

**Appendix A: List of Acronyms and Definitions of Common Terms**

ACB	-	Articulated Concrete Block
AG	-	Algiers Gate
CED	-	Comprehensive Environmental Document
CEMVN	-	United States Army Corps of Engineers, Mississippi Valley Division, CEMVN
CEQ	-	Council on Environmental Quality
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	-	cubic feet per second
DNL	-	Day-Night Sound Level
dBA	-	Decibels
EA	-	Environmental Assessment
EIS	-	Environmental Impact Statement
EPA	-	Environmental Protection Agency
ER	-	Engineer Regulation
ESA	-	Environmental Site Assessment
FHWA	-	Federal Highway Administration
FONSI	-	Finding of No Significant Impact
FPPA	-	Farmland Protection Policy Act
FWCA	-	Fish and Wildlife Coordination Act
GIWW	-	Gulf Intracoastal Waterway
HSDRRS	-	Hurricane and Storm Damage Risk Reduction System
HTRW	-	Hazardous, Toxic, and Radioactive Waste
IER	-	Individual Environmental Report
LA	-	Louisiana
LASHPO	-	Louisiana State Historic Preservation Officer

LCRP	-	Louisiana Coastal Resource Program
LDEQ	-	Louisiana Department of Environmental Quality
LDNR	-	Louisiana Department of Natural Resources
LNHP	-	Louisiana Natural Heritage Program
LORR	-	Level of risk reduction
LPV	-	Lake Pontchartrain Vicinity
NAAQS	-	National Ambient Air Quality Standards
NEPA	-	National Environmental Policy Act
NAVD 88	-	North American Vertical Datum of 1988
NMFS	-	National Marine Fisheries Service
O&M	-	Operation and Maintenance
OMRR&R	-	Operation, Maintenance, Repair, Replacement and Rehabilitation
PDT	-	Project Delivery Team
PM	-	Particulate Matter
PP	-	Parallel Protection
PPA	-	Project Partnering Agreement
RCRA	-	Resource Conservation and Recovery Act
REC	-	Recognized Environmental Conditions
ROD	-	Record of Decision
ROW	-	Right-of-Way
SPH	-	Standard Project Hurricane
GIWW A	-	Gulf Intracoastal Waterway South Gate A
WCC	-	Gulf Intracoastal Waterway West Closure Complex
T&E	-	Threatened and Endangered
TRM	-	Turf Reinforcement Mattress
U.S.	-	United States of America
USACE	-	United States Army Corps of Engineers

IER # 12 - Appendix A

USDA	-	United States Department of Agriculture
USFWS	-	United States Fish and Wildlife Service
USHUD	-	United States Department of Housing and Urban Development
WBV	-	West Bank and Vicinity of New Orleans
WRDA	-	Water Resources Development Act

IER # 12 - Appendix B

From: Owen, Gib A MVN on behalf of MVN Environmental  
Sent: Monday, May 26, 2008 6:03 AM  
To: Coulson, Getrisc MVN  
Subject: FW: NOLA Environmental Comment - Gretna-Algiers

Gigi,  
IER 12 Comment  
Gib

Gib Owen  
US Army Corps of Engineers  
Chief, Ecological Planning and Restoration Section GNOHSDRRS Environmental Team  
Leader New Orleans District  
504 862-1337

-----Original Message-----

From: grimes08@yahoo.com [mailto:grimes08@yahoo.com]  
Sent: Friday, May 23, 2008 4:33 PM  
To: MVN Environmental  
Subject: NOLA Environmental Comment - Gretna-Algiers

I wish to submit a comment for the record on IER-12. The Corps is evaluating alternatives for 100 year flood protection in the Algiers and Harvey Canal Area.

I am very concerned with the alternatives being considered that would allow encroachment into the Bayou Aux Carpes 404c area, where wetlands are supposed to be protected from all dredge or fill activities.

I attended the public hearing on May 23 and incorrectly stated that I would like the Corps to strongly consider Alternatives 2-4. I later learned that alternative 2 would also destroy wetlands in the Bayou Aux Carpes area. I request that the Corps focus only on alternatives 3 and 4 that do not encroach into the 404c area.

We would all like to see hurricane protection for the area upgraded as soon as possible. In the interest of ensuring that these projects are completed in a timely manner, I hope the Corps avoids the inherent controversy and time that would be lost in selecting an alternative that destroys even a part of the 404(c) area.

Sincerely,  
Jeff Grimes

IER # 12 - Appendix B

From: Owen, Gib A MVN on behalf of MVN Environmental  
Sent: Thursday, June 05, 2008 7:37 PM  
To: Labure, Linda C MVN; Connell, Timothy J MVN  
Cc: Coulson, Getrisc MVN  
Subject: FW: STATUS OF DISCUSSIONS CONCERNING TERMINUS STRUCTURES ON  
ALGIERS CANAL PROJECT NEAR HERO CANAL/INTRACOASTAL WATERWAY IN BELLE  
CHASSE

Linda,  
Can you assign some one to forward an answer back to Gigi Coulson about this  
comment below.

Tim,  
Please provide an answer back also for issues relevant to PM.

Gigi,  
Please put together a response that we can send bad to Ms. Coyne.  
Thanks  
Gib

Gib Owen  
US Army Corps of Engineers  
Chief, Ecological Planning and Restoration Section GNOHSDRRS Environmental Team  
Leader New Orleans District  
504 862-1337

-----Original Message-----

From: Jody Coyne [mailto:jcoyne@bkusa.com]  
Sent: Wednesday, June 04, 2008 11:23 AM  
To: MVN Environmental  
Subject: STATUS OF DISCUSSIONS CONCERNING TERMINUS STRUCTURES ON ALGIERS CANAL  
PROJECT NEAR HERO CANAL/INTRACOASTAL WATERWAY IN BELLE CHASSE

MR. OWEN, I MET YOU AT THE PREVIOUS PUBLIC MEETING AT OUR LADY OF HOLY CROSS  
COLLEGE IN ALGIERS. AS I MENTIONED, MY FAMILY OWNS A TRACT OF LAND FRONTING ON  
THE INTRACOASTAL WATERWAY JUST SOUTH OF THE INTRACOASTAL'S INTERSECTION WITH THE  
HARVEY CANAL. BASED ON PRELIMINARY SKETCHES WHICH I HAVE SEEN WE APPARENTLY WILL  
BE IMPACTED BY EITHER OF THE PROPOSALS FOR A GATE/PUMPING STATION STRUCTURE IN  
THE CANAL WHICH ARE BEING STUDIED AT THIS TIME. WILL WE AS LANDOWNERS, BE GIVEN  
AN OPPORTUNITY TO OFFER SUGGESTIONS TO MINIMIZE IMPACT ON OUR PROPERTY? WILL WE  
BE COMPENSATED FOR LOSS OF THE USE OF OUR PROPERTY DURING THE TIME IT IS NEEDED  
FOR CONSTRUCTION IN THE EVENT IT IS TAKEN, EITHER TEMPORARILY OR PERMANENTLY?  
WILL THE CORPS MAINTAIN (IN A SAFE CONDITION) WALKER ROAD AND EAST BAYOU ROAD  
DURING THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT. WALKER ROAD AND EAST BAYOU  
ROAD IS A SCHOOL BUS ROUTE FOR OUR KIDS AS WELL AS THE MAIN ROUTE FOR OUR  
FAMILY'S DAILY ROUTE TO GET HOME. AS YOU CAN SEE, THERE ARE MANY CONCERNS AND  
QUESTIONS.

IT WAS A PLEASURE TO SPEAK WITH YOU AT THE PREVIOUS MEETING. JODY P. COYNE

IER # 12 - Appendix B

From: Owen, Gib A MVN on behalf of MVN Environmental  
Sent: Wednesday, August 20, 2008 6:15 AM  
To: Coulson, Getrisc MVN; Connell, Timothy J MVN  
Subject: Comments for IER 13 re Industrial Pipe Landfill

Attachments: 8-18-08-PermitMod Barge Cmmts.FINAL.pdf

Gigi and Tim,

Below is comment that came in via nolaenvironmental.gov concerning Industrial Pipe/IER 13.

Gib

Gib Owen  
US Army Corps of Engineers  
Chief, Ecological Planning and Restoration Section GNOHSDRRS Environmental Team  
Leader New Orleans District  
504 862-1337

-----Original Message-----

From:  
Sent: Tuesday, August 19, 2008 4:52 PM  
To: MVN Environmental  
Subject: Comments for IER 13 re Industrial Pipe Landfill

Dear Mr. Owen,

Attached are comments that were submitted by the Oakville Community Action Group, Louisiana Environmental Action Network, and Gulf Restoration Network to LDEQ regarding a permit modification application that Industrial Pipe submitted seeking to expand its landfill operations to include waste by barge. These comments highlight many of the problems with the landfill and the fact that it is operating in violation of Parish zoning laws. We maintain that Industrial Pipe's operations do not constitute a legitimate business concern that should be accommodated by the Corps' levee plans. The comments explain the violations in detail.

DECEMBER 10, 2008

USACE NEW ORLEANS

ATTN: MR. TIM CONNELL, PROJECT MANAGER, WEST CLOSURE COMPLEX

DEAR TIM, IT WAS A PLEASURE REVIEWING YOUR PRESENTATION AT THE HARVEY FIRE STATION LAST NIGHT. IT IS OBVIOUS TO MYSELF AND MY ADDITIONAL FAMILY MEMBERS WHO ALSO ATTENDED THE MEETING, THAT YOU ARE MAKING EVERY EFFORT TO ACCOMMODATE AS MANY OF THE NEEDS AND WISHES OF THOSE OF US WHO WILL BE IMPACTED BY THE PROPOSED PROJECT. THE SHEER SCOPE OF THE PROJECT IS FINALLY BEING REALIZED. AS YOU HAD STATED THE "LANDSCAPE" IN THE AREA OF THE PROJECT WILL BE GREATLY ALTERED BUT THE FINAL PROJECT CERTAINLY WILL PROVIDE A CRITICAL NEED, AND ULTIMATELY SHOULD HELP TO PRESERVE OUR INVESTMENT AS WELL AS AID EVERYONE IN OTHER AREAS SUCH AS RESALE VALUE AND INSURANCE RATES.

I WOULD LIKE TO SUBMIT THE ATTACHED ADDITIONAL COMMENTS, SUGGESTIONS AND QUESTIONS FOR INCLUSION IN THE FINAL REPORT:

1. WHERE WILL THE POWER LINE THAT CURRENTLY SERVES OUR RESIDENCES BE RELOCATED? CAN THIS BE PLACED ALONG THE NEWLY RELOCATED ROAD RIGHT-OF-WAY TO PREVENT HAVING TO TAKE OUT MORE TREES FOR ANOTHER LARGE POWER LINE RIGHT-OF-WAY?
  2. JUST TO MAKE YOU AWARE, ALL RESIDENCES ALONG EAST BAYOU ROAD GET THERE WATER SOURCE FROM WELLS ON THEIR PROPERTIES. IS THERE ANY POSSIBLE DETRIMENTAL IMPACT TO THE WATER QUALITY OF THESE WELLS AS A RESULT OF ANY CONSTRUCTION OR OPERATIONAL ACTIVITIES? ARE FUEL STORAGE REQUIREMENTS FOR THE PUMP STATION GOING TO BE STRINGENT ENOUGH TO PREVENT ANY POSSIBLE SPILL FROM CONTAMINATING THE WELL WATER WHICH WE RELY ON? THESE WELLS ARE TYPICALLY 260 FEET TO 325 FEET DEEP.
  3. PLEASE CONSIDER MITIGATION EFFORTS TO SOFTEN THE IMPACT OF THE OVERALL PROJECT ON THE RESIDENTS OF EAST BAYOU ROAD.
  4. PLEASE CONSIDER RESTRICTING ALL CONSTRUCTION VEHICLES TO WAKER ROAD AND THE IMMEDIATE AREA OF THE CONSTRUCTION SITE.
  5. IF POSSIBLE PLEASE CONSIDER HARD SURFACING (ASPHALT) AND IMPROVING WALKER ROAD AND EAST BAYOU ROAD UP TO AND INCLUDING IN FRONT OF THE RESIDENCES WHICH WILL BE IMPACTED BY THE 4-5 YEARS OF CONSTRUCTION ACTIVITIES. KEEP IN MIND THAT WALKER ROAD AND EAST BAYOU ROAD SERVE AS SCHOOL BUS ROUTES, GARBAGE DELIVERY ROUTES, AND AS A RURAL MAIL DELIVERY ROUTE. EAST BAYOU ROAD IS CURRENTLY SOMEWHAT NARROW IN SECTIONS WITH SUBSTANDARD SHOULDERS. WALKER ROAD ALSO HAS A POWER LINE RUNNING ALONG IT'S SOUTH EDGE WHICH IS QUITE CLOSE TO THE ROADWAY EDGE.
  6. WE WOULD SUGGEST THAT BUCANEER ROAD BE IMPROVED AND MAINTAINED AS THE ONLY VIABLE ALTERNATIVE ROUTE FOR THE RESIDENTS .
  7. PLEASE RECONSIDER AND EXPLORE THE POSSIBILITY OF UTILIZING THE "SPOIL" MATERIAL TO REBUILD THE AREA OF WETLANDS ALONG THE SOUTH SHORE OF HERO CANAL AS WAS SUGGESTED BY AN AUDIENCE MEMBER DURING THE MEETING LAST NIGHT. THE SAVINGS TO THE CORPS ON TRANSPORTATION (BOTH TIME AND FUEL) ALONE SHOULD JUSTIFY FURTHER CONSIDERATION OF THIS ALTERNATIVE DISPOSAL SITE. THE ADDITIONAL PROTECTION GAINED FOR THE NEW LEVEE ON THE NORTH EDGE OF HERO CANAL BY HAVING VIABLE WETLANDS ALONG THE SOUTH EDGE SHOULD ALSO BE A FACTOR. THE "CRIB AREA" IN LAFITTE IS A GREAT PROJECT BUT THERE IS DEFINITELY A NEED FOR THE SPOIL RIGHT IN THE VICINITY OF THE CONSTRUCTION.
- THANKS AGAIN FOR YOU CONSIDERATION

JODY P. COYNE, SR. (486-5901 EXT. 131)

5 January 2009

MR GIB OWENS  
US ARMY CORP OF ENGINEERS

SIR: PLEASE SEND IER # 12 ENTITLED "GULF, HARVEY AND ALGIERA  
LEVEES FLOODWALLS", AND NOTE THE COMMENTS BELOW, ETC.

COMMENT

THE PEOPLE OF THIS NEW ORLEANS AREA HAVE CHOSEN  
BY THEIR OWN FREE WILL AND VOLITION TO BUILD HOMES  
AND BUSINESSES UPON LAND THAT IS AT OR BELOW SEA  
LEVEL AND SUSCEPTIBLE TO PERIODIC AND FORESEEABLE  
FUTURE TROPICAL CYCLONES. NOT ONE PENNY OF TAX DOLLARS  
GENERATED BY THOSE OUTSIDE THE AREA SHOULD BE EXPENDED  
ON ANY FUTURE PROJECTS INVOLVING LEVEES, WALLS, PUMPS  
AND ALIKE. AND PERHAPS ALL EFFORTS WILL FAIL IN ANY  
CASE SHOULD NEW ORLEANS BE HIT DIRECTLY BY ANY  
HURRICANE WITH STRONG STORM SURGE AND HEAVY RAIN.

MY FEELING IS THAT TAX MONEY WOULD BE BETTER SPENT  
ON INVESTIGATING CASES OF INJUSTICE, WHERE PERSONS WHO  
ARE INNOCENT LANGUISH IN PRISONS AS THE RESULT OF  
OBVIOUS POLICE AND PROSECUTORIAL MISCONDUCT.

HEREFORE IN ADDITION TO HAVING MY OPINION MADE  
PART OF THE RECORD REGARDING FURTHER FUTURE FLOOD  
CONTROL EFFORTS IN NEW ORLEANS I RESPECTFULLY ASK  
THAT THIS LETTER BE REFERRED TO THE UNITED STATES  
JUSTICE DEPARTMENT SO THAT THE RESPONSIBILITY FOR  
CLEAN UP AND SPREAD CONSIDERABLE PERIL AND  
SUBSTANTIATION CAN BE BROUGHT TO JUSTICE, RESTORING  
CONFIDENCE IN OUR SYSTEM AND NATION AS A WHOLE.

THANK YOU.

George David Lester  
GEORGE DAVID LESTER 292124

1/7/08

Dear Mr. Lib Owen:

I am requesting a copy of IER #12 and supporting documents.

My mailing address is - Carl Brad Ward  
164587 - H8  
100 Warrior Ln.  
Bessemer, AL 35023

Thanks for your help.

Sincerely,



Jan 07. 09

Glenn Trachen  
PO Box 465  
Burlington, NC 27216

Mr Owen.

Hello. I'd like a copy of report  
It enclosed.

Also, who could send drawings  
to concerning new levees construction.  
please reply.

requests to above.

Thanks much

Glenn

# MISSISSIPPI RIVER RECYCLING



DIVISION OF  
BAYOU STEEL CORPORATION

January 8, 2009

U.S. Army Corps of Engineers  
c/o Gib Owen, PM-RS  
P.O. Box 60267  
New Orleans, LA 70160-0267

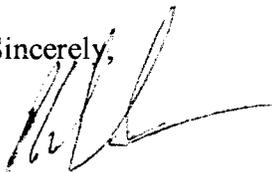
To Whom It May Concern:

I wish to write and express my company's concerns in regards to the new 100 year flood protection for the Algiers and Harvey Canals. As you know the Corps of Engineers is progressing with construction of the Harvey Floodwall along Peters Road and look to finish that project in 2010. When you move forward to construct the lower lock and pumping station, you will create a bowl affect for those companies trapped between the floodwall and the Harvey Canal.

As a business, we appreciate the efforts being put forward by the Army Corps of Engineers to protect property along the Algiers and Harvey Canals. We feel that protection should include funding and maintenance of the rear levees along all Peters Road businesses. Without maintenance the rear levee will be venerable to failure during large rain events when the storm surge barriers are closed. This will result in destruction of all businesses trapped between the floodwall and the 100 year storm protection.

During this public information period, we implore the Corps of Engineers to co-ordinate with state and local entities prior to construction to provide protection from rainwater by maintaining the rear levees in order to protect their tax payers.

Sincerely,



Philip Troxclair  
Harvey Yard Manager

 Member  
Institute of  
Scrap  
Recycling  
Industries, Inc.  
THE ORIGINAL RECYCLERS®

January 12, 2009

Richard A. Meissner  
811632  
Tomoka Correctional Inst.  
3950 Tiger Bay Rd.  
Daytona Beach, FL  
32124-1098

Mr. Gib Owen  
U.S. Army Corps of Engineers  
P, P & P Management Division  
Environmental Planning & Compliance Branch  
CEMVN - PM-RS  
P.O. Box 60267  
New Orleans, LA 70160-0267

Dear Mr. Owen:

I am formally requesting herein to receive from your office, a complete copy of IER #12 and supporting documents. The Individual Environmental Report (IER) #12 is titled, "GIWW, Harvey, and Algiers Levees and Floodwalls."

I am requesting this report so that I can make a proper informed review and comment concerning structure improvements along Harvey and Algiers Canals. Thank you for your attention to this matter.

Yours sincerely,  
  
Richard A. Meissner

IER # 12 - Appendix B

From: Owen, Gib A MVN on behalf of MVN Environmental  
Sent: Tuesday, January 13, 2009 7:38 PM  
To: Coulson, Getrisc MVN  
Subject: FW: Additional comments for inclusion in West Closure Complex Report

Attachments: SCN\_20081210094141\_001\_001.pdf; TIM CONNELL DECEMBER 10.doc

Gib,  
Attached is comment for IER 12.  
Gib

Gib Owen  
US Army Corps of Engineers  
Chief, Ecological Planning and Restoration Section/ HSDRRS Environmental Team  
Leader New Orleans District  
504 862-1337

-----Original Message-----

From: Jody Coyne [mailto:jcoyne@bkusa.com]  
Sent: Tuesday, January 13, 2009 6:34 AM  
To: MVN Environmental  
Subject: FW: Additional comments for inclusion in West Closure Complex Report

Attn: Mr. Gib Owen I am asking that the attached letter which I wrote to Mr. Tim Connell, be included in the public comments in the final version of the IER#12 report. As you will note, I had asked several questions which concern our family's property in the vicinity of the West Closure Structure Location. I would appreciate an opportunity to discuss my comments with you.

1. In addition our family would like to know if once a final location is determined, if it impacts our family's small wharf, boat launch and ramp over the levee (all of which have been permitted in the past), will the Corps reconstruct these upon completion of it's activities at the front of our property. These were replaced in kind by the Parish after the last lift on the levee. We have recently spent around \$5,000.00 on limestone and equipment to improve the ramp to give us access to the boat launch.

2. Will the corps assist in replacing any fences which are disrupted by corps activities.

3. Will our family be reimbursed for any loss of commercial use of our current water-frontage on the intra-coastal waterway. This type of property commands premium prices along the opposite bank along Engineers Road. The apparent location of the new drainage pump station appears to negate the possible use of the canal frontage in our area.

IER # 12 - Appendix B

Please contact me at your convenience. Mr. Jody P. Coyne 486-5901-ext 131

From: Jody Coyne  
Sent: Wednesday, December 10, 2008 10:06 AM  
To: 'timothy.j.connell@usace.army.mil'  
Subject: Additional comments for inclusion in West Closure Complex Report

Tim, I have attached a letter outlining some of the additional items you and I discussed. I have also included the review form for the meeting last night. If you need to reach me I am at 486-5901-ext. 131 or home at 393-2044. Thanks again Jody Coyne

*Numa C. Hero & Son*

428 PLANTERS CANAL ROAD  
BELLE CHASSE, LOUISIANA 70037  
(504) 394-5188  
FAX (504) 394-5189

January 16, 2008

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

Attention: Gib Owen PM-RS  
Re: IER 12

Gentlemen:

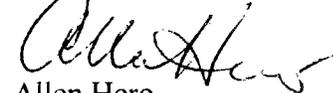
As a land owner in Jefferson Parish along the Harvey Canal affected by this proposed construction, we support this project. However, there remains to be resolved the details of the water retention reservoir on the protected side of the new flood structure.

As it was explained at the Corps' public meeting, the design of the retention reservoir on the protected side is based on an elevation of approximately four feet above mean gulf level. This retention design will work fine for the portions of the project which have levee district maintained levees along the Algiers GIWW. However, there is no public permanent flood protection along the water's edge on the east side of the Harvey Canal. The only protection now is a temporary structure designed to last only until 2011. Though there will be a flood wall along Peters Road, there is no permanent protection for the businesses between the waters edge of Harvey Canal and the said flood wall. Without a protection levee along the waters edge of Harvey Canal, the retention reservoir will flood these businesses located to the east of Harvey Canal to the design four foot level which is not acceptable.

As a part of this project, the alternatives are either the U.S. government must either take responsibility for the levee maintenance along the east side of Harvey Canal or require the appropriate local governmental agency to provide the maintenance to prevent the four foot high retention reservoir from flooding the businesses to the east of Harvey Canal.

Should you need further explanation of this situation please call me at 504- 394 - 5188.

Sincerely,  
Numa C. Hero & Son



Allen Hero  
Partner



## United States Department of the Interior



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

January 20, 2009

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

Dear Colonel Lee:

Please reference the U.S. Army Corps of Engineers' (Corps) draft Individual Environmental Report (IER) # 12, titled "West Bank and Vicinity (WBV), Gulf Intracoastal Waterway (GIWW), Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes." The draft IER was transmitted via a January 5, 2009, letter from Ms. Elizabeth Wiggins, Chief of your Environmental Planning and Compliance Branch. The U.S. Fish and Wildlife Service (Service) submits the following comments in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321 et seq.).

The draft IER provides an adequate description of fish and wildlife resources in the study area, the purpose and need for the proposed action, and the potential impacts associated with each alternative. We commend the Corps efforts to investigate all of the concerns put forth by the natural resource agencies within the expedited environmental analysis period.

During the alternatives analysis, the no-action alternative and the alternative to raise the existing Hurricane Protection System to a 100-year level of protection were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection to the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins. The Corps also considered a series of alternative gate locations within the project area that would minimize the need for parallel protection. One of these alternatives included constructing a sector gate across the Environmental Protection Agency (EPA) Clean Water Act (CWA) Bayou aux Carpes 404 (c) area. That alternative was considered to have significant impacts to fish and wildlife resources and the EPA CWA, Section 404 (c) designated wetlands.

The preferred alternative would include construction of navigable floodgate and ancillary structures on the Gulf Intracoastal Waterway (GIWW) south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the V-levee would be raised to



the 100-year level of protection. Approximately 4,200 linear feet of floodwall would be constructed within a 100-foot-wide right-of-way along the periphery of the GIWW and the EPA CWA Bayou aux Carpes 404 (c) area to connect the proposed GIWW navigable floodgate with the existing flood protection system. Existing levees and floodwalls along Algiers and Harvey Canals will be incorporated into the protected side of the closure complex and would be integrated as features of the parallel protection system detention basin. Expansions of existing rights-of-way along several levee reaches would occur as a result of bringing those existing levees up to authorized levels of protection in order to provide necessary storm water retention during major storm events. To ensure habitat functions of the EPA CWA Bayou aux Carpes 404 (c) area are maintained, the proposed action includes several environmental augmentations along the Old Estelle pump station outfall canal and within the Bayou aux Carpes drainage area which will provide sheet flow and hydrologic exchange into, and within, the EPA CWA Bayou aux Carpes 404(c) area.

Due to the urgency of providing storm damage risk reduction to the Greater New Orleans area the design of the preferred alternative is not final. The Service and the Corps have evaluated the footprint of greatest impact to ensure that the IER addresses all potential impacts to forested and other fish and wildlife habitats. Based on the Service's analysis of the existing conditions within the proposed footprint, implementation of the preferred alternative would directly impact 252 acres of hydrologically-altered bottomland hardwood habitat, 2.4 acres of wet bottomland hardwood habitat, and approximately 75 acres of swamp habitat. The preferred alternative would result in the direct loss of 179.2 and 38.5 average annual habitat units (AAHUs), of bottomland hardwood forest and swamp, respectively. According to our Habitat Assessment Methodology (HAM) and Wetland Value Assessment (WVA) analyses, of those impacts approximately 2.4 acres of wet bottomland hardwood and 7.4 acres of swamp habitat (i.e., total of 9.8 acres) occur within the Bayou aux Carpes 404 (c) area along the GIWW interface.

The Service calculated the acreage of potential impacts to forested and other fish and wildlife habitat using 2005 aerial photography and proposed rights-of-way provided by the Corps. The proposed right-of-way within the EPA CWA Bayou aux Carpes 404(c) area encompasses an area 4,200 feet long by 100 feet wide and is positioned along the periphery of the EPA CWA Bayou aux Carpes 404(c) area. According to the draft IER the innovative T-wall constructed within this right-of-way would be fronted by a protective berm and access road which would be positioned along the waterline further impacting any remaining habitat outside and waterward of the proposed right-of-way (0.2 acres, according to 2005 aerial photography). The Service's habitat assessment, therefore, evaluated those additional impacts. We compared the proposed right-of-way to recently obtained 2007 aerial photography. That evaluation corresponded with the Corps' impact assessment within the EPA CWA Bayou aux Carpes 404(c) area (i.e., 9.6 acres). The Service will address these revised impacts in our final Fish and Wildlife Coordination Act Report.

### **Specific Comments**

2.3, Proposed Action, Table 1: Proposed Action Components, Page 25 – According to the

proposed right-of-way provided by the Corps for our HAM analyses, approximately 7 acres of bottomland hardwood habitat and 64 acres of pasture land would be temporarily impacted by two proposed staging areas. We recommend revising the table to include those impacts and provide a discussion within the wetland impacts section (3.2.1.2.2.2) of the IER. Moreover, proposed staging areas allowed to revert back to a hardwood forest after construction is complete will likely be dominated by the exotic Chinese tallowtree for part of the project life. Therefore, bottomland hardwood habitat temporarily impacted by the proposed project, including those staging areas, should be managed to control invasive species, specifically Chinese tallowtree.

2.3, Detention Basin Improvements, Page 32 – The goal of the detention basin is to provide rainwater detention during a storm event when the proposed hurricane protection system south of the confluence of the Algiers and Harvey Canals is closed. The Service questions the need to improve the existing levees which would make up that detention basin to a hurricane design level comparable to 100-year level of risk reduction. For clarification please provide a reference with regards to the Corps' standards and the requirements needed to achieve Federal factors of safety specifically for the detention basin.

3.2.1.2.2 Proposed Action, Table 6: Proposed Action (WCC) Wetland Impacts form WVA (acres), Page 63 – We recommend revising the table to include proposed impacts to 6.9 acres of bottomland hardwood associated with the staging area north of the closure complex and levee and road realignment. Also, under habitat type indicate that the 63.6 acre staging area is pasture.

3.2.1.2.2.2 Specific Wetland Impacts Due to the Proposed Action, Northern Levee..., Page 65, second paragraph – The second sentence should be revised to indicate that the entire northern section would directly impact 5.8 acres of forested habitat.

3.2.3.2.1 No Action, Page 74 – We recommend omitting “non-wet” when referencing “uplands.”

3.2.3.2.2 Proposed Action, Page 74 – This section states that “implementation of the proposed action would not directly impact any upland habitats.” Impacts to upland habitat are likely to be associated with the levee realignment within the closure complex and with upgrading/improving the existing levee alignment for the proposed detention basin. This section should be revised to address those potential impacts.

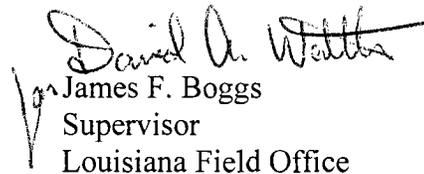
3.2.6.2.2.2 Specific Fisheries Impacts Due to the Proposed Action, Page 82, first paragraph – It appears that the word “not” was inadvertently omitted from the first sentence. Revise accordingly.

Please be advised construction within the Bayou aux Carpes CWA Section 404 (c) area should not commence until the EPA's decision to modify the designation to accommodate discharges into that area has been resolved. Furthermore, Congress is considering legislation to adjust the boundary of the Jean Lafitte National Historical Park and Preserve (NHPP), Barataria Preserve Unit to include the Bayou aux Carpes CWA Section 404 (c) area. In the meantime, the National Park Service (NPS) has constructive possession of the area. Therefore, the Corps should continue to coordinate with both the NPS and EPA regarding any proposed project feature that

may impact that area. For the NPS please contact Superintendent, David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)), or Chief of Resource Management, David Muth, (504) 589-3882 extension 128 ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)). For the EPA please contact Ms. Barbara Keeler, 214/665-6698.

The Service appreciates the opportunity to comment on the draft IER, and we look forward to continuing coordination with the Corps and the other natural resource agencies to develop a feasible hurricane protection project for this region in a timely manner. If your staff has additional questions regarding our comments, please contact Angela Trahan at (337) 291-3137.

Sincerely,

  
James F. Boggs  
Supervisor  
Louisiana Field Office

cc: EPA, Dallas, TX  
FWS, Atlanta, GA (ES/HC)  
Jean Lafitte NHPP, New Orleans, LA (Attn: Mr. David Luchsinger)  
Jean Lafitte NHPP, New Orleans, LA (Attn: Mr. David Muth)  
NMFS, Baton Rouge, LA  
Corps, New Orleans, LA (Attn: Mr. Gib Owen, CEMVN-PM-RS)  
LDWF, Baton Rouge, LA



# ALABAMA-COUSHATTA TRIBE OF TEXAS

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

January 22, 2009

Gib Owen  
U.S. Army Corps of Engineers  
CEMVN-PM-RS  
P.O. Box 60267  
New Orleans, LA 70160-0267

Dear Mr. Owen:

On behalf of Chief Oscola Clayton Sylestine and the Alabama-Coushatta Tribe, our appreciation is expressed on your agency's efforts to consult us concerning the Individual Environmental Report (IER) #12, "West Bank and Vicinity, Gulf Intracoastal Waterway, Harvey, and Algiers Levees and Floodwalls" for Jefferson, Orleans and Plaquemines Parishes.

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

Upon review of the January 5, 2009 IER #12 submitted to our Tribe, no impact to religious, cultural, or historical assets of the Alabama-Coushatta Tribe of Texas should occur due to the absence of corroborating evidence from recent cultural resource investigations. Therefore, we have no objections to the proceeding of this proposal.

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

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Bryant J. Celestine".

Bryant J. Celestine  
Historic Preservation Officer

IER # 12 - Appendix B



BOBBY JINDAL  
GOVERNOR

## State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES  
OFFICE OF WILDLIFE

ROBERT J. BARHAM  
SECRETARY

JIMMY L. ANTHONY  
ASSISTANT SECRETARY

January 26, 2009

Mr. Pete J. Serio, Chief  
Regulatory Branch  
United States Army Corps of Engineers  
P. O. Box 60267  
New Orleans, LA 70160-0267

RE: *Draft of Individual Environmental Report # 12 (IER # 12) and related Clean Water Act (CWA) Section 404 public notice*  
*Public Notice Date: January 05, 2009*

Dear Mr. Serio:

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

During the detailed planning and construction phases, effort should be made to reduce wetland impacts, especially those impacts affecting higher quality wetlands. When practicable, access and construction activity should occur from existing waterways, and temporary workspaces and access roads should be minimized.

The impoundment of wetlands should be avoided; however, where impounding is unavoidable, measures aimed at maintaining hydrologic connections and natural flow regimes shall be taken. To this end, flood protection and control structures should be designed for operational flexibility and when deemed beneficial, control structures should remain open except when a risk of flooding exists.

LDWF would like to remain part of any Bayou aux Carpes management plan development, as well as have opportunity to review any modifications, and additional impacts. The department would also like involvement in any further detailed planning of project features and to be granted an opportunity to review and submit recommendations on such.

Additionally, the Corps shall provide adequate and appropriate mitigation for any additional unavoidable impacts to wetland functions.

Page 2

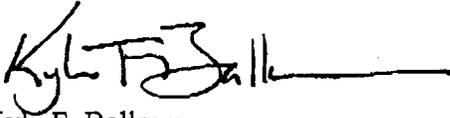
IER # 12 - Appendix B

*Draft of Individual Environmental Report # 12 (IER # 12)*

January 26, 2009

The Louisiana Department of Wildlife and Fisheries appreciates the opportunity to review and provide recommendations to you regarding this proposed activity. Please do not hesitate to contact Habitat Section biologist Matthew Weigel at 225-763-3587 should you need further assistance.

Sincerely,



Kyle F. Balkum  
Biologist Program Manager

mw

c: Matthew Weigel, Biologist  
EPA Marine & Wetlands Section  
USFWS Ecological Services



Appendix B

**UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701

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

Mr. Gib Owen  
Environmental Planning and Compliance Branch  
Planning, Programs, and Management Division  
New Orleans District, U.S. Army Corps of Engineers  
Post Office Box 60267  
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the draft **Individual Environmental Report (IER) #12** transmitted by letter from Ms. Elizabeth Wiggins dated January 5, 2009. The draft IER evaluates and quantifies the impacts associated with providing 100-year level of hurricane protection through the construction of the Gulf Intracoastal Waterway West Closure Complex.

NMFS staff has previously concurred with U.S. Fish and Wildlife Service's (FWS) recommendations on IER #12 outlined in the Fish and Wildlife Coordination Act Report. We find the recommendations provided previously to the New Orleans District by FWS have been adequately incorporated into the document. As such, we have no comments to provide on the draft IER #12.

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

Sincerely,

*for*

Miles M. Croom  
Assistant Regional Administrator  
Habitat Conservation Division

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





IER # 12 - Appendix B  
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

FEB -5 2009

Mr. Gib Owen  
Environmental Planning and Compliance Branch  
Planning, Programs, and Project Management Division  
U.S. Army Corps of Engineers  
Post Office Box 60267  
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

We offer this letter as documentation of our review of the January, 2009 Draft Individual Environmental Report (DIER) # 12, prepared by the U.S. Army Corps of Engineers (Corps) to evaluate the projected impacts from constructing and operating a series of upgraded and new 100-year flood protection measures for the Harvey and Algiers segment of the Mississippi River West Bank and Vicinity Hurricane and Storm Damage Risk Reduction System (HSDRRS) in Louisiana. Though DIER # 12 represents the Corps' public disclosure requirements in accordance with the National Environmental Policy Act (NEPA), it is not presented as a typical NEPA document. Rather, it has been prepared according to alternative provisions of the Council on Environmental Quality. Accordingly, our review of the draft NEPA document is a bit atypical in that it has been prepared while important data and decisions are still forthcoming.

This review represents a significant milestone in the extensive coordination between the Environmental Protection Agency (EPA) and the Corps on this project. The EPA focus for this section of the larger HSDRRS project is the Bayou aux Carpes Clean Water Act (CWA) Section 404(c) area in Jefferson Parish. EPA has a long record of protecting these wetlands, dating back to the early 1970's and culminating in the 1985 decision to restrict the discharge of dredged and fill material.

Section 404(c) of the CWA authorizes EPA to restrict or prohibit the use of a wetland area as a disposal site for dredged or fill material if the discharge will have unacceptable adverse effects on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. In over three decades since this authority has existed, EPA has finalized only 12 such CWA Section 404(c) actions. Together, those few actions have protected the ecologically significant functions and values of over 73,000 acres of wetlands.

The Bayou aux Carpes CWA Section 404(c) site lies in the upper Barataria basin within the Mississippi deltaic plain, an area experiencing some of the highest historic rates of coastal wetland loss in the county and on a worldwide basis. This region experienced a spike in wetland loss and degradation as a result of hurricanes over the last several years. The Bayou aux Carpes

Letter to Mr. Gib Owen  
U.S. Army Corps of Engineers  
Page 2 of 4

site, however, has weathered the storms and other natural and human-induced forces, existing today as a unique and productive wetland system, providing ecological, flood storage, and water quality benefits. The approximately 3,000 acres of wetlands within the Bayou aux Carpes CWA Section 404(c) site are currently owned by the federal government and legislation has been proposed which would incorporate them into the Jean Lafitte National Historic Park and Preserve. There is no doubt that these wetlands represent a regional and national asset.

It is within this landscape that the Corps has been charged with developing a set of alternatives to provide additional storm protection for the people of the west bank of the Mississippi River, as well as for residential and commercial properties in the greater New Orleans metropolitan area. Hurricanes Katrina and Rita were the impetus for supplemental federal appropriations passed by Congress in the several years following the hurricanes of 2005.

In an effort to reconcile the potentially conflicting goals of increased flood protection and ecological protection, the New Orleans District of the Corps and EPA Region 6 have worked closely together and with other federal partners, State and local agencies, and many stakeholders in an effort to understand fully the possibilities for accommodating these serious needs. Seeing no acceptable option but to recommend flood control measures which would have adverse environmental impacts on the Bayou aux Carpes CWA Section 404(c) wetlands, the Corps has asked EPA to modify the 1985 CWA Section 404(c) determination to allow the construction of a berm and floodwall in an area disturbed by dredged material discharges predating the EPA designation.

The portion of the construction area within the Bayou aux Carpes CWA Section 404(c) site in the proposed alternative, described in DIER # 12 as the GIWW West Closure Complex, is located along the west bank of the Gulf Intracoastal Waterway (GIWW), or Bayou Barataria, from its junction with the Old Estelle Pumping Station Outfall Canal to a point at which the Corps proposes to construct a sector gate across the GIWW. As described in the Corps' modification request to EPA (letter dated November 4, 2008) and in DIER # 12, the berm, floodwall, and associated features would rise up to 14 to 16 feet high and would occupy an area no greater than 4,200 linear feet by 100 linear feet. No more than ten acres of wetlands in the Bayou aux Carpes CWA Section 404(c) site would be affected and other design and construction features have been incorporated to minimize further the impacts to these wetlands.

The proposed GIWW West Closure Complex alternative is one of two alternatives presented which would entail adverse impacts to the Bayou aux Carpes CWA Section 404(c) area. Of those two, we agree that the potential impacts associated with the proposed action are far less significant. EPA has not yet, however, decided whether the existing Bayou aux Carpes CWA Section 404(c) determination will be modified to allow the discharges which would cause those impacts.

The second alternative involving impacts to the CWA Section 404(c) site is presented in DIER # 12 as the "Southern Closure Complex." This design plan would include a new 3,000 foot-long floodwall, bisecting the Bayou aux Carpes CWA Section 404(c) area. Early in the planning process, EPA Region 6 notified the Corps of our determination that this option would present irreparable environmental impacts, most likely resulting in the loss of over 600 acres of

Letter to Mr. Gib Owen  
U.S. Army Corps of Engineers  
Page 3 of 4

unique flotant marsh wetlands, and would not be in compliance with the provisions of the 1985 Bayou aux Carpes CWA Section 404(c) determination.

The "No Action" alternative affords the greatest level of protection to all environmental features within the planning segment covered by DIER # 12, including the Bayou aux Carpes CWA Section 404(c) area. While both the Algiers Gate and the Parallel Protection alternatives would avoid impacts to the Bayou aux Carpes Section 404(c) area, there would be environmental impacts to other areas of the flood protection planning segment covered by DIER # 12.

Based on the Corps' recommendations regarding the relative flood protection benefits, social and economic costs, as well as the hydrologic, engineering, and navigation constraints, the GIWW West Closure Complex and the Southern Closure Complex alternatives were initially subjected to the greatest level of environmental analysis by our staff. Having reached agreement with the Corps that impacts from the Southern Closure Complex would present serious roadblocks to project implementation, we have since largely focused on the design features of the GIWW West Closure Complex alternative.

We have provided guidance on avoiding and minimizing the impacts to the Bayou aux Carpes CWA Section 404(c) site from the GIWW West Closure Complex alternative and we are continuing to evaluate the possibilities for minimizing and mitigating those impacts. In addition, we are working with an interagency team to evaluate an array of other features that might provide environmentally beneficial hydrologic and habitat impacts. Also, the alternative NEPA procedures developed for the HSDRRS include a provision for a cumulative impact assessment to be published as one of the last pieces in the NEPA documentation process. For these reasons and others explained above, we are not currently able to offer a final evaluation of the full range of impacts associated with the proposed GIWW West Closure Complex alternative.

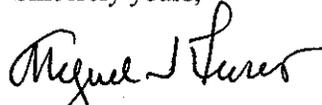
The Corps is currently gathering baseline data to evaluate potential wetland mitigation options and other project features to improve the existing hydrology of the Bayou aux Carpes area, as well as developing a long-term monitoring plan for the CWA Section 404(c) site. The Corps has committed to constructing those additional features if the analyses indicate that they would be ecologically beneficial. Discharges of dredged or fill material associated with such construction would require no additional modification to the CWA Section 404(c) designation, which contains an exception for approved habitat enhancement projects.

In the meantime, EPA is undertaking a review of the Corps' request to modify the 1985 Bayou aux Carpes CWA Section 404(c) determination. Our decision in that matter will be a key factor in determining whether the Corps may proceed with the recommended GIWW West Closure Complex alternative. As a part of our review of the Corps' request, we are soliciting public comments and will conduct a public hearing on the matter on February 11, 2009 (74 FR 2072, January 14, 2008). After considering all comments submitted, the ecological recommendations of other resource agencies, and the technical evaluations of our staff, EPA Region 6 will transmit to the EPA Office of Water in Washington, D.C., a written recommendation on whether the CWA Section 404(c) modification request should be granted or denied. The Assistant Administrator for Water will make the final decision and publish a notice of its availability in the Federal Register.

Letter to Mr. Gib Owen  
U.S. Army Corps of Engineers  
Page 4 of 4

We recognize the need to balance flood control and environmental protection in south Louisiana and we have seen that these goals do not necessarily have to be exclusive. We have strived diligently to work with your staff and the interagency evaluation team on the HSDRRS project to protect the quality of the unique human environment of coastal Louisiana. Please do not hesitate to let us know if there is any way we can provide additional assistance. If you have any questions or wish to discuss this matter further, please contact Barbara Keeler at (214) 665-6698.

Sincerely yours,



Miguel I. Flores  
Director  
Water Quality Protection Division

Enclosure

cc: U.S. Fish and Wildlife Service  
Lafayette, LA

NOAA National Marine Fisheries Service  
Baton Rouge, LA

Louisiana Department of Natural Resources  
Baton Rouge, LA

Louisiana Department of Wildlife and Fisheries  
Baton Rouge, LA

*Feb. 9, 2009  
509 Third Ave.  
Harvey, La. 70058*

*Gib Owen, PM-RS  
U. S. Army Corps of Engineers  
P. O. Box 60267  
NOLA 70160-0267  
[mvnenvironmental@usace.army.mil](mailto:mvnenvironmental@usace.army.mil)*

*Barbara Keeler (6WQ-EC)  
EPA Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733  
[keeler.barbara@epa.gov](mailto:keeler.barbara@epa.gov)*

*Dear Sir and Madam:*

*I am writing today in regard to the GIWW West Closure Complex, the Corps' Individual Environmental Report 12, and the Corps' request to impact the Bayou aux Carpes 404© area here in Jefferson Parish, Louisiana. Common sense dictates that the 404© area continue to receive full protection, and that the Corps request be denied.*

*For my entire adult life, the Corps of Engineers has served as a combination lap dog/lap dancer/towel girl for the Louisiana Congressional delegation, which has always ranked at or near the top in terms of corruption and its penchant for acting in direct contrast to the welfare of its constituents. Admittedly, Alaska probably kept Louisiana out of the top spot the last few years, but not for lack of trying. Some of what can only be considered to rank amongst the nation's greatest eco-terrorists have been members of the Louisiana delegation: Billy Tauzin, J. Bennett Johnston, John Breaux, and Bob Livingston, to name a few. And today's delegation has been guilty of tremendous neglect. Over 20 years after the creation (against terrific political opposition) of the only National Park in the State, the park's boundaries have yet to be normalized.*

*For close to 40 years, I have been active in attempts to stop the Corps from either destroying or allowing the destruction of Louisiana's wetlands. But the Corps has routinely either encouraged or allowed the continued destruction of our wetlands. Thousands upon thousands of needless projects were approved by or thought up by the Corps with the primary intent of destroying wetlands that could protect and nurture us all for the sake of some individual's or corporation's short-term gain. Wherever and whenever possible, the Corps ignored the law and*

*shirked its duties, dreaming up garbage like Nationwide Permits and delegating its authority to local programs like that of Jefferson Parish, which has always tried to destroy as many acres of wetlands as is humanly possible.*

*Jefferson Parish politicians wanted desperately to destroy the Bayou aux Carpes area. The Corps desperately wanted to help them do so. Only the miraculous intervention of EPA stopped that destruction from occurring. The same people who threw their weight around in those days are still around today. There may be new people in the Corps with whom I am not acquainted, who may actually want to obey the law and do what's morally right. I hope so, although I would note that the Corps has yet to correct the situation in Crown Point, where Jefferson Parish has been illegally draining wetlands for over 30 years.*

*If our observations are correct, the talweg of the GIWW is now a few hundred feet from shore. The project was approved as a 125' by 12' channel, so there appears to be a tremendous amount of room for constructing a "T-wall" between the boundary of the Bayou aux Carpes 404© area and the boundary of the 125' authorized channel. We find no reason to encroach upon the 404© area to accomplish the Corps' stated purpose.*

*I myself live on the West Bank of Jefferson Parish. I need hurricane protection as much as anyone else. But there never was, and there is no reason to destroy wetlands to accomplish the completion of a hurricane protection levee system. Certainly, an area like the 404© area at Bayou aux Carpes is ever more rare, and as such ever more valuable as both habitat and a natural storm buffer. We cannot allow any of it to be lost. We cannot allow contaminated sediment to be placed in it. We cannot allow contaminated water to be pumped into it. We cannot bear to hear the word "mitigation", which has historically been as pathetic a failure as the Jefferson Parish motto "Jefferson's got to grow."*

*I hereby ask the Corps to modify its design to move the "T-wall" further in the direction of the GIWW talweg to spare any and all parts of the 404© area, and I hereby ask EPA to not allow the destruction of any part of the Bayou aux Carpes 404© area.*

*Thank you.*

*Yours truly,  
Joseph I. "Jay" Vincent*



## UNITED FOR A HEALTHY GULF

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338 Baronne St., Suite 200, New Orleans, LA 70112  
Phone: (504) 525-1528 Fax: (504) 525-0833  
[www.healthygulf.org](http://www.healthygulf.org)

February 11, 2009

Mr. Gib Owen, PM-RS  
U.S. Army Corps of Engineers  
CEMVN-PM-RS  
PO Box 60267  
New Orleans, LA 70160-0267  
[mvnenvironmental@usace.army.mil](mailto:mvnenvironmental@usace.army.mil)

Barbara Keeler (6WQ-EC)  
EPA Region 6  
1445 Ross Avenue  
Dallas, TX 75202-2733  
[keeler.barbara@epa.gov](mailto:keeler.barbara@epa.gov)

**RE: DRAFT INDIVIDUAL ENVIRONMENTAL REPORT 12 AND PROPOSED MODIFICATION TO 404(C) ACTION**

Dear Mr. Owen and Ms. Keeler:

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. Please accept the following comments regarding the Army Corps of Engineers' *Draft Individual Environmental Report: GIWW, Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana (IER #12)*, and the *Proposed Modification to the Bayou aux Carpes 404(c) Action*.

While we recognize that the protection of our coastal resources is urgent, we have some comments and concerns about several aspects of IER #12 as it is currently written. These concerns are outlined below:

**1. *Public Participation is Not Adequate***

While the public comment period was extended to at least coincide with the public hearing, this is still not adequate. If the public hearing lasts until 9:00 pm, this only allows the public three hours to process and comment upon any information presented by the Corps or other commenters. *Because of this, we request the public comment period be extended to allow for the public to comment upon new information gained at the hearing.*

## **2. Full Avoidance of Bayou aux Carpes 404(c) Must Be Further Analyzed**

We would first like to applaud the Corps for working with us and EPA to develop the proposed alignment, instead of selecting an alignment that would have bisected the Bayou aux Carpes area. It is important that the Corps continue to recognize the importance of this ecologically sensitive area.

However, we feel that the 9.6 acres in the Bayou aux Carpes could be further avoided. On page 49, it is stated that “alternatives that would avoid impacts to that area were considered...this alternative was eliminated from further consideration due to constructability and navigation concerns” because it would “create engineering and construction challenges...” This statement is not supported. The navigation channel is authorized to be 125 feet wide, while the waterway is 400-500 feet wide. The Corps does not demonstrate in this IER why it is not feasible to place the T-wall further out into the waterway. Assuming the channel is in the approximate center of the canal, this would still allow a large buffer between navigation and hurricane protection. Because of this lack of justification and failure to demonstrate the necessity of impacting the 9.6 acres of the Bayou aux Carpes, we request that the moving of the t-wall further out be analyzed in order to further reduce, or even eliminate the wetland impacts. We request that an analysis be done examining moving the flood wall different distances out into the water. Since this would constitute a significant change, the IER should also be re-noticed. Additionally, EPA should not grant a 404(c) modification until it is shown that the Corps thoroughly explored all options for the reduction or elimination of impacts to the 404(c) area.

## **3. Wetland Impacts Must be Considered Fully**

While Table 6 on page 63 presents the total direct wetland impacts anticipated, secondary and indirect impacts are not addressed. With increased storm protection comes increased development pressure. In fact the Bayou aux Carpes area was originally going to be drained and developed several years ago. On page 47, the Corps even admits that rezoning “could minimize future damages from new development in flood-prone areas,” thus implying that the surrounding areas very well could be developed given current zoning. This secondary effect must be taken into account. Further, taller and more expansive levees and flood walls have the potential to disrupt the flow of water through wetlands, potentially impacting these wetlands.

In order for this IER to fully address its environmental impacts, secondary and indirect impacts must be accounted for within the report, and slated to be mitigated for, just as direct impacts are.

Additionally, cumulative impacts are not thoroughly addressed. Acknowledging that cumulative impacts will be discussed fully in the CED, more on cumulative impacts should be included in this IER. In past meetings with the Corps, they have presented a spreadsheet that had current impacts and anticipated impacts. This analysis, or best estimate of cumulative impacts should be included in this and all subsequent IERs

#### **4. *Augmentation Features Must Be Thoroughly Researched and Planned***

In order for EPA to make a truly informed decision the “augmentation features” must be further designed and studies. The impact to the 404(c) area is partially justified because some augmentation features are being examined, the largest of which would be the gapping of the canal to the north of the area to allow storm runoff to flow through the wetland. A baseline study of at least two years should be done to see if this would indeed augment the area. Given that this water would be urban runoff, which could potentially be carrying high levels of nitrogen and phosphorus, metals, and petroleum products, care must be taken to ensure that this “fresh” water is truly fresh and not too contaminated to cause damage to the wetland over the short and long term.

