain whether it's BLH or swamp

FWP
TY0 and TY1 0.77 (or Class 4)
TY50 Low 0.0 none

TY50 Med 0.0 none
TY50 High 0.0 none

INDIRECT

The indirect areas span in two areas. Each area of BLH (267.5 acres in the west and 187.5 acres more east for a total of 455 acres) makes up between 20 and 100 acres of contiguous forest. Though there are breaks in the areas there are at least 100 acres of connectivity in both areas. Thus Class 3 is used for the baseline.

FWOP and FWP

TY0 and TY1 Class 3 (no change is expected FWP for this variable)
TY50 Low Class 3
TY50 Med Class 3
TY50 High Class 3 no change expected for High SLR since forest will remain whether it's BLH or swamp

V6-Suitability and Traversability of Surrounding Land Uses

Based on a 0.5 mile buffer of the levee alignment, Table 14 shows the percent of each land use seen in the buffer and calculates a weighted average of land use that is used for the SI. The same will be applied to FWOP TY1 and TY50. We assume that FWOP TY50 is similar to existing conditions for development projections. Because of RSLR it is expected that the Agriculture area will become more inundated. In addition there is uncertainty with the National Flood Insurance (see bullet under General Assumptions above). For these reasons we assume the agricultural lands will less likely be developed without the proposed levee. Note this assumption applies to V6 (Land Use) and V7 (Disturbance) but are not the assumptions used to determine mitigation.

Table 14. Calculations used to determine the Direct and Indirect Baseline, Future Without Project (FWOP) Target Year (TY) 1, and FWOP TY50 components of the Variable 6-Suitability and Traversability of Surrounding Land Use of the Wetland Value Assessment Bottomland Hardwood Model for the West Shore Lake Pontchartrain project.

V6 DIRECT TY0 and FWOP TY1 and TY50	Percent	Weight Factor	Weight Percent
Wooded	34	1	33.72
Ag & Openwater	32	0.2	6.40
Nonhabitat	34	0	0.00
	100	**SI**	**0.40**

V6 INDIRECT (TY0) and FWOP TY1 and TY50	Percent	Weight Factor	Weight Percent
Wooded	29	1	28.72
Ag & Openwate	40	0.2	7.94
Nonhabitat	32	0	0.00
	100	**SI**	**0.37**

FWP TY1 will be similar to Baseline with the exception that the 56 acres of BLH within the Alignment footprint will become Nonhabitat (Table 15).

Table 15. Calculations used to determine the Direct and Indirect Future With Project (FWP) Target Year (TY)1 component of the Variable 6-Suitability and Traversability of Surrounding Land Use of the Wetland Value Assessment Bottomland Hardwood Model for the West Shore Lake Pontchartrain project.

V6 DIRECT FWP TY1	Percent	Weight Factor	Weight Percent
Wooded	29	1	28.52
Ag & Openwater	32	0.2	6.40
Nonhabitat	39	0	0.00
	100	**SI**	**0.35**

V6 INDIRECT FWP TY1	Percent	Weight Factor	Weight Percent
Wooded	19	1	18.79
Ag & Openwate	40	0.2	7.94
Nonhabitat	42	0	0.00
	100	**SI**	**0.27**

Assume FWP TY50 the levee (56ac) and Ag land (21%) will be developed and become Nonhabitat. This assumption is based on the Corps economics analysis that projects growth to occur in existing agricultural lands (Table 16).

Table 16. Calculations used to determine the Direct and Indirect Future With Project (FWP) Target Year (TY) 50 component of the Variable 6-Suitability and Traversability of Surrounding Land Use of the Wetland Value Assessment Bottomland Hardwood Model for the West Shore Lake Pontchartrain project.

V6 DIRECT FWP TY50	Percent	Weight Factor	Weight Percent
Wooded	29	1	28.52
Openwater	11	0.2	2.16
Nonhabitat	61	0	0.00
	100	**SI**	**0.31**

V6 INDIRECT FWP TY50	Percent	Weight Factor	Weight Percent
Wooded	19	1	18.79
Openwater	8	0.2	1.64
Nonhabitat	73	0	0.00
	100	**SI**	**0.20**

Assume future projections will be the same for Low, Med, and High RSLR.

V7 – Disturbance

The effect of disturbance is a factor of the distance to, and the type of, disturbance. For Baseline (TY0), FWOP and FWP TY1, and FWOP TY50 we use the weighted average in Table 17. We assume that FWOP TY50 is similar to existing conditions for development projections. Because of RSLR it is expected that the Agriculture area will become more inundated. In addition there is uncertainty with the National Flood Insurance (see bullet under General Assumptions above). For these reasons we assume without the proposed levee the area will less likely be developed. Note this assumption applies to V6 (Land Use) and V7 (Disturbance) but are not the assumptions used to determine mitigation.

Table 17. Calculations used to determine the Baseline, Future Without Project (FWOP) Target Year (TY) 1, and FWOP TY50 components of the Variable 7-Disturbance of the Wetland Value Assessment Bottomland Hardwood Model for the West Shore Lake Pontchartrain project.

V7-Disterbance DIRECT (Baseline TY0, TY1, and FWOP TY50)				
Class 2 - 50 to 500ft	Acres	Percent of total area	SI	% X SI
Ag land	63.0	0.23	0.65	0.15
Residental and Railroad	51.2	0.19	0.5	0.09
Rest	159.1	0.58	1	0.58
Tot 500Ft Buffer	273.2		**Wt Avg %**	**0.83**

V7-Disterbance INDIRECT (Baseline TY0, TY1, and FWOP TY50)				
50 to 500ft	Acres	of total area	SI	% X SI
Ag land	22.8	0.06	0.65	0.04
al and Railroad	99.5	0.25	0.5	0.13
Rest	271.8	0.69	1	0.69
Tot 500Ft	394.1		**Wt Avg %**	**0.85**

Assume FWP TY50 (Table 18) with the proposed levee, Ag land will be developed. This assumption is based on the Corps economics analysis that projects growth to occur in existing agricultural lands.

Table 18. Calculations used to determine the Future With Project (FWP) Target Year (TY) 50 component of the Variable 7-Disterbance of the Wetland Value Assessment Bottomland Hardwood Model for the West Shore Lake Pontchartrain project.

V7-Disterbance DIRECT (FWP TY50)				
Class 2 - 50 to 500ft	Acres	Percent of total area	SI	% X SI
Ag land	0.0	0.00	0.65	0.00
Residental and Railroad	114.1	0.42	0.5	0.21
Rest	159.1	0.58	1	0.58
Tot 500Ft Buffer	273.2		**Wt Avg %**	**0.79**

V7-Disterbance INDIRECT (FWP TY50)				
50 to 500ft	Acres	of total area	SI	% X SI
Ag land	0.0	0.00	0.65	0.00
al and Railroad	122.2	0.45	0.5	0.22
Rest	151.0	0.55	1	0.55
Tot 500Ft	273.2		**Wt Avg %**	**0.78**

WETLAND VALUE ASSESSMENT FOR NON-STRUCTURAL COMPONENT

Do to time constraints all Non-Structural existing conditions and FWOP conditions were taken from the "Louisiana Coastal Area – Small Freshwater Diversion at Convent/Blind River" (CBR project, U.S. FWS, 2010). This data was collected and analyzed in 2010. The CBR project covers a larger project area that includes the Non-Structural areas for WSLP.

In the Convent/Blind River project the project area was divided into areas of different habitat degradation. Three levels of habitat condition class were defined within the project area: 20-30 years-to-marsh, 30-50 years-to-marsh, and greater than 50-years-to-marsh. Data obtain from representative vegetation monitoring stations were then summarized according to each habitat class to get a representative value for each habitat class for the WVA. Because we can not accurately determine when these swamps will convert to marsh or open water, these habitat condition classifications are meant to define the level or rate of degradation and not necessarily the target years that the habitats will be removed from the habitat assessment or converted to marsh habitat. The WSLP project non-structural areas are in the greater than 50-years-to-marsh category, therefore this category was used to evaluate these impacts.

Variable V1 – Stand Structure

Existing – The greater than 50 years-to-marsh habitat class is characterized by having 64 percent canopy cover, 46 percent midstory, and 22 percent herbaceous or ground cover. Of the overstory canopy cover, 44 percent is tupelo and other species and 56 percent is cypress. While the percentage indicates an even distribution, the individual monitoring vegetation sites were dominated by either one or the other species. Basal area and percent canopy cover is considered optimal, or dense, with an average basal area of 247.81 ft²/ac. The midstory is also considered suitable; however, herbaceous cover is less than optimal likely due to lack of light penetration and nutrients.

FWOP – In comparison to other areas of the Maurepas swamp, this habitat class is considerably healthier and is expected to maintain a Class 4 stand structure through much of the FWOP life. By target year 50 conditions will begin to deteriorate and the canopy begins to thin.

Table 19. Future-without Project Stand Structure Conditions from the "Louisiana Coastal Area Area – Small Freshwater Diversion at Convent/Blind River" project.

FWOP																	
Habitat Condition	TY0				TY1	TY20				TY30				TY50			
Class	%O	%M	%H	Class	Class	%O	%M	%H	Class	%O	%M	%H	Class	%O	%M	%H	Class
>50 yrs. to marsh	64	46	22	4	4	50<75	>33	<33	4	50<75	>33	<33	4	33<50	<33	<33	2

FWP – The FWP will be reduced to the lowest value or zero where applicable. With the project habitat will be replaced with project features.

Variable V2 – Stand Maturity

Existing Conditions

Nine vegetation monitoring stations were identified that were representative of the greater-than 50 years-to-marsh class. Basal area averaged 247.81 ft²/acre. The average DBH measured 15.76 inches for cypress and 13.97 inches for tupelo and other canopy co-dominant species.

FWOP

Numerous bald cypress and tupelo growth rates have been documented in deep water swamp habitats and are summarized by Visser and Sasser (1995). For FWOP conditions we assumed mean annual growth rates documented by Dr. Shaffer (unpublished) (Table 20) for target years

1-20. These assumptions are similar to what was used for the LCA, Amite River Diversion Channel Modification project. Since subsidence, total sea level rise and associated stresses are expected to continue mean annual growth rates were reduced for target years 20-50.

Table 20. Cypress and Tupelo Annual Growth Rates FWOP from the "Louisiana Coastal Area Area – Small Freshwater Diversion at Convent/Blind River" project.

	Cypress (inches)	Tupelo et al (inches)
TY 0-20		
>50 yrs to marsh	0.15	0.1
TY 20-50		
>50 yrs to marsh	*0.064	0.08

*Visser and Sasser (1995)

Increase in basal area was estimated by species and habitat condition class by calculating and projecting the increase in basal area using the predicted growth rates and tree mortality. Percent composition of canopy trees in the FWOP was estimated based on best professional judgment of expected mortality of tupelo among the habitat condition classes taking into consideration assumptions made for the CWPPRA River Reintroduction into Maurepas Swamp Project. The CWPPRA River Reintroduction into Maurepas Swamp Project estimated that 50% of tupelo would die over the 20 year FWOP life, but that actual mortality of cypress would be minimal. Because habitat conditions within the Convent/Blind River project area are more favorable and are not at the same stage of degradation we assumed a reduced tupelo mortality rate for the first 20 years and for higher quality habitat condition classes (Table 22). Because tupelo is more flood tolerant highly degraded areas have become dominated by tupelo. Those areas have also experienced continued degradation as a result of seasonal salinity spikes and are seeing increased tupelo mortality and reduced vigor. In order to be conservative only tupelo mortality was assumed when determining FWOP mortality and projected project benefits because lower quality habitats were dominated by tupelo.

Table 21. Tupelo Mortality FWOP from the "Louisiana Coastal Area Area – Small Freshwater Diversion at Convent/Blind River" project.

	TY 20	*TY 50
>50 yrs to marsh	25%	25%

*percent mortality is of the TY 0 (existing) stand

Table 10. Future-without Project Stand Maturity Conditions from the "Louisiana Coastal Area Area – Small Freshwater Diversion at Convent/Blind River" project.

Future Without Project:														
Habitat Condition Class	Level of Influence	AVERAGE DIAMETER (inches)					% Contribution by Number of Individuals				BASAL AREA (ft^2/ac)			
		Species Group	TY1	TY20	TY30	TY50	TY1	TY20	TY30	TY50	TY1	TY20	TY30	TY50
		baldcypress	16.66	19.51	20.15	21.43	41.51	48.62	48.62	58.67				
>50 years to marsh	FWOP	tupelo et al.	14.57	16.47	16.47	18.87	58.49	51.38	51.38	41.33	280.03	320.24	345.15	338.32

FWP – The FWP will be reduced to the lowest value or zero where applicable. With the project

habitat will be replaced with project features.

Variable V_3 – Water Regime

Existing
Hydrologic modeling for this project, as well as hydrologic investigations for the CWPPRA River Reintroduction into Maurepas Swamp project, has revealed that the Maurepas swamp floor elevations [i.e., 1.12 feet NAVD per the CWPPRA, Coastwide Reference Monitoring System (CRMS) station 5167] are often lower than Lake Maurepas bottom elevations. This results in swamp water levels and dry-out periods being dependent on the water levels in Lake Maurepas, and essentially, flooding is semi-permanent with low to very low water exchange and throughput.

Water exchange between the project area swamps and adjacent swamps is reduced to what the Blind River and other small tributaries can exchange across the embankments of the three transportation corridors (i.e., U.S. Interstate 10, U.S. Highway 61, and KCSRR). These embankments act as hydrologic barriers and reduce flow-through across the project area swamp. Within the project area interior drainage and hydrologic exchange has been altered by the construction of drainage canals and associated berms, pipeline and transmission line rights-of-way, and remnant logging infrastructure (i.e., roads, pull boat ditches, and temporary railroad track embankments). Historically, seasonal overbank flooding over the natural Mississippi River levees facilitated hydrologic exchange and freshwater input on average every three to five years. Today the only additional freshwater input is through rainwater runoff, and even those contributions can by-pass the wetland system through the many storm water drainage canals that direct floodwaters directly into Blind River and Lake Maurepas. The project area swamp habitat has been altered and disrupted to a point that adequate water exchange does not exist, and is considered to have low water exchange.

FWOP
Future without project conditions flood durations are expected to worsen as sea level rise and subsidence continues and storm water control projects continue to force storm water into an already flooded system. It is assumed that the entire project area swamp habitat will become permanently flooded and continue to have low flow exchange.

FWP – The FWP will be reduced to the lowest value or zero where applicable. With the project habitat will be replaced with project features.

Variable V_4 - Mean high salinity during the growing season.

For the CWPPRA River Reintroduction into Maurepas Swamp project the lowest existing salinities documented were 1.53 ppt for the “Hope” station group (EPA 2001). The Convent/Blind River Diversion project area is located further inland from the “Hope” station group and is landward of several hydrologic barriers (i.e., I-10, US 61, KCSRR), thereby being protecting from the higher salinity waters coming from the Gulf. Because of these barriers it is likely salinity levels remain relatively consistent throughout the project area and do not fluctuate within the project area. While salinity spikes still affect the project area through the hydrologic

connectivity of Blind River and other small tributaries, those salinity spikes are not representative of typical salinities and are not represented in this variable The area inland and west of U.S. Hwy 61 is slightly fresher (than areas east of U.S. Hwy 61) due to the hydrologic barriers impeding the salinity gradient and the contribution of freshwater run-off from the adjacent upland areas. For two CRMS stations located west of U.S. Hwy 61 and in the project area average salinities in the growing season were measured at 0.35 ppt (CRMS0039) and 0.53 ppt (CRMS5167).

Existing conditions for areas west of U.S. Hwy 61 are estimated using data from the two CRMS stations (0039 and 5167) within the area. It is likely that in the 50-year future without project life the area will experience a slight increase in salinities, but will still be within the optimal range. Project area salinities are greatly influenced by adjacent storm water and agricultural freshwater runoff, and hydrologic barriers prevent high saline waters from entering the swamps. Salinity will still be a detrimental factor to swamp sustainability in the form of seasonal and drought induced salinity spikes.

Modeling conducted for the closure of the MRGO at Bayou La Loutre showed that salinities would decrease within the adjacent marshes and associated waterways on the order of 1.0 to 3.0 ppt as a result of that closure (Draft IER 11 Tier 2 Pontchartrain 2009). Higher saline waters that commonly entered through the MRGO into the southern end of Lake Pontchartrain have been cut off as a result of that closure and the Lake Borgne surge barrier currently being constructed.

RESULTS

See Table 23 for a summary of resulting Annual Average Habitat Unit (AAHUs) for three RSLR scenarios of swamp and bottomland hardwood (BLH) direct alignment, indirect, and nonstructural direct impacts for the West Shore Lake Pontchartrain Project. Direct footprint impacts for intermediate RSLR include the loss of 1112 acres of swamp and 123 acres of BLH resulting in -595 AAHUs for swamp and -96 AAHUs for BLH. Interior (protected side) wetlands include 8432 acres of swamp and 89 acres of BLH that are indirectly impacted. Thus the indirect impacts result in -495 AAHUs for swamp and -3 AAHUs for BLH at the Intermediate level of RSLR. Non-Structural direct impacts include the loss of 1.1 acres of swamp, resulting in -0.3 AAHUs at Intermediate RSLR.

Table 11. Summary of Annual Average Habitat Units (AAHUs) for swamp and bottomland hardwood that are directly (levee footprint) or indirectly (wetlands interior/on the protected side) impacted by the proposed West Shore Lake Pontchartrain Project.

Summary Low WVA

WVA titles/groupings		Initial Acers	AAHUs
Direct swamp	East	253	-143.2
	Central	540	-298.2
	West	319	-166.2
Total Direct Swamp			**-607.6**
Indirect Swamp	East	2325	-75.3
	Central	4383	-300.0
	West	1724	-62.4
Total Indirect Swamp			**-437.7**
Direct BLH		123	-96.8
Indirect BLH with impacts		89	-3.0
Non-Structural Direct Swam		1	-0.4
		TOTAL	**-1145.1**

Summary Intermediate WVA

WVA titles/groupings		Initial Acers	AAHUs
Direct swamp	East	253	-142.2
	Central	540	-288.4
	West	319	-164.8
Total Direct Swamp			**-595.3**
Indirect Swamp	East	2325	-110.6
	Central	4383	-322.9
	West	1724	-60.9
Total Indirect Swamp			**-494.5**
Direct BLH		123	-95.5
Indirect BLH with impacts		89	-3.1
Non-Structural Direct		1	-0.3
		TOTAL	**-1188.4**

Summary High WVA

WVA titles/groupings		Initial Acers	AAHUs
Direct swamp	East	253	-117.6
	Central	540	-232.4
	West	319	-148.1
Total Direct Swamp			**-498.1**
Indirect Swamp	East	2325	-72.5
	Central	4383	-214.8
	West	1724	-0.3
Total Indirect Swamp			**-287.6**
Direct BLH		123	-89.7
Indirect BLH with impacts		89	-4.2
Non-Structural Direct		1	-0.4
		TOTAL	**-879.6**

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Summary Low WVA

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Direct swamp	East	253	-143.2
	Central	540	-298.2
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	West	1724	-62.4
Total Indirect Swamp			**-437.7**
Direct BLH		123	-96.8
Indirect BLH with impacts		89	-3.0
Non-Structural Direct Swa		1	-0.4
		TOTAL	**-1145.1**

		Acers
Direct swamp	East	253
	Central	540
	West	319
Total Direct swamp		**1112**
Indirect Swamp	East	2325
	Central	4383
	West	1724
Total Indirect Swamp		**8432**
Indirect BLH no impact		366
Indirect BLH with impacts		89
Direct BLH		123
NonStructural Swamp		1.1

Summary Intermediate WVA

WVA titles/groupings		Initial Acers	AAHUs
Direct swamp	East	253	-142.2
	Central	540	-288.4
	West	319	-164.8
Total Direct Swamp			**-595.3**
Indirect Swamp	East	2325	-110.6
	Central	4383	-322.9
	West	1724	-60.9
Total Indirect Swamp			**-494.5**
Direct BLH		123	-95.5
Indirect BLH with impacts		89	-3.1
Non-Structural Direct		1	-0.3
		TOTAL	**-1188.4**

Summary High WVA

WVA titles/groupings		Initial Acers	AAHUs
Direct swamp	East	253	-117.6
	Central	540	-232.4
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Total Direct Swamp			**-498.1**
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	West	1724	-0.3
Total Indirect Swamp			**-287.6**
Direct BLH		123	-89.7
Indirect BLH with impacts		89	-4.2
Non-Structural Direct		1	-0.4
		TOTAL	**-879.6**

Model Name Wetland Value Assessment - Brackish Marsh Community Model
Model Version
Date of Last Update March 10, 2010

Objective of Model The swamp model was developed to determine the suitability of swamp habitat in providing resting, foraging, and nesting habitat for a diverse assemblage of wildlife species. The model is generally applied to areas supporting or capable of supporting a canopy of woody vegetation which covers at least 33 percent of the area's surface, and with at least 60 percent of that canopy consisting of any combination of baldcypress, tupelogum, red maple, buttonbush, and/or planertree. If greater than 40 percent of the woody vegetation canopy consists of species such as oaks, hickories, American elm, green ash, sweetgum, sugarberry, boxelder, persimmon, honeylocust, red mulberry, eastern cottonwood, American sycamore, etc., then a bottomland hardwood model should be applied.

Instructions Enter data in green cells. All green cells must contain values (including 0's) in order for the HSI calculation to compute for that year.
Always error check data following entry.
Click on variable name in column B for a brief description of the variable.
Intermediate Calculations are "over flow" calculations that were too long or complex to fit within one cell within the table.
Refer to WVA documents for model structure and background.

Notes Enter data in units noted.
All percentages should be entered as whole numbers between 0 and 100.
It is recommended that Microsoft Office Excel Version 2007 or higher be used.
Earlier versions may result in compatability issues or loss of some functions.

Color Coding Key:

Input
Calculation
Output

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct East Swamp LOW Project Area: 253.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		52.00		52.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		48.00		48.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		45.00		45.00		33.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	5.00	0.80
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		4.00		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		13.00		13.00		107.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.00		13.00		10.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		40.00	0.31	40.00	0.31	232.00	0.57
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.00	0.86
		HSI =	0.59	HSI =	0.59	HSI =	0.55

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	5.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	0.80
Tupelo/Cypress Basal Area		
0.77	0.77	0.57
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Direct East Swamp LOW Project Area: 253.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct East Swamp LOW Project Area: 253.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct East Swamp LOW Project Area: 253.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		52.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		48.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		45.00		0.00		0.00	
		Class		Class		Class	
		6.00	1.00	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		13.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.00	0.00
0.05	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		40.00	0.31	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.59**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.77	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.45	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct East Swamp LOW Project Area: 253.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct East Swamp LOW Project Area: 253.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct East Swamp LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	253.00	0.59	148.18	
1.00	253.00	0.59	148.18	148.18
50.00	253.00	0.55	140.04	7061.38
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**7209.56**
			AAHUs =	**144.19**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	253.00	0.59	148.18	
1.00	0.00	0.00	0.00	49.39
50.00	0.00	0.00	0.00	0.00
Max TY=	**50.00**		**Total CHUs =**	**49.39**
			AAHUs =	**0.99**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	0.99
B. Future Without Project AAHUs =	144.19
Net Change (FWP - FWOP) =	**-143.20**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct East Swamp MED Project Area: 253.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		52.00		52.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		48.00		48.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		45.00		45.00		33.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	5.00	0.80
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		4.00		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		13.00		13.00		105.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.00		13.00		10.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		40.00	0.31	40.00	0.31	227.00	0.57
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.30	0.78
		HSI =	0.59	HSI =	0.59	HSI =	0.55

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	5.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	0.80
Tupelo/Cypress Basal Area		
0.77	0.77	0.57
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.68

Project: WSLP Direct East Swamp MED Project Area: 253.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct East Swamp MED Project Area: 253.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct East Swamp MED Project Area: 253.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		52.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		48.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		45.00		0.00		0.00	
		Class		Class		Class	
		6.00	1.00	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		13.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.00	0.00
0.05	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		40.00	0.31	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.59**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.77	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.45	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct East Swamp MED Project Area: 253.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct East Swamp MED Project Area: 253.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct East Swamp MED

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	253.00	0.59	148.18	
1.00	253.00	0.59	148.18	148.18
50.00	253.00	0.55	137.93	7009.75
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**7157.93**
			AAHUs =	**143.16**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	253.00	0.59	148.18	
1.00	0.00	0.00	0.00	49.39
50.00	0.00	0.00	0.00	0.00
Max TY=	**50.00**		**Total CHUs =**	**49.39**
			AAHUs =	**0.99**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	0.99
B. Future Without Project AAHUs =	143.16
Net Change (FWP - FWOP) =	**-142.17**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct East Swamp HIGH Project Area: 253.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		52.00		52.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		48.00		48.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		45.00		45.00		30.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		4.00		4.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		13.00		13.00		81.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.00		13.00		12.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		40.00	0.31	40.00	0.31	227.00	0.75
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	2.30	0.39
		HSI =	0.59	HSI =	0.59	HSI =	0.35

Intermediate Calculations		
Class		
0.00	0.00	2.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.05
0.05	0.05	0.05
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.77	0.77	0.75
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	0.68
1.00	1.00	0.28

Project: WSLP Direct East Swamp HIGH Project Area: 253.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct East Swamp HIGH Project Area: 253.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct East Swamp HIGH Project Area: 253.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		52.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		48.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		45.00		0.00		0.00	
		Class		Class		Class	
		6.00	1.00	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		13.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.00	0.00
0.05	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		40.00	0.31	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.59**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.77	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.45	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct East Swamp HIGH Project Area: 253.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct East Swamp HIGH Project Area: 253.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct East Swamp HIGH

Future Without Project				
TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	253.00	0.59	148.18	
1.00	253.00	0.59	148.18	148.18
50.00	253.00	0.35	87.74	5780.13
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	5928.32
			AAHUs =	118.57

Future With Project				
TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	253.00	0.59	148.18	
1.00	0.00	0.00	0.00	49.39
50.00	0.00	0.00	0.00	0.00
Max TY=	50.00		Total CHUs =	49.39
			AAHUs =	0.99

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	0.99
B. Future Without Project AAHUs =	118.57
Net Change (FWP - FWOP) =	-117.58

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct CENTRAL Swamp LOW Project Area: 540.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		33.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		25.00		25.00		25.00	
		Class		Class		Class	
		4.00	0.60	4.00	0.60	3.00	0.40
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		8.00		8.00		6.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		103.00		103.00		189.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		8.00		8.00		8.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		103.00	0.40	103.00	0.40	233.00	0.37
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		High	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.65
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.00	0.89
		HSI =	0.60	HSI =	0.60	HSI =	0.51

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	3.00
4.00	4.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.20	0.20	0.08
0.20	0.20	0.08
0.60	0.60	0.60
Tupelo/Cypress Basal Area		
0.40	0.40	0.37
Water Regime		
0.00	0.00	0.65
0.65	0.65	0.00
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Direct CENTRAL Swamp LOW Project Area: 540.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct CENTRAL Swamp LOW Project Area: 540.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct CENTRAL Swamp LOW Project Area: 540.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		25.00		0.00		0.00	
		Class		Class		Class	
		4.00	0.60	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		8.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		103.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
4.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.20	0.00	0.00
0.20	0.00	0.00
0.60	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		8.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		103.00	0.40	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.60**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.40	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.65	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct CENTRAL Swamp LOW FWP

Project Area: 540.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct CENTRAL Swamp LOW FWP

Project Area: 540.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct CENTRAL Swamp LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	540.00	0.60	323.76	
1.00	540.00	0.60	323.76	323.76
50.00	540.00	0.51	275.97	14693.42
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**15017.19**
			AAHUs =	**300.34**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	540.00	0.60	323.76	
1.00	0.00	0.00	0.00	107.92
50.00	0.00	0.00	0.00	0.00
Max TY=	**50.00**		**Total CHUs =**	**107.92**
			AAHUs =	**2.16**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	2.16
B. Future Without Project AAHUs =	300.34
Net Change (FWP - FWOP) =	**-298.19**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct CENTRAL Swamp MED Project Area: 540.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		33.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		25.00		25.00		25.00	
		Class		Class		Class	
		4.00	0.60	4.00	0.60	3.00	0.40
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		8.00		8.00		6.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		103.00		103.00		171.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		8.00		8.00		7.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		103.00	0.40	103.00	0.40	210.00	0.29
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		High	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.65
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.30	0.82
		HSI =	0.60	HSI =	0.60	HSI =	0.47

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	3.00
4.00	4.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.20	0.20	0.08
0.20	0.20	0.08
0.60	0.60	0.45
Tupelo/Cypress Basal Area		
0.40	0.40	0.29
Water Regime		
0.00	0.00	0.65
0.65	0.65	0.00
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.68

Project: WSLP Direct CENTRAL Swamp MED Project Area: 540.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct CENTRAL Swamp MED Project Area: 540.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct CENTRAL Swamp MED Project Area: 540.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		25.00		0.00		0.00	
		Class		Class		Class	
		4.00	0.60	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		8.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		103.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
4.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.20	0.00	0.00
0.20	0.00	0.00
0.60	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		8.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		103.00	0.40	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.60**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.40	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.65	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct CENTRAL Swamp MED FWP

Project Area: 540.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct CENTRAL Swamp MED FWP

Project Area: 540.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct CENTRAL Swamp MED

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	540.00	0.60	323.76	
1.00	540.00	0.60	323.76	323.76
50.00	540.00	0.47	255.90	14201.67
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**14525.43**
			AAHUs =	**290.51**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	540.00	0.60	323.76	
1.00	0.00	0.00	0.00	107.92
50.00	0.00	0.00	0.00	0.00
Max TY=	**50.00**		**Total CHUs =**	**107.92**
			AAHUs =	**2.16**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	2.16
B. Future Without Project AAHUs =	290.51
Net Change (FWP - FWOP) =	**-288.35**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct Central Swamp HIGH Project Area: 540.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		30.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		33.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		25.00		25.00		25.00	
		Class		Class		Class	
		4.00	0.60	4.00	0.60	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		8.00		8.00		7.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		103.00		103.00		127.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		8.00		8.00		6.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		103.00	0.40	103.00	0.40	110.00	0.19
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		High	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.65
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	2.30	0.49
		HSI =	0.60	HSI =	0.60	HSI =	0.26

Intermediate Calculations		
Class		
0.00	0.00	1.00
0.00	0.00	0.00
4.00	4.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.20	0.20	0.10
0.20	0.20	0.10
0.60	0.60	0.30
Tupelo/Cypress Basal Area		
0.40	0.40	0.19
Water Regime		
0.00	0.00	0.65
0.65	0.65	0.00
0.00	0.00	0.00
Salinity		
1.00	1.00	0.68
1.00	1.00	0.28

Project: WSLP Direct Central Swamp HIGH Project Area: 540.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct Central Swamp HIGH Project Area: 540.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct Central Swamp HIGH Project Area: 540.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		25.00		0.00		0.00	
		Class		Class		Class	
		4.00	0.60	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		8.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		103.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
4.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.20	0.00	0.00
0.20	0.00	0.00
0.60	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		8.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		103.00	0.40	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.60**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.40	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.65	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct Central Swamp HIGH FWP

Project Area: 540.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct Central Swamp HIGH FWP

Project Area: 540.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct Central Swamp HIGH

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	540.00	0.60	323.76	
1.00	540.00	0.60	323.76	323.76
50.00	540.00	0.26	141.80	11406.22
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	11729.98
			AAHUs =	234.60

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	540.00	0.60	323.76	
1.00	0.00	0.00	0.00	107.92
50.00	0.00	0.00	0.00	0.00
Max TY=	50.00		Total CHUs =	107.92
			AAHUs =	2.16

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	2.16
B. Future Without Project AAHUs =	234.60
Net Change (FWP - FWOP) =	**-232.44**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct West Swamp LOW Project Area: 319.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		39.00		39.00		39.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		35.00		35.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		20.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		4.00		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		537.00		537.00		1002.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.00		17.00		18.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2339.00	0.82	2339.00	0.82	3559.00	0.79
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	1.00	0.84
		HSI =	0.65	HSI =	0.65	HSI =	0.40

Intermediate Calculations		
Class		
0.00	0.00	2.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.82	0.82	0.79
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Direct West Swamp LOW Project Area: 319.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West Swamp LOW Project Area: 319.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct West Swamp LOW Project Area: 319.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		39.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		35.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		0.00		0.00	
		Class		Class		Class	
		3.00	0.40	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		537.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
3.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.00	0.00
0.05	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2339.00	0.82	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.00	1.00	0.00	1.00
		HSI =	0.65	HSI =	0.00	HSI =	0.00

0.82	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.70	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct West Swamp LOW Project Area: 319.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West Swamp LOW Project Area: 319.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct West Swamp LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	319.00	0.65	207.37	
1.00	319.00	0.65	207.37	207.37
50.00	319.00	0.40	126.25	8173.72
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	8381.08
			AAHUs =	167.62

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	319.00	0.65	207.37	
1.00	0.00	0.00	0.00	69.12
50.00	0.00	0.00	0.00	0.00
Max TY=	50.00		Total CHUs =	69.12
			AAHUs =	1.38

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	1.38
B. Future Without Project AAHUs =	167.62
Net Change (FWP - FWOP) =	-166.24

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct West Swamp MED Project Area: 319.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		39.00		39.00		39.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		35.00		35.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		20.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		4.00		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		537.00		537.00		914.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.00		17.00		16.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2339.00	0.82	2339.00	0.82	3247.00	0.79
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	1.40	0.72
		HSI =	0.65	HSI =	0.65	HSI =	0.39

Intermediate Calculations		
Class		
0.00	0.00	2.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.82	0.82	0.79
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.64

Project: WSLP Direct West Swamp MED Project Area: 319.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West Swamp MED Project Area: 319.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct West Swamp MED Project Area: 319.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		39.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		35.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		0.00		0.00	
		Class		Class		Class	
		3.00	0.40	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		537.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
3.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.00	0.00
0.05	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2339.00	0.82	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.00	1.00	0.00	1.00
		HSI =	0.65	HSI =	0.00	HSI =	0.00

0.82	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.70	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct West Swamp MED Project Area: 319.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West Swamp MED Project Area: 319.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct West Swamp MED

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	319.00	0.65	207.37	
1.00	319.00	0.65	207.37	207.37
50.00	319.00	0.39	123.26	8100.34
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	8307.70
			AAHUs =	166.15

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	319.00	0.65	207.37	
1.00	0.00	0.00	0.00	69.12
50.00	0.00	0.00	0.00	0.00
Max TY=	50.00		Total CHUs =	69.12
			AAHUs =	1.38

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	1.38
B. Future Without Project AAHUs =	166.15
Net Change (FWP - FWOP) =	-164.77

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct West Swamp HIGH Project Area: 319.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		39.00		39.00		32.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		35.00		35.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		20.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		4.00		4.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		537.00		537.00		609.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.00		17.00		17.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2339.00	0.82	2339.00	0.82	2604.00	0.82
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	2.40	0.32
		HSI =	0.65	HSI =	0.65	HSI =	0.28

Intermediate Calculations		
Class		
0.00	0.00	1.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.05
0.05	0.05	0.05
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.82	0.82	0.82
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	0.64
1.00	1.00	0.24

Project: WSLP Direct West Swamp HIGH Project Area: 319.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West Swamp HIGH Project Area: 319.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct West Swamp HIGH Project Area: 319.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		39.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		35.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		0.00		0.00	
		Class		Class		Class	
		3.00	0.40	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		4.00		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		537.00		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
3.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.00	0.00
0.05	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.00		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2339.00	0.82	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.00	1.00	0.00	1.00
		HSI =	0.65	HSI =	0.00	HSI =	0.00

0.82	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.70	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct West Swamp HIGH FWP

Project Area: 319.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West Swamp HIGH FWP

Project Area: 319.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct West Swamp HIGH

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	319.00	0.65	207.37	
1.00	319.00	0.65	207.37	207.37
50.00	319.00	0.28	89.18	7265.48
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	7472.84
			AAHUs =	149.46

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	319.00	0.65	207.37	
1.00	0.00	0.00	0.00	69.12
50.00	0.00	0.00	0.00	0.00
Max TY=	50.00		Total CHUs =	69.12
			AAHUs =	1.38

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	1.38
B. Future Without Project AAHUs =	149.46
Net Change (FWP - FWOP) =	-148.07

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect East Swamp LOW Project Area: 2325.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		77.00		77.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		52.00		52.00		52.00	
		Herbaceous		Herbaceous		Herbaceous	
		52.00		52.00		52.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	5.00	0.80
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		2.00		2.00		2.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		15.00		15.00		29.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		11.00		11.00		9.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		76.00	0.45	76.00	0.45	172.00	0.60
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.00	0.83
		HSI =	0.65	HSI =	0.65	HSI =	0.56

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	5.00
Tupelo/Cypress dbh		
0.02	0.02	0.02
0.02	0.02	0.02
0.90	0.90	0.70
Tupelo/Cypress Basal Area		
0.76	0.76	0.60
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Indirect East Swamp LOW Project Area: 2325.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect East Swamp LOW Project Area: 2325.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect East Swamp LOW Project Area: 2325.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		77.00		77.00		74.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		52.00		52.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		52.00		52.00		30.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		2.00		2.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		15.00		15.00		26.00	

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	4.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.02	0.02	0.01
0.02	0.02	0.01
0.90	0.90	0.60
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		11.00		11.00		8.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		76.00	0.45	76.00	0.45	152.00	0.51
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.00	0.83
		HSI =	0.65	HSI =	0.65	HSI =	0.49

0.76	0.76	0.51
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Indirect East Swamp LOW FWP

Project Area: 2325.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect East Swamp LOW FWP

Project Area: 2325.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Indirect East Swamp LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	2325.00	0.65	1501.41	
1.00	2325.00	0.65	1501.41	1501.41
50.00	2325.00	0.56	1297.90	68583.02
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	70084.43
			AAHUs =	1401.69

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	2325.00	0.65	1501.41	
1.00	2325.00	0.65	1501.41	1501.41
50.00	2325.00	0.49	1144.21	64817.70
Max TY=	50.00		Total CHUs =	66319.11
			AAHUs =	1326.38

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	1326.38
B. Future Without Project AAHUs =	1401.69
Net Change (FWP - FWOP) =	-75.31

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect East Swamp MED Project Area: 2325.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		77.00		77.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		52.00		52.00		52.00	
		Herbaceous		Herbaceous		Herbaceous	
		52.00		52.00		52.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	5.00	0.80
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		2.00		2.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		15.00		15.00		15.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		11.00		11.00		9.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		76.00	0.45	76.00	0.45	156.00	0.64
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.30	0.71
		HSI =	0.65	HSI =	0.65	HSI =	0.55

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	5.00
Tupelo/Cypress dbh		
0.02	0.02	0.01
0.02	0.02	0.01
0.90	0.90	0.70
Tupelo/Cypress Basal Area		
0.76	0.76	0.64
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.68

Project: WSLP Indirect East Swamp MED Project Area: 2325.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect East Swamp MED Project Area: 2325.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect East Swamp MED Project Area: 2325.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		77.00		77.00		74.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		52.00		52.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		52.00		52.00		30.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		2.00		2.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		15.00		15.00		23.00	

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	4.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.02	0.02	0.01
0.02	0.02	0.01
0.90	0.90	0.60
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh		0.76	0.76	0.51
		11.00		11.00		8.00				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
		76.00	0.45	76.00	0.45	134.00	0.41	0.00	0.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange		0.45	0.45	0.30
		Low		Low		Low		0.00	0.00	0.00
		Flooding Duration		Flooding Duration		Flooding Duration				
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30		Salinity	
V4	Salinity	Salinity		Salinity		Salinity		1.00	1.00	1.00
		0.30	1.00	0.30	1.00	1.30	0.73	1.00	1.00	0.68
		HSI =	**0.65**	**HSI =**	**0.65**	**HSI =**	**0.46**			

Project: WSLP Indirect East Swamp MED Project Area: 2325.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI	Intermediate Calculations		
V1	Stand Structure	% Cover		% Cover		% Cover			Class	
		Overstory		Overstory		Overstory				
		Scrub-shrub		Scrub-shrub		Scrub-shrub				
		Herbaceous		Herbaceous		Herbaceous				
		Class		Class		Class			Tupelo/Cypress dbh	
								0.00	0.00	0.00
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh		0.00	0.00	0.00
								0.00	0.00	0.00
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area				
									Tupelo/Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange				
		Flooding Duration		Flooding Duration		Flooding Duration				
									Salinity	
V4	Salinity	Salinity		Salinity		Salinity		0.00	0.00	0.00
								0.00	0.00	0.00
		HSI =		**HSI =**		**HSI =**				

Project: WSLP Indirect East Swamp MED Project Area: 2325.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI	Intermediate Calculations		
V1	Stand Structure	% Cover		% Cover		% Cover			Class	
		Overstory		Overstory		Overstory				
		Scrub-shrub		Scrub-shrub		Scrub-shrub				
		Herbaceous		Herbaceous		Herbaceous				
		Class		Class		Class			Tupelo/Cypress dbh	
								0.00	0.00	0.00
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh		0.00	0.00	0.00
								0.00	0.00	0.00
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area				
									Tupelo/Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange				
		Flooding Duration		Flooding Duration		Flooding Duration				
									Salinity	
V4	Salinity	Salinity		Salinity		Salinity		0.00	0.00	0.00
								0.00	0.00	0.00
		HSI =		**HSI =**		**HSI =**				

AAHU CALCULATION

Project: WSLP Indirect East Swamp MED

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	2325.00	0.65	1501.41	
1.00	2325.00	0.65	1501.41	1501.41
50.00	2325.00	0.55	1286.63	68306.87
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**69808.27**
			AAHUs =	**1396.17**

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	2325.00	0.65	1501.41	
1.00	2325.00	0.65	1501.41	1501.41
50.00	2325.00	0.46	1060.83	62774.78
Max TY=	**50.00**		**Total CHUs =**	**64276.19**
			AAHUs =	**1285.52**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	1285.52
B. Future Without Project AAHUs =	1396.17
Net Change (FWP - FWOP) =	**-110.64**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect East Swamp HIGH Project Area: 2325.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		77.00		77.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		52.00		52.00		32.00	
		Herbaceous		Herbaceous		Herbaceous	
		52.00		52.00		32.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		2.00		2.00		2.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		15.00		15.00		15.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		11.00		11.00		10.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		76.00	0.45	76.00	0.45	86.00	0.41
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	2.30	0.34
		HSI =	0.65	HSI =	0.65	HSI =	0.29

Intermediate Calculations		
Class		
0.00	0.00	2.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.02	0.02	0.02
0.02	0.02	0.02
0.90	0.90	0.80
Tupelo/Cypress Basal Area		
0.76	0.76	0.68
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	0.68
1.00	1.00	0.28

Project: WSLP Indirect East Swamp HIGH Project Area: 2325.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect East Swamp HIGH Project Area: 2325.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect East Swamp HIGH Project Area: 2325.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		77.00		77.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		52.00		52.00		32.00	
		Herbaceous		Herbaceous		Herbaceous	
		52.00		52.00		32.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		2.00		2.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		15.00		15.00		8.00	

Intermediate Calculations		
Class		
0.00	0.00	2.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.02	0.02	0.01
0.02	0.02	0.01
0.90	0.90	0.45
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		11.00		11.00		7.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		76.00	0.45	76.00	0.45	47.00	0.15
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	2.30	0.34
		HSI =	0.65	HSI =	0.65	HSI =	0.23

0.76	0.76	0.39
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	0.68
1.00	1.00	0.28

Project: WSLP Indirect East Swamp HIGH FWP

Project Area: 2325.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect East Swamp HIGH FWP

Project Area: 2325.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Indirect East Swamp HIGH

Future Without Project				
TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	2325.00	0.65	1501.41	
1.00	2325.00	0.65	1501.41	1501.41
50.00	2325.00	0.29	680.61	53459.36
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	54960.76
			AAHUs =	1099.22

Future With Project				
TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	2325.00	0.65	1501.41	
1.00	2325.00	0.65	1501.41	1501.41
50.00	2325.00	0.23	532.60	49833.19
Max TY=	50.00		Total CHUs =	51334.60
			AAHUs =	1026.69

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	1026.69
B. Future Without Project AAHUs =	1099.22
Net Change (FWP - FWOP) =	-72.52

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect Central Swamp LOW Project Area: 4383.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		45.00		45.00		45.00	
		Herbaceous		Herbaceous		Herbaceous	
		61.00		61.00		61.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	5.00	0.80
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		1.00		1.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		55.00		55.00		158.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		15.00		15.00		13.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		1029.00	0.95	1029.00	0.95	2043.00	0.93
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		High	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.65
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.00	0.81
		HSI =	0.87	HSI =	0.87	HSI =	0.78

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	5.00
Tupelo/Cypress dbh		
0.01	0.01	0.01
0.01	0.01	0.01
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.95	0.95	0.93
Water Regime		
0.00	0.00	0.65
0.65	0.65	0.00
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Indirect Central Swamp LOW Project Area: 4383.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect Central Swamp LOW Project Area: 4383.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect Central Swamp LOW Project Area: 4383.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		68.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		45.00		45.00		45.00	
		Herbaceous		Herbaceous		Herbaceous	
		61.00		61.00		30.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		1.00		1.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		55.00		55.00		142.00	

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	4.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.01	0.01	0.01
0.01	0.01	0.01
1.00	1.00	1.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh		0.95	0.95	0.93
		15.00		15.00		12.00				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
		1029.00	0.95	1029.00	0.95	1829.00	0.93	0.00	0.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange		0.65	0.65	0.45
		Moderate		Moderate		Moderate		0.00	0.00	0.00
		Flooding Duration		Flooding Duration		Flooding Duration				
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.45		Salinity	
V4	Salinity	Salinity		Salinity		Salinity		1.00	1.00	1.00
		0.30	1.00	0.30	1.00	1.00	0.81	1.00	1.00	0.80
		HSI =	**0.87**	**HSI =**	**0.87**	**HSI =**	**0.64**			

Project: WSLP Indirect Central Swamp LOW FWP

Project Area: 4383.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect Central Swamp LOW FWP

Project Area: 4383.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Indirect Central Swamp LOW

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	4383.00	0.87	3802.33	
1.00	4383.00	0.87	3802.33	3802.33
50.00	4383.00	0.78	3429.18	177172.13
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	180974.46
			AAHUs =	3619.49

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	4383.00	0.87	3802.33	
1.00	4383.00	0.87	3802.33	3802.33
50.00	4383.00	0.64	2816.91	162171.43
Max TY=	50.00		Total CHUs =	165973.76
			AAHUs =	3319.48

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	3319.48
B. Future Without Project AAHUs =	3619.49
Net Change (FWP - FWOP) =	**-300.01**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect Central Swamp MED Project Area: 4383.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		45.00		45.00		45.00	
		Herbaceous		Herbaceous		Herbaceous	
		61.00		61.00		61.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	5.00	0.80
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		1.00		1.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		55.00		55.00		168.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		15.00		15.00		12.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		1029.00	0.95	1029.00	0.95	1720.00	0.91
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		High	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.65
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	1.30	0.71
		HSI =	0.87	HSI =	0.87	HSI =	0.76

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	5.00
Tupelo/Cypress dbh		
0.01	0.01	0.01
0.01	0.01	0.01
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.95	0.95	0.91
Water Regime		
0.00	0.00	0.65
0.65	0.65	0.00
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.68

Project: WSLP Indirect Central Swamp MED Project Area: 4383.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect Central Swamp MED Project Area: 4383.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect Central Swamp MED Project Area: 4383.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		68.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		45.00		45.00		33.00	
		Herbaceous		Herbaceous		Herbaceous	
		61.00		61.00		30.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		1.00		1.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		55.00		55.00		128.00	

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	4.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.01	0.01	0.01
0.01	0.01	0.01
1.00	1.00	0.90
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh		0.95	0.95	0.84
		15.00		15.00		11.00				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
		1029.00	0.95	1029.00	0.95	1647.00	0.84	0.00	0.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange		0.65	0.65	0.45
		Moderate		Moderate		Moderate		0.00	0.00	0.00
		Flooding Duration		Flooding Duration		Flooding Duration			Salinity	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.45	1.00	1.00	1.00
V4	Salinity	Salinity		Salinity		Salinity		1.00	1.00	0.68
		0.30	1.00	0.30	1.00	1.30	0.70			
		HSI =	**0.87**	**HSI =**	**0.87**	**HSI =**	**0.61**			

Project: WSLP Indirect Central Swamp MED FWP

Project Area: 4383.00

Variable		TY Class/Value	TY SI	TY Class/Value	TY SI	TY Class/Value	TY SI	Intermediate Calculations		
V1	Stand Structure	% Cover		% Cover		% Cover			Class	
		Overstory		Overstory		Overstory				
		Scrub-shrub		Scrub-shrub		Scrub-shrub				
		Herbaceous		Herbaceous		Herbaceous				
		Class		Class		Class			Tupelo/Cypress dbh	
								0.00	0.00	0.00
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh		0.00	0.00	0.00
								0.00	0.00	0.00
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area			Tupelo/Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange				
		Flooding Duration		Flooding Duration		Flooding Duration				
									Salinity	
V4	Salinity	Salinity		Salinity		Salinity		0.00	0.00	0.00
								0.00	0.00	0.00
		HSI =		**HSI =**		**HSI =**				

Project: WSLP Indirect Central Swamp MED FWP

Project Area: 4383.00

Variable		TY Class/Value	TY SI	TY Class/Value	TY SI	TY Class/Value	TY SI	Intermediate Calculations		
V1	Stand Structure	% Cover		% Cover		% Cover			Class	
		Overstory		Overstory		Overstory				
		Scrub-shrub		Scrub-shrub		Scrub-shrub				
		Herbaceous		Herbaceous		Herbaceous				
		Class		Class		Class			Tupelo/Cypress dbh	
								0.00	0.00	0.00
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh		0.00	0.00	0.00
								0.00	0.00	0.00
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area			Tupelo/Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange				
		Flooding Duration		Flooding Duration		Flooding Duration				
									Salinity	
V4	Salinity	Salinity		Salinity		Salinity		0.00	0.00	0.00
								0.00	0.00	0.00
		HSI =		**HSI =**		**HSI =**				

AAHU CALCULATION

Project: WSLP Indirect Central Swamp MED

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	4383.00	0.87	3802.33	
1.00	4383.00	0.87	3802.33	3802.33
50.00	4383.00	0.76	3342.79	175055.42
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**178857.75**
			AAHUs =	**3577.15**

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	4383.00	0.87	3802.33	
1.00	4383.00	0.87	3802.33	3802.33
50.00	4383.00	0.61	2683.86	158911.59
Max TY=	**50.00**		**Total CHUs =**	**162713.92**
			AAHUs =	**3254.28**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	3254.28
B. Future Without Project AAHUs =	3577.15
Net Change (FWP - FWOP) =	**-322.88**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect Central Swamp HIGH Project Area: 4383.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		45.00		45.00		32.00	
		Herbaceous		Herbaceous		Herbaceous	
		61.00		61.00		32.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		1.00		1.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		55.00		55.00		82.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		15.00		15.00		11.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		1029.00	0.95	1029.00	0.95	1060.00	0.84
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate		High	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.65
V4	Salinity	Salinity		Salinity		Salinity	
		0.30	1.00	0.30	1.00	2.30	0.31
		HSI =	0.87	HSI =	0.87	HSI =	0.43

Intermediate Calculations		
Class		
0.00	0.00	2.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.01	0.01	0.01
0.01	0.01	0.01
1.00	1.00	0.90
Tupelo/Cypress Basal Area		
0.95	0.95	0.84
Water Regime		
0.00	0.00	0.65
0.65	0.65	0.00
0.00	0.00	0.00
Salinity		
1.00	1.00	0.68
1.00	1.00	0.28

Project: WSLP Indirect Central Swamp HIGH Project Area: 4383.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect Central Swamp HIGH Project Area: 4383.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect Central Swamp HIGH Project Area: 4383.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		68.00		68.00		49.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		45.00		45.00		32.00	
		Herbaceous		Herbaceous		Herbaceous	
		61.00		61.00		32.00	
		Class		Class		Class	
		6.00	1.00	6.00	1.00	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		1.00		1.00		1.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		55.00		55.00		37.00	

Intermediate Calculations		
Class		
0.00	0.00	2.00
0.00	0.00	0.00
0.00	0.00	0.00
6.00	6.00	0.00
Tupelo/Cypress dbh		
0.01	0.01	0.01
0.01	0.01	0.01
1.00	1.00	0.80
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh		0.95	0.95	0.74
		15.00		15.00		10.00				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
		1029.00	0.95	1029.00	0.95	473.00	0.74	0.00	0.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange		0.65	0.65	0.30
		Moderate		Moderate		Low		0.00	0.00	0.00
		Flooding Duration		Flooding Duration		Flooding Duration			Salinity	
		Semi-Permanent	0.65	Semi-Permanent	0.65	Permanent	0.30			
V4	Salinity	Salinity		Salinity		Salinity		1.00	1.00	0.68
		0.30	1.00	0.30	1.00	2.30	0.31	1.00	1.00	0.28
		HSI =	**0.87**	**HSI =**	**0.87**	**HSI =**	**0.33**			

Project: WSLP Indirect Central Swamp HIGH FWP

Project Area: 4383.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect Central Swamp HIGH FWP

Project Area: 4383.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Indirect Central Swamp HIGH

Future Without Project			Total	Cummulative
TY	**Acres**	**x HSI**	**HUs**	**HUs**
0.00	4383.00	0.87	3802.33	
1.00	4383.00	0.87	3802.33	3802.33
50.00	4383.00	0.43	1905.26	139835.91
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**143638.24**
			AAHUs =	**2872.76**

Future With Project			Total	Cummulative
TY	**Acres**	**x HSI**	**HUs**	**HUs**
0.00	4383.00	0.87	3802.33	
1.00	4383.00	0.87	3802.33	3802.33
50.00	4383.00	0.33	1466.95	129097.47
Max TY=	**50.00**		**Total CHUs =**	**132899.80**
			AAHUs =	**2658.00**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	2658.00
B. Future Without Project AAHUs =	2872.76
Net Change (FWP - FWOP) =	**-214.77**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect West Swamp LOW Project Area: 1724.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		33.00		33.00		33.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		50.00		50.00		32.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		9.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		3.90		3.90		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		512.00		512.00		1107.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.50		17.50		16.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2322.00	0.83	2322.00	0.83	3422.00	0.77
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	1.00	0.85
		HSI =	0.65	HSI =	0.65	HSI =	0.39

Intermediate Calculations		
Class		
0.00	0.00	2.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.83	0.83	0.77
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Indirect West Swamp LOW Project Area: 1724.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect West Swamp LOW Project Area: 1724.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect West Swamp LOW Project Area: 1724.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		33.00		33.00		32.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		50.00		50.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		10.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		3.90		3.90		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		512.00		512.00		1041.00	

Intermediate Calculations		
Class		
0.00	0.00	1.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	1.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.50		17.50		16.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2322.00	0.83	2322.00	0.83	3219.00	0.77
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	1.00	0.85
		HSI =	0.65	HSI =	0.65	HSI =	0.32

Intermediate Calculations		
0.83	0.83	0.77
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.80

Project: WSLP Indirect West Swamp LOW FWP

Project Area: 1724.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect West Swamp LOW FWP

Project Area: 1724.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Indirect West Swamp LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	1724.00	0.65	1122.56	
1.00	1724.00	0.65	1122.56	1122.56
50.00	1724.00	0.39	677.91	44111.58
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	45234.14
			AAHUs =	904.68

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	1724.00	0.65	1122.56	
1.00	1724.00	0.65	1122.56	1122.56
50.00	1724.00	0.32	550.64	40993.52
Max TY=	50.00		Total CHUs =	42116.08
			AAHUs =	842.32

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	842.32
B. Future Without Project AAHUs =	904.68
Net Change (FWP - FWOP) =	-62.36

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect West Swamp MED Project Area: 1724.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		33.00		33.00		33.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		50.00		50.00		32.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		9.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	2.00	0.20
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		3.90		3.90		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		512.00		512.00		1010.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.50		17.50		15.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2322.00	0.83	2322.00	0.83	3120.00	0.77
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	1.40	0.73
		HSI =	0.65	HSI =	0.65	HSI =	0.38

Intermediate Calculations		
Class		
0.00	0.00	2.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.83	0.83	0.77
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.64

Project: WSLP Indirect West Swamp MED Project Area: 1724.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect West Swamp MED Project Area: 1724.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect West Swamp MED Project Area: 1724.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		33.00		33.00		30.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		50.00		50.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		10.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		3.90		3.90		5.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		512.00		512.00		952.00	

Intermediate Calculations		
Class		
0.00	0.00	1.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.07
0.05	0.05	0.07
1.00	1.00	1.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.50		17.50		14.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2322.00	0.83	2322.00	0.83	2942.00	0.77
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	1.40	0.73
		HSI =	0.65	HSI =	0.65	HSI =	0.31

0.83	0.83	0.77
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	0.64

Project: WSLP Indirect West Swamp MED Project Area: 1724.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect West Swamp MED Project Area: 1724.00