The operating plan and funds for the augmentation features are also not discussed in this IER. On page 39, it is stated that “modifications to the banks and shell plug in the Bayou aux Carpes CWA Section 404(c) area would not be expected to require [operation and maintenance].” However the monitoring and control of flood structures in the canal would require monitoring, operation, and maintenance for at least several years after they are put into operation. The operation and management of the augmentation features must be addressed and guaranteed for years to come.

We also request if this action proceeds, a contingency plan is written into the project. Specifically if some or all of the augmentation features are not beneficial to the area, more mitigation should be required within or adjacent to the 404(c) area, since part of EPA’s decision depends on the success of these augmentation features.

#### **5. *Beneficial Use***

It is stated that dredge material will be used beneficially in the “crib” area to build wetlands. This must be detailed more in the IER. Specifically, contaminants and wetland building plans must be further addressed. The dredge materials must be tested for contaminants to ensure that humans *and* wildlife will not be acutely or chronically harmed by any contaminants from industrialized navigation channels. Additionally if contaminated sediment is identified, and it is landfilled, this sediment would probably first be de-watered, which could cause large water quality issues.

Since this would be an obvious environmental impact, the effects of this dewatering of contaminated sediment must be addressed fully in the IER.

Further, a specific plan for wetland creation utilizing dredge material should be detailed in this report. It is not acceptable to defer this to the mitigation IER, as dredge disposal is an integral part of this project. This plan is vital in order to ensure that dredge material is not simply dumped in the crib area, but a plan is followed that will give wetlands the best opportunity for sustainable production.

Also regarding beneficial use, it is stated on page 29 that “overburden material...would be mulched and used on site or hauled away to a landfill.” At a recent meeting we asked why this overburden cannot be used beneficially in wetland creation instead of being hauled to a landfill, and our question was not adequately answered, so we ask again if the Corps looked into this beneficial use of overburden. If so, this information should be in the IER, if not, we formally request that this be explored within this IER.

## **6. Non-Structural**

This IER, as well as other IERS that we have reviewed do not adequately address non-structural options to potential projects for the 100 year protection for metro New Orleans. On page 47, it stated that “no combination of non-structural tools could independently achieve the required 100-year level of risk reduction needed to provide hurricane surge protection on the [West Bank and Vicinity] as intended by federal statutes.” However, the question is not “can non-structural tools *eliminate* the need for structural storm protection,” but can it be used in *combination* with structural components to achieve protection that is sustainable and reduces the impact on the natural environment. We feel that the Corps is misinterpreting WRDA. While WRDA states that nonstructural measures can be considered independently or in combination with structural measures (p. 45 of IER #12), the combination of structural and nonstructural is completely ignored.

Additionally, when discussing the “raise in place” option, the IER assumes that all structures would have to be raised, and that each residential structure averages 1,800 square feet. Given that nonstructural and structural can be used together, the assumption that all buildings would have to be raised is a false assumption. Additionally, we request evidence to support the assertion that the average home in this area is 1,800 square feet.

February 11, 2009  
Gulf Restoration Network  
Page 5 of 6

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**7. Preliminary Alternatives Screening Table is Not Complete**

Table 3 on page 50 has errors in the key, and thus is not correct. In the table there are checks, dots, and x's, however nowhere in the table is it stated what a check is. This is a very important table, as it is supposed to summarize how each alternative was screened. Without knowing what the symbols are, it is impossible to interpret this table. Given the importance of this table, we request a re-notice of this IER, so we and EPA can be positive that the best option was truly chosen.

Thank you for the opportunity to comment on IER #12 and the 404(c) modification. While we are pleased that the Corps has worked towards avoiding impacts to the 404(c) area, we feel that more could potentially be done to protect the area. Given this, we request that EPA not modify the 404(c) action until IER #12 is truly completed, including the additions that are suggested above.

We trust that the Corps and EPA will take all of the above comments seriously, as they would enhance the project. We look forward to a timely written response. Further, we would welcome the opportunity to meet with the agencies to discuss our concerns.

Sincerely,

Matt Rota  
Water Resources Program Director

CC:

John Ettinger, US EPA  
Horst Greczmiel, US CEQ  
Jill Mastrototaro, Sierra Club  
Melissa Samet, American Rivers  
Barry Kohl, LA Audubon Council  
Jill Witkowski, Tulane Environmental Law Clinic  
Mike Murphy, Tulane Environmental Law Clinic  
John Lopez, Lake Pontchartrain Basin Foundation  
Carlton Dufrechou, Lake Pontchartrain Basin Foundation  
Mark Davis, Tulane University  
Maura Wood, National Wildlife Federation  
Juanita Constable, National Wildlife Federation  
Natalie Snider, Coalition to Restore Coastal Louisiana

**Comments RE: IER #12 and Bayou aux Carpes 404(c) modification**

February 11, 2009

Gulf Restoration Network

Page 6 of 6

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Steven Peyronnin, Coalition to Restore Coastal Louisiana

Paul Kemp, National Audubon Society

Haywood Martin, Delta Chapter Sierra Club.



# Louisiana Audubon Council

1522 Lowerline St., New Orleans, LA 70118

February 11, 2009

Gib Owen, PM-RS  
U.S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160-0267

Barbara Keeler (6WQ-EC)  
EPA Region 6  
1445 Ross Avenue,  
Dallas, TX 75202-2733

**Re: Combined public hearing on the Draft IER-12, on the modification of CWA Sec. 404(c) determination for Bayou aux Carpes; and hearing on GIWW West Closure Complex.**

Dear Ms. Keeler and Mr. Owen,

First, the Louisiana Audubon Council wants to be on record as supporting a safe hurricane protection levee for the entire New Orleans area including the Westbank of Jefferson Parish. The Jean Lafitte National Historical Park and Preserve (JLNHPP) and Bayou aux Carpes (BAC) wetlands will provide non-structural protection and reduce the hurricane tidal surges before they reach the westbank levee system. Non-structural protection is provided by forested and non-forested wetlands and have been documented as reducing the height of tidal surges during Hurricanes Rita, Gustav and Ike.

We thank EPA and the other resource agencies for recommending to the Corps a change in their original preferred alternative, which was the Southern Closure option, GIWW-A. This alignment would have segregated the BAC, Sec. 404(c) area and adversely impacted 600 acres of floatant marsh.

The Corps' new preferred alignment (Alternative 2, GIWW-WWC) would directly take 9.6 acres of the BAC. While this is a large decrease in the taking of wetlands of national significance, the Corps should not stop there. Additional structural changes to the eastern levee and closure complex would avoid any wetland loss to the BAC. The Corps Alternative 2, should be modified to avoid any direct or indirect impacts to the Sec 404(c) wetlands. (see below).

**Alternative 2, GIWW-WWC: (a suggested modification)**

It is our opinion that the encroachment into the BAC wetlands can be avoided entirely by moving the "innovative T-wall", berm and riprap further into the waterway by 100 ft., thereby avoiding the 404(c) wetlands. Bayou Barataria includes the GIWW barge channel which has a congressionally authorized width of 125 ft and a depth of 12 ft (USACE, 1998). The GIWW barge channel is a minor constituent of the waterway which is now 500-650 ft wide along the eastern side of the BAC project area. Moving the T-wall 100 ft into an area which, based on Corps maps was land prior to 1971, would be a slight alteration of the preferred alternative.

A waterway with a width of 400 ft was sufficient in 1971 and provided adequate space for a 125 ft barge channel (which then was 31 % of the waterway width). The present width of the waterway, due to erosion by barge traffic, is now 100- 200 feet wider than in 1971 (USACE, 1971). This increased width reduces the portion of the waterway needed for the barge channel to 21 % of the total width. There are additional opportunities to improve the structural design of the T-wall and gate complex to avoid the BAC all together. The Corps stated that it intends to reduce the structural impacts on the BAC.

**Alternative G-GIWW C:** Sec. 2.5.3.4 (p. 49)

This section is a misrepresentation of the facts. It states that this alternative, of moving the "innovative T-wall" to avoid impacts to the 404(c) wetlands, would be to "construct the eastern innovative floodwall completely within the GIWW . . ." and that "construction of a floodwall within the heavily used navigation channel . . . would create engineering and construction challenges . . . "

The Corps suggests that building the floodwall in the navigation channel is the only other option to its preferred alternative. The navigation channel is only 125 ft wide in a waterway which is 600 feet in width. It appears that this misrepresentation is deliberately being used to discredit the practicability of this alternative.

What should be considered is moving the T-wall into the shallow water area which would still leave 500 ft to accommodate a 125 ft wide navigation channel. Congress authorized a 125 ft channel for most of the GIWW. If a wider channel was needed, Congress would have authorized it. Barges moored along the Harvey and Algiers Canals significantly reduce the waterway width available for barge navigation. This is evidently not a hazard to navigation. The alternative G-GIWW C was never presented in stakeholder meetings attended by our organization. Why weren't alternative designs presented in the DIER-12? Based on the various engineering designs of the sector gates and pumping station configurations (posted on the Corps' website), surely one could be modified to avoid the 404(c) wetlands all together. This deficiency should be corrected in the amended IER.

- Appendix K (Figure entitled, "Current Proposed Site Plan"): The description states that the "orientation of the pump station, gates, bypass channel and levee on east side of GIWW are not final and could change as design progresses." This means that there is still some flexibility and the final engineered design could avoid the 404(c) wetlands.

- Diagram 1 on p. 27 should be drawn to scale. It should also include the present width of the waterway and the position (centerline) of the 125 ft navigation channel. A scale showing the water depth should also be added. These figures should not be conceptual in this document.

**Contaminated sediments:** Appendices L, L(b) and M

The chemical analyses of the Algiers Canal sediments are not included in the Appendix of DIER-12. Only two contaminants are discussed but there is not a complete listing of COCs in which the bottom sediments were tested. Additional testing has been recommended but there is very little discussed in the DIER. A new document, dated Jan. 5, 2009, was posted on the website but not included in the DIER.

Of major concern to our organization is that the Corps intends to use the dredged material from the bottom of the Algiers Canal and barge it to the JLNHPP. The plan is to use the spoil to plug an erosional area along Lake Salvador and the Park boundary by placing the dredged material into a Geocrib. We support the use of clean spoil for beneficial use but oppose the introduction of contaminated material into the Park's ecosystem.

We request that this section of the IER be rewritten to fully identify the procedures undertaken by the Corps to determine whether the sediments are safe for open water disposal. The detection limit chosen does not take into consideration the affects of contaminants on benthic organisms - only the affect on human health. That update should include the location of sediment cores, chemical analyses of the sediments and a presentation of all the results in an appendix as part of an amended IER.

It is important that the screening procedure identify the levels of concentration of toxic sediments that cause chronic affects to benthic organisms as outlined in the NOAA's ER-M, ER-L sediment criteria for COC. In Appendix M the executive summary was omitted from the report as well.

Appendix L(b) recommends, "more sediment sampling . . . to further delineate the contaminated area." This canal could be contaminated with PAHs and other hydrocarbon derived toxics. The executive summary dated 1/5/09 for Final Phase II ESAR (and posted on the website) must be included in the amended IER-12 as well as the sediment data. The detection limit for PAHs was set at 330 ppb which is too high to detect many PAHs that have a consensus based TEL below this detection limit (Macdonald et al., 2000). Many states are using the consensus based TEL as a screening level for cleanup of contaminated sediments to protect aquatic organisms.

The ESAR stated that the toxic review was based on human impacts not impacts to the biota and used the LDEQ RECAP screening standards which do not consider the broader environmental impacts. Since these sediments will be deposited in the National Park, they should be tested for impacts to the biota as the highest priority. Unless this is done we oppose any of the Algiers Canal sediments being used as fill in the Barataria Preserve.

#### **Enterprise Pipeline Relocation:**

We did not find one map that identified the location of the existing Enterprise pipeline nor a discussion of the impacts of relocation of the pipeline on the BAC wetlands. In Appendix K figure 1 is a dashed line labeled pipeline relocation. Does this pipeline belong to Shell? It is identified on earlier corps maps as a Shell pipeline (USACE, 1971). There should be a full discussion describing how the relocation will prevent any direct or indirect impacts to the BAC. Will the old pipeline be removed? How old is it? How much will be relocated? Between what reference points will the work be done? (point A to point B). Will the pipeline segment reconnect to the old pipeline. We request the amended IER include an expansion of the discussion section fully explaining the pipeline relocation procedure and impacts to the BAC.

#### **Data Gaps and Uncertainties: (p. 16)**

Of concern to us, is that any additional information gathered over the one-year baseline study will come after the project has been approved. This includes most of the impacts to the BAC area.

Also, the engineering design report for the gates and floodwalls has not been completed. On page 16 it states, "At the time of the submission of this report, engineering evaluations have not been completed for all of the proposed actions and alternatives."

In fact, this section lists the data not included in this DIER-12 as; 1) sources of levee material have not been identified, 2) environmental surveys are not complete, 3) cumulative impact data are not complete, 4) impacts on transportation remain unknown, 5) the engineering analysis is based on a concept level design and is not complete.

The DIER states that a Draft Comprehensive Environmental Document (CED), "will contain updated information for any IER that had incomplete or unavailable data at the time it was posted for public review." (DIER, p. 14). This means that potentially critical information will not be available at the time the IER is approved and construction commences. The long list of inadequacies admitted by the Corps shows that this document should have been withheld until the Corps had time to finish its work and prepare a complete IER prepared for public and agency review.

#### **"Augmentation" issues:**

##### Length of study:

We find the one year baseline study for the BAC too short. For a proper study, several annual cycles are needed especially for hydrologic information due to changes in rainfall patterns from year to year.

##### Monitoring:

The water monitoring should include the measurement of water flow under Highway 3134. The swamp on the west side of the highway is presently in the JLNHPP. This highway bisected the BAC in 1977. There should be water flow monitoring at the culverts which allow water to pass under the highway. The conditional permit given to the DOTD and the congressional authorization for the highway requires that normal water circulation be maintained. It has now been over 30 years since the highway embankment was completed. How much subsidence has there been? Are all the culverts open to normal water exchange under the highway? What is the effective culvert cross sectional area available for water flow? Is there tidal exchange at the culvert locations? If so, can it be measured on both sides of the highway?

Degrading levees:

We agree that oil and gas drill hole canals should have the spoil banks degraded and in some instances the canals should be plugged. This should be done carefully since the canals and spoil banks have been there for over 40 years. A hydrologic study should consider that the swamp may be in equilibrium with the man-made ponding and drainage. Changes to the system must not harm the ecosystem of the BAC.

Opening Bayou aux Carpes shell dam:

As with degrading the levees, the opening of the dam to water flow from Bayou Barataria, during hurricane surges, may harm the swamp. Salinity ranges need to be measured in Bayou Barataria to assure that flow into the swamp will not harm or raise salinities within the leveed system.

Estelle stormwater diversion:

There is insufficient information on how contaminants in the effluent discharge from the Estelle Pumping Station will be measured. A complete list of the analytes should be included in the amended IER. We are concerned that diverting the urban effluent into BAC may not be beneficial for the wetlands. The effluent of many of the pumping stations, monitored by Jefferson Parish, have been documented to contain lead, arsenic, chromium and mercury.

How much monitoring will take place to properly document the water quality of the effluent over decades if the water will be used in the BAC? As urbanization increases in the basin, water quality will decline as more polluted urban runoff is pumped into the Estelle Canal.

We suggest that the effluent be monitored for chemicals which have shown up in Jefferson Parish analysis of effluent discharge into the Barataria Preserve (such as the Ames and Crown Point pumping stations). Water effluent monitoring must be continued over the life of the project,

The Audubon Council requests a meeting with the federal and state resource agencies to review the results of the "augmentation studies". There must be public input and review before the final decision is made to modify the BAC 404(c) ecosystem.

**Inclusion in the Barataria Preserve:**

The Bayou aux Carpes 404(c) area will be included within the Jean Lafitte National Historical Park and Preserve this year. Senate bill S. 22 has passed the US Senate and it is expected to pass the House soon. There are now two reasons to protect the BAC well into the future as, 1) a 404(c) area and, 2) part of the Barataria Preserve of the National Park.

**Revision of the DIER necessary (IER addendum):**

Because there are still important data omitted from the draft document, we request that a revised/amended IER be prepared and circulated to the public and resource agencies for review. According to the federal register, "an IER addendum responding to comments received will be completed and published for a 30-day public review period." (USACE, 2007). We are formally requesting that IER-12 be amended to include omitted information, and full responses to the public/agency comments on the DIER-12. The document should include:

- 1). Design of the sector gate complex with alternative designs presented- not "conceptual diagrams".
- 2). Alternative designs for the innovative floodwall to avoid the 404(c) area
- 3). Review of all dredged sediment data and chemical analyses. Decision whether dredged sediments can be utilized for beneficial purposes in the JLNHPP, based on acute and chronic impacts of toxic sediments to benthic organisms.
- 4). More specifics on the length of time and parameters measured for all studies discussed in the "augmentation" section of the DIER - including beneficial or adverse impacts to the 404(c) wetlands.

- 5). Monitoring plan details - include detailed section on rationale for placement of water flow instruments and hydrologic modeling
- 6). More details on the relocation of the Enterprise pipeline and its impacts to the 404(c) area.
- 7). A thorough analysis of the proposed diversion of urban discharges from the Estelle pumping station into the 404(c) wetlands. Also, include the impacts of pollutants on the 404(c) area.

All these issues and other data gaps must be thoroughly discussed and presented in the amended IER.

**Summary:**

1) In conclusion, we oppose Alternative 2, the preferred alignment, as presented in the DIER-12. The Corps admits that the engineering designs for the floodwall and gate complex are not complete and therefore we believe the design can be modified to avoid the 404(c) wetlands entirely. The new designs and supportive data should be presented in a IER addendum for public review and comment. We will reconsider our position based on the new document.

2) We also recommend that EPA deny the request by the Corps to modify its final determination on the Bayou aux Carpes CWA 404(c) since the Corps hasn't finished its alternative engineering designs for the floodwall and gate complex. It would be premature for any action to be taken by EPA at this time.

3) We oppose a process whereby any deficiencies in this IER will be answered sometime in the future - as part of a catchall document. The public must be engaged in one single process which comes to a single conclusion - not a decision process which is segmented and strung out for several years on a specific IER. It is supposed to be an individual environmental report.

4) It appears that this DIER was rushed through without the adequate internal review. This is precisely what we were concerned about with the Alternative Arrangements (USACE, 2007). It appears that expediency was the prime factor - not a thorough evaluation of the environmental impacts and avoidance. It would be a better process if the Corps allowed time for its engineers to carefully design and check its own proposals and then the public could review and comment on a document that was ready rather than one which is incomplete.

Sincerely,



Dr. Barry Kohl  
President, LAC

cc:

Delta Chapter Sierra Club  
Gulf Restoration Network  
National Audubon Society  
National Wildlife Federation  
Tulane Environmental Law Clinic  
Horst Greczmiel, CEQ  
National Wildlife Federation  
National Park Service  
US Fish and Wildlife Service  
National Marine Fisheries Service  
La DNR

**References:**

MacDonald, D.D., C.G. Ingersoll, T.A. Berger, 2000. Development and Evaluation of consensus -based sediment quality guidelines for freshwater ecosystems. Arch. Environmental Contamination and Toxicology, v. 39, p.20-21.

USACE, 1963. Review of reports: Harvey Canal-Bayou Barataria Levee, Louisiana. NO District of USACE , Sept. 20, 1963. Appendix A

USACE, 1971. Harvey Canal-Bayou Barataria Levee, New Levee Phase I. As Built Plans. Gulf Intracoastal Waterway, Jefferson Parish, LA. (provided by Fred Chatry, Chief Engineering Div., to B. Kohl, 2/15/77).

USACE 1977. (Jeff Parish Wetlands) 26, Conditional permit for Lafitte-Larose Highway segment from Estelle to Wagner Ferry Bridge.

USACE 1998. Water Resources Development in Louisiana, 1998. USACE, New Orleans District. 177 pp.

USACE 2007. Adoption of Alternative arrangements under the National Environmental Policy act for New Orleans Hurricane and Storm Damage Reduction System. Federal Register, March 13, v. 72, p. 11337-11340.



Haywood R. Martin, Chair  
Sierra Club, Delta Chapter  
400 Glynnedale Ave.  
Lafayette, LA 70506

February 11, 2009

Gib Owen, PM-RS  
U.S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160-0267

Barbara Keeler (6WQ-EC)  
EPA Region 6  
1445 Ross Avenue,  
Dallas, TX 75202-2733

**Re: Public hearing on the Draft IER-12, on the modification of CWA Sec. 404(c) determination for Bayou aux Carpes; and on West Closure Complex.**

The Sierra Club Delta Chapter supports a safe hurricane protection levee for the entire New Orleans area including the west bank of Jefferson Parish. We also strongly support the use of natural systems such as forested and non-forested wetlands to add progressive barriers to storm surges.

We thank EPA and the other resource agencies for recommending to the Corps a change in their original preferred alternative, which was the Southern Closure option. It appears that the proposed alternative would take 9.6 acres of the BAC as opposed the 600 acres of marsh that would have been impacted by the earlier proposal. While this is a large decrease in the taking of wetlands of national significance, we suggest that the Corps can do better. Additional structural changes to the eastern levee and closure complex would avoid any wetland loss to the BAC. The Corps Alternative 2, should be modified to avoid any direct or indirect impacts to the Sec 404(c) wetlands. It appears that there is adequate space to move the structure further into the waterway so as to avoid the 404(c) wetlands.

We are also concerned that any additional information gathered over the one-year baseline study will come after the project has been approved. This includes most of the impacts to the BAC area. Also, the engineering design report for the gates and floodwalls has not been completed. The DIER states that a Draft Comprehensive Environmental Document (CED) "will contain updated information for any IER that had incomplete or unavailable data at the time it was posted

for public review." It appears that potentially critical information will not be available at the time the IER is approved and construction commences. The list of inadequacies admitted by the Corps shows that this document should not have been released until the Corps had time to finish its work and a complete IER prepared for public and agency review.

We are informed that the Bayou aux Carpes 404(c) area will be included within the Jean Lafitte National Historical Park and Preserve this year. Senate bill S. 22 has passed the US Senate and it is expected to pass the House soon. This provides significant additional importance to the protection of the BAC as, a 404(c) area and as part of the Barataria Preserve of the National Park.

Because there are still important data omitted from the draft document, we request that a revised/amended IER be prepared and circulated to the public and resource agencies for review. We are formally requesting that IER-12 be amended to include omitted information, and full responses to the public/agency comments on the DIER-12

In conclusion, we oppose Alternative 2, the preferred alignment, as presented in the DIER-12. We request the Corps do an amended IER containing new designs and supportive data, and we strongly recommend that EPA deny the request by the Corps to modify its final determination on the Bayou aux Carpes CWA 404(c). Furthermore we request that the comment period be extended so that all interested parties have adequate time to prepare substantive comments.

Thank you,

Haywood Martin, Chair  
Sierra Club Delta Chapter

cc: Louisiana Audubon Council

IER # 12 - Appendix B

From: Owen, Gib A MVN on behalf of MVN Environmental  
Sent: Saturday, February 14, 2009 8:07 AM  
To: Coulson, Getrisc MVN  
Cc: Lyncker, Lissa A MVN-Contractor  
Subject: FW: NOLA Environmental Comment - General Comment

Gigi,  
Comment for IER 12. Came in on 11 February 09.  
Gib

Gib Owen  
US Army Corps of Engineers  
Chief, Ecological Planning and Restoration Section/ HSDRRS Environmental Team  
Leader New Orleans District  
504 862-1337

-----Original Message-----

From: lombas@cox.net [mailto:lombas@cox.net]  
Sent: Wednesday, February 11, 2009 8:46 AM  
To: lombas@cox.net; MVN Environmental  
Cc: Powell, Nancy J MVN  
Subject: RE: NOLA Environmental Comment - General Comment

Finished glancing thru the 175 page IER-12 report. Just as I suspected, the areas south of the proposed project was not included.

---- lombas@cox.net wrote:

> I have just read portions of the "IER 12" report, specifically page 15 regarding concerns. I doesn't mention anything about the populated areas south of the proposal. Maybe we need to move Lafitte, Baratavia and Crown Point to the Bayou Aux Carpes Swamp, then maybe someone would address our concerns. I still haven't received a report that shows the "INSIGNIFICANT" tidal rise on the flood side of the structure during a storm surge. Why doesn't the Corps of Engineers hold a public meeting in the Lafitte area to explain your position. I doubt that anyone from this area will attend the public meeting tonight in New Orleans. I am not opposed to this project. If my home and community has to be sacrificed to protect the west bank . so be it. I just don't understand why these communities are not considered when hurricane protection projects are proposed. I have heard that we may be included in the Morganza to the Gulf, but only as an afterthought. I seriously do not believe this will happen (not in my lifetime anyway!) I am starting to realize the meaning of the word "insignificant". I live in an "insignificant" community, with "insignificant" representation. Any damage that may occur to my community by this proposed project will be called "insignificant. I have been fortunate in the past that my home has not flooded . I do not qualify for any assistance to elevate my home and I cannot afford to elevate on my own. I appears that elevating our homes is our only option at this time. In the future, please remember, that north of Grand Isle and south of the West bank hurricane protection levee are three communities. Please don't think of us as only the drainage for the West bank. We don't even appear on your maps most of the time!

> ---- MVN Environmental <MVNEnvironmental@usace.army.mil> wrote:

> >

> > Sir,

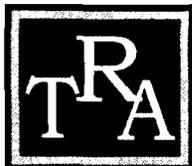
> > I have contacted a number of my USACE colleagues in the Engineering  
> > Division concerning your request for information. The Hydrologist  
> > working on the West Bank and Vicinity project have looked into the

IER # 12 - Appendix B

> > matter in the past as a part of the ongoing study efforts to  
> > determine water stages of the flood side of the proposed GIWW  
> > structure during an event. The results of their efforts was a  
> > determination that water stages on the flood side of the proposed  
> > structure would change by an insignificant elevation during a hurricane  
event where the proposed gate is closed.  
> >  
> > Basically, when a major storm enters the area there is literally  
> > billions of gallons of water being moved around the Barateria Basin  
> > by the surge and wave action. The number of gallons of water that  
> > would enter the Harvey/Algiers Canal area is very small in  
> > comparison to the total volume of the surge in the basin.  
> >  
> > If you would like to further discuss this matter I suggest that you  
> > contact Nancy Powell, Chief of CEMVN Hydrology Section at  
> > nancy.j.powell@usace.army.mil.  
> >  
> > Gib Owen  
> > US Army Corps of Engineers  
> > Chief, Ecological Planning and Restoration Section/ HSDRRS  
> > Environmental Team Leader New Orleans District  
> > 504 862-1337  
> >  
> >  
> > -----Original Message-----  
> > From: lombas@cox.net [mailto:lombas@cox.net]  
> > Sent: Monday, January 19, 2009 2:42 PM  
> > To: MVN Environmental  
> > Subject: NOLA Environmental Comment - General Comment  
> >  
> > Has the Corps of Engineers or any agency done any studies as to what  
> > will happen to the areas south of the proposed floodgates on the  
> > GIWW ?? If anyone has bothered, where can a copy of the study be found?

PUBLIC HEARING HELD IN THE MATTER OF GIWW  
WEST CLOSURE COMPLEX/BAYOU AUX CARPES 404 REQUEST  
FOR MODIFICATION TAKEN AT THE US ARMY CORPS OF  
ENGINEERS DISTRICT OFFICE, 7400 LEAKE AVENUE, NEW  
ORLEANS, LOUISIANA 70118 ON THE 11TH DAY OF  
FEBRUARY 2009 COMMENCING AT 7:00 P.M.

REPORTED BY:  
RACHEL TORRES-REGIS, CCR, RPR  
CERTIFIED COURT REPORTER



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MR. BARRA:  
Okay. Let's go on record, please. Ladies and gentlemen, it is approximately 7 p.m. on February 11, 2009, and this joint public hearing concerning the Corps of Engineers Individual Environment Report No. 12, an environmental document that details potential impacts of actions proposed as part of the Gulf Intracoastal Waterway West Closure Complex Project and concerning the Corps request that EPA modify the Bayou aux Carpes Clean Water Act Section 404 (c) designation is now in session. Good evening and thank you for coming to this public hearing.

My name is Mike Barra. I am a Regional Judicial Officer with EPA Region 6 located in Dallas, Texas. I am the designated hearing officer for this public hearing. My responsibility



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1 includes fully developing the  
2 public hearing record by taking  
3 testimony in admitting data and  
4 information into the hearing  
5 record as evidence. EPA will  
6 consider the public hearing  
7 record in making its final  
8 decision concerning the Corps of  
9 Engineers request to modify the  
10 Bayou aux Carpes Clean Water Act  
11 Section 404 (c) designation. The  
12 Corps of Engineers will consider  
13 the public hearing record in the  
14 process of making a final  
15 decision on the actions proposed  
16 as part of the Gulf Intracoastal  
17 Waterway West Closure Complex  
18 Project described as individual  
19 Environmental Report No. 12.  
20 Please note that I do not  
21 participate in making EPA's final  
22 decision concerning the request  
23 to modify the 404 (c) designation  
24 nor in the Corps final decision  
25 on the proposed action described

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1 in Individual Environmental  
2 Report No. 12.

3 In addition to me there are  
4 other EPA representatives present  
5 this evening, including Brian  
6 Frazer, Chief of the Wetlands and  
7 Aquatic Resources Regulatory  
8 Branch in the EPA headquarters  
9 Office of Water, and two persons  
10 on his staff, Ann Campbell and  
11 Clay Miller. From EPA Region 6  
12 in Dallas, Jane Watson, Chief of  
13 the Ecosystems Protection Branch  
14 in the Water Quality Division,  
15 and Barbara Keeler, Coastal and  
16 Wetlands Planning Coordinator.

17 There are a number of  
18 representatives of Corps of  
19 Engineers present this evening  
20 including Lieutenant Colonel Mark  
21 Jernigan, Deputy District  
22 Commander, New Orleans District  
23 U.S. Army Corps of Engineers.  
24 And Gib Owen, the Chief of the  
25 Ecological Planning and



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1 Restoration Section in the New  
2 Orleans District of the Corps of  
3 Engineers.

4 EPA prepared a public -- a  
5 public notice of tonight's public  
6 hearing in the Federal Register  
7 on January 14, 2009. The Corps of  
8 Engineers published notice of  
9 this public hearing in the  
10 Plaquemines Gazette on January 20  
11 and 27. The Times Picayune on  
12 January 20, 28, February 7 and  
13 11, and in The Gambit, February  
14 8. The Corps also notified the  
15 public of tonight's public  
16 hearing with notices on its  
17 website, postcard mailings to  
18 members of the public who have  
19 requested to be on the Corps  
20 mailing list for this action, and  
21 by running flash ads during the  
22 period February 2 through  
23 February 11 on the nola.com  
24 website. The public notices  
25 informed the members of the



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1 public of their opportunity to  
2 obtain information and copies of  
3 Individual Environmental Report  
4 No. 12 and the request that EPA  
5 modify the Bayou aux Carpes Clean  
6 Water Act Section 404 (c)  
7 designation to submit comments to  
8 attend and participate in the  
9 public hearing being held this  
10 evening. I have entered the  
11 public note -- copies of the  
12 public notices for tonight's  
13 public hearing into the hearing  
14 record and have asked the court  
15 reporter to number them as  
16 Exhibits 1 and 2.

17 In addition, several people  
18 have submitted written comments  
19 prior to this public hearing. I  
20 am entering those comments into  
21 the record and I have asked the  
22 court reporter to number them as  
23 Exhibits 3 through 6.

24 Now I would like to outline  
25 the procedures for this public



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1 hearing. The procedures for this  
2 public hearing are rather simple  
3 and informal; however, this  
4 hearing must be conducted in an  
5 orderly manner that will allow  
6 EPA and the Corps to obtain and  
7 record all relevant and  
8 appropriate information related  
9 to the request to modify the  
10 Bayou aux Carpes Clean Water Act  
11 Section 404 (c) designation and  
12 Individual Environmental Report  
13 No. 12. Tonight's public hearing  
14 is not an evidentiary hearing or  
15 trial. There will be no direct  
16 or cross examination of  
17 witnesses. As hearing officer, I  
18 may ask questions but only for  
19 clarification of the hearing  
20 record. Otherwise, persons  
21 giving testimony will not be  
22 requested. This is not a forum  
23 for debate or argumentative  
24 exchanges but rather one for the  
25 gathering of facts, data and

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1 information and opinions  
2 regarding the request to modify  
3 the Bayou aux Carpes Clean Water  
4 Act Section 404 (c) Designation  
5 and Individual Environmental  
6 Report No. 12. EPA will respond  
7 to questions and issues  
8 concerning the Corps request to  
9 modify the Bayou aux Carpes Clean  
10 Water Act Section 404 (c)  
11 Designation raised in the record  
12 of this public hearing and the  
13 Corps of Engineers will respond  
14 to questions and issues  
15 concerning Individual  
16 Environmental Report No. 12  
17 raised in the record of this  
18 public hearing, but those answers  
19 will be in writing and prepared  
20 after this public hearing and  
21 after fully considering the  
22 questions and issues raised. EPA  
23 and Corps of Engineers personnel  
24 will not respond to questions  
25 during the public hearing this



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1 evening. They may respond to  
2 informal questions presented  
3 outside of the hearing record at  
4 the open house that will be  
5 conducted after this hearing  
6 concludes. I will call on  
7 everyone who desires to provide  
8 testimony in the order presented  
9 on the forms provided at the  
10 registration table. If you have  
11 not signed a speaker registration  
12 form and wish to testify, please  
13 take a minute to obtain and  
14 complete a form provided at the  
15 registration table. When I call  
16 upon you to give your testimony,  
17 please state your name, and if  
18 you are affiliated with or  
19 representing an organization,  
20 please identify your  
21 organization. I must obtain a  
22 clear uninterrupted record of the  
23 hearing, so please do not talk  
24 while others are giving  
25 testimony. We can only have one



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1 person talking at a time in order  
2 for the court reporter to be able  
3 to hear and accurately record the  
4 testimony provided.

5 As hearing officer for this  
6 public hearing, I may impose time  
7 limits on providing testimony if  
8 the circumstances warrant. If  
9 your plan testimony is rather  
10 lengthy, I recommend that you  
11 consider summarizing your  
12 testimony followed by a request  
13 to enter your complete written  
14 statement into the hearing  
15 record. At the present time  
16 eleven people have signed up to  
17 speak. In order to give everyone  
18 an opportunity to speak in a  
19 reasonable time, I'm imposing a  
20 time limit of six minutes per  
21 speaker until all have had the  
22 opportunity to give testimony. I  
23 will give you a warning when you  
24 have gone five so that you know  
25 that it will be time to be



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1 wrapping it up. If time permits  
2 after all have had their  
3 opportunity, I may give persons  
4 wishing to add to their testimony  
5 additional time. After the  
6 public hearing closes this  
7 evening, EPA will continue to  
8 accept written comments on the  
9 request to modify the Bayou aux  
10 Carpes Clean Water Act Section  
11 404 (c) Designation through  
12 February 13, 2009. The Corps of  
13 Engineers will continue to accept  
14 written comments on Individual  
15 Environmental Report No. 12 until  
16 12 midnight tonight.

17 I will now take the testimony  
18 of persons who have signed up to  
19 speak beginning with Mayor Tim  
20 Kerner of the town of Lafitte.

21 MR. KERNER:

22 Thank you. Good evening. I  
23 want to thank y'all for having  
24 me. I was going to ask a few  
25 questions but I will just say



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1           that watching the presentation it  
2           said that, you know, they had a  
3           lot of input and you got with the  
4           local government and the Levee  
5           Board. Well, I am the mayor of  
6           the town of Lafitte and nobody  
7           got with me or anybody that  
8           belongs to my town, and also the  
9           -- I'm the President of the Levee  
10          Board and nobody ever addressed  
11          the Levee Board with any of these  
12          issues, so -- and I will tell you  
13          what, Lafitte and Barataria is  
14          going to be the ones that's  
15          devastated from this floodgate.  
16          I'm sure that the people from the  
17          Corps here has heard about  
18          Donaldsonville to the Gulf. That  
19          the levee system that is supposed  
20          to be going from Lafourche to  
21          Belle Chasse. Well, the  
22          delegation from Washington signed  
23          a letter in support that Lafitte,  
24          Barataria and Crown Point would  
25          be in that levee system. They



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1 are going to pick that alignment  
2 in the next couple of months.  
3 Why are we going through a \$50  
4 million floodgate that is right  
5 north of Lafitte that will flood  
6 us out even quicker when the  
7 tidal surge is coming up and  
8 putting a big pump station to  
9 throw more water on us -- sorry.  
10 Why is the Corps not sitting back  
11 saying, well, if we are going to  
12 protect the people of the  
13 westbank, why not see if  
14 Donaldsonville to the Gulf is --  
15 when it's run and finish the  
16 study, if GIWW -- the GIWW  
17 alignment is chosen. If that  
18 alignment is chosen, we are  
19 spending fifty -- I mean, five  
20 hundred million dollars for  
21 nothing because we are going to  
22 have a floodgate south of Lafitte  
23 that is going to be sixteen and a  
24 half feet high. It will be done  
25 for nothing. And I will tell

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1           you, what a slap in the face of  
2           the people of Lafitte that is  
3           trying to get back in their homes  
4           right now that 70 percent of them  
5           is gutted in a place that clean  
6           up and you wouldn't even know  
7           that a hurricane was there, but  
8           they trying to get back in their  
9           homes, they are doing it  
10          themselves. What a slap in the  
11          face to say \$500,000 for a  
12          floodgate right north of you and  
13          not discuss giving one dime for  
14          even tidal protection. The Corps  
15          of Engineers is not coming to  
16          Lafitte to the town hall to see  
17          the town council or anybody in  
18          the public hearing that -- the  
19          Lafitte Levee Board, not anybody.  
20          Look, the Corps of Engineers has  
21          been so good to me with Section  
22          205 in the continuing authority  
23          programs, Donaldsonville to the  
24          Gulf project, the guys have been  
25          great, but what you are doing



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1 here with the five hundred  
2 million dollar floodgate without  
3 coming to talk to the people of  
4 Lafitte, without caring about the  
5 people of Lafitte, Barataria and  
6 Crown Point is a sin and you  
7 ought to be ashamed of yourself.  
8 That's all I got to say. Thank  
9 you. And I oppose of it.

10 MR. BARRA:

11 Thank you for your comments.  
12 Donald Vallee.

13 MR. VALLEE:

14 I'm Donald Vallee. We own  
15 High Point Shooting Grounds,  
16 which is directly along Bayou  
17 Road, which is going to be  
18 affected. After reading the  
19 report on the website, 174 pages,  
20 I wanted to comment on two  
21 things. The little bit -- first  
22 off, let me just say --  
23 compliment the Corps on informing  
24 all of us, this has been going on  
25 for two years and there have been



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1 numerous meetings we have had as  
2 well as people from the Corps  
3 attending and coming out to our  
4 property and all of the adjacent  
5 property all around and keeping  
6 up informed what is going on;  
7 however, in reading the report,  
8 there really was not enough  
9 significance impact addressed in  
10 it to reflect how we are going to  
11 be addressed. If you look  
12 directly behind you on that map,  
13 those two squares of property at  
14 the end of Bayou Road is what we  
15 utilize as our safe fall in  
16 shooting areas. We have to have  
17 at least a thousand feet of  
18 protected area and shot fall to  
19 protect the general public from  
20 any shot that goes into those  
21 areas. All of that is going to  
22 get lost as well as the adjoining  
23 properties and there's a lot of  
24 facilities that we have back up  
25 in there. So I just want to make



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1 those notes back into the public  
2 comment at that point in time.

3 That's all I want to say.

4 MR. BARRA:

5 Thank you for your comments.

6 Matt Rota.

7 MR. ROTA:

8 Hello. My name is Matt Rota.

9 I am with Gulf Restoration  
10 Network and I thank you for the  
11 opportunity for the comments,  
12 thank you for putting this  
13 hearing together. I will also be  
14 submitting written comments. I  
15 have emailed them to Gib Owen and  
16 Barbara Keeler already, but I  
17 will also be submitting hard  
18 copies into the record.

19 There is a few aspects that I  
20 would like to talk about today.  
21 The first one is just the whole  
22 idea that we are having this  
23 meeting. This is probably the  
24 first time a lot people are  
25 learning about this project and



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1 our public forum, and for the  
2 Corps to have the public comment  
3 period to end midnight and this  
4 is probably going to go on until  
5 about 8 o'clock, giving everybody  
6 a full three or so hours to  
7 digest and figure out what they  
8 want to comment on is just not  
9 adequate. We don't think that  
10 the Corps comment period has been  
11 adequate for that. I mean, the  
12 EPA isn't that much longer, it's  
13 just 'til Friday, but there is at  
14 least some significant time to be  
15 able to digest what people are  
16 learning today. The second thing  
17 that I would like to mention and  
18 I think others will be talking  
19 about this further is that we  
20 don't feel that the full  
21 avoidance of the Bayou aux Carpes  
22 404 (c) area has been looked at.  
23 It is given a little time in  
24 IER-12 showing that they are  
25 avoiding and I would like to,



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1 first of all, thank the Corps and  
2 EPA for modifying the alignment  
3 so we aren't bisecting the Bayou  
4 aux Carpes like it was originally  
5 proposed, but, still, we don't  
6 think there's enough discussion  
7 and enough analysis to look at  
8 moving the floodwall further out  
9 into the waterway, the dredged --  
10 the dredged handle should only be  
11 125 feet wide so there is a lot  
12 of buffer there that we don't, at  
13 least in the IER has not been  
14 fully analyzed, and so we are  
15 requesting a better analysis see  
16 moving the floodwall further out  
17 into the water, not interfering  
18 with the channel, we would like  
19 to see that further looked at.  
20 Also, there hasn't been any  
21 analysis on secondary or  
22 secondary impacts and also  
23 cumulative impacts to wetlands  
24 was not addressed. It was said  
25 that that basically was going to

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1 be looked at in another one of  
2 the IER's, but in public meetings  
3 that we have had with the Corps  
4 in the past they developed a  
5 spreadsheet that is kind of a  
6 rolling cumulative impact  
7 analysis, and we feel that that  
8 should be included in each one of  
9 these IER's to give everybody the  
10 best idea that they can, what  
11 kind of cumulative impacts we are  
12 going to be looking at with the  
13 entire one hundred year  
14 protection system as a whole.

15 Finally, last thing that I  
16 would like to talk about today  
17 that I would like to highlight is  
18 the fact that non-structural  
19 alternatives really are just  
20 given lip service in this. It is  
21 basically assumed in here in the  
22 IER that -- in IER-12 that if we  
23 can't raise every single house in  
24 the entire area we aren't going  
25 to look at non-structural



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1 alternatives, raising houses,  
2 weather rising houses at all. In  
3 WRDA it is not an all or nothing,  
4 it says it can be --  
5 non-structural alternatives can  
6 be looked at in conjunction with  
7 structural alternatives such as  
8 levees and floodwalls and I am  
9 not saying that we don't need  
10 levees and floodwalls. I'm a  
11 resident of New Orleans as  
12 probably everybody here is or the  
13 greater metro area and all of us  
14 understand the importance of  
15 levees within a comprehensive  
16 hurricane system, but completely  
17 dismissing raising houses or some  
18 houses in some areas because we  
19 can't -- it would be economically  
20 infeasible to raise every single  
21 house in the metro area is just  
22 flood logic. So in conclusion I  
23 would just like to say that we  
24 feel that the -- and it's  
25 outlined more in my written

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1           comments that the IER-12 is not  
2           flushed out enough and that they  
3           have not -- the Corps has not  
4           presented what we feel a full  
5           analysis on all of the  
6           alternatives, and without that,  
7           we don't see how EPA can make a  
8           real informed decision without  
9           having some of that information  
10          basically, like I said, wrote off  
11          maybe moving the floodwall out a  
12          little bit more into the  
13          waterways still not impacting the  
14          channel, and we don't feel  
15          there's enough evidence to  
16          support that, and there might in  
17          the end, but we don't want EPA to  
18          make a hasty decision because  
19          they certainly didn't make a  
20          hasty decision when they first  
21          did this for the foresee action.  
22          Thank you for the opportunity to  
23          comment.

24                   MR. BARRA:

25                   Thank you for commenting.



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1 Gabriel Mondino.

2 MR. MONDINO:

3 Good evening. My name is  
4 Gabriel Mondino. I suppose that  
5 my affiliation would be as a  
6 citizen of New Orleans. I have  
7 no organization that I'm  
8 affiliated with.

9 I guess the relevant question  
10 that I have noticed looking at  
11 this presentation, reading  
12 materials about it is that with  
13 the 404 (c) Designation and all  
14 of the work that went into what  
15 was -- what is labeled the final  
16 determination, the question of --  
17 at hand really is not so much the  
18 entirety of the levee system, and  
19 this exactly is why EPA is here  
20 tonight, but the impact on this  
21 particular area, and so the  
22 question that -- the way that I  
23 would phrase it is whether it's  
24 reasonable for the Army Corps of  
25 Engineers to use a 404 (c)



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1 Designated area which has already  
2 been given extensive EPA  
3 authority with oversight in  
4 fashioning adequate hurricane  
5 protection for the New Orleans  
6 area, and I would have to  
7 unfortunately say that based on  
8 the presentation that we have  
9 here tonight I don't think that  
10 we can have an adequate answer to  
11 that question because I feel that  
12 the plan at this point, the IER  
13 doesn't really seem like it's  
14 half baked. We ought to be  
15 cooking, I might give it another  
16 20 minutes or so to see if it  
17 really hit the point at that  
18 point, but I don't feel as though  
19 the plan where it is now, there  
20 isn't enough information for the  
21 public. We do not know what the  
22 Environmental Impact of  
23 Alternative studies of placing  
24 the floodwall away from the 404  
25 (c) Designated area back into the



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1 shallow waters, what the  
2 hydrological effects of that or  
3 the engineering challenges in  
4 that and we haven't been able to  
5 witness that as the public to  
6 truly see whether we, as the  
7 public, who are the ones who  
8 benefit from this 404 (c)  
9 Designation are willing to allow  
10 some impact on something that is  
11 as noted by the EPA a national  
12 historic treasure.

13 The only other comment that I  
14 would make is that it seems to me  
15 that the appropriate action to  
16 take at this time is really to  
17 present the public with an  
18 amended IER as to this project as  
19 opposed to filling in these  
20 details in some sort of  
21 comprehensive environmental  
22 statement after the fact. I  
23 think that doing -- doing that  
24 course of action filling the  
25 necessary details of a project

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1 really runs in the face of a  
2 logic of having these public  
3 hearings in the first place of a  
4 logic that foster one of our  
5 first environmental legislation,  
6 NEPA, and the entire logic of the  
7 public impact and the public  
8 opportunity to engage its civil  
9 servants and its agencies in a  
10 way that is going to benefit not  
11 only the natural environment as  
12 is the case here but also protect  
13 all of the people like me and  
14 everyone else in this room who  
15 live in this metro area. That is  
16 my only comments.

17 MR. BARRA:

18 Thank you for your comment.

19 Jill Mastrototano.

20 MS. MASTROTOTANO:

21 Good evening. I'm Jill  
22 Mastrototano. I am the senior  
23 field organizing manager for the  
24 Sierra Club based here in New  
25 Orleans and I appreciate the



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1 opportunity that EPA and the  
2 Corps has afforded us all this  
3 evening in the community to  
4 review and comment on this  
5 project. I would echo the  
6 request of Matt Rota with the  
7 Gulf Restoration Network that the  
8 comment period be extended one  
9 additional week to allow those in  
10 the public that have just learned  
11 about this project to put written  
12 comments into the record beyond  
13 midnight tonight or Friday, that  
14 is EPA's deadline.

15 Certainly the Sierra Club  
16 supports effective comprehensive  
17 and meaningful hurricane  
18 protection for the Louisiana  
19 community, be it in the form of  
20 levees but also non-structural  
21 protection, and certainly since  
22 the 2005 hurricane season there's  
23 been significant scientific  
24 attention given to support the  
25 importance of protecting our



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1 wetlands and maintaining our  
2 coastal resources of which these  
3 404 (c) designated wetlands are,  
4 and we appreciate EPA's concern  
5 to uphold the importance of this  
6 404 (c) area. We would ask that  
7 given the almost 25 years of  
8 protection that this area has has  
9 enjoyed that that continue in  
10 whole. Importantly we recognize  
11 the importance of 404 (c) not  
12 just given the nice presentation  
13 that EPA provided but that our  
14 Sierra Club staff and volunteers  
15 have worked very hard on  
16 protecting 404 (c) area. Of  
17 course last year's recent Yazoo  
18 Pumps is a very good example of  
19 that. We would ask that EPA  
20 continue to explore the  
21 importance of including or the  
22 necessity of including this 404  
23 (c) area in Jean Lafitte Historic  
24 National Park, we would encourage  
25 that. We also recognize that the



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1 Corps has made significant  
2 strides in modifying the impacts  
3 of this project on the ground to  
4 404 (c) area, and we applaud them  
5 for that. However, we feel that  
6 there can be additional distance  
7 met, and we request that the  
8 Corps explore the nine acres of  
9 impacts that continue to exist on  
10 paper. One thing that we would  
11 want them to consider is, and we  
12 don't feel it was fully explored  
13 in the IER itself, was to move  
14 the T-wall, the innovative  
15 T-wall, berm and riprap farther  
16 into the channel center, toward  
17 the channel center. The channel  
18 center currently is 500 feet and  
19 was authorized to about 400 feet,  
20 and because of the shallowness  
21 along the western side of the  
22 channel there are opportunities  
23 to consider for engineering and  
24 structural; however, the IER did  
25 not fully explore that, it just

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1                    basically had a statement in  
2                    there saying that such a -- such  
3                    a movement or location of the  
4                    T-wall would not be appropriate,  
5                    and so we would ask that that be  
6                    revisited and the Corps actually  
7                    provide adequate data to refute  
8                    or support that proposal.

9                    To that end, I would echo the  
10                    sentiments forthcoming from our  
11                    Louisiana Delta Chapter that  
12                    represents three thousand members  
13                    as well as the New Orleans group.  
14                    Thank you.

15                    MR. BARRA:

16                    Thank you for your comments.  
17                    Harvey Stern.

18                    MR. STERN:

19                    Good evening. My name is  
20                    Harvey Stern and I am also the  
21                    Delta Chapter of the Sierra Club,  
22                    and I have here a comment of Mr.  
23                    Haywood Martin, who is chair of  
24                    the Delta Chapter of the Sierra  
25                    Club, which do in fact reflect



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many of the comments that we just heard from Jill, the field coordinator of the Sierra Club. I will just add a few excerpts from this letter that I think will elaborate on her comments.

The Sierra Club of the Delta Chapter supports a safe hurricane protection levee for the entire New Orleans area including the westbank of Jefferson Parish. We also support the use of natural systems such as forested to the non-forested wetlands to add to the aggressive barriers to the storm surges. And we also, as Jill mentioned, we feel that the proposed alternative that would take 9.6 acres of the BAC as opposed to the 600 needs to be reevaluated. While this is a large decrease of the taking of the wetlands of national significance, we suggest that the Corps can do better. Additional



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1 structural changes to the eastern  
2 levee and closure compacts would  
3 avoid any wetland loss to the  
4 BAC. The Corps alternative 2  
5 should be modified to avoid any  
6 direct or indirect impacts to the  
7 Section 404 (c) wetlands. It  
8 appears that there is adequate  
9 space to move the structure  
10 further away into the waterway so  
11 as to avoid the 404(c) wetlands  
12 as we heard expressed earlier by  
13 several folks. And we are also  
14 concerned that any additional  
15 information gathered over the  
16 one-year baseline study will come  
17 after the project has been  
18 approved. This includes most of  
19 the impacts to the BAC area.  
20 Also the engineering design  
21 report for the gates and  
22 floodwalls has not been  
23 completed. The DIER states that  
24 a Draft Comprehensive  
25 Environmental Document will



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1 contain updated information for  
2 any IER that had incomplete or  
3 unavailable data at the time it  
4 was posted for public review. It  
5 appears that potentially critical  
6 information will not be available  
7 at the time the IER is approved  
8 and construction commences.

9 Because there are still important  
10 data omitted from the draft  
11 document, we request that a  
12 revised/amended IER be prepared  
13 and circulated to the public and  
14 resource agencies for review. We  
15 are formally requesting that  
16 IER-12 be amended to include  
17 omitted information and full  
18 responses to the public/agency  
19 comments on the DIER-12.

20 In conclusion, we oppose  
21 Alternative 2, the preferred  
22 alignment as presented in the  
23 DIER-12. We request the Corps to  
24 do an amended IER containing new  
25 designs and supportive data, and



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1 we strongly recommend that EPA  
2 deny the request by the Corps to  
3 modify its final determination on  
4 the Bayou aux Carpes CWA 404 (c).  
5 Furthermore we request that the  
6 comment period be extended, as we  
7 heard from Jill, so that all  
8 interested parties have adequate  
9 time to prepare substantial  
10 comments. Those are the comments  
11 from the Chair of the Sierra  
12 Club. I have a couple of  
13 personal observations about why  
14 this project is being done in the  
15 first place, and as we heard  
16 referred to at least once in this  
17 presentation, that the intent of  
18 the project is to provide, quote,  
19 one hundred year level of  
20 protection to the residents of  
21 the westbank, and the, quote, one  
22 hundred year level of protection  
23 and five hundred year level of  
24 protection has been the mantra of  
25 the Corps, certainly before



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1 Katrina as to how to explain to  
2 the public the kind of protection  
3 against a level of risk of  
4 flooding from significant rain  
5 events. I was at at least one  
6 public Corps meeting at which a  
7 Corps official himself told me  
8 after I raised the issue about  
9 the credibility of the one  
10 hundred year concept that the  
11 idea of the one hundred year  
12 storm or even talking about a one  
13 percent chance in any given year  
14 is misleading, it's misguided,  
15 it's obsolete and it needs to be  
16 reassessed, and it's my  
17 understanding, I stand to be  
18 corrected, that the Corps intends  
19 to continue to use the, quote,  
20 one hundred year level of concept  
21 of the one hundred year level of  
22 flood protection in this proposed  
23 project to explain to the public  
24 why particular projects are  
25 needed. I would beg the Corps to



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1 get on the fast track and find a  
2 different way to assess risk.  
3 The one hundred year level of  
4 flood level of protection concept  
5 just does not work in many  
6 people's mind. We are talking  
7 about reducing flood risk. I  
8 think the credibility of the  
9 Corps is at risk as long as it  
10 continues to talk about the one  
11 hundred year level of flood risk  
12 or the five hundred year level.  
13 There has got to be a better way  
14 to explain risk to the public  
15 that is credible. People's lives  
16 are at risk. People are making  
17 life decisions on where to live  
18 and whether to move back based on  
19 the Corps decisions on this  
20 project.

21 MR. BARRA:

22 One more minute.

23 MR. STERN:

24 That's my comments. Thank  
25 you very much.



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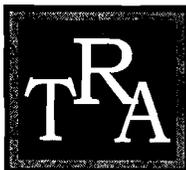
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1 MR. BARRA:

2 Okay. Thank you. Ray  
3 Champagne.

4 MR. CHAMPAGNE:

5 Yes. My name is Ray  
6 Champagne. Resident of Lafitte,  
7 member of the Sixth Ward  
8 Association for Progress. And  
9 realizing that this project is  
10 funded, I want to congratulate  
11 the people that was involved, but  
12 saying that, Crown Point,  
13 Barataria and Lafitte is going to  
14 be left out of this, and since we  
15 have been flooding for the last  
16 three storms, we were just  
17 wondering if the Corps would take  
18 into consideration this proposal  
19 that -- it's lower Jefferson  
20 Parish alternative. It's part of  
21 what the mayor was talking about,  
22 the Donaldsonville feasibility  
23 study. Well, Shaw and other  
24 people put this together, it's  
25 pretty impressing. I would like



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1 to leave it here for the record,  
2 and the people in Lafitte and  
3 Barataria they just tired doing  
4 with these graves every time high  
5 water come in. And they feel --  
6 like the mayor was saying, they  
7 feel a little left out because no  
8 money has been spent south of  
9 this project and everything south  
10 of this project, especially Crown  
11 Point where the water is going to  
12 get up against this structure,  
13 and it's pretty impressing. It's  
14 a real nice -- I mean, who  
15 wouldn't like this. You would  
16 have to be crazy not to like it.  
17 It's very impressive, cost a lot  
18 of money, but anything south of  
19 that the water is going to back  
20 up against it and the potential  
21 for flooding in that area where  
22 the structure is is going to be  
23 greater, maybe not just in a  
24 quarter of a mile, we are talking  
25 about three or four miles back,

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1           that is Crown Point, and beyond  
2           that is Lafitte, where the mayor  
3           is, and beyond that is where I  
4           live. I flood regardless, but I  
5           have been lucky. I'm above the  
6           ground and a lot of the other  
7           people is putting their houses  
8           up. But, like I said, I would  
9           like to introduce this if it's  
10          possible and we hope that the  
11          Corps would consider it, and I  
12          thank you for the time.

13                   MR. BARRA:

14                   Thank you for your comments.  
15                   Dr. Barry Kohl.

16                   DR. KOHL:

17                   My name is Barry Kohl. I'm  
18                   here representing the Louisiana  
19                   Audubon Council and we thank the  
20                   Corps and EPA for holding this  
21                   hearing tonight, especially on  
22                   the EPA side protecting and  
23                   trying to continue the protection  
24                   of the 404 (c) area. The John  
25                   Lafitte National Historical Park



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1 and Preserve and the Bayou aux  
2 Carpes wetlands will provide  
3 non-structural protection and  
4 reduce the hurricane tidal surges  
5 before they reach the westbank  
6 levee, and they have been  
7 documented -- the forested  
8 wetlands and non-forested  
9 wetlands have been documented as  
10 reducing the height of tidal  
11 surges during hurricanes Rita,  
12 Gustav and Ike, so the  
13 non-structural protection that  
14 the 404 (c) gives, the westbank  
15 levee and Lafitte National Park,  
16 which protects almost the entire  
17 portion of the westbank of  
18 Jefferson Parish from tidal  
19 storms is very important. We  
20 thank the Corps for reducing the  
21 impacts to the 404 (c). Wetlands  
22 from the 404 (c) wetlands from  
23 its original plans which would  
24 take -- which would have taken  
25 almost 600 acres of the 404 (c)



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1 area. One way to avoid impacts,  
2 further impacts is to modify  
3 Alternative A by moving the flood  
4 wall one hundred feet into the  
5 waterway along the eastern  
6 perimeter of the 404 (c) area.  
7 We don't suggest that the wall be  
8 moved into the navigation channel  
9 as was alluded in the IER, but to  
10 the edge of the waterway which is  
11 600 feet wide. The channel is --  
12 barge channel is only 125 feet in  
13 width authorized by congress. We  
14 don't need a wider channel or  
15 congress would have authorized  
16 it, a larger channel. We request  
17 the Corps staff to consider in  
18 its engineering analysis and  
19 include in the amended IER the  
20 engineering analysis since it has  
21 environmental significance. We  
22 have been interested in all of  
23 the data gaps listed in the IER  
24 of which we find many. In fact,  
25 the section on data gaps and

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1           uncertainties list the data note  
2           included in the draft IER as,  
3           one, source of levee material  
4           that has not been identified.  
5           Environmental surveys are not  
6           complete. Cumulative impact data  
7           are not complete. Impacts on  
8           transportation remain unknown,  
9           and one of the more important  
10          omissions is the engineering  
11          analysis that's based on a  
12          concept level design and is not  
13          complete. The last one indicates  
14          there is still time to consider  
15          some other engineering  
16          alternatives. There are many  
17          other inadequacies in the  
18          document. It appears the  
19          document was prepared in haste  
20          and that the Corps should have  
21          waited before circulating the  
22          Draft IER for public and agency  
23          comments. There are many  
24          questions to be answered and they  
25          are raised in our more detailed



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1           comments. The record is also not  
2           complete. Letters from EPA, the  
3           Fish and Wildlife Service sent in  
4           January were not posted on the  
5           website. There should have been  
6           a complete record of documents  
7           somewhere so the public could  
8           review the agency documents  
9           before public comment period  
10          closes at midnight tonight.  
11          Technical reports were posted  
12          during the public review period  
13          and have not been summarized in  
14          the Draft IER nor was there extra  
15          time to review them. Because of  
16          this, we ask the Corps extend the  
17          comment period for another two  
18          weeks. That will give the NGO's  
19          the opportunity to communicate  
20          with the resource agencies and  
21          get a copy of their comments and  
22          to review any new technical  
23          reports posted on the web.  
24                  We also ask the amended  
25          IER-12 be prepared and that it be

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1           circulated for a 30 day public  
2           review period as per the  
3           alternative arrangements. This  
4           document should include critical  
5           data needed for both the Corps  
6           and EPA decision making.  
7           Regarding EPA's involvement, we  
8           want to thank EPA and other  
9           resource agencies for  
10          recommending to the Corps a  
11          change in the original preferred  
12          alternative which would have  
13          taken -- impacted over 600 acres  
14          of this nationally significant  
15          wetland. EPA has been a real  
16          leader over the last 35 years in  
17          protecting important wetland in  
18          Jefferson Parish.

19                   MR. BARRA:

20                   One more minute.

21                   DR. KOHL:

22                   Much of the land in the  
23          Barataria Preserve of the Lafitte  
24          National Park was protected  
25          through NGO and EPA's vision that



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1                   these wetlands were an important  
2                   natural resource and shouldn't be  
3                   destroyed. They are now  
4                   protected in the National Park,  
5                   and legislation will be  
6                   transferring the 404 (c) Bayou  
7                   aux Carpes area into the National  
8                   Park later this year. We're  
9                   asking EPA to require a fully  
10                  funded multi-year baseline study  
11                  to be undertaken to evaluate any  
12                  modifications to the 404 (c) area  
13                  to improve the water quality and  
14                  hydrology. We're told that a one  
15                  year baseline study is not enough  
16                  to understand the complex  
17                  hydrodynamics in a man-altered  
18                  wetland system. Additional  
19                  issues are addressed in our  
20                  detail comments. We request that  
21                  EPA require the Corps to do a  
22                  thorough engineering analysis to  
23                  avoid any of the 404 (c) wetland.  
24                  A relocation of the T-wall one  
25                  hundred feet would avoid all

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1 impacts to Bayou aux Carpes.  
2 This analysis must be completed  
3 before EPA makes a decision on  
4 whether to grant the Corps's  
5 request for modification of its  
6 404 (c) determination. In the  
7 absence of that study, we ask EPA  
8 to deny the Corps's request for  
9 modification of the 404 (c)  
10 determination. Thank you.

11 MR. BARRA:

12 Thank you. Felicia Kahn.

13 MS. KAHN:

14 Okay. Felicia Kahn, member  
15 of the League of Women Voters of  
16 New Orleans. The League of Women  
17 Voters will submit comments to  
18 the EPA regarding the protection  
19 of wetlands and the park. We  
20 have worked -- we have worked for  
21 many, many years in this area and  
22 have extensive knowledge about  
23 it, and our statement will be  
24 submitted before February 13. Is  
25 that the correct date?



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1 MR. BARRA:

2 Yes.

3 MS. KAHN:

4 So we thank you very much for  
5 allowing us to appear.

6 MR. BARRA:

7 Thank you for coming. Allen  
8 Hero.

9 MR. HERO:

10 I'm Allen Hero. I represent  
11 some landowners on the  
12 Mississippi River side of this  
13 complex, and I would like to  
14 commend the Corps, this idea was  
15 first presented about 15 years  
16 ago about putting the super -- at  
17 that time I don't know what they  
18 called it, the super pump, and  
19 was denied because of the cost  
20 benefit ratio I think was the  
21 criteria in that time. And so I  
22 think, you know, the Corps is  
23 trying to get -- solve this  
24 problem. There are a few issues  
25 that we are concerned about along



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1 the Harvey Canal that I brought  
2 up in another one of these  
3 hearings is -- that was talked  
4 about briefly in this  
5 presentation on the tension area  
6 on the protected side of this  
7 flood structure, there is still  
8 some issues along the eastbank of  
9 Harvey Canal that have not been  
10 resolved and that those  
11 businesses there, even though  
12 they may have some protection,  
13 that funding and that protection  
14 has not been -- has not been  
15 taken into by the local Levee  
16 District. There is some conflict  
17 as to how those businesses are  
18 going to have protection when  
19 this is completed. Right now  
20 there is a temporary protection  
21 on the east side of Harvey Canal  
22 and there is no plan that I have  
23 heard as to how that is going to  
24 be maintained in the sense that  
25 we are supposed to be having one



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1 hundred year protection. I don't  
2 think we are going to have that  
3 at that location, so I think that  
4 needs to be -- the Corps and the  
5 EPA or whoever altogether need to  
6 look at those issues ongoing  
7 because once this is built, I  
8 think everybody is going to think  
9 it's all taken care of but there  
10 is some issues there that have  
11 not been addressed in the view of  
12 myself and some other landowners  
13 along Harvey Canal.

14 The other issue that I don't  
15 know has been addressed, they  
16 talk about all of this dredging  
17 material coming out of the  
18 intracoastal waterway and moving  
19 that material some distance and  
20 redepositing it, I think it's  
21 most probably a more cost  
22 effective way of moving that  
23 material into some of the fast  
24 land adjoining intracoastal  
25 waterway rather than moving all



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1 of that material ten miles away  
2 or wherever they are going to  
3 take it. And those are my  
4 comments. Thank you.

5 MR. BARRA:

6 Thank you for your comments.  
7 Jerry Huffman.

8 MR. HUFFMAN:

9 Good evening. I'm Jerry  
10 Huffman, President of the Harvey  
11 Canal Industrial Association. We  
12 represent 200 businesses along  
13 the Harvey Canal which are  
14 greatly affected by the decisions  
15 the Corps and the EPA will make  
16 today. For many, many years we  
17 have been seeking meaningful  
18 flood protection along the  
19 westbank. We think this proposal  
20 will give us the best shot at  
21 that. We understand there are  
22 very difficult environmental  
23 concerns. We are very much  
24 impressed by the interagency  
25 collaboration that has taken



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1 place in order to address those  
2 concerns. We support the Corps  
3 request to the EPA to modify the  
4 1985 Bayou aux Carpes Clean Water  
5 Act Section 404 (c) Final  
6 Determination and we support the  
7 current plan for the West Closure  
8 Complex as outlined in the IER-12  
9 report. We feel that this  
10 alignment will provide a much  
11 needed and long waited storm  
12 protection for the westbank of  
13 Jefferson Parish. Now, the HCIA,  
14 in cooperation with the other  
15 business organizations,  
16 commissioned an economic impact  
17 study in late 2007. That study  
18 included all of the businesses  
19 from LaPalco Boulevard south of  
20 the Hero Pumping Station. The  
21 study revealed a total employment  
22 of 1619 employees with an  
23 aggregate payroll of more than  
24 \$67.5 million and showed a direct  
25 and indirect spending of over

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1           \$1.1 billion. This study  
2           excluded companies along the  
3           upper portion of Peters Road, the  
4           Destrehan corridor or Engineers  
5           Road. The potential for economic  
6           loss in this area, a direct hit  
7           for a storm of Katrina like  
8           proportions is catastrophic. We  
9           applaud what you are doing, we  
10          support your effort. We have  
11          additional comments that we have  
12          already submitted into the  
13          record. Thank you for letting us  
14          come and to speak.

15                 MR. BARRA:

16                 Thank you for coming. Tom  
17                 Halko.

18                 MR. HALKO:

19                 Good evening. My name is  
20                 Thomas Halko and I live in lower  
21                 Jefferson Parish, lower Lafitte,  
22                 which is beyond the cone of Jean  
23                 Lafitte, and, for the record, I  
24                 have experience in less than four  
25                 years -- four one hundred year



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1 storms. With that being said, I  
2 would like to concur with what  
3 Mayor Kerner has stated as well  
4 as Mr. Champagne, and I think,  
5 first of all and far most that I  
6 extend my appreciation to the  
7 Corps of Engineers for all of the  
8 hard work that they have done in  
9 this region, for the EPA and for  
10 federal involvement because I  
11 think that it has made a  
12 difference as it relates to our  
13 lives and livelihood.

14 I think it's important, with  
15 that being said, with all due  
16 respect, I think that this  
17 proposal is somewhat  
18 shortsighted. I do believe that  
19 there should be consideration  
20 given to the concept that is in  
21 and on the board as it relates to  
22 the Donaldsonville to the Gulf  
23 levee protection. I think it's  
24 important to think about coastal  
25 restoration going hand in hand



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1 with levee protection, and I  
2 think that this project does not  
3 perfectly address that. This is  
4 -- is advertised as the primary  
5 protection for the New Orleans  
6 westbank area. When I think that  
7 -- it is important to think of a  
8 line of defense that is further  
9 south that perhaps is less  
10 intrusive environmentally, I  
11 think it's important to think of  
12 all of the Barataria estuary, but  
13 it is also important to note that  
14 lower Lafitte is the staging area  
15 for an offshore oil industry and  
16 represents substantial jobs and  
17 is very, very important to the  
18 infrastructure of all of the  
19 south and all of the nation, and  
20 I am personally as a property  
21 owner of Lafitte and I own  
22 property in Algiers Point, that I  
23 feel as if I am going to be  
24 adversely affected by this  
25 proposal because it's the

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1 backwash that we will experience  
2 and for attempting to protect a  
3 few hundred or a few thousand  
4 acres of pristine wetland, it may  
5 compromise everything that is  
6 pristine and wonderful south of  
7 this area all of the way to Grand  
8 Isle, and I think it's important  
9 that -- to take note of that, and  
10 I think sort of in a rush to  
11 attempt to provide levee  
12 protection and answers to people  
13 that the totality of flood  
14 protection is being minimized,  
15 and I think that we need to turn  
16 to the Dutch and look to see what  
17 they have done and we -- they  
18 have been able to both protect  
19 their nation, not one hundred  
20 year storms or five hundred year  
21 storms, but a thousand year  
22 storms, and have done so in  
23 protecting the population as well  
24 as their environment. Thank you.

25 MR. BARRA:



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1 Thank you for your comment.  
2 Okay. I believe we have heard  
3 from all of the people who signed  
4 up to speak. Okay.

5 Is there anyone who has not  
6 signed up who want to sign up and  
7 speak? Before we conclude, would  
8 anyone who has spoken like to add  
9 to their testimony? Yes, sir.

10 DR. KOHL:

11 I'm Barry Kohl with the  
12 Louisiana Audubon Council. There  
13 are a couple of items that I  
14 skipped over before. One is the  
15 dredging of the Algiers Canal.  
16 We're very concerned about the  
17 possibility of using dredge  
18 material from the canal and  
19 barging it to the Barataria  
20 preserve. Their preliminary  
21 information has shown that the  
22 sediments in the bottom of the  
23 canal are contaminated with  
24 several toxics that could harm  
25 the Lafitte National Park, the



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1 ecosystem. One of the problems  
2 with the Corps is they analyze  
3 toxic sediments and its effect on  
4 humans and they use screening  
5 standards that is protective of  
6 human life, not aquatic life, and  
7 they intend to use this dredge  
8 material and put it in the  
9 National Park for erosion  
10 control, which is good but it  
11 should be clean sediments, and we  
12 are just concerned about the  
13 degradation of water quality in  
14 the park and the fact that the  
15 Corps has habitually done a very  
16 poor job of analyzing  
17 contaminated sediments and  
18 placing them in areas that would  
19 protect them from getting into  
20 open water. Thank you.

21 MR. BARRA:

22 Thank you. Anyone else? Yes,  
23 sir.

24 MR. CHAMPAGNE:

25 Realizing that Lafitte and



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1 Barataria is the frontline, I  
2 would ask this audience and the  
3 Corps of Engineers to wish us  
4 well. Thank you.

5 MR. BARRA:

6 Thank you. Anyone else? Yes,  
7 sir.

8 MR. POURCIAU:

9 Lawrence Pourciau. I wanted  
10 to kind of expand on one of the  
11 comments that was made earlier  
12 about the hundred one year level  
13 of protection. It's my  
14 understanding, and please correct  
15 me if I am wrong, that that --  
16 this came about from a one  
17 percent chance in any given year  
18 that we could be flooded; is that  
19 correct?

20 MR. BARRA:

21 We'll have -- someone will  
22 have to talk to you about that  
23 during the open house after this  
24 hearing.

25 MR. POURCIAU:



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1           Okay. Well, that is my  
2           understanding of it, and if it is  
3           in fact the case, it probably  
4           does the Corps more of a  
5           disservice to anyone, of course  
6           the citizens of New Orleans, you  
7           know, for not benefitting from  
8           this because mathematically the  
9           way that works out is, you know,  
10          in 30 years there is a 30 percent  
11          chance that in any given one of  
12          those 30 years that you could  
13          experience a flood. Now, that  
14          means there is a 70 percent  
15          chance that you would not, but  
16          almost one in three chance that  
17          you would in fact experience a  
18          flooding situation is kind of  
19          scary, I think, and what this  
20          does is it makes the people feel  
21          safe and when a storm that is too  
22          big comes, it will flood and then  
23          of course the Corps will be  
24          blamed; when in fact congress  
25          didn't authorize enough funding

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1 for the Corps to build a wall  
2 that was high enough, and it  
3 won't be the Corps fault but they  
4 will be the one that the finger  
5 was pointed at and by using this  
6 terminology it does kind of make  
7 most people feel safe, but, in  
8 fact, you know, at some point  
9 down the road, hopefully never,  
10 but at some point down the road  
11 guess who is going to get the  
12 blame, the Corps, and I would  
13 like to see the Corps adopt  
14 something that puts pressure on  
15 congress to maybe help authorize  
16 a little more funding because I  
17 see funding given out everywhere  
18 lately to all areas of the  
19 country yet I do still see, you  
20 know, why can't funding be  
21 approved for, you know, one of  
22 the oldest cities and most  
23 historic cities in America.  
24 Thank you for letting me speak.

25 MR. BARRA:



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1 Thank you. Yes, sir.

2 MR. MONDINO:

3 Gabriel Mondino. I would  
4 like to add to my comment one  
5 thing which I had recalled that I  
6 failed to mention.

7 The EPA mentioned in the  
8 presentation that the -- when the  
9 404 (c) or 404 legislation was  
10 enacted and the regulations were  
11 enacted that they did not foresee  
12 the need to -- they did not  
13 include a mechanism for making  
14 modifications to 404 (c) wetland,  
15 and I think that that is very,  
16 very pertinent because in  
17 crafting legislation and crafting  
18 legislation about especially  
19 environmentally affected areas,  
20 we know avenues made to make  
21 those modifications, the  
22 regulations and the statutes that  
23 fail to include those are clear  
24 and that if those modifications  
25 aren't envisioned then those



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1 modifications should not be made,  
2 so my addition to my entire  
3 comment is that with respect to  
4 the floodwall affecting the 404  
5 (c) area, I think that that  
6 portion of the plan needs to be  
7 roundly denied because of the  
8 logic that went into creating the  
9 404 impact in and of itself.  
10 That's the only additional  
11 comment.

12 MR. BARRA:

13 Thank you. Anyone else?  
14 Okay. If there are no further  
15 comments or issues to be  
16 addressed, I will conclude this  
17 public hearing. Representatives  
18 of EPA and the Corps of Engineers  
19 will remain in this room to  
20 informally answer questions after  
21 the conclusion of this hearing.  
22 It is now approximately 7:57 p.m.  
23 on February 11, 2009 and this  
24 public hearing is hereby closed.  
25 Thank you for coming.



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(Whereupon the hearing was concluded at 7:57  
p.m.)



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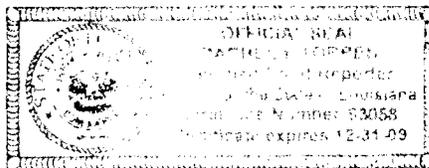
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REPORTER'S CERTIFICATE

I, RACHEL Y. TORRES, a Certified Court Reporter, do hereby certify that the within witness, after having been first duly sworn to testify to the truth, did testify as hereinabove set forth.

That the testimony was reported by me in shorthand and transcribed 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, not related to counsel or the parties hereto, and in no way interested in the outcome of this event.

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RACHEL Y. TORRES, CCR, RPR  
CERTIFIED COURT REPORTER



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**ENVIRONMENTAL PROTECTION AGENCY**

[EPA-HQ-OPP-2008-0650; FRL-8398-6]

**Petition for Rulemaking Requesting EPA Regulate Nanoscale Silver Products as Pesticides; Extension of Comment Period****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice; extension of comment period.

**SUMMARY:** EPA issued a notice in the *Federal Register* of November 19, 2008, concerning a petition for rulemaking and collateral relief filed by the International Center for Technology Assessment (ICTA) and others. In general, the petition requests that the Agency classify nanoscale silver as a pesticide, require formal pesticide registration of all products containing nanoscale silver, analyze the potential human health and environmental risks of nanoscale silver, take regulatory actions under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) against existing products that contain nanoscale silver, and take other regulatory actions under FIFRA as appropriate for nanoscale silver products. This document extends the comment period for 60 days from January 20, 2009 to March 20, 2009.

**DATES:** Comments, identified by docket identification (ID) number EPA-HQ-OPP-2008-0650, must be received on or before March 20, 2009.

**ADDRESSES:** Follow the detailed instructions as provided under **ADDRESSES** in the *Federal Register* document of November 19, 2008 (73 FR 69644).

**FOR FURTHER INFORMATION CONTACT:** Nathanael R. Martin, Field and External Affairs Division (7506P), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: 703-305-6475; e-mail address: [martin.nathanael@epa.gov](mailto:martin.nathanael@epa.gov).

**SUPPLEMENTARY INFORMATION:** This document extends the public comment period established in a notice that was published in the *Federal Register* of November 19, 2008 (73 FR 69644) (FRL-8386-4). In that document, the Agency made the petition submitted by ICTA et al., available for review and asked for public comment on the same. On December 12, 2008, EPA received a request from ICTA to extend the comment period on the petition. EPA is hereby extending the comment period,

which was set to end on January 20, 2009, to March 20, 2009.

To submit comments, or access the public docket, please follow the detailed instructions as provided under **ADDRESSES** in the November 19, 2008 *Federal Register* document. If you have questions, consult the person listed under **FOR FURTHER INFORMATION CONTACT**.

**List of Subjects**

Environmental protection,  
Nanotechnology, Pesticides and pests.

Dated: January 8, 2009.

**Martha Monell,**

*Acting Director, Office of Pesticide Programs.*

[FR Doc. E9-622 Filed 1-13-09; 8:45 am]

**BILLING CODE 6560-50-S**

**ENVIRONMENTAL PROTECTION AGENCY**

[FRL-8762-2]

**Request for Amendment of Designation Prohibiting Discharges of Dredged or Fill Material to the Bayou aux Carpes Clean Water Act Section 404(c) Site, Louisiana****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice of Public Hearing and Request for Comments.

**SUMMARY:** In 1985, EPA prohibited the discharge of dredged or fill material to wetlands in the Bayou aux Carpes Swamp pursuant to Section 404(c) of the Clean Water Act (CWA). On November 4, 2008, the New Orleans District of the U.S. Army Corps of Engineers (Corps) requested that EPA modify that designation to accommodate discharges to the Bayou aux Carpes wetlands associated with post-Katrina upgrades to the West Bank and Vicinity Hurricane Protection Levee system in Jefferson Parish, Louisiana. EPA solicits written public comment on that request and will hold a public hearing for receipt of comments.

**Public Hearing:** The public hearing will be held in the District Assembly Room at the U.S. Army Corps of Engineers New Orleans District office, 7400 Leake Avenue, New Orleans, LA 70118. The public hearing will commence at 6 p.m. on February 11, 2009, and will end when all comments have been received. During the hearing, any member of the public may submit written comments or present comments verbally.

**Public Comments:** In addition to providing comments at the public hearing, written comments on the CWA

Section 404(c) modification request may be submitted to EPA for 30 days following the date of this notice.

Comments should be addressed to Ms. Barbara Keeler (6WQ-EC), EPA Region 6, 1445 Ross Avenue, Dallas, TX 75202-2733. All comments should directly address whether the 1985 Bayou aux Carpes CWA Section 404(c) EPA Final Determination should be modified as requested by the Corps.

**FOR FURTHER INFORMATION CONTACT:** For information regarding this matter, contact Ms. Barbara Keeler by phone at (214) 665-6698 or by e-mail at [keeler.barbara@epa.gov](mailto:keeler.barbara@epa.gov). Copies of the modification request and supporting documentation are available online at: [http://www.nolaenvironmental.gov/nola\\_public\\_data/projects/usace\\_levee\\_docs/original/ModificationLetterToEPA4Oct08.pdf](http://www.nolaenvironmental.gov/nola_public_data/projects/usace_levee_docs/original/ModificationLetterToEPA4Oct08.pdf). Additional project information may be found at: [http://www.nolaenvironmental.gov/projects/usace\\_levee/IER.aspx?IERID=12](http://www.nolaenvironmental.gov/projects/usace_levee/IER.aspx?IERID=12).

**SUPPLEMENTARY INFORMATION:** The Bayou aux Carpes CWA Section 404(c) site is located approximately ten miles south of New Orleans, Louisiana, on the West Bank of Jefferson Parish. The site covers approximately 3200 acres, including about 3000 acres of wetlands subject to federal jurisdiction under the CWA. The area is bounded on the north by the east-west Old Estelle Pumping Station Outfall Canal, on the east by Bayou Barataria (Gulf Intracoastal Waterway), on the south by Bayou Barataria and Bayou des Familles, and on the west by State Highway 3134 and the "V-Levee." Immediately across State Highway 3134 to the west of the site is the Barataria Unit of Jean Lafitte National Historical Park and Preserve.

Section 404(c) of the CWA authorizes EPA to restrict or prohibit the use of a wetland area as a disposal site for dredged or fill material if the discharge will have unacceptable adverse effects on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. EPA published a CWA Section 404(c) Final Determination prohibiting, with three exceptions, future discharges of dredged or fill material to wetlands in the Bayou aux Carpes site at 50 FR 47267 (November 15, 1985). Since then, the Agency has received two other requests for modification.

In connection with initial construction of the West Bank Hurricane Protection Levee, the Corps requested that EPA modify its CWA Section 404(c) designation to allow extension of the top of the "V-Levee"

EXH B.T.#

DEPONENT



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into the protected Bayou aux Carpes area. The Corps stated that such a modification would result in significant cost savings to the government and would affect only a relatively small part of the area protected by the Section 404(c) designation. EPA summarily denied that request and in 1988 the Corps modified the levee alignment to avoid discharges to the Bayou aux Carpes CWA Section 404(c) area.

In 1992, Shell Pipeline Corporation requested that EPA amend the designation to allow the discharge of dredged and fill material to wetlands in the Bayou aux Carpes CWA Section 404(c) area in connection with emergency reconstruction of a leaking pipeline. After notifying interested parties of the request via **Federal Register** publication and coordinating with the Corps and other agencies, EPA granted the request, publishing the decision at 57 FR 3757 (January 31, 1992). EPA concluded that relocating the pipeline to non-wetlands was infeasible from the perspectives of engineering and public safety, and that the work would have only minimal and temporary effects on the wetlands at issue.

The request noticed today was submitted by the Corps and is associated with proposed improvements to the West Bank and Vicinity Hurricane Protection Levee system. By way of a letter dated November 8, 2008, the Corps requested that the designation be modified to allow construction of an earthen berm and floodwall in an area disturbed by dredged material discharges predating the 1985 404(c) designation. The construction area is located along the west bank of the Gulf Intracoastal Waterway, or Bayou Barataria, from its junction with the Old Estelle Pumping Station Outfall Canal to a point at which the Corps proposes to construct a sector gate across the Waterway. As described in the modification request, the berm and floodwall would be 14 to 16 feet high and would occupy an area no greater than 4,200 linear feet by 100 linear feet. No more than ten acres of wetlands in the Bayou aux Carpes CWA Section 404(c) site would be affected and other design and construction features have been incorporated to minimize impacts to the wetlands.

The Corps is currently gathering baseline data to evaluate potential wetland mitigation options and other project features to improve the existing hydrology of the Bayou aux Carpes site. The Corps has committed to constructing those features if the analyses indicate that they would be ecologically beneficial. Discharges of

dredged or fill material associated with such construction would require no additional modification to the CWA Section 404(c) designation, which contains an exception for approved habitat enhancement projects.

Additional information on the Corps project and its relationship to the Bayou aux Carpes site may be found in the alternative National Environmental Policy Act document, known as Individual Environmental Report #12 (IER #12), which is posted online at: [http://www.nolaenvironmental.gov/projects/usace\\_levee/IER.aspx?IERID=12](http://www.nolaenvironmental.gov/projects/usace_levee/IER.aspx?IERID=12).

The public hearing referenced above will be jointly conducted by EPA Region 6 and the Corps. At the hearing, EPA will receive comments on the Corps request to EPA to modify the Bayou aux Carpes CWA Section 404(c) designation and the Corps will receive comments on IER #12.

After considering all comments submitted, EPA Region 6 will transmit to the EPA Office of Water in Washington, DC, a written recommendation on whether the CWA Section 404(c) modification request should be granted or denied. The Assistant Administrator for Water will make the final decision and publish a notice of its availability in the **Federal Register**.

Dated: January 6, 2009.

**Richard E. Greene,**

*Regional Administrator, EPA Region 6.*

[FR Doc. E9-690 Filed 1-13-09; 8:45 am]

**BILLING CODE 6560-50-P**

## FEDERAL COMMUNICATIONS COMMISSION

### Notice of Public Information Collection(s) Being Reviewed by the Federal Communications Commission for Extension Under Delegated Authority, Comments Requested

January 8, 2009.

**SUMMARY:** The Federal Communications Commission, as part of its continuing effort to reduce paperwork burden invites the general public and other Federal agencies to take this opportunity to comment on the following information collection(s), as required by the Paperwork Reduction Act (PRA) of 1995, 44 U.S.C. 3501-3520. An agency may not conduct or sponsor a collection of information unless it displays a currently valid control number. No person shall be subject to any penalty for failing to comply with a collection of information subject to the Paperwork Reduction Act (PRA) that

does not display a valid control number. Comments are requested concerning (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimate; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

**DATES:** Written Paperwork Reduction Act (PRA) comments should be submitted on or before March 16, 2009. If you anticipate that you will be submitting PRA comments, but find it difficult to do so within the period of time allowed by this notice, you should advise the FCC contact listed below as soon as possible.

**ADDRESSES:** Direct all PRA comments to Nicholas A. Fraser, Office of Management and Budget, (202) 395-5887, or via fax at 202-395-5167 or via Internet at

[Nicholas\\_A\\_Fraser@omb.eop.gov](mailto:Nicholas_A_Fraser@omb.eop.gov) and to [Judith-B.Hernan@fcc.gov](mailto:Judith-B.Hernan@fcc.gov), Federal Communications Commission, or an e-mail to [PRA@fcc.gov](mailto:PRA@fcc.gov). To view a copy of this information collection request (ICR) submitted to OMB: (1) Go to the Web page <http://www.reginfo.gov/public/do/PRAMain>, (2) look for the section of the Web page called "Currently Under Review", (3) click on the downward-pointing arrow in the "Select Agency" box below the "Currently Under Review" heading, (4) select "Federal Communications Commission" from the list of agencies presented in the "Select Agency" box, (5) click the "Submit" button to the right of the "Select Agency" box, and (6) when the list of FCC ICRs currently under review appears, look for the title of this ICR (or its OMB Control Number, if there is one) and then click on the ICR Reference Number to view detailed information about this ICR.

**FOR FURTHER INFORMATION CONTACT:** For additional information, contact Judith B. Herman at 202-418-0214 or via the Internet at [Judith-B.Herman@fcc.gov](mailto:Judith-B.Herman@fcc.gov).

**SUPPLEMENTARY INFORMATION:**

*OMB Control Number:* 3060-0755.

*Title:* Sections 59.1 through 59.4, Infrastructure Sharing.

*Form No.:* N/A.

*Type of Review:* Extension of a currently approved collection.

*Respondents:* Business or other for-profit.



US Army Corps  
of Engineers  
New Orleans District

## Reducing Risk in Southeast Louisiana

The U.S. Army Corps of Engineers, New Orleans District, is hosting a **public meeting** to discuss environmental compliance efforts, per the National Environmental Policy Act.

**Jan. 28, 2009**    Plaquemines Parish Non-Federal Levees  
Woodland Plantation  
21997 Highway 23, Port Sulphur, LA 70083  
Open House: 6:00p.m. – 7:00 p.m.  
Presentation/Discussion: 7:00 – 9:00 p.m.

Meeting presentation will:

- Discuss the plans to upgrade the current Plaquemines Parish Non-Federal Levees as it will be discussed in the Supplemental Environmental Impact Statement.

The U.S. Army Corps of Engineers, New Orleans District is also hosting a joint **public hearing** with the Environmental Protection Agency.

**Feb. 11, 2009**    GIWW West Closure Complex/  
Bayou aux Carpes 404 request for modification  
US Army Corps of Engineers  
District Office  
7400 Leake Ave., New Orleans, LA 70118  
Open House: 5:00 – 6:00 p.m.  
Presentation/Comments: 6:00 – 9:00 p.m.

Meeting will:

- Provide a unique venue to take comments on the Corps' proposed action to reduce risk to communities surrounding the Harvey and Algiers canals as discussed in IER 12
- Provide a unique venue for the EPA to take comments on the Corps' proposed action which will require a modification to the Bayou aux Carpes 404(c) area, a wetland of national

Contact: Gib Owen    (504) 862-1337  
mvnenvironmental@usace.army.mil

[www.nolaenvironmental.gov](http://www.nolaenvironmental.gov)

EXHIBIT #

DEPONENT



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US Army Corps  
of Engineers  
New Orleans District

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US Army Corps of Engineers  
District Office  
7400 Leake Ave., New Orleans, LA 70118  
Open House: 5:30 – 6:00 p.m.  
Presentation/Comment-only period: 6:00 p.m.

The Corps has extended the public comment period for IER 12 from Feb. 4 to Feb. 11, 2009. All comments given at the public hearing will be considered as official comments to IER 12.

Meeting will:

- Provide a venue to give comments on the Corps' proposed action to reduce risk to communities and businesses near the Harvey and Algiers canals as discussed in IER 12
- Provide a venue for the EPA to accept comments on the Corps' proposed action which will require a modification to the Bayou aux Carpes 404(c) area, a wetland of national significance under the jurisdiction of the EPA.

Contact: Gib Owen    (504) 862-1337    [mvnenvironmental@usace.army.mil](mailto:mvnenvironmental@usace.army.mil)

Learn more at [www.nolaenvironmental.gov](http://www.nolaenvironmental.gov)



US Army Corps  
of Engineers  
New Orleans District

# Building Strong <sup>SM</sup>

The U.S. Army Corps of Engineers, New Orleans District is hosting a joint **public hearing** with the Environmental Protection Agency.

**Feb. 11, 2009** GIWW West Closure Complex/Bayou aux Carpes 404 request for modification  
US Army Corps of Engineers District Office  
7400 Leake Ave., New Orleans, LA 70118  
Doors open at 5:30 p.m.  
Presentation begins promptly at 6:00 p.m. and is followed by a  
comment-only period

The Corps has extended the public comment period for Individual Environmental Report 12 from Feb. 4 to Feb. 11, 2009. All comments given at the public hearing will be considered as official comments to IER 12.

Meeting will:

- Provide a venue to give comments on the Corps' proposed action to reduce risk to communities and businesses near the Harvey and Algiers canals as discussed in IER 12
- Provide a venue for the EPA to accept comments on the Corps' proposed action which will require a modification to the Bayou aux Carpes 404(c) area, a wetland of national significance under the jurisdiction of the EPA

The U.S. Army Corps of Engineers, New Orleans District, is continuing its series of public meetings to discuss environmental compliance efforts, per the National Environmental Policy Act, and project updates on the planned and proposed Greater New Orleans Hurricane and Storm Damage Risk Reduction System.

**Mar. 3, 2009** New Orleans Lakefront Levees west of the Industrial Canal and  
Inner Harbor Navigation Canal Surge Barrier - Borgne and Pontchartrain  
Lindy Boggs International Conference Center  
2045 Lakeshore Dr., New Orleans LA 70122  
Open house 6 p.m. Presentation and discussion 7 p.m.

Meeting presentation will:

- Provide an overview of the proposed action to improve the New Orleans Lakefront Levee as discussed in IER 4
- Discuss the status of construction of the Inner Harbor Navigation Canal Surge Barrier - Lake Borgne as previously discussed in IER 11 Tier 2 Borgne
- Provide an overview of the alternatives under consideration for reducing risk to the residents and businesses near the Inner Harbor Navigation Canal Surge Barrier - Lake Pontchartrain as it will be discussed in IER 11 Tier 2 Pontchartrain

## Upcoming Public Meetings

**Mar. 5, 2009**  
IER 11 Tier 2 Pontchartrain  
Port of New Orleans  
1350 Port of New Orleans Pl.  
New Orleans LA 70160  
Open house 8 a.m.  
Presentation and discussion 8:30 a.m.

**Mar. 11, 2009**  
IER 8, 9, 10 and borrow  
Lynn Oaks School  
#1 Lynn Oaks Dr.,  
Braithwaite, LA 70040  
Open house 6 p.m.  
Presentation and discussion 7 p.m.

Contact: Gib Owen (504) 862-1337 mvnenvironmental@usace.army.mil

Learn more at [www.nolaenvironmental.gov](http://www.nolaenvironmental.gov)

THE CORPUS OF ENGINEERS



US Army Corps  
of Engineers  
New Orleans District

## Reducing Risk on the Westbank

The U.S. Army Corps of Engineers, New Orleans District is hosting a joint **public hearing** with the Environmental Protection Agency.

**Feb. 11, 2009** GIWW West Closure Complex/Bayou aux Carpes 404 request for modification  
US Army Corps of Engineers  
District Office  
7400 Leake Ave., New Orleans, LA 70118  
Doors open at 5:30 p.m.  
Presentation begins promptly at 6:00 p.m. and is followed by a *comment-only period*

The Corps has extended the public comment period for IER 12 from Feb. 4 to Feb. 11, 2009. All comments given at the public hearing will be considered as official comments to IER 12.

Meeting will:

- Provide a venue to give comments on the Corps' proposed action to reduce risk to communities and businesses near the Harvey and Algiers canals as discussed in IER 12
- Provide a venue for the EPA to accept comments on the Corps' proposed action which will require a modification to the Bayou aux Carpes 404(c) area, a wetland of national significance under the jurisdiction of the EPA

Contact: Gib Owen (504) 862-1337 [mynenvironmental@usace.army.mil](mailto:mynenvironmental@usace.army.mil)  
Learn more at [www.nolaenvironmental.gov](http://www.nolaenvironmental.gov)

**What:** A joint public hearing with the Environmental Protection Agency on the GIWW West Closure Complex and request for modification to the Bayou aux Carpes 404 c site

**US Army Corps of Engineers**

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with The Times-Picayune

**Police identify mother who threw newborn into lake; say she will be charged with first-degree murder**

20-year-old told police she brought abortion, adoption counsellor

- Qualifying opens in for state appeals court posts and for Jefferson, Gretna and Westwego offices
- Apartment complex approved at former site of St. Aloysius High

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When:

Wed., Feb. 11, 2009

Doors open 5:30 p.m.  
Presentation begins promptly at 6:00 p.m.

US Army Corps of Engineers



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With The Times-Picayune

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20-year-old birth parent faces first-degree abortion, adoption charges

Qualifying opens in for state appeals court posts and for Jefferson, Gretna and Westwego offices

Apartment complex approved at former site of St. Aloysius High School

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**US Army Corps of Engineers**

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 Mardi Gras photos: Share yours! | See: NOLA: TP & Users' [icon]  
 Full coverage: Parade: In web | About hardi Gras | Forum | FAQs



**Share Carnival tips!**

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200-year-old told police about the night abortion; adapted counseling

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## United States Department of the Interior

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



February 9, 2009

Ms. Barbara Keeler (6WQ-EC)  
Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

EXHIBIT # 3  
DEPONENT  TORRES REPORTING & ASSOCIATES  
CORPORATE REPORTING & LITIGATION SERVICES  
www.torresreporting.com

Dear Ms. Keeler:

Please reference the Environmental Protection Agency's (EPA) Notice of Public Hearing and Request for Comments published in the Federal Register (Volume 74, No. 9, pg. 2072) on January 14, 2009. The U.S. Army Corps of Engineers (Corps), New Orleans District, has requested an amendment to EPA's Clean Water Act (CWA) Section 404 (c) designation which prohibits discharges of dredged or fill material into the Bayou aux Carpes Site in Jefferson Parish, Louisiana. That amendment is requested to allow the Corps to construct the proposed Westbank and Vicinity of New Orleans (WBV), Harvey to Algiers, 100-year level hurricane protection project, Individual Environmental Report 12 (IER 12), which is authorized in accordance with Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). The EPA has requested comments as to whether the 1985 Bayou aux Carpes CWA Section 404 (c) EPA Final Determination should be modified as requested by the Corps. 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.), Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Service recognizes the importance of the Bayou aux Carpes wetland complex to fish and wildlife resources and believes that the designation is warranted to protect these sensitive areas from development. In cooperation with Federal and State partners, the Corps has minimized potential direct and indirect impacts to significant floatant marsh and cypress swamp habitat by aligning the floodwall along the periphery of the Bayou aux Carpes CWA Section 404 (c) site. While the preferred alignment has resulted in greater direct impacts to forested wetlands, those forested wetlands at one time were previously altered by fill material. The preferred alignment would enclose fewer wetland acres, and avoid the damaging hydrologic consequences associated with bisecting the Bayou aux Carpes floatant marsh with a structural barrier. Moreover, unlike the Harvey Canal-Bayou Barataria Levee project which was the catalyst for EPA's determination, the preferred alternative alignment would avoid inclusion of the Bayou aux Carpes floatant and cypress swamp complex into the flood protection system and subsequently placing the area under

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pumped drainage.

During the alternatives analysis for IER 12, the Corps considered a series of alternative gate locations within the project area that would minimize the need for parallel protection. One of these alternatives included constructing a sector gate across the Bayou aux Carpes CWA Section 404 (c) site and was initially the Corps' preferred alternative. The proposed floodwall alignment within the Bayou aux Carpes CWA Section 404 (c) site would have, not only directly impacted high-quality floatant marsh and forested wetlands, but would have isolated approximately 500 acres of floatant marsh by placing them within the flood protection system. Constructing a floodwall across floatant marsh would disrupt the dynamic hydrologic conditions characteristic of a floatant marsh and would disrupt the natural hydrologic regimes within the entire Bayou aux Carpes wetland complex negatively impacting significant fish and wildlife resources. As proposed, the preferred alternative would minimize impacts by avoiding bisecting the Bayou aux Carpes CWA Section 404 (c) site and by implementing innovative design and construction techniques (e.g., floodwall design, construction sequencing).

At this time, the Service is unaware of any threatened or endangered species or their critical habitat within the proposed hurricane protection system project footprint for IER 12. However, the project-area forested wetlands provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), and a bald eagle nest was documented within the Bayou aux Carpes drainage area in 2007. This should be considered when designing environmental augmentation features. The bald eagle 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. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (i.e., organochlorine pesticides and lead). Although the bald eagle has been removed from the List of Endangered and Threatened Species, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. 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. The Service's Division of Migratory Birds for the Southeast Region (phone: 404/679-7051, e-mail: [SEmigratorybirds@fws.gov](mailto: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.

Direct impacts to bottomland hardwood and swamp habitat associated with the preferred alternative were quantified by acreage and habitat quality (i.e., average annual habitat units or AAHUs). The Service used the Louisiana Department of Natural Resources Habitat Assessment Methodology (HAM) to quantify the impacts of proposed project features on upland and wetland bottomland hardwood habitat and used the Wetland Value Assessment (WVA) methodology to quantify the impacts on swamp habitat. The Service determined that direct impacts to approximately 9.6 acres of forested habitat (i.e., 2.4 acres of bottomland hardwood habitat and 7.2 acres of swamp habitat) within the proposed 100-foot right-of-way of the Bayou aux Carpes CWA Section 404 (c) site would result in the loss of 6.1 AAHUs. Riparian habitat and

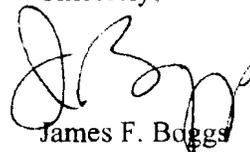
associated fish and wildlife resources would be minimally reduced within the Bayou aux Carpes CWA Section 404 (c) site. Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features of the entire hurricane protection system will be evaluated through a complementary comprehensive mitigation IER. However, should this designation be amended and the Corps' proposed alternative authorized, mitigation for unavoidable impacts to the Bayou aux Carpes 404 (c) area would be provided concurrently with flood protection features and within the Bayou aux Carpes 404 (c) area.

To ensure that potential impacts resulting from the construction of a flood protection structure do not compromise the value of this nationally-significant wetland ecosystem and to maintain the integrity of the Bayou aux Carpes CWA Section 404 (c) site, the Corps is proposing to incorporate environmental augmentation features into the proposed hurricane protection project. Stormwater from the Old Estelle Pump Station canal is currently being directed into the GIWW bypassing the Bayou aux Carpes wetland complex. Because of the invaluable water quality functions wetlands provide, stormwater will be redirected through the Bayou aux Carpes CWA Section 404 (c) site which would restore the natural process of nutrient cycling and reduce the risk of eutrophication in the lower basin waterbodies, provided modeling results support that action. Proposed augmentations could supplement hydrologic exchange within approximately 3,000 acres of floatant marsh, cypress swamp, and wetland scrub-shrub habitat.

Although complete avoidance of the Bayou aux Carpes CWA Section 404 (c) site would be preferred, it is the Service's opinion that amending the designation as proposed would not have an unacceptable adverse effect on fish and wildlife resources within the Bayou aux Carpes wetland complex. The Corps has incorporated proposed environmental augmentation features as a feature of the proposed project. Provided that hydrologic modeling supports implementation of those features, the Service believes that those augmentations coupled with long-term monitoring will ensure that unforeseen impacts to the Bayou aux Carpes CWA Section 404 (c) site are avoided. On the condition that the Corps moves forward with modeling and design of the environmental augmentation features concurrently with hurricane protection features, the Service would not be opposed to EPA modifying the 1985 Bayou aux Carpes CWA Section 404 (c) EPA Final Determination.

We appreciate the opportunity to comment on the proposed amendment and look forward to the continued coordination with the EPA, the Corps, and other State and Federal resource agencies with regards to the proposed hurricane protection system project. Should you have any questions regarding our comments, please give me a call (337/291-3115).

Sincerely,



James F. Bdggs  
Supervisor  
Louisiana Field Office

---

cc: FWS, Atlanta, GA (ES/HC)  
Corps, New Orleans, LA  
Jean Lafitte National Historical Park and Preserve, New Orleans, LA  
NMFS, Baton Rouge, LA  
LDWF, Baton Rouge, LA  
LDNR, CMD, Baton Rouge, LA



## United States Department of the Interior



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

February 9, 2009

Ms. Barbara Keeler (6WQ-EC)  
Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

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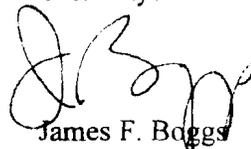
associated fish and wildlife resources would be minimally reduced within the Bayou aux Carpes CWA Section 404 (c) site. Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features of the entire hurricane protection system will be evaluated through a complementary comprehensive mitigation IER. However, should this designation be amended and the Corps' proposed alternative authorized, mitigation for unavoidable impacts to the Bayou aux Carpes 404 (c) area would be provided concurrently with flood protection features and within the Bayou aux Carpes 404 (c) area.

To ensure that potential impacts resulting from the construction of a flood protection structure do not compromise the value of this nationally-significant wetland ecosystem and to maintain the integrity of the Bayou aux Carpes CWA Section 404 (c) site, the Corps is proposing to incorporate environmental augmentation features into the proposed hurricane protection project. Stormwater from the Old Estelle Pump Station canal is currently being directed into the GIWW bypassing the Bayou aux Carpes wetland complex. Because of the invaluable water quality functions wetlands provide, stormwater will be redirected through the Bayou aux Carpes CWA Section 404 (c) site which would restore the natural process of nutrient cycling and reduce the risk of eutrophication in the lower basin waterbodies, provided modeling results support that action. Proposed augmentations could supplement hydrologic exchange within approximately 3,000 acres of floatant marsh, cypress swamp, and wetland scrub-shrub habitat.