FWP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Indirect West Swamp MED

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	1724.00	0.65	1122.56	
1.00	1724.00	0.65	1122.56	1122.56
50.00	1724.00	0.38	662.45	43732.74
			#VALUE!	
			#VALUE!	
			#VALUE!	
Max TY=	50.00		Total CHUs =	44855.30
			AAHUs =	897.11

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	1724.00	0.65	1122.56	
1.00	1724.00	0.65	1122.56	1122.56
50.00	1724.00	0.31	538.08	40685.82
Max TY=	50.00		Total CHUs =	41808.38
			AAHUs =	836.17

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	836.17
B. Future Without Project AAHUs =	897.11
Net Change (FWP - FWOP) =	-60.94

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect West Swamp HIGH Project Area: 1724.00

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		33.00		33.00		30.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		50.00		50.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		9.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		3.90		3.90		4.90	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		512.00		512.00		780.00	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		17.50		17.50		15.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		2322.00	0.83	2322.00	0.83	2410.00	0.77
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.40	1.00	0.40	1.00	2.40	0.34
		HSI =	0.65	HSI =	0.65	HSI =	0.28

Intermediate Calculations		
Class		
0.00	0.00	1.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.06
0.05	0.05	0.06
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.83	0.83	0.77
Water Regime		
0.00	0.00	0.00
0.70	0.70	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	0.64
1.00	1.00	0.24

Project: WSLP Indirect West Swamp HIGH Project Area: 1724.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Indirect West Swamp HIGH Project Area: 1724.00

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Indirect West Swamp HIGH Project Area: 1724.00

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		33.00		33.00		30.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		50.00		50.00		30.00	
		Herbaceous		Herbaceous		Herbaceous	
		9.00		9.00		9.00	
		Class		Class		Class	
		3.00	0.40	3.00	0.40	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		3.90		3.90		4.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		512.00		512.00		536.00	

Intermediate Calculations		
Class		
0.00	0.00	1.00
3.00	3.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.05	0.05	0.05
0.05	0.05	0.05
1.00	1.00	1.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh		0.83	0.83	0.77
		17.50		17.50		12.00				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
		2322.00	0.83	2322.00	0.83	1657.00	0.77	0.00	0.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange		0.70	0.70	0.30
		Low		Low		Low		0.00	0.00	0.00
		Flooding Duration		Flooding Duration		Flooding Duration			Salinity	
		Seasonal	0.70	Seasonal	0.70	Permanent	0.30	1.00	1.00	0.64
V4	Salinity	Salinity		Salinity		Salinity		1.00	1.00	0.24
		0.40	1.00	0.40	1.00	2.40	0.34			
		HSI =	**0.65**	**HSI =**	**0.65**	**HSI =**	**0.28**			

Project: WSLP Indirect West Swamp HIGH FWP

Project Area: 1724.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI	Intermediate Calculations		
V1	Stand Structure	% Cover		% Cover		% Cover			Class	
		Overstory		Overstory		Overstory				
		Scrub-shrub		Scrub-shrub		Scrub-shrub				
		Herbaceous		Herbaceous		Herbaceous				
		Class		Class		Class			Tupelo/Cypress dbh	
								0.00	0.00	0.00
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh		0.00	0.00	0.00
								0.00	0.00	0.00
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area			Tupelo/Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange				
		Flooding Duration		Flooding Duration		Flooding Duration				
									Salinity	
V4	Salinity	Salinity		Salinity		Salinity		0.00	0.00	0.00
								0.00	0.00	0.00
		HSI =		**HSI =**		**HSI =**				

Project: WSLP Indirect West Swamp HIGH FWP

Project Area: 1724.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI	Intermediate Calculations		
V1	Stand Structure	% Cover		% Cover		% Cover			Class	
		Overstory		Overstory		Overstory				
		Scrub-shrub		Scrub-shrub		Scrub-shrub				
		Herbaceous		Herbaceous		Herbaceous				
		Class		Class		Class			Tupelo/Cypress dbh	
								0.00	0.00	0.00
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh		0.00	0.00	0.00
								0.00	0.00	0.00
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area			Tupelo/Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange				
		Flooding Duration		Flooding Duration		Flooding Duration				
									Salinity	
V4	Salinity	Salinity		Salinity		Salinity		0.00	0.00	0.00
								0.00	0.00	0.00
		HSI =		**HSI =**		**HSI =**				

AAHU CALCULATION

Project: WSLP Indirect West Swamp HIGH

Future Without Project					
TY	**Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**	
0.00	1724.00	0.65	1122.56		
1.00	1724.00	0.65	1122.56	1122.56	
50.00	1724.00	0.28	479.48	39249.90	
			#VALUE!		
			#VALUE!		
			#VALUE!		
Max TY=	50.00		**Total CHUs =**	40372.46	
			AAHUs =	807.45	

Future With Project					
TY	**Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**	
0.00	1724.00	0.65	1122.56		
1.00	1724.00	0.65	1122.56	1122.56	
50.00	1724.00	0.28	478.94	39236.72	
Max TY=	50.00		**Total CHUs =**	40359.28	
			AAHUs =	807.19	

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	807.19
B. Future Without Project AAHUs =	807.45
Net Change (FWP - FWOP) =	**-0.26**

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP Direct West BLH LOW Acres: 123.00

Condition: Future Without Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 4.00	0.80	Class 4.00	0.80	Class 4.00	0.80
V2	Maturity (input age or dbh, not both)	Age / dbh 14.50	0.63	Age / dbh 15.00	0.67	Age / dbh 21.30	1.00
V3	Understory / Midstory	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 60.00 / Midstory % 80.00	0.85
V4	Hydrology	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Seasonal	0.85
V5	Forest Size	Class 4.00	0.77	Class 4.00	0.77	Class 4.00	0.77
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	34.00	0.40	34.00	0.40	34.00	0.40
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	32.00		32.00		32.00	
	Development	34.00		34.00		34.00	
V7	Disturbance Type	Class	0.83	Class	0.83	Class	0.83
	Disturbance Distance	Class		Class		Class	
		HSI =	**0.75**	**HSI =**	**0.76**	**HSI =**	**0.82**

Intermediate Calculations

Understory/Midstory		
1.00	1.00	1.00
0.77	0.77	0.70
Hydrology		
1.00	1.00	0.85
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West BLH LOW Acres: 123.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh / Abandoned Ag / Pasture / Hay / Active Ag / Development						
V7	Disturbance Type	Class		Class		Class	
	Disturbance Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP Direct West BLH LOW Acres: 123.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh / Abandoned Ag / Pasture / Hay / Active Ag / Development						
V7	Disturbance Type	Class		Class		Class	
	Disturbance Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP Direct West BLH LOW Acres: 123.00

Condition: Future With Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 4.00	0.80	Class 1.00	0.20	Class 1.00	0.20
V2	Maturity (input age or dbh, not both)	Age / dbh 14.50	0.63	Age / dbh 5.00	0.05	Age / dbh 5.00	0.05
V3	Understory / Midstory	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 0.00 / Midstory % 0.00	0.10	Understory % 0.00 / Midstory % 0.00	0.10
V4	Hydrology	Flow/Exchange High / Flooding Duration		Flow/Exchange None / Flooding Duration		Flow/Exchange None / Flooding Duration	

Intermediate Calculations

Understory/Midstory		
1.00	0.10	0.10
0.77	0.10	0.10
Hydrology		
1.00	0.00	0.00
0.00	0.00	0.00

		Temporary	1.00	Permanent	0.10	Permanent	0.10
V5	Forest Size	Class	0.77	Class	0.00	Class	0.00
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	34.00	0.40	29.00	0.35	28.00	0.30
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	32.00		32.00		11.00	
	Development	34.00		39.00		61.00	
V7	Disturbance						
	Type	Class	0.83	Class	0.83	Class	0.79
	Distance	Class		Class		Class	
		HSI =	**0.75**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.00	0.10	0.10

Project: WSLP Direct West BLH LOW FWP

Acres: 123.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP Direct West BLH LOW FWP

Acres: 123.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

AAHU CALCULATION, Bottomland Hardwoods

Project: WSLP Direct West BLH LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	123.00	**0.75**	92.24	
1.00	123.00	**0.76**	93.52	92.88
50.00	123.00	**0.82**	101.40	4775.44
MAX	50.00		**Total CHUs =**	**4868.31**
			AAHUs =	**97.37**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	123.00	**0.75**	92.24	
1.00	0.00	**0.00**	0.00	30.75
50.00	0.00	**0.00**	0.00	0.00
MAX	50.00		**Total CHUs =**	**30.75**
			AAHUs =	**0.61**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future Without Project AAHUs =	97.37
B. Future With Project AAHUs =	0.61
Net Change (FWP - FWOP) =	**-96.75**

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP Direct West BLH LOW Acres: 123.00

Condition: Future Without Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 4.00	0.80	Class 4.00	0.80	Class 4.00	0.80
V2	Maturity (input age or dbh, not both)	Age / dbh 14.50	0.63	Age / dbh 15.00	0.67	Age / dbh 20.20	1.00
V3	Understory / Midstory	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 70.00 / Midstory % 80.00	0.80
V4	Hydrology	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Semi-Permanent	0.75
V5	Forest Size	Class 4.00	0.77	Class 4.00	0.77	Class 4.00	0.77
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	34.00	0.40	34.00	0.40	34.00	0.40
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	32.00		32.00		32.00	
	Development	34.00		34.00		34.00	
V7	Disturbance Type	Class	0.83	Class	0.83	Class	0.83
	Distance	Class		Class		Class	
		HSI =	**0.75**	**HSI =**	**0.76**	**HSI =**	**0.80**

Intermediate Calculations

Understory/Midstory

1.00	1.00	0.90
0.77	0.77	0.70

Hydrology

1.00	1.00	0.75
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West BLH LOW Acres: 123.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh / Abandoned Ag / Pasture / Hay / Active Ag / Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP Direct West BLH LOW Acres: 123.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh / Abandoned Ag / Pasture / Hay / Active Ag / Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP Direct West BLH LOW Acres: 123.00

Condition: Future With Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 4.00	0.80	Class 1.00	0.20	Class 1.00	0.20
V2	Maturity (input age or dbh, not both)	Age / dbh 14.50	0.63	Age / dbh 5.00	0.05	Age / dbh 5.00	0.05
V3	Understory / Midstory	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 0.00 / Midstory % 0.00	0.10	Understory % 0.00 / Midstory % 0.00	0.10
V4	Hydrology	Flow/Exchange High / Flooding Duration		Flow/Exchange None / Flooding Duration		Flow/Exchange None / Flooding Duration	

Intermediate Calculations

Understory/Midstory

1.00	0.10	0.10
0.77	0.10	0.10

Hydrology

1.00	0.00	0.00
0.00	0.00	0.00

6/16/2014

Variable		Class/Value	SI	Class/Value	SI	Class/Value	SI
		Temporary	1.00	Permanent	0.10	Permanent	0.10
V5	Forest Size	Class	0.77	Class	0.00	Class	0.00
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	34.00	0.40	29.00	0.35	28.00	0.30
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	32.00		32.00		11.00	
	Development	34.00		39.00		61.00	
V7	Disturbance Type	Class	0.83	Class	0.83	Class	0.79
	Distance	Class		Class		Class	
		HSI =	0.75	HSI =	0.00	HSI =	0.00

0.00	0.10	0.10

Project: WSLP Direct West BLH LOW Acres: 123.00

FWP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		HSI =		HSI =	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP Direct West BLH LOW Acres: 123.00

FWP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		HSI =		HSI =	

Intermediate Calculations

Understory/Midstory

Hydrology

AAHU CALCULATION, Bottomland Hardwoods

Project: WSLP Direct West BLH LOW

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	123.00	**0.75**	92.24	
1.00	123.00	**0.76**	93.52	92.88
50.00	123.00	**0.80**	98.92	4714.65
MAX	50.00		**Total CHUs =**	**4807.53**
			AAHUs =	**96.15**

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	123.00	**0.75**	92.24	
1.00	0.00	**0.00**	0.00	30.75
50.00	0.00	**0.00**	0.00	0.00
MAX	50.00		**Total CHUs =**	**30.75**
			AAHUs =	**0.61**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future Without Project AAHUs =	96.15
B. Future With Project AAHUs =	0.61
Net Change (FWP - FWOP) =	-95.54

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP Direct West BLH LOW Acres: 123.00

Condition: Future Without Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 4.00	0.80	Class 4.00	0.80	Class 3.00	0.60
V2	Maturity (input age or dbh, not both)	Age / dbh 14.50	0.63	Age / dbh 15.00	0.67	Age / dbh 19.20	0.95
V3	Understory / Midstory	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 10.00 / Midstory % 20.00	0.70
V4	Hydrology	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Permanent	0.65
V5	Forest Size	Class 4.00	0.77	Class 4.00	0.77	Class 4.00	0.77
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	34.00	0.40	34.00	0.40	34.00	0.40
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	32.00		32.00		32.00	
	Development	34.00		34.00		34.00	
V7	Disturbance Type	Class	0.83	Class	0.83	Class	0.83
	Disturbance Distance	Class		Class		Class	
		HSI =	**0.75**	**HSI =**	**0.76**	**HSI =**	**0.71**

Intermediate Calculations

Understory/Midstory

1.00	1.00	0.40
0.77	0.77	1.00

Hydrology

1.00	1.00	0.65
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct West BLH LOW Acres: 123.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh / Abandoned Ag / Pasture / Hay / Active Ag / Development						
V7	Disturbance Type	Class		Class		Class	
	Disturbance Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP Direct West BLH LOW Acres: 123.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh / Abandoned Ag / Pasture / Hay / Active Ag / Development						
V7	Disturbance Type	Class		Class		Class	
	Disturbance Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP Direct West BLH LOW Acres: 123.00

Condition: Future With Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 4.00	0.80	Class 1.00	0.20	Class 1.00	0.20
V2	Maturity (input age or dbh, not both)	Age / dbh 14.50	0.63	Age / dbh 5.00	0.05	Age / dbh 5.00	0.05
V3	Understory / Midstory	Understory % 52.00 / Midstory % 73.00	0.89	Understory % 0.00 / Midstory % 0.00	0.10	Understory % 0.00 / Midstory % 0.00	0.10
V4	Hydrology	Flow/Exchange High / Flooding Duration		Flow/Exchange None / Flooding Duration		Flow/Exchange None / Flooding Duration	

Intermediate Calculations

Understory/Midstory

1.00	0.10	0.10
0.77	0.10	0.10

Hydrology

1.00	0.00	0.00
0.00	0.00	0.00

6/16/2014

		Temporary	1.00	Permanent	0.10	Permanent	0.10
V5	Forest Size	Class	0.77	Class	0.00	Class	0.00
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	34.00	0.40	29.00	0.35	28.00	0.30
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	32.00		32.00		11.00	
	Development	34.00		39.00		61.00	
V7	Disturbance						
	Type	Class	0.83	Class	0.83	Class	0.79
	Distance	Class		Class		Class	
		HSI =	**0.75**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.00	0.10	0.10

Project: WSLP Direct West BLH LOW FWP

Acres: 123.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP Direct West BLH LOW FWP

Acres: 123.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

AAHU CALCULATION, Bottomland Hardwoods

Project: WSLP Direct West BLH LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	123.00	**0.75**	92.24	
1.00	123.00	**0.76**	93.52	92.88
50.00	123.00	**0.71**	87.06	4424.06
MAX	50.00		**Total CHUs =**	**4516.93**
			AAHUs =	**90.34**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	123.00	**0.75**	92.24	
1.00	0.00	**0.00**	0.00	30.75
50.00	0.00	**0.00**	0.00	0.00
MAX	50.00		**Total CHUs =**	**30.75**
			AAHUs =	**0.61**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future Without Project AAHUs =	90.34
B. Future With Project AAHUs =	0.61
Net Change (FWP - FWOP) =	**-89.72**

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW Acres: 89.00

Condition: Future Without Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 5.00	1.00	Class 5.00	1.00	Class 5.00	1.00
V2	Maturity (input age or dbh, not both)	Age / dbh 15.90	0.73	Age / dbh 15.90	0.73	Age / dbh 22.00	1.00
V3	Understory / Midstory	Understory % 35.00; Midstory % 20.00	1.00	Understory % 35.00; Midstory % 20.00	1.00	Understory % 45.00; Midstory % 30.00	1.00
V4	Hydrology	Flow/Exchange High; Flooding Duration Temporary	1.00	Flow/Exchange High; Flooding Duration Temporary	1.00	Flow/Exchange High; Flooding Duration Seasonal	0.85
V5	Forest Size	Class 3.00	0.60	Class 3.00	0.60	Class 3.00	0.60
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	28.00	0.36	28.00	0.36	28.00	0.36
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	40.00		40.00		40.00	
	Development	32.00		32.00		32.00	
V7	Disturbance Type	Class	0.85	Class	0.85	Class	0.85
	Distance	Class		Class		Class	
		HSI =	**0.82**	**HSI =**	**0.82**	**HSI =**	**0.87**

Intermediate Calculations

Understory/Midstory

1.00	1.00	1.00
1.00	1.00	1.00

Hydrology

1.00	1.00	0.85
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP INDirect West BLH LOW Acres: 89.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange; Flooding Duration		Flow/Exchange; Flooding Duration		Flow/Exchange; Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP INDirect West BLH LOW Acres: 89.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange; Flooding Duration		Flow/Exchange; Flooding Duration		Flow/Exchange; Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW Acres: 89.00

Condition: Future With Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 5.00	1.00	Class 5.00	1.00	Class 5.00	1.00
V2	Maturity (input age or dbh, not both)	Age / dbh 15.90	0.73	Age / dbh 15.90	0.73	Age / dbh 20.90	1.00
V3	Understory / Midstory	Understory % 35.00; Midstory % 20.00	1.00	Understory % 35.00; Midstory % 20.00	1.00	Understory % 45.00; Midstory % 30.00	1.00
V4	Hydrology	Flow/Exchange High; Flooding Duration		Flow/Exchange High; Flooding Duration		Flow/Exchange Moderate; Flooding Duration	

Intermediate Calculations

Understory/Midstory

1.00	1.00	1.00
1.00	1.00	1.00

Hydrology

1.00	1.00	0.75
0.00	0.00	0.00

		Temporary	1.00	Temporary	1.00	Seasonal	0.75	0.00	0.00	0.00
V5	Forest Size	Class 3.00	0.60	Class 3.00	0.60	Class 3.00	0.60			
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	28.00	0.36	18.00	0.26	19.00	0.21			
	Abandoned Ag	0.00		0.00		0.00				
	Pasture / Hay	0.00		0.00		0.00				
	Active Ag	40.00		40.00		8.00				
	Development	32.00		42.00		73.00				
V7	Disturbance									
	Type	Class	0.85	Class	0.85	Class	0.78			
	Distance	Class		Class		Class				
		HSI =	**0.82**	**HSI =**	**0.80**	**HSI =**	**0.82**			

Project: WSLP INDirect West BLH LOW FWP

Acres: 89.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP INDirect West BLH LOW FWP

Acres: 89.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

AAHU CALCULATION, Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	89.00	**0.82**	73.02	
1.00	89.00	**0.82**	73.02	73.02
50.00	89.00	**0.87**	77.79	3694.74
MAX	50.00		**Total CHUs =**	**3767.76**
			AAHUs =	**75.36**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	89.00	**0.82**	73.02	
1.00	89.00	**0.80**	71.45	72.24
50.00	89.00	**0.82**	73.28	3546.03
MAX	50.00		**Total CHUs =**	**3618.26**
			AAHUs =	**72.37**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future Without Project AAHUs =	75.36
B. Future With Project AAHUs =	72.37
Net Change (FWP - FWOP) =	**-2.99**

COMMUNITY HABITAT SUITABILITY MODEL

Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW Acres: 89.00

Condition: Future Without Project

Variable		TY Class/Value	0.00 SI	TY Class/Value	1.00 SI	TY Class/Value	50.00 SI
V1	Species Assoc.	Class 5.00	1.00	Class 5.00	1.00	Class 5.00	1.00
V2	Maturity (input age or dbh, not both)	Age / dbh 15.90	0.73	Age / dbh 15.90	0.73	Age / dbh 20.90	1.00
V3	Understory / Midstory	Understory % 35.00 / Midstory % 20.00	1.00	Understory % 35.00 / Midstory % 20.00	1.00	Understory % 55.00 / Midstory % 30.00	1.00
V4	Hydrology	Flow/Exchange High; Flooding Duration Temporary	1.00	Flow/Exchange High; Flooding Duration Temporary	1.00	Flow/Exchange High; Flooding Duration Semi-Permanent	0.75
V5	Forest Size	Class 3.00	0.60	Class 3.00	0.60	Class 3.00	0.60
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	28.00	0.36	28.00	0.36	28.00	0.36
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	40.00		40.00		40.00	
	Development	32.00		32.00		32.00	
V7	Disturbance Type	Class	0.85	Class	0.85	Class	0.85
	Distance	Class		Class		Class	
		HSI =	**0.82**	**HSI =**	**0.82**	**HSI =**	**0.86**

Intermediate Calculations

Understory/Midstory

1.00	1.00	1.00
1.00	1.00	1.00

Hydrology

1.00	1.00	0.75
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP INDirect West BLH LOW Acres: 89.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange; Flooding Duration		Flow/Exchange; Flooding Duration		Flow/Exchange; Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP INDirect West BLH LOW Acres: 89.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Understory/Midstory		
Hydrology		

COMMUNITY HABITAT SUITABILITY MODEL

Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW Acres: 89.00

Condition: Future With Project

Variable		TY Class/Value	0.00 SI	TY Class/Value	1.00 SI	TY Class/Value	50.00 SI
V1	Species Assoc.	Class		Class		Class	
		5.00	1.00	5.00	1.00	5.00	1.00
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
		15.90	0.73	15.90	0.73	19.90	1.00
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		35.00		35.00		55.00	
		Midstory %		Midstory %		Midstory %	
		20.00	1.00	20.00	1.00	30.00	1.00
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		High		High		Moderate	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Temporary	1.00	Temporary	1.00	Semi-Permanent	0.65
V5	Forest Size	Class		Class		Class	
		3.00	0.60	3.00	0.60	3.00	0.60
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	28.00	0.36	18.00	0.26	19.00	0.21
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	40.00		40.00		8.00	
	Development	32.00		42.00		73.00	
V7	Disturbance						
	Type	Class		Class		Class	
			0.85		0.85		0.78
	Distance	Class		Class		Class	
		HSI =	0.82	HSI =	0.80	HSI =	0.81

Intermediate Calculations		
Understory/Midstory		
1.00	1.00	1.00
1.00	1.00	1.00
Hydrology		
1.00	1.00	0.00
0.00	0.00	0.65
0.00	0.00	0.00

Project: WSLP INDirect West BLH LOW FWP

Acres: 89.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP INDirect West BLH LOW FWP

Acres: 89.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age		Age		Age	
		dbh		dbh		dbh	
V3	Understory / Midstory	Understory %		Understory %		Understory %	
		Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Type	Class		Class		Class	
	Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

AAHU CALCULATION, Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	89.00	**0.82**	73.02	
1.00	89.00	**0.82**	73.02	73.02
50.00	89.00	**0.86**	76.50	3663.20
MAX	50.00		**Total CHUs =**	**3736.22**
			AAHUs =	**74.72**

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	89.00	**0.82**	73.02	
1.00	89.00	**0.80**	71.45	72.24
50.00	89.00	**0.81**	71.81	3509.88
MAX	50.00		**Total CHUs =**	**3582.12**
			AAHUs =	**71.64**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future Without Project AAHUs =	74.72
B. Future With Project AAHUs =	71.64
Net Change (FWP - FWOP) =	**-3.08**

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW Acres: 89.00

Condition: Future Without Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 5.00	1.00	Class 5.00	1.00	Class 4.00	0.80
V2	Maturity (input age or dbh, not both)	Age / dbh 15.90	0.73	Age / dbh 15.90	0.73	Age / dbh 19.90	1.00
V3	Understory / Midstory	Understory % 35.00 / Midstory % 20.00	1.00	Understory % 35.00 / Midstory % 20.00	1.00	Understory % 10.00 / Midstory % 20.00	0.70
V4	Hydrology	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Temporary	1.00	Flow/Exchange High / Flooding Duration Permanent	0.65
V5	Forest Size	Class 3.00	0.60	Class 3.00	0.60	Class 3.00	0.60
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	28.00	0.36	28.00	0.36	28.00	0.36
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	40.00		40.00		40.00	
	Development	32.00		32.00		32.00	
V7	Disturbance Type	Class	0.85	Class	0.85	Class	0.85
	Distance	Class		Class		Class	
		HSI =	**0.82**	**HSI =**	**0.82**	**HSI =**	**0.76**

Intermediate Calculations

Understory/Midstory

1.00	1.00	0.40
1.00	1.00	1.00

Hydrology

1.00	1.00	0.65
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP INDirect West BLH LOW Acres: 89.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development						
V7	Disturbance Type / Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

Project: WSLP INDirect West BLH LOW Acres: 89.00

FWOP

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity (input age or dbh, not both)	Age / dbh		Age / dbh		Age / dbh	
V3	Understory / Midstory	Understory % / Midstory %		Understory % / Midstory %		Understory % / Midstory %	
V4	Hydrology	Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration		Flow/Exchange / Flooding Duration	
V5	Forest Size	Class		Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development						
V7	Disturbance Type / Distance	Class		Class		Class	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations

Understory/Midstory

Hydrology

COMMUNITY HABITAT SUITABILITY MODEL
Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW Acres: 89.00

Condition: Future With Project

Variable		TY 0.00 Class/Value	SI	TY 1.00 Class/Value	SI	TY 50.00 Class/Value	SI
V1	Species Assoc.	Class 5.00	1.00	Class 5.00	1.00	Class 4.00	0.80
V2	Maturity (input age or dbh, not both)	Age / dbh 15.90	0.73	Age / dbh 15.90	0.73	Age / dbh 18.90	0.93
V3	Understory / Midstory	Understory % 35.00 / Midstory % 20.00	1.00	Understory % 35.00 / Midstory % 20.00	1.00	Understory % 10.00 / Midstory % 20.00	0.70
V4	Hydrology	Flow/Exchange High / Flooding Duration		Flow/Exchange High / Flooding Duration		Flow/Exchange Moderate / Flooding Duration	

Intermediate Calculations

Understory/Midstory

1.00	1.00	0.40
1.00	1.00	1.00

Hydrology

1.00	1.00	0.00
0.00	0.00	0.45

		Temporary	1.00	Temporary	1.00	Permanent	0.45
		Class		Class		Class	
V5	Forest Size	3.00	0.60	3.00	0.60	3.00	0.60
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	28.00	0.36	18.00	0.26	19.00	0.21
	Abandoned Ag	0.00		0.00		0.00	
	Pasture / Hay	0.00		0.00		0.00	
	Active Ag	40.00		40.00		8.00	
	Development	32.00		42.00		73.00	
V7	Disturbance						
	Class			Class		Class	
	Type		0.85		0.85		0.78
	Class			Class		Class	
	Distance						
		HSI =	**0.82**	**HSI =**	**0.80**	**HSI =**	**0.68**

0.00	0.00	0.00

Project: WSLP INDirect West BLH LOW FWP

Acres: 89.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
		Class		Class		Class	
V1	Species Assoc.						
V2	Maturity (input	Age		Age		Age	
	age or dbh, not						
	both)	dbh		dbh		dbh	
V3		Understory %		Understory %		Understory %	
	Understory /						
	Midstory	Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Class		Class		Class	
V5	Forest Size						
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Class			Class		Class	
	Type						
	Class			Class		Class	
	Distance						
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations
Understory/Midstory
Hydrology

Project: WSLP INDirect West BLH LOW FWP

Acres: 89.00

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
		Class		Class		Class	
V1	Species Assoc.						
V2	Maturity (input	Age		Age		Age	
	age or dbh, not						
	both)	dbh		dbh		dbh	
V3		Understory %		Understory %		Understory %	
	Understory /						
	Midstory	Midstory %		Midstory %		Midstory %	
V4	Hydrology	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Class		Class		Class	
V5	Forest Size						
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh						
	Abandoned Ag						
	Pasture / Hay						
	Active Ag						
	Development						
V7	Disturbance						
	Class			Class		Class	
	Type						
	Class			Class		Class	
	Distance						
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations
Understory/Midstory
Hydrology

AAHU CALCULATION, Bottomland Hardwoods

Project: WSLP INDirect West BLH LOW

Future Without Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	89.00	**0.82**	73.02	
1.00	89.00	**0.82**	73.02	73.02
50.00	89.00	**0.76**	67.35	3439.02
MAX	50.00		**Total CHUs =**	**3512.03**
			AAHUs =	**70.24**

Future With Project TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	89.00	**0.82**	73.02	
1.00	89.00	**0.80**	71.45	72.24
50.00	89.00	**0.68**	60.30	3227.92
MAX	50.00		**Total CHUs =**	**3300.15**
			AAHUs =	**66.00**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future Without Project AAHUs =	70.24
B. Future With Project AAHUs =	66.00
Net Change (FWP - FWOP) =	**-4.24**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct NonStructural LOW Project Area: 1.10

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	20.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		64.00		64.00		55.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		46.00		46.00		35.00	
		Herbaceous		Herbaceous		Herbaceous	
		22.00		22.00		32.00	
		Class		Class		Class	
		4.00	0.60	4.00	0.60	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		15.76		16.66		19.51	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		138.77		116.24		155.70	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.97		14.57		16.47	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		109.00	0.99	164.00	1.00	165.00	1.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Semi-Permanent	0.45
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.44	1.00	0.50	1.00
		HSI =	0.67	HSI =	0.68	HSI =	0.68

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
4.00	4.00	4.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.98	1.00	1.00
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.99	1.00	1.00
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.45
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct NonStructural LOW Project Area: 1.10

FWOP

Variable		TY	30.00	TY	50.00	TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		50.00		40.00			
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		30.00			
		Herbaceous		Herbaceous		Herbaceous	
		30.00		30.00			
		Class		Class		Class	
		4.00	0.60	2.00	0.20		
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		20.15		21.43			
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		167.81		198.49			
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		16.47		18.87			
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		177.00	1.00	140.00	1.00		
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low			
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Permanent	0.30		
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.50	1.00		
		HSI =	0.68	HSI =	0.43	HSI =	

Intermediate Calculations		
Class		
0.00	2.00	
0.00	0.00	
4.00	0.00	
0.00	0.00	
Tupelo/Cypress dbh		
0.00	0.00	0.00
1.00	1.00	0.00
1.00	1.00	0.00
Tupelo/Cypress Basal Area		
1.00	1.00	
Water Regime		
0.00	0.00	
0.45	0.30	
0.00	0.00	
Salinity		
1.00	1.00	0.00
1.00	1.00	0.00

Project: WSLP Direct NonStructural LOW Project Area: 1.10

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct NonStructural LOW Project Area: 1.10

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		64.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		46.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		22.00		0.00		0.00	
		Class		Class		Class	
		4.00	0.60	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		15.76		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		138.77		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
4.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.98	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.97		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		109.00	0.99	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.67**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.99	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.45	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct NonStructural LOW FWP

Project Area: 1.10

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct NonStructural LOW FWP

Project Area: 1.10

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct NonStructural LOW

Future Without Project				
TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	1.10	0.67	0.74	
1.00	1.10	0.68	0.74	0.74
20.00	1.10	0.68	0.74	14.11
30.00		0.68	0.00	3.71
50.00		0.43	0.00	0.00
			#VALUE!	
Max TY=	50.00		Total CHUs =	18.57
			AAHUs =	0.37

Future With Project				
TY	Acres	x HSI	Total HUs	Cummulative HUs
0.00	1.10	0.67	0.74	
1.00	0.00	0.00	0.00	0.25
50.00	0.00	0.00	0.00	0.00
Max TY=	50.00		Total CHUs =	0.25
			AAHUs =	0.00

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	0.00
B. Future Without Project AAHUs =	0.37
Net Change (FWP - FWOP) =	-0.37

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct NonStructural MED Project Area: 1.10

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	20.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		64.00		64.00		55.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		46.00		46.00		35.00	
		Herbaceous		Herbaceous		Herbaceous	
		22.00		22.00		32.00	
		Class		Class		Class	
		4.00	0.60	4.00	0.60	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		15.76		16.66		19.51	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		138.77		116.24		155.70	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.97		14.57		16.47	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		109.00	0.99	164.00	1.00	165.00	1.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Low	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.30
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.44	1.00	0.50	1.00
		HSI =	0.67	HSI =	0.68	HSI =	0.60

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
4.00	4.00	4.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.98	1.00	1.00
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.99	1.00	1.00
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.30
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct NonStructural MED Project Area: 1.10

FWOP

Variable		TY	30.00	TY	50.00	TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		50.00		40.00			
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		30.00			
		Herbaceous		Herbaceous		Herbaceous	
		30.00		30.00			
		Class		Class		Class	
		4.00	0.60	2.00	0.20		
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		20.15		21.43			
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		167.81		198.49			
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		16.47		18.87			
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		177.00	1.00	140.00	1.00		
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low			
		Flooding Duration		Flooding Duration		Flooding Duration	
		Permanent	0.30	Permanent	0.30		
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.50	1.00		
		HSI =	0.60	HSI =	0.43	HSI =	

Intermediate Calculations		
Class		
0.00	2.00	
0.00	0.00	
4.00	0.00	
0.00	0.00	
Tupelo/Cypress dbh		
0.00	0.00	0.00
1.00	1.00	0.00
1.00	1.00	0.00
Tupelo/Cypress Basal Area		
1.00	1.00	
Water Regime		
0.00	0.00	
0.30	0.30	
0.00	0.00	
Salinity		
1.00	1.00	0.00
1.00	1.00	0.00

Project: WSLP Direct NonStructural MED Project Area: 1.10

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct NonStructural MED Project Area: 1.10

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		64.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		46.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		22.00		0.00		0.00	
		Class		Class		Class	
		4.00	0.60	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		15.76		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		138.77		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
4.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.98	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh		0.99	0.00	0.00
		13.97		0.00		0.00				
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area			Water Regime	
		109.00	0.99	1.00	0.00	1.00	0.00	0.00	0.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange		0.45	0.00	0.00
		Low		None		None		0.00	0.10	0.10
		Flooding Duration		Flooding Duration		Flooding Duration			Salinity	
		Semi-Permanent	0.45	Permanent	0.10	Permanent	0.10			
V4	Salinity	Salinity		Salinity		Salinity		1.00	1.00	1.00
		0.44	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
		HSI =	**0.67**	**HSI =**	**0.00**	**HSI =**	**0.00**			

Project: WSLP Direct NonStructural MED FWP

Project Area: 1.10

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
	Class	
	Tupelo/Cypress dbh	
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
	Tupelo/Cypress Basal Area	
	Water Regime	
	Salinity	
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct NonStructural MED FWP

Project Area: 1.10

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
	Class	
	Tupelo/Cypress dbh	
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
	Tupelo/Cypress Basal Area	
	Water Regime	
	Salinity	
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct NonStructural MED

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	1.10	0.67	0.74	
1.00	1.10	0.68	0.74	0.74
20.00	1.10	0.60	0.66	13.30
30.00		0.60	0.00	3.29
50.00		0.43	0.00	0.00
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**17.33**
			AAHUs =	**0.35**

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0.00	1.10	0.67	0.74	
1.00	0.00	0.00	0.00	0.25
50.00	0.00	0.00	0.00	0.00
Max TY=	**50.00**		**Total CHUs =**	**0.25**
			AAHUs =	**0.00**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	0.00
B. Future Without Project AAHUs =	0.35
Net Change (FWP - FWOP) =	**-0.34**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct NonStructural HIGH Project Area: 1.10

Condition: Future Without Project

Variable		TY	0.00	TY	1.00	TY	20.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		64.00		64.00		55.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		46.00		46.00		35.00	
		Herbaceous		Herbaceous		Herbaceous	
		22.00		22.00		32.00	
		Class		Class		Class	
		4.00	0.60	4.00	0.60	4.00	0.60
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		15.76		16.66		19.51	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		138.77		116.24		155.70	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.97		14.57		16.47	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		109.00	0.99	164.00	1.00	165.00	1.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		Low		Moderate	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Semi-Permanent	0.45	Permanent	0.45
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.44	1.00	0.50	1.00
		HSI =	0.67	HSI =	0.68	HSI =	0.68

Intermediate Calculations		
Class		
0.00	0.00	0.00
0.00	0.00	0.00
4.00	4.00	4.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.98	1.00	1.00
1.00	1.00	1.00
Tupelo/Cypress Basal Area		
0.99	1.00	1.00
Water Regime		
0.00	0.00	0.00
0.45	0.45	0.45
0.00	0.00	0.00
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct NonStructural HIGH Project Area: 1.10

FWOP

Variable		TY	30.00	TY	50.00	TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		50.00		40.00			
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		33.00		30.00			
		Herbaceous		Herbaceous		Herbaceous	
		30.00		30.00			
		Class		Class		Class	
		4.00	0.60	2.00	0.20		
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		20.15		21.43			
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		167.81		198.49			
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		16.47		18.87			
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		177.00	1.00	140.00	1.00		
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Moderate		Moderate			
		Flooding Duration		Flooding Duration		Flooding Duration	
		Permanent	0.45	Permanent	0.45		
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.50	1.00		
		HSI =	0.68	HSI =	0.49	HSI =	

Intermediate Calculations		
Class		
0.00	2.00	
0.00	0.00	
4.00	0.00	
0.00	0.00	
Tupelo/Cypress dbh		
0.00	0.00	0.00
1.00	1.00	0.00
1.00	1.00	0.00
Tupelo/Cypress Basal Area		
1.00	1.00	
Water Regime		
0.00	0.00	
0.45	0.45	
0.00	0.00	
Salinity		
1.00	1.00	0.00
1.00	1.00	0.00

Project: WSLP Direct NonStructural HIGH Project Area: 1.10

FWOP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		HSI =		HSI =	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Swamp

Project: WSLP Direct NonStructural HIGH Project Area: 1.10

Condition: Future With Project

Variable		TY	0.00	TY	1.00	TY	50.00
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		64.00		0.00		0.00	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		46.00		0.00		0.00	
		Herbaceous		Herbaceous		Herbaceous	
		22.00		0.00		0.00	
		Class		Class		Class	
		4.00	0.60	1.00	0.10	1.00	0.10
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		15.76		0.00		0.00	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		138.77		0.00		0.00	

Intermediate Calculations		
Class		
0.00	1.00	1.00
0.00	0.00	0.00
4.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.98	0.00	0.00
1.00	0.00	0.00
Tupelo/Cypress Basal Area		

		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		13.97		0.00		0.00	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
		109.00	0.99	1.00	0.00	1.00	0.00
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Low		None		None	
		Flooding Duration		Flooding Duration		Flooding Duration	
		Semi-Permanent	0.45	Permanent	0.10	Permanent	0.10
V4	Salinity	Salinity		Salinity		Salinity	
		0.44	1.00	0.00	1.00	0.00	1.00
		HSI =	**0.67**	**HSI =**	**0.00**	**HSI =**	**0.00**

0.99	0.00	0.00
Water Regime		
0.00	0.00	0.00
0.45	0.00	0.00
0.00	0.10	0.10
Salinity		
1.00	1.00	1.00
1.00	1.00	1.00

Project: WSLP Direct NonStructural HIGH FWP

Project Area: 1.10

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

Project: WSLP Direct NonStructural HIGH FWP

Project Area: 1.10

Variable		TY Class/Value	SI	TY Class/Value	SI	TY Class/Value	SI
V1	Stand Structure	% Cover		% Cover		% Cover	
		Overstory		Overstory		Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress dbh		Cypress dbh		Cypress dbh	
		Cypress Basal Area		Cypress Basal Area		Cypress Basal Area	
		Tupelo et al dbh		Tupelo et al dbh		Tupelo et al dbh	
		Tupelo et al. Basal Area		Tupelo et al. Basal Area		Tupelo et al. Basal Area	
V3	Water Regime	Flow/Exchange		Flow/Exchange		Flow/Exchange	
		Flooding Duration		Flooding Duration		Flooding Duration	
V4	Salinity	Salinity		Salinity		Salinity	
		HSI =		**HSI =**		**HSI =**	

Intermediate Calculations		
Class		
Tupelo/Cypress dbh		
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
Tupelo/Cypress Basal Area		
Water Regime		
Salinity		
0.00	0.00	0.00
0.00	0.00	0.00

AAHU CALCULATION

Project: WSLP Direct NonStructural HIGH

Future Without Project				
TY	**Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0.00	1.10	0.67	0.74	
1.00	1.10	0.68	0.74	0.74
20.00	1.10	0.68	0.74	14.11
30.00		0.68	0.00	3.71
50.00		0.49	0.00	0.00
			#VALUE!	
Max TY=	**50.00**		**Total CHUs =**	**18.57**
			AAHUs =	**0.37**

Future With Project				
TY	**Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0.00	1.10	0.67	0.74	
1.00	0.00	0.00	0.00	0.25
50.00	0.00	0.00	0.00	0.00
Max TY=	**50.00**		**Total CHUs =**	**0.25**
			AAHUs =	**0.00**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project AAHUs =	0.00
B. Future Without Project AAHUs =	0.37
Net Change (FWP - FWOP) =	**-0.37**

EAST and Central	Existing Water Depth (ft NAVD88) (based on LIDAR)	Relative Sea Level Rise (ft NAVD88) (provided by the Corps)	Total Water Depth (ft NAVD88)	Baldcypress Growth Factor	Change btw FWP FWOP GF	Change btw FWP FWOP RSLR
FWOP Low	0.8775	1.81	2.69	-1.5	0.2	0.4
FWP Low	0.8775	2.21	3.09	-1.7		
FWOP Med	0.8775	2.32	3.20	-1.7	0.3	0.5
FWP Med	0.8775	2.82	3.70	-1.9		
FWOP High	0.8775	3.95	4.83	-2.6	0.4	0.9
FWP High	0.8775	4.85	5.73	-3.5		
WEST						
FWOP Low	0.984	1.81	2.79	-1.5	0.2	0.4
FWP Low	0.984	2.21	3.19	-1.7		
FWOP Med	0.984	2.32	3.30	-1.8	0.3	0.5
FWP Med	0.984	2.82	3.80	-2.0		
FWOP High	0.984	3.95	4.93	-2.6	0.5	0.9
FWP High	0.984	4.85	5.83	-3.6		

	EAST	WEST
	Water levels above surface elevation (NAVD 88 Feet)	
Year	CRMS0059	CRMS5373
2007	0.61	
2008	0.17	0.05
2009		-0.14
2010	0.34	0.28
2011	0.19	-0.1
2012		0.33
Average water depth	0.3275	0.084
mean marsh elevation at CRMS station	0.95	1.2

water levels from lidar surface elevations (NAVD 88 feet) and crms water depth (NAVD88 feet).

mean marsh ele	0.4	0.3
Year	CRMS0059	CRMS5373
2007	1.16	
2008	0.72	0.95
2009		0.76
2010	0.89	1.18
2011	0.74	0.8
2012		1.23
Average water depth	**0.8775**	**0.984**

DIRECT EAST SWAMP

TOTAL Direct East Swamp								
	TY 1.0		FWOP (-1.5) TY50		FWOP (-1.7) TY50		FWOP (-2.6) TY50	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
cypress	17.0	53.2	15.0	338.9	14.4	331.8	15.9	308.5
other	4.2	13.3	4.7	107.0	4.6	104.8	4.2	81.2
# of trees	12.7	39.9	10.2	231.9	9.9	227.0	11.7	227.3
	tot	12.0	tot	38.0	tot	38.0	tot	19.0
	cypres	3.0	cypres	12.0	cypres	12.0	cypres	5.0
	other	9.0	other	26.0	other	26.0	other	14.0
Forest % c		51.5						
Mid % cov		47.5						
0 Herb % co		45.0						
	%cypres	0.3	%cypres	0.3	%cypres	0.3	%cypres	0.3
	%other	0.8	%other	0.7	%other	0.7	%other	0.7
	Class	6.0	Class		Class		Class	

Plot W25								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	16.0	52.8	19.0	554.4	19.0	554.4	19.0	554.4
9.0	tot	9.0	tot	26.0	tot	26.0	tot	14.0
	cypres	2.0	cypress	6.0	cypres	6.0	cypress	3.0
	other	7.0	other	20.0	other	20.0	other	11.0
Forest % c		25.0						
Mid % cov		50.0						
Herb % co		10.0						

Plot NW1								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	18.0	53.6	10.9	123.3	9.9	109.2	12.9	62.5
3.0	tot	3.0	tot	12.0	tot	12.0	tot	5.0
	cypres	1.0	cypres	6.0	cypres	6.0	cypres	2.0
	other	2.0	other	6.0	other	6.0	other	3.0
Forest % c		78.0						
Mid % cov		45.0						
Herb % co		80.0						

TOTAL Direct East Swamp								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
15.0	17.0	53.2	15.0	338.9	14.4	331.8	15.9	308.5
	tot	12.0	tot	38.0	tot	38.0	tot	19.0
	cypres	3.0	cypres	12.0	cypres	12.0	cypres	5.0
	other	9.0	other	26.0	other	26.0	other	14.0
Forest % c		51.5		class 6		class 6		class 6
Mid % cov		47.5						
Herb % co		45.0						

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12.0
0.25
0.75

DIRECT CENTRAL SWAMP

TOTAL Direct CENTRAl Swamp								
	TY 1.0		FWOP (-1.5) TY50		FWOP (-1.7) TY50		FWOP (-2.6) TY50	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
cypress	15.0	205.5	13.9	421.6	12.9	380.3	12.5	233.0
other	7.5	102.7	6.2	189.0	5.8	170.5	6.8	127.1
# of trees	7.5	102.7	7.7	232.6	7.1	209.8	5.9	110.1
	tot	44.0	tot	87.0	tot	87.0	tot	55.0
	cypres	22.0	cypres	39.0	cypres	39.0	cypres	30.0
	other	22.0	other	48.0	other	48.0	other	26.0
Forest % c		68.4						
Mid % cov		33.3						
0 Herb % co		25.0						
	%cypres	0.5	%cypres	0.4	%cypres	0.4	%cypres	0.5
	%other	0.5	%other	0.6	%other	0.6	%other	0.5
	Class	6.0	Class		Class		Class	

Plot NW4								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	9.2	67.7	9.6	216.9	8.6	180.8	7.2	66.9
14.0	tot	14.0	tot	35.0	tot	35.0	tot	20.0
	cypres	1.0	cypres	6.0	cypres	6.0	cypres	5.0
	other	13.0	other	29.0	other	29.0	other	15.0
Forest % c		69.0						
Mid % cov		45.0						
Herb % co		10.0						

Plot NW5								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	15.9	181.0	13.2	371.8	12.2	335.1	13.3	206.3
11.0	tot	11.0	tot	26.0	tot	26.0	tot	15.0
	cypres	4.0	cypres	10.0	cypres	10.0	cypres	6.0
	other	7.0	other	16.0	other	16.0	other	9.0
Forest % c		66.3						
Mid % cov		50.0						
Herb % co		10.0						

Plot NW8								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	19.8	367.7	18.8	676.2	17.8	625.0	17.2	425.7
14.0	tot	19.0	tot	26.0	tot	26.0	tot	20.0
	cypres	17.0	cypres	23.0	cypres	23.0	cypres	19.0
	other	2.0	other	3.0	other	3.0	other	2.0
Forest % c		70.0						
Mid % cov		5.0						
Herb % co		55.0						

TOTAL Direc CENTRAL Swamp								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.7) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	15.0	205.5	13.9	421.6	12.9	380.3	12.5	233.0
11.0	tot	44.0	tot	87.0	tot	87.0	tot	55.0
	cypres	22.0	cypres	39.0	cypres	39.0	cypres	30.0
	other	22.0	other	48.0	other	48.0	other	26.0
Forest % c		68.4		class 6		class 6		class 6
Mid % cov		33.3						
Herb % co		25.0						

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19.0

DIRCET WEST SWAMP

TOTAL Direct West Swamp Low SLR								
	TY 1.0		FWOP (-1.5) TY50		FWOP (-1.8) TY50		FWOP (-2.6) TY50	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
cypress	20.6	2876.2	22.6	4560.7	21.1	4160.7	20.6	3213.5
other	3.8	536.9	5.0	1001.8	4.6	913.9	3.9	609.1
# of tree	16.8	2339.3	17.6	3558.9	16.4	3246.8	16.7	2604.4
	tot	150.0	tot	173.0	tot	173.0	tot	153.0
	cypres	28.0	cypres	38.0	cypres	38.0	cypres	29.0
	other	122.0	other	135.0	other	135.0	other	124.0
Forest % c		39.0						
Mid % cov		35.0						
Herb % co		9.4						
	%cypres	0.2	%cypres	0.2	%cypres	0.2	%cypres	0.2
	%other	0.8	%other	0.8	%other	0.8	%other	0.8
	Class	3.0	Class		Class		Class	

Plot NW9								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.8) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	14.6	210.2	11.4	425.5	9.9	359.6	12.8	227.5
14.0	tot	14.0	tot	37.0	tot	37.0	tot	17.0
	cypres	6.0	cypres	16.0	cypres	16.0	cypres	7.0
	other	8.0	other	21.0	other	21.0	other	10.0
Forest % c		66.7						
Mid % cov		35.0						
Herb % co		10.0						

CRMS5373								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.8) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	26.6	5542.1	33.7	8695.8	32.2	7961.8	28.3	6199.5
136.0	tot	136.0	tot	136.0	tot	136.0	tot	136.0
	cypres	22.0	cypres	22.0	cypres	22.0	cypres	22.0
	other	114.0	other	114.0	other	114.0	other	114.0
Forest % c		11.4						
Mid % cover								
Herb % co		8.8						

TOTAL Direct West Swamp								
	TY 1.0		FWOP (-1.5) 50.0		FWOP (-1.8) 50.0		FWOP (-2.6) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	20.6	2876.2	22.6	4560.7	21.1	4160.7	20.6	3213.5
	tot	150.0	tot	173.0	tot	173.0	tot	153.0
	cypres	28.0	cypres	38.0	cypres	38.0	cypres	29.0
	other	122.0	other	135.0	other	135.0	other	124.0
Forest % c		39.0		class 3		class 3		class 3
Mid % cov		35.0						
Herb % co		9.4						

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38.0

INDIRECT EAST SWAMP

TOTAL Indirect East Swamp Low RSLR												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
cypress	13.6	91.6	10.8	200.8	9.8	178.2	9.8	178.2	8.8	157.2	12.1	100.9	8.5	55.4
other	2.3	15.3	1.6	29.3	1.4	26.0	0.8	15.2	1.3	22.9	1.8	14.7	1.2	8.1
# of tree	11.3	76.3	9.3	171.6	8.4	152.2	8.6	155.5	7.5	134.3	10.3	86.1	7.3	47.3
	tot	36.0	tot	96.0	tot	96.0	tot	96.0	tot	96.0	tot	45.0	tot	39.0
	cypres	6.0	cypres	14.0	cypres	14.0	cypres	14.0	cypres	14.0	cypres	7.0	cypres	6.0
	other	30.0	other	82.0	other	82.0	other	82.0	other	82.0	other	38.0	other	33.0
Forest % c		77.4												
Mid % cov		52.0												
Herb % co		51.5												
	%cypres	0.2	%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1
	%other	0.8	%other	0.9	%other	0.9	%other	0.9	%other	0.9	%other	0.9	%other	0.9
	Class	6.0	Class											

Plot NW14												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	14.9	74.2	10.3	160.7	9.3	142.5	9.3	142.5	8.3	125.7	11.7	82.8	8.9	48.9
	tot	5.0	tot	17.0	tot	17.0	tot	17.0	tot	17.0	tot	7.0	tot	6.0
	cypres	1.0	cypres	3.0	cypres	3.0	cypres	3.0	cypres	3.0	cypres	1.0	cypres	1.0
	other	4.0	other	14.0	other	14.0	other	14.0	other	14.0	other	6.0	other	5.0
Forest % cc		69.7												
Mid % cove		60.0												
Herb % cov		57.5												

Plot NW2												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	15.4	160.9	13.6	339.9	12.5	305.0	12.5	305.0	11.5	272.8	11.2	179.4	10.3	101.4
	tot	11.0	tot	24.0	tot	24.0	tot	24.0	tot	24.0	tot	17.0	tot	12.0
	cypres	2.0	cypres	4.0	cypres	4.0	cypres	4.0	cypres	4.0	cypres	3.0	cypres	2.0
	other	9.0	other	20.0	other	20.0	other	20.0	other	20.0	other	14.0	other	10.0
Forest % cc		77.3												
Mid % cove		55.0												
Herb % cov		50.0												

Plot FR1												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	8.7	22.0	9.5	72.1	8.4	59.7	8.4	59.7	7.4	49.1	7.7	21.2	3.0	5.0
	tot	5.0	tot	12.0	tot	12.0	tot	12.0	tot	12.0	tot	6.0	tot	6.0
	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0
	other	5.0	other	12.0	other	12.0	other	12.0	other	12.0	other	6.0	other	6.0
Forest % cc		87.0												
Mid % cove		60.0												
Herb % cov		45.0												

Plot FR2												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	14.8	143.9	11.8	309.9	10.8	276.5	10.8	276.5	9.8	244.9	15.4	159.4	10.5	84.2
	tot	11.0	tot	27.0	tot	27.0	tot	27.0	tot	27.0	tot	11.0	tot	11.0
	cypres	3.0	cypres	7.0	cypres	7.0	cypres	7.0	cypres	7.0	cypres	3.0	cypres	3.0
	other	8.0	other	20.0	other	20.0	other	20.0	other	20.0	other	8.0	other	8.0
Forest % cc		60.3												
Mid % cove		20.0												
Herb % cov		25.0												

Plot FR3												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	14.2	57.1	9.1	121.6	8.1	107.3	8.1	107.3	7.0	93.7	14.5	61.5	9.7	37.2
	tot	4.0	tot	16.0	tot	16.0	tot	16.0	tot	16.0	tot	4.0	tot	4.0
	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0	cypres	0.0
	other	4.0	other	16.0	other	16.0	other	16.0	other	16.0	other	4.0	other	4.0
Forest % cc		92.5												
Mid % cove		65.0												
Herb % cov		80.0												

TOTAL Indirect East Swamp												
	TY 1.0		FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
	13.6	91.6	10.8	200.8	9.8	178.2	9.8	178.2	8.8	157.2	12.1	100.9	8.5	55.4
	tot	36.0	tot	96.0	tot	96.0	tot	96.0	tot	96.0	tot	45.0	tot	39.0

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5.0

INDIRECT CENTRAL SWAMP

TOTAL Indirect CENTRAL Swamp	Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
TY 1.0	FWOP (-1.5) TY50		FWP (-1.7) TY50		FWOP (-1.7) TY50		FWP (-1.9) TY50		FWOP (-2.6) TY50		FWP (-3.5) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
15.8	1083.8	14.2	2201.4	13.2	1970.9	13.2	1970.9	12.2	1774.8	12.2	1142.5	10.5	509.8
cypress 0.8	54.6	1.0	158.3	0.9	141.8	1.1	168.3	0.9	127.7	0.9	82.2	0.8	36.7
other 15.0	1029.2	13.2	2043.0	12.2	1829.1	11.5	1720.3	11.3	1647.1	11.3	1060.3	9.8	473.1
# of trees tot	377.0	tot	431.0	tot	431.0	tot	431.0	tot	431.0	tot	395.0	tot	379.0
cypres	19.0	cypres	31.0	cypres	31.0	cypres	31.0	cypres	31.0	cypres	23.0	cypres	19.0
other	358.0	other	400.0	other	400.0	other	400.0	other	400.0	other	372.0	other	360.0
Forest % c	67.9												
Mid % cove	45.0												
Herb % cov	60.8												
%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1	%cypres	0.1
%other	0.9	%other	0.9	%other	0.9	%other	0.9	%other	0.9	%other	0.9	%other	0.9
Class	6.0	Class											

INDIRCET WEST SWAMP

TOTAL Indirect West Swamp	Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
TY 1.0	FWOP (-1.5) TY50		FWP (-1.7) TY50		FWOP (-1.8) TY50		FWP (-2.0) TY50		FWOP (-2.6) TY50		FWP (-3.6) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
21.3	2833.9	21.4	4503.8	20.4	4236.3	19.9	4106.7	18.9	3872.4	20.1	3172.2	15.8	2180.2
cypress 3.9	511.7	5.3	1107.1	5.0	1041.3	4.9	1009.5	4.7	951.9	4.9	779.7	3.9	535.9
other 17.5	2322.2	16.3	3421.9	15.5	3218.7	15.1	3120.2	14.4	2942.2	15.2	2410.1	12.0	1656.5
# of trees tot	144.0	tot	179.0	tot	179.0	tot	179.0	tot	179.0	tot	149.0	tot	147.0
cypres	26.0	cypres	44.0	cypres	44.0	cypres	44.0	cypres	44.0	cypres	28.0	cypres	27.0
other	118.0	other	136.0	other	136.0	other	136.0	other	136.0	other	121.0	other	120.0
Forest % c	31.5												
Mid % cov	50.0												
Herb % cov	9.4												
%cypres	0.2	%cypres	0.2										
%other	0.8	%other	0.8										
Class	3.0	Class											