Although complete avoidance of the Bayou aux Carpes CWA Section 404 (c) site would be preferred, it is the Service's opinion that amending the designation as proposed would not have an unacceptable adverse effect on fish and wildlife resources within the Bayou aux Carpes wetland complex. The Corps has incorporated proposed environmental augmentation features as a feature of the proposed project. Provided that hydrologic modeling supports implementation of those features, the Service believes that those augmentations coupled with long-term monitoring will ensure that unforeseen impacts to the Bayou aux Carpes CWA Section 404 (c) site are avoided. On the condition that the Corps moves forward with modeling and design of the environmental augmentation features concurrently with hurricane protection features, the Service would not be opposed to EPA modifying the 1985 Bayou aux Carpes CWA Section 404 (c) EPA Final Determination.

We appreciate the opportunity to comment on the proposed amendment and look forward to the continued coordination with the EPA, the Corps, and other State and Federal resource agencies with regards to the proposed hurricane protection system project. Should you have any questions regarding our comments, please give me a call (337/291-3115).

Sincerely,



James F. Boggs  
Supervisor  
Louisiana Field Office

cc: FWS, Atlanta, GA (ES/HC)  
Corps, New Orleans, LA  
Jean Lafitte National Historical Park and Preserve, New Orleans, LA  
NMFS, Baton Rouge, LA  
LDWF, Baton Rouge, LA  
LDNR, CMD, Baton Rouge, LA



*Feb. 9, 2009  
509 Third Ave.  
Harvey, La. 70058*

*Gib Owen, PM-RS  
U. S. Army Corps of Engineers  
P. O. Box 60267  
NOLA 70160-0267  
[mynenvironmental@usace.army.mil](mailto:mynenvironmental@usace.army.mil)*

*Barbara Keeler (6WQ-EC)  
EPA Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733  
[keeler.barbara@epa.gov](mailto:keeler.barbara@epa.gov)*

*Dear Sir and Madam:*

*I am writing today in regard to the GIWW West Closure Complex, the Corps' Individual Environmental Report 12, and the Corps' request to impact the Bayou aux Carpes 404© area here in Jefferson Parish, Louisiana. Common sense dictates that the 404© area continue to receive full protection, and that the Corps request be denied.*

*For my entire adult life, the Corps of Engineers has served as a combination lap dog/lap dancer/towel girl for the Louisiana Congressional delegation, which has always ranked at or near the top in terms of corruption and its penchant for acting in direct contrast to the welfare of its constituents. Admittedly, Alaska probably kept Louisiana out of the top spot the last few years, but not for lack of trying. Some of what can only be considered to rank amongst the nation's greatest eco-terrorists have been members of the Louisiana delegation: Billy Tauzin, J. Bennett Johnston, John Breaux, and Bob Livingston, to name a few. And today's delegation has been guilty of tremendous neglect. Over 20 years after the creation (against terrific political opposition) of the only National Park in the State, the park's boundaries have yet to be normalized.*

*For close to 40 years, I have been active in attempts to stop the Corps from either destroying or allowing the destruction of Louisiana's wetlands. But the Corps has routinely either encouraged or allowed the continued destruction of our wetlands. Thousands upon thousands of needless projects were approved by or thought up by the Corps with the primary intent of destroying wetlands that could protect and nurture us all for the sake of some individual's or corporation's short-term gain. Wherever and whenever possible, the Corps ignored the law and*

*shirked its duties, dreaming up garbage like Nationwide Permits and delegating its authority to local programs like that of Jefferson Parish, which has always tried to destroy as many acres of wetlands as is humanly possible.*

*Jefferson Parish politicians wanted desperately to destroy the Bayou aux Carpes area. The Corps desperately wanted to help them do so. Only the miraculous intervention of EPA stopped that destruction from occurring. The same people who threw their weight around in those days are still around today. There may be new people in the Corps with whom I am not acquainted, who may actually want to obey the law and do what's morally right. I hope so, although I would note that the Corps has yet to correct the situation in Crown Point, where Jefferson Parish has been illegally draining wetlands for over 30 years.*

*If our observations are correct, the talweg of the GIWW is now a few hundred feet from shore. The project was approved as a 125' by 12' channel, so there appears to be a tremendous amount of room for constructing a "T-wall" between the boundary of the Bayou aux Carpes 404© area and the boundary of the 125' authorized channel. We find no reason to encroach upon the 404© area to accomplish the Corps' stated purpose.*

*I myself live on the West Bank of Jefferson Parish. I need hurricane protection as much as anyone else. But there never was, and there is no reason to destroy wetlands to accomplish the completion of a hurricane protection levee system. Certainly, an area like the 404© area at Bayou aux Carpes is ever more rare, and as such ever more valuable as both habitat and a natural storm buffer. We cannot allow any of it to be lost. We cannot allow contaminated sediment to be placed in it. We cannot allow contaminated water to be pumped into it. We cannot bear to hear the word "mitigation", which has historically been as pathetic a failure as the Jefferson Parish motto "Jefferson's got to grow."*

*I hereby ask the Corps to modify its design to move the "T-wall" further in the direction of the GIWW talweg to spare any and all parts of the 404© area, and I hereby ask EPA to not allow the destruction of any part of the Bayou aux Carpes 404© area.*

*Thank you.*

*Yours truly,  
Joseph I. "Jay" Vincent*



**HARVEY CANAL  
INDUSTRIAL  
ASSOCIATION**

January 19, 2009

Mr. Gib Owen  
U. S. Army Corps of Engineers  
Planning, Programs, and Project Management Division  
Environmental Planning and Compliance Branch  
CEMVN-PM-RS  
P. O. Box 60267  
New Orleans, LA 70160-0267

RE: Draft Individual Environmental Report #12 (IER #12)

Dear Mr. Owen:

The Harvey Canal Industrial Association (HCIA) is a business organization that represents the interests of businesses in the Harvey Canal area. We have been a driving force for area improvements for more than sixty years. We represent the vast majority of companies that will be impacted by Corps of Engineers flood control efforts on the West Bank of Jefferson Parish.

The HCIA has been working with local, state and federal officials on the levee alignment for the East of the Harvey Canal Project since 1987. Shortly before Hurricane Katrina, we felt assured that a final authorized alignment would provide the west bank with the desperately needed hurricane protection. However, with the levee failure during Katrina, the West Bank and Vicinity Project had to be redesigned and the project again went to the drawing board. What resulted was the first phase of the new 100 year protection project, i.e. the flood walls along Peters Road. Businesses between Lapalco Boulevard and the Hero Pumping Stations are now sandwiched in between the newly constructed flood wall with no permanent protection.

Since 2005, numerous alternative flood protection options and cost/benefit ratios have been studied to determine the best option for full risk reduction East of the Harvey Canal. The HCIA supports the Corps of Engineers proposed West Closure Complex (WCC) as identified in the IER 12 proposal. We will, however, continue to work to provide those affected businesses with a supplemental protection levee for the smaller storms, tidal surges or rain events that may enter the canal when the WCC is not needed.

We certainly understand and appreciate the concerns that have been expressed for environmental impacts to the Bayou aux Carpes Section 404(c) area. It is our understanding that there has been a tremendous interagency collaboration, especially with EPA, to help identify and adopt a comprehensive plan to minimize adverse impacts within the 404(c) area during construction and for

Page two

HARVEY CANAL INDUSTRIAL ASSOCIATION  
Draft Individual Environmental Report (IER 12)

a long term affect once the project is completed. But we feel strongly that much has been sacrificed by the business community – even to one large employer moving to another part of the State.

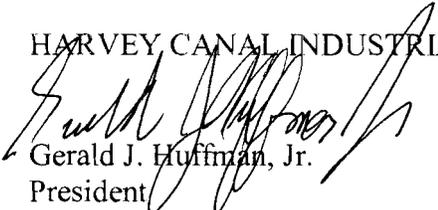
The HCIA supports the Corps' request to the EPA to modify the 1985 Bayou aux Carpes Clean Water Act Section 404 (c) Final Determination and we support the current plan for the WCC as outlined in the EIR 12 report. We feel the WCC alignment will provide the much needed and long awaited 100 year storm protection for the West Bank of Jefferson Parish.

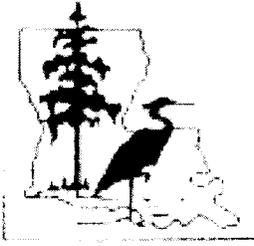
The businesses along Peters Road have suffered long enough. Numerous rain events, hurricanes and tropical storms have flooded our businesses and threatened residential neighborhoods. The HCIA, in cooperation with other business organizations, commissioned an Economic Impact Study in late 2007. The study area included all the businesses from Lapalco Boulevard south to the Hero Pumping Station. The study revealed a total employment of 1,619 employees with an aggregate payroll of more than \$67.5 million and showed a direct and indirect spending of over \$1.1 billion.

This study did not include any companies along the upper portion of Peters Road, the Destrehan corridor or Engineers Road. The potential for economic loss to this area is astronomical and the HCIA urges the U. S. Army Corps of Engineers to approve the final draft of the IER 12 and to move the West Closure Complex project to completion.

Sincerely,

HARVEY CANAL INDUSTRIAL ASSOCIATION

  
Gerald J. Huffman, Jr.  
President



# Louisiana Audubon Council

1522 Lowerline St., New Orleans, LA 70118

February 11, 2009

EXHIBIT #	6
DEPONENT	
 <b>TORRES REPORTING &amp; ASSOCIATES</b> <small>COURT REPORTING &amp; LITIGATION SERVICES</small> <a href="http://www.torresreporting.com">www.torresreporting.com</a>	

Gib Owen, PM-RS  
 U.S. Army Corps of Engineers  
 P.O. Box 60267  
 New Orleans, LA 70160-0267

Barbara Keeler (6WQ-EC)  
 EPA Region 6  
 1445 Ross Avenue,  
 Dallas, TX 75202-2733

**Re: Combined public hearing on the Draft IER-12, on the modification of CWA Sec. 404(c) determination for Bayou aux Carpes; and hearing on GIWW West Closure Complex.**

Dear Ms. Keeler and Mr. Owen,

First, the Louisiana Audubon Council wants to be on record as supporting a safe hurricane protection levee for the entire New Orleans area including the Westbank of Jefferson Parish. The Jean Lafitte National Historical Park and Preserve (JLNHPP) and Bayou aux Carpes (BAC) wetlands will provide non-structural protection and reduce the hurricane tidal surges before they reach the westbank levee system. Non-structural protection is provided by forested and non-forested wetlands and have been documented as reducing the height of tidal surges during Hurricanes Rita, Gustav and Ike.

We thank EPA and the other resource agencies for recommending to the Corps a change in their original preferred alternative, which was the Southern Closure option, GIWW-A. This alignment would have segregated the BAC, Sec. 404(c) area and adversely impacted 600 acres of floatant marsh.

The Corps' new preferred alignment (Alternative 2, GIWW-WWC) would directly take 9.6 acres of the BAC. While this is a large decrease in the taking of wetlands of national significance, the Corps should not stop there. Additional structural changes to the eastern levee and closure complex would avoid any wetland loss to the BAC. The Corps Alternative 2, should be modified to avoid any direct or indirect impacts to the Sec 404(c) wetlands. (see below).

**Alternative 2, GIWW-WWC: (a suggested modification)**

It is our opinion that the encroachment into the BAC wetlands can be avoided entirely by moving the "innovative T-wall", berm and riprap further into the waterway by 100 ft., thereby avoiding the 404(c) wetlands. Bayou Barataria includes the GIWW barge channel which has a congressionally authorized width of 125 ft and a depth of 12 ft (USACE, 1998). The GIWW barge channel is a minor constituent of the waterway which is now 500-650 ft wide along the eastern side of the BAC project area. Moving the T-wall 100 ft into an area which, based on Corps maps was land prior to 1971, would be a slight alteration of the preferred alternative.

A waterway with a width of 400 ft was sufficient in 1971 and provided adequate space for a 125 ft barge channel (which then was 31 % of the waterway width). The present width of the waterway, due to erosion by barge traffic, is now 100- 200 feet wider than in 1971 (USACE, 1971). This increased width reduces the portion of the waterway needed for the barge channel to 21 % of the total width. There are additional opportunities to improve the structural design of the T-wall and gate complex to avoid the BAC all together. The Corps stated that it intends to reduce the structural impacts on the BAC.

**Alternative G-GIWW C: Sec. 2.5.3.4 (p. 49)**

This section is a misrepresentation of the facts. It states that this alternative, of moving the "innovative T-wall" to avoid impacts to the 404(c) wetlands, would be to "construct the eastern innovative floodwall completely within the GIWW . . ." and that "construction of a floodwall within the heavily used navigation channel . . . would create engineering and construction challenges . . ."

The Corps suggests that building the floodwall in the navigation channel is the only other option to its preferred alternative. The navigation channel is only 125 ft wide in a waterway which is 600 feet in width. It appears that this misrepresentation is deliberately being used to discredit the practicability of this alternative.

What should be considered is moving the T-wall into the shallow water area which would still leave 500 ft to accommodate a 125 ft wide navigation channel. Congress authorized a 125 ft channel for most of the GIWW. If a wider channel was needed, Congress would have authorized it. Barges moored along the Harvey and Algiers Canals significantly reduce the waterway width available for barge navigation. This is evidently not a hazard to navigation. The alternative G-GIWW C was never presented in stakeholder meetings attended by our organization. Why weren't alternative designs presented in the DIER-12? Based on the various engineering designs of the sector gates and pumping station configurations (posted on the Corps' website), surely one could be modified to avoid the 404(c) wetlands all together. This deficiency should be corrected in the amended IER.

- Appendix K (Figure entitled, "Current Proposed Site Plan"): The description states that the "orientation of the pump station, gates, bypass channel and levee on east side of GIWW are not final and could change as design progresses." This means that there is still some flexibility and the final engineered design could avoid the 404(c) wetlands.

- Diagram I on p. 27 should be drawn to scale. It should also include the present width of the waterway and the position (centerline) of the 125 ft navigation channel. A scale showing the water depth should also be added. These figures should not be conceptual in this document.

**Contaminated sediments: Appendices L, L(b) and M**

The chemical analyses of the Algiers Canal sediments are not included in the Appendix of DIER-12. Only two contaminants are discussed but there is not a complete listing of COCs in which the bottom sediments were tested. Additional testing has been recommended but there is very little discussed in the DIER. A new document, dated Jan. 5, 2009, was posted on the website but not included in the DIER.

Of major concern to our organization is that the Corps intends to use the dredged material from the bottom of the Algiers Canal and barge it to the JLNHPP. The plan is to use the spoil to plug an erosional area along Lake Salvador and the Park boundary by placing the dredged material into a Geocrib. We support the use of clean spoil for beneficial use but oppose the introduction of contaminated material into the Park's ecosystem.

We request that this section of the IER be rewritten to fully identify the procedures undertaken by the Corps to determine whether the sediments are safe for open water disposal. The detection limit chosen does not take into consideration the affects of contaminants on benthic organisms - only the affect on human health. That update should include the location of sediment cores, chemical analyses of the sediments and a presentation of all the results in an appendix as part of an amended IER.

It is important that the screening procedure identify the levels of concentration of toxic sediments that cause chronic affects to benthic organisms as outlined in the NOAA's ER-M, ER-L sediment criteria for COC. In Appendix M the executive summary was omitted from the report as well.

Appendix L(b) recommends, "more sediment sampling . . . to further delineate the contaminated area." This canal could be contaminated with PAHs and other hydrocarbon derived toxics. The executive summary dated 1/5/09 for Final Phase II ESAR (and posted on the website) must be included in the amended IER-12 as well as the sediment data. The detection limit for PAHs was set at 330 ppb which is too high to detect many PAHs that have a consensus based TEL below this detection limit (Macdonald et al., 2000). Many states are using the consensus based TEL as a screening level for cleanup of contaminated sediments to protect aquatic organisms.

The ESAR stated that the toxic review was based on human impacts not impacts to the biota and used the LDEQ RECAP screening standards which do not consider the broader environmental impacts. Since these sediments will be deposited in the National Park, they should be tested for impacts to the biota as the highest priority. Unless this is done we oppose any of the Algiers Canal sediments being used as fill in the Barataria Preserve.

**Enterprise Pipeline Relocation:**

We did not find one map that identified the location of the existing Enterprise pipeline nor a discussion of the impacts of relocation of the pipeline on the BAC wetlands. In Appendix K figure 1 is a dashed line labeled pipeline relocation. Does this pipeline belong to Shell? It is identified on earlier corps maps as a Shell pipeline (USACE, 1971). There should be a full discussion describing how the relocation will prevent any direct or indirect impacts to the BAC. Will the old pipeline be removed? How old is it? How much will be relocated? Between what reference points will the work be done? (point A to point B). Will the pipeline segment reconnect to the old pipeline. We request the amended IER include an expansion of the discussion section fully explaining the pipeline relocation procedure and impacts to the BAC.

**Data Gaps and Uncertainties: (p. 16)**

Of concern to us, is that any additional information gathered over the one-year baseline study will come after the project has been approved. This includes most of the impacts to the BAC area.

Also, the engineering design report for the gates and floodwalls has not been completed. On page 16 it states, "At the time of the submission of this report, engineering evaluations have not been completed for all of the proposed actions and alternatives."

In fact, this section lists the data not included in this DIER-12 as; 1) sources of levee material have not been identified, 2) environmental surveys are not complete, 3) cumulative impact data are not complete, 4) impacts on transportation remain unknown, 5) the engineering analysis is based on a concept level design and is not complete.

The DIER states that a Draft Comprehensive Environmental Document (CED), "will contain updated information for any IER that had incomplete or unavailable data at the time it was posted for public review." (DIER, p. 14). This means that potentially critical information will not be available at the time the IER is approved and construction commences. The long list of inadequacies admitted by the Corps shows that this document should have been withheld until the Corps had time to finish its work and prepare a complete IER prepared for public and agency review.

**"Augmentation" issues:**Length of study:

We find the one year baseline study for the BAC too short. For a proper study, several annual cycles are needed especially for hydrologic information due to changes in rainfall patterns from year to year.

Monitoring:

The water monitoring should include the measurement of water flow under Highway 3134. The swamp on the west side of the highway is presently in the JLNHPP. This highway bisected the BAC in 1977. There should be water flow monitoring at the culverts which allow water to pass under the highway. The conditional permit given to the DOTD and the congressional authorization for the highway requires that normal water circulation be maintained. It has now been over 30 years since the highway embankment was completed. How much subsidence has there been? Are all the culverts open to normal water exchange under the highway? What is the effective culvert cross sectional area available for water flow? Is there tidal exchange at the culvert locations? If so, can it be measured on both sides of the highway?

Degrading levees:

We agree that oil and gas drill hole canals should have the spoil banks degraded and in some instances the canals should be plugged. This should be done carefully since the canals and spoil banks have been there for over 40 years. A hydrologic study should consider that the swamp may be in equilibrium with the man-made ponding and drainage. Changes to the system must not harm the ecosystem of the BAC.

Opening Bayou aux Carpes shell dam:

As with degrading the levees, the opening of the dam to water flow from Bayou Barataria, during hurricane surges, may harm the swamp. Salinity ranges need to be measured in Bayou Barataria to assure that flow into the swamp will not harm or raise salinities within the leveed system.

Estelle stormwater diversion:

There is insufficient information on how contaminants in the effluent discharge from the Estelle Pumping Station will be measured. A complete list of the analytes should be included in the amended IER. We are concerned that diverting the urban effluent into BAC may not be beneficial for the wetlands. The effluent of many of the pumping stations, monitored by Jefferson Parish, have been documented to contain lead, arsenic, chromium and mercury.

How much monitoring will take place to properly document the water quality of the effluent over decades if the water will be used in the BAC? As urbanization increases in the basin, water quality will decline as more polluted urban runoff is pumped into the Estelle Canal.

We suggest that the effluent be monitored for chemicals which have shown up in Jefferson Parish analysis of effluent discharge into the Barataria Preserve (such as the Ames and Crown Point pumping stations). Water effluent monitoring must be continued over the life of the project.

The Audubon Council requests a meeting with the federal and state resource agencies to review the results of the "augmentation studies". There must be public input and review before the final decision is made to modify the BAC 404(c) ecosystem.

**Inclusion in the Barataria Preserve:**

The Bayou aux Carpes 404(c) area will be included within the Jean Lafitte National Historical Park and Preserve this year. Senate bill S. 22 has passed the US Senate and it is expected to pass the House soon. There are now two reasons to protect the BAC well into the future as, 1) a 404(c) area and, 2) part of the Barataria Preserve of the National Park.

**Revision of the DIER necessary (IER addendum):**

Because there are still important data omitted from the draft document, we request that a revised/amended IER be prepared and circulated to the public and resource agencies for review. According to the federal register, "an IER addendum responding to comments received will be completed and published for a 30-day public review period." (USACE, 2007). We are formally requesting that IER-12 be amended to include omitted information, and full responses to the public/agency comments on the DIER-12. The document should include:

- 1). Design of the sector gate complex with alternative designs presented- not "conceptual diagrams".
- 2). Alternative designs for the innovative floodwall to avoid the 404(c) area
- 3). Review of all dredged sediment data and chemical analyses. Decision whether dredged sediments can be utilized for beneficial purposes in the JLNHPP, based on acute and chronic impacts of toxic sediments to benthic organisms.
- 4). More specifics on the length of time and parameters measured for all studies discussed in the "augmentation" section of the DIER - including beneficial or adverse impacts to the 404(c) wetlands.

- 5). Monitoring plan details - include detailed section on rationale for placement of water flow instruments and hydrologic modeling
- 6). More details on the relocation of the Enterprise pipeline and its impacts to the 404(c) area.
- 7). A thorough analysis of the proposed diversion of urban discharges from the Estelle pumping station into the 404(c) wetlands. Also, include the impacts of pollutants on the 404(c) area.

All these issues and other data gaps must be thoroughly discussed and presented in the amended IER.

**Summary:**

1) In conclusion, we oppose Alternative 2, the preferred alignment, as presented in the DIER-12. The Corps admits that the engineering designs for the floodwall and gate complex are not complete and therefore we believe the design can be modified to avoid the 404(c) wetlands entirely. The new designs and supportive data should be presented in a IER addendum for public review and comment. We will reconsider our position based on the new document.

2) We also recommend that EPA deny the request by the Corps to modify its final determination on the Bayou aux Carpes CWA 404(c) since the Corps hasn't finished its alternative engineering designs for the floodwall and gate complex. It would be premature for any action to be taken by EPA at this time.

3) We oppose a process whereby any deficiencies in this IER will be answered sometime in the future - as part of a catchall document. The public must be engaged in one single process which comes to a single conclusion - not a decision process which is segmented and strung out for several years on a specific IER. It is supposed to be an individual environmental report.

4) It appears that this DIER was rushed through without the adequate internal review. This is precisely what we were concerned about with the Alternative Arrangements (USACE, 2007). It appears that expediency was the prime factor - not a thorough evaluation of the environmental impacts and avoidance. It would be a better process if the Corps allowed time for its engineers to carefully design and check its own proposals and then the public could review and comment on a document that was ready rather than one which is incomplete.

Sincerely,



Dr. Barry Kohl  
President, LAC

cc:

Delta Chapter Sierra Club  
Gulf Restoration Network  
National Audubon Society  
National Wildlife Federation  
Tulane Environmental Law Clinic  
Horst Greczmiel, CEQ  
National Wildlife Federation  
National Park Service  
US Fish and Wildlife Service  
National Marine Fisheries Service  
La DNR

**References:**

MacDonald, D.D., C.G. Ingersoll, T.A. Berger, 2000. Development and Evaluation of consensus -based sediment quality guidelines for freshwater ecosystems. Arch. Environmental Contamination and Toxicology, v. 39, p.20-21.

USACE, 1963. Review of reports: Harvey Canal-Bayou Barataria Levee, Louisiana. NO District of USACE , Sept. 20, 1963. Appendix A

USACE, 1971. Harvey Canal-Bayou Barataria Levee, New Levee Phase I. As Built Plans. Gulf Intracoastal Waterway, Jefferson Parish, LA. (provided by Fred Chatry, Chief Engineering Div., to B. Kohl, 2/15/77).

USACE 1977. (Jeff Parish Wetlands) 26, Conditional permit for Lafitte-Larose Highway segment from Estelle to Wagner Ferry Bridge.

USACE 1998. Water Resources Development in Louisiana, 1998. USACE, New Orleans District. 177 pp.

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Pratt / C HAM PRANE

IER # 12 - Appendix B (Transcript)

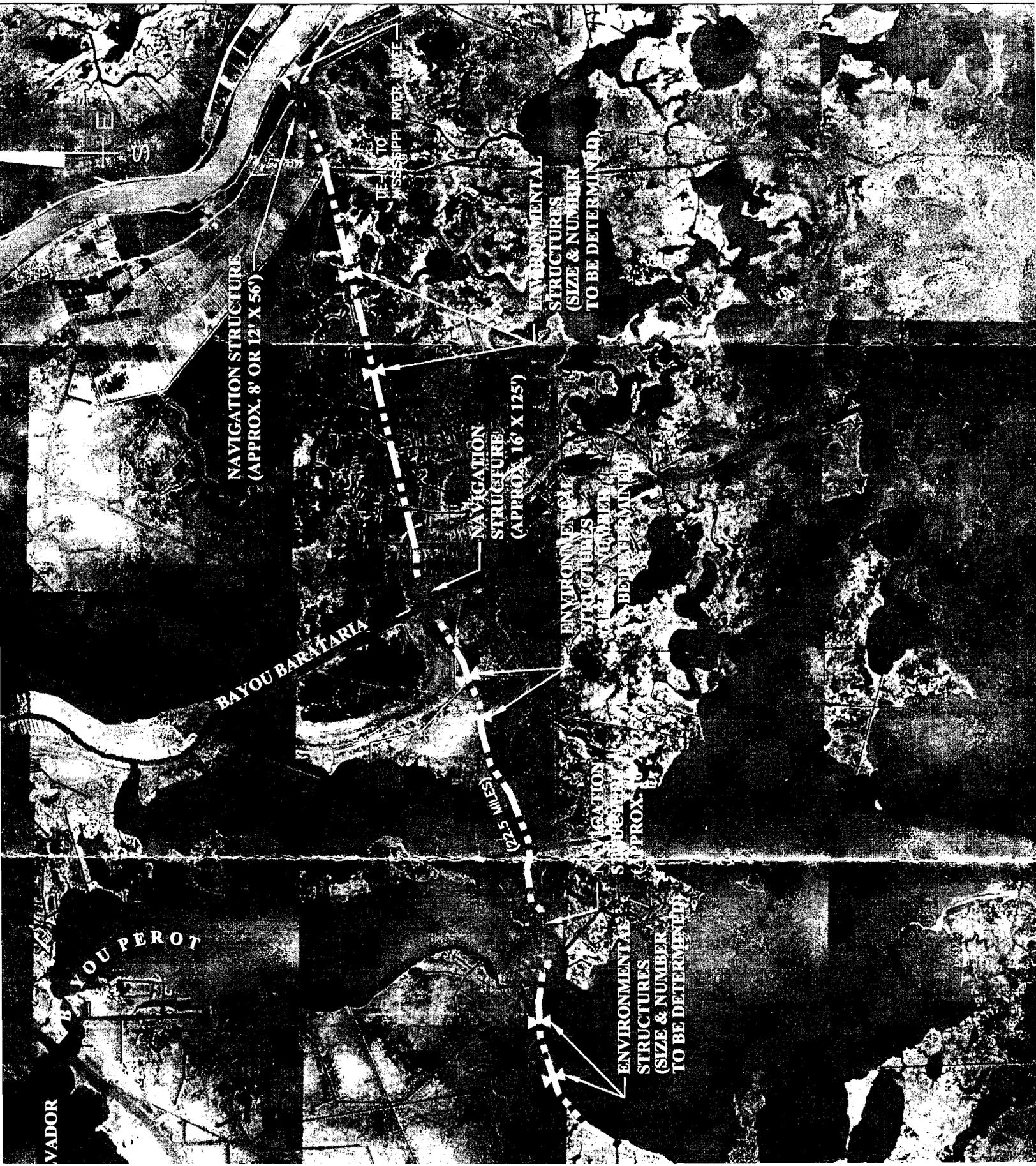
DATE	DESCRIPTION	BY

Shaw Coastal, Inc.

DATE	9/19/04
DESIGNED BY	MAC
SCALE	AS SHOWN
PROJECT	
DESIGN FILE NAME	Figures 2 and 3.dwg
SUBMITTED BY	
PROJECT NUMBER	
PHONE	(985) 868-3434
FAX	(985) 868-8513
ADDRESS	197 ELIZABETH DRIVE WESTMOOR, LA
ADDITIONAL OFFICE IN	

MAIN OFFICE LOCATION:  
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HOUMA, LA 70363  
PHONE: (985) 868-3434  
FAX: (985) 868-8513  
ADDITIONAL OFFICE IN  
WESTMOOR, LA

FIGURE 2  
LOWER ALTERNATIVE



NAVIGATION STRUCTURE  
(APPROX. 8' OR 12' X 56')

NAVIGATION  
STRUCTURE  
(APPROX. 16' X 125')

ENVIRONMENTAL  
STRUCTURES  
(SIZE & NUMBER  
TO BE DETERMINED)

ENVIRONMENTAL  
STRUCTURES  
(SIZE & NUMBER  
TO BE DETERMINED)

ENVIRONMENTAL  
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(SIZE & NUMBER  
TO BE DETERMINED)

LINE TO  
MISSISSIPPI RIVER DYE

BAYOU BARATARIA

5 MILE

BAYOU PEROT

VADOR



## UNITED FOR A HEALTHY GULF

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February 11, 2009

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**RE: DRAFT INDIVIDUAL ENVIRONMENTAL REPORT 12 AND PROPOSED MODIFICATION TO 404(C) ACTION**

Dear Mr. Owen and Ms. Keeler:

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. Please accept the following comments regarding the Army Corps of Engineers' *Draft Individual Environmental Report: GIWW, Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans, and Plaquemines Parishes, Louisiana (IER #12)*, and the *Proposed Modification to the Bayou aux Carpes 404(c) Action*.

While we recognize that the protection of our coastal resources is urgent, we have some comments and concerns about several aspects of IER #12 as it is currently written. These concerns are outlined below:

**1. Public Participation is Not Adequate**

While the public comment period was extended to at least coincide with the public hearing, this is still not adequate. If the public hearing lasts until 9:00 pm, this only allows the public three hours to process and comment upon any information presented by the Corps or other commenters. *Because of this, we request the public comment period be extended to allow for the public to comment upon new information gained at the hearing.*

**Comments RE: IER #12 and Bayou aux Carpes 404(c) modification**

February 11, 2009

Gulf Restoration Network

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**2. Full Avoidance of Bayou aux Carpes 404(c) Must Be Further Analyzed**

We would first like to applaud the Corps for working with us and EPA to develop the proposed alignment, instead of selecting an alignment that would have bisected the Bayou aux Carpes area. It is important that the Corps continue to recognize the importance of this ecologically sensitive area.

However, we feel that the 9.6 acres in the Bayou aux Carpes could be further avoided. On page 49, it is stated that “alternatives that would avoid impacts to that area were considered...this alternative was eliminated from further consideration due to constructability and navigation concerns” because it would “create engineering and construction challenges...” This statement is not supported. The navigation channel is authorized to be 125 feet wide, while the waterway is 400-500 feet wide. The Corps does not demonstrate in this IER why it is not feasible to place the T-wall further out into the waterway. Assuming the channel is in the approximate center of the canal, this would still allow a large buffer between navigation and hurricane protection. Because of this lack of justification and failure to demonstrate the necessity of impacting the 9.6 acres of the Bayou aux Carpes, we request that the moving of the t-wall further out be analyzed in order to further reduce, or even eliminate the wetland impacts. We request that an analysis be done examining moving the flood wall different distances out into the water. Since this would constitute a significant change, the IER should also be re-noticed. Additionally, EPA should not grant a 404(c) modification until it is shown that the Corps thoroughly explored all options for the reduction or elimination of impacts to the 404(c) area.

**3. Wetland Impacts Must be Considered Fully**

While Table 6 on page 63 presents the total direct wetland impacts anticipated, secondary and indirect impacts are not addressed. With increased storm protection comes increased development pressure. In fact the Bayou aux Carpes area was originally going to be drained and developed several years ago. On page 47, the Corps even admits that rezoning “could minimize future damages from new development in flood-prone areas,” thus implying that the surrounding areas very well could be developed given current zoning. This secondary effect must be taken into account. Further, taller and more expansive levees and flood walls have the potential to disrupt the flow of water through wetlands, potentially impacting these wetlands.

In order for this IER to fully address its environmental impacts, secondary and indirect impacts must be accounted for within the report, and slated to be mitigated for, just as direct impacts are.

**Comments RE: IER #12 and Bayou aux Carpes 404(c) modification**

February 11, 2009

Gulf Restoration Network

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Additionally, cumulative impacts are not thoroughly addressed. Acknowledging that cumulative impacts will be discussed fully in the CED, more on cumulative impacts should be included in this IER. In past meetings with the Corps, they have presented a spreadsheet that had current impacts and anticipated impacts. This analysis, or best estimate of cumulative impacts should be included in this and all subsequent IERs

**4. *Augmentation Features Must Be Thoroughly Researched and Planned***

In order for EPA to make a truly informed decision the “augmentation features” must be further designed and studies. The impact to the 404(c) area is partially justified because some augmentation features are being examined, the largest of which would be the gapping of the canal to the north of the area to allow storm runoff to flow through the wetland. A baseline study of at least two years should be done to see if this would indeed augment the area. Given that this water would be urban runoff, which could potentially be carrying high levels of nitrogen and phosphorus, metals, and petroleum products, care must be taken to ensure that this “fresh” water is truly fresh and not too contaminated to cause damage to the wetland over the short and long term.

The operating plan and funds for the augmentation features are also not discussed in this IER. On page 39, it is stated that “modifications to the banks and shell plug in the Bayou aux Carpes CWA Section 404(c) area would not be expected to require [operation and maintenance].” However the monitoring and control of flood structures in the canal would require monitoring, operation, and maintenance for at least several years after they are put into operation. The operation and management of the augmentation features must be addressed and guaranteed for years to come.

We also request if this action proceeds, a contingency plan is written into the project. Specifically if some or all of the augmentation features are not beneficial to the area, more mitigation should be required within or adjacent to the 404(c) area, since part of EPA’s decision depends on the success of these augmentation features.

**5. *Beneficial Use***

It is stated that dredge material will be used beneficially in the “crib” area to build wetlands. This must be detailed more in the IER. Specifically, contaminants and wetland building plans must be further addressed. The dredge materials must be tested for contaminants to ensure that humans *and* wildlife will not be acutely or chronically harmed by any contaminants from industrialized navigation channels. Additionally if contaminated sediment is identified, and it is landfilled, this sediment would probably first be de-watered, which could cause large water quality issues.

**Comments RE: IER #12 and Bayou aux Carpes 404(c) modification**

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Since this would be an obvious environmental impact, the effects of this dewatering of contaminated sediment must be addressed fully in the IER.

Further, a specific plan for wetland creation utilizing dredge material should be detailed in this report. It is not acceptable to defer this to the mitigation IER, as dredge disposal is an integral part of this project. This plan is vital in order to ensure that dredge material is not simply dumped in the crib area, but a plan is followed that will give wetlands the best opportunity for sustainable production.

Also regarding beneficial use, it is stated on page 29 that “overburden material...would be mulched and used on site or hauled away to a landfill.” At a recent meeting we asked why this overburden cannot be used beneficially in wetland creation instead of being hauled to a landfill, and our question was not adequately answered, so we ask again if the Corps looked into this beneficial use of overburden. If so, this information should be in the IER, if not, we formally request that this be explored within this IER.

**6. Non-Structural**

This IER, as well as other IERS that we have reviewed do not adequately address non-structural options to potential projects for the 100 year protection for metro New Orleans. On page 47, it stated that “no combination of non-structural tools could independently achieve the required 100-year level of risk reduction needed to provide hurricane surge protection on the [West Bank and Vicinity] as intended by federal statutes.” However, the question is not “can non-structural tools *eliminate* the need for structural storm protection,” but can it be used in *combination* with structural components to achieve protection that is sustainable and reduces the impact on the natural environment. We feel that the Corps is misinterpreting WRDA. While WRDA states that nonstructural measures can be considered independently or in combination with structural measures (p. 45 of IER #12), the combination of structural and nonstructural is completely ignored.

Additionally, when discussing the “raise in place” option, the IER assumes that all structures would have to be raised, and that each residential structure averages 1,800 square feet. Given that nonstructural and structural can be used together, the assumption that all buildings would have to be raised is a false assumption. Additionally, we request evidence to support the assertion that the average home in this area is 1,800 square feet.

**Comments RE: IER #12 and Bayou aux Carpes 404(c) modification**

February 11, 2009

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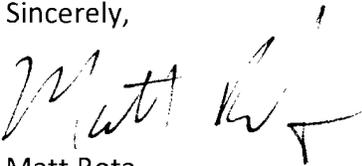
**7. Preliminary Alternatives Screening Table is Not Complete**

Table 3 on page 50 has errors in the key, and thus is not correct. In the table there are checks, dots, and x's, however nowhere in the table is it stated what a check is. This is a very important table, as it is supposed to summarize how each alternative was screened. Without knowing what the symbols are, it is impossible to interpret this table. Given the importance of this table, we request a re-notice of this IER, so we and EPA can be positive that the best option was truly chosen.

Thank you for the opportunity to comment on IER #12 and the 404(c) modification. While we are pleased that the Corps has worked towards avoiding impacts to the 404(c) area, we feel that more could potentially be done to protect the area. Given this, we request that EPA not modify the 404(c) action until IER #12 is truly completed, including the additions that are suggested above.

We trust that the Corps and EPA will take all of the above comments seriously, as they would enhance the project. We look forward to a timely written response. Further, we would welcome the opportunity to meet with the agencies to discuss our concerns.

Sincerely,



Matt Rota

Water Resources Program Director

CC:

John Ettinger, US EPA

Horst Greczmiel, US CEQ

Jill Mastrototaro, Sierra Club

Melissa Samet, American Rivers

Barry Kohl, LA Audubon Council

Jill Witkowski, Tulane Environmental Law Clinic

Mike Murphy, Tulane Environmental Law Clinic

John Lopez, Lake Pontchartrain Basin Foundation

Carlton Dufrechou, Lake Pontchartrain Basin Foundation

Mark Davis, Tulane University

Maura Wood, National Wildlife Federation

Juanita Constable, National Wildlife Federation

Natalie Snider, Coalition to Restore Coastal Louisiana

**Comments RE: IER #12 and Bayou aux Carpes 404(c) modification**

February 11, 2009

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Steven Peyronnin, Coalition to Restore Coastal Louisiana

Paul Kemp, National Audubon Society

Haywood Martin, Delta Chapter Sierra Club.



Haywood R. Martin, Chair  
Sierra Club, Delta Chapter  
400 Glynnedale Ave.  
Lafayette, LA 70506

February 11, 2009

Gib Owen, PM-RS  
U.S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160-0267

Barbara Keeler (6WQ-EC)  
EPA Region 6  
1445 Ross Avenue,  
Dallas, TX 75202-2733

**Re: Combined public hearing on the Draft IER-12, on the modification of CWA Sec. 404(c) determination for Bayou aux Carpes; and hearing on GIWW West Closure Complex.**

The Sierra Club Delta Chapter supports a safe hurricane protection levee for the entire New Orleans area including the west bank of Jefferson Parish. We also support the use of natural systems such as forested and non-forested wetlands to add progressive barriers to storm surges.

We thank EPA and the other resource agencies for recommending to the Corps a change in their original preferred alternative, which was the Southern Closure option. It appears that the proposed alternative would take 9.6 acres of the BAC as opposed the 600 acres of marsh that would have been impacted by the earlier proposal. While this is a large decrease in the taking of wetlands of national significance, we suggest that the Corps can do better. Additional structural changes to the eastern levee and closure complex would avoid any wetland loss to the BAC. The Corps Alternative 2, should be modified to avoid any direct or indirect impacts to the Sec 404(c) wetlands. It appears that there is adequate space to move the structure further into the waterway so as to avoid the 404(c) wetlands.

We are also concerned that any additional information gathered over the one-year baseline study will come after the project has been approved. This includes most of the impacts to the BAC area. Also, the engineering design report for the gates and floodwalls has not been completed. The DIER states that a Draft Comprehensive Environmental Document (CED) "will contain updated information for any IER that had incomplete or unavailable data at the time it was posted for public review." It appears that potentially critical information will not be available at the time the IER is approved and construction commences. The list of inadequacies admitted by the Corps shows that this document should not have been released until the Corps had time to finish its work and a complete IER prepared for public and agency review.

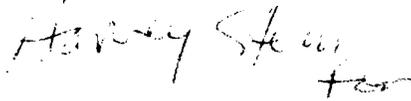
IER # 12 - Appendix B (Transcript)

We are informed that the Bayou aux Carpes 404(c) area will be included within the Jean Lafitte National Historical Park and Preserve this year. Senate bill S. 22 has passed the US Senate and it is expected to pass the House soon. This provides significant additional importance to the protection of the BAC as, a 404(c) area and as part of the Barataria Preserve of the National Park.

Because there are still important data omitted from the draft document, we request that a revised/amended IER be prepared and circulated to the public and resource agencies for review. We are formally requesting that IER-12 be amended to include omitted information, and full responses to the public/agency comments on the DIER-12

In conclusion, we oppose Alternative 2, the preferred alignment, as presented in the DIER-12. We request the Corps do an amended IER containing new designs and supportive data, and we strongly recommend that EPA deny the request by the Corps to modify its final determination on the Bayou aux Carpes CWA 404(c). Furthermore we request that the comment period be extended so that all interested parties have adequate time to prepare substantive comments.

Thank you,

A handwritten signature in black ink, appearing to read "Haywood Martin". The signature is written in a cursive style and is positioned above the printed name.

Haywood Martin, Chair  
Sierra Club Delta Chapter

cc: Louisiana Audubon Council

**Appendix C: Members of Interagency Environmental Team**

Kyle Balkum	Louisiana Dept. of Wildlife and Fisheries
Elizabeth Behrens	U.S. Army Corps of Engineers, MVN
Agaha Brass	Louisiana Department of Natural Resources
Catherine Breaux	U.S. Fish and Wildlife Service
David Castellanos	U.S. Fish and Wildlife Service
Frank Cole	Louisiana Department of Natural Resources
Getrisc Coulson	U.S. Army Corps of Engineers, MVN
John Ettinger	U.S. Environmental Protection Agency
Mandy Green	LDNR Coastal Protection and Restoration Authority
Jeffrey Harris	Louisiana Department of Natural Resources
Richard Hartman	NOAA National Marine Fisheries Service
Jeffrey Hill	NOAA National Marine Fisheries Service
Christina Hunnicutt	U.S. Geologic Survey
Barbara Keeler	U.S. Environmental Protection Agency
Kirk Kilgen	Louisiana Department of Natural Resources
Tim Killeen	Louisiana Department of Natural Resources
Brian Lezina	Louisiana Dept. of Wildlife and Fisheries
Lissa Lyncker	U.S. Army Corps of Engineers, MVN
Brian Marcks	Louisiana Department of Natural Resources
Ismail Merhi	LDNR Coastal Protection and Restoration Authority
David Muth	U.S. National Park Service
Elizabeth Nord	U.S. Army Corps of Engineers, MVN
Gib Owen	U.S. Army Corps of Engineers, MVN
Clint Padgett	U.S. Geologic Survey
Jamie Phillipe	Louisiana Dept. of Environmental Quality
Molly Reif	U.S. Geologic Survey
Manuel Ruiz	Louisiana Dept. of Wildlife and Fisheries
Renee Sanders	LDNR Coastal Protection and Restoration Authority
Angela Trahan	U.S. Fish and Wildlife Service
Lee Walker	U.S. Army Corps of Engineers, MVN
David Walther	U.S. Fish and Wildlife Service
Lauralee Wilkinson	U.S. Army Corps of Engineers, MVN
Patrick Williams	NOAA National Marine Fisheries Service



## United States Department of the Interior



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

June 25, 2008

Robert H. Boudet  
Senior Project Manager  
Aerostar Environmental Services  
4640 S. Carrollton Ave  
Suite 160  
New Orleans, LA 70119

Subject: Individual Environmental Report (IER) – 12  
United States Army Corps of Engineers (USACE)  
Harvey-Algiers Canal and the GIWW  
Jefferson, Orleans and Plaquemines Parish, Louisiana

Dear Mr. Boudet:

Please reference your June 6, 2008, letter requesting our review of the Harvey-Algiers Canal and the GIWW project located in Jefferson, Orleans, and Plaquemines Parishes, Louisiana. The U.S. Fish and Wildlife Service (Service) has reviewed the information you provided, and offers the following comments in accordance with the Endangered Species Act 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.).

Our records indicate that no federally listed threatened or endangered species presently occur within the proposed project area. Therefore, no further consultation will be required unless there are changes in the scope or location of the project, or construction has not been initiated within one year. If the proposed projects have not been initiated within one year, follow-up consultation should be accomplished with this office prior to making expenditures for construction. If the scope or location of the proposed work is changed, consultation should occur as soon as such changes are made.

The proposed project is not located within a wilderness area/preserve but in an area that was subject to an Environmental Protection Agency (EPA) Final Determination under the Clean Water Act (CWA) Section 404(c) in 1985. According to the EPA Final Determination, the discharge of any dredged or fill material within the approximately 3200 acre site, referred to as the Bayou aux Carpes 404(c) area, is restricted. The EPA action allowed for three specific exceptions, none of which appears to apply to the Corps' current hurricane protection proposal. Previous requests which have



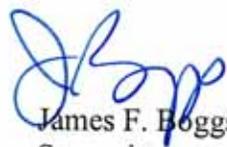
fallen outside those exceptions have been denied by EPA as being contrary to the CWA 404(c) determination. One such categorical denial prohibited the Corps from altering the alignment of the West Bank Hurricane Protection Levee such that it would encroach upon the Bayou aux Carpes 404(c) area.

The EPA 404(c) action was intended as an advance notification to the public and agencies of the government's determination under the CWA Section 404 for the area, in the sense of planning and coordination. In light of this existing determination, we would expect the NEPA work on the portion of the levee forming the 404(c) boundary to thoroughly evaluate the range of feasible alternatives and their environmental impacts, as well as documenting the Corps' legal and regulatory authority for any alternative that would entail impacts to the Bayou aux Carpes 404(c) area.

The Bayou aux Carpes 404(c) is one of only 11 such actions ever completed by EPA. Approximately 2,800 acres within the site are in Federal ownership and Congress is considering legislation to adjust the boundary of the Barataria Preserve within the Jean Lafitte National Historical Park and Preserve to include the Bayou aux Carpes. In the meantime, the National Park Service (NPS) has constructive possession of the area. Therefore, the Corps should contact both the NPS (Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov))) and EPA (Ms. Barbara Keeler, 214/665-6698) regarding any proposed project feature that may impact that area.

The above findings and recommendations constitute the report of the Department of the Interior. Please contact David Walther (337/291-3122) or Angela Trahan (337/291-3137) of this office if additional information is needed.

Sincerely,



James F. Boggs  
Supervisor  
Louisiana Field Office

cc: EPA, Dallas, TX  
LDWF, Baton Rouge, LA  
Jean Lafitte National Historical Park

**BOBBY JINDAL**  
GOVERNOR



**SCOTT A. ANGELLE**  
SECRETARY

**State of Louisiana**  
**DEPARTMENT OF NATURAL RESOURCES**  
**OFFICE OF COASTAL RESTORATION AND MANAGEMENT**

December 17, 2008

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

**RE: C20080483, Coastal Zone Consistency**  
**U. S. Army Corps of Engineers, New Orleans District**  
Direct Federal Action  
IER #12, West Bank and Vicinity, GIWW, Algiers, and Harvey Canals Hurricane  
Protection, **Jefferson and Plaquemines Parishes, Louisiana**

Dear Ms. Wiggins:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this determination please contact Brian Marcks of the Consistency Section at (225) 342-7939 or 1-800-267-4019.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Jim Rives".

Jim Rives  
Administrator

JR/JDH/bgm

cc: Dave Butler, LDWF  
Getrise Coulson, COE-NOD  
Albertine Kimble, Plaquemines Parish  
Marnie Winter, Jefferson Parish  
Barbara Keeler, USEPA, Dallas  
Frank Cole, CMD FI  
Ismail Mehri, LACPRA



**BOBBY JINDAL**  
GOVERNOR

**HAROLD LEGGETT, PH.D.**  
SECRETARY

**State of Louisiana**  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
ENVIRONMENTAL SERVICES

DEC 16 2008

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

Attention: Gigi Coulson

RE: Water Quality Certification (WQC 080825-02/AI 160206/CER 20080001)  
Individual Environmental Report (IER) #12  
West Bank & Vicinity, GIWW, Harvey & Algiers Canals  
Jefferson & Plaquemines Parishes

Dear Ms. Coulson:

The Department has reviewed your application for a 401 Water Quality Certification for the construction of the GIWW, Harvey & Algiers Canals hurricane protection levee, in the vicinity of Belle Chasse, Louisiana in Jefferson & Plaquemines Parishes.

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

Sincerely,

A handwritten signature in black ink, appearing to read "T. F. Harris".

Thomas F. Harris  
Administrator  
Waste Permits Division

TFH/jjp



## United States Department of the Interior



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

January 20, 2009

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

Dear Colonel Lee:

Please reference the U.S. Army Corps of Engineers' (Corps) draft Individual Environmental Report (IER) # 12, titled "West Bank and Vicinity (WBV), Gulf Intracoastal Waterway (GIWW), Harvey, and Algiers Levees and Floodwalls, Jefferson, Orleans and Plaquemines Parishes." The draft IER was transmitted via a January 5, 2009, letter from Ms. Elizabeth Wiggins, Chief of your Environmental Planning and Compliance Branch. The U.S. Fish and Wildlife Service (Service) submits the following comments in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321 et seq.).

The draft IER provides an adequate description of fish and wildlife resources in the study area, the purpose and need for the proposed action, and the potential impacts associated with each alternative. We commend the Corps efforts to investigate all of the concerns put forth by the natural resource agencies within the expedited environmental analysis period.

During the alternatives analysis, the no-action alternative and the alternative to raise the existing Hurricane Protection System to a 100-year level of protection were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection to the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins. The Corps also considered a series of alternative gate locations within the project area that would minimize the need for parallel protection. One of these alternatives included constructing a sector gate across the Environmental Protection Agency (EPA) Clean Water Act (CWA) Bayou aux Carpes 404 (c) area. That alternative was considered to have significant impacts to fish and wildlife resources and the EPA CWA, Section 404 (c) designated wetlands.

The preferred alternative would include construction of navigable floodgate and ancillary structures on the Gulf Intracoastal Waterway (GIWW) south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the V-levee would be raised to



the 100-year level of protection. Approximately 4,200 linear feet of floodwall would be constructed within a 100-foot-wide right-of-way along the periphery of the GIWW and the EPA CWA Bayou aux Carpes 404 (c) area to connect the proposed GIWW navigable floodgate with the existing flood protection system. Existing levees and floodwalls along Algiers and Harvey Canals will be incorporated into the protected side of the closure complex and would be integrated as features of the parallel protection system detention basin. Expansions of existing rights-of-way along several levee reaches would occur as a result of bringing those existing levees up to authorized levels of protection in order to provide necessary storm water retention during major storm events. To ensure habitat functions of the EPA CWA Bayou aux Carpes 404 (c) area are maintained, the proposed action includes several environmental augmentations along the Old Estelle pump station outfall canal and within the Bayou aux Carpes drainage area which will provide sheet flow and hydrologic exchange into, and within, the EPA CWA Bayou aux Carpes 404(c) area.