DIRECT BLH

TOTAL Direct BLH	Low RSLR		Med RSLR		High RSLR	
TY 1.0	FWOP (0.3) TY50		FWOP (0.1) TY50		FWOP (-0.1) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
14.5	87.7	21.3	501.6	20.2	458.8	19.2	420.1
tot	22.0	tot	54.0	tot	54.0	tot	54.0
Forest % c	71.9						
Mid % cov	72.5						
Herb % cov	51.7						

INDIRE

TOTAL Indirect	
TY 1.0	
DBH	BA
15.9	163.9
tot	31.0
Forest % c	67.2
Mid % cov	20.0
Herb % cov	35.0

Plot NW3

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
13.1	66.6	9.6	156.4	8.6	136.2	8.6	136.2	7.6	117.9	8.1	72.0	6.6	41.5
tot	5.0	tot	20.0	tot	20.0	tot	20.0	tot	20.0	tot	10.0	tot	6.0
cypres	1.0	cypres	4.0	cypres	4.0	cypres	4.0	cypres	4.0	cypres	2.0	cypres	1.0
other	4.0	other	16.0	other	16.0	other	16.0	other	16.0	other	8.0	other	5.0
Forest % cc	63.3												
Mid % cove	20.0												
Herb % cov	15.0												

Plot NW10

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.8) 50.0		FWP (-2.0) 50.0		FWOP (-2.6) 50.0		FWP (-3.6) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
16.1	125.6	9.1	311.7	8.0	269.9	7.5	251.5	6.5	218.1	11.8	144.8	8.3	76.2
tot	8.0	tot	43.0	tot	43.0	tot	43.0	tot	43.0	tot	13.0	tot	11.0
cypres	4.0	cypres	22.0	cypres	22.0	cypres	22.0	cypres	22.0	cypres	6.0	cypres	5.0
other	4.0	other	22.0	other	22.0	other	22.0	other	22.0	other	7.0	other	6.0
Forest % cc	51.7												
Mid % cove	50.0												
Herb % cov	10.0												

Plot NW11

TY 1.0	FWOP (0.3) 50.0		FWOP (0.1) 50.0		FWOP (-0.1) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
16.4	124.6	21.4	660.2	20.3	605.1	19.3	556.4
tot	8.0	tot	23.0	tot	23.0	tot	23.0
Forest % cc	50.0						
Mid % cove	50.0						
Herb % cov	45.0						

Plot NW12

TY 1.0	FWOP (0.3) 50.0		FWOP (0.1) 50.0		FWOP (-0.1) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
16.1	74.8	21.4	401.1	20.4	368.1	19.3	337.7
tot	5.0	tot	14.0	tot	14.0	tot	14.0
Forest % cc	90.7						
Mid % cove	87.5						
Herb % cov	30.0						

Plot NW13

TY 1.0	FWOP (0.3) 50.0		FWOP (0.1) 50.0		FWOP (-0.1) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
11.1	63.7	21.0	443.6	20.0	403.1	18.9	366.1
tot	9.0	tot	17.0	tot	17.0	tot	17.0
Forest % cc	75.0						
Mid % cove	80.0						
Herb % cov	80.0						

Plot NW6

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
19.5	185.7	11.0	378.6	9.9	337.7	9.9	337.7	8.9	302.7	13.1	208.1	15.3	125.9
tot	8.0	tot	34.0	tot	34.0	tot	34.0	tot	34.0	tot	14.0	tot	8.0
cypres	2.0	cypres	7.0	cypres	7.0	cypres	7.0	cypres	7.0	cypres	3.0	cypres	2.0
other	6.0	other	27.0	other	27.0	other	27.0	other	27.0	other	11.0	other	6.0
Forest % cc	72.7												
Mid % cove	40.0												
Herb % cov	100.0												

CRMS5373

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.8) 50.0		FWP (-2.0) 50.0		FWOP (-2.6) 50.0		FWP (-3.6) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
26.6	5542.1	33.7	8695.8	32.7	8202.8	32.2	7961.8	31.3	7526.7	28.3	6199.5	23.3	4284.3
tot	136.0	tot	136.0	tot	136.0	tot	136.0	tot	136.0	tot	136.0	tot	136.0
cypres	22.0	cypres	22.0	cypres	22.0	cypres	22.0	cypres	22.0	cypres	22.0	cypres	22.0
other	114.0	other	114.0	other	114.0	other	114.0	other	114.0	other	114.0	other	114.0
Forest % cc	11.4												
Mid % cover													
Herb % cov	8.8												

#REF!

Plot NW7

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
16.9	306.6	16.8	621.6	15.7	563.6	15.7	563.6	14.7	512.1	13.8	353.3	11.9	188.5
tot	18.0	tot	31.0	tot	31.0	tot	31.0	tot	31.0	tot	25.0	tot	19.0
cypres	5.0	cypres	9.0	cypres	9.0	cypres	9.0	cypres	9.0	cypres	7.0	cypres	5.0
other	13.0	other	22.0	other	22.0	other	22.0	other	22.0	other	18.0	other	14.0
Forest % cc	88.3												
Mid % cove	75.0												
Herb % cov	90.0												

TOTAL Indirect West Swamp

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.8) 50.0		FWP (-2.1) 50.0		FWOP (-2.6) 50.0		FWP (-3.1) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
21.3	2833.9	21.4	4503.8	20.4	4236.3	19.9	4106.7	18.9	3872.4	20.1	3172.2	15.8	2180.2
tot	144.0	tot	179.0	tot	179.0	tot	179.0	tot	179.0	tot	149.0	tot	147.0
cypres	26.0	cypres	44.0	cypres	44.0	cypres	44.0	cypres	44.0	cypres	28.0	cypres	27.0
other	118.0	other	136.0	other	136.0	other	136.0	other	136.0	other	121.0	other	120.0
Forest % cc	31.5		class 3		class 3		class 3		class 3		class 3		class 3
Mid % cove	50.0												
Herb % cov	9.4												

CRMS0059

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
13.4	3776.4	19.6	7649.0	18.5	6846.0	18.5	6846.0	17.5	6166.5	13.7	3936.5	8.2	1683.2
tot	346.0	tot	346.0	tot	346.0	tot	346.0	tot	346.0	tot	346.0	tot	346.0
cypres	11.0	cypres	11.0	cypres	11.0	cypres	11.0	cypres	11.0	cypres	11.0	cypres	11.0
other	335.0	other	335.0	other	335.0	other	335.0	other	335.0	other	335.0	other	335.0
Herb % cov	47.3												
Mid % cover													
Forest % cc	38.3												

TOTAL Indirect CENTRAL Swamp

TY 1.0	FWOP (-1.5) 50.0		FWP (-1.7) 50.0		FWOP (-1.7) 50.0		FWP (-1.9) 50.0		FWOP (-2.6) 50.0		FWP (-3.5) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
15.8	1083.8	14.2	2201.4	13.2	1970.9	13.2	1970.9	12.2	1774.8	12.2	1142.5	10.5	509.8
tot	377.0	tot	431.0	tot	431.0	tot	431.0	tot	431.0	tot	395.0	tot	379.0
cypres	19.0	cypres	31.0	cypres	31.0	cypres	31.0	cypres	31.0	cypres	23.0	cypres	19.0
other	358.0	other	400.0	other	400.0	other	400.0	other	400.0	other	372.0	other	360.0
Forest % cc	67.9		class 6										
Mid % cove	45.0												
Herb % cov	60.8												

TOTAL Direct BLH

TY 1.0	FWOP (0.3) 50.0		FWOP (0.1) 50.0		FWOP (-0.1) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA
14.5	87.7	21.3	501.6	20.2	458.8	19.2	420.1
tot	22.0	tot	54.0	tot	54.0	tot	54.0
Forest % cc	71.9		class 6		class 6		class 6
Mid % cove	72.5						
Herb % cov	51.7						

TOTAL In

TY 1.0	
DBH	BA
15.9	163.9
tot	31.0
Forest % cc	67.2
Mid % cove	20.0
Herb % cov	35.0

C2 50 to 500ft	Acres	Percent of total
Ag land	63.0	23.0
Residental	48.9	17.9
Rail Road	2.2	0.8
500Ft Buffe	273.2	
Residental	20.2956	28.6384

:CT BLH

BLH Low RSLR		Low RSLR		Med RSLR		Med RSLR		High RSLR		High RSLR	
FWOP (0.3) TY50		FWP (0.1) TY50		FWOP (0.1) TY50		FWP (-0.1) TY50		FWOP (-0.1) TY50		FWP (-0.3) TY50	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
22.0	786.7	20.9	724.6	20.9	724.6	19.9	665.5	19.9	665.5	18.9	609.2
tot	77.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0

NW15

FWOP (0.3) 50.0		FWP (01.) 50.0		FWOP (0.1) 50.0		FWP (-0.1) 50.0		FWOP (-0.1) 50.0		FWP (-0.3) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
23.1	898.7	22.1	830.2	22.1	830.2	21.0	765.3	21.0	765.3	20.0	703.0
tot	27.0	tot	27.0	tot	27.0	tot	27.0	tot	27.0	tot	27.0

NW16

FWOP (0.3) 50.0		FWP (01.) 50.0		FWOP (0.1) 50.0		FWP (-0.1) 50.0		FWOP (-0.1) 50.0		FWP (-0.3) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
21.7	840.7	20.7	774.1	20.7	774.1	19.6	710.4	19.6	710.4	18.6	649.9
tot	28.0	tot	28.0	tot	28.0	tot	28.0	tot	28.0	tot	28.0

NW17

FWOP (0.3) 50.0		FWP (01.) 50.0		FWOP (0.1) 50.0		FWP (-0.1) 50.0		FWOP (-0.1) 50.0		FWP (-0.3) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
21.1	620.6	20.1	569.5	20.1	569.5	19.1	520.9	19.1	520.9	18.0	474.5
tot	22.0	tot	22.0	tot	22.0	tot	22.0	tot	22.0	tot	22.0

direct BLH

FWOP (0.3) 50.0		FWP (01.) 50.0		FWOP (0.1) 50.0		FWP (-0.1) 50.0		FWOP (-0.1) 50.0		FWP (-0.3) 50.0	
DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA	DBH	BA
22.0	786.7	20.9	724.6	20.9	724.6	19.9	665.5	19.9	665.5	18.9	609.2
tot	77.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0	tot	77.0
	class 6		class 6		class 6		class 6		class 6		class 6

C2 50 to 500ft	Acres	C2 50 to 500ft	Acres	Percent of total	Percent of total
Ag land		Ag land			
Residental		Residental			
Rail Road		Rail Road			
500Ft Buffer		500Ft Buffer			
Residental		Residental			

		Acers	Field sites used
Direct swamp	East	253	W25, NW1
	Central	540	NW4, NW5, NW8
	West	319	NW9, CRMS5373
Total Direct swamp		**1112**	
Indirect Swamp	East	2325	NW2, NW14, FR1, FR2, FR3
	Central	4383	NW3, NW6, NW7, CRMS0059
	West	1724	NW10, CRMS5373
Total Indirect Swamp		**8432**	
Indirect BLH no impact		366	
Indirect BLH with impacts		89	NW15, NW16, NW17
Direct BLH		123	NW11, NW12, NW13
NonStructural Swamp		1.1	

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NW2, NW14, FR1, FR2, FR3

Type Mast Producing Tree	Direct BLH Site NW11	NW12	NW13	Average
hard-mast	0	25	0	8
soft-mast	95	75	100	90
non-mast	5	0	0	2
	Class 4	Class 5	Class 4	Class 4

Type Mast Producing Tree	Indirect BLH Site NW15	NW16	NW17	Average
hard-mast	30	50	60	47
soft-mast	70	50	40	53
non-mast	0	0	0	0
	Class 5	Class 5	Class 5	Class 5

Direct

Wooded	Levee	Open Wate	AgLand	Buffer	NonHabitat
82.3	82.2	171.1	75.3	1582.8	542.4
9.8			260.4		
79.7					
111.2					
38.3					
33.8					
4.2					
45.3					
16.0					
8.5					
22.4					
Total 451.5	82.2	171.1	335.6	1582.8	542.4
Percent% 0.29	0.05	0.11	0.21	1.00	0.34

Direct

Buffer Acres	Wooded	Open Wate	AgLand	NonHabita	Levee	Wooded w/o Levee	Nonhabitat w levee
2790	9	229	268	1059	62	524	1158
2790	17		1		37		
	117		10				
	3		258				
	4		85				
	85		258				
	56						
	271						
	5						
	22						
	34						
Total	623	229	879	1059	99	524	
Percent%	0.22	0.08	0.32	0.38	0.04	0.19	
If used only *area	801			881			
Percent%	0.29	0.08	0.32	0.32	0.04	0.19	0.42

V6 DIRECT TY0 and FWOP TY1 and TY50	Percent	Weight Factor	Weight Percent
Wooded	34	1	33.72
Ag & Openwater	32	0.2	6.40
Nonhabitat	34	0	0.00
	100	**SI**	**0.40**

V6 DIRECT FWP TY1	Percent	Weight Factor	Weight Percent
Wooded	29	1	28.52
Ag & Openwater	32	0.2	6.40
Nonhabitat	39	0	0.00
	100	**SI**	**0.35**

V6 DIRECT FWP TY50	Percent	Weight Factor	Weight Percent
Wooded	29	1	28.52
Openwater	11	0.2	2.16
Nonhabitat	61	0	0.00
	100	**SI**	**0.31**

V6 FWOP TY50	Percent	Weight Factor	Weight Percent
Wooded	34	1	33.72
Openwater	11	0.2	2.16
Nonhabitat	55	0	0.00
	100	**SI**	**0.36**

V7-Disterbance DIRECT (Baseline TY0, TY1, and FWOP TY50)				
Class 2 - 50 to 500ft	Acres	Percent of total area	SI	% X SI
Ag land	63.0	0.23	0.65	0.15
Residental and Railroad	51.2	0.19	0.5	0.09
Rest	159.1	0.58	1	0.58
Tot 500Ft Buffer	273.2		**Wt Avg %**	**0.83**

V7-Disterbance DIRECT (FWP TY50)				
Class 2 - 50 to 500ft	Acres	Percent of total area	SI	% X SI
Ag land	0.0	0.00	0.65	0.00
Residental and Railroad	114.1	0.42	0.5	0.21
Rest	159.1	0.58	1	0.58
Tot 500Ft Buffer	273.2		**Wt Avg %**	**0.79**

DIRECT		
Residental	20.2956	28.6384
Rail Road	2.2	
Ag land	63.0	

V6 INDIRECT (TY0) and FWOP TY1 and TY50	Percent	Weight Factor	Weight Percent
Wooded	29	1	28.72
Ag & Openwater	40	0.2	7.94
Nonhabitat	32	0	0.00
	100	**SI**	**0.37**

V6 INDIRECT FWP TY1	Percent	Weight Factor	Weight Percent
Wooded	19	1	18.79
Ag & Openwater	40	0.2	7.94
Nonhabitat	42	0	0.00
	100	**SI**	**0.27**

V6 INDIRECT FWP TY50	Percent	Weight Factor	Weight Percent
Wooded	19	1	18.79
Openwater	8	0.2	1.64
Nonhabitat	73	0	0.00
	100	**SI**	**0.20**

V7-Disterbance INDIRECT (Baseline TY0, TY1, and FWOP TY50)				
50 to 500ft	Acres	of total area	SI	% X SI
Ag land	22.8	0.06	0.65	0.04
Residental and Rest	99.5	0.25	0.5	0.13
	271.8	0.69	1	0.69
Tot 500Ft	394.1		**Wt Avg %**	**0.85**

V7-Disterbance INDIRECT (FWP TY50)				
50 to 500ft	Acres	of total area	SI	% X SI
Ag land	0.0	0.00	0.65	0.00
Residental and Railroad Rest	122.2	0.45	0.5	0.22
	151.0	0.55	1	0.55
Tot 500Ft	273.2		**Wt Avg %**	**0.78**

INDIRECT		
Residental	3.9661	90.872
Rail Road	4.6	
Ag land	22.8	

	acres	Interior BLH acres				
West						
BLH Int1	0.49	*				
BLH Int2	0.84	*	* acres	rest of acres	total	
BLH Int3	5.85	*	88.97	366.03	455	
BLH Int4	10.7	*				
BLH Int5	30	*				
BLH Int6	10.9	*				
BLH Int7	16.6	*				
BLH Int8	42.3					
BLH Int9	4.42					
BLH Int10	31.3					
BLH Int11	5.31					
BLH Int12	4.78	*				
BLH Int13	8.81	*				
BLH Int14	10.8					
BLH Int15	19					
BLH Int16	24.6					
BLH Int17	9.1					
BLH Int18	8.1					
BLH Int19	11.9					
BLH Int20	11.7	Area minus * acres				
Total West	267.5	178.53				
East						
BLH Int21	40.2					
BLH Int 22	53					
BLH Int 23	94.3					
Total East	187.5					
Totals	455					

*areas, located primarily adjacent to proposed levee; with few if any hydrologic disruptions such as roads or subdivisions. All other areas have exensive roads and subdivisions which haver previously impacted the hydrology of the block.

Table 3. Future-with and Future-without Project Stand Structure Conditions.

FWOP

Habitat Condition	TY0				TY1	TY20				TY30				TY50			
Class	%O	%M	%H	Class	Class	%O	%M	%H	Class	%O	%M	%H	Class	%O	%M	%H	Class
>50 yrs. to marsh	64	46	22	4	4	50<75	>33	<33	4	50<75	>33	<33	4	33<50	<33	<33	2

Table 8. Future-with and Future-without Project Stand Maturity Conditions.

Future Without Project:

Habitat Condition Class	Level of Influence	AVERAGE DIAMETER (inches)					% Contribution by Number of Individuals				BASAL AREA (ft^2/ac)			
		Species Group	TY1	TY20	TY30	TY50	TY1	TY20	TY30	TY50	TY1	TY20	TY30	TY50
20-30 yrs. to marsh	FWOP	baldcypress	11.87	13.96	14.60	15.88	10.42	18.87	18.87	100.00	122.35	82.98	90.81	18.42
		tupelo et al.	13.56	15.08	15.81	0.00	89.58	81.13	81.13	0.00				
30-50 yrs. to marsh	FWOP	baldcypress	15.61	18.46	19.10	20.38	17.57	22.13	22.13	46.02	241.96	247.88	269.12	157.24
		tupelo et al.	14.80	16.70	17.50	19.10	82.43	77.87	77.87	53.98				
		baldcypress	16.66	19.51	20.15	21.43	41.51	48.62	48.62	58.67	280.03	320.24	345.15	338.32
>50 years to marsh	FWOP	tupelo et al.	14.57	16.47	16.47	18.87	58.49	51.38	51.38	41.33				

Table 8. Future-with and Future-without Project Stand Maturity Conditions.

Future Without Project:

Habitat Condition Class	Level of Influence	AVERAGE DIAMETER (inches)					% Contribution by Number of Individuals				BASAL AREA (ft^2/ac)			
		Species Group	TY1	TY20	TY30	TY50	TY1	TY20	TY30	TY50	TY1	TY20	TY30	TY50
>50 years to marsh	FWOP	baldcypress	16.66	19.51	20.15	21.43	41.51	48.62	48.62	58.67	280.03	320.24	345.15	338.32
		tupelo et al.	14.57	16.47	16.47	18.87	58.49	51.38	51.38	41.33				

TY0		TY0		Basel area			
BA	247.81	Cypress	138.77	cypress	116.24	155.7	167.81	198.49
		Tupelo	109.04	tupelo	163.79	164.54	177.34	139.83
		sum	247.81	sum	280.03	320.24	345.15	338.32

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
FINAL INTEGRATED FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

PLAN FORMULATION FOR COMPENSATORY MITIGATION FOR ENVIRONMENTAL IMPACTS TO WETLANDS
ANNEX S

Contents

INTRODUCTION

This annex provides a summary of the plan formulation process used to develop compensatory mitigation sites for the West Shore Lake Pontchartrain (WSLP) environmental impacts to wetlands. In order to be consistent with the concepts and principles of Specific, Measurable, Attainable, Risk Informed, Timely (SMART) planning, proposed compensatory mitigation sites were based on existing available data sources and focuses on scaling the measures or features based on the mitigation needs laid out in Annex R of the Environmental Appendix.

Annex R identified the location and extent of the significant environmental resources impacted and underwent a habitat-based analysis based on two Wetland Value Assessment (WVA) models; Bottom Land Hardwood (BLH) and Swamp. Both results underwent Agency Technical Review (ATR) and model certification. The results of the analysis are presented in Table 1 and Table 2. Impacts throughout this document will be referred to in either 'acres' or 'Average Annual Habitat Units' (AAHUS). AAHUSs are a quantitative result of gains or losses of habitat over the period of analysis. In this case, between the planning years of 2020-2070.

Table 1. Impacted Resources.

Habitat	General location	Acres
Direct Swamp	East	253
	Central	540
	West	319
Direct Swamp	Berm	1.1
Total Direct Swamp		**1113**
Indirect Swamp	East	2325
	Central	4383
	West	1724
Total Indirect Swamp		**8432**
Indirect BLH with impacts		89
Direct BLH		123
Direct impacts are those impacts caused by the construction of the levee (conversion of swamp or BLH to levee). Indirect impacts are those caused by the enclosure of the Swamp or BLH on the protected side of the levee.		

Table 2. Summary of WVA Results Under the Intermediate Relative Sea Level Rise Scenario

WVA titles/groupings		Initial Acers	AAHUs
Direct Swamp	East	253	-142.2
	Central	540	-288.4
	West	319	-164.8
Total Direct Swamp			**-595.3**
Indirect Swamp	East	2325	-110.6
	Central	4383	-322.9
	West	1724	-60.9
Total Indirect Swamp			**-494.5**Berm
Berm Direct Swamp			1 -0.3
Total Swamp			**1,090.1**
Direct BLH		123	-95.5
Indirect BLH with impacts		89	-3.1

WVA titles/groupings	Initial Acers	AAHUs
Total BLH		**-98.6**
	TOTAL	**-1,188.7**

Direct impacts are those impacts caused by the construction of the levee (conversion of swamp or BLH to levee). Indirect impacts are those caused by the enclosure of the Swamp or BLH on the protected side of the levee. Note that a negative AAHUS represents a need for mitigation.

Consistent with a watershed approach the planning process used existing mitigation or ecosystem restoration measures and locations that had been previously studied. The locations were limited to those studied in the Pontchartrain Basin and within the Louisiana Coastal Zone to formulate plans to compensate for impacts the WLSP project could not avoid. Consideration of mitigation banks, consistent with Section 2036 of Water Resources Development Act (WRDA) 2007, was also included in the analysis. Identification and justification of the recommended mitigation plan was based on cost-effectiveness and incremental cost analysis. The following planning goal was developed to guide the development of the compensatory mitigation sites:

Selecting a mitigation plan that meets mitigation objectives and reasonably maximizes environmental benefits while passing tests of cost effectiveness and incremental cost analyses, acceptability, completeness, efficiency, and effectiveness is required by ER 1105-2-100 for Corps' feasibility studies.

MANAGEMENT MEASURES

Measures considered for mitigation planning are outlined below:

Swamp or BLH Reforestation: This measure would enhance and/or restore cypress forest and BLH forest in the basin through replanting areas. Areas for replanting would be in areas that would achieve a long-term success criterion.

Shoreline Protection: This measure would protect existing resources in the basin that are expected to be lost through erosion forces such as wave action along area lakes.

Hydraulic Restoration: This measure would improve the conditions of existing resources by returning the area to more natural conditions. This measure would include dike removals or freshwater diversions

Landscape Modification: This measure would develop new areas that would support Swamp or BLH habitats. Typically this would be achieved by raising or degrading existing landforms to a elevation that matches the local hydrology that would support Swamp or BLH habitats. This measure also includes planting of the new modified area.

Purchase of Credits: This measure would consider the use of a mitigation bank credits to compensate for wetland impacts that occur within the service area of an existing, approved mitigation bank.

INITIAL ARRAY OF MITIGATION PLANS

Consistent with the principles of SMART planning, the team began development of an initial array of alternative migration plans by reviewed existing studies and plans to determine if they would contain alternatives that would match the management measures layout. Below is a list of the source of data used:

- **CWPPRA PPL**- Existing Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project List (PPL) Information. The CWPPRA program yearly contains ecosystem projects that have had WVA and engineering analyses conducted. Projects not selected for authorization were used for mitigation planning.

- **2012 State of Louisiana Master Plan –** The 2012 Master Plan includes projects that were developed in coordination with resource agencies.
- **MRGO Eco.** – The Mississippi River Gulf Outlet (MRGO) Ecosystem Restoration Feasibility Study results underwent Agency Technical Review and model certification.
- **LCA ARDC** - The Louisiana Coastal Authority (LCA) LCA Amite River Diversion Canal (ARDC) Modification report contains alternatives that were not selected for authorization.
- **LPV -** The Lake Pontchartrain and Vicinity (LPV) Hurricane and Storm Damage Risk Reduction System (HSDRRS) planning documentation includes projects not select in the final plan that could be used in WSLP.

  Existing Mitigation Banks - The LPV project has collected an inventory of all available credits per the implementation guidance for the Water Resources Development Act of 2007, Section 2036(c) Wetlands Mitigation. The Project Delivery Team (PDT) updated LPV list based on RIBITS (Regulatory In lieu fee and Bank Information Tracking System) http://geo.usace.army.mil/ribits/index.html. We also only looked at those that had the appropriate habitat type, were in the coastal zone and were on the flood side of a protection levee. There are no available credits for BLH.

Using the sources above the team was able to develop a range of plans (Table 3) based on the management measures listed. Before developing a range of cost and benefits for each plan, each plan underwent an initial screening to determine if it was a viable alternate to be carried forward. Plans highlighted in yellow were carried forward.

Table 3: Initial Array of Mitigation Plans

Plan ID	Measure	Habitat	Name	Source	Short Description	Initial Status before CE/ICA development
Mitigation_Bank_Credits_72	*Purchase of Credits*	Swamp	Swamp Mitigation Bank Credit Purchase	LPV	CEMVN, in conjunction with the U.S. Fish and Wildlife Service, has run WVA's on the approved banks in the LPV Basin.	**Carried Forward**, Based on PET calculations there would still be up to 72 AAHUs available after LPV makes a purchase.
State_MP_001.DI.05	*Hydraulic Restoration*	Swamp, BLH, Marsh	Bonnet Carre Diversion (5,000 cfs)	2012 State of Louisiana Master Plan	Diversion at Bonnet Carre, 5,000 cfs capacity	**Screened Out.** Project would required a change in the Authorized use of the spillway. Also meeting the mitigation potential would be highly depended on the stages in the River. Stages would have to flood the forebay for the project to work
State_MP_001.DI.29	*Hydraulic Restoration*	Swamp	West Maurepas Diversion (2,000 cfs)	2012 State of Louisiana Master Plan	Diversion to Maurepas Swamp in the vicinity of Convent/Blind River, 2,000 cfs capacity	**Screened Out.** Project is Currently under LCA
State_MP_001.DI.21 001.DI.28	*Hydraulic Restoration*	Swamp	East Maurepas Diversion (5,000 cfs or 2,000 cfs)	2012 State of Louisiana Master Plan	Diversion to Maurepas Swamp in the vicinity of Hope Canal, 2,000 to 5,000 cfs capacity1	**Carried forward.** The total impact acres presented in CWPPRA will be used as the area of influence and project will assume to maintain what will be lost in the Future Without Project Condition (FWOP) action.
State_MP_001.DI.22	*Hydraulic Restoration*	Swamp	East Maurepas Diversion (25,000 cfs)	2012 State of Louisiana Master Plan	Diversion to Maurepas Swamp in the vicinity of Hope Canal, 25,000 cfs capacity (operation at capacity when Mississippi River flows exceed 400,000 cfs, operation at 4% of river flows below 400,000 cfs)	**Screened Out.** AAHUs and cost would be outside the range need for WSLP

State_MP_001.SP.02	*Shoreline Protection*	Swamp	Maurepas Shoreline Protection	2012 State of Louisiana Master Plan	Shoreline Protection along Maurepas landbridge (east and west sides)	**Carried forward.** Will assume 35 ac is forested wetlands
State_MP_001.MC.08a	*Landscape Modification*	Marsh	Central Wetlands - Component A	2012 State of Louisiana Master Plan	Creation of approximately 2,010 acres of marsh in Central Wetlands near Bayou Bienvenue (through sediment dredging of the Mississippi River and placement at an elevation of 3.2 feet NAVD88) to create new wetland habitat, restore degraded marsh, and reduce wave erosion (component of 001.MC.08).	**Screened Out**, Was initially carried forward, but a review of Mississippi River Gulf Outlet (MRGO) projects used a cost and AAHUSs for a forested wetland site. PDT decided to use MRGO site; we did not use because site was developed as marsh, not swamp.
MRGO_Feature CC2	*Landscape Modification/ Swamp Reforestation*	Swamp	MRGO-Feature CC2	MRGO Eco.	250 acres of swamp nourishment and 250 acres of swamp restoration.	**Carried forward**.
LCA_AMITE_Alt 35	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	LCA Alt 35 Canal Bank Gappings and Plantings	LCA ARDC	See LCA ARDC Report	**Screened Out**, components of this alternative are being constructed under the LCA project authorization.
LCA_AMITE_Alt 38	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	LCA Alt 38 Canal Bank Gappings and Plantings	LCA ARDC	See LCA ARDC Report	**Screened Out**, components of this alternative are being constructed under the LCA project authorization.
LCA_AMITE_Alt 37	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	LCA Alt 37 Canal Bank Gappings and Plantings	LCA ARDC	Includes two breaches in the Amite River Diversion canal bank, three gaps in the railroad embankment and planting in area of influence see LCA ARDC Report for details.	**Carried forward.**
LCA_AMITE_Alt 39	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	LCA Alt 39 Canal Bank Gappings and Plantings	LCA ARDC	See LCA ARDC Report	**Screened Out**, components of this alternative are being constructed under the LCA project authorization.