Due to the urgency of providing storm damage risk reduction to the Greater New Orleans area the design of the preferred alternative is not final. The Service and the Corps have evaluated the footprint of greatest impact to ensure that the IER addresses all potential impacts to forested and other fish and wildlife habitats. Based on the Service's analysis of the existing conditions within the proposed footprint, implementation of the preferred alternative would directly impact 252 acres of hydrologically-altered bottomland hardwood habitat, 2.4 acres of wet bottomland hardwood habitat, and approximately 75 acres of swamp habitat. The preferred alternative would result in the direct loss of 179.2 and 38.5 average annual habitat units (AAHUs), of bottomland hardwood forest and swamp, respectively. According to our Habitat Assessment Methodology (HAM) and Wetland Value Assessment (WVA) analyses, of those impacts approximately 2.4 acres of wet bottomland hardwood and 7.4 acres of swamp habitat (i.e., total of 9.8 acres) occur within the Bayou aux Carpes 404 (c) area along the GIWW interface.

The Service calculated the acreage of potential impacts to forested and other fish and wildlife habitat using 2005 aerial photography and proposed rights-of-way provided by the Corps. The proposed right-of-way within the EPA CWA Bayou aux Carpes 404(c) area encompasses an area 4,200 feet long by 100 feet wide and is positioned along the periphery of the EPA CWA Bayou aux Carpes 404(c) area. According to the draft IER the innovative T-wall constructed within this right-of-way would be fronted by a protective berm and access road which would be positioned along the waterline further impacting any remaining habitat outside and waterward of the proposed right-of-way (0.2 acres, according to 2005 aerial photography). The Service's habitat assessment, therefore, evaluated those additional impacts. We compared the proposed right-of-way to recently obtained 2007 aerial photography. That evaluation corresponded with the Corps' impact assessment within the EPA CWA Bayou aux Carpes 404(c) area (i.e., 9.6 acres). The Service will address these revised impacts in our final Fish and Wildlife Coordination Act Report.

### **Specific Comments**

2.3, Proposed Action, Table 1: Proposed Action Components, Page 25 – According to the

proposed right-of-way provided by the Corps for our HAM analyses, approximately 7 acres of bottomland hardwood habitat and 64 acres of pasture land would be temporarily impacted by two proposed staging areas. We recommend revising the table to include those impacts and provide a discussion within the wetland impacts section (3.2.1.2.2.2) of the IER. Moreover, proposed staging areas allowed to revert back to a hardwood forest after construction is complete will likely be dominated by the exotic Chinese tallowtree for part of the project life. Therefore, bottomland hardwood habitat temporarily impacted by the proposed project, including those staging areas, should be managed to control invasive species, specifically Chinese tallowtree.

2.3, Detention Basin Improvements, Page 32 – The goal of the detention basin is to provide rainwater detention during a storm event when the proposed hurricane protection system south of the confluence of the Algiers and Harvey Canals is closed. The Service questions the need to improve the existing levees which would make up that detention basin to a hurricane design level comparable to 100-year level of risk reduction. For clarification please provide a reference with regards to the Corps’ standards and the requirements needed to achieve Federal factors of safety specifically for the detention basin.

3.2.1.2.2 Proposed Action, Table 6: Proposed Action (WCC) Wetland Impacts form WVA (acres), Page 63 – We recommend revising the table to include proposed impacts to 6.9 acres of bottomland hardwood associated with the staging area north of the closure complex and levee and road realignment. Also, under habitat type indicate that the 63.6 acre staging area is pasture.

3.2.1.2.2.2 Specific Wetland Impacts Due to the Proposed Action, Northern Levee..., Page 65, second paragraph – The second sentence should be revised to indicate that the entire northern section would directly impact 5.8 acres of forested habitat.

3.2.3.2.1 No Action, Page 74 – We recommend omitting “non-wet” when referencing “uplands.”

3.2.3.2.2 Proposed Action, Page 74 – This section states that “implementation of the proposed action would not directly impact any upland habitats.” Impacts to upland habitat are likely to be associated with the levee realignment within the closure complex and with upgrading/improving the existing levee alignment for the proposed detention basin. This section should be revised to address those potential impacts.

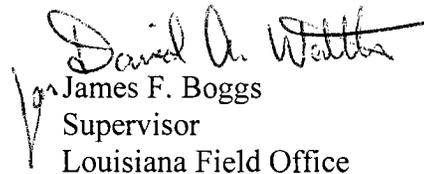
3.2.6.2.2.2 Specific Fisheries Impacts Due to the Proposed Action, Page 82, first paragraph – It appears that the word “not” was inadvertently omitted from the first sentence. Revise accordingly.

Please be advised construction within the Bayou aux Carpes CWA Section 404 (c) area should not commence until the EPA’s decision to modify the designation to accommodate discharges into that area has been resolved. Furthermore, Congress is considering legislation to adjust the boundary of the Jean Lafitte National Historical Park and Preserve (NHPP), Barataria Preserve Unit to include the Bayou aux Carpes CWA Section 404 (c) area. In the meantime, the National Park Service (NPS) has constructive possession of the area. Therefore, the Corps should continue to coordinate with both the NPS and EPA regarding any proposed project feature that

may impact that area. For the NPS please contact Superintendent, David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)), or Chief of Resource Management, David Muth, (504) 589-3882 extension 128 ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)). For the EPA please contact Ms. Barbara Keeler, 214/665-6698.

The Service appreciates the opportunity to comment on the draft IER, and we look forward to continuing coordination with the Corps and the other natural resource agencies to develop a feasible hurricane protection project for this region in a timely manner. If your staff has additional questions regarding our comments, please contact Angela Trahan at (337) 291-3137.

Sincerely,

  
James F. Boggs  
Supervisor  
Louisiana Field Office

cc: EPA, Dallas, TX  
FWS, Atlanta, GA (ES/HC)  
Jean Lafitte NHPP, New Orleans, LA (Attn: Mr. David Luchsinger)  
Jean Lafitte NHPP, New Orleans, LA (Attn: Mr. David Muth)  
NMFS, Baton Rouge, LA  
Corps, New Orleans, LA (Attn: Mr. Gib Owen, CEMVN-PM-RS)  
LDWF, Baton Rouge, LA



# ALABAMA-COUSHATTA TRIBE OF TEXAS

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

January 22, 2009

Gib Owen  
U.S. Army Corps of Engineers  
CEMVN-PM-RS  
P.O. Box 60267  
New Orleans, LA 70160-0267

Dear Mr. Owen:

On behalf of Chief Oscola Clayton Sylestine and the Alabama-Coushatta Tribe, our appreciation is expressed on your agency's efforts to consult us concerning the Individual Environmental Report (IER) #12, "West Bank and Vicinity, Gulf Intracoastal Waterway, Harvey, and Algiers Levees and Floodwalls" for Jefferson, Orleans and Plaquemines Parishes.

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

Upon review of the January 5, 2009 IER #12 submitted to our Tribe, no impact to religious, cultural, or historical assets of the Alabama-Coushatta Tribe of Texas should occur due to the absence of corroborating evidence from recent cultural resource investigations. Therefore, we have no objections to the proceeding of this proposal.

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

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Bryant J. Celestine".

Bryant J. Celestine  
Historic Preservation Officer

IER # 12 - Appendix G



BOBBY JINDAL  
GOVERNOR

## State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES  
OFFICE OF WILDLIFE

ROBERT J. BARHAM  
SECRETARY

JIMMY L. ANTHONY  
ASSISTANT SECRETARY

January 26, 2009

Mr. Pete J. Serio, Chief  
Regulatory Branch  
United States Army Corps of Engineers  
P. O. Box 60267  
New Orleans, LA 70160-0267

RE: *Draft of Individual Environmental Report # 12 (IER # 12) and related Clean Water Act (CWA) Section 404 public notice*  
*Public Notice Date: January 05, 2009*

Dear Mr. Serio:

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

During the detailed planning and construction phases, effort should be made to reduce wetland impacts, especially those impacts affecting higher quality wetlands. When practicable, access and construction activity should occur from existing waterways, and temporary workspaces and access roads should be minimized.

The impoundment of wetlands should be avoided; however, where impounding is unavoidable, measures aimed at maintaining hydrologic connections and natural flow regimes shall be taken. To this end, flood protection and control structures should be designed for operational flexibility and when deemed beneficial, control structures should remain open except when a risk of flooding exists.

LDWF would like to remain part of any Bayou aux Carpes management plan development, as well as have opportunity to review any modifications, and additional impacts. The department would also like involvement in any further detailed planning of project features and to be granted an opportunity to review and submit recommendations on such.

Additionally, the Corps shall provide adequate and appropriate mitigation for any additional unavoidable impacts to wetland functions.

Page 2

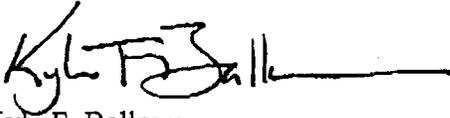
IER # 12 - Appendix G

*Draft of Individual Environmental Report # 12 (IER # 12)*

January 26, 2009

The Louisiana Department of Wildlife and Fisheries appreciates the opportunity to review and provide recommendations to you regarding this proposed activity. Please do not hesitate to contact Habitat Section biologist Matthew Weigel at 225-763-3587 should you need further assistance.

Sincerely,



Kyle F. Balkum  
Biologist Program Manager

mw

c: Matthew Weigel, Biologist  
EPA Marine & Wetlands Section  
USFWS Ecological Services



Appendix G

**UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701

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

Mr. Gib Owen  
Environmental Planning and Compliance Branch  
Planning, Programs, and Management Division  
New Orleans District, U.S. Army Corps of Engineers  
Post Office Box 60267  
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the draft **Individual Environmental Report (IER) #12** transmitted by letter from Ms. Elizabeth Wiggins dated January 5, 2009. The draft IER evaluates and quantifies the impacts associated with providing 100-year level of hurricane protection through the construction of the Gulf Intracoastal Waterway West Closure Complex.

NMFS staff has previously concurred with U.S. Fish and Wildlife Service's (FWS) recommendations on IER #12 outlined in the Fish and Wildlife Coordination Act Report. We find the recommendations provided previously to the New Orleans District by FWS have been adequately incorporated into the document. As such, we have no comments to provide on the draft IER #12.

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

Sincerely,

*for*

Miles M. Croom  
Assistant Regional Administrator  
Habitat Conservation Division

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





IER # 12 - Appendix G  
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

FEB -5 2009

Mr. Gib Owen  
Environmental Planning and Compliance Branch  
Planning, Programs, and Project Management Division  
U.S. Army Corps of Engineers  
Post Office Box 60267  
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

We offer this letter as documentation of our review of the January, 2009 Draft Individual Environmental Report (DIER) # 12, prepared by the U.S. Army Corps of Engineers (Corps) to evaluate the projected impacts from constructing and operating a series of upgraded and new 100-year flood protection measures for the Harvey and Algiers segment of the Mississippi River West Bank and Vicinity Hurricane and Storm Damage Risk Reduction System (HSDRRS) in Louisiana. Though DIER # 12 represents the Corps' public disclosure requirements in accordance with the National Environmental Policy Act (NEPA), it is not presented as a typical NEPA document. Rather, it has been prepared according to alternative provisions of the Council on Environmental Quality. Accordingly, our review of the draft NEPA document is a bit atypical in that it has been prepared while important data and decisions are still forthcoming.

This review represents a significant milestone in the extensive coordination between the Environmental Protection Agency (EPA) and the Corps on this project. The EPA focus for this section of the larger HSDRRS project is the Bayou aux Carpes Clean Water Act (CWA) Section 404(c) area in Jefferson Parish. EPA has a long record of protecting these wetlands, dating back to the early 1970's and culminating in the 1985 decision to restrict the discharge of dredged and fill material.

Section 404(c) of the CWA authorizes EPA to restrict or prohibit the use of a wetland area as a disposal site for dredged or fill material if the discharge will have unacceptable adverse effects on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. In over three decades since this authority has existed, EPA has finalized only 12 such CWA Section 404(c) actions. Together, those few actions have protected the ecologically significant functions and values of over 73,000 acres of wetlands.

The Bayou aux Carpes CWA Section 404(c) site lies in the upper Barataria basin within the Mississippi deltaic plain, an area experiencing some of the highest historic rates of coastal wetland loss in the county and on a worldwide basis. This region experienced a spike in wetland loss and degradation as a result of hurricanes over the last several years. The Bayou aux Carpes

Letter to Mr. Gib Owen  
U.S. Army Corps of Engineers  
Page 2 of 4

site, however, has weathered the storms and other natural and human-induced forces, existing today as a unique and productive wetland system, providing ecological, flood storage, and water quality benefits. The approximately 3,000 acres of wetlands within the Bayou aux Carpes CWA Section 404(c) site are currently owned by the federal government and legislation has been proposed which would incorporate them into the Jean Lafitte National Historic Park and Preserve. There is no doubt that these wetlands represent a regional and national asset.

It is within this landscape that the Corps has been charged with developing a set of alternatives to provide additional storm protection for the people of the west bank of the Mississippi River, as well as for residential and commercial properties in the greater New Orleans metropolitan area. Hurricanes Katrina and Rita were the impetus for supplemental federal appropriations passed by Congress in the several years following the hurricanes of 2005.

In an effort to reconcile the potentially conflicting goals of increased flood protection and ecological protection, the New Orleans District of the Corps and EPA Region 6 have worked closely together and with other federal partners, State and local agencies, and many stakeholders in an effort to understand fully the possibilities for accommodating these serious needs. Seeing no acceptable option but to recommend flood control measures which would have adverse environmental impacts on the Bayou aux Carpes CWA Section 404(c) wetlands, the Corps has asked EPA to modify the 1985 CWA Section 404(c) determination to allow the construction of a berm and floodwall in an area disturbed by dredged material discharges predating the EPA designation.

The portion of the construction area within the Bayou aux Carpes CWA Section 404(c) site in the proposed alternative, described in DIER # 12 as the GIWW West Closure Complex, is located along the west bank of the Gulf Intracoastal Waterway (GIWW), or Bayou Barataria, from its junction with the Old Estelle Pumping Station Outfall Canal to a point at which the Corps proposes to construct a sector gate across the GIWW. As described in the Corps' modification request to EPA (letter dated November 4, 2008) and in DIER # 12, the berm, floodwall, and associated features would rise up to 14 to 16 feet high and would occupy an area no greater than 4,200 linear feet by 100 linear feet. No more than ten acres of wetlands in the Bayou aux Carpes CWA Section 404(c) site would be affected and other design and construction features have been incorporated to minimize further the impacts to these wetlands.

The proposed GIWW West Closure Complex alternative is one of two alternatives presented which would entail adverse impacts to the Bayou aux Carpes CWA Section 404(c) area. Of those two, we agree that the potential impacts associated with the proposed action are far less significant. EPA has not yet, however, decided whether the existing Bayou aux Carpes CWA Section 404(c) determination will be modified to allow the discharges which would cause those impacts.

The second alternative involving impacts to the CWA Section 404(c) site is presented in DIER # 12 as the "Southern Closure Complex." This design plan would include a new 3,000 foot-long floodwall, bisecting the Bayou aux Carpes CWA Section 404(c) area. Early in the planning process, EPA Region 6 notified the Corps of our determination that this option would present irreparable environmental impacts, most likely resulting in the loss of over 600 acres of

Letter to Mr. Gib Owen  
U.S. Army Corps of Engineers  
Page 3 of 4

unique flotant marsh wetlands, and would not be in compliance with the provisions of the 1985 Bayou aux Carpes CWA Section 404(c) determination.

The "No Action" alternative affords the greatest level of protection to all environmental features within the planning segment covered by DIER # 12, including the Bayou aux Carpes CWA Section 404(c) area. While both the Algiers Gate and the Parallel Protection alternatives would avoid impacts to the Bayou aux Carpes Section 404(c) area, there would be environmental impacts to other areas of the flood protection planning segment covered by DIER # 12.

Based on the Corps' recommendations regarding the relative flood protection benefits, social and economic costs, as well as the hydrologic, engineering, and navigation constraints, the GIWW West Closure Complex and the Southern Closure Complex alternatives were initially subjected to the greatest level of environmental analysis by our staff. Having reached agreement with the Corps that impacts from the Southern Closure Complex would present serious roadblocks to project implementation, we have since largely focused on the design features of the GIWW West Closure Complex alternative.

We have provided guidance on avoiding and minimizing the impacts to the Bayou aux Carpes CWA Section 404(c) site from the GIWW West Closure Complex alternative and we are continuing to evaluate the possibilities for minimizing and mitigating those impacts. In addition, we are working with an interagency team to evaluate an array of other features that might provide environmentally beneficial hydrologic and habitat impacts. Also, the alternative NEPA procedures developed for the HSDRRS include a provision for a cumulative impact assessment to be published as one of the last pieces in the NEPA documentation process. For these reasons and others explained above, we are not currently able to offer a final evaluation of the full range of impacts associated with the proposed GIWW West Closure Complex alternative.

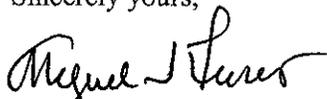
The Corps is currently gathering baseline data to evaluate potential wetland mitigation options and other project features to improve the existing hydrology of the Bayou aux Carpes area, as well as developing a long-term monitoring plan for the CWA Section 404(c) site. The Corps has committed to constructing those additional features if the analyses indicate that they would be ecologically beneficial. Discharges of dredged or fill material associated with such construction would require no additional modification to the CWA Section 404(c) designation, which contains an exception for approved habitat enhancement projects.

In the meantime, EPA is undertaking a review of the Corps' request to modify the 1985 Bayou aux Carpes CWA Section 404(c) determination. Our decision in that matter will be a key factor in determining whether the Corps may proceed with the recommended GIWW West Closure Complex alternative. As a part of our review of the Corps' request, we are soliciting public comments and will conduct a public hearing on the matter on February 11, 2009 (74 FR 2072, January 14, 2008). After considering all comments submitted, the ecological recommendations of other resource agencies, and the technical evaluations of our staff, EPA Region 6 will transmit to the EPA Office of Water in Washington, D.C., a written recommendation on whether the CWA Section 404(c) modification request should be granted or denied. The Assistant Administrator for Water will make the final decision and publish a notice of its availability in the Federal Register.

Letter to Mr. Gib Owen  
U.S. Army Corps of Engineers  
Page 4 of 4

We recognize the need to balance flood control and environmental protection in south Louisiana and we have seen that these goals do not necessarily have to be exclusive. We have strived diligently to work with your staff and the interagency evaluation team on the HSDRRS project to protect the quality of the unique human environment of coastal Louisiana. Please do not hesitate to let us know if there is any way we can provide additional assistance. If you have any questions or wish to discuss this matter further, please contact Barbara Keeler at (214) 665-6698.

Sincerely yours,



Miguel I. Flores  
Director  
Water Quality Protection Division

Enclosure

cc: U.S. Fish and Wildlife Service  
Lafayette, LA

NOAA National Marine Fisheries Service  
Baton Rouge, LA

Louisiana Department of Natural Resources  
Baton Rouge, LA

Louisiana Department of Wildlife and Fisheries  
Baton Rouge, LA



MITCHELL J. LANDRIEU  
LIEUTENANT GOVERNOR

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

PAM BREAU  
SECRETARY

August 1, 2008

Ms. Elizabeth Wiggins  
Chief, Environmental Planning and Compliance Branch  
Department of the Army  
New Orleans District, Corps of Engineers  
P.O. Box 60267  
New Orleans, Louisiana 70160-0276

Re: Reconnaissance CRM Management Summary  
LA Division of Archaeology Report No. 22-3134  
*Management Summary: Reconnaissance Survey  
of the Belle Chasse to Harvey Westwego Segment  
(IER #12), West Bank and Vicinity Hurricane  
Protection Levee, Jefferson, Orleans, and Plaquemines  
Parishes, Louisiana  
Coastal Environments, Inc.*

Dear Ms. Wiggins:

We acknowledge the receipt of your letter dated July 7, 2008, and two copies of the above- referenced report. We have completed our review of the report and offer the following comments.

The management summary of this 6,000-acre (ac) reconnaissance survey is detailed in the description of the methodology and results for the identified high probability areas (134.5 ac). It is our understanding, based on the management summary, transmittal letter, and July 30, 2008, phone conversation with Mike Swanda that the majority of the APE was not subject to archaeological survey due to the disturbed nature of the landscape. The majority of the Area of Potential Effects (APE) has been subject to severe land disturbance activities including levee construction, canal and borrow excavation, residential and commercial development, and road construction. At this time, we concur with the management summary findings that within the identified high and low probability areas of the Area of Potential Effects (APE) no historic properties will be affected by the proposed project.

Please review the enclosed technical comments and photocopied pages with comments or corrections noted. We request that you make adjustments, as appropriate, in the subsequent report for this project. If you should have any questions please contact Stacie Palmer in the Division of Archaeology by email at [spalmer@crt.state.la.us](mailto:spalmer@crt.state.la.us) or by phone at (225) 342-5737.

Sincerely,

Robert Collins  
Deputy State Historic Preservation Officer

Ms. Elizabeth Wiggins  
August 1, 2008  
Page 2

RC:SP:s

Enclosures: as stated

Cc: David Kelley  
Coastal Environments, Inc.  
1260 Main St.  
Baton Rouge, LA 70802

Technical Comments:

1. Please include a title page, abstract, table of contents, list of figures, and list of tables.
2. Introduction – Please include a description of the disposition (temporary and final) of field notes, maps, photographs, etc.
3. Environmental Setting – Please discuss the potential for buried deposits within the APE.
4. Previous Investigations – Please clearly state which surveys have been conducted within the APE.
5. Previous Investigations – The Gagliano Survey (1975) conducted within the APE needs to be identified on the map.
6. Previous Investigations – Are all the surveys discussed located within 1 mile of this particular portion of IER 12 or are they for the entire IER 12?
7. Please include a copy of the Scope of Work referred to in the transmittal letter, as an appendix to the management summary.
8. It would be helpful if a large format map could be provided of the APE and the associated 27 items listed in Table 1 to see where these items are in relation to the high probability areas that were surveyed.
9. Methodology – Include a description of the bank line survey (including probing); auger testing and pedestrian survey carried out within the identified high probability areas.
10. Methodology – Clearly state why the low probability areas were not subject to archaeological survey.
11. Results – Clearly state the number of acres surveyed in each area (A, B, C and Gate Option) and the number of shovel test pits excavated in each area.

22-3134  
Recon Survey (MS)  
Noncirculating Copy  
LA Division of Archaeology

CONTRACT NO. W91ZP8-07-D-0041  
DELIVERY ORDER No. 0001



U.S. Army Corps  
of Engineers

New Orleans District

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**MANAGEMENT SUMMARY:  
RECONNAISSANCE SURVEY OF THE  
BELLE CHASSE TO HARVEY-  
WESTWEGO SEGMENT (IER 12),  
WEST BANK AND VICINITY  
HURRICANE PROTECTION LEVEE,  
JEFFERSON, ORLEANS, AND PLAQUEMINES  
PARISHES, LOUISIANA**

June 2008

Coastal Environments, Inc.  
1260 Main Street  
Baton Rouge, Louisiana

*WMO in file  
another ?  
Please include  
in file page*

---

Prepared for:

New Orleans District  
U. S. Army Corps of Engineers  
New Orleans, Louisiana

None of  
 these are  
 shown on  
 Figure 1.

modifications to nine pump stations (Figure 1). This includes 27 items, listed in Table 1. CEMVN is undertaking these improvements in order to protect the portions of the Greater New Orleans Area situated on the Mississippi River's right descending bank from storm surges associated with tropical weather events. The scope of work for the Belle Chasse-Westwego Segment calls for a 500 ft (152 m) survey corridor on both the flood and protected sides of the levee centerline, for a total of 3757.6 ac (1520.6 ha) within the primary alternative route (Alternative 1). An Alternative 1B would fill in the Estelle Outfall Canal from the Old Estelle Pump Station east to Bayou Baratavia, building a levee over this fill, adding another 171.2 ac (69.2 ha) to the total. Three additional alternates, identified as Southern Closure Options 1 to 3, are found near the western terminus, covering an additional 1037.5 ac (419.9 ha) of wetlands. The so-called Gate Option is another alternate, consisting of a floodgate and levee/canal system at the southern end of the Belle Chasse-Westwego levee (Figure 2). This option, and three alternates associated with it, cover an additional 1019.4 ac (412.5 ha) of marsh, cypress swamp, and drained wetlands. The total Area of Potential Effects for the levee segment is 5985.7 ac (2422.3 ha).

### *Natural Setting*

Located along the backslope of the Mississippi River's natural levee, the project corridor lies within the Baratavia Basin of southeast Louisiana, a broad, low region dominated by wetlands. This area was once characterized almost entirely by cypress swamps and freshwater marshes, but forced drainage and filling has drastically altered the environment of much of the protected side of the levee. Only the project corridor at the far eastern end of the Gulf Intracoastal Waterway Alternate (GIWW) approaches the modern Mississippi levee. The flood side of the levee is largely marsh and swamp, although subsidence has created areas of open water in the marsh. Man-made levees along the Mississippi have prevented fresh water and sediments from reaching the marsh, further accelerating its deterioration.

The near-surface geomorphology of the region has been mapped by the U.S. Army Corps of Engineers (USACE 1996a, b), and known channels are shown in Figures 3 and 4.

**Table 1. Items within the Belle Chasse Westwego Survey Area.**

Vicinity Item #	Item Description
WBV 1	Sector Gate to Boomtown Floodwall
WBV 2a	Boomtown Floodwalls
WBV 2b	Boomtown to Hero PS Floodwalls
WBV 3	Hero PS to Algiers Canal Floodwall
WBV 4	Belle Chasse Hwy to Hero Cutoff-Reach 1
WBV 5	Belle Chasse Hwy to Hero Cutoff
WBV 6	Belle Chasse Hwy to Hero Cutoff-Reach 3 & 4
WBV 7	Planters PS Fronting Protection and Modifications
WBV 8	S&WB PS #13 Fronting Protection and Modifications
WBV 10	Belle Chasse PS #1 (Plaquemines PS) Fronting Protection and
WBV 11	Belle Chasse PS #2 Fronting Protection and Modifications
WBV 13	S&WB PS #11 Fronting Protection and Modifications
WBV 14a	Estelle PS to Vicinity of Lapalco Overpass
WBV 14g	Estelle PS Vicinity Floodwalls
WBV 14h	Old Estelle PS to V-line Levee
WBV 23	New Estelle PS Fronting Protection
WBV 33	Old Estelle PS Fronting Protection
WBV 38	Cousins Pump Station
WBV 39b	Cousins Discharge Channel Floodwalls
WBV 44	Whitney Barataria PS Fronting Protection and Modification
WBV 46	Sector Gate Complex
WBV 47	Algiers Lock to Belle Chasse Hwy (West)
WBV 48	Belle Chasse Hwy to Algiers Lock (East)
WBV 49	Hero Levee to Belle Chasse Hwy (East)

*Can you provide maps with these items shown.*

corridor. Other closely-related Plaquemine Delta distributaries are found within the confines of the Gate Option.

### *Soils*

Soil types in the general vicinity of the project corridor vary depending upon the distance from the Mississippi River and its distributaries. In terms of elevation, the project area is located at or near sea level. The majority of the Belle Chasse-Westwego Segment is located in drained or undrained wetlands and the soils are indicative of this. Most of the soils within the area are classifiable as Westwego Clays, Schriever Clays, or Barbary, Rita and Allemands Mucks, (Figure 5), indicating formation in frequently flooded or permanently wet environments (NRCS WebSoilSurvey 2007). Barbary soils are classified as level, very poorly drained soils that have a mucky surface layer underlain by clayey materials, and are derived from flooded swamp environments. Soils of Allemands and Rita associations are

**MANAGEMENT SUMMARY:  
RECONNAISSANCE SURVEY OF THE  
BELLE CHASSE TO HARVEY-  
WESTWEGO SEGMENT (IER 12),  
WEST BANK AND VICINITY  
HURRICANE PROTECTION LEVEE,  
JEFFERSON, ORLEANS, AND PLAQUEMINES  
PARISHES, LOUISIANA**

*Introduction*

*other dates of survey - June 2007, initial Recon Survey P. 12*

In January and May 2008, Coastal Environments, Inc. (CEI) undertook a cultural resources reconnaissance for the U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District (CEMVN) of a portion of the West Bank and Vicinity Hurricane Protection Levee in Jefferson, Orleans, and Plaquemines Parish, Louisiana, in advance of proposed improvements. These improvements, comprising an undertaking by a Federal agency, are subject to the processes mandated by Section 106 of the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969. Under these laws and regulations, the CEMVN must take into account the effect of this proposed project on cultural resources within the project ~~right of way~~ *area of Potential Effects (APE)*.

The area in question, (hereafter, the Belle Chasse-Westwego Segment) under Interim Environmental Report (IER) 12, includes 31 mi (49.9 km) of levee, a proposed 18,800 ft (8730 m) of floodwalls, modifications to 18 existing gates, and fronting protection

*Canal shown in 19th century maps  
or other maps.*

*EWALACE to whole page and include gate/catchment survey  
AVLEBA*

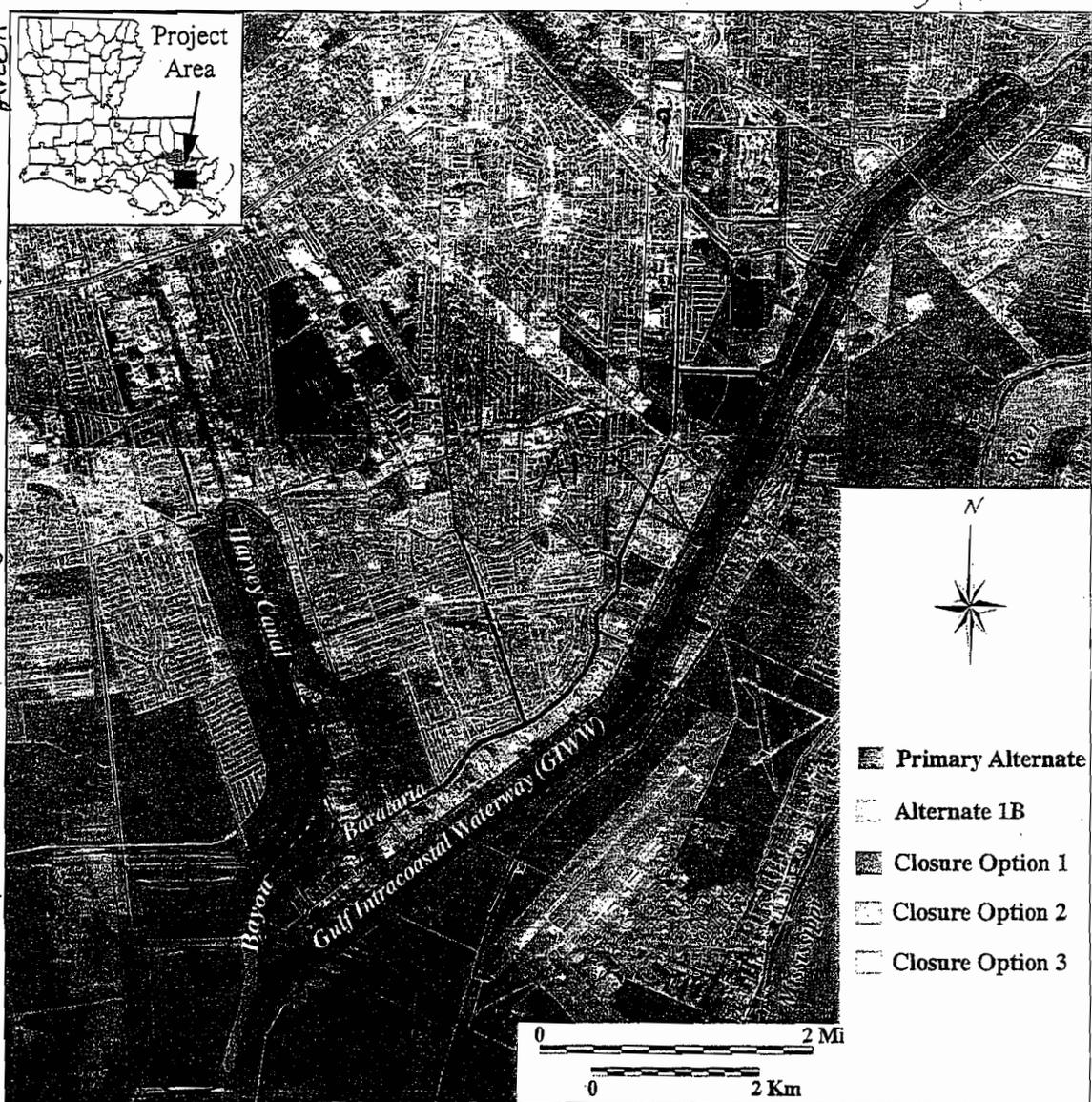


Figure 1. Aerial photograph showing the Belle Chasse-Westwego Segment (IER 12) for the West Bank Hurricane Protection Levee.

A single distributary, possibly marked on nineteenth century maps as Bayou Gazeland, crosses the GIWW alternate at the Planters Canal, and was mapped by Roger Saucier (1963,1994) as part of the Unknown Bayou distributary of the St. Bernard Delta. Other distributaries formed to the southeast of the project area as part of the Plaquemines Delta, and one of these is now occupied by Bayou Baratavia at the southeastern terminus of the study

*label  
on map  
Fig 3*



## United States Department of the Interior

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



February 18, 2009

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

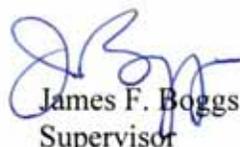
Dear Colonel Lee:

Enclosed is the Fish and Wildlife Coordination Act Report for the Individual Environmental Report (IER) 12, Improved Protection from Harvey to Algiers, Jefferson, Orleans and Plaquemines Parishes, Louisiana. The preferred alternative was developed through proactive coordination between the U.S. Army Corps of Engineers and the natural resource agencies. The preferred alternative would include construction of navigable floodgate and ancillary structures on the GIWW south of the confluence of the Algiers and Harvey Canals and construction of approximately 4,200 linear feet of new floodwall along the north bank of the Gulf Intracoastal Waterway and within the Bayou aux Carpes 404 (c) designated area. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the V-levee would be also raised to the 100-year level of protection.

This report is transmitted under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and has been provided to the Louisiana Department of Wildlife and Fisheries and the National Oceanic and Atmospheric Administration's (NOAA), National Marine Fisheries Service (NOAA's NMFS), and their comments are incorporated.

Should your staff have any questions regarding the enclosed report, please have them contact Angela Trahan of this office at 337/291-3137.

Sincerely,



James F. Boggs  
Supervisor  
Louisiana Field Office

Enclosures



cc: EPA, Dallas, TX  
FWS, Atlanta, GA (ES/HC)  
Corps, Planning Division, New Orleans, LA  
Jean Lafitte National Historical Park and Preserve, New Orleans, LA  
NMFS, Baton Rouge, LA  
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA

## **Fish and Wildlife Coordination Act Report**

### **Individual Environmental Report (IER) 12, Harvey to Algiers**



PROVIDED TO  
NEW ORLEANS DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

PREPARED BY  
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## **Executive Summary**

The U.S. Fish and Wildlife Service (Service) has prepared the attached Fish and Wildlife Coordination Act Report for the proposed Westbank and Vicinity of New Orleans (WBV), Harvey to Algiers, 100-year level hurricane protection project, Individual Environmental Report 12 (IER 12). The Corps of Engineers, New Orleans District (Corps) is preparing, that IER under the approval of the Council on Environmental Quality (CEQ). IERs will partially fulfill the Corps compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in the IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade two existing hurricane protection projects (i.e., WBV and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana.

This report addresses IER 12 and contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the proposed project. This report incorporates and supplements our Fish and Wildlife Coordination Act (FWCA) Reports that addressed impacts and mitigation features for the WBV (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) Hurricane Protection project, and the November 26, 2007, Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. Impacts and mitigation needs resulting from government and contractor provided borrow areas are being addressed in separate IERs; therefore this report will not address those project features. This document 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.). This report has been provided to the Louisiana Department of Wildlife and Fisheries and the National Oceanic and Atmospheric Administration's (NOAA), National Marine Fisheries Service (NOAA's NMFS), and their comments are incorporated (Appendix A).

The IER 12 study area is located in the upper Barataria Basin and includes the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins along the west bank of the Mississippi River in Jefferson, Orleans and Plaquemines Parishes, Louisiana. The Jean Lafitte National Historical Park and Preserve (JLNHPP) and the Bayou aux Carpes wetland complex are located to the south of the Harvey-Westwego sub-basin and are managed by the National Park Service (NPS). The Bayou aux Carpes wetland complex is subject to an Environmental Protection Agency (EPA) Final Determination under the Clean Water Act (CWA) Section 404(c) invoked in 1985, and according to the EPA Final Determination, the discharge of any dredged or fill material within the approximately 3,200-acre site, referred to as the EPA CWA Bayou aux Carpes 404 (c) area, is restricted.

Study area wetlands support nationally important fish and wildlife resources including floatant marsh and cypress swamp. Factors that will strongly influence future fish and wildlife resource conditions outside of the protection levees include freshwater and sediment input and loss of coastal wetlands. Regardless of which of the above factors ultimately has the greatest influence, emergent wetlands within, and adjacent to, the project area will probably experience losses due to subsidence, erosion, and relative sea-level rise.

During the alternatives analysis, the no-action alternative and the alternative to raise the existing Hurricane Protection System to a 100-year level of protection were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection to the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins. The Corps also considered a series of alternative gate locations within the project area that would minimize the need for parallel protection. One of these alternatives included constructing a sector gate across the EPA CWA Bayou aux Carpes 404 (c) area. That alternative was considered to have significant impacts to fish and wildlife resources and the EPA CWA Bayou aux Carpes 404 (c) area.

Developed through proactive coordination between the EPA, NPS, and the Corps, the preferred alternative would include construction of navigable floodgate and ancillary structures on the Gulf Intracoastal Waterway (GIWW) south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the V-levee would be raised to the 100-year level of protection [i.e., approximately 14 to 16 foot elevation North American Vertical Datum of 1988 (NAVD 88)]. Approximately 4,200 linear feet of floodwall would be constructed within a 100-foot-wide right-of-way along the periphery of the GIWW and the EPA CWA Bayou aux Carpes 404 (c) area to connect the proposed GIWW navigable floodgate with the existing flood protection system. Existing levees and floodwalls along Algiers and Harvey Canals will be incorporated into the protected side of the closure complex and would be integrated as features of the parallel protection system retention basin. Expansions of existing rights-of-way along several levee reaches would occur as a result of bringing those existing levees up to authorized levels of protection in order to provide necessary storm water retention during major storm events. To ensure habitat functions of the Bayou aux Carpes drainage area are maintained, the proposed action includes several environmental augmentations along the Old Estelle pump station outfall canal and within the Bayou aux Carpes drainage area which will provide sheet flow and hydrologic exchange into, and within, the EPA CWA Bayou aux Carpes 404 (c) area.

Implementation of the preferred alternative would directly impact 252 acres of hydrologically-altered bottomland hardwood habitat, 2.4 acres of wet bottomland hardwood habitat, and approximately 75 acres of swamp habitat. Of those impacts approximately 2.4 acres of wet bottomland hardwood and 7.2 acres of swamp habitat (i.e., 9.6 acres) occur within the EPA CWA Bayou aux Carpes 404 (c) area along the GIWW interface. According to our Habitat Assessment Methodology (HAM) and Wetland Value Assessment (WVA) analyses the preferred alternative would result in the direct loss of 177.1 and 38.4 average annual habitat units (AAHUs), of bottomland hardwood forest and swamp, respectively. Mitigation for unavoidable

losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features will be evaluated through a complementary comprehensive mitigation IER. However, mitigation for unavoidable impacts to the EPA CWA Bayou aux Carpes 404 (c) area would be provided concurrently with flood protection features and within the EPA CWA Bayou aux Carpes 404 (c) area, provided that EPA grants authorization to use the EPA CWA Bayou aux Carpes 404 (c) area. Aside from mitigation and flood protection features, environmental augmentation of the EPA CWA Bayou aux Carpes 404 (c) area may also be implemented as a project feature to ensure construction and maintenance of the flood protection features would not adversely impact the EPA CWA Bayou aux Carpes 404 (c) area. Proposed augmentations could supplement hydrologic exchange within approximately 3,000 acres of floatant marsh, cypress swamp, and wetland scrub-shrub habitat. To ensure that appropriate measures are implemented to maintain the quality of the area, the Corps' Engineer Research and Development Center (ERDC) will be conducting modeling of existing hydrologic conditions within the Bayou aux Carpes drainage area and the effects of directing additional flow and nutrients into the that wetland complex.

The Service does not object to providing improved hurricane protection to the greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. Flood protection and ancillary features such as staging areas and access roads should be designed and positioned so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized to the greatest extent possible.
2. The Corps should fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
3. The enclosure of wetlands with new levee alignments should be minimized to the fullest extent. When enclosure of wetlands is unavoidable, non-development easements on enclosed wetlands should be acquired, or hydrologic connections with adjacent, un-enclosed wetlands should be maintained. Such actions will serve to minimize secondary impacts from development and hydrologic alteration.
4. Material removed during project construction (i.e., dredging Algiers Canal, repositioning the WBV levee landward to accommodate the GIWW gate, and dredging along the GIWW bank line to install the flow control structure) should be tested to determine suitability as borrow material for levee construction and the presence of contaminants. The Corps should continue to coordinate with the natural resource agencies to determine the best use of that material.
5. A maintenance dredging management plan for material dredged from the Algiers Canal should be developed for the life of the project.
6. The Corps should avoid impacts to the EPA CWA Bayou aux Carpes 404 (c) area, if feasible. If not feasible the Corps should continue coordination with the NPS and EPA regarding any proposed project feature that may impact that area. Points of contacts for the agencies potentially impacted by project features are: National Park Service (NPS), contact

Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)) and Ms. Barbara Keeler (214) 665-6698 with the EPA.

7. Construction within the EPA CWA Bayou aux Carpes 404 (c) area should not commence until the EPA's decision to modify the designation to accommodate discharges into that area has been resolved.
8. Hydrologic, nutrient, and contaminant modeling should be conducted to determine the best arrangement of environmental augmentation features (i.e., location of gaps and water control structures), if any, in the Bayou aux Carpes 404 (c) area.
9. Environmental augmentation features developed through the EPA 404 (c) modification procedures should be incorporated as project features, and the IER should be supplemented to address any additional augmentation features proposed through that process.
10. If hydraulic modeling demonstrates that environmental augmentation features are beneficial, operational plans to maximize freshwater retention or redirect freshwater flows into the EPA CWA Bayou aux Carpes 404 (c) area should be coordinated with the natural resource agencies, especially EPA and NPS. To accommodate changing goals and restoration needs, water control structures should be designed to incorporate operational flexibility through an adaptive management program.
11. The project's first Project Cooperation Agreement (or similar document) should include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation and augmentation features. If the local project-sponsor is unable to fulfill the financial requirements for maintenance of the shoreline protection features, the Corps should provide the necessary funding to ensure maintenance obligations are met on behalf of the public interest.
12. To facilitate necessary adaptive management, the Corps in coordination with the natural resource agencies, should develop a monitoring plan. That monitoring plan should address hydrologic, nutrient, and contaminant changes throughout the system. The performance and funding of the monitoring of mitigation and augmentation features should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure that local cost share obligations are met on behalf of the public interest.
13. Because of the sensitivity and significance of the EPA CWA Bayou aux Carpes 404 (c) area every effort should be made to minimize impacts during construction of the floodwall and navigational gate. Construction activities within the EPA CWA Bayou aux Carpes 404 (c) area should adhere to the following guidelines to avoid adverse impacts to that site:
  - A. Construction should be performed from the water side (i.e., Bayou Barataria/GIWW

- side) rather than from the 404(c) side;
- B. Construction of the floodwall within the EPA CWA Bayou aux Carpes 404 (c) area should be constructed within a 100-foot corridor width from the GIWW into the 404(c) area. No additional area within the 404(c) site would be required for the floodwall or any other construction;
  - C. The Corps should investigate and utilize innovative techniques to design and build a structure with the narrowest footprint possible; and,
  - D. Should existing oil and gas pipeline ROWs require relocation, impacts associated with those relocations should be avoided and minimized to the greatest extent possible.
14. If a proposed project feature is changed significantly or is not implemented within one year of the date of this report, the Corps should reinitiate coordination with each office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.
  15. Adverse impacts to bald eagle nesting locations and wading bird colonies should be avoided through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagles during the nesting season (i.e., February 16 through October 31 for wading bird nesting colonies, and October through mid-May for bald eagles).
  16. 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.
  17. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation should 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 and those results should be forwarded to this office.
  18. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
  19. Forested areas cleared for staging areas and temporary construction zones should be managed for invasive species (i.e., Chinese tallowtree) after the completion of the project.

20. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
21. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, EPA, NPS, and the Louisiana Department of Natural Resources (LDNR). The Service should be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
22. If mitigation lands are purchased for inclusion within Federally or State managed lands, those lands must meet certain requirements; therefore the land manager of that management area should be contacted early in the planning phase regarding such requirements.
23. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
24. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable.
25. Any flood protection water control structure sited in a canal, bayou, or navigation channel that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
26. Flood protection water control structures should remain completely open except during storm events, unless otherwise determined by the natural resource agencies.
27. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered, and coordination should continue with the natural resource agencies to ensure fish passage features are incorporated to the fullest extent practicable.
28. To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.
29. To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts should be selected that would maintain sufficient flow to prevent siltation.

30. Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.
31. Any proposed change in mitigation or augmentation features or plans should be coordinated in advance with the Service, NMFS, LDWF, EPA and LDNR.
32. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

## **INTRODUCTION**

The U.S. Army Corps of Engineers, New Orleans District (Corps) is preparing an Individual Environmental Report (IER 12) for flood protection for the multi-basin area composed of Belle Chasse, Gretna-Algiers, Harvey-Westwego in Jefferson, Orleans, and Plaquemines Parishes, Louisiana. That IER is being prepared under the approval of the Council on Environmental Quality (CEQ) that will partially fulfill the Corps compliance with the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4) and Public Law 110-28, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (5th Supplemental). Those laws authorized the Corps to upgrade two existing hurricane protection projects [i.e., Westbank and Vicinity of New Orleans (WBV) and Lake Pontchartrain and Vicinity (LPV)] in the Greater New Orleans area in southeast Louisiana.

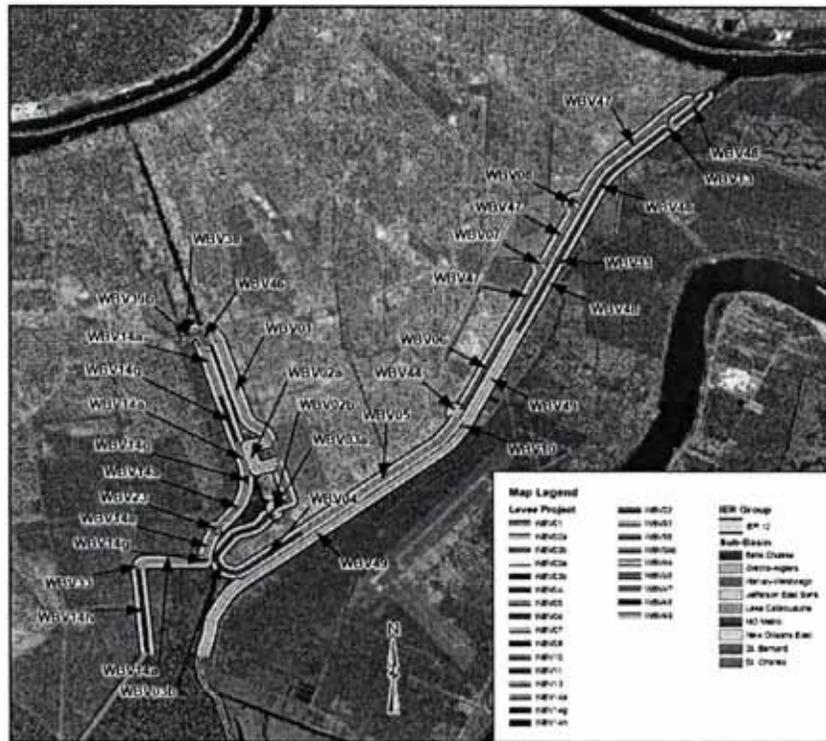
This report contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the proposed project. This report incorporates and supplements our Fish and Wildlife Coordination Act (FWCA) Reports that addressed impacts and mitigation features for the WBV (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the Lake Pontchartrain and Vicinity (dated July 25, 1984, and January 17, 1992) Hurricane Protection projects, and the November 26, 2007, Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. Impacts and mitigation needs resulting from government and contractor provided borrow areas have been addressed in an October 25, 2007, and a November 1, 2007, FWCA reports, respectively, therefore this report will not address those project features. This document 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.). This report has been provided to the Louisiana Department of Wildlife and Fisheries and the National Oceanic and Atmospheric Administration's (NOAA), National Marine Fisheries Service (NOAA's NMFS), and their comments are incorporated (Appendix A).

## **DESCRIPTION OF THE STUDY AREA**

The IER 12 study area is located in the upper Barataria Basin and includes the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins along the west bank of the Mississippi River in Jefferson, Orleans and Plaquemines Parishes, Louisiana. Dividing the sub-basins are Harvey and Algiers Canals which drain into the Gulf Intracoastal Waterway (GIWW) at their confluence. Hero Canal defines the southern boundary of the Belle Chase sub-basin and the southeastern boundary of the study area. The Old Estelle pump station (PS) outfall canal and the WBV hurricane protection system's V-levee delineates the southeastern boundary of the Harvey-Westwego sub-basin. To the south of the V-levee are the Jean Lafitte National Historical Park

and Preserve (NHPP) and the EPA CWA Bayou aux Carpes 404 (c) wetland complex. Within the existing WBV hurricane protection system, natural levees and lower lying wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development.

Figure 1. IER 12 Study Area, WBV, Jefferson, Orleans and Plaquemines Parishes, Louisiana, and Existing Hurricane and Flood Protection Features).



### FISH AND WILDLIFE RESOURCES

Habitat types in the project area include wet and non-wet bottomland hardwood habitat, cypress and tupelo swamp, scrub-shrub habitat, flotant marsh, open water, and developed areas. Open water areas are associated with the Harvey and Algiers Canals, Hero Canal, the GIWW (Bayou Barataria), the Old Estelle PS outfall canal, and interspersed open water areas within flotant marsh and swamp habitat. Due to urban development and a forced-drainage system, the hydrology of most of the forested habitat within the levee system has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the areas enclosed by levees.

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

surges reducing their damaging effect to man-made infrastructure within the coastal area. Factors that will strongly influence future fish and wildlife resource conditions outside of the protection levees include freshwater and sediment input and loss of coastal wetlands. Regardless of which of the above factors ultimately has the greatest influence, emergent wetlands within, and adjacent to, the project area will probably experience losses due to development, subsidence, erosion, and relative sea-level rise.

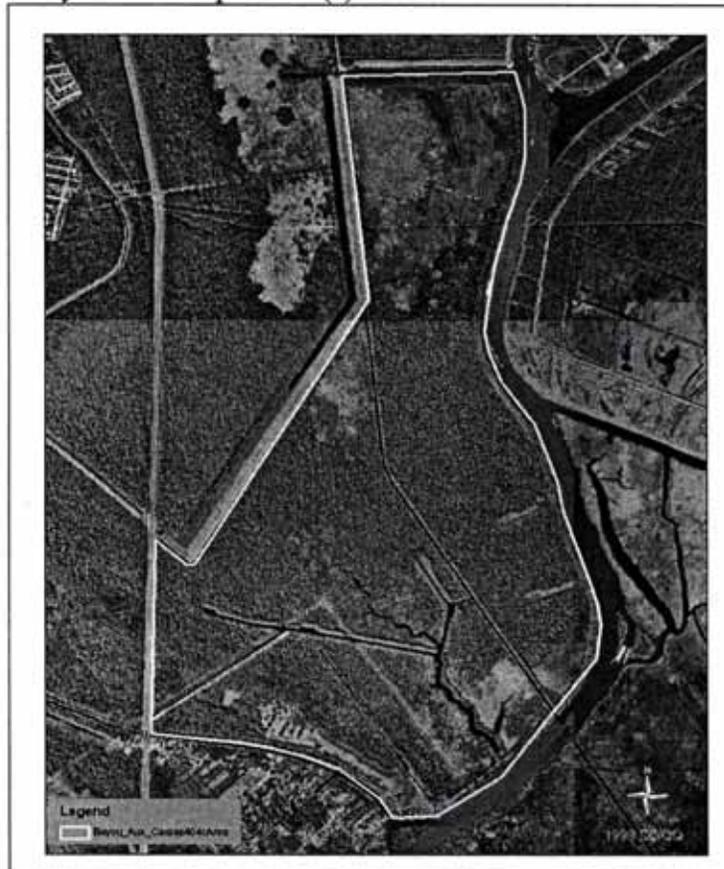
The Service has provided a FWCA Report for the authorized WBV hurricane protection project. That report contains a thorough discussion of the significant fish and wildlife resources (including habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein but the following information is provided to update the previously mentioned reports and provide IER specific information and recommendations.

An area within the Bayou aux Carpes wetland complex (Figure 2) adjacent to the JLNHPP was subject to an Environmental Protection Agency (EPA) Final Determination under the Clean Water Act (CWA) Section 404(c) in 1985. According to the EPA Final Determination, the discharge of any dredged or fill material within the approximately 3,200 acre site, referred to as the EPA CWA Bayou aux Carpes 404 (c) area, is restricted. The EPA action allowed for three specific exceptions, none of which appears to apply to the Corps' current hurricane protection proposal. Previous requests which have fallen outside those exceptions have been denied by EPA as being contrary to the CWA 404(c) determination. One such categorical denial prohibited the Corps from altering the alignment of the West Bank Hurricane Protection Levee such that it would encroach upon the EPA CWA Bayou aux Carpes 404 (c) site.

On November 4, 2008, the Corps requested that EPA modify the designation for the EPA CWA Bayou aux Carpes 404 (c) site designation to accommodate the Corps' preferred alignment. The Service provided comments to EPA's Request for Comments regarding the requested modification published in the Federal Register (Volume 74, No. 9, page 2072) on January 14, 2009 (Appendix B).

The EPA CWA Bayou aux Carpes 404 (c) area action is one of only 12 such actions ever completed by EPA. Approximately 2,800 acres within the site are in Federal ownership and Congress is considering legislation to adjust the boundary of the Jean Lafitte NHPP, Barataria Preserve Unit to include the Bayou aux Carpes area. In the meantime, the National Park Service (NPS) has constructive possession of the area. Therefore, the Corps should continue to coordinate with both the NPS and EPA regarding any proposed project feature that may impact that area. For the NPS please contact Superintendent, David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)), or Chief of Resource Management, David Muth, (504) 589-3882 extension 128 ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)). For the EPA please contact Ms. Barbara Keeler, 214/665-6698.

Figure 2. EPA CWA Bayou aux Carpes 404 (c) area.



The EPA CWA Bayou aux Carpes 404 (c) area is composed of two unique and critically important habitat types. Flotant marsh occurs along the northern portion of the area and transitions into cypress swamp habitat further to the south. The quality and health of these sensitive wetland habitats are greatly influenced by hydrologic parameters. Should water levels recede within flotant marsh, marsh vegetation could root into the soil drowning the vegetation when water levels rise again. Too much water flow can push flotant marsh vegetation out and create vast areas of open water. As flotant marsh vegetation thickens, new and larger plants (e.g., wax myrtle, red maple, and cypress) are supported by the mat of vegetation initiating the early successional stages of a cypress-tupelo swamp forest. Cypress and tupelo swamps also require hydrologic variations. Natural regeneration depends on periods of exceptionally long drought since cypress and tupelo seeds cannot germinate underwater. Cypress swamp habitat appears to be naturally regenerating as evident by saplings observed in the understory during recent field investigations. However, hydrologic stresses (e.g., spoil banks impeding water flow and producing ponding effects) may still be influencing sapling growth rates.

In 1985, the Service submitted a report to EPA detailing the value of the entire Bayou aux Carpes drainage area to fish and wildlife resources. The drainage area boundaries include the Harvey Canal/Bayou Barataria segment of the GIWW to the east and south, the Bayou des Familles ridge and Louisiana Highway 45 to the west, and the V-levee and Old Estelle PS outfall canal to the north. The area was historically drained by Bayou aux Carpes, a natural waterway; however, this

bayou was hydrologically disconnected when a plug was installed in the 1970s. Currently that plug may serve as a valuable function in keeping boat wakes from the GIWW from further eroding and widening the mouth of the bayou. The only flow exchange for this area is through the Southern Natural Gas (SNG) pipeline canal which runs north-south bisecting the Bayou aux Carpes drainage area. A few oil and gas canals branch off of the SNG pipeline canal connecting Bayou aux Carpes with the SNG pipeline canal. There are also several pipeline right-of-ways that traverse the area from east to west across the northern portion of the drainage area. It is highly probable that this system of canals and rights-of-way and their associated spoil banks influence the hydrology, impeding and directing flows throughout the area.

The Service's 1985 Habitat Evaluation Procedures (HEP) analysis determined that bottomland hardwood and wooded swamp habitats in the drainage area rated moderate to high value for all species evaluated (i.e., gray squirrel, pileated woodpecker, North American mink, wood duck, great egret, American alligator, and common muskrat). Upland forested habitat rated low for gray squirrel and pileated woodpecker and was found to be optimum for mink. Scrub-shrub wetlands in the study area were found to be of high quality as wood duck wintering habitat and alligator habitat, and were moderate quality for mink, great egret, and muskrat. Fresh marsh rated high to moderate as alligator, mink, and muskrat habitat (U.S. Fish and Wildlife Service 1985).

The Bayou aux Carpes wetland complex provides valuable habitat for resident waterfowl and migratory game species (i.e. wood ducks, mallards, and other waterfowl) and non-game species (i.e., great blue herons and great egrets). Bald eagles and osprey have been observed in the area as well. Several species of non-game, resident and migratory birds that are known or expected to utilize the project area (e.g., red-headed woodpecker, prothonotary warbler, and wood thrush) have exhibited substantial population declines over the last 30 years, primarily as the result of habitat loss and fragmentation, and are of particular concern to the Service. The Bayou aux Carpes drainage area and associated habitats provide valuable spawning, feeding, and nursery habitat for recreationally-important freshwater fish such as largemouth bass, and various sunfishes; crustaceans such as crawfish and grass shrimp; and estuarine species such as striped mullet and blue crab. Analysis of samples collected in 1985 indicated that forage species (e.g., mosquitofish, threadfin shad, and golden top minnow) were the most abundant fish species. This diverse assemblage of fisheries species is indicative of a stable fisheries community in a relatively unstressed environment (U.S. Fish and Wildlife Service 1985). The Bayou aux Carpes drainage basin provides plant detritus to adjacent coastal waters, and such detritus is essential to the maintenance of commercially and recreationally important fisheries. In addition to their habitat values, those wetlands provide floodwater storage, and aid in water quality maintenance by reducing excessive dissolved nutrient levels and removing suspended sediments.

At this time, the Service is unaware of any threatened or endangered species or their critical habitat within the project area. However, the project-area forested wetlands provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), and a bald eagle nest was documented within the Bayou aux Carpes drainage area in 2007. The bald eagle 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. 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. Nest sites typically include at least one perch with a clear view of the water or area where the eagles usually forage. Shoreline trees or snags located near large water bodies 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 Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. 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. Results of that determination should be provided to this office. The Service's Division of Migratory Birds for the Southeast Region (phone: 404/679-7051, e-mail: [SEmigratorybirds@fws.gov](mailto: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 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.

### **Future Fish and Wildlife Resources**

The combination of subsidence and sea level rise is called submergence or land sinking. As the land sinks the wetlands become inundated with higher water levels stressing wetland vegetation. Even cypress-tupelo swamps can be stressed by prolonged inundation, thus leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitat to open water or developed land represent the most serious fish and wildlife-related problems in the study area. Those losses could be expected to cause significant declines in coastal fish and shellfish production and in the study area's carrying capacity for numerous migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals. Wetland losses will also reduce storm surge protection of developed lands, and will likely contribute to water quality degradation associated with excessive nutrient inputs.

## **ALTERNATIVES UNDER CONSIDERATION**

During the alternatives analysis, the no-action alternative and the alternative to raise the existing Hurricane Protection System to a 100-year level of protection were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection to the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins. The Corps also considered a series of alternative gate locations within the project area that would reduce the length of parallel levee protection. One of these alternatives included constructing a sector gate across the EPA CWA Bayou aux Carpes 404 (c) area. That alternative would have significant impacts to fish and wildlife resources and EPA CWA 404 (c) designated wetlands. The following are brief descriptions of the alternatives:

#### Alternative 1:

A floodgate and permanent by-pass channel in the GIWW below the confluence of the Algiers and Harvey Canals with the flood wall bisecting the Bayou aux Carpes 404 (c) designated area;

#### Alternative 2 [Gulf Intracoastal Waterway- West Closure Complex (GIWW WCC)]:

Floodgate and permanent by-pass channel in the GIWW below the confluence of the Algiers and Harvey Canals with 100-year floodwall protection proposed along the periphery of the EPA

CWA Bayou aux Carpes 404 (c) area and the GIWW and continuing around to the V-levee;

Alternative 3:

Sector floodgate in the Algiers Canal with 100-year floodwall protection along the Harvey Canal to the Lapalco floodgate continuing along the existing WBV flood protection levee alignment;

Alternative 4:

Parallel levee protection to raise the existing levees and floodwalls along Algiers and Harvey Canals to the 100-year level of protection. The Lapalco floodgate and the Cousins PS discharge channel walls would also be raised to the 100-year level of protection.

**Proposed Action**

The GIWW WCC alternative (Alternative 2) was developed through proactive coordination primarily between the EPA, NPS, and the Corps. The GIWW WCC alternative would include construction of a navigable floodgate on the GIWW south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal. A pumping station and a secondary by-pass canal/flow control structure would be constructed adjacent to the navigable floodgate. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the WBV, V-levee would be raised to the 100-year level of protection [i.e., approximately 14 to 16 foot elevation North American Vertical Datum of 1988(NAVD 88)]. Approximately 4,200 linear feet of floodwall would be constructed within a 100-foot-wide new right-of-way along the periphery of the GIWW and the EPA CWA Bayou aux Carpes 404 (c) area to connect the proposed GIWW navigable floodgate with the existing flood protection system. Armoring of the floodwall along the GIWW is anticipated for protection against barge collisions and wave erosion.

Existing levees and floodwalls along Algiers and Harvey Canals will be incorporated into the protected side of the closure complex and would be integrated as features of the parallel protection system retention basin. Those levees would be lifted to the former authorized level of protection, and existing pump stations within the proposed detention basin would receive fronting protection and back flow prevention which would required additional right-of-way impacts. Approximately 700,000 cubic yards of material in the Algiers Canal would be dredged in order to maintain a still water level of less than 6 feet (NAVD 88) in the retention basin. Material dredged would be placed within the Jean Lafitte NHPP for marsh restoration along Lake Salvador.

Features of the structure that would cross the GIWW include a 150-to-300-foot-wide navigation channel closure gate and a 100-to-200-foot-wide bypass channel closure gate built to a protection elevation of 16 feet (NAVD 88), or greater, and tied into the nearest flood protection levee. A pumping station would provide positive backwater prevention. The bypass channel would be constructed to allow navigation on the GIWW during construction of the retaining structure, pumps and gates and will be used in the event of the closure of the primary channel structure. A water control structure is also proposed on the Old Estelle PS outfall canal.

In addition to levee and floodwall construction the proposed action includes several environmental augmentations to ensure that adverse impacts to the Bayou aux Carpes 404 (c) area are avoided. The southern side of the Old Estelle pump station outfall canal would be gapped to provide evenly distributed sheet flow into the EPA CWA Bayou aux Carpes 404 (c) area. After analysis of hydrologic modeling, existing obstructions (e.g., spoil banks, access roads) within the EPA CWA Bayou aux Carpes 404 (c) area may also be augmented, including modifying the shell plug at Bayou aux Carpes where it historically connected to Bayou Barataria to provide hydrological exchange. Long-term monitoring of the affects of the proposed flood protection system and augmentation features on the Bayou aux Carpes wetland complex would be conducted. Should monitoring indicate that augmentation features have an adverse affect on the EPA CWA Bayou aux Carpes 404 (c) area, flow from the Old Estelle pump station would be redirected away from the CWA 404 (c) area and through the proposed water control structure at the end of the Old Estelle outfall canal and into the GIWW.

In the GIWW adjacent to the EPA CWA Bayou aux Carpes 404 (c) area and south of the navigation channel closure gate, 2,000 linear feet of foreshore dike protection would be constructed in front of the channel bank to prevent scouring or bank erosion within the EPA CWA Bayou aux Carpes 404 (c) area associated with discharge from the pump station.

The GIWW WCC alternative provides 100-year protection based upon improvements, enhancements, and construction confined to the GIWW reach in concert with tie-ins to improvements to the Hero Canal Levee (IER #13) and the V-line Levee (IER #14).

## EVALUATION METHOD

Direct impacts to bottomland hardwood and swamp habitat were quantified by acreage and habitat quality (i.e., average annual habitat units or AAHUs) and are presented in Table 1 (Appendix B). The Service used the Louisiana Department of Natural Resources Habitat Assessment Methodology (HAM) to quantify the impacts of proposed project features on upland and wetland bottomland hardwood habitat and used the Wetland Value Assessment (WVA) methodology to quantify the impacts on swamp habitat. The habitat assessment models for bottomland hardwoods within the Louisiana Coastal Zone utilized in this evaluation were modified from those developed in the Service's Habitat Evaluation Procedures (HEP). For each habitat type, those models define an assemblage of variables considered important to the suitability of an area to support a diversity of fish and wildlife species. The HAM, however, is a community-level evaluation instead of the species-based approach used with HEP. The WVA is used to evaluate coastal restoration projects, and is similar to the Service's HEP, in that habitat quality and quantity (acreage) are measured for baseline conditions, and predicted for future without-project and future with-project conditions. As with HEP, the WVA provides a quantitative estimate of project-related impacts to fish and wildlife resources; however, the WVA is based on separate models for fresh/intermediate marsh, brackish marsh, and saline marsh. Further explanation of how impacts/benefits are assessed with the HAM and WVA and an explanation of the assumptions affecting habitat suitability (i.e., quality) index (HSI) values for each target year for impacts to bottomland hardwood and swamp habitat are available for review at the Service's Lafayette, Louisiana, field office.

**Table 1: Potential Impacts from Algiers-Harvey 100-year Hurricane Protection Project**

	protected side (hydrologically altered)				floodside (hydrologically connected)		
	pasture (acres)	early successional BLH (PFO1Ad)	mid-late successional BLH (PFO1Ad)	mid-late successional (temporary impacts) (PFO1Ad)	riparian swamp (PFO2)	404c BLH (PFO1r)	404c Swamp (PFO2)
Algiers Eastbank Levee Expansion	----	1.2	23.7	----	43.0	----	----
Algiers Westbank Levee Exp	----	6.7	13.8	----	3.8	----	----
East Bank Nav Structure	----	7.8	126.2	----	8.3	----	----
EBNS- staging areas	63.6	----	----	6.9	----	----	----
Levee Exp N of Estelle O/F canal	----	----	3.1	----	2.7	----	----
Levee Exp W of 404c	----	23.5	4.0	----	----	----	----
Levee Exp W of Harvey	----	----	34.8	----	9.7	----	----
Floodwall construction 404c	----	----	----	----	----	2.4	7.4
Total Acres (392.6)	63.6	39.2	205.6	6.9	67.5	2.4	7.2
Total AAHUs lost	0.0	22.3	150.2	2.6	34.3	2.0	4.1
Total BLH protected side =252 ac, 175.1 AAHUs							
Total BLH flood side (404c) = 2.4 ac, 2.0 AAHUs							
Total swamp flood side = 67.5 ac + 7.2 ac in 404c = 74.7 ac, 38.4 AAHUs							

Acreeage values estimated from 2005 aerial photography and LIDAR data in ArcGIS.

As indicated in Table 1, based on our HAM and WVA analyses (Appendix C) project implementation would result in the direct loss of 254.4 and 75 acres, and 177.1 and 38.4 AAHUs, of bottomland hardwood forest and swamp, respectively. Implementation of the preferred alternative would directly impact 252 acres of hydrologically-altered bottomland hardwood habitat, 2.4 acres of wet bottomland hardwood habitat, and approximately 75 acres of swamp habitat. Of those impacts approximately 2.4 acres of wet bottomland hardwood and 7.2 acres of swamp habitat (i.e., 9.6 acres) occur within the EPA CWA Bayou aux Carpes 404 (c) area along the GIWW interface.

## PROJECT IMPACTS

Proposed project impacts associated with the GIWW WCC alternative would result primarily from construction of new levees, expansion of levee rights-of-way and associated features. Although some construction will occur in cleared areas and on existing levees, project implementation will directly impact wet and non-wet bottomland hardwoods and tupelo swamp that provide medium to high habitat value for diverse fish and wildlife resources. While some construction staging and processing areas are located in open, non-forested areas, approximately

7 acres of bottomland hardwood forest associated with one staging location would be impacted.

Direct impacts to 252 acres of hydrologically-altered (i.e., non-wet) bottomland hardwood habitat would occur as a result of the GIWW WCC alternative. Impacts would be associated with expanding the existing flood protection levee right-of-way to bring it to the authorized level of protection and with realigning and expanding the levee on the south bank of the GIWW to accommodate the proposed bypass channel, navigable floodgate, pump station and a current reduction flow structure. The footprint of the proposed pump station would also impact non-wet bottomland hardwood habitat; however, by repositioning the levee landward an undetermined amount of previously-altered bottomland hardwood habitat would be returned to a natural overbank flooding regime.

Direct impacts to 2.4 acres of bottomland hardwood habitat and 7.2 acres of swamp habitat would occur as a result of constructing a new floodwall within a 100-foot right-of-way along the EPA CWA Bayou aux Carpes 404 (c) area and the GIWW interface. Impacts are also associated with floodside armoring of the proposed floodwall. Construction of this floodwall and armoring would impact riparian habitat and disrupt wildlife passage between the Bayou aux Carpes wetland complex and adjacent habitats. Riparian habitats are particularly valuable to wildlife as transition zones between aquatic and forested habitats, and contribute vital elements to fishery resources in the form of detritus, shade, and in-stream cover.

Although proposed impacts to the EPA CWA Bayou aux Carpes 404 (c) area have been minimized, the discharges of any dredged or fill material within the EPA CWA Bayou aux Carpes 404 (c) area is currently restricted and would require the EPA to modify the CWA Section 404 (c) determination. To ensure that potential impacts resulting from the construction of a flood protection structure/barrier do not compromise the value of this nationally-significant wetland ecosystem, the Corps is proposing to incorporate features into the proposed hurricane protection project to maintain the integrity EPA CWA Bayou aux Carpes 404 (c) area habitat (i.e., floatant marsh and cypress swamp). Storm water discharge from the Old Estelle pump station would be directed into the EPA CWA Bayou aux Carpes 404 (c) area by strategically gapping along the southern edge of the canal spoil bank. The Corps also proposes to modify interior hydrologic obstructions and the Bayou aux Carpes shell plug to provide additional hydrological exchange, if deemed necessary. To ensure that appropriate measures are implemented to maintain the function and quality of the wetland complex, the Corps' Engineer Research and Development Center (ERDC) will be conducting modeling of existing hydrologic conditions within the Bayou aux Carpes drainage area and the effects of directing additional flow and nutrients into the that wetland complex.

On the protected side of the navigation structure the Algiers and Harvey Canals would be integrated as features of the parallel protection system retention basin. Approximately 700,000 cubic yards in the Algiers Canal would be dredged in order to maintain a still water level of less than 6 feet (NAVD 88) in the retention basin. Existing tidal fluctuations within the retention basin would not be affected during normal conditions. That material would be used beneficially to create marsh along the Lake Salvador shoreline within the Jean Lafitte NHPP.

Development is ongoing within the hurricane protection levees; therefore, the Service has assumed that, for this specific IER, project-induced development within enclosed wetlands would be insignificant. However, project impacts to non-wet bottomland hardwoods and swamp habitat as a result of flood protection improvements should be mitigated.

### **FISH AND WILDLIFE CONSERVATION AND MITIGATION MEASURES**

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

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

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

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved. Considering the high value of forested wetlands and marsh for fish and wildlife and the relative scarcity of that habitat type, those wetlands are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Potential direct and indirect impacts to float marsh have been avoided by aligning the floodwall along the periphery of the Bayou aux Carpes wetland complex. While the preferred alignment has resulted in greater impacts to forested wetlands, the proposed flood protection structure would enclose fewer wetland acres, and the damaging hydrologic effects associated with bisecting the Bayou aux Carpes float marsh with a structural barrier would be avoided. Therefore, remaining direct project impacts to forested wetlands should be mitigated via in-kind compensatory replacement of the habitat values lost. Degraded (i.e., non-wet) bottomland hardwood forest and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. Project impacts to wetlands will be minimized to some extent by hauling in material for the levee. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value.

Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features will be evaluated through a complementary comprehensive mitigation

IER. However, mitigation for unavoidable impacts to the EPA CWA Bayou aux Carpes 404 (c) area should be provided concurrently with flood protection features and within the EPA CWA Bayou aux Carpes 404 (c) area, provided EPA determines that modification of the 404 (c) designation is warranted.

We commend the Corps efforts to ensure fish and wildlife habitats within the EPA CWA Bayou aux Carpes 404 (c) area are maintained by augmenting the proposed hurricane protection project. Because of the hydrologically sensitive nature of the floatant marsh and cypress swamp habitat, the implementation and design of proposed augmentations to the EPA CWA Bayou aux Carpes 404 (c) area should be closely coordinated with the results ERDC hydrologic investigations. The natural resource agencies, particularly the NPS and EPA, should be intimately involved in determining what hydrologic parameters should be investigated, reviewing the results of the investigations, and developing the best solution to maintaining and improving the hydrology of the floatant marsh and cypress swamp habitats. Depending on the results of those investigations, a plan should be designed and implemented to modify hydrologic and nutrient inflow effects to the Bayou aux Carpes area (e.g., gapping the Estelle Pump Station Outfall Canal, gapping or grading down interior canal banks such as the Southern Natural Gas and Shell pipeline canals, and/or modifying the shell plug at Bayou aux Carpes). Should proposed long-term monitoring efforts reveal that any of the proposed augmentation features would result in adverse impacts, the Corps should restore those features to pre-project conditions in coordination with the natural resource agencies.

To minimize impacts associated with removing additional borrow from forested areas, material dredged from the Algiers Canal and removed during project construction (i.e., repositioning the WBV, levee landward to accommodate the GIWW gate, and dredging along the GIWW bankline to install the flow control structure) should be tested to determine its suitability for levee construction. According to 2005 sediment sampling conducted for maintenance of the Inner Harbor Navigation Canal (IHNC) project in Orleans Parish, Louisiana, some sediment collected from GIWW and IHNC was considered unsuitable for open water disposal, and other options for disposal were necessary. Material dredged from the GIWW/Algiers Canal should be tested for contaminants, and the Corps should continue to coordinate with the natural resource agencies to determine the best use of that material. Should the material be used beneficially on NPS lands, the Corps should continue to coordinate with that agency. Please contact Superintendent, David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)), or Chief of Resource Management, David Muth, (504) 589-3882 extension 128 ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)).

### **SERVICE POSITION AND RECOMMENDATIONS**

Construction of the increased flood protection would result in direct impacts to 177.1 and 38.5 AAHUs, of bottomland hardwood forest and swamp, respectively. The Service does not object to providing improved hurricane protection to the greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. Flood protection and ancillary features such as staging areas and access roads should be designed and positioned so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized to the greatest extent possible.
2. The Corps should fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
3. The enclosure of wetlands with new levee alignments should be minimized to the fullest extent. When enclosure of wetlands is unavoidable, non-development easements on enclosed wetlands should be acquired, or hydrologic connections with adjacent, un-enclosed wetlands should be maintained. Such actions will serve to minimize secondary impacts from development and hydrologic alteration.
4. Material removed during project construction (i.e., dredging Algiers Canal, repositioning the WBV levee landward to accommodate the GIWW gate, and dredging along the GIWW bank line to install the flow control structure) should be tested to determine suitability as borrow material for levee construction and the presence of contaminants. The Corps should continue to coordinate with the natural resource agencies to determine the best use of that material.
5. A maintenance dredging management plan for material dredged from the Algiers Canal should be developed for the life of the project.
6. The Corps should avoid impacts to the Bayou aux Carpes CWA 404 (c) site, if feasible. If not feasible the Corps should continue coordination with the NPS and EPA regarding any proposed project feature that may impact that area. Points of contacts for the agencies potentially impacted by project features are: National Park Service (NPS), contact Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)) and Ms. Barbara Keeler (214) 665-6698 with the EPA.
7. Construction within the Bayou aux Carpes CWA Section 404 (c) site should not commence until the EPA's decision to modify the designation to accommodate discharges into that area has been resolved.
8. Hydrologic, nutrient, and contaminant modeling should be conducted to determine the best arrangement of environmental augmentation features (i.e., location of gaps and water control structures), if any, in the Bayou aux Carpes 404 (c) area.
9. Environmental augmentation features developed through the EPA 404 (c) modification procedures should be incorporated as project features, and the IER should be supplemented to address any additional augmentation features proposed through that process.

10. If hydraulic modeling demonstrates that environmental augmentation features are beneficial, operational plans to maximize freshwater retention or redirect freshwater flows into the Bayou aux Carpes 404 (c) area should be coordinated with the natural resource agencies, especially EPA and NPS. To accommodate changing goals and restoration needs, water control structures should be designed to incorporate operational flexibility through an adaptive management program.
11. The project's first Project Cooperation Agreement (or similar document) should include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation and augmentation features. If the local project-sponsor is unable to fulfill the financial requirements for maintenance of the shoreline protection features, the Corps should provide the necessary funding to ensure maintenance obligations are met on behalf of the public interest.
12. To facilitate necessary adaptive management, the Corps in coordination with the natural resource agencies, should develop a monitoring plan. That monitoring plan should address hydrologic, nutrient, and contaminant changes throughout the system. The performance and funding of the monitoring of mitigation and augmentation features should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure that local cost share obligations are met on behalf of the public interest.
13. Because of the sensitivity and significance of the Bayou aux Carpes 404 (c) area every effort should be made to minimize impacts during construction of the floodwall and navigational gate. Construction activities within the Bayou aux Carpes 404 (c) area should adhere to the following guidelines to avoid adverse impacts to the Bayou aux Carpes 404 (c) area:
  - A. Construction should be performed from the water side (i.e., Bayou Barataria/GIWW side) rather than from the 404(c) side;
  - B. Construction of the floodwall within the Bayou aux Carpes 404 (c) area should be constructed within a 100-foot corridor width from the GIWW into the 404(c) area. No additional area within the 404(c) site would be required for the floodwall or any other construction;
  - C. The Corps should investigate and utilize innovative techniques to design and build a structure with the narrowest footprint possible; and,
  - D. Should existing oil and gas pipeline ROWs require relocation, impacts associated with those relocations should be avoided and minimized to the greatest extent possible.
14. If a proposed project feature is changed significantly or is not implemented within one year of the date of this report, the Corps should reinitiate coordination with each office to ensure

that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.

15. Adverse impacts to bald eagle nesting locations and wading bird colonies should be avoided through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagles during the nesting season (i.e., February 16 through October 31 for wading bird nesting colonies, and October through mid-May for bald eagles).
16. 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.
17. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation should 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 and those results should be forwarded to this office.
18. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
19. Forested areas cleared for staging areas and temporary construction zones should be managed for invasive species (i.e., Chinese tallowtree) after the completion of the project.
20. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
21. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, EPA, NPS, and the Louisiana Department of Natural Resources (LDNR). The Service should be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
22. If mitigation lands are purchased for inclusion within Federally or State managed lands, those lands must meet certain requirements; therefore the land manager of that management

area should be contacted early in the planning phase regarding such requirements.

23. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
24. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable.
25. Any flood protection water control structure sited in a canal, bayou, or navigation channel that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
26. Flood protection water control structures should remain completely open except during storm events, unless otherwise determined by the natural resource agencies.
27. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered, and coordination should continue with the natural resource agencies to ensure fish passage features are incorporated to the fullest extent practicable.
28. To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.
29. To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts should be selected that would maintain sufficient flow to prevent siltation.
30. Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.
31. Any proposed change in mitigation or augmentation features or plans should be coordinated in advance with the Service, NMFS, LDWF, EPA and LDNR.
32. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

### LITERATURE CITED

- Louisiana Coastal Wetland Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coastal 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources. Baton Rouge, LA. 70898.
- U.S. Fish and Wildlife Service 1985. "Fish and Wildlife Resources of the Bayou aux Carpes Drainage Area, Jefferson Parish, Louisiana." U.S. Fish and Wildlife Service - Division of Ecological Services, Lafayette, Louisiana.

## **Appendix A**

### **Agency Coordination**

2856



IER # 12 - Appendix I (Final CAR)

UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office  
263 13th Avenue, South  
St. Petersburg, Florida 33701

November 18, 2008 F/SER46/RH:jk  
225/389-0508

Mr. James F. Boggs, Field Supervisor  
Louisiana Field Office  
U.S. Fish and Wildlife Service  
646 Cajundome Blvd., Suite 400  
Lafayette, Louisiana 70506



Dear Mr. Boggs:

NOAA's National Marine Fisheries Service (NMFS) has received the draft Fish and Wildlife Coordination Act Report (Report) on the Individual Environmental Report (IER) 12 transmitted for our review by your letter dated October 27, 2008. The Report discusses the U.S. Fish and Wildlife Services' findings and recommendations associated with plans to elevate hurricane protection features of the West Bank and Vicinity, Harvey to Algiers, project in Jefferson, Orleans and Plaquemines Parishes, Louisiana. Portions of the recommended plan would be located in a wetland complex subject to an Environmental Protection Agency Final Determination under Section 404(c) of the Clean Water Act.

NMFS has reviewed the Report and concurs with the recommended fish and wildlife conservation recommendations detailed in the document. In addition, NMFS believes the document adequately quantifies potential project-related impacts to wetlands and forested habitats that could result from the implementation of the proposed plan. As such, NMFS has no revisions to the Report to recommend.

We appreciate the opportunity to review and comment on this Report.

Sincerely,

Miles M. Croom  
Assistant Regional Director  
Habitat Conservation Division

c:  
LA DNR, CMD, Consistency  
F/SER46 - Swafford  
Files



IER # 12 - Appendix I (Final CAR)



Handwritten signature of Patti Walthers.

BOBBY JINDAL  
GOVERNOR

## State of Louisiana

ROBERT J. BARHAM  
SECRETARY

DEPARTMENT OF WILDLIFE AND FISHERIES  
OFFICE OF WILDLIFE

JIMMY L. ANTHONY  
ASSISTANT SECRETARY

January 22, 2009

Mr. James F. Boggs, Supervisor  
Louisiana Field Office  
Fish and Wildlife Service  
646 Cajundome Blvd.  
Lafayette, LA 70506

RE: *Fish and Wildlife Coordination Act Report on the Individual Environmental Report 12*  
*Notice Date: December 24, 2008*

Dear Mr. Boggs:

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

LDWF's concerns have been well addressed by the recommendations provided in the U.S. Fish and Wildlife Service report. However, the department would like to remain part of any Bayou aux Carpes management plan development, as well as have opportunity to review any modifications, and additional impacts.

The Louisiana Department of Wildlife and Fisheries appreciates the opportunity to review and provide recommendations to you regarding this report. Please do not hesitate to contact Habitat Section biologist Matthew Weigel at 225-763-3587 should you need further assistance.

Sincerely,

Handwritten signature of Kyle F. Balkum.

Kyle F. Balkum  
Biologist Program Manager

mw

c: Matthew Weigel, Biologist

**Appendix B**

**FWS's February 9, 2009, Letter Regarding  
EPA's Clean Water Act Section 404 (c) Designation**



## United States Department of the Interior



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

February 9, 2009

Ms. Barbara Keeler (6WQ-EC)  
Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

Dear Ms. Keeler:

Please reference the Environmental Protection Agency's (EPA) Notice of Public Hearing and Request for Comments published in the Federal Register (Volume 74, No. 9, pg. 2072) on January 14, 2009. The U.S. Army Corps of Engineers (Corps), New Orleans District, has requested an amendment to EPA's Clean Water Act (CWA) Section 404 (c) designation which prohibits discharges of dredged or fill material into the Bayou aux Carpes Site in Jefferson Parish, Louisiana. That amendment is requested to allow the Corps to construct the proposed Westbank and Vicinity of New Orleans (WBV), Harvey to Algiers, 100-year level hurricane protection project, Individual Environmental Report 12 (IER 12), which is authorized in accordance with Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). The EPA has requested comments as to whether the 1985 Bayou aux Carpes CWA Section 404 (c) EPA Final Determination should be modified as requested by the Corps. 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.), Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The Service recognizes the importance of the Bayou aux Carpes wetland complex to fish and wildlife resources and believes that the designation is warranted to protect these sensitive areas from development. In cooperation with Federal and State partners, the Corps has minimized potential direct and indirect impacts to significant flotant marsh and cypress swamp habitat by aligning the floodwall along the periphery of the Bayou aux Carpes CWA Section 404 (c) site. While the preferred alignment has resulted in greater direct impacts to forested wetlands, those forested wetlands at one time were previously altered by fill material. The preferred alignment would enclose fewer wetland acres, and avoid the damaging hydrologic consequences associated with bisecting the Bayou aux Carpes flotant marsh with a structural barrier. Moreover, unlike the Harvey Canal-Bayou Barataria Levee project which was the catalyst for EPA's determination, the preferred alternative alignment would avoid inclusion of the Bayou aux Carpes flotant and cypress swamp complex into the flood protection system and subsequently placing the area under

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IN AMERICA** 

pumped drainage.

During the alternatives analysis for IER 12, the Corps considered a series of alternative gate locations within the project area that would minimize the need for parallel protection. One of these alternatives included constructing a sector gate across the Bayou aux Carpes CWA Section 404 (c) site and was initially the Corps' preferred alternative. The proposed floodwall alignment within the Bayou aux Carpes CWA Section 404 (c) site would have, not only directly impacted high-quality floatant marsh and forested wetlands, but would have isolated approximately 500 acres of floatant marsh by placing them within the flood protection system. Constructing a floodwall across floatant marsh would disrupt the dynamic hydrologic conditions characteristic of a floatant marsh and would disrupt the natural hydrologic regimes within the entire Bayou aux Carpes wetland complex negatively impacting significant fish and wildlife resources. As proposed, the preferred alternative would minimize impacts by avoiding bisecting the Bayou aux Carpes CWA Section 404 (c) site and by implementing innovative design and construction techniques (e.g., floodwall design, construction sequencing).

At this time, the Service is unaware of any threatened or endangered species or their critical habitat within the proposed hurricane protection system project footprint for IER 12. However, the project-area forested wetlands provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), and a bald eagle nest was documented within the Bayou aux Carpes drainage area in 2007. This should be considered when designing environmental augmentation features. The bald eagle 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. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (i.e., organochlorine pesticides and lead). Although the bald eagle has been removed from the List of Endangered and Threatened Species, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. 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. The Service's Division of Migratory Birds for the Southeast Region (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.

Direct impacts to bottomland hardwood and swamp habitat associated with the preferred alternative were quantified by acreage and habitat quality (i.e., average annual habitat units or AAHUs). The Service used the Louisiana Department of Natural Resources Habitat Assessment Methodology (HAM) to quantify the impacts of proposed project features on upland and wetland bottomland hardwood habitat and used the Wetland Value Assessment (WVA) methodology to quantify the impacts on swamp habitat. The Service determined that direct impacts to approximately 9.6 acres of forested habitat (i.e., 2.4 acres of bottomland hardwood habitat and 7.2 acres of swamp habitat) within the proposed 100-foot right-of-way of the Bayou aux Carpes CWA Section 404 (c) site would result in the loss of 6.1 AAHUs. Riparian habitat and

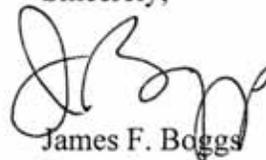
associated fish and wildlife resources would be minimally reduced within the Bayou aux Carpes CWA Section 404 (c) site. Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features of the entire hurricane protection system will be evaluated through a complementary comprehensive mitigation IER. However, should this designation be amended and the Corps' proposed alternative authorized, mitigation for unavoidable impacts to the Bayou aux Carpes 404 (c) area would be provided concurrently with flood protection features and within the Bayou aux Carpes 404 (c) area.

To ensure that potential impacts resulting from the construction of a flood protection structure do not compromise the value of this nationally-significant wetland ecosystem and to maintain the integrity of the Bayou aux Carpes CWA Section 404 (c) site, the Corps is proposing to incorporate environmental augmentation features into the proposed hurricane protection project. Stormwater from the Old Estelle Pump Station canal is currently being directed into the GIWW bypassing the Bayou aux Carpes wetland complex. Because of the invaluable water quality functions wetlands provide, stormwater will be redirected through the Bayou aux Carpes CWA Section 404 (c) site which would restore the natural process of nutrient cycling and reduce the risk of eutrophication in the lower basin waterbodies, provided modeling results support that action. Proposed augmentations could supplement hydrologic exchange within approximately 3,000 acres of floatant marsh, cypress swamp, and wetland scrub-shrub habitat.

Although complete avoidance of the Bayou aux Carpes CWA Section 404 (c) site would be preferred, it is the Service's opinion that amending the designation as proposed would not have an unacceptable adverse effect on fish and wildlife resources within the Bayou aux Carpes wetland complex. The Corps has incorporated proposed environmental augmentation features as a feature of the proposed project. Provided that hydrologic modeling supports implementation of those features, the Service believes that those augmentations coupled with long-term monitoring will ensure that unforeseen impacts to the Bayou aux Carpes CWA Section 404 (c) site are avoided. On the condition that the Corps moves forward with modeling and design of the environmental augmentation features concurrently with hurricane protection features, the Service would not be opposed to EPA modifying the 1985 Bayou aux Carpes CWA Section 404 (c) EPA Final Determination.

We appreciate the opportunity to comment on the proposed amendment and look forward to the continued coordination with the EPA, the Corps, and other State and Federal resource agencies with regards to the proposed hurricane protection system project. Should you have any questions regarding our comments, please give me a call (337/291-3115).

Sincerely,



James F. Boggs  
Supervisor  
Louisiana Field Office

cc: FWS, Atlanta, GA (ES/HC)  
Corps, New Orleans, LA  
Jean Lafitte National Historical Park and Preserve, New Orleans, LA  
NMFS, Baton Rouge, LA  
LDWF, Baton Rouge, LA  
LDNR, CMD, Baton Rouge, LA

**Appendix C**

**Wetland Value Assessment**

**COMMUNITY HABITAT SUITABILITY MODEL**  
**Bottomland Hardwoods**

Project..... IER 12, Alt 2, Mid-Late Succ. BLH

Acres:

206

Condition: Future With Project

Variable		TY 0		TY 1		TY 50				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class		Class		Class				
		4	0.80	1		1				
V2	Maturity (input age or dbh, not both)	Age		Age		Age				
		dbh		dbh		dbh				
		14	0.66	0		0				
V3	Understory / Midstory	Understory %		Understory %		Understory %		1.00	0.10	0.10
		45		0		0				
		Midstory %		Midstory %		Midstory %		0.95	0.10	0.10
		55	0.98	0		0				
V4	Hydrology	Class		Class	0.10	Class	0.10			
		2	0.50	1		1				
V5	Forest Size	Class		Class		Class				
		4	0.80	1		1				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	33	0.43	73	0.83	73	0.83			
	Abandoned Ag	25		24		24				
	Pasture / Hay									
	Active Ag	42		3		3				
	Development									
V7	Disturbance	Class		Class		Class				
	Type	2	0.50	1	0.01	1	0.01			
	Distance	Class		Class		Class				
		2		1		1				
		HSI =	0.68	HSI =		HSI =				

Project..... IER 12, Alt 2, Mid-Late Succ. BLH  
 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	Class		Class		Class	
V5	Forest Size	Class		Class		Class	
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	Class		Class		Class	
		HSI =		HSI =		HSI =	

**COMMUNITY HABITAT SUITABILITY MODEL**

**Bottomland Hardwoods**

Project..... IER 12, Alt 2, Mid-Late Succ. BLH

Acres:

206

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age dbh 14.94	0.66	Age dbh 15.22	0.68	Age dbh 18.27	0.89			
V3	Understory / Midstory	Understory % 45 Midstory % 55	0.98	Understory % 45 Midstory % 55	0.98	Understory % 30 Midstory % 60	0.95	1.00	1.00	1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50			
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V6	Surrounding Land Use	Values % Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development	0.43	Values % 33 25 42	0.43	Values % 33 25 42	0.43			
V7	Disturbance Type	Class 2	0.50	Class 2	0.50	Class 2	0.50			
	Distance	Class 2		Class 2		Class 2				
		HSI = 0.68		HSI = 0.69		HSI = 0.73				

Project..... IER 12, Alt 2, Mid-Late Succ. BLH  
FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class		Class				
V2	Maturity (input age or dbh, not both)	Age dbh 21.19	1.00	Age dbh		Age dbh				
V3	Understory / Midstory	Understory % 30 Midstory % 30	1.00	Understory % Midstory %		Understory % Midstory %		1.00		1.00
V4	Hydrology	Class 2	0.50	Class		Class				
V5	Forest Size	Class 4	0.80	Class		Class				
V6	Surrounding Land Use	Values % Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development	0.43	Values % 33 25 42		Values % 33 25 42				
V7	Disturbance Type	Class 2	0.50	Class		Class				
	Distance	Class 2		Class		Class				
		HSI = 0.76		HSI =		HSI =				



## COMMUNITY HABITAT SUITABILITY MODEL

### Bottomland Hardwoods

Project..... IER 12, Alt 2, BLH early successional      Acres:      39

Condition: Future With Project

Variable		TY 0		TY 1		TY 50		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Species Assoc.	Class 1	0.20	Class 1		Class 1		
V2	Maturity (input age or dbh, not both)	Age 10 dbh	0.10	Age 0 dbh	0.00	Age 0 dbh	0.00	
V3	Understory / Midstory	Understory % 60 Midstory % 50	1.00	Understory % 0 Midstory % 0		Understory % 0 Midstory % 0		1.00 1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50	
V5	Forest Size	Class 4	0.80	Class 1		Class 1		
V6	Surrounding Land Use	Values %		Values %		Values %		
	Forest / marsh	84	0.90	84	0.90	84	0.90	
	Abandoned Ag Pasture / Hay Active Ag Development	16		16		16		
V7	Disturbance  Type  Distance	Class 2  Class 3	1.00	Class 2  Class 3	1.00	Class 2  Class 3	1.00	
		HSI = 0.31		HSI =		HSI =		

Project..... IER 12, Alt 2, BLH early successional  
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 dbh		Age dbh		Age dbh	
V3	Understory / Midstory	Understory % Midstory %		Understory % Midstory %		Understory % Midstory %	
V4	Hydrology	Class		Class		Class	
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  Class		Class  Class	
		HSI =		HSI =		HSI =	

## COMMUNITY HABITAT SUITABILITY MODEL

### Bottomland Hardwoods

Project..... IER 12, Alt 2, BLH early successional      Acres:      39

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Species Assoc	Class 1	0.20	Class 1	0.20	Class 2	0.40	
V2	Maturity (input age or dbh, not both)	Age 10 dbh	0.10	Age 11 dbh	0.12	Age 31 dbh	0.62	
V3	Understory / Midstory	Understory % 60 Midstory % 40	1.00	Understory % 60 Midstory % 50	1.00	Understory % 50 Midstory % 70	0.90	1.00 1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50	
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80	
V6	Surrounding Land Use	Values %		Values %		Values %		
	Forest / marsh	84	0.90	84	0.90	82	0.88	
	Abandoned Ag Pasture / Hay	16		16		16		
	Active Ag Development					2		
V7	Disturbance Type	Class 2	1.00	Class 2	1.00	Class 2	1.00	
	Distance	Class 3		Class 3		Class 3		
		HSI = 0.31		HSI = 0.33		HSI = 0.61		

Project..... IER 12, Alt 2, BLH early successional  
FWP

Variable		TY 50		TY		TY		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Species Assoc	Class 2	0.40	Class		Class		
V2	Maturity (input age or dbh, not both)	Age 61 dbh	1.00	Age dbh		Age dbh		
V3	Understory / Midstory	Understory % 30 Midstory % 60	0.95	Understory % Midstory %		Understory % Midstory %		1.00 0.90
V4	Hydrology	Class 2	0.50	Class		Class		
V5	Forest Size	Class 4	0.80	Class		Class		
V6	Surrounding Land Use	Values %		Values %		Values %		
	Forest / marsh	82	0.88					
	Abandoned Ag Pasture / Hay	16						
	Active Ag Development	2						
V7	Disturbance Type	Class 2	1.00	Class		Class		
	Distance	Class 3		Class		Class		
		HSI = 0.69		HSI =		HSI =		



**COMMUNITY HABITAT SUITABILITY MODEL**  
**Bottomland Hardwoods**

Project..... IER 12, Alt 2, BLH east staging area                      Acres:                      6.9

Condition: Future With Project

Variable		TY 0		TY 1		TY 3				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1				
V2	Maturity (input age or dbh, not both)	Age 17.8	0.85	Age 0.1	0.00	Age 0.1	0.00			
V3	Understory / Midstory	Understory % 80		Understory % 0		Understory % 0		0.80	0.10	0.10
		Midstory % 17	0.83	Midstory % 0		Midstory % 0		0.87	0.10	0.10
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50			
V5	Forest Size	Class 5	1.00	Class 0		Class 0				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.72	60	0.72	60	0.72			
	Abandoned Ag Pasture / Hay	29		29		29				
	Active Ag Development	11		11		11				
V7	Disturbance	Class 2	0.26	Class 1	0.01	Class 1	0.01			
	Type	Class 1		Class 1		Class 1				
	Distance	Class 1		Class 1		Class 1				
		HSI = 0.72		HSI = 0.01		HSI = 0.01				

Project..... IER 12, Alt 2, BLH east staging area  
 FWP

Variable		TY 4		TY 50		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 2		Class 4	0.80	Class				
V2	Maturity (input age or dbh, not both)	Age 1	0.00	Age 46	0.92	Age				
V3	Understory / Midstory	Understory % 80		Understory % 20		Understory %		0.80	0.70	
		Midstory % 80		Midstory % 60	0.80	Midstory %		0.70	0.90	
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class				
V5	Forest Size	Class 1		Class 1	0.20	Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.72	60	0.72					
	Abandoned Ag Pasture / Hay	29		29						
	Active Ag Development	11		11						
V7	Disturbance	Class 2	0.26	Class 2	0.26	Class				
	Type	Class 1		Class 1		Class				
	Distance	Class 1		Class 1		Class				
		HSI = 0.04		HSI = 0.65		HSI =				

## COMMUNITY HABITAT SUITABILITY MODEL Bottomland Hardwoods

Project..... IER 12, Alt 2, BLH east staging area                      Acres:                      6.9

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age dbh 17.8	0.85	Age dbh 18.08	0.87	Age dbh 18.27	0.89			
V3	Understory / Midstory	Understory % 80 Midstory % 17	0.83	Understory % 80 Midstory % 17	0.83	Understory % 30 Midstory % 60	0.95	0.80	0.80	1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50			
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V6	Surrounding Land Use	Values %  Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development	0.72	Values %  60 29 11	0.72	Values %  60 29 11	0.72			
V7	Disturbance  Type  Distance	Class 2 Class 1	0.26	Class 2 Class 1	0.26	Class 2 Class 1	0.26			
		HSI = 0.71		HSI = 0.71		HSI = 0.73				

Project..... IER 12, Alt 2, BLH east staging area  
FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 5	1.00	Class		Class				
V2	Maturity (input age or dbh, not both)	Age dbh 21.19	1.00	Age dbh		Age dbh				
V3	Understory / Midstory	Understory % 45 Midstory % 40	1.00	Understory %  Midstory %		Understory %  Midstory %		1.00		1.00
V4	Hydrology	Class 1	0.10	Class		Class				
V5	Forest Size	Class 4	0.80	Class		Class				
V6	Surrounding Land Use	Values %  Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development	0.72	Values %  60 29 11		Values %  60 29 11				
V7	Disturbance  Type  Distance	Class 2 Class 1	0.26	Class Class		Class Class				
		HSI = 0.65		HSI =		HSI =				



## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project..... IER 12, Riparian BLH & Swamp

Project Area.....

68

Condition: Future Without Project

Variable		TY 0		TY 1		TY 10		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory		
		Scrub-shrub		Scrub-shrub		Scrub-shrub		
		Herbaceous		Herbaceous		Herbaceous		
		Class 3	0.40	Class 3	0.40	Class 3	0.40	
V2	Stand Maturity	Cypress % 30		Cypress % 30		Cypress % 30		
		Cypress dbh 18		Cypress dbh 18		Cypress dbh 21		0
		Tupelo et al. % 70		Tupelo et al. % 70		Tupelo et al. % 70		1
		Tupelo et al dbh 12.8	1.00	Tupelo et al dbh 13.07	1.00	Tupelo et al dbh 14.18	1.00	1
		Basal Area 25.15	0.20	Basal Area 25	0.20	Basal Area 38	0.20	
V3	Water Regime	Flow/Exchange high		Flow/Exchange high		Flow/Exchange high		
		Flooding Duration seasonally	1.00	Flooding Duration seasonally	1.00	Flooding Duration seasonally	1.00	
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325	
		HSI =	0.43	HSI =	0.43	HSI =	0.43	

Project..... IER 12, Riparian BLH & Swamp  
FWOP

Variable		TY 20		TY 50		TY		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory		
		Scrub-shrub		Scrub-shrub		Scrub-shrub		
		Herbaceous		Herbaceous		Herbaceous		
		Class 4	0.60	Class 4	0.60	Class		
V2	Stand Maturity	Cypress % 30		Cypress % 30		Cypress % 0		
		Cypress dbh 24		Cypress dbh 30		Cypress dbh 0		0
		Tupelo et al. % 70		Tupelo et al. % 60		Tupelo et al. % 0		1
		Tupelo et al dbh 11.6	0.97	Tupelo et al dbh 19.39	0.90	Tupelo et al dbh 0	0.00	0.96
		Basal Area 38.94	0.19	Basal Area 106.56	0.54	Basal Area 0	0.00	
V3	Water Regime	Flow/Exchange high		Flow/Exchange high		Flow/Exchange		
		Flooding Duration seasonally	1.00	Flooding Duration seasonally	1.00	Flooding Duration		
V4	Mean High Salinity	2.5	0.325	2.5	0.325			
		HSI =	0.48	HSI =	0.62	HSI =		

## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project.....

Project Area.....