LCA_AMITE_Alt 37_Plantings_Only	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	LCA Alt 37 Plantings	LCA ARDC	Project only includes plantings from LCA ARDC	**Carried forward.**
CWPPRA_CW-01	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	CWPPRA Coastwide Canal Backfilling Pilot	CWPPRA	Typically, backfill areas are too far removed from sediment borrow sources to be deemed viable. As an alternative, this project proposes to backfill the canals by removing the existing spoil banks and disposing of the dredged material in the canals. While there is not sufficient sediment volume remaining in most spoil banks to completely fill the canals to adjacent wetland elevation, typically there is enough to significantly shallow the canals, and over time some additional filling is observed. Those areas returned to adjacent wetland elevation could vegetate without the need for planting. In addition, removal of the spoil banks could restore natural hydrology across the wetland surface over a larger area in the vicinity of the canals.	**Screened Out.** This alternative was proposed by resources agencies, but without detailed modeling we would not be able to determine the mitigation potential to the restore natural hydrology across the wetland surface over a larger area in the vicinity of the canals. There is also a risk that in some cases if the canal bank was preventing saltwater from reaching the interior areas of the forested wetlands, we could be negativity influencing the area. Also in most cases, the canal banks include BLH species and also provide areas of refuge for species such as deer and rabbits during high water events. Degrading these areas would be removing BLH habitat and would have to be included in the final AAHU potential as a negative impact.
LPV_Milton Island Swamp Restoration	*Landscape Modification/ Swamp Reforestation*	Swamp	Milton Island Swamp Restoration	LPV	Dredging from Western Lake Pont. Filling openwater areas. plant with swamp species.	**Carried forward.**

LPV_Bonnet Carre Bottomland Hardwood Restoration	*Landscape Modification/ BLH Reforestation*	BLH	Bonnet Carre Bottomland Hardwood Restoration	LPV	Waste borrow from the construction of the Floodside ditch and Protection side canal from the construction of the levee would be used to create BLH areas in the BC spillway.	**Carried forward, but will be evaluated outside of the CE/ICA because the habitat type is BLH. There only a limited existing project creating BLH. There currently are no BLH credits available in the Basin and within the Coastal Zone.**
LPV_Bonnet Carre Swamp Restoration	*Landscape Modification/ Swamp Reforestation*	Swamp	Bonnet Carre Swamp Restoration	LPV	Waste borrow from the construction of the Floodside ditch and Protection side canal from the construction of the levee would be used to create SWAMP areas in the BC spillway.	**Carried forward.**
LPV_ Frenier Area	*Landscape Modification/ BLH Reforestation*	BLH	Frenier Area Bottomland Hardwood (BLH) Restoration	LPV	Lower elevation of existing farmland to create BLH habitat.	**Carried forward, but will be evaluated outside of the CE/ICA because the habitat type is BLH. There is only a limited existing project that creates BLH. There currently are no BLH credits available in the Basin and within the Coastal Zone.**
LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 1thru4	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	St. James Parish Existing Crawfish Pond near Air Products(Assumed Inactive Pond)	LPV	Degrade existing water control dikes, clear site, plant with swamp species.	**Carried forward. Cost and benefits will be on LPV sites in the area and AAHU potential/acre.**
LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 5	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	St. James Parish Existing Crawfish Pond near Hwy 3125 and Hwy 3214 Intersection (Assumed Inactive Pond)	LPV	Degrade existing water control dikes, clear site, plant with swamp species.	**Carried forward. Cost and benefits will be on LPV sites in the area and AAHU potential/acre.**

LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 6	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	St. James Parish Existing Crawfish Pond near Hwy 3125 and Lilly Rd. Intersection (Assumed Active Pond)	LPV	Degrade existing water control dikes, clear site, plant with swamp species	**Screened Out.** Based on observations from roadway and from subsequent site visits the pond was actively being used and frequently for crawfish production.
LPV_Expanded_Maurepas Crawfish Ponds Restoration_Ascension Pond 1thru4	*Hydraulic Restoration/ Swamp Reforestation*	Swamp	Ascension Parish near Sorrento along Airline Hwy (Assumed Inactive Pond)	LPV	Degrade existing water control dikes, clear site, plant with swamp species	**Carried forward. Cost and benefits will be on LPV sites in the area and AAHU potential/acre.**
LPV_Expanded_Lutcher Polder Farmlands Swamp Restoration_Site1	*Landscape Modification/ Swamp Reforestation*	Swamp	Existing Farm Land Near Berms 1, 2 and 3	LPV	Clear site, degrade farm land to create swamp sites. Sites chosen based on giving added protection to the n berms.	**Carried forward. Cost and benefits will be on LPV sites in the area and AAHU potential/acre.**

FINAL ARRAY OF MITIGATION PLANS

For the final array of plans, cost and benefits were developed based on existing data from the sources list above. Table 4 provides a summary the final cost and benefits used for the IWR CE/ICA evaluation. The estimated construction cost includes development cost and monitoring before turning the project over to the sponsor. Estimated RE cost and OMRR&R cost were also developed for each plan. Construction and RE cost were annualized over a 5 yr construction period, and estimated OMRR&R cost were annualized over a 50 year period to develop a total average annual cost for each plan. The table also includes notes and codes used for the final evaluation. The remaining plans were given specific codes for the IWR Planning Suite Decision Support Software Site:

Swamp Mitigation Measures

Code	Project ID
A	Mitigation_Bank_Credits_72 State_MP_001.DI.21
B	001.DI.28
C	State_MP_001.SP.02
D	MRGO_Feature CC2
E	LCA_AMITE_Alt 37
F	LCA_AMITE_Alt 37_Plantings_Only
G	LPV_Milton Island Swamp Restoration
H	LPV_Bonnet Carre Bottomland Hardwood Restoration
I	LPV_Bonnet Carre Swamp Restoration
J	LPV_ Frenier Area
K	LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 1thru4
L	LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 5
M	LPV_Expanded_Maurepas Crawfish Ponds Restoration_Ascension Pond 1thru4
N	LPV_Expanded_Lutcher Polder Farmlands Swamp Restoration_Site1

At this point additional investigations were conducted on each site. In a subsequent reviews, some sites were removed based on resource agency input and initial CE/ICA evaluations outside of the planning software. For example, there were only two proposed BLH sites:

BLH Mitigation Measures

Code	Project ID
H	LPV_Bonnet Carre Bottomland Hardwood Restoration
J	LPV_ Frenier Area

Due to the fact that these were the only two viable alternatives for BLH this measures were not included in the actual CE/ICA evaluations using the planning software. The most cost effective project, the "LPV_Bonnet Carre Bottomland Hardwood Restoration" was included in the final selection.

Table 4: Inputs into IWR Plan CE/ICA for Swamp Measures Only

Plan ID	Name	Source	Est. Total Construction Cost[1]	Est. RE Cost	Est. Total OMRR&R (50yrs)[2]	Interest During Construction (IDC)	Annual Cost	Estimated AAHUs	CE/ ICA CODE	Comments for IWR runs
Mitigation_Bank_Credits _72	Swamp Mitigation Bank Credit Purchase	LPV	$6,000,000	-	-	$0	$256,000	72	**A**	Updated Cost using recent LPV cost
State_MP_001.DI.21 001.DI.28	East Maurepas Diversion (5,000 cfs or 2,000 cfs)	2012 State of Louisiana Master Plan	$195,000,000	- (State owned lands)	$35,000,000	$14,100,000	$9,600,000	8,500	**B**	AAHUs based on CWPPRA estimates. Assumes the project could not be scoped down to receive a lower AAHU value at a lower cost. This project is identified in the main report as the "River Reintroduction into Maurepas Swamp (PO-29)" that would divert Mississippi River water into the Maurepas Swamp through Hope Canal.
State_MP_001.SP.02	Maurepas Shoreline Protection	2012 State of Louisiana Master Plan	$57,000,000	- (State owned lands)	$42,880,000	$1,000,000	$3,600,000	26.12	**C**	AAHUs based on a loss of 35 ac of forested wetlands under the FWOP conditions

MRGO_Feature CC2	MRGO-Feature CC2	MRGO Eco.	$21,200,000	$500,000	$3,500,000	$380,000	$1,000,000	134.00	**D (Removed)**	**Removed from final evaluation.** Was initially run through CE/ICA, but a review of MRGO project features revealed that the benefits are based on Tier 2 conditions to obtain benefits. The AAHU potential would only be achieved if there was a diversion in the area. This project was used to show the potential for lower cost mitigation sites if a diversion already existed. It could not be used for the final selection. O&M is based on the Amite Plantings Site cost for monitoring.
LCA_AMITE_Alt 37	LCA Alt 37 Canal Bank Gappings and Plantings	LCA ARDC	$8,500,000	- (State owned lands)	$7,330,000	$150,000	$500,000	922.00	**E (Removed)**	**Removed from final evaluation.** While undergoing agency review it was determined that the State is building the canal gapping component of the project with CIAP funds. (Updated Cost using LPV cost)
LCA_AMITE_Alt 37_Plantings_Only	LCA Alt 37 Plantings	LCA ARDC	$7,700,000	- (State owned lands)	$3,500,000	$400,000	$400,000	339.00	**F**	Updated Cost using recent LPV cost. AAHUs based on LCA ARDC WVA evaluation.

LPV_Milton Island Swamp Restoration	Milton Island Swamp Restoration	LPV	$22,500,000	$500,000	$2,700,000	$400,000	$1,040,000	131.00	**G (Removed)**	**Removed from final evaluation.** While undergoing agency review it was determined that, the project would have to undergo formal consultation for potential Gulf Sturgeon impacts. It could not be used for the final selection due to the fact that it would place the WSLP report on hold until formal consultation was completed.
LPV_Bonnet Carre Bottomland Hardwood Restoration	Bonnet Carre Bottomland Hardwood Restoration	LPV	$2,000,000	- (Federal Owned Lands)	$500,000	$34,000	$94,000	99.00	**H (Removed)**	**Removed from final evaluation but was selected to address BLH impacts.**
LPV_Bonnet Carre Swamp Restoration	Bonnet Carre Swamp Restoration	LPV	$4,000,000	- (Federal Owned Lands)	$1,400,000	$69,000	$197,000	121.00	**I**	Updated Cost using recent LPV cost. AAHUs based LPV evaluations.
LPV_ Frenier Area	Frenier Area Bottomland Hardwood (BLH) Restoration	LPV	$4,900,000	$2,000,000	$393,000	$120,000	$305,000	70.44	**J (Removed)**	**Removed from final evaluation.** The site would be on the inside of the WSLP levee and the Bonnet Carre BLH site was also more cost effective.
LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 1thru4	St. James Parish Existing Crawfish Pond near Air Products(Assumed Inactive Pond)	LPV	$4,000,000	$3,000,000	$1,510,000	$122,000	$328,000	77.54	**K**	Updated Cost using recent LPV cost. AAHUs based on LPV mitigation potential from restored crawfish ponds.
LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 5	St. James Parish Existing Crawfish Pond near Hwy 3125 and Hwy 3214 Intersection (Assumed Inactive Pond)	LPV	$1,150,000	$1,000,000	$690,000	$38,000	$105,000	27.34	**L**	Updated Cost using recent LPV cost. AAHUs based on LPV mitigation potential from restored crawfish ponds.

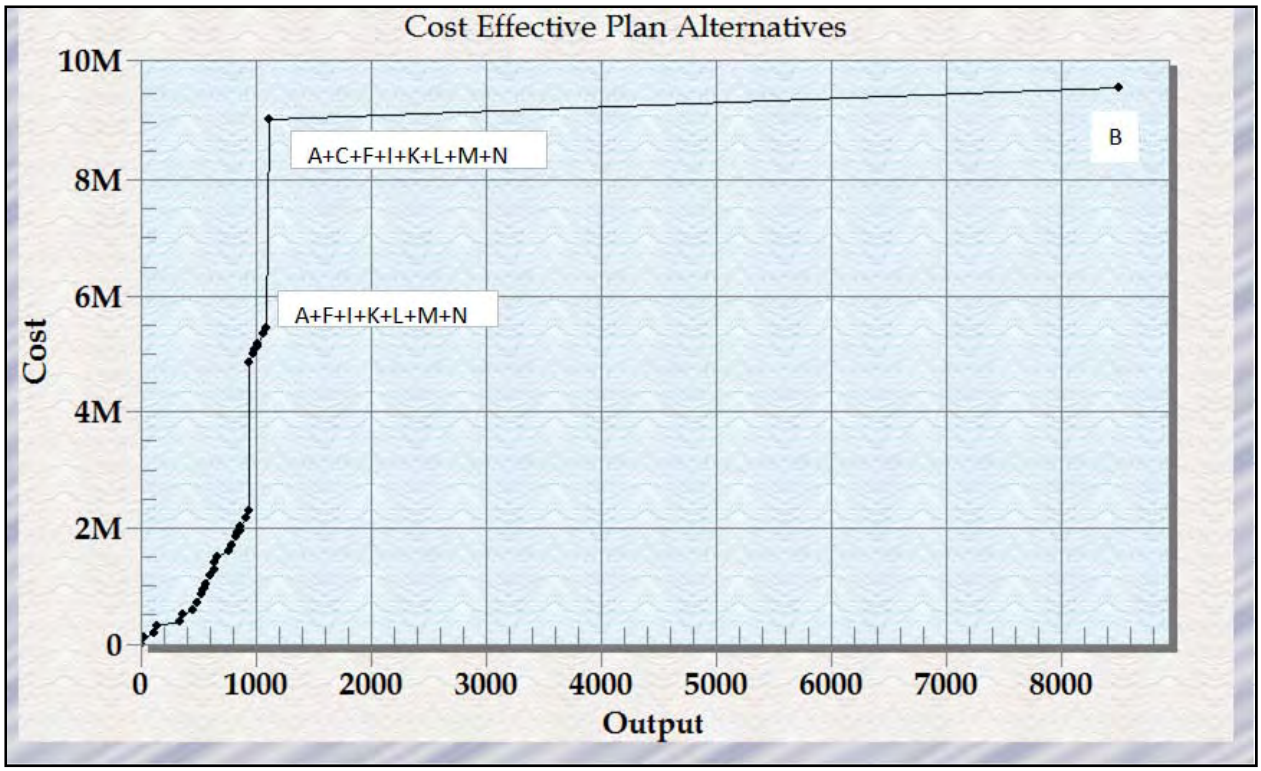
LPV_Expanded_Maurepas Crawfish Ponds Restoration_Ascension Pond 1thru4	Ascension Parish near Sorrento along Airline Hwy (Assumed Inactive Pond)	LPV	$11,100,000	$10,000,000	$5,124,000	$369,000	$1,004,000	302.25	**M**	Updated Cost using recent LPV cost. AAHUs based on LPV mitigation potential from restored crawfish ponds.
LPV_Expanded_Lutcher Polder Farmlands Swamp Restoration_Site1	Existing Farm Land Near Berms 1, 2 and 3	LPV	$66,000,000	$6,000,000	$2,144,000	$1,259,000	$3,157,000	151.00	**N**	Updated Cost using recent LPV cost. AAHUs based on LPV mitigation potential from farm sites.

[1]Est. Total Construction Cost includes development cost and monitoring to insure initial success be turning over to sponsor.
[2]Est. Total OMRR&R includes monitoring, reporting, and other maintenance activities such as invasive species control.

SUMMARY OF IWR PLAN CE/ICA RESULTS

The results of initial IWR Plan CE/ICA results (Figure 1) showed that the one project alone; the "East Maurepas Diversion (5,000 cfs or 2,000 cfs)" (**CODE B**) would be the best buy plan, but the project would provide more benefits than required for compensatory mitigation. The Swamp impacts required are only 1,089 AAHUS. The estimated total AAHUS provided by the diversion (~8,500 based on CWPPRA numbers) would be well over the required amount. The goal of compensatory mitigation is no net loss of wetlands. The current WSLP authorization could not provide complete funding for wetland restoration above and beyond what is needed for mitigation. A river reintroduction project such as the East Maurepas Diversion (5,000 cfs or 2,000 cfs) project could result in more wetland benefits than are needed for mitigation purposes. The total projected benefits of such a project would need to be apportioned between what is needed for mitigation purposes and what would be paid for with some other funding source. Currently the East Maurepas Diversion (5,000 cfs or 2,000 cfs) as proposed under the State's Master Plan has yet to identify any funding for the project. (See discussions on Chapter 2 of the main report related to the "River Reintroduction into Maurepas Swamp (PO-29)" project. In order for this plan to be selected additional funding would be needed to cover those project costs that are above and beyond what is needed for mitigation purposes. In addition, concerns related to the success of key ecological outputs or benefits would have to be agreed upon between all parties. Marsh creation or reforestation mitigation project can be relatively simple and quick, and the ecological outputs of the required habitat type needed to comply with Federal laws, regulations, and policies can easily be achieved over the life of the authorization. A diversions outputs over time can be influenced by the amount and timing of diverted flows, sediment concentrations in the river and also by relative sea level rise. Due the fund uncertain and risk with maintain benefits over the project authorization the team did not select the "Best Buy" plan in the initial IWR Plan CE/ICA results.

Figure 1: Initial IWR Plan CE/ICA results
("East Maurepas Diversion (5,000 cfs or 2,000 cfs)" (**CODE B**) included)



The team at that point re-ran IWR Plan CE/ICA without the "East Maurepas Diversion (5,000 cfs or 2,000 cfs)" (**CODE B**) plan included. The team then reviewed results and determined that the next most cost effective plan to meet WSLP compensatory mitigation needs for swamp would be the following combination: **A+F+I+K+L+M+N**. (Figure 2 and Figure 3) This plan would also be considered a "Best Buy" plan.

Code	Project ID
A	Mitigation_Bank_Credits_72
F	LCA_AMITE_Alt 37_Plantings_Only
I	LPV_Bonnet Carre Swamp Restoration
K	LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 1thru4
L	LPV_Expanded_Maurepas Crawfish Ponds Restoration_St. James Pond 5
M	LPV_Expanded_Maurepas Crawfish Ponds Restoration_Ascension Pond 1thru4
N	LPV_Expanded_Lutcher Polder Farmlands Swamp Restoration_Site1

The combination would provide for a total of 1,090.14 AAHUs for swamp habitat. This combination with the 99.0 AAHUs by the "LPV_Bonnet Carre Bottomland Hardwood Restoration" would provide for a total of 1,189.14 AAHUs. This combination would place this grouping less than 1 AAHU over the required 1,188.7 AAHUs impacted by the project. Table 5 shows the all of the outputs of the final CE/ICA analysis. The combination (A+**C**+F+I+K+L+M+N) including the "Maurepas Shoreline Protection" plan was not selected because it would include more than the required compensatory mitigation needed.

Figure 2 Final IWR Plan CE results
("East Maurepas Diversion (5,000 cfs or 2,000 cfs)" (**CODE B**) Removed)

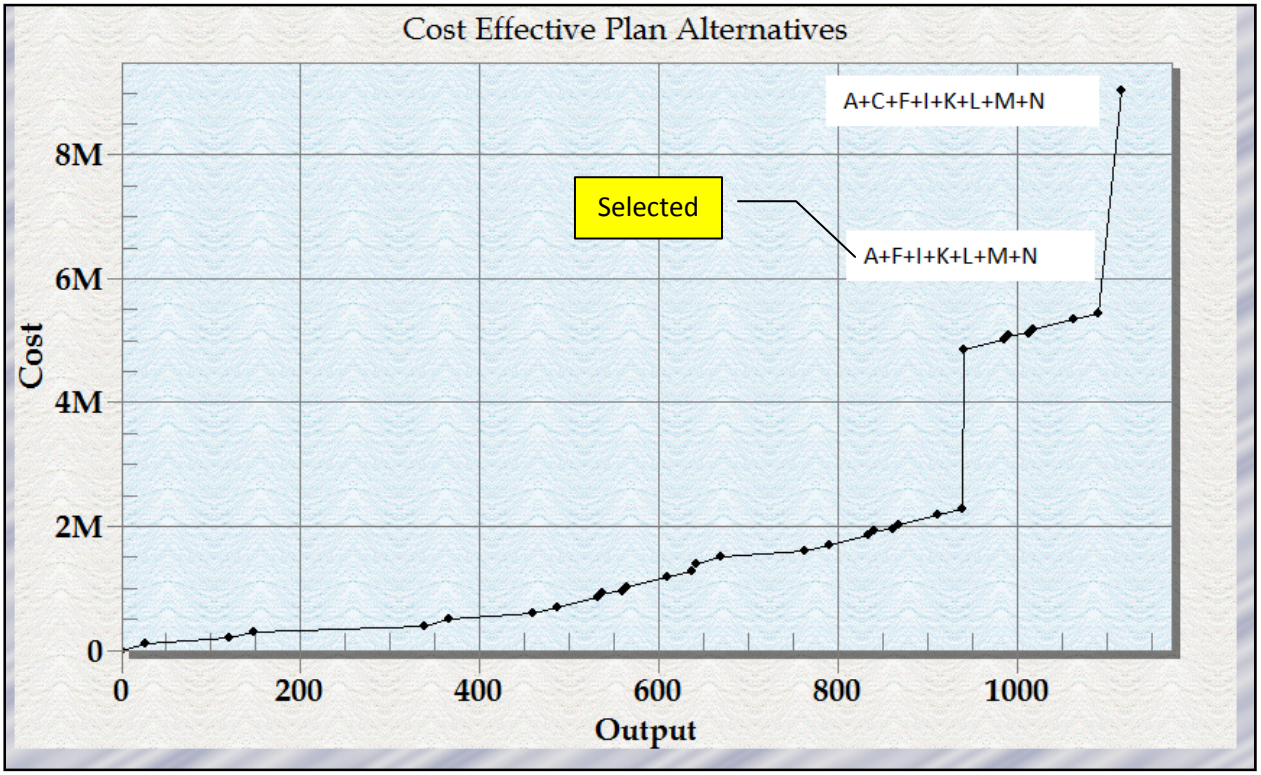


Figure 3 Final IWR Plan CE/ICA results
("East Maurepas Diversion (5,000 cfs or 2,000 cfs)" (**CODE B**) Removed)

Best Buy Plans-Incremental Cost Analysis

Name	AA Cost	AAHU	Incremental AA Cost	Incremental AAHU	Average Incremental Cost per Incremental AAHU
A+C+F+I+K+L+M+N	9,043,588.35	1,116.26	3,603,838.78	26.12	137,990.47
A+F+I+K+L+M+N	5,439,749.58	1,090.14	3,156,423.00	151.00	20,903.46
A+F+I+K+L+M	2,283,326.58	939.14	327,185.00	77.54	4,219.36
A+F+I+L+M	1,956,141.58	861.60	105,078.00	27.34	3,842.86
A+F+I+M	1,851,063.58	834.25	255,802.26	72.00	3,552.81
F+I+M	1,595,261.32	762.25	1,003,441.00	302.25	3,319.87
F+I	591,820.32	460.00	196,573.25	121.00	1,624.57
F	395,247.06	339.00	395,247.06	339.00	1,165.92

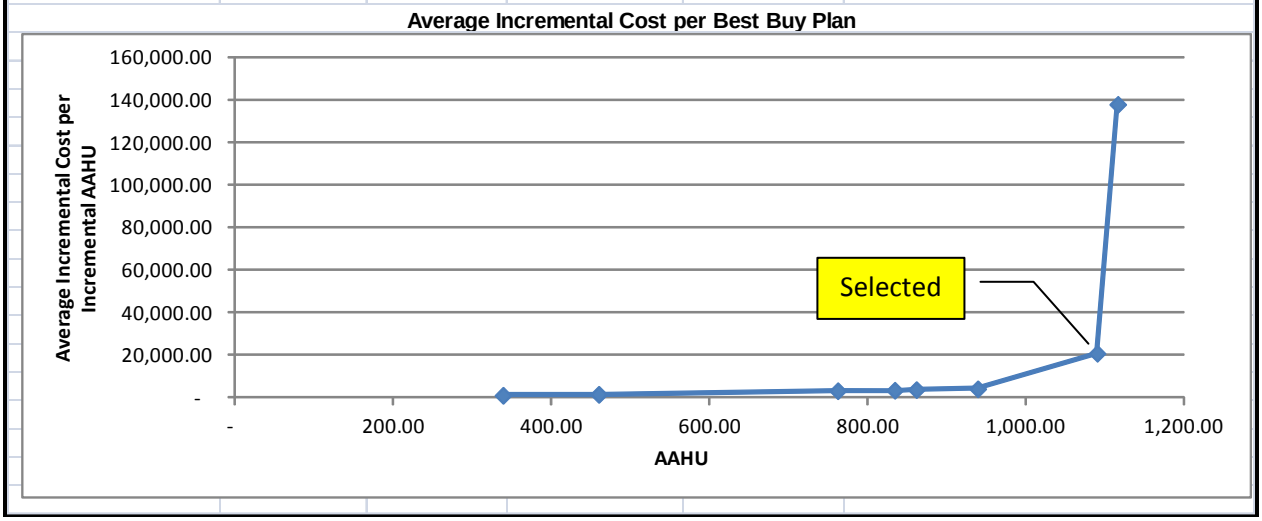


Table 5. WSLP CE/ICA Results

Name	AA Cost	AAHU	Cost Effective/Best Buy
A+C+F+I+K+L+M+N	9,043,588.35	1,116.26	Best Buy
A+F+I+K+L+M+N	5,439,749.58	1,090.14	Best Buy (Selected)
A+F+I+K+M+N	5,334,671.58	1,062.80	Yes
F+I+K+L+M+N	5,183,947.32	1,018.14	Yes
A+F+I+L+M+N	5,112,564.58	1,012.60	Yes
F+I+K+M+N	5,078,869.32	990.80	Yes
A+F+I+M+N	5,007,486.58	985.25	Yes
F+I+L+M+N	4,856,762.32	940.60	Yes
A+F+I+K+L+M	2,283,326.58	939.14	Best Buy
A+F+I+K+M	2,178,248.58	911.80	Yes
F+I+K+L+M	2,027,524.32	867.14	Yes
A+F+I+L+M	1,956,141.58	861.60	Best Buy
F+I+K+M	1,922,446.32	839.80	Yes
A+F+I+M	1,851,063.58	834.25	Best Buy
F+I+L+M	1,700,339.32	789.60	Yes
F+I+M	1,595,261.32	762.25	Best Buy
F+L+M	1,503,766.06	668.60	Yes

Name	AA Cost	AAHU	Cost Effective/Best Buy
F+M	1,398,688.06	641.25	Yes
A+F+I+K+L	1,279,885.58	636.89	Yes
A+F+I+K	1,174,807.58	609.54	Yes
F+I+K+L	1,024,083.32	564.89	Yes
A+F+I+L	952,700.58	559.34	Yes
F+I+K	919,005.32	537.54	Yes
A+F+I	847,622.58	532.00	Yes
F+I+L	696,898.32	487.34	Yes
F+I	591,820.32	460.00	Best Buy
F+L	500,325.06	366.34	Yes
F	395,247.06	339.00	Best Buy
I+L	301,651.25	148.34	Yes
I	196,573.25	121.00	Yes
L	105,078.00	27.34	Yes

WEST SHORE LAKE PONTCHARTRAIN
HURRICANE AND STORM DAMAGE RISK REDUCTION STUDY
INTEGRATED DRAFT FEASIBILITY REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
Annex T

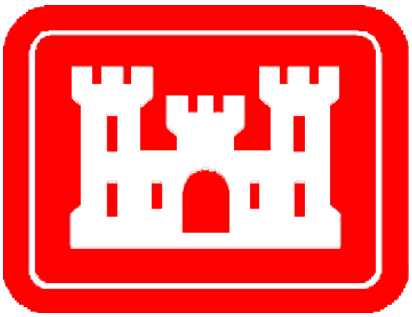
Hazardous, Toxic and Radioactive Waste

HTRW 14-02

WEST SHORE LAKE PONTCHARTRAIN
FEASIBILITY STUDY
ST. JOHN THE BAPTIST PARISH AND ST. JAMES PARISH, LOUISIANA
PHASE I ENVIRONMENTAL SITE ASSESSMENT

28 FEBRUARY 2014

Prepared by
U.S. Army Corps of Engineers
New Orleans District



U.S. Army Corps of Engineers
New Orleans District
7400 Leake Ave.
New Orleans, LA 70118-3651

Prepared by:

_____

Joseph Musso
Environmental Planning and
Compliance Branch
New Orleans District

Date: _____

Table of Contents

Executive Summary

The West Shore Lake Pontchartrain (WSLP) Project is a hurricane and storm damage risk reduction project. The project, which consists of constructing approximately 19 miles of earthen levee, concrete floodwalls, floodgates, drainage canals, flood side ditch for hydraulic connectivity for wetlands north and south of the recommended plan, drainage structures, and pump stations located along the alignment, is designed to provide storm surge risk reduction to the communities of Montz, Laplace, Reserve, and Garyville in St. John the Baptist Parish. The localized storm surge risk reduction measures of the project are located along LA Highway 3125 near the communities of Lutcher and Convent in St. James Parish. The mitigation portion of the project consists of reestablishing freshwater swamp by implementing vegetative planting of cypress seedlings near Blind River, creating swamp-like conditions and planting bottomland hardwoods in the Bonnet Carre spillway, using dredged material from Lake Pontchartrain to create swamp and planting swamp tree species, and degrading and creating swamp-like conditions and planting swamp tree species in the Lutcher Polder and the Maurepas Crawfish Ponds.