68

Condition: Future With Project

Variable		TY 0		TY 1		TY 50	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class 3	0.40	Class 1	0.10	Class 1	0.10
V2	Stand Maturity	Cypress %	30	Cypress %	0	Cypress %	0
		Cypress dbh	18	Cypress dbh	0	Cypress dbh	0
		Tupelo et al. %	70	Tupelo et al. %	0	Tupelo et al. %	0
		Tupelo et al dbh	12.8	Tupelo et al dbh	0	Tupelo et al dbh	0
		Basal Area	25.15	Basal Area	0	Basal Area	0
			1.00		0.00		0.00
V3	Water Regime	Flow/Exchange high Flooding Duration seasonal	1.00	Flow/Exchange None Flooding Duration None	0.10	Flow/Exchange none Flooding Duration none	0.10
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325
		HSI =	0.43	HSI =	0.00	HSI =	0.00

Project..... IER 12, Riparian BLH & Swamp  
FWP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory	
		Scrub-shrub		Scrub-shrub		Scrub-shrub	
		Herbaceous		Herbaceous		Herbaceous	
		Class		Class		Class	
V2	Stand Maturity	Cypress %	0	Cypress %	0	Cypress %	0
		Cypress dbh	0	Cypress dbh	0	Cypress dbh	0
		Tupelo et al. %	0	Tupelo et al. %	0	Tupelo et al. %	0
		Tupelo et al dbh	0	Tupelo et al dbh	0	Tupelo et al dbh	0
		Basal Area	0	Basal Area	0	Basal Area	0
			0.00		0.00		0.00
V3	Water Regime	Flow/Exchange Moderate Flooding Duration Semi-Permanent		Flow/Exchange Moderate Flooding Duration Semi-Permanent	0.65	Flow/Exchange Moderate Flooding Duration Semi-Permanent	0.65
V4	Mean High Salinity					3.0	0.1
		HSI =		HSI =		HSI =	



**COMMUNITY HABITAT SUITABILITY MODEL**

**Bottomland Hardwoods**

Project..... IER 12, Alt 2, 404c BLH

Acres:

2.4

Condition: Future With Project

Variable		TY 0		TY 1		TY 50				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1				
V2	Maturity (input age or dbh, not both)	Age 35	0.70	Age dbh 0.1	0.00	Age dbh 0.1	0.00			
V3	Understory / Midstory	Understory % 48		Understory % 0		Understory % 0		1.00	0.10	0.10
		Midstory % 65	0.93	Midstory % 0		Midstory % 0		0.85	0.10	0.10
V4	Hydrology	Class 3	1.00	Class 1	0.10	Class 1	0.10			
V5	Forest Size	Class 5	1.00	Class 1		Class 1				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	73	0.83	73	0.83	73	0.83			
	Abandoned Ag	24		24		24				
	Pasture / Hay	3		3		3				
	Active Ag									
	Development									
V7	Disturbance	Class 2	0.26	Class 2	0.26	Class 2	0.26			
	Type	Class 1		Class 1		Class 1				
	Distance									
		HSI =	0.77	HSI =	0.01	HSI =	0.01			

Project..... IER 12, Alt 2, 404c BLH  
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 dbh		Age dbh		Age dbh				
V3	Understory / Midstory	Understory %		Understory %		Understory %				
		Midstory %		Midstory %		Midstory %				
V4	Hydrology	Class		Class		Class				
V5	Forest Size	Class		Class		Class				
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 =				

**COMMUNITY HABITAT SUITABILITY MODEL**

**Bottomland Hardwoods**

Project..... IER 12, Alt 2, 404c BLH

Acres:

2.4

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age 35	0.70	Age 36	0.72	Age 56	1.00			
V3	Understory / Midstory	Understory % 48		Understory % 48		Understory % 35		1.00	1.00	1.00
		Midstory % 65	0.93	Midstory % 65	0.93	Midstory % 50	1.00	0.85	0.85	1.00
V4	Hydrology	Class 3	1.00	Class 3	1.00	Class 3	1.00			
V5	Forest Size	Class 5	1.00	Class 5	1.00	Class 5	1.00			
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	73	0.83	73	0.83	73	0.83			
	Abandoned Ag Pasture / Hay	24		24		24				
	Active Ag Development	3		3		3				
V7	Disturbance	Class		Class		Class				
	Type	Class 2	0.26	Class 2	0.26	Class 2	0.26			
	Distance	Class 1		Class 1		Class 1				
		HSI = 0.77		HSI = 0.77		HSI = 0.85				

Project..... IER 12, Alt 2, 404c BLH

FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class		Class				
V2	Maturity (input age or dbh, not both)	Age 75	1.00	Age		Age				
V3	Understory / Midstory	Understory % 35		Understory %		Understory %		1.00		
		Midstory % 35	1.00	Midstory %		Midstory %		1.00		
V4	Hydrology	Class 3	1.00	Class		Class				
V5	Forest Size	Class 5	1.00	Class		Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	73	0.83							
	Abandoned Ag Pasture / Hay	24								
	Active Ag Development	3								
V7	Disturbance	Class		Class		Class				
	Type	Class 2	0.26	Class		Class				
	Distance	Class 1		Class		Class				
		HSI = 0.85		HSI =		HSI =				



## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project..... IER 12, 404c Tupelo Swamp

Project Area.....

7.2

Condition: Future Without Project

Variable		TY 0		TY 1		TY 10	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory 35 Scrub-shrub 50 Herbaceous 70 Class 5	0.80	% Cover Overstory 35 Scrub-shrub 50 Herbaceous 70 Class 5	0.80	% Cover Overstory 40 Scrub-shrub 50 Herbaceous 55 Class 5	0.80
V2	Stand Maturity	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 12.8 Basal Area 25.15	1.00 0.20	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 13.07 Basal Area 25	1.00 0.20	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 14.18 Basal Area 38	1.00 0.20
V3	Water Regime	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange High Flooding Duration Semi-Permanent	0.75
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325
		HSI =	0.48	HSI =	0.48	HSI =	0.48

Project..... IER 12, 404c Tupelo Swamp  
FWOP

Variable		TY 20		TY 50		TY 100	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory 45 Scrub-shrub 40 Herbaceous 60 Class 5	0.80	% Cover Overstory 60 Scrub-shrub 35 Herbaceous 35 Class 6	1.00	% Cover Overstory  Scrub-shrub  Herbaceous  Class	
V2	Stand Maturity	Cypress % 10 Cypress dbh 6 Tupelo et al. % 90 Tupelo et al dbh 11.6 Basal Area 44	0.87 0.35	Cypress % 20 Cypress dbh 15 Tupelo et al. % 80 Tupelo et al dbh 19.39 Basal Area 106.56	0.99 0.59	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00 0.00
V3	Water Regime	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange Flooding Duration	
V4	Mean High Salinity	2.5	0.325	2.5	0.325		
		HSI =	0.56	HSI =	0.68	HSI =	

## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project.....

Project Area.....

7.2

Condition: Future With Project

Variable		TY 0		TY 1		TY 50	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory 35 Scrub-shrub 50 Herbaceous 70 Class 5	0.80	% Cover Overstory  Scrub-shrub  Herbaceous  Class 1	0.10	% Cover Overstory  Scrub-shrub  Herbaceous  Class 1	0.10
V2	Stand Maturity	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 12.8 Basal Area 25.15	1.00    0.20	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00    0.00 0.00	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00    0.00 0.00
V3	Water Regime	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange None Flooding Duration None	0.10	Flow/Exchange none Flooding Duration none	0.10
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325
		<b>HSI =</b>	<b>0.48</b>	<b>HSI =</b>	<b>0.00</b>	<b>HSI =</b>	<b>0.00</b>

Project..... IER 12, 404c Tupelo Swamp  
FWP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory  Scrub-shrub  Herbaceous  Class		% Cover Overstory  Scrub-shrub  Herbaceous  Class		% Cover Overstory  Scrub-shrub  Herbaceous  Class	
V2	Stand Maturity	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0		Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00    0.00 0.00	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00    0.00 0.00
V3	Water Regime	Flow/Exchange Moderate Flooding Duration Semi-Permanent		Flow/Exchange Moderate Flooding Duration Semi-Permanent	0.65	Flow/Exchange Moderate Flooding Duration Semi-Permanent	0.65
V4	Mean High Salinity					3.0	0.1
		<b>HSI =</b>		<b>HSI =</b>		<b>HSI =</b>	





## United States Department of the Interior

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



December 24, 2008

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

Dear Colonel Lee:

Enclosed is the Draft Fish and Wildlife Coordination Act Report for the Individual Environmental Report (IER) 12, Improved Protection from Harvey to Algiers, Jefferson, Orleans and Plaquemines Parishes, Louisiana. The preferred alternative was developed through proactive coordination between the U.S. Army Corps of Engineers and the natural resource agencies. The preferred alternative would include construction of navigable floodgate and ancillary structures on the GIWW south of the confluence of the Algiers and Harvey Canals and construction of approximately 4,200 linear feet of new floodwall along the north bank of the Gulf Intracoastal Waterway and within the Bayou aux Carpes 404 (c) designated area. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the V-levee would be also raised to the 100-year level of protection.

This draft report is transmitted under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and is being coordinated with the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service. Comments by those agencies will be attached to our final report.

Should your staff have any questions regarding the enclosed draft report, please have them contact Angela Trahan of this office at 337/291-3137.

Sincerely,

*for* *Patricia V. Howard*  
James F. Boggs  
Supervisor  
Louisiana Field Office

Enclosures



cc: EPA, Dallas, TX  
FWS, Atlanta, GA (ES/HC)  
Jean Lafitte National Historical Park and Preserve, New Orleans, LA  
NMFS, Baton Rouge, LA  
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA

**Draft**  
**Fish and Wildlife Coordination Act Report**

**Individual Environmental Report (IER) 12,  
Harvey to Algiers**



PROVIDED TO  
NEW ORLEANS DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

PREPARED BY  
ANGELA TRAHAN  
FISH AND WILDLIFE BIOLOGIST

U.S. FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES  
LAFAYETTE, LOUISIANA  
DECEMBER 2008

U.S. FISH AND WILDLIFE SERVICE – SOUTHEAST REGION

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## Executive Summary

The U.S. Fish and Wildlife Service (Service) has prepared the attached Fish and Wildlife Coordination Act Report for the proposed Westbank and Vicinity of New Orleans (WBV), Harvey to Algiers, 100-year level hurricane protection project, Individual Environmental Report 12 (IER 12). The Corps of Engineers, New Orleans District (Corps) is preparing, those IERs under the approval of the Council on Environmental Quality (CEQ). The IERs will partially fulfill the Corps compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in the IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade two existing hurricane protection projects (i.e., WBV and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana.

This report addresses IER 12 and contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the proposed project. This report incorporates and supplements our Fish and Wildlife Coordination Act (FWCA) Reports that addressed impacts and mitigation features for the WBV (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) Hurricane Protection project, and the November 26, 2007, Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. Impacts and mitigation needs resulting from government and contractor provided borrow areas are being addressed in separate IERs; therefore this report will not address those project features. This draft document does not constitute 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.). This draft report has been provided to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Oceanic and Atmospheric Administration's, National Marine Fisheries Service (NOAA's NMFS), and their comments will be incorporated in the final report.

The IER 12 study area is located in the upper Barataria Basin and includes the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins along the west bank of the Mississippi River in Jefferson, Orleans and Plaquemines Parishes, Louisiana. The Jean Lafitte National Historical Park and Preserve (JLNHPP) and the Bayou aux Carpes wetland complex are located to the south of the Harvey-Westwego sub-basin and are managed by the National Park Service (NPS). The Bayou aux Carpes wetland complex is subject to an Environmental Protection Agency (EPA) Final Determination under the Clean Water Act (CWA) Section 404(c) invoked in 1985, and according to the EPA Final Determination, the discharge of any dredged or fill material within the approximately 3,200-acre site, referred to as the Bayou aux Carpes CWA Section 404(c) area [Bayou aux Carpes 404 (c) area], is restricted.

Study area wetlands support nationally important fish and wildlife resources including floatant marsh and cypress swamp. Factors that will strongly influence future fish and wildlife resource

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

During the alternatives analysis, the no-action alternative and the alternative to raise the existing Hurricane Protection System to a 100-year level of protection were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection to the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins. The Corps also considered a series of alternative gate locations within the project area that would minimize the need for parallel protection. One of these alternatives included constructing a sector gate across the Bayou aux Carpes 404 (c) area. That alternative was considered to have significant impacts to fish and wildlife resources and EPA CWA, Section 404 (c) designated wetlands.

Developed through proactive coordination between the EPA, NPS, and the Corps, the preferred alternative would include construction of navigable floodgate and ancillary structures on the Gulf Intracoastal Waterway (GIWW) south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the V-levee would be raised to the 100-year level of protection [i.e., approximately 14 to 16 foot elevation North American Vertical Datum of 1988 (NAVD 88)]. Approximately 4,200 linear feet of floodwall would be constructed within a 100-foot-wide right-of-way along the periphery of the GIWW and the Bayou aux Carpes 404 (c) area to connect the proposed GIWW navigable floodgate with the existing flood protection system. Existing levees and floodwalls along Algiers and Harvey Canals will be incorporated into the protected side of the closure complex and would be integrated as features of the parallel protection system retention basin. Expansions of existing rights-of-way along several levee reaches would occur as a result of bringing those existing levees up to authorized levels of protection in order to provide necessary storm water retention during major storm events. To ensure habitat functions of the Bayou aux Carpes drainage area are maintained, the proposed action includes several environmental augmentations along the Old Estelle pump station outfall canal and within the Bayou aux Carpes drainage area which will provide sheet flow and hydrologic exchange into, and within, the Bayou aux Carpes 404(c) area.

Implementation of the preferred alternative would directly impact 252 acres of hydrologically-altered bottomland hardwood habitat, 2.4 acres of wet bottomland hardwood habitat, and approximately 75 acres of swamp habitat. Of those impacts approximately 2.4 acres of wet bottomland hardwood and 7.4 acres of swamp habitat (i.e., 9.8 acres) occur within the Bayou aux Carpes 404 (c) area along the GIWW interface. According to our Habitat Assessment Methodology (HAM) and Wetland Value Assessment (WVA) analyses the preferred alternative would result in the direct loss of 179.2 and 38.5 average annual habitat units (AAHUs), of bottomland hardwood forest and swamp, respectively. Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features will be evaluated through a complementary comprehensive mitigation IER. However, mitigation for unavoidable impacts to the Bayou aux Carpes 404 (c) area would be provided concurrently with flood protection features and within the Bayou aux Carpes 404 (c) area, provided that EPA grants

authorization to use the Bayou aux Carpes 404 (c) area. Aside from mitigation and flood protection features, environmental augmentation of the Bayou aux Carpes 404 (c) area may also be implemented as a project feature to ensure construction and maintenance of the flood protection features would not adversely impact the Bayou aux Carpes 404 (c) area. Proposed augmentations could supplement hydrologic exchange within approximately 3,000 acres of floatant marsh, cypress swamp, and wetland scrub-shrub habitat. To ensure that appropriate measures are implemented to maintain the quality of the area, the Corps' Engineer Research and Development Center (ERDC) will be conducting modeling of existing hydrologic conditions within the Bayou aux Carpes drainage area and the effects of directing additional flow and nutrients into the that wetland complex.

The Service does not object to providing improved hurricane protection to the greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. Flood protection and ancillary features such as staging areas and access roads should be designed and positioned so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized to the greatest extent possible.
2. The Corps should fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
3. The enclosure of wetlands with new levee alignments should be minimized to the fullest extent. When enclosure of wetlands is unavoidable, non-development easements on enclosed wetlands should be acquired, or hydrologic connections with adjacent, un-enclosed wetlands should be maintained. Such actions will serve to minimize secondary impacts from development and hydrologic alteration.
4. Material removed during project construction (i.e., dredging Algiers Canal, repositioning the WBV, levee landward to accommodate the GIWW gate, and dredging along the GIWW bank line to install the flow control structure) should be tested to determine suitability as borrow material for levee construction and the presence of contaminants. The Corps should continue to coordinate with the natural resource agencies to determine the best use of that material.
5. A maintenance dredging management plan for material dredged from the Algiers Canal should be developed for the life of the project.
6. The Corps should avoid impacts to the Bayou aux Carpes 404 (c) area, if feasible. If not feasible the Corps should continue coordination with the NPS and EPA regarding any proposed project feature that may impact that area. Points of contacts for the agencies potentially impacted by project features are: National Park Service (NPS), contact Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)) and Ms. Barbara Keeler (214) 665-6698 with the EPA.

7. Hydrologic, nutrient, and contaminant modeling should be conducted to determine the best arrangement of environmental augmentation features (i.e., location of gaps and water control structures), if any, in the Bayou aux Carpes 404 (c) area.
8. Environmental augmentation features developed through the EPA 404 (c) modification procedures should be incorporated as project features, and the IER should be supplemented to address any additional augmentation features proposed through that process.
9. If hydraulic modeling demonstrates that environmental augmentation features are beneficial, operational plans to maximize freshwater retention or redirect freshwater flows into the Bayou aux Carpes 404 (c) area should be coordinated with the natural resource agencies, especially EPA and NPS. To accommodate changing goals and restoration needs, water control structures should be designed to incorporate operational flexibility through an adaptive management program.
10. The project's first Project Cooperation Agreement (or similar document) should include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation and augmentation features. If the local project-sponsor is unable to fulfill the financial requirements for maintenance of the shoreline protection features, the Corps should provide the necessary funding to ensure maintenance obligations are met on behalf of the public interest.
11. To facilitate necessary adaptive management, the Corps in coordination with the natural resource agencies, should develop a monitoring plan. That monitoring plan should address hydrologic, nutrient, and contaminant changes throughout the system. The performance and funding of the monitoring of mitigation and augmentation features should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure that local cost share obligations are met on behalf of the public interest.
12. Because of the sensitivity and significance of the Bayou aux Carpes 404 (c) area every effort should be made to minimize impacts during construction of the floodwall and navigational gate. Construction activities within the Bayou aux Carpes 404 (c) area should adhere to the following guidelines to avoid adverse impacts to the Bayou aux Carpes 404 (c) area:
  - A. Construction should be performed from the water side (i.e., Bayou Baratavia/GIWW side) rather than from the 404(c) side;
  - B. Construction of the floodwall within the Bayou aux Carpes 404 (c) area should be constructed within a 100-foot corridor width from the GIWW into the 404(c) area. No additional area within the 404(c) site would be required for the floodwall or any other construction;
  - C. The Corps should investigate and utilize innovative techniques to design and build a structure with the narrowest footprint possible; and,

D. Should existing oil and gas pipeline ROWs require relocation, impacts associated with those relocations should be avoided and minimized to the greatest extent possible.

13. If a proposed project feature is changed significantly or is not implemented within one year of the date of this report, the Corps should reinitiate coordination with each office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.
14. Adverse impacts to bald eagle nesting locations and wading bird colonies should be avoided through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagles during the nesting season (i.e., February 16 through October 31 for wading bird nesting colonies, and October through mid-May for bald eagles).
15. 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.
16. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation should 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 and those results should be forwarded to this office.
17. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
18. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
19. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, EPA, NPS, and the Louisiana Department of Natural Resources (LDNR). The Service should be provided an opportunity to review and submit recommendations on the all work addressed in those reports.

20. If mitigation lands are purchased for inclusion within Federally or State managed lands, those lands must meet certain requirements; therefore the land manager of that management area should be contacted early in the planning phase regarding such requirements.
21. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
22. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable.
23. Any flood protection water control structure sited in a canal, bayou, or navigation channel that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
24. Flood protection water control structures should remain completely open except during storm events, unless otherwise determined by the natural resource agencies.
25. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered, and coordination should continue with the natural resource agencies to ensure fish passage features are incorporated to the fullest extent practicable.
26. To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.
27. To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts should be selected that would maintain sufficient flow to prevent siltation.
28. Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.
29. Any proposed change in mitigation or augmentation features or plans should be coordinated in advance with the Service, NMFS, LDWF, EPA and LDNR.
30. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

## INTRODUCTION

The U.S. Army Corps of Engineers, New Orleans District (Corps) is preparing an Individual Environmental Report (IER 12) for flood protection for the multi-basin area composed of Belle Chasse, Gretna-Algiers, Harvey-Westwego in Jefferson, Orleans, and Plaquemines Parishes, Louisiana. That IER is being prepared under the approval of the Council on Environmental Quality (CEQ) that will partially fulfill the Corps compliance with the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4) and Public Law 110-28, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (5th Supplemental). Those laws authorized the Corps to upgrade two existing hurricane protection projects [i.e., Westbank and Vicinity of New Orleans (WBV) and Lake Pontchartrain and Vicinity (LPV)] in the Greater New Orleans area in southeast Louisiana.

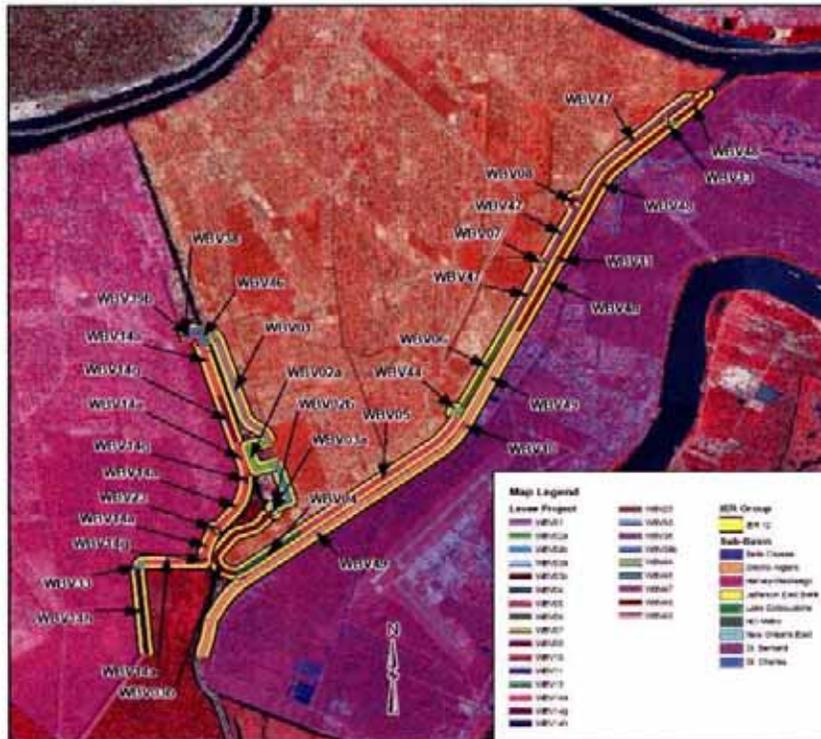
This report contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the proposed project. This report incorporates and supplements our Fish and Wildlife Coordination Act (FWCA) Reports that addressed impacts and mitigation features for the WBV (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the Lake Pontchartrain and Vicinity (dated July 25, 1984, and January 17, 1992) Hurricane Protection projects, and the November 26, 2007, Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. Impacts and mitigation needs resulting from government and contractor provided borrow areas have been addressed in an October 25, 2007, and a November 1, 2007, FWCA reports, respectively, therefore this report will not address those project features. This draft document does not constitute 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.). This draft report has been provided to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Oceanic and Atmospheric Administration's, National Marine Fisheries Service (NOAA's NMFS), and their comments will be incorporated in the final report.

## DESCRIPTION OF THE STUDY AREA

The IER 12 study area is located in the upper Barataria Basin and includes the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins along the west bank of the Mississippi River in Jefferson, Orleans and Plaquemines Parishes, Louisiana. Dividing the sub-basins are Harvey and Algiers Canals which drain into the Gulf Intracoastal Waterway (GIWW) at their confluence. Hero Canal defines the southern boundary of the Belle Chasse sub-basin and the southeastern boundary of the study area. The Old Estelle pump station (PS) outfall canal and the WBV

hurricane protection system's V-levee delineates the southeastern boundary of the Harvey-Westwego sub-basin. To the south of the V-levee are the Jean Lafitte National Historical Park and Preserve (NHPP) and the Bayou aux Carpes 404 (c) wetland complex. Within the existing WBV hurricane protection system, natural levees and lower lying wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development.

Figure 1. IER 12 Study Area, WBV, Jefferson, Orleans and Plaquemines Parishes, Louisiana, and Existing Hurricane and Flood Protection Features).



## FISH AND WILDLIFE RESOURCES

Habitat types in the project area include wet and non-wet bottomland hardwood habitat, cypress and tupelo swamp, scrub-shrub habitat, floatant marsh, open water, and developed areas. Open water areas are associated with the Harvey and Algiers Canals, Hero Canal, the GIWW (Bayou Barataria), the Old Estelle PS outfall canal, and interspersed open water areas within floatant marsh and swamp habitat. Due to urban development and a forced-drainage system, the hydrology of most of the forested habitat within the levee system has been altered. The forced-drainage system has been in operation for many years, and subsidence is evident throughout the areas enclosed by levees.

Wetlands (forested, marsh, and scrub-shrub) within the study area provide plant detritus to coastal waters downstream and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. They also provide valuable water quality functions such as reduction of excessive dissolved nutrient levels, filtering of waterborne

contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges reducing their damaging effect to man-made infrastructure within the coastal area. Factors that will strongly influence future fish and wildlife resource conditions outside of the protection levees include freshwater and sediment input and loss of coastal wetlands. Regardless of which of the above factors ultimately has the greatest influence, emergent wetlands within, and adjacent to, the project area will probably experience losses due to development, subsidence, erosion, and relative sea-level rise.

The Service has provided a FWCA Report for the authorized WBV hurricane protection project. That report contains a through discussion of the significant fish and wildlife resources (including habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein but the following information is provided to update the previously mentioned reports and provide IER specific information and recommendations.

An area within the Bayou aux Carpes wetland complex (Figure 2) adjacent to the JLNHPP was subject to an Environmental Protection Agency (EPA) Final Determination under the Clean Water Act (CWA) Section 404(c) in 1985. According to the EPA Final Determination, the discharge of any dredged or fill material within the approximately 3,200 acre site, referred to as the Bayou aux Carpes 404(c) area, is restricted. The EPA action allowed for three specific exceptions, none of which appears to apply to the Corps' current hurricane protection proposal. Previous requests which have fallen outside those exceptions have been denied by EPA as being contrary to the CWA 404(c) determination. One such categorical denial prohibited the Corps from altering the alignment of the West Bank Hurricane Protection Levee such that it would encroach upon the Bayou aux Carpes 404(c) area.

The EPA 404(c) action was intended as an advance notification to the public and agencies of the government's determination under the CWA Section 404 for the area, in the sense of planning aid coordination. In light of this existing determination, we would expect the NEPA work on the portion of the levee forming the 404(c) boundary to thoroughly evaluate the range of feasible alternatives and their environmental impacts, as well as documenting the Corps' legal and regulatory authority for any alternative that would entail impacts to the Bayou aux Carpes 404(c) area.

The Bayou aux Carpes 404(c) action is one of only 12 such actions ever completed by EPA. Approximately 2,800 acres within the site are in Federal ownership and Congress is considering legislation to adjust the boundary of the Jean Lafitte NHPP, Barataria Preserve Unit to include the Bayou aux Carpes area. In the meantime, the National Park Service (NPS) has constructive possession of the area. Therefore, the Corps should contact both the NPS and EPA regarding any proposed project feature that may impact that area. For the NPS please contact Superintendent, David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)), or Chief of Resource Management, David Muth, (504) 589-3882 extension 128 ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)). For the EPA please contact Ms. Barbara Keeler, 214/665-6698.

Figure 2. Bayou aux Carpes 404 (c) Designated Area.



The Bayou aux Carpes 404 (c) area is composed of two unique and critically important habitat types. Flotant marsh occurs along the northern portion of the area and transitions into cypress swamp habitat further to the south. The quality and health of these sensitive wetland habitats are greatly influenced by hydrologic parameters. Should water levels recede within flotant marsh, marsh vegetation could root into the soil drowning the vegetation when water levels rise again. Too much water flow can push flotant marsh vegetation out and create vast areas of open water. As flotant marsh vegetation thickens, new and larger plants (e.g., wax myrtle, red maple, and cypress) are supported by the mat of vegetation initiating the early successional stages of a cypress-tupelo swamp forest. Cypress and tupelo swamps also require hydrologic variations. Natural regeneration depends on periods of exceptionally long drought since cypress and tupelo seeds cannot germinate underwater. Cypress swamp habitat appears to be naturally regenerating as evident by saplings observed in the understory during recent field investigations. However, hydrologic stresses (e.g., spoil banks impeding water flow and producing ponding effects) may still be influencing sapling growth rates.

In 1985, the Service submitted a report to EPA detailing the value of the entire Bayou aux Carpes drainage area to fish and wildlife resources. The drainage area boundaries include the Harvey Canal/Bayou Barataria segment of the GIWW to the east and south, the Bayou des Familles ridge and Louisiana Highway 45 to the west, and the V-levee and Old Estelle PS outfall canal to the

north. The area was historically drained by Bayou aux Carpes, a natural waterway; however, this bayou was hydrologically disconnected when a plug was installed in the 1970s. Currently that plug may serve as a valuable function in keeping boat wakes from the GIWW from further eroding and widening the mouth of the bayou. The only flow exchange for this area is through the Southern Natural Gas (SNG) pipeline canal which runs north-south bisecting the Bayou aux Carpes drainage area. A few oil and gas canals branch off of the SNG pipeline canal connecting Bayou aux Carpes with the SNG pipeline canal. There are also several pipeline right-of-ways that traverse the area from east to west across the northern portion of the drainage area. It is highly probable that this system of canals and rights-of-way and their associated spoil banks influence the hydrology, impeding and directing flows throughout the area.

The Service's 1985 Habitat Evaluation Procedures (HEP) analysis determined that bottomland hardwood and wooded swamp habitats in the drainage area rated moderate to high value for all species evaluated (i.e., gray squirrel, pileated woodpecker, North American mink, wood duck, great egret, American alligator, and common muskrat). Upland forested habitat rated low for gray squirrel and pileated woodpecker and was found to be optimum for mink. Scrub-shrub wetlands in the study area were found to be of high quality as wood duck wintering habitat and alligator habitat, and were moderate quality for mink, great egret, and muskrat. Fresh marsh rated high to moderate as alligator, mink, and muskrat habitat (U.S. Fish and Wildlife Service 1985).

The Bayou aux Carpes wetland complex provides valuable habitat for resident waterfowl and migratory game species (i.e. wood ducks, mallards, and other waterfowl) and non-game species (i.e., great blue herons and great egrets). Bald eagles and osprey have been observed in the area as well. Several species of non-game, resident and migratory birds that are known or expected to utilize the project area (e.g., red-headed woodpecker, prothonotary warbler, and wood thrush) have exhibited substantial population declines over the last 30 years, primarily as the result of habitat loss and fragmentation, and are of particular concern to the Service. The Bayou aux Carpes drainage area and associated habitats provide valuable spawning, feeding, and nursery habitat for recreationally-important freshwater fish such as largemouth bass, and various sunfishes; crustaceans such as crawfish and grass shrimp; and estuarine species such as striped mullet and blue crab. Analysis of samples collected in 1985 indicated that forage species (e.g., mosquitofish, threadfin shad, and golden top minnow) were the most abundant fish species. This diverse assemblage of fisheries species is indicative of a stable fisheries community in a relatively unstressed environment (U.S. Fish and Wildlife Service 1985). The Bayou aux Carpes drainage basin provides plant detritus to adjacent coastal waters, and such detritus is essential to the maintenance of commercially and recreationally important fisheries. In addition to their habitat values, those wetlands provide floodwater storage, and aid in water quality maintenance by reducing excessive dissolved nutrient levels and removing suspended sediments.

At this time, the Service is unaware of any threatened or endangered species or their critical habitat within the project area. However, the project-area forested wetlands provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), and a bald eagle nest was documented within the Bayou aux Carpes drainage area in 2007. The bald eagle 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. 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. Nest sites typically include at least one perch with a clear view of the water or area where the eagles usually forage. Shoreline trees or snags located near large water bodies 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 Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. 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 Service’s Division of Migratory Birds for the Southeast Region (phone: 404/679-7051, e-mail: [SEmigratorybirds@fws.gov](mailto: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 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.

### **Future Fish and Wildlife Resources**

The combination of subsidence and sea level rise is called submergence or land sinking. As the land sinks the wetlands become inundated with higher water levels stressing wetland vegetation. Even cypress-tupelo swamps can be stressed by prolonged inundation, thus leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitat to open water or developed land represent the most serious fish and wildlife-related problems in the study area. Those losses could be expected to cause significant declines in coastal fish and shellfish production and in the study area's carrying capacity for numerous migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals. Wetland losses will also reduce storm surge protection of developed lands, and will likely contribute to water quality degradation associated with excessive nutrient inputs.

## **ALTERNATIVES UNDER CONSIDERATION**

During the alternatives analysis, the no-action alternative and the alternative to raise the existing Hurricane Protection System to a 100-year level of protection were considered. The no-action alternative would not be implemented because it fails to provide the authorized level of protection to the Belle Chasse, Gretna-Algiers, and Harvey-Westwego sub-basins. The Corps also considered a series of alternative gate locations within the project area that would reduce the length of parallel levee protection. One of these alternatives included constructing a sector gate across the Bayou aux Carpes 404 (c) area. That alternative would have significant impacts to fish and wildlife resources and EPA 404 (c) designated wetlands. The following are brief descriptions of the alternatives:

#### Alternative 1:

A floodgate and permanent by-pass channel in the GIWW below the confluence of the Algiers and Harvey Canals with the flood wall bisecting the Bayou aux Carpes 404 (c) designated area;

#### Alternative 2 [Gulf Intracoastal Waterway- West Closure Complex (GIWW WCC)]:

Floodgate and permanent by-pass channel in the GIWW below the confluence of the Algiers and Harvey Canals with 100-year floodwall protection proposed along the periphery of the Bayou aux

Carpes 404 (c) area and the GIWW and continuing around to the V-levee;

Alternative 3:

Sector floodgate in the Algiers Canal with 100-year floodwall protection along the Harvey Canal to the Lapalco floodgate continuing along the existing WBV flood protection levee alignment;

Alternative 4:

Parallel levee protection to raise the existing levees and floodwalls along Algiers and Harvey Canals to the 100-year level of protection. The Lapalco floodgate and the Cousins PS discharge channel walls would also be raised to the 100-year level of protection.

**Proposed Action**

The GIWW WCC alternative (Alternative 2) was developed through proactive coordination primarily between the EPA, NPS, and the Corps. The GIWW WCC alternative would include construction of a navigable floodgate on the GIWW south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal. A pumping station and a secondary by-pass canal/flow control structure would be constructed adjacent to the navigable floodgate. The levees and floodwalls between the Old Estelle pumping station and the Harvey Canal, and south along the WBV, V-levee would be raised to the 100-year level of protection [i.e., approximately 14 to 16 foot elevation North American Vertical Datum of 1988(NAVD 88)]. Approximately 4,200 linear feet of floodwall would be constructed within a 100-foot-wide new right-of-way along the periphery of the GIWW and the Bayou aux Carpes 404 (c) area to connect the proposed GIWW navigable floodgate with the existing flood protection system. Armoring of the floodwall along the GIWW is anticipated for protection against barge collisions and wave erosion.

Existing levees and floodwalls along Algiers and Harvey Canals will be incorporated into the protected side of the closure complex and would be integrated as features of the parallel protection system retention basin. Those levees would be lifted to the former authorized level of protection, and existing pump stations within the proposed detention basin would receive fronting protection and back flow prevention which would required additional right-of-way impacts. Approximately 700,000 cubic yards of material in the Algiers Canal would be dredged in order to maintain a still water level of less than 6 feet (NAVD 88) in the retention basin. Material dredged would be placed within the Jean Lafitte NHPP for marsh restoration along Lake Salvador.

Features of the structure that would cross the GIWW include a 150-to-300-foot-wide navigation channel closure gate and a 100-to-200-foot-wide bypass channel closure gate built to a protection elevation of 16 feet (NAVD 88), or greater, and tied into the nearest flood protection levee. A pumping station would provide positive backwater prevention. The bypass channel would be constructed to allow navigation on the GIWW during construction of the retaining structure, pumps and gates and will be used in the event of the closure of the primary channel structure. A water control structure is also proposed on the Old Estelle PS outfall canal.

In addition to levee and floodwall construction the proposed action includes several environmental augmentations to ensure that adverse impacts to the Bayou aux Carpes 404 (c)

area are avoided. The southern side of the Old Estelle pump station outfall canal would be gapped to provide evenly distributed sheet flow into the Bayou aux Carpes 404(c) area. After analysis of hydrologic modeling, existing obstructions (e.g., spoil banks, access roads) within the Bayou aux Carpes 404 (c) area may also be augmented, including modifying the shell plug at Bayou aux Carpes where it historically connected to Bayou Baratavia to provide hydrological exchange. Long-term monitoring of the affects of the proposed flood protection system and augmentation features on the Bayou aux Carpes wetland complex would be conducted. Should monitoring indicate that augmentation features have an adverse affect on the Bayou aux Carpes 404 (c) area, flow from the Old Estelle pump station would be redirected away from the 404 (c) area and through the proposed water control structure at the end of the Old Estelle outfall canal and into the GIWW.

In the GIWW adjacent to the Bayou aux Carpes 404 (c) area and south of the navigation channel closure gate, 2,000 linear feet of foreshore dike protection would be constructed in front of the channel bank to prevent scouring or bank erosion within the Bayou aux Carpes 404 (c) area associated with discharge from the pump station.

The GIWW WCC alternative provides 100-year protection based upon improvements, enhancements, and construction confined to the GIWW reach in concert with tie-ins to improvements to the Hero Canal Levee (IER #13) and the V-line Levee (IER #14).

## EVALUATION METHOD

Direct impacts to bottomland hardwood and swamp habitat were quantified by acreage and habitat quality (i.e., average annual habitat units or AAHUs) and are presented in Table 1. The Service used the Louisiana Department of Natural Resources Habitat Assessment Methodology (HAM) to quantify the impacts of proposed project features on upland and wetland bottomland hardwood habitat and used the Wetland Value Assessment (WVA) methodology to quantify the impacts on swamp habitat. The habitat assessment models for bottomland hardwoods within the Louisiana Coastal Zone utilized in this evaluation were modified from those developed in the Service's Habitat Evaluation Procedures (HEP). For each habitat type, those models define an assemblage of variables considered important to the suitability of an area to support a diversity of fish and wildlife species. The HAM, however, is a community-level evaluation instead of the species-based approach used with HEP. The WVA is used to evaluate coastal restoration projects, and is similar to the Service's HEP, in that habitat quality and quantity (acreage) are measured for baseline conditions, and predicted for future without-project and future with-project conditions. As with HEP, the WVA provides a quantitative estimate of project-related impacts to fish and wildlife resources; however, the WVA is based on separate models for fresh/intermediate marsh, brackish marsh, and saline marsh. Further explanation of how impacts/benefits are assessed with the HAM and WVA and an explanation of the assumptions affecting habitat suitability (i.e., quality) index (HSI) values for each target year for impacts to bottomland hardwood and swamp habitat are available for review at the Service's Lafayette, Louisiana, field office.

**Table 1: Potential Impacts from Algiers-Harvey 100-year Hurricane Protection Project**

	protected side (hydrologically altered)				floodside (hydrologically connected)		
	pasture (acres)	early successional BLH (PFO1Ad)	mid-late successional BLH (PFO1Ad)	mid-late successional (temporary impacts) (PFO1Ad)	riparian swamp (PFO2)	404c BLH (PFO1r)	404c Swamp (PFO2)
Algiers Eastbank Levee Expansion	----	1.2	23.7	----	43.0	----	----
Algiers Westbank Levee Exp	----	6.7	13.8	----	3.8	----	----
East Bank Nav Structure	----	7.8	126.2	----	8.3	----	----
EBNS- staging areas	63.6	----	----	6.9	----	----	----
Levee Exp N of Estelle O/F canal	----	----	3.1	----	2.7	----	----
Levee Exp W of 404c	----	23.5	4.0	----	----	----	----
Levee Exp W of Harvey	----	----	34.8	----	9.7	----	----
Floodwall construction 404c	----	----	----	----	----	2.4	7.4
Total Acres (392.6)	63.6	39.2	205.6	6.9	67.5	2.4	7.4
Total AAHUs lost	0.0	22.3	150.2	4.8	34.3	1.9	4.2
Total BLH protected side = 252 ac, 177.3 AAHUs							
Total BLH flood side (404c) = 2.4 ac, 1.9 AAHUs							
Total swamp flood side = 67.5 ac + 7.4 ac in 404c = 74.9 ac, 38.5 AAHUs							

Acreage values estimated from 2005 aerial photography and LIDAR data in ArcGIS.

As indicated in Table 1, based on our HAM and WVA analyses (Appendix A) project implementation would result in the direct loss of 255 and 75 acres, and 179.2 and 38.5 AAHUs, of bottomland hardwood forest and swamp, respectively. Implementation of the preferred alternative would directly impact 252 acres of hydrologically-altered bottomland hardwood habitat, 2.4 acres of wet bottomland hardwood habitat, and approximately 75 acres of swamp habitat. Of those impacts approximately 2.4 acres of wet bottomland hardwood and 7.4 acres of swamp habitat (i.e., 9.8 acres) occur within the Bayou aux Carpes 404 (c) area along the GIWW interface.

## PROJECT IMPACTS

Proposed project impacts associated with the GIWW WCC alternative would result primarily from construction of new levees, expansion of levee rights-of-way and associated features. Although some construction will occur in cleared areas and on existing levees, project implementation will directly impact wet and non-wet bottomland hardwoods and tupelo swamp that provide medium to high habitat value for diverse fish and wildlife resources. While some construction staging and processing areas are located in open, non-forested areas, approximately

7 acres of bottomland hardwood forest associated with one staging location would be impacted.

Direct impacts to 252 acres of hydrologically-altered (i.e., non-wet) bottomland hardwood habitat would occur as a result of the GIWW WCC alternative. Impacts would be associated with expanding the existing flood protection levee right-of-way to bring it to the authorized level of protection and with realigning and expanding the levee on the south bank of the GIWW to accommodate the proposed bypass channel, navigable floodgate, pump station and a current reduction flow structure. The footprint of the proposed pump station would also impact non-wet bottomland hardwood habitat; however, by repositioning the levee landward an undetermined amount of previously-altered bottomland hardwood habitat would be returned to a natural overbank flooding regime.

Direct impacts to 2.4 acres of bottomland hardwood habitat and 7.4 acres of swamp habitat would occur as a result of constructing a new floodwall within a 100-foot right-of-way along the Bayou aux Carpes 404 (c) area and the GIWW interface. Impacts are also associated with floodside armoring of the proposed floodwall. Construction of this floodwall and armoring would impact riparian habitat and disrupt wildlife passage between the Bayou aux Carpes wetland complex and adjacent habitats. Riparian habitats are particularly valuable to wildlife as transition zones between aquatic and forested habitats, and contribute vital elements to fishery resources in the form of detritus, shade, and in-stream cover.

Although proposed impacts to the Bayou aux Carpes 404 (c) area have been minimized, the discharges of any dredged or fill material within the Bayou aux Carpes 404(c) area is currently restricted and would require the EPA to modify the CWA Section 404 (c) determination. To ensure that potential impacts resulting from the construction of a flood protection structure/barrier do not compromise the value of this nationally-significant wetland ecosystem, the Corps is proposing to incorporate features into the proposed hurricane protection project to maintain the integrity Bayou aux Carpe 404 (c) area habitat (i.e., floatant marsh and cypress swamp). Storm water discharge from the Old Estelle pump station would be directed into the Bayou aux Carpes 404 (c) area by strategically gapping along the southern edge of the canal spoil bank. The Corps also proposes to modify interior hydrologic obstructions and the Bayou aux Carpes shell plug to provide additional hydrological exchange, if deemed necessary. To ensure that appropriate measures are implemented to maintain the function and quality of the wetland complex, the Corps' Engineer Research and Development Center (ERDC) will be conducting modeling of existing hydrologic conditions within the Bayou aux Carpes drainage area and the effects of directing additional flow and nutrients into the that wetland complex.

On the protected side of the navigation structure the Algiers and Harvey Canals would be integrated as features of the parallel protection system retention basin. Approximately 700,000 cubic yards in the Algiers Canal would be dredged in order to maintain a still water level of less than 6 feet (NAVD 88) in the retention basin. Existing tidal fluctuations within the retention basin would not be affected during normal conditions. That material would be used beneficially to create marsh along the Lake Salvador shoreline within the Jean Lafitte NHPP.

Development is ongoing within the hurricane protection levees; therefore, the Service has assumed that, for this specific IER, project-induced development within enclosed wetlands would be insignificant. However, project impacts to non-wet bottomland hardwoods and swamp habitat as a result of flood protection improvements should be mitigated.

### **FISH AND WILDLIFE CONSERVATION AND MITIGATION MEASURES**

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

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

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

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved. Considering the high value of forested wetlands and marsh for fish and wildlife and the relative scarcity of that habitat type, those wetlands are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Potential direct and indirect impacts to floatant marsh have been avoided by aligning the floodwall along the periphery of the Bayou aux Carpes wetland complex. While the preferred alignment has resulted in greater impacts to forested wetlands, the proposed flood protection structure would enclose fewer wetland acres, and the damaging hydrologic effects associated with bisecting the Bayou aux Carpes floatant marsh with a structural barrier would be avoided. Therefore, remaining direct project impacts to forested wetlands should be mitigated via in-kind compensatory replacement of the habitat values lost. Degraded (i.e., non-wet) bottomland hardwood forest and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. Project impacts to wetlands will be minimized to some extent by hauling in material for the levee. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value.

Mitigation for unavoidable losses of wet and non-wet bottomland hardwoods and swamp habitat, caused by project features will be evaluated through a complementary comprehensive mitigation

IER. However, mitigation for unavoidable impacts to the Bayou aux Carpes 404 (c) area should be provided concurrently with flood protection features and within the Bayou aux Carpes 404 (c) area, provided EPA determines that modification of the 404 (c) designation is warranted.

We commend the Corps efforts to ensure fish and wildlife habitats within the Bayou aux Carpes 404 (c) area are maintained by augmenting the proposed hurricane protection project. Because of the hydrologically sensitive nature of the floatant marsh and cypress swamp habitat, the implementation and design of proposed augmentations to the Bayou aux Carpes 404 (c) area should be closely coordinated with the results ERDC hydrologic investigations. The natural resource agencies, particularly the NPS and EPA, should be intimately involved in determining what hydrologic parameters should be investigated, reviewing the results of the investigations, and developing the best solution to maintaining and improving the hydrology of the floatant marsh and cypress swamp habitats. Depending on the results of those investigations, a plan should be designed and implemented to modify hydrologic and nutrient inflow effects to the Bayou aux Carpes area (e.g., gapping the Estelle Pump Station Outfall Canal, gapping or grading down interior canal banks such as the Southern Natural Gas and Shell pipeline canals, and/or modifying the shell plug at Bayou aux Carpes). Should proposed long-term monitoring efforts reveal that any of the proposed augmentation features would result in adverse impacts, the Corps should restore those features to pre-project conditions in coordination with the natural resource agencies.

To minimize impacts associated with removing additional borrow from forested areas, material dredged from the Algiers Canal and removed during project construction (i.e., repositioning the WBV, levee landward to accommodate the GIWW gate, and dredging along the GIWW bankline to install the flow control structure) should be tested to determine its suitability for levee construction. According to 2005 sediment sampling conducted for maintenance of the Inner Harbor Navigation Canal (IHNC) project in Orleans Parish, Louisiana, some sediment collected from GIWW and IHNC was considered unsuitable for open water disposal, and other options for disposal were necessary. Material dredged from the GIWW/Algiers Canal should be tested for contaminants, and the Corps should continue to coordinate with the natural resource agencies to determine the best use of that material.

### **SERVICE POSITION AND RECOMMENDATIONS**

Construction of the increased flood protection would result in direct impacts to 179.2 and 38.5 AAHUs, of bottomland hardwood forest and swamp, respectively. The Service does not object to providing improved hurricane protection to the greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. Flood protection and ancillary features such as staging areas and access roads should be designed and positioned so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized to the greatest extent possible.

2. The Corps should fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
3. The enclosure of wetlands with new levee alignments should be minimized to the fullest extent. When enclosure of wetlands is unavoidable, non-development easements on enclosed wetlands should be acquired, or hydrologic connections with adjacent, un-enclosed wetlands should be maintained. Such actions will serve to minimize secondary impacts from development and hydrologic alteration.
4. Material removed during project construction (i.e., dredging Algiers Canal, repositioning the WBV, levee landward to accommodate the GIWW gate, and dredging along the GIWW bank line to install the flow control structure) should be tested to determine suitability as borrow material for levee construction and the presence of contaminants. The Corps should continue to coordinate with the natural resource agencies to determine the best use of that material.
5. A maintenance dredging management plan for material dredged from the Algiers Canal should be developed for the life of the project.
6. The Corps should avoid impacts to the Bayou aux Carpes 404 (c) area, if feasible. If not feasible the Corps should continue coordination with the NPS and EPA regarding any proposed project feature that may impact that area. Points of contacts for the agencies potentially impacted by project features are: National Park Service (NPS), contact Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)) and Ms. Barbara Keeler (214) 665-6698 with the EPA.
7. Hydrologic, nutrient, and contaminant modeling should be conducted to determine the best arrangement of environmental augmentation features (i.e., location of gaps and water control structures), if any, in the Bayou aux Carpes 404 (c) area.
8. Environmental augmentation features developed through the EPA 404 (c) modification procedures should be incorporated as project features, and the IER should be supplemented to address any additional augmentation features proposed through that process.
9. If hydraulic modeling demonstrates that environmental augmentation features are beneficial, operational plans to maximize freshwater retention or redirect freshwater flows into the Bayou aux Carpes 404 (c) area should be coordinated with the natural resource agencies, especially EPA and NPS. To accommodate changing goals and restoration needs, water control structures should be designed to incorporate operational flexibility through an adaptive management program.
10. The project's first Project Cooperation Agreement (or similar document) should include

language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation and augmentation features. If the local project-sponsor is unable to fulfill the financial requirements for maintenance of the shoreline protection features, the Corps should provide the necessary funding to ensure maintenance obligations are met on behalf of the public interest.

11. To facilitate necessary adaptive management, the Corps in coordination with the natural resource agencies, should develop a monitoring plan. That monitoring plan should address hydrologic, nutrient, and contaminant changes throughout the system. The performance and funding of the monitoring of mitigation and augmentation features should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure that local cost share obligations are met on behalf of the public interest.
12. Because of the sensitivity and significance of the Bayou aux Carpes 404 (c) area every effort should be made to minimize impacts during construction of the floodwall and navigational gate. Construction activities within the Bayou aux Carpes 404 (c) area should adhere to the following guidelines to avoid adverse impacts to the Bayou aux Carpes 404 (c) area:
  - A. Construction should be preformed from the water side (i.e., Bayou Barataria/GIWW side) rather than from the 404(c) side;
  - B. Construction of the floodwall within the Bayou aux Carpes 404 (c) area should be constructed within a 100-foot corridor width from the GIWW into the 404(c) area. No additional area within the 404(c) site would be required for the floodwall or any other construction;
  - C. The Corps should investigate and utilize innovative techniques to design and build a structure with the narrowest footprint possible; and,
  - D. Should existing oil and gas pipeline ROWs require relocation, impacts associated with those relocations should be avoided and minimized to the greatest extent possible.
13. If a proposed project feature is changed significantly or is not implemented within one year of the date of this report, the Corps should reinitiate coordination with each office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.
14. Adverse impacts to bald eagle nesting locations and wading bird colonies should be avoided through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagles during the nesting season (i.e., February 16 through October 31 for wading bird nesting colonies, and October through mid-May for bald eagles).

15. 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.
16. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation should 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 and those results should be forwarded to this office.
17. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
18. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
19. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, EPA, NPS, and the Louisiana Department of Natural Resources (LDNR). The Service should be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
20. If mitigation lands are purchased for inclusion within Federally or State managed lands, those lands must meet certain requirements; therefore the land manager of that management area should be contacted early in the planning phase regarding such requirements.
21. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
22. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable.
23. Any flood protection water control structure sited in a canal, bayou, or navigation channel that does not maintain the pre-project cross section should be designed and operated with

multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.

24. Flood protection water control structures should remain completely open except during storm events, unless otherwise determined by the natural resource agencies.
25. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered, and coordination should continue with the natural resource agencies to ensure fish passage features are incorporated to the fullest extent practicable.
26. To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.
27. To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts should be selected that would maintain sufficient flow to prevent siltation.
28. Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.
29. Any proposed change in mitigation or augmentation features or plans should be coordinated in advance with the Service, NMFS, LDWF, EPA and LDNR.
30. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

### LITERATURE CITED

- Louisiana Coastal Wetland Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coastal 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources. Baton Rouge, LA. 70898.
- U.S. Fish and Wildlife Service 1985. "Fish and Wildlife Resources of the Bayou aux Carpes Drainage Area, Jefferson Parish, Louisiana." U.S. Fish and Wildlife Service - Division of Ecological Services, Lafayette, Louisiana.