Personnel from USACE-MVN-PDC-CEC made a field inspection on 13 February 2014 of the West Shore Lake Pontchartrain (WSLP) Alternative C project area. A field inspection of the WSLP Localized storm surge risk reduction measures areas and the Lutcher Polder area was conducted on 25 February 2014. The areas were inspected for the presence of pipes, containers, tanks or drums, ponds or lagoons, car bodies, tires, refrigerators, trash dumps, electrical equipment, oil drilling equipment, gas or oil wells, discoloration of vegetation or water sheens, discoloration of soils, out-of-place dirt mounds or depressions in the landscape, evidence of fire, stressed soils with lack of vegetation, discoloration of vegetation, animal remains, unusual animal behavior, biota indicative of a disturbed environment, and odors indicative of poor water quality or chemical presence. Government and commercial environmental databases, historical aerial photographs, and historic topographical maps were also reviewed for the presence of Recognized Environmental Conditions (RECs) that would affect the proposed project sites.

Numerous oil and gas pipelines, oil and gas well-heads (active, inactive, and plugged and abandoned), and oil and gas related facilities were found to be located within or near the footprint of the structural and localized storm surge risk reduction measures project areas and the Lutcher Polder.

Due to limited access to the Blind River, Bonnet Carre Spillway, Milton Island, and the Maurepas Crawfish Ponds locations, no field inspections were conducted at those locations. A data base search, however, was conducted for the mitigation areas. Several potential RECs (pipelines and oil and gas wells) were identified within five of the seven mitigation areas.

Care must be taken to avoid impacting any pipelines or oil and gas wells during construction of the structural, localized storm surge risk reduction measures, and mitigation features.

The objective of the Phase I Environmental Site Assessment (ESA) is to identify, to the extent feasible pursuant to the process described herein, RECs in connection with a given property. This assessment revealed several potential RECs (pipelines and oil and gas wells) in

connection with the project's structural and localized storm surge risk reduction measures sites as well as within five of the seven mitigation areas.

I. Introduction

1.1 Purpose

The USACE regulations (ER-1165-2-132) and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential hazardous, toxic, or radioactive waste (HTRW) in reconnaissance, feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects, by conducting a Phase I Environmental Site Assessment (ESA). These assessments follow the process/standard practices for conducting Phase I ESAs published by the American Society for Testing and Materials (ASTM).

This assessment was prepared using the following ASTM Standard:

E 1527-05: Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment Process. American Society for Testing and Materials, International; West Conshohocken, Pennsylvania; 2005

The purpose of a Phase I ESA is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the US Environmental Protection Agency's (USEPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products.

The scope of this Phase I ESA consists of the following four components:

a. Records review

b. Site reconnaissance

c. Interviews

d. Report

II. Project/Site Description

2.1 Location Description

The project is located near the towns of Laplace, Reserve, and Garyville, in St. John the Baptist Parish with the localized storm surge risk reduction measures located near Lutcher and Convent, in St. James Parish, Louisiana. The mitigation areas are located near Maurepas in Livingston Parish, near Norco in St. Charles Parish, near Madisonville in St. Tammany Parish, near Sorrento in Ascension Parish, and near Lutcher and Convent in St. James Parish. See figures for more precise locations.

2.2 Site/Vicinity Characteristics

The structural and localized storm surge risk reduction measures project vicinity is a lightly developed rural area of southeast Louisiana that is located between New Orleans and Baton Rouge. A mixture of residential, light commercial, and light, medium, and heavy industrial properties are located to the south, southeast, and southwest of the project area. The project locations are near the towns of Laplace, Reserve, and Garyville, in St. John the Baptist Parish, and near Lutcher and Convent, in St. James Parish, Louisiana.

The mitigation sites consist of undeveloped swamp land near the Blind River near Maurepas in Livingston Parish, undeveloped land within the Bonnet Carre Spillway near Norco in St. Charles Parish, existing swamp land (Milton Island) in St. Tammany Parish, agricultural land (Crawfish Pond #1) in Ascension Parish, and agricultural land (Lutcher Polder and Crawfish Ponds #2 and #3) in St. James Parish.

III. User Provided Information

Aerial photographs and topographic maps depicting the site were provided by USACE New Orleans District personnel.

IV. Records Review

For the purpose of this ESA, the following standard records sources were obtained and reviewed to assist in the identification of RECs in connection with this proposed project.

• Environmental Sources (Federal, State and Local, Tribal, and Proprietary)

• Historical Use (topographic maps and aerial photographs)

4.1 Environmental Sources

Publicly available environmental records were obtained and reviewed from available resources on the internet or in correspondence with the managing institution. Not all databases are publicly available with the most recent data that can be referenced as meeting the ASTM 1527-05 standard, and unavailable information must be considered a data gap.

4.1.1 Federal Records

The following information sources (databases) were consulted and searched as a part of the federal agency review process:

a. United States Environmental Protection Agency's (USEPA) National Priorities List (NPL database – current and deleted sites);

b. USEPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS);
c. USEPA No Further Remedial Action Planned Sites (NFRAP);

d. USEPA Resource Conservation and Recovery Information System (RCRIS)

e. USEPA Emergency Response Notification System (ERNS);

f. USEPA Corrective Action Report (CORRACTS);

g. USEPA Biennial Reporting System (BRS);

h. USEPA Superfund (CERCLA) Consent Decrees (CONSENT);

i. USEPA Facility Index System/Facility Identification Initiative Program Summary Report (FINDS);

j. USDOT Hazardous Materials Information Reporting System (HMIRS);

k. USNRC Material Licensing Tracking System (MLTS);

l. USEPA Federal Superfund Liens (NPL LIENS);

m. USEPA PCB Activity Database System (PADS);

n. USEPA RECRA Administrative Action Tracking System (RAATS);

o. USNTIS Records of Decision (ROD);

p. USEPA Toxic Chemical Release Inventory System (TRIS);

q. USEPA Toxic Substances Control Act (TSCA).

A search of available environmental records was conducted. These records assist in meeting the requirements of USEPA's Standards and Practices for All Appropriate Inquires (40 CFR Part 312), and the ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. For properties that contained inadequate address information for mapping purposes, reasonable efforts were made to identify the approximate location of the sites in relation to the target properties, as part of the review process. In addition, the physical setting was assessed for the target properties by reviewing topographic maps, to identify conditions in which hazardous substances or petroleum products could migrate.

4.1.2 State and Local Records

The following information sources were consulted and searched as a part of the state and local agency review process:

a. Solid and Hazardous Waste Sites (SHWS);
b. Solid Waste Facilities/Landfill Sites (SWF/LF);

c. LDEQ Approved Debris Sites (DEBRIS);

d. Recycling Sites (SWRCY);

e. Leaking Underground Storage Tanks (LUST);
f. Historic Leaking Underground Storage Tanks (HIST LUST);

g. Louisiana Underground Storage Tank Database (UST);

h. Environmental Liens (LIENS);

i. Spills and Releases (SPILLS);

j. Listing of institutional and/or engineering controls (AUL);

k. Voluntary Remediation Program Sites (VCP);

l. Drycleaner Facility Listing (DRYCLEANERS);

m. LPDES Permits Database (NPDES).

4.1.3 Results

Site visits were made by CEMVN-PDC-CEC personnel on 13 February 2014 and 25 February 2014 of the structural and localized storm surgerisk reduction measures portions of the project as well as the Lutcher Polder mitigation area. Several oil and gas pipelines were noted to be within the footprint of the project features. These are considered potential RECs, and extreme caution shall be taken to prevent damage to or breakage of the pipelines during construction of the project.

A records search identified 4 Large Quantity Generators, 7 Small Quantity Generators (SQG), and 23 Conditionally Exempt SQGs within two miles of the project site. 47 toxic releases and 16 spills and accidents were reported from sites within two miles of the project site.

Several active and plugged and abandoned oil and gas wells located within two miles of the project site were also listed in the regulatory database. A large, 175 square acres surface impoundment associated with a fertilizer plant within one half mile of the project site was noted, as well. The impoundment is located to the west southwest of LA 3125 near Convent, LA. These findings should not be considered actual RECs, because no leaks or other problems have been reported concerning them. Therefore, they would not be expected to have any negative impacts on the project.

A records search for the Blind River mitigation area identified no RECs within two miles of the site.

Two potential RECs (plugged and abandoned dry hole oil and gas wells) were identified within the Bonnet Carre Spillway mitigation area. Caution must be taken to prevent damage to or breakage of the oil and gas well structures.

In addition to the well structures, seven Toxic Release Inventory (TRI) sites, fifty Emergency Response Notification System (ERNS) sites, ten Risk Management Plan (RMP) System sites, six Biennial Reporting System (BRS) sites, thirty-four Resource Conservation and Recovery Act (RCRA) hazardous waste handlers, one Comprehensive Environmental Response, Compensation, and Liability Information System site, and twenty-six National Pollutant Discharge and Elimination System (NPDES) sites within 2 miles of the Bonnet Carre Spillway mitigation area were identified in the records search. None of these sites, however, would be considered RECs that would affect or impact the project. These findings should be considered as *de minimis* conditions and not RECs; therefore, they would not be expected to have a negative impact on the project.

A records search for the Milton Island mitigation site identified two RCRA hazardous waste handlers, one CERCLIS site, and twenty NPDES facilities within two miles of the site. None of these sites, however, would be considered RECs that would affect or impact the project. These findings should be considered as *de minimis* conditions and not RECs; therefore, they would not be expected to have a negative impact on the project.

A records search for the Lutcher Polder mitigation site identified one potential REC (petroleum product pipeline) within the mitigation site. Caution must be taken to prevent damage to or breakage of the pipeline.

A records search for the Maurepas Crawfish Pond #1 mitigation site identified several potential RECs (petroleum product pipelines and plugged and abandoned oil and gas wells) within the Maurepas Crawfish Pond #1 mitigation site. Caution must be taken to prevent damage to or breakage of the oil and gas well structures.

In addition to the pipelines and well structures, two BRS sites, two RCRA hazardous waste handlers, and two NPDES sites within two miles of the Maurepas Crawfish Pond #1 mitigation site were identified in the records search. None of these sites, however, would be considered RECs that would affect or impact the project. These findings should be considered as *de minimis* conditions and not RECs; therefore, they would not be expected to have a negative impact on the project.

A records search for the Maurepas Crawfish Pond #2 mitigation site identified several potential RECs (petroleum product pipelines and one directionally drilled oil and gas well) within the mitigation site. Caution must be taken to prevent damage to or breakage of the oil and gas well structures.

In addition to the pipelines and well structures, two TRI sites, several ERNS (spill incidents) sites, two RMP facilities, three RCRA hazardous waste handlers, and five

NPDES sites were identified within two miles of the Maurepas Crawfish Pond #2 mitigation site. None of these sites, however, would be considered RECs that would affect or impact the project. These findings should be considered as *de minimis* conditions and not RECs; therefore, they would not be expected to have a negative impact on the project.

A records search for the Maurepas Crawfish Pond #3 mitigation site identified two potential RECs (petroleum pipelines) within the mitigation site. Caution must be taken to prevent damage to or breakage of the pipelines.

In addition to the pipeline, one TRI sites, several ERNS (spill incidents) sites, one BRS site, one RMP facility, and two RCRA hazardous waste handlers sites were identified within two miles of the Maurepas Crawfish Pond #3 mitigation site. None of these sites, however, would be considered RECs that would affect or impact the project. These findings should be considered as *de minimis* conditions and not RECs; therefore, they would not be expected to have a negative impact on the project.

4.2 Historical Use Information

The following historic information sources were obtained and reviewed: Historical aerial photographs from 1998 to 2013 were reviewed. The 2010 topographic maps were also reviewed as part of this investigation.

4.2.1 Aerial Photograph Review

1998 Aerial Photographs
The area surrounding the project site consists of mostly undeveloped marsh/wetland areas as well as acres of agricultural farmland. Several roads and structures exist along the localized storm surge risk reduction measures portions of the project as well as near the eastern and western parts of the proposed levee project.

2004 and 2005 Aerial Photographs
No significant changes appear to have occurred at the project site or the adjacent properties since the 1998 aerial photographs

2008 Aerial Photographs
No significant changes appear to have occurred at the subject site or the adjacent properties since the 2004 and 2005 aerial photographs.

2010 Aerial Photographs
No significant changes appear to have occurred at the project site since the 2008 aerial photographs.

2012 and 2013 Aerial Photographs
No significant changes appear to have occurred at the project site or the adjacent properties since the 2010 aerial photographs

4.2.2 Topographical Map Review

2010 Topographic Maps
Several roads, structures, refineries, oil and gas wells, a small airport, and acres of agricultural and vacant land are located adjacent to or near the project boundaries.

4.2.3 Sanborn Maps Review

No review of Sanborn Maps was conducted.

4.2.4 City Directory Review

No review of City Directories was conducted.

V. Site Reconnaissance

Site visits were conducted on 13 February 2014 and 25 February 2014. The project areas and surrounding properties were visually inspected for the presence of pipes, containers, tanks or drums, ponds or lagoons, car bodies, tires, refrigerators, trash dumps, electrical equipment, oil drilling equipment, gas or oil wells, discoloration of vegetation or water sheens, discoloration of soils, out-of-place dirt mounds or depressions in the landscape, evidence of fire, stressed soils with lack of vegetation, discoloration of vegetation, animal remains, unusual animal behavior, biota indicative of a disturbed environment, and odors indicative of poor water quality or chemical presence. Several oil and gas pipelines were noted in the project vicinity.

VI. Interviews

Property owners were not interviewed. This is considered a data gap.

VII. Findings

The site visits and records search identified numerous oil and gas wells and several oil and gas pipelines in and near the project area. Although no leaks or other problems have been reported from these facilities, they are considered to be potential RECs, and extreme care should be observed to avoid damaging any pipelines traversing the project area.

The site visits and environmental records search did not identify any other significant data suggesting environmental concerns in the structural and localized storm surge risk reduction measures project areas.

The records search for the Blind River and Milton Island mitigation sites did not identify any RECs.

The records search did identify two plugged and abandoned dry hole oil and gas wells within the Bonnet Carre Spillway mitigation site, one petroleum product pipeline within the

Lutcher Polder site, and several petroleum product pipelines, plugged and abandoned oil and gas wells, and one active oil and gas well within the Maurepas Crawfish Ponds mitigation areas. All of the pipelines and well structures are considered to be potential RECs and caution must be taken to prevent damage to or breakage of the well structures.

VIII. Opinion

A Phase I ESA was conducted in conformance with the scope and limitations of ASTM Practice E 1527-05 for the West Shore Lake Pontchartrain project. This assessment has revealed several potential RECs in connection with the project sites in the form of oil and gas pipelines. The assessment also revealed the existence of several petroleum product pipelines, plugged and abandoned oil and gas wells, and one active oil and gas well within the Bonnet Carre Spillway mitigation site, the Lutcher Polder mitigation site, and the Maurepas Crawfish Ponds mitigation sites. Extreme caution shall be taken to prevent damage to or breakage of the pipelines and well structures during construction of the project. Otherwise, there is a low probability of encountering HTRW in connection with this project.

IX. Conclusions

A Phase I ESA was conducted in accordance with the scope and limitations of ASTM Practice E 1527-05 for the West Shore Lake Pontchartrain. Pipelines and oil and gas well structures must be avoided during construction of the project. Otherwise, there is a low probability of encountering HTRW in connection with this project. No further investigation at the site is recommended. If the proposed project area changes, the HTRW probability may need to be re-investigated.

X. Limitations

U.S. Army Corps of Engineers, Environmental Quality Section, should be contacted with any known or suspected variations from the conditions described herein. If future development of the property indicates the presence of hazardous or toxic materials, USACE should be notified to perform a re-evaluation of the environmental conditions.

The scope of this assessment did not include any additional environmental investigation not outlined herein or analyses for the presence or absence of hazardous or toxic materials in the soil, ground water, surface water, or air, in, on, under, or above the subject tract.

This site assessment was performed in accordance with generally accepted practices of consultants undertaking similar studies at the same time and in the same geographical area, and USACE observed that degree of care and skill generally exercised by consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the environmental site assessment. No other warranty, expressed or implied, is made. Specifically, USACE does not and cannot represent that the site contains no hazardous waste or material, oil (including petroleum products), or other latent conditions beyond that observed by USACE during its site assessment.

The observations described in this report were made under the conditions stated herein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services. Furthermore, such conclusions are based solely upon site condition and rules and regulations which were in effect at the time of the study.

In preparing this report, USACE relied on certain information provided by state and local officials and other parties referenced therein, and on information contained in the files of state and/or local agencies available to USACE at the time of the site assessment. Although there may have been some degree of overlap in the information provided by these various sources, no attempt was made to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment.

Observations were made of the site, as indicated within the report. Where access to portions of the site was unavailable or limited, USACE renders no opinion as to the presence of indirect evidence relating to hazardous waste or material or oil, or other petroleum products, in that portion of the site or structure.

Unless otherwise specified in the report, USACE did not perform testing or analyses to determine the presence or concentration of asbestos, radon, formaldehyde, lead-based paint, lead in drinking water, or electromagnetic fields (EMFs) at the site or in the environment near the site.

The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous, toxic, or radioactive waste or material, oil, or petroleum products. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

XI References

• E 1527-05: Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment Process. American Society for Testing and Materials, International (ASTM); West Conshohocken, Pennsylvania; 2005

XII Qualifications

Joseph Musso
Environmental Resource Specialist
US Army Corps of Engineers
New Orleans District
New Orleans, Louisiana

Work Experience:

Mr. Musso has over 28 years of experience as an environmental specialist in both the private and public sector. He has actively participated in projects related to toxic and hazardous waste site evaluation, hydrocarbon site assessments, air quality projects, surface water quality

projects, Solid and Hazardous Waste management programs, and Pollution Prevention Plans. He is experienced in a wide range of environmental applications, including environmental management at the state and federal levels, compliance of facilities for industrial, domestic, and storm water regulations, and requirements for groundwater monitoring plans. He has also directed multi-disciplinary environmental projects for private industry and the public sector.

Mr. Musso has the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject properties and declares that, to the best of his professional knowledge and belief, he meets the definitions of Environmental Professionals as defined under 40 CFR 312.

Academic Background:

B.S. Geology
University of New Orleans
1983

XIII Appendices

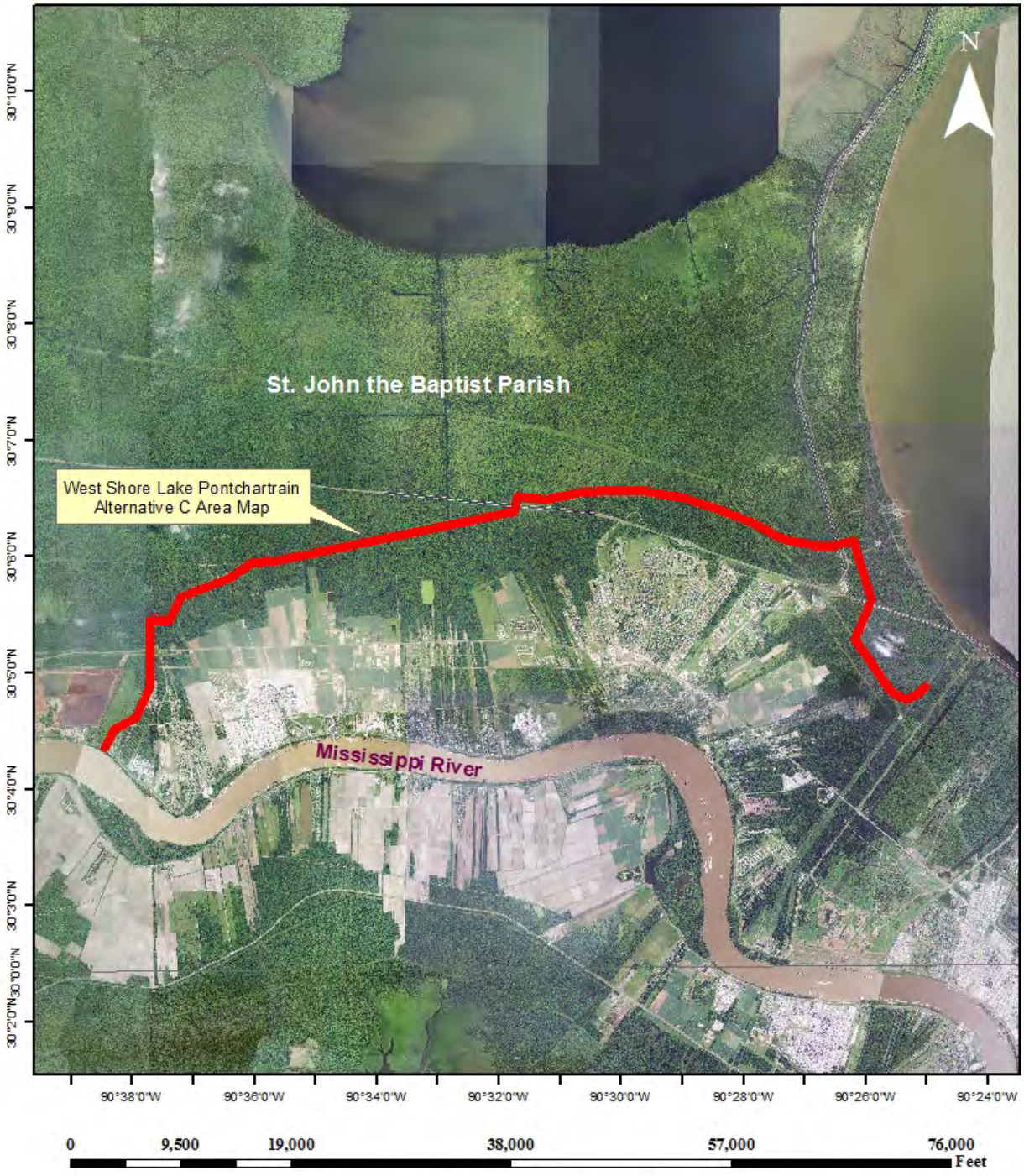
Appendix A – Site Map

Appendix B – Photographs

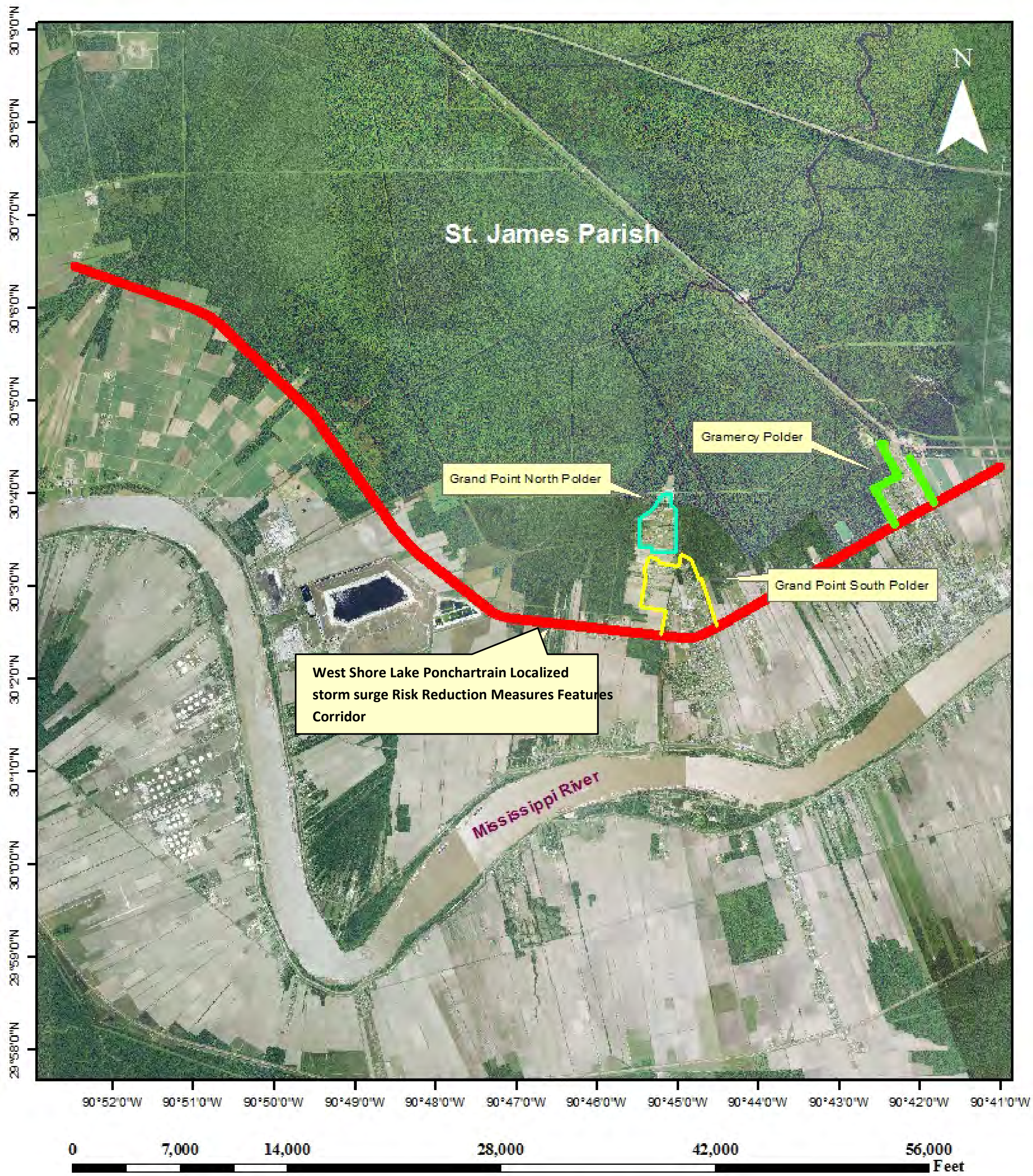
Appendix C – Environmental Data

Appendix A

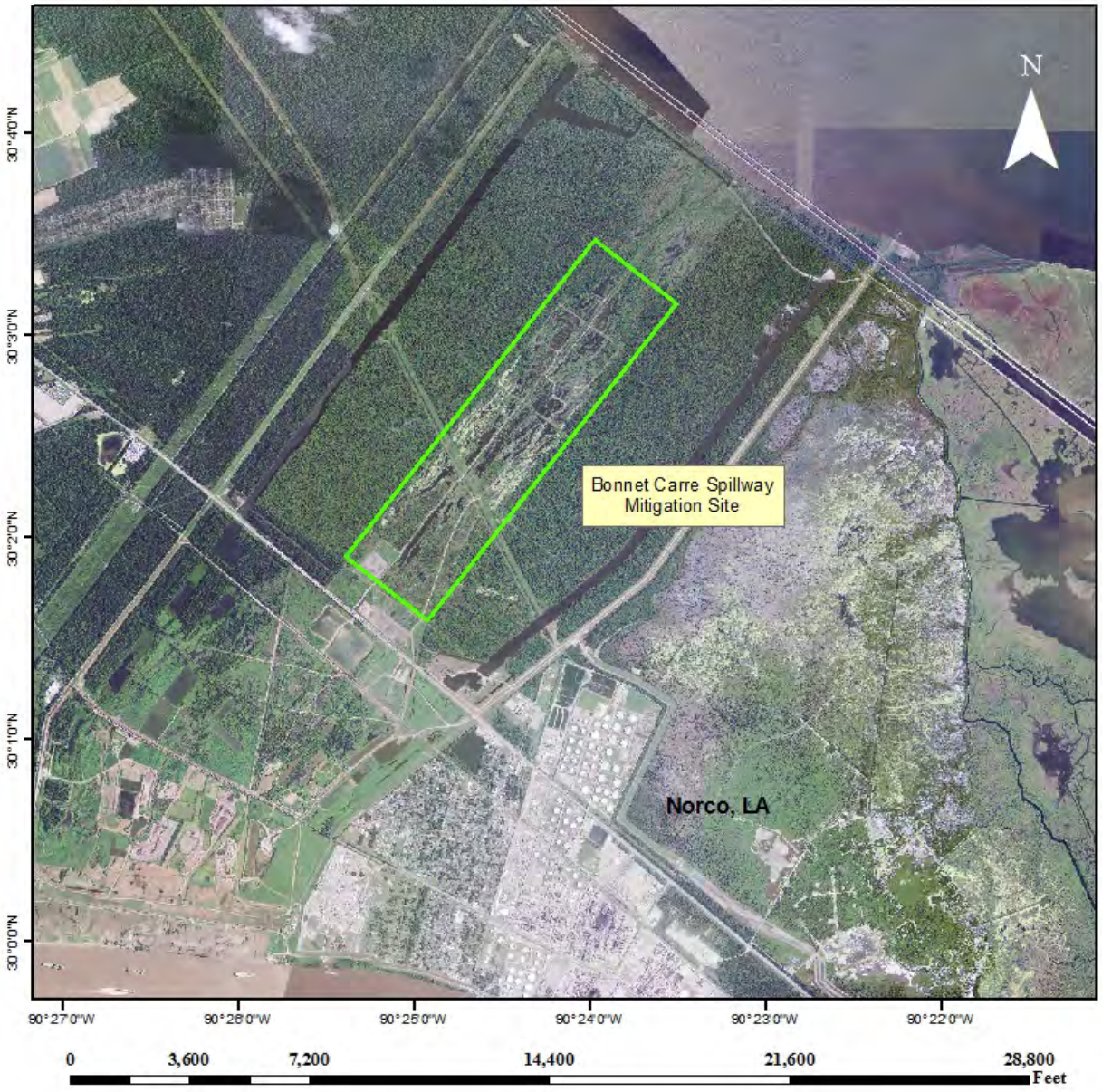
Site Map



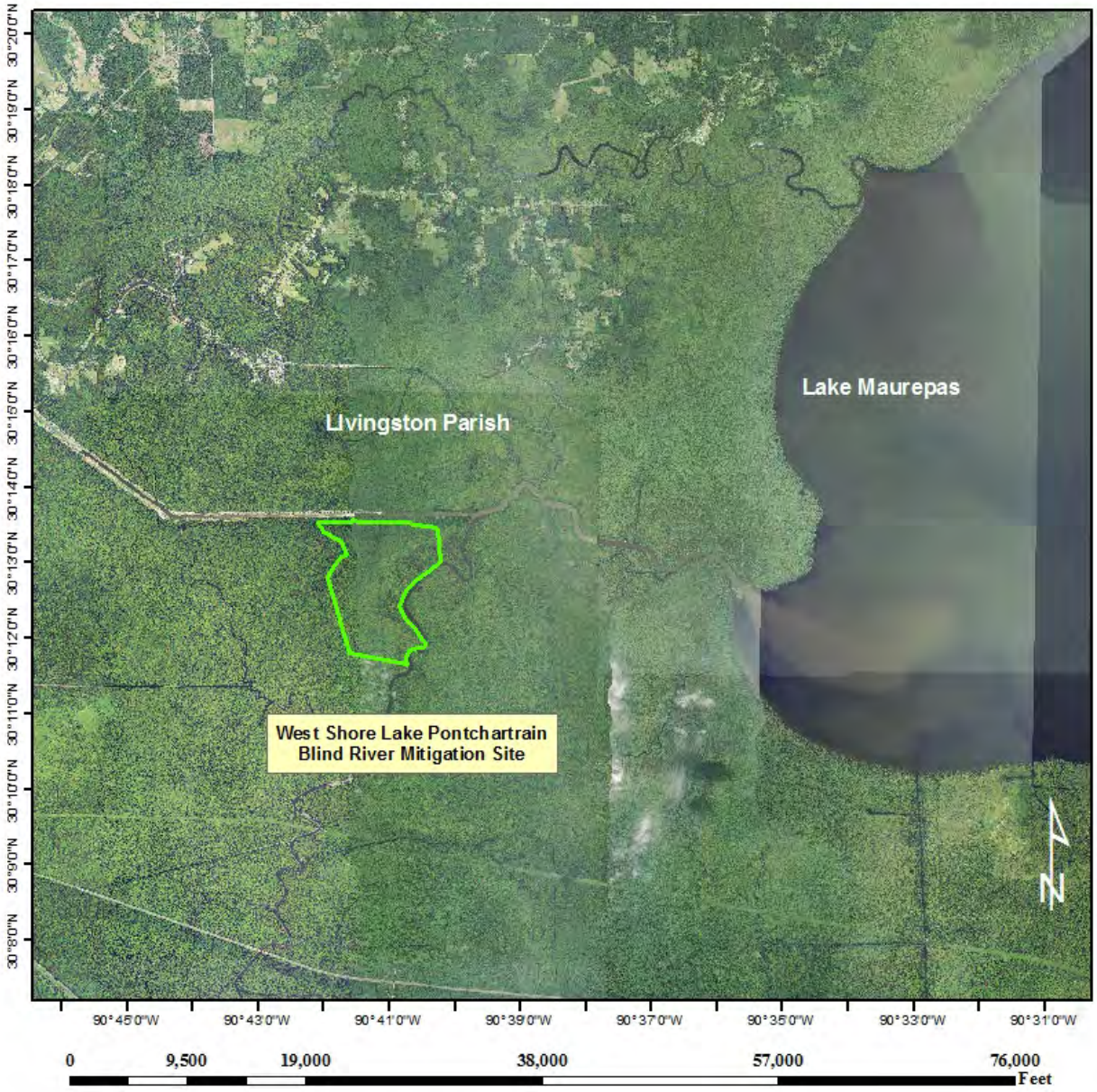
West Shore Lake Pontchartrain
Alternative C Area Map



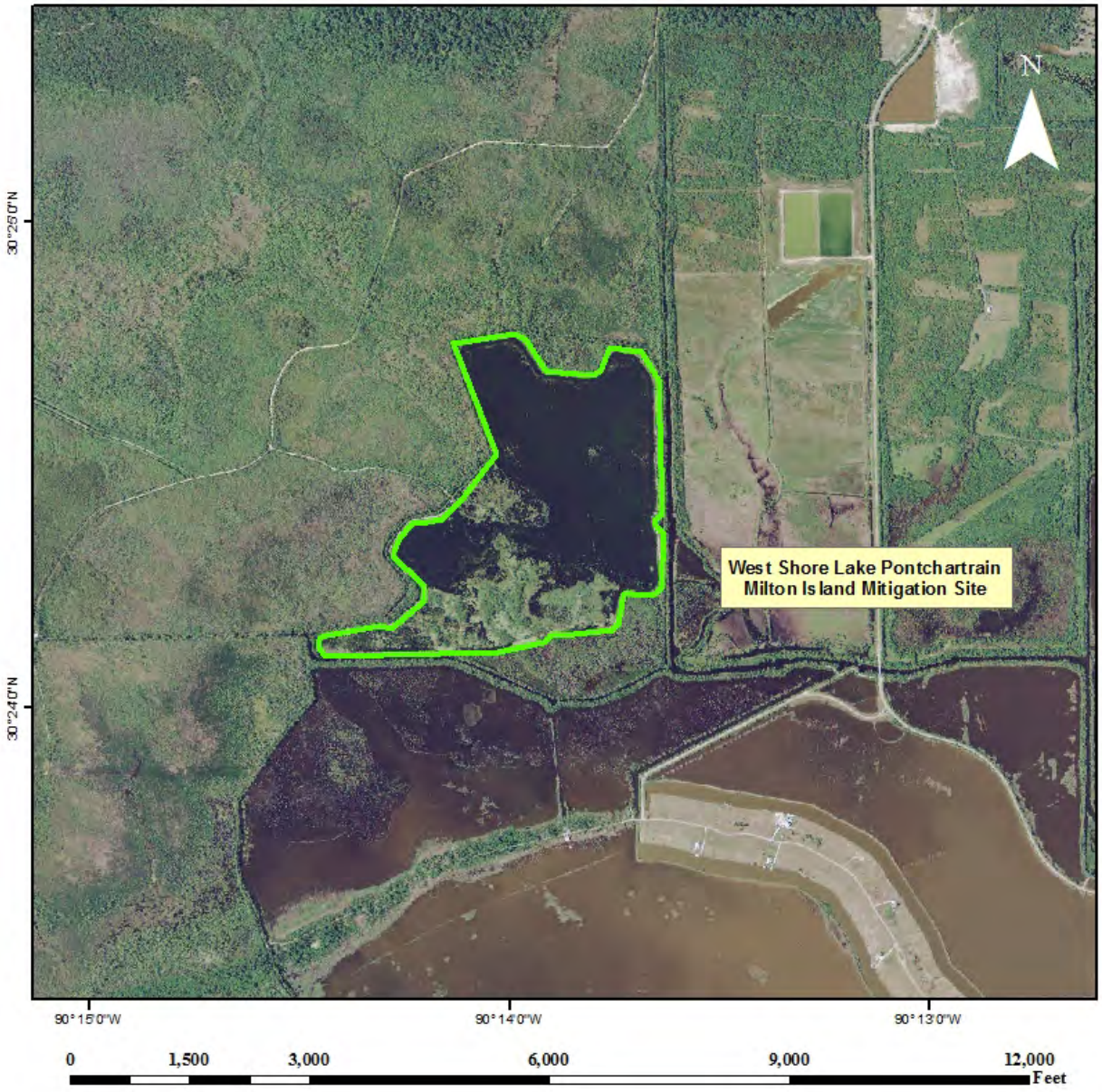
West Shore Lake Ponchartrain Localized {ŭ2ŊY {dzŊƎŜ Risk Reduction Measures Area Map



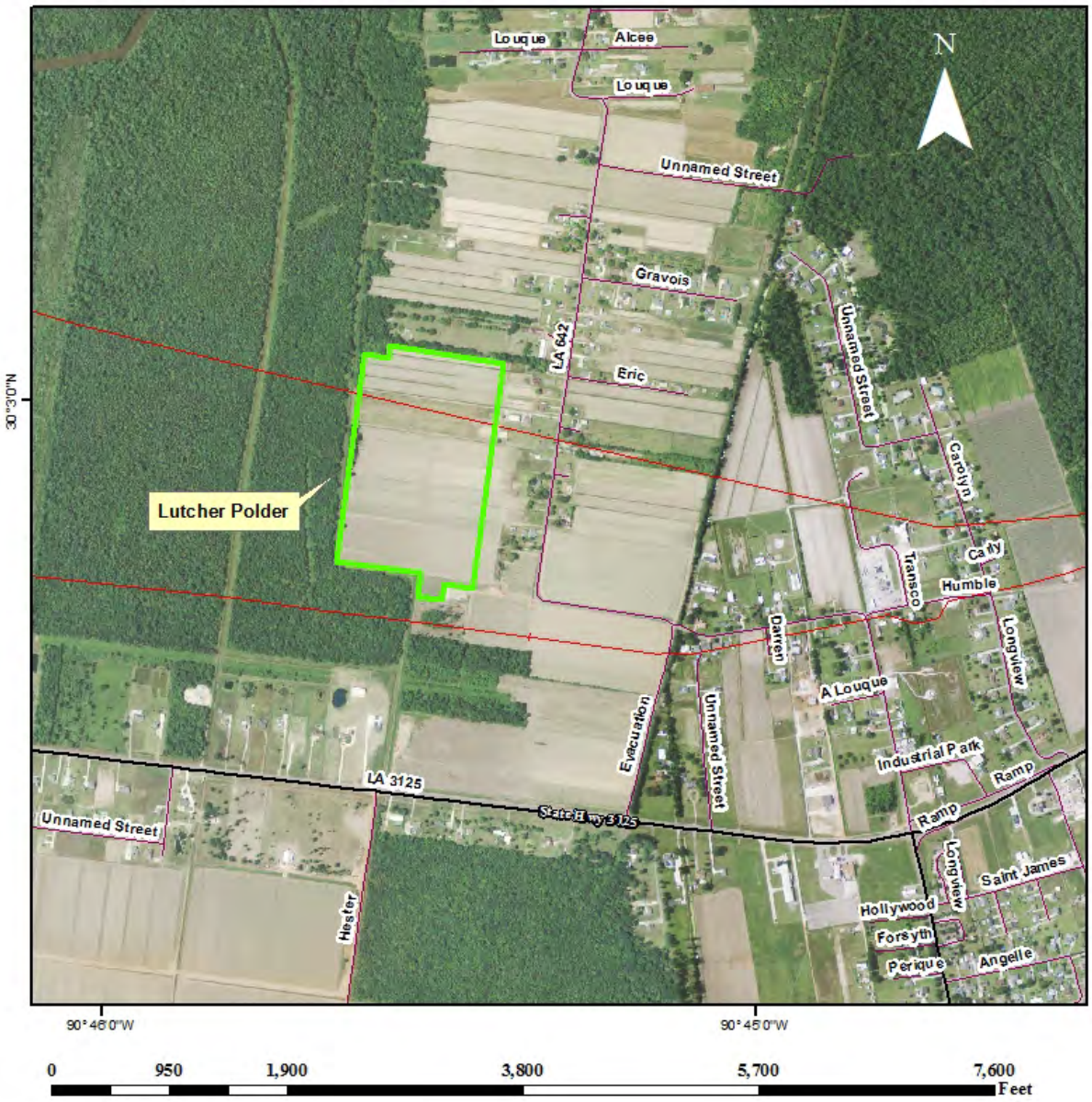
West Shore Lake Pontchartrain
Mitigation Site
Bonnet Carre Spillway



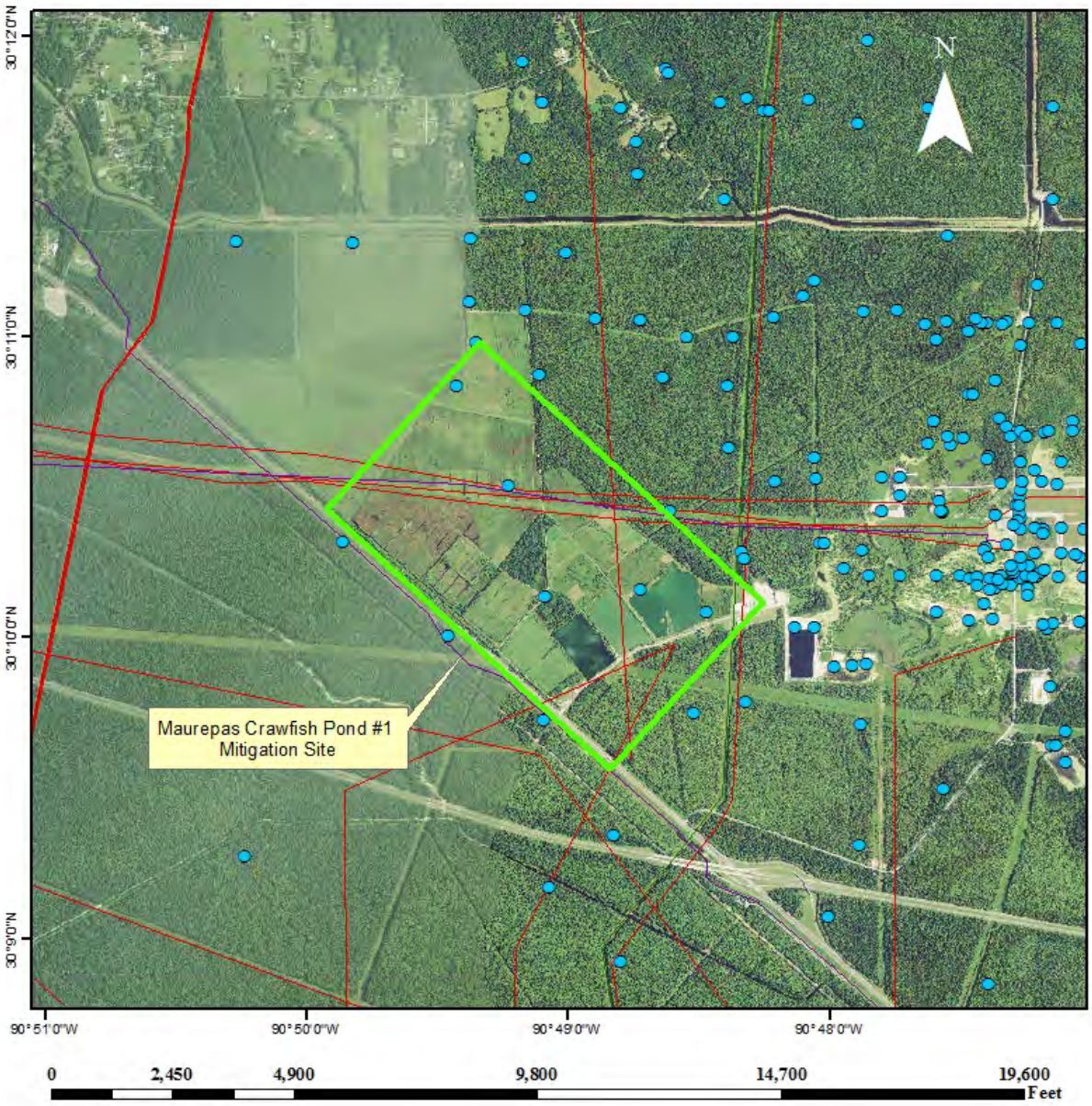
West Shore Lake Pontchartrain
Blind River Mitigation Site



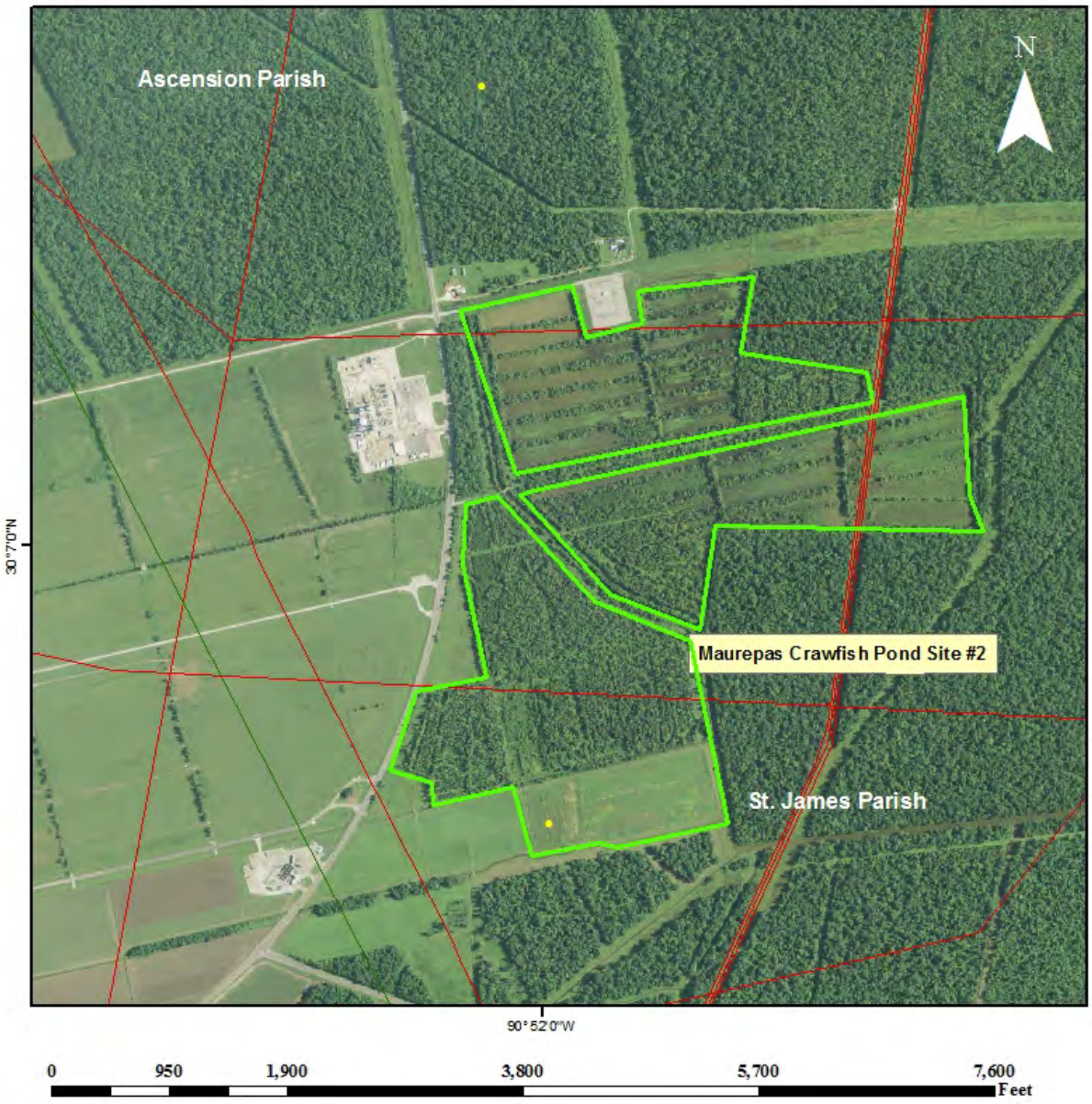
West Shore Lake Pontchartrain
Milton Island Mitigation Site



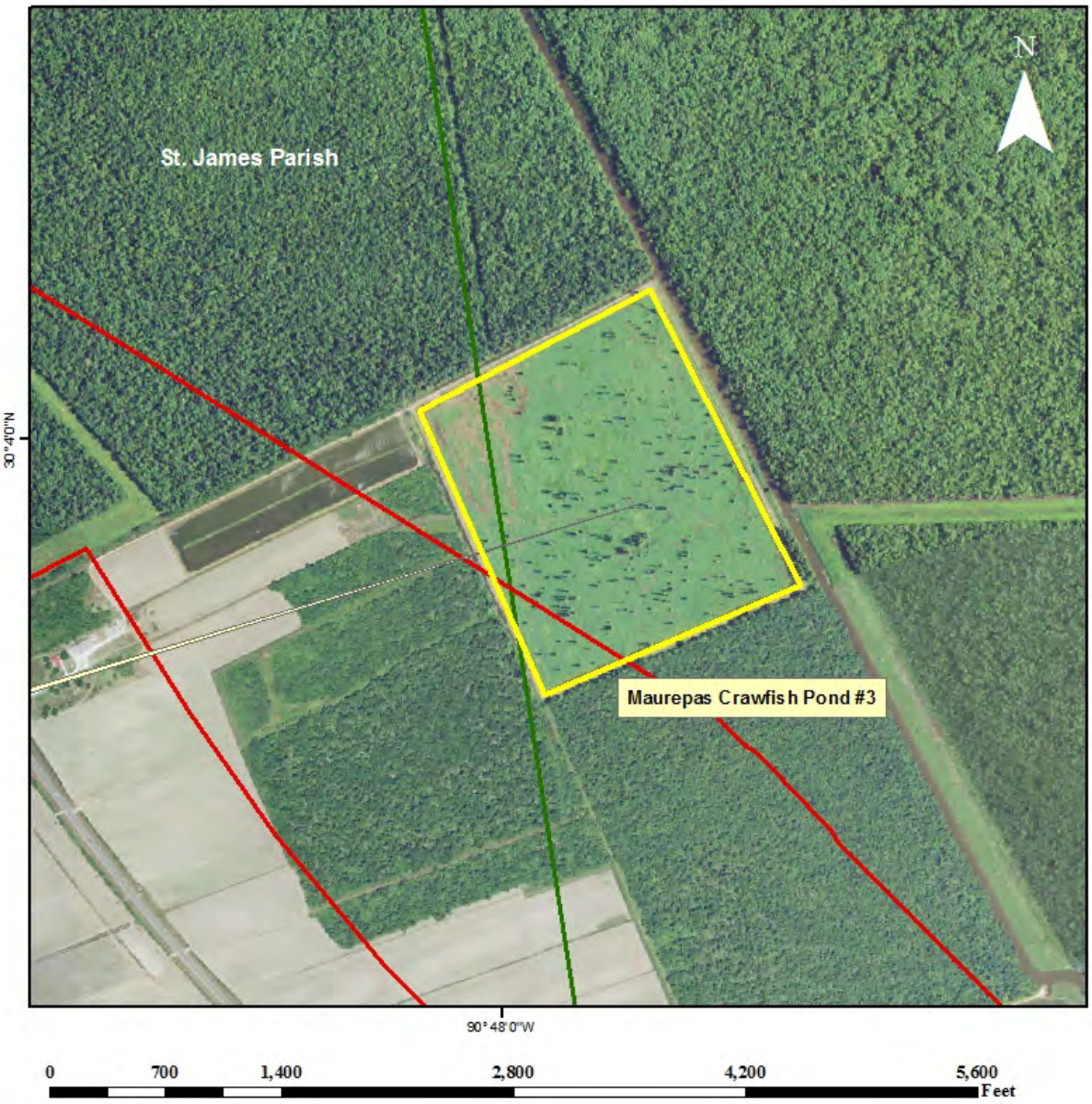
WSLP Mitigation Sites
Lutcher Polder with Pipeline
St. James Parish



WSLP Mitigation Sites
Maurepas Crawfish Pond #1
Pipeline and Well Locations



WSLP Mitigation Sites
Maurepas Crawfish Pond #2
With Pipelines and Wells



WSLP Mitigation Sites
Maurepas Crawfish Pond #3 With Pipelines

Appendix B

Photographs

Photograph 1: West Shore Lake Pontchartrain (WSLP) Alternative C near I-55 facing west

Photograph 2: WSLP Alternative C near I-55, trash and debris facing northwest

Photograph 3: WSLP Alternative C near I-55, trash and debris facing east

Photograph 4: WSLP Alternative C north of I-10 facing south

Photograph 5: WSLP Alternative C north of I-10 facing south

Photograph 6: WSLP Alternative C north of I-10 facing north

Photograph 7: WSLP Alternative C Airline Hwy. crossing facing south

Photograph 8: WSLP Alternative C Airline Hwy. crossing facing north

Photograph 9: WSLP Alternative C alignment facing northwest

Photograph 10: WSLP Alternative C alignment facing west

Photograph 11: WSLP Alternative C alignment at River Rd. facing north

Photograph 12: WSLP Localized storm surge risk reduction measures plan Gramercy Polder area facing west

Photograph 13: WSLP Localized storm surge risk reduction measures plan Gramercy Polder area facing west

Photograph 14: WSLP Localized storm surge risk reduction measures plan Gramercy Polder area facing east

Photograph 15: WSLP Localized storm surge risk reduction measures plan Gramercy Polder area facing east

Photograph 16: WSLP Localized storm surge risk reduction measures plan, Hwy. 3125 facing west,
residential area south of Hwy. 3125

Photograph 17: WSLP Localized storm surge risk reduction measures plan, gas station south of Hwy. 3125, facing south

Photograph 18: WSLP Localized storm surge risk reduction measures plan, restaurant and gas station
south of Hwy. 3125, facing south

Photograph 19: WSLP Localized storm surge risk reduction measures plan, Grand Point South Polder area facing west

Photograph 20: WSLP Localized storm surge risk reduction measures plan, Grand Point North Polder area facing west

Photograph 21: WSLP Localized storm surge risk reduction measures plan, Grand Point North Polder area facing east

Photograph 22: WSLP Localized storm surge risk reduction measures plan, Grand Point South Polder area facing east

Photograph 23: WSLP Localized storm surge risk reduction measures plan, along Hwy. 3125 facing west

Photograph 24: WSLP Localized storm surge risk reduction measures plan, along Hwy. 3125, Mosaic Chemical Plant, notice pipeline marker, facing west

Photograph 25: WSLP Localized storm surge risk reduction measures plan, along Hwy. 3125, notice pipeline marker, facing west

Photograph 26: WSLP Localized storm surge risk reduction measures plan, along Hwy. 3125, facing southwest