**Appendix A**

**WVA Analysis**

IER # 12 - Appendix I  
**COMMUNITY HABITAT SUITABILITY MODEL**  
**Bottomland Hardwoods**

Project..... IER 12, Alt 2, BLH east staging area

Acres: 6.9

Condition: Future With Project

Variable		TY 0		TY 1		TY 3				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1				
V2	Maturity <small>(input age or dbh, not both)</small>	Age dbh 17.8	0.85	Age dbh 0.1	0.00	Age dbh 0.1	0.00			
V3	Understory / Midstory	Understory % 80		Understory % 0		Understory % 0		0.80	0.10	0.10
		Midstory % 17	0.83	Midstory % 0		Midstory % 0		0.87	0.10	0.10
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50			
V5	Forest Size	Class 5	1.00	Class 0		Class 0				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.72	60	0.72	60	0.72			
	Abandoned Ag Pasture / Hay	29		29		29				
	Active Ag Development	11		11		11				
V7	Disturbance	Class 2	0.26	Class 1	0.01	Class 1	0.01			
	Type	Class 1		Class 1		Class 1				
	Distance	Class 1		Class 1		Class 1				
		HSI =	0.72	HSI =	0.01	HSI =	0.01			

Project..... IER 12, Alt 2, BLH east staging area  
 FWP

Variable		TY 4		TY 50		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 2		Class 4	0.80	Class				
V2	Maturity <small>(input age or dbh, not both)</small>	Age dbh 1	0.00	Age dbh 46	0.92	Age dbh				
V3	Understory / Midstory	Understory % 80		Understory % 20		Understory %		0.80	0.70	
		Midstory % 80		Midstory % 60	0.80	Midstory %		0.70	0.90	
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class				
V5	Forest Size	Class 1		Class 1	0.20	Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.72	60	0.72					
	Abandoned Ag Pasture / Hay	29		29						
	Active Ag Development	11		11						
V7	Disturbance	Class 2	0.26	Class 2	0.26	Class				
	Type	Class 1		Class 1		Class				
	Distance	Class 1		Class 1		Class				
		HSI =	0.04	HSI =	0.65	HSI =				

IER # 12 - Appendix I  
**COMMUNITY HABITAT SUITABILITY MODEL**  
**Bottomland Hardwoods**

Project..... IER 12, Alt 2, BLH east staging area                      Acres:                      6.9

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age dbh 17.8	0.85	Age dbh 18.08	0.87	Age dbh 18.27	0.89			
V3	Understory / Midstory	Understory % 80 Midstory % 17	0.83	Understory % 80 Midstory % 17	0.83	Understory % 30 Midstory % 60	0.95	0.80	0.80	1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50			
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.72	60	0.72	60	0.72			
	Abandoned Ag	29		29		29				
	Pasture / Hay									
	Active Ag	11		11		11				
	Development									
V7	Disturbance	Class 2	0.26	Class 2	0.26	Class 2	0.26			
	Type	Class 1		Class 1		Class 1				
	Distance									
		HSI =	0.71	HSI =	0.71	HSI =	0.73			

Project..... IER 12, Alt 2, BLH east staging area  
FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 5	1.00	Class		Class				
V2	Maturity (input age or dbh, not both)	Age dbh 21.19	1.00	Age dbh		Age dbh				
V3	Understory / Midstory	Understory % 45 Midstory % 40	1.00	Understory % Midstory %		Understory % Midstory %		1.00		1.00
V4	Hydrology	Class 1	0.10	Class		Class				
V5	Forest Size	Class 4	0.80	Class		Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	60	0.72							
	Abandoned Ag	29								
	Pasture / Hay									
	Active Ag	11								
	Development									
V7	Disturbance	Class 2	0.26	Class		Class				
	Type	Class 1		Class		Class				
	Distance									
		HSI =	0.65	HSI =		HSI =				



## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project..... IER 12, Riparian BLH & Swamp

Project Area.....

68

Condition: Future Without Project

Variable		TY 0		TY 1		TY 10		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory		
		Scrub-shrub		Scrub-shrub		Scrub-shrub		
		Herbaceous		Herbaceous		Herbaceous		
		Class 3	0.40	Class 3	0.40	Class 3	0.40	
V2	Stand Maturity	Cypress %	30	Cypress %	30	Cypress %	30	
		Cypress dbh	18	Cypress dbh	18	Cypress dbh	21	0
		Tupelo et al. %	70	Tupelo et al. %	70	Tupelo et al. %	70	1
		Tupelo et al dbh	12.8	Tupelo et al dbh	13.07	Tupelo et al dbh	14.18	1
		Basal Area	25.15	Basal Area	25	Basal Area	38	
			0.20		0.20		0.20	
V3	Water Regime	Flow/Exchange high Flooding Duration seasonally	1.00	Flow/Exchange high Flooding Duration seasonally	1.00	Flow/Exchange high Flooding Duration seasonally	1.00	
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325	
		HSI =	0.43	HSI =	0.43	HSI =	0.43	

Project..... IER 12, Riparian BLH & Swamp  
FWOP

Variable		TY 20		TY 50		TY		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory		
		Scrub-shrub		Scrub-shrub		Scrub-shrub		
		Herbaceous		Herbaceous		Herbaceous		
		Class 4	0.60	Class 4	0.60	Class		
V2	Stand Maturity	Cypress %	30	Cypress %	30	Cypress %	0	
		Cypress dbh	24	Cypress dbh	30	Cypress dbh	0	0
		Tupelo et al. %	70	Tupelo et al. %	60	Tupelo et al. %	0	1
		Tupelo et al dbh	11.6	Tupelo et al dbh	19.39	Tupelo et al dbh	0	0.96
		Basal Area	38.94	Basal Area	106.56	Basal Area	0	0.00
			0.19		0.54		0	0.00
V3	Water Regime	Flow/Exchange high Flooding Duration seasonally	1.00	Flow/Exchange high Flooding Duration seasonally	1.00	Flow/Exchange Flooding Duration		
V4	Mean High Salinity	2.5	0.325	2.5	0.325			
		HSI =	0.48	HSI =	0.62	HSI =		

## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project.....

Project Area.....

68

Condition: Future With Project

Variable		TY 0		TY 1		TY 50		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory		
		Scrub-shrub		Scrub-shrub		Scrub-shrub		
		Herbaceous		Herbaceous		Herbaceous		
		Class 3	0.40	Class 1	0.10	Class 1	0.10	
V2	Stand Maturity	Cypress %	30	Cypress %	0	Cypress %	0	0
		Cypress dbh	18	Cypress dbh	0	Cypress dbh	0	1
		Tupelo et al. %	70	Tupelo et al. %	0	Tupelo et al. %	0	
		Tupelo et al dbh	12.8	Tupelo et al dbh	0	Tupelo et al dbh	0	1
		Basal Area	25.15	Basal Area	0	Basal Area	0	0.00
			1.00		0.00		0.00	
V3	Water Regime	Flow/Exchange high		Flow/Exchange None		Flow/Exchange none		
		Flooding Duration seasonal	1.00	Flooding Duration None	0.10	Flooding Duration none	0.10	
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325	
		HSI =	0.43	HSI =	0.00	HSI =	0.00	

Project..... IER 12, Riparian BLH & Swamp  
FWP

Variable		TY		TY		TY		
		Class/Value	SI	Class/Value	SI	Class/Value	SI	
V1	Stand Structure	% Cover Overstory		% Cover Overstory		% Cover Overstory		
		Scrub-shrub		Scrub-shrub		Scrub-shrub		
		Herbaceous		Herbaceous		Herbaceous		
		Class		Class		Class		
V2	Stand Maturity	Cypress %	0	Cypress %	0	Cypress %	0	0
		Cypress dbh	0	Cypress dbh	0	Cypress dbh	0	0
		Tupelo et al. %	0	Tupelo et al. %	0	Tupelo et al. %	0	
		Tupelo et al dbh	0	Tupelo et al dbh	0	Tupelo et al dbh	0	0
		Basal Area	0	Basal Area	0	Basal Area	0	0.00
			0		0.00		0.00	
V3	Water Regime	Flow/Exchange Moderate		Flow/Exchange Moderate		Flow/Exchange Moderate		
		Flooding Duration Semi-Permanent		Flooding Duration Semi-Permanent	0.65	Flooding Duration Semi-Permanent	0.65	
V4	Mean High Salinity					3.0	0.1	
		HSI =		HSI =		HSI =		



IER # 12 - Appendix I  
**COMMUNITY HABITAT SUITABILITY MODEL**  
**Bottomland Hardwoods**

Project..... IER 12, Alt 2, 404c BLH

Acres: 2.4

Condition: Future With Project

Variable		TY 0		TY 1		TY 50				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1				
V2	Maturity <small>(input age or dbh, not both)</small>	Age 35 dbh	0.70	Age 0.1 dbh	0.00	Age 0.1 dbh	0.00			
V3	Understory / Midstory	Understory % 48 Midstory % 65	0.93	Understory % 0 Midstory % 0		Understory % 0 Midstory % 0		1.00 0.10 0.10		
V4	Hydrology	Class 3	1.00	Class 1	0.10	Class 1	0.10			
V5	Forest Size	Class 5	1.00	Class 1		Class 1				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	73	0.83	73	0.83	73	0.83			
	Abandoned Ag	24		24		24				
	Pasture / Hay									
	Active Ag	3		3		3				
	Development									
V7	Disturbance	Class 2	0.26	Class 2	0.26	Class 2	0.26			
	Type	Class 1		Class 1		Class 1				
	Distance									
		HSI =	0.77	HSI =	0.01	HSI =	0.01			

Project..... IER 12, Alt 2, 404c BLH  
 FWP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Species Assoc.	Class		Class		Class	
V2	Maturity <small>(input age or dbh, not both)</small>	Age dbh		Age dbh		Age dbh	
V3	Understory / Midstory	Understory % Midstory %		Understory % Midstory %		Understory % Midstory %	
V4	Hydrology	Class		Class		Class	
V5	Forest Size	Class		Class		Class	
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 =	

## COMMUNITY HABITAT SUITABILITY MODEL Bottomland Hardwoods

Project..... IER 12, Alt 2, 404c BLH

Acres: 2.4

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age 35 dbh	0.70	Age 36 dbh	0.72	Age 56 dbh	1.00			
V3	Understory / Midstory	Understory % 48 Midstory % 65	0.93	Understory % 48 Midstory % 65	0.93	Understory % 35 Midstory % 50	1.00	1.00	1.00	1.00
V4	Hydrology	Class 3	1.00	Class 3	1.00	Class 3	1.00			
V5	Forest Size	Class 5	1.00	Class 5	1.00	Class 5	1.00			
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	73	0.83	73	0.83	73	0.83			
	Abandoned Ag Pasture / Hay	24		24		24				
	Active Ag Development	3		3		3				
V7	Disturbance Type	Class 2	0.26	Class 2	0.26	Class 2	0.26			
	Distance	Class 1		Class 1		Class 1				
		HSI = 0.77		HSI = 0.77		HSI = 0.85				

Project..... IER 12, Alt 2, 404c BLH  
FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class		Class				
V2	Maturity (input age or dbh, not both)	Age 75 dbh	1.00	Age dbh		Age dbh				
V3	Understory / Midstory	Understory % 35 Midstory % 35	1.00	Understory % Midstory %		Understory % Midstory %		1.00		1.00
V4	Hydrology	Class 3	1.00	Class		Class				
V5	Forest Size	Class 5	1.00	Class		Class				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	73	0.83							
	Abandoned Ag Pasture / Hay	24								
	Active Ag Development	3								
V7	Disturbance Type	Class 2	0.26	Class		Class				
	Distance	Class 1		Class		Class				
		HSI = 0.85		HSI =		HSI =				



## COMMUNITY HABITAT SUITABILITY MODEL Bottomland Hardwoods

Project..... IER 12, Alt 2, BLH early successional

Acres: 39

Condition: Future With Project

Variable		TY 0		TY 1		TY 50	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Species Assoc.	Class 1	0.20	Class 1		Class 1	
V2	Maturity (input age or dbh, not both)	Age 10 dbh	0.10	Age 0 dbh	0.00	Age 0 dbh	0.00
V3	Understory / Midstory	Understory % 60 Midstory % 50	1.00	Understory % 0 Midstory % 0		Understory % 0 Midstory % 0	1.00 1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50
V5	Forest Size	Class 4	0.80	Class 1		Class 1	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	84	0.90	84	0.90	84	0.90
	Abandoned Ag Pasture / Hay Active Ag Development	16		16		16	
V7	Disturbance	Class 2	1.00	Class 2	1.00	Class 2	1.00
	Type	Class 3		Class 3		Class 3	
	Distance						
		HSI = 0.31		HSI =		HSI =	

Project..... IER 12, Alt 2, BLH early successional  
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 dbh		Age dbh		Age dbh	
V3	Understory / Midstory	Understory % Midstory %		Understory % Midstory %		Understory % Midstory %	
V4	Hydrology	Class		Class		Class	
V5	Forest Size	Class		Class		Class	
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 =	

## COMMUNITY HABITAT SUITABILITY MODEL Bottomland Hardwoods

Project..... IER 12, Alt 2, BLH early successional

Acres:

39

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Species Assoc.	Class 1	0.20	Class 1	0.20	Class 2	0.40
V2	Maturity (input age or dbh, not both)	Age 10 dbh	0.10	Age 11 dbh	0.12	Age 31 dbh	0.62
V3	Understory / Midstory	Understory % 60 Midstory % 40	1.00	Understory % 60 Midstory % 50	1.00	Understory % 50 Midstory % 70	1.00 1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	84	0.90	84	0.90	82	0.88
	Abandoned Ag Pasture / Hay	16		16		16	
	Active Ag Development					2	
V7	Disturbance	Class 2	1.00	Class 2	1.00	Class 2	1.00
	Type	Class 3		Class 3		Class 3	
	Distance						
		HSI =	0.31	HSI =	0.33	HSI =	0.61

Project..... IER 12, Alt 2, BLH early successional  
FWP

Variable		TY 50		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Species Assoc.	Class 2	0.40	Class		Class	
V2	Maturity (input age or dbh, not both)	Age 61 dbh	1.00	Age dbh		Age dbh	
V3	Understory / Midstory	Understory % 30 Midstory % 60	0.95	Understory % Midstory %		Understory % Midstory %	1.00 0.90
V4	Hydrology	Class 2	0.50	Class		Class	
V5	Forest Size	Class 4	0.80	Class		Class	
V6	Surrounding Land Use	Values %		Values %		Values %	
	Forest / marsh	82	0.88				
	Abandoned Ag Pasture / Hay	16					
	Active Ag Development	2					
V7	Disturbance	Class 2	1.00	Class		Class	
	Type	Class 3		Class		Class	
	Distance						
		HSI =	0.69	HSI =		HSI =	



## COMMUNITY HABITAT SUITABILITY MODEL Bottomland Hardwoods

Project..... IER 12, Alt 2, Mid-Late Succ. BLH

Acres: 206

Condition: Future With Project

Variable		TY 0		TY 1		TY 50				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 1		Class 1				
V2	Maturity <small>(input age or dbh, not both)</small>	Age dbh 14.94	0.66	Age dbh 0		Age dbh 0				
V3	Understory / Midstory	Understory % 45 Midstory % 55	0.98	Understory % 0 Midstory % 0		Understory % 0 Midstory % 0		1.00	0.10	0.10
V4	Hydrology	Class 2	0.50	Class 1	0.10	Class 1	0.10			
V5	Forest Size	Class 4	0.80	Class 1		Class 1				
V6	Surrounding Land Use	Values %		Values %		Values %				
	Forest / marsh	33	0.43	73	0.83	73	0.83			
	Abandoned Ag	25		24		24				
	Pasture / Hay									
	Active Ag	42		3		3				
	Development									
V7	Disturbance	Class 2	0.50	Class 1	0.01	Class 1	0.01			
	Type	Class 2		Class 1		Class 1				
	Distance	Class 2		Class 1		Class 1				
		HSI = 0.68		HSI =		HSI =				

Project..... IER 12, Alt 2, Mid-Late Succ. BLH  
FWP

Variable		TY		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class		Class		Class				
V2	Maturity <small>(input age or dbh, not both)</small>	Age dbh		Age dbh		Age dbh				
V3	Understory / Midstory	Understory % Midstory %		Understory % Midstory %		Understory % Midstory %				
V4	Hydrology	Class		Class		Class				
V5	Forest Size	Class		Class		Class				
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	Class		Class		Class				
		HSI =		HSI =		HSI =				

**COMMUNITY HABITAT SUITABILITY MODEL**  
**Bottomland Hardwoods**

Project..... IER 12, Alt 2, Mid-Late Succ. BLH

Acres: 206

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V2	Maturity (input age or dbh, not both)	Age dbh 14.94	0.66	Age dbh 15.22	0.68	Age dbh 18.27	0.89			
V3	Understory / Midstory	Understory % 45 Midstory % 55	0.98	Understory % 45 Midstory % 55	0.98	Understory % 30 Midstory % 60	0.95	1.00	1.00	1.00
V4	Hydrology	Class 2	0.50	Class 2	0.50	Class 2	0.50			
V5	Forest Size	Class 4	0.80	Class 4	0.80	Class 4	0.80			
V6	Surrounding Land Use	Values % Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development 42	0.43	Values % 33 25 42	0.43	Values % 33 25 42	0.43			
V7	Disturbance Type	Class 2	0.50	Class 2	0.50	Class 2	0.50			
	Distance	Class 2		Class 2		Class 2				
		HSI =	0.68	HSI =	0.69	HSI =	0.73			

Project..... IER 12, Alt 2, Mid-Late Succ. BLH  
 FWP

Variable		TY 50		TY		TY				
		Class/Value	SI	Class/Value	SI	Class/Value	SI			
V1	Species Assoc.	Class 4	0.80	Class		Class				
V2	Maturity (input age or dbh, not both)	Age dbh 21.19	1.00	Age dbh		Age dbh				
V3	Understory / Midstory	Understory % 30 Midstory % 30	1.00	Understory % Midstory %		Understory % Midstory %		1.00	1.00	
V4	Hydrology	Class 2	0.50	Class		Class				
V5	Forest Size	Class 4	0.80	Class		Class				
V6	Surrounding Land Use	Values % Forest / marsh Abandoned Ag Pasture / Hay Active Ag Development 42	0.43	Values %		Values %				
V7	Disturbance Type	Class 2	0.50	Class		Class				
	Distance	Class 2		Class		Class				
		HSI =	0.76	HSI =		HSI =				



## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project..... IER 12, 404c Tupelo Swamp

Project Area.....

7.4

Condition: Future Without Project

Variable		TY 0		TY 1		TY 10	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory 35 Scrub-shrub 50 Herbaceous 70 Class 5	0.80	% Cover Overstory 35 Scrub-shrub 50 Herbaceous 70 Class 5	0.80	% Cover Overstory 40 Scrub-shrub 50 Herbaceous 55 Class 5	0.80
V2	Stand Maturity	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 12.8 Basal Area 25.15	1.00  0.20	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 13.07 Basal Area 25	1.00  0.20	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 14.18 Basal Area 38	1.00  0.20
V3	Water Regime	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange High Flooding Duration Semi-Permanent	0.75
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325
		HSI =	0.48	HSI =	0.48	HSI =	0.48

Project..... IER 12, 404c Tupelo Swamp  
FWOP

Variable		TY 20		TY 50		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory 45 Scrub-shrub 40 Herbaceous 60 Class 5	0.80	% Cover Overstory 60 Scrub-shrub 35 Herbaceous 35 Class 5	1.00	% Cover Overstory  Scrub-shrub  Herbaceous  Class	
V2	Stand Maturity	Cypress % 10 Cypress dbh 6 Tupelo et al. % 90 Tupelo et al dbh 11.6 Basal Area 44	0.87  0.35	Cypress % 20 Cypress dbh 15 Tupelo et al. % 80 Tupelo et al dbh 19.39 Basal Area 106.56	0.99  0.59	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00  0.00
V3	Water Regime	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange Flooding Duration	
V4	Mean High Salinity	2.5	0.325	2.5	0.325		
		HSI =	0.56	HSI =	0.68	HSI =	

## WETLAND VALUE ASSESSMENT COMMUNITY MODEL Swamp

Project..... IER 12, 404c Tupelo Swamp

Project Area.....

7.4

Condition: Future With Project

Variable		TY 0		TY 1		TY 50	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory 35 Scrub-shrub 50 Herbaceous 70 Class 5	0.80	% Cover Overstory Scrub-shrub Herbaceous Class 1	0.10	% Cover Overstory Scrub-shrub Herbaceous Class 1	0.10
V2	Stand Maturity	Cypress % 0 Cypress dbh 0 Tupelo et al. % 100 Tupelo et al dbh 12.8 Basal Area 25.15	1.00	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00
V3	Water Regime	Flow/Exchange High Flooding Duration Semi-Permanent	0.75	Flow/Exchange None Flooding Duration None	0.10	Flow/Exchange none Flooding Duration none	0.10
V4	Mean High Salinity	2.5	0.325	2.5	0.325	2.5	0.325
		<b>HSI =</b>	<b>0.48</b>	<b>HSI =</b>	<b>0.00</b>	<b>HSI =</b>	<b>0.00</b>

Project..... IER 12, 404c Tupelo Swamp  
FWP

Variable		TY		TY		TY	
		Class/Value	SI	Class/Value	SI	Class/Value	SI
V1	Stand Structure	% Cover Overstory Scrub-shrub Herbaceous Class		% Cover Overstory Scrub-shrub Herbaceous Class		% Cover Overstory Scrub-shrub Herbaceous Class	
V2	Stand Maturity	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0		Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00	Cypress % 0 Cypress dbh 0 Tupelo et al. % 0 Tupelo et al dbh 0 Basal Area 0	0.00
V3	Water Regime	Flow/Exchange Moderate Flooding Duration Semi-Permanent		Flow/Exchange Moderate Flooding Duration Semi-Permanent	0.65	Flow/Exchange Moderate Flooding Duration Semi-Permanent	0.65
V4	Mean High Salinity					3.0	0.1
		<b>HSI =</b>		<b>HSI =</b>		<b>HSI =</b>	





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

646 Cajundome Blvd.  
Suite 400  
Lafayette, Louisiana 70506

November 26, 2007

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

Dear Colonel Lee

Please reference the Individual Environmental Reports (IER) being prepared under the approval of the Council on Environmental Quality (CEQ) that will partially fulfill the U.S. Army Corps of Engineers (Corps) compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in those IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade two existing hurricane protection projects (i.e., Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana. This draft report contains a description of resources in the project area and provides planning objectives and recommendations to minimize project impacts on those resources.

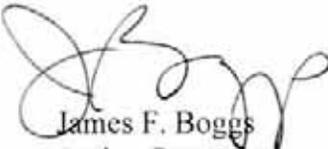
The proposed protection was authorized by Supplemental 4 which directed the Corps to proceed with engineering, design, modification, and construction, where necessary, of the Lake Pontchartrain and Vicinity and the West Bank and Vicinity Hurricane Protection Projects so those projects would provide 100-year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

Because of the uncertainties regarding the project design, the project's impacts are undetermined at the current stage of planning, therefore, we cannot complete our evaluation of the IER's effects on fish and wildlife resources and cannot entirely fulfill our reporting responsibilities under Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). Accordingly, extensive additional Service involvement during subsequent detailed planning, engineering, design, and construction phase of each IER, along with more-definitive

project information that will be available during those planning phases, will be required so that we can fulfill our responsibilities under that Act. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Service will be providing post-authorization draft and final supplemental 2(b) reports to this programmatic report for each IER. Therefore, this report does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report has not been reviewed by the Louisiana Department of Wildlife and Fisheries (LDWF) or the National Marine Fisheries Service (NMFS) but their comments on this report will be provided under separate cover.

Should you or your staff have any questions regarding this letter and our attached report, please contact David Walther (337/291-3122) of this office.

Sincerely,



James F. Boggs  
Acting Supervisor  
Louisiana Field Office

Attachment

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

**Draft Fish and Wildlife Coordination Act Report  
for the  
Individual Environmental Reports (IER)**

Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the  
Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4)



PROVIDED TO  
NEW ORLEANS DISTRICT  
U.S. ARMY CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

PREPARED BY  
DAVID WALTHER  
FISH AND WILDLIFE BIOLOGIST

U.S. FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES  
LAFAYETTE, LOUISIANA  
NOVEMBER 2007

U.S. FISH AND WILDLIFE SERVICE – SOUTHEAST REGION

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## EXECUTIVE SUMMARY

The Corps of Engineers New Orleans District (Corps) is preparing Individual Environmental Reports (IER) under the approval of the Council on Environmental Quality (CEQ). Those IERs will partially fulfill the Corps compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in those IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade two existing hurricane protection projects (i.e., Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana. This draft report contains a description of resources in the project area and provides planning objectives and recommendations to minimize project impacts on those resources.

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

Because of the uncertainties regarding the project design, the project's impacts are undetermined at the current stage of planning, therefore, we cannot complete our evaluation of the IER's effects on fish and wildlife resources and cannot entirely fulfill our reporting responsibilities under Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). Accordingly, extensive additional Service involvement during subsequent detailed planning, engineering, design, and construction phased of each IER, along with more-definitive project information that will be available during those planning phases, will be required so that we can fulfill our responsibilities under that Act. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Service will be providing post-authorization draft and final supplemental 2(b) reports to this programmatic report for each IER. Therefore, this report does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. This report has not been reviewed by the Louisiana Department of Wildlife and Fisheries (LDWF) or the National Marine Fisheries Service (NMFS) but their comments on this report will be provided under separate cover.

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

mitigation needs resulting from government and contractor provided borrow areas have been addressed in an October 25, 2007, and a November 1, 2007, FWCA reports, respectively. Therefore, this report will not address those borrow impacts and future impacts will be addressed in FWCA supplements to those FWCA reports. In addition, specific recommendations for mitigation will be addressed in separate FWCA reports because mitigation is still within early planning phases and lacks sufficient details to be adequately addressed.

Construction of the increased flood protection would result in un-quantified habitat losses. The Service does not object to providing improved hurricane protection to the Greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. To the greatest extent possible, situate flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized.
2. Minimize enclosure of wetlands with new levee alignments. When enclosing wetlands is unavoidable, acquire non-development easements on those wetlands, or maintain hydrologic connections with adjacent, un-enclosed wetlands to minimize secondary impacts from development and hydrologic alteration.
3. Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design project features and timing of construction.
4. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
5. The project's first Project Cooperation Agreement (or similar document) should include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation features.
6. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA) and Louisiana Department of Natural Resources (LDNR). The Service shall be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
7. The Corps should avoid impacts to public lands, if feasible. If not feasible the Corps should establish and continue coordination with agencies managing public lands that may be impacted by a project feature until construction of that feature is complete and prior to any subsequent maintenance. Points of contacts for the agencies potentially impacted by project features are: Kenneth Litzenberger, Project Leader for the Service's Southeast National Wildlife Refuges and Jack Bohannon (985) 822-2000, Refuge Manager for the Bayou Sauvage National Wildlife Refuge (NWR), Office of State Parks contact Mr. John Lavin at 1-888-677-1400, National Park Service (NPS), contact Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504)

589-3882 extension 128, (david\_muth@nps.gov) and for the 404(c) area contact the previously mentioned NPS personnel and Ms. Barbara Keeler (214) 665-6698 with the EPA.

8. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
9. If mitigation lands are purchased for inclusion within a NWR those lands must meet certain requirements; a summary of some of those requirements is provided in Appendix A. Other land-managing natural resource agencies may have similar requirements that must be met prior to accepting mitigation lands; therefore if they are proposed as a manager of a mitigation site they should be contacted early in the planning phase regarding such requirements.
10. If a proposed project feature is changed significantly or is not implemented within one year of the date of our Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.
11. In general, larger and more numerous openings in a protection levee better maintain estuarine dependent fishery migration. Therefore, as much opening as practicable, in number, size, and diversity of locations should be incorporated into project levees.
12. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable, especially structures located in tidal passes.
13. Flood protection water control structures should remain completely open except during storm events. Management of those structures should be developed in coordination with the Service, NMFS, LDWF, and LDNR.
14. Any flood protection water control structure sited in canals, bayous, or navigation channels that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
15. The number and siting of openings in flood protection levees should be optimized to minimize the migratory distance from the opening to enclosed wetland habitats.
16. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered.
17. To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet

per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.

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

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

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

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

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

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

24. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.

25. Any proposed change in mitigation features or plans should be coordinated in advance with the Service, NMFS, LDWF, EPA and LDNR.

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

## INTRODUCTION

The Corps of Engineers New Orleans District (Corps) is preparing Individual Environmental Reports (IER) under the approval of the Council on Environmental Quality (CEQ). Those IERs will partially fulfill the Corps compliance with the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321- 4347). IERs are a CEQ approved alternative arrangement for compliance with NEPA that would allow expedited implementation of improved hurricane protection measures. Work proposed in those IERs would be conducted under the authority of Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade two existing hurricane protection projects (i.e., Westbank and Vicinity of New Orleans and Lake Pontchartrain and Vicinity) in the Greater New Orleans area in southeast Louisiana. This draft report contains a description of resources in the project area and provides planning objectives and recommendations to minimize project impacts on those resources.

Because of the uncertainties regarding the project design, the project's impacts are undetermined at the current stage of planning, therefore, we cannot complete our evaluation of the IER's effects on fish and wildlife resources and cannot entirely fulfill our reporting responsibilities under Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). Therefore, extensive additional Service involvement during subsequent detailed planning, engineering, design, and construction phases of each IER, along with more-definitive project information that will be available during those planning phases, will be required so that we can fulfill our responsibilities under that Act. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Service will be providing post-authorization draft and final supplemental 2(b) reports to this programmatic report for each IER.

This report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the Westbank and Vicinity of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the Lake Pontchartrain and Vicinity Hurricane (dated July 25, 1984, and January 17, 1992) Protection projects. Impacts and mitigation needs resulting from government and contractor provided borrow areas have been addressed in an October 25, 2007, and a November 1, 2007, FWCA reports, respectively, therefore this report will not address those project features. This report does not constitute the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. It has not been reviewed by the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Marine Fisheries Service (NMFS), but their comments on this report will be forwarded under separate cover.

## DESCRIPTION OF THE STUDY AREA

The study area is located within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem. Portions of Jefferson, Orleans, St. Charles, St. Bernard and Plaquemines Parishes are included in the study area. Higher elevations occur on the natural levees of the

Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. Federal, State, and local levees have been installed for flood protection purposes, often with negative effects on adjacent wetlands. Navigation channels such as the Gulf Intracoastal Waterway and the Mississippi River – Gulf Outlet are also prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees. Major waterbodies include Lake Pontchartrain located north of the project area, the Mississippi River which bisects the project area, and Lake Borgne which is located on the eastern edge of the project area.

## **FISH AND WILDLIFE RESOURCES**

### **Description of Habitats**

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

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

Factors that will strongly influence future fish and wildlife resource conditions outside of the protection levees include freshwater input and loss of coastal wetlands. Depending upon the deterioration rate of marshes, the frequency of occasional short-term saltwater events may increase. Under that scenario, tidal action in the project area may increase gradually as the buffering effect of marshes is lost, and use of that area by estuarine-dependent fishes and shellfish tolerant of saltwater conditions would likely increase. Regardless of which of the above factors ultimately has the greatest influence, freshwater wetlands within and adjacent to the project area will probably experience losses due to development, subsidence, and erosion.

The ongoing loss of coastal Louisiana wetlands (approximately 1,149 square miles between 1956 and 2004; average loss rate of 24 square miles per year) was recently exacerbated by Hurricanes Katrina and Rita in 2005. Those hurricanes caused an initial loss of wetlands equivalent to 9 years (approximately 217 square miles) of mean annual losses. Louisiana wetlands provide 26 percent of the seafood landed in the conterminous United States and over 5 million migratory waterfowl utilize those wetlands every year. In addition, those wetlands provide protection to coastal towns, cities and their infrastructure, as well as important infrastructure for the nation's

oil and gas industry.

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

As previously mentioned, the Service has provided FWCA Reports for the two-subject protection projects. Those reports contain a through discussion of the significant fish and wildlife resources (including those habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein but the following brief descriptions are provided to update the previously mentioned information.

#### Forested Habitats

Forested habitats in the study area are divided into two major types; bottomland hardwood forests and cypress-tupelo swamps. Bottomland hardwood forests found in the project area occur primarily on the natural levees of the Mississippi River or former distributary channels. Dominant vegetation may include sugarberry, water oak, live oak, bitter pecan, black willow, American elm, Drummond red maple, Chinese tallow-tree, boxelder, green ash and elderberry. Most bottomland hardwoods that are located within the constructed hurricane protection projects have been degraded by forced drainage and resultant subsidence. Those areas are also often fragmented by development. Conversely, those bottomland hardwoods located outside the protection levees or in areas where structures through the levees maintain a hydrologic connection, still retain many wetland functions and values.

Cypress-tupelo swamps are located along the flanks of larger distributary ridges as a transition zone between bottomland hardwoods and lower-elevation marsh or scrub-shrub habitats. Cypress-tupelo swamps exist where there is little or no salinity, usually minimal daily tidal action and are usually flooded throughout most of the growing season. Bald cypress-tupelugum are the dominant vegetation within this habitat type, however, Drummond red maple, green ash, and black willow are also common. Cypress swamps that are within the levee system and under forced drainage are often dominated by bald cypress, but vegetative species more typical of bottomland hardwoods will dominate the under- and mid-story vegetation. These sites will often have ecological functions closer to those of a bottomland hardwood. Because of their altered hydrology, these areas can potentially convert to sites dominated by bottomland hardwood species.

## Marshes

Marsh types within the project area include fresh, intermediate, brackish, and saline. Fresh marshes occur at the upper ends of intertributary basins and are often characterized by floating or semi-floating organic soils and minimal daily tidal action. Vegetation may include maidencane, bulltongue, cattail, California bulrush, pennywort, giant cutgrass, American cupscale, spikerushes, bacopa, and alligatorweed. Associated open water habitats may often support extensive beds of floating-leafed and submerged aquatic vegetation including water hyacinth, *Salvinia*, duckweeds, American lotus, white water lily, water lettuce, coontail, Eurasian milfoil, hydrilla, pondweeds, naiads, fanwort, wild celery, water stargrass, elodea, and others.

Intermediate marshes are a transitional zone between fresh and brackish marshes and are often characterized by organic, semi-floating soils. Typically, intermediate marshes experience low levels of daily tidal action. Salinities are negligible or low throughout much of the year, with salinity peaks occurring during late summer and fall. Vegetation includes saltmeadow cordgrass, deer pea, three-cornered grass, cattail, bulltongue, seashore paspalum, wild millet, fall panicum, and bacopa. Ponds and lakes within the intermediate marsh zone often support extensive submerged aquatic vegetation including southern naiad, Eurasian milfoil, and wigeongrass.

Brackish marshes are characterized by low to moderate daily tidal energy and by soils ranging from firm mineral soils to organic semi-floating soils. Freshwater conditions may prevail for several months during early spring; however, low to moderate salinities occur during much of the year, with peak salinities in the late summer or fall. Vegetation is usually dominated by saltmeadow cordgrass, but also includes saltgrass, three-cornered grass, leafy three-square, and deer pea. Shallow brackish marsh ponds occasionally support abundant beds of wigeongrass.

Saline marshes occur along the fringe of the coastal wetlands. Those marshes usually exhibit fairly firm mineral soils and experience moderate to high daily tidal energy. Vegetation is dominated by saltmarsh cordgrass but may also include saltgrass, saltmeadow cordgrass, black needlerush, and leafy three-square. Submerged aquatic vegetation is rare. Within the study area, intertidal mud flats are most common in saline marshes.

## Scrub-Shrub Habitats

Scrub-shrub habitat is often found along the flanks of distributary ridges and in marshes altered by spoil deposition or drainage projects. Typically it is bordered by marsh at lower elevations and by developed areas, cypress-tupelo swamp, or bottomland hardwoods at higher elevations. Typical scrub-shrub vegetation includes elderberry, wax myrtle, buttonbush, black willow, Drummond red maple, Chinese tallow-tree, and groundselbush. Some scrub-shrub habitat is an early successional stage of bottomland hardwood forests.

## Open-Water Habitats

Open-water habitat within the project area consists of ponds, lakes, canals, bays, and bayous. Natural marsh ponds and lakes are typically shallow, ranging in depth from 6 inches to over 2

feet. Typically, the smaller ponds are shallow and the larger lakes and bays are deeper. In fresh and low-salinity areas, ponds and lakes may support varying amounts of submerged and/or floating-leaved aquatic vegetation. Brackish and, much less frequently, saline marsh ponds and lakes may support wigeongrass beds.

Canals and larger bayous typically range in depth from 4 or 5 feet, to over 15 feet. Strong tidal flows may occur at times through those waterways, especially where they provide hydrologic connections to other large waterbodies. Such canals and bayous may have mud or clay bottoms that range from soft to firm. Dead-end canals and small bayous are typically shallow and their bottoms may be filled in to varying degrees with semi-fluid organic material. Erosion due to wave action and boat wakes, together with shading from overhanging woody vegetation, tends to retard the amount of intertidal marsh vegetation growing along the edges of those waterways.

Drainage canals enclosed within the hurricane protection project are stagnant except when pumps are operating to remove water. Runoff from developed areas has likely reduced the habitat value of that aquatic habitat by introducing various urban pollutants, such as oil, grease, and excessive nutrients. Clearing and development has eliminated much of the riparian habitat that would normally provide shade and structure for many aquatic species.

#### Developed Areas

Developed habitats in the study area include residential and commercial areas, as well as roads and existing levees. Those habitats do not support significant wildlife use. Most of the development is located on higher elevations of the Mississippi River natural levees and former distributary channels; however, vast acreages of swamp and marsh have been placed under forced drainage systems and developed. Limited amounts of agricultural lands occur through out the area; agriculture includes sugarcane farming, cattle production, and haying. Some development in wetlands is also occurring as result of permitted fill activities.

#### **Fishery/Aquatic Resources**

Drainage canals in the study area do not support significant fishery resources because of dense vegetation, poor water quality, and inadequate depth. Freshwater sport fishes present in the project area, but outside of the levees, include largemouth bass, crappie, bluegill, redear sunfish, warmouth, channel catfish, and blue catfish. Other fishes likely to be present include yellow bullhead, freshwater drum, bowfin, carp, buffalo, and gar. Estuarine-dependent fishes and shellfishes such as Atlantic croaker, red drum, spot, sand seatrout, spotted seatrout, southern flounder, Gulf menhaden, striped mullet, brown shrimp, white shrimp, and blue crab are found in the intermediate to saline marshes.

Some of the waterbodies in the project area meet criteria for primary and secondary contact recreation and partially meets criteria for fish and wildlife propagation, while others do not meet the criteria for fish and wildlife propagation. Causes for not fully meeting fish and wildlife propagation criteria include excessive nutrients, organic enrichment, low dissolved oxygen levels, flow and habitat alteration, pathogens and noxious aquatic plants. Indicated sources of

those problems include hydromodification, habitat modification, recreational activities, and unspecified upstream sources. Municipal point sources, urban runoff, storm sewers, and onsite wastewater treatment systems are also known contributors to poor water quality in the area.

Deteriorating water quality in the Barataria Basin, at least partially correlated to wetlands loss and a commensurate reduction in the area's waste assimilation capacity, is a major problem affecting fish and wildlife in that portion of the study area. According to Bahr et al. (1983), factors that currently adversely affect water quality in the Barataria Basin are those generally related to urban development and associated urban pollution, altered land-use patterns, and hydrologic modifications (drainage, etc.) within the watershed. Two major human-related causes of water quality degradation include eutrophication and increased levels of toxic substances.

### Essential Fish Habitat

Estuarine wetlands and associated shallow waters within the project area have been identified as Essential Fish Habitat (EFH) for both postlarval, juvenile and sub-adult stages of brown shrimp, white shrimp, and red drum, as well as the adult stages of those species in the nearshore and offshore reaches. EFH has also been designated for various life stages of Spanish mackerel, bluefish, cobia, and mangrove snapper in the nearshore, marine-portion of the project area and in the lower portions of the estuary. EFH requirements vary depending upon species and life stage. Categories of EFH in the project area include estuarine emergent wetlands, estuarine water column, submerged aquatic vegetation, and estuarine water bottoms. Detailed information on Federally managed fisheries and their EFH is provided in the 1998 generic amendment of the Fishery Management Plans for the Gulf of Mexico, prepared by the Gulf of Mexico Fishery Management Council (GMFMC). That generic amendment was prepared in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA); (P.L. 104-297). Estuarine-dependent species such as those listed above also serve as prey for other species managed under the MSFCMA by the GMFMC (e.g., red drum, mackerels, snappers, and groupers) and highly migratory species (e.g., billfishes and sharks) managed by the NMFS. Recommendations to minimize and/or avoid impacts to estuarine fishery species were developed by NMFS along with supporting literature and are included in Appendix B.

### **Wildlife Resources**

Mammals known to occur in the project-area bottomland hardwoods and marshes include mink, raccoon, swamp rabbit, nutria, river otter, and muskrat. Those habitats also support a variety of birds including herons, egrets, ibises, least bittern, rails, gallinules, olivaceous cormorant, white pelican, pied-billed grebe, black-necked stilt, sandpipers, gulls, and terns. Forested and scrub-shrub habitats within the study area also provide habitat for many resident passerine birds and essential resting areas for many migratory songbirds including warblers, orioles, thrushes, vireos, tanagers, grosbeaks, buntings, flycatchers, and cuckoos. Many of these and other passerine birds have undergone a decline in population primarily due to habitat loss.

Given the extent of development and drainage, waterfowl use within the hurricane protection system is likely minimal, except in the adjacent wetlands outside the levees. Swamps, fresh and

intermediate marshes usually receive greater waterfowl utilization than brackish and saline marshes because they generally provide more waterfowl food. Migratory species expected to occur in the project area include gadwall, green-winged teal, blue-winged teal, northern shoveler, mallard, pintail, American widgeon, lesser scaup, ring-necked duck, redhead, and canvasback. Resident species expected to occur in that area include mottled duck and wood duck.

The study area also supports resident hawks and owls including the red-shouldered hawk, barn owl, common screech owl, great horned owl, and barred owl. The red-tailed hawk, marsh hawk, and American kestrel are seasonal residents which utilize habitats within the study area.

Amphibians such as the pig frog, bullfrog, leopard frog, cricket frog, and Gulf coast toad are expected to occur in the fresh and low salinity wetlands of the project area. Reptiles such as the American alligator, snapping turtle, softshell turtle, red-eared turtle, and diamond backed terrapin are also expected to occur in the project-area wetlands and waterbodies.

### **Endangered and Threatened Species**

To aid the Corps in complying with their proactive consultation responsibilities under the Endangered Species Act (ESA), the Service provided a list of threatened and endangered species and their critical habitats within the coastal parishes of the New Orleans District in an August 7, 2006, letter to the Corps. The Service recommends that the Corps conduct ESA consultation on each IER as soon as plans are developed and impact locations are identified. If the plans are changed significantly or relocated, or work is not implemented within 1 year following that coordination, we recommend that the Corps reinitiate coordination with this office to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.

### **Protected Species**

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

The project area is located where colonial nesting waterbirds may be present. LDWF currently maintains a database of these colonies locations. That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new, comprehensive coast-wide survey is conducted to determine the location of newly-established nesting colonies, we recommend that a qualified biologist inspect the proposed work sites for the presence of undocumented nesting colonies during the nesting season (e.g. February through September depending on the species). If colonies exist work should not be conducted within 1,000 feet of the colony during the nesting season

Forested habitat in the project-area may provide nesting habitat for the bald eagle, which has officially been removed from the List of Endangered and Threatened Species as of August 8,

2007. Although the bald eagle has been removed from the threatened and endangered species list, it continues to be protected under the MBTA and the BGEPA. The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. Those guidelines recommend maintaining: (1) a specified distance between the activity and the nest (buffer area); (2) natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or replacement nest trees. On-site personnel should be informed of the possible presence of nesting bald eagles within the project boundary, and should identify, avoid, and immediately report any such nests to this office. A copy of the NBEM Guidelines is available at:

<http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>. If after consulting those guidelines you need further assistance in determining the appropriate size and configuration of buffers or the timing of activities in the vicinity of a bald eagle nest, the please contact this office.

#### **National Wildlife Refuges, Parks, 404(c) area**

Located within the study area are the Bayou Segnette and the St. Bernard State Parks, which are operated by the Louisiana Department of Culture, Recreation and Tourism, Office of State Parks. Please contact Mr. John Lavin at 1-888-677-1400 regarding work on those areas.

The Barataria Preserve unit of Jean Lafitte National Historical Park and Preserve (JLNHPP) is located on the west bank of the Mississippi River and managed by the National Park Service (NPS). NPS has no authority to enter into agreements with others to allow uses which adversely affect park lands. Therefore, NPS lands cannot be directly utilized or adversely impacted by any flood control project feature unless authorized explicitly by congress. For additional information concerning NPS lands within the area please contact Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)).

An area adjacent to the Jean Lafitte National Historic Park and Preserve (JLNHPP) was subject to an Environmental Protection Agency (EPA) Final Determination under the Clean Water Act (CWA) Section 404(c) in 1985. According to the EPA Final Determination, the discharge of any dredged or fill material within the approximately 3200 acre site, referred to as the Bayou aux Carpes 404(c) area, is restricted. The EPA action allowed for three specific exceptions, none of which appears to apply to the Corps' current hurricane protection proposal. Previous requests which have fallen outside those exceptions have been denied by EPA as being contrary to the CWA 404(c) determination. One such categorical denial prohibited the Corps from altering the alignment of the West Bank Hurricane Protection Levee such that it would encroach upon the Bayou aux Carpes 404(c) area.

The EPA 404(c) action was intended as an advance notification to the public and agencies of the government's determination under the CWA Section 404 for the area, in the sense of planning aid coordination. In light of this existing determination, we would expect the NEPA work on the portion of the levee forming the 404(c) boundary to thoroughly evaluate the range of feasible alternatives and their environmental impacts, as well as documenting the Corps' legal and regulatory authority for any alternative that would entail impacts to the Bayou aux Carpes 404(c) area.

The Bayou aux Carpes 404(c) is one of only 11 such actions ever completed by EPA. Approximately 2,800 acres within the site are in Federal ownership and Congress is considering legislation to adjust the boundary of the Barataria Preserve to include the Bayou aux Carpes within the JLNHPP. In the meantime, the National Park Service (NPS) has constructive possession of the area. Therefore, the Corps should contact both the NPS (see contacts above) and EPA (Ms. Barbara Keeler, 214/665-6698) regarding any proposed project feature that may impact that area.

The NPS also has constructive possession of additional Federal lands located adjacent to WBV14c. Congress is considering legislation to adjust the boundary of the Barataria Preserve to also include those lands (i.e., CIT tract) within the JLNHPP.

The Service's Bayou Sauvage National Wildlife Refuge is located in the eastern portion of the project area. The National Wildlife Refuge System Improvement Act of 1997 authorized that no new or expanded use of a refuge may be allowed unless it is first determined to be compatible. A compatibility determination is a written determination signed and dated by the Refuge Manager and Regional Refuge Chief, signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use. A compatible use is defined as a proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge. A compatibility determination is only required when the Service has jurisdiction over the use. For example, proposed uses that deal exclusively with air space, navigable waters or overly refuges where another Federal agency has primary jurisdiction over the area, would not be subject to compatibility.

Federal agencies proposing a project that includes features on a national wildlife refuge are encouraged to contact the Refuge Manager early in the planning process. The Refuge Manager will work with the project proponent to determine if the proposed project constitutes a "refuge use" subject to a compatibility determination. If the proposed project requires a compatibility determination, a concise description of the project (refuge use) including who, what, where, when, how and why will be needed to prepare the compatibility determination. In order to determine the anticipated impacts of use, the project proponent may be required to provide sufficient data and information sources to document any short-term, long-term, direct, indirect or cumulative impacts on refuge resources. Compatibility determinations will include a public review and comment before issuing a final determination.

All construction or maintenance activities (e.g., surveys, land clearing, etc.) on a National Wildlife Refuge (NWR) will require the Corps to obtain a Special Use Permit from the Refuge Manager; furthermore, all activities on that NWR must be coordinated with the Refuge Manager. Therefore, we recommend that the Corps request issuance of a Special Use Permit well in advance of conducting any work on the refuge. Please contact Kenneth Litzenberger, Project Leader for the Service's Southeast National Wildlife Refuges and Jack Bohannon (985) 822-2000, Refuge Manager for the Bayou Sauvage National Wildlife Refuge for further information on compatibility of flood control features, and for assistance in obtaining a Special Use Permit. Close coordination by both the Corps and its contractor must be maintained with the Refuge Manager to ensure that construction and maintenance activities are carried out in accordance with provisions of any Special Use Permit issued by the NWR.

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

### **Future Fish and Wildlife Resources**

The combination of subsidence and sea level rise is called submergence or land sinking. As the land sinks the wetlands become inundated with higher water levels, stressing most non-fresh marsh plants, bottomland hardwood plants and even cypress-tupelo swamps leading to plant death and conversion to open water. Other major causes of wetland losses within the study area include altered hydrology, storms, saltwater intrusion (caused by marine processes invading fresher wetlands), shoreline erosion, herbivory, and development activities including the direct and indirect impacts of dredge and fill (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). The continued conversion of wetlands and forested habitat to open water or developed land represent the most serious fish and wildlife-related problems in the study area. Those losses could be expected to cause significant declines in coastal fish and shellfish production and in the study area's carrying capacity for numerous migratory waterfowl, wading birds, other migratory birds, alligators, furbearers, and game mammals. Wetland losses will also reduce storm surge protection of developed lands, and will likely contribute to water quality degradation associated with excessive nutrient inputs.

## **ALTERNATIVES UNDER CONSIDERATION**

The proposed plan involves upgrading the existing flood protection levees, floodwalls, and floodgates around the Greater New Orleans area. Most improvements will be constructed partially, sometimes entirely, within the existing right-of-way (ROW). However, some proposed closures, i.e., the Inner Harbor Navigation Canal and the Gulf Intracoastal Waterway, would require new construction ROWs and may impact high quality habitats. Some alternatives that have been examined include expanding ROWs into the lower quality habitat side of a levee, utilizing floodwalls so that minimal expansion of ROWs would occur and incorporating subsoil

mixing that would also reduce the expansion of a levee ROW.

### **PROJECT IMPACTS**

The Corps has not yet selected a recommended plan but is continuing to evaluate plans at several levels of protection for each IER. Although some construction will occur in developed areas and on existing levees, project implementation will also directly impact marshes, bottomland hardwoods, swamps, and shrub-scrub areas that provide low to high habitat values for diverse fish and wildlife resources. Project impacts would result primarily from levee rights-of-way (ROW) expansion and construction of levees, borrow pits, floodwalls, navigable floodgates, and associated features.

Development is ongoing within the hurricane protection levees; therefore, the Service has assumed that, for this specific project, project-induced development within enclosed wetlands will be insignificant. However, project impacts to non-wet bottomland hardwoods as a result of flood protection improvements should be mitigated.

To quantify anticipated project impacts to fish and wildlife resources, the Service will use the Wetland Value Assessment (WVA) methodology. The WVA was developed to evaluate restoration projects proposed for funding under Section 303 of the Coastal Wetlands Planning, Protection and Restoration Act. The WVA version utilized in this evaluation was modified by the Louisiana Department of Natural Resources to better determine impacts and mitigation needs in forested wetlands. Further explanation of how impacts/benefits are assessed with WVA and an explanation of the assumptions affecting HSI values for each target year will be available for review at the Fish and Wildlife Service's (Service) Lafayette, Louisiana, field office. For tidally influenced marshes the National Marine Fisheries Service will have copies of those WVAs at their Baton Rouge, Louisiana office.

### **FISH AND WILDLIFE CONSERVATION MEASURES**

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

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

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

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved. Considering the high value of forested wetlands and marsh for fish and wildlife and the relative scarcity of that habitat type, those wetlands are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. The degraded (i.e., non-wet) bottomland hardwood forest and any wet pastures that may be impacted, however, are placed in Resource Category 3 due to their reduced value to wildlife, fisheries and lost/degraded wetland functions. The mitigation goal for Resource Category 3 habitats is no net loss of habitat value. Project impacts to wetlands will be minimized to some extent by hauling in material for the levee. Because the project is already, avoiding the project impacts altogether (i.e., the "no action" alternative) is not feasible. Therefore, remaining project impacts should be mitigated via compensatory replacement of the habitat values lost.

Toward that end, the Service recommends that the following planning objectives be adopted to guide future project studies.

1. Conserve important fish and wildlife habitat (i.e., bottomland hardwoods, cypress swamps, fresh and estuarine marsh and associated shallow open water habitats) by minimizing the acreage of those habitats directly affected by flood control features.
2. Minimize enclosure of wetlands with new levee alignments. When enclosing wetlands is unavoidable, acquire non-development easements on those wetlands, or maintain hydrologic connections with adjacent, un-enclosed wetlands to minimize secondary impacts from development and hydrologic alteration.
3. Operate water control structures in levees to allow for (or maintain) fish and shellfish access into enclosed wetland areas.
4. Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design of levees, other project features and timing of construction.
5. Fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.

#### **SERVICE POSITION AND RECOMMENDATIONS**

Construction of the increased flood protection would result in un-quantified habitat losses. The Service does not object to providing improved hurricane protection to the Greater new Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. To the greatest extent possible, situate flood protection features so that destruction of

wetlands and non-wet bottomland hardwoods are avoided or minimized.

2. Minimize enclosure of wetlands with new levee alignments. When enclosing wetlands is unavoidable, acquire non-development easements on those wetlands, or maintain hydrologic connections with adjacent, un-enclosed wetlands to minimize secondary impacts from development and hydrologic alteration.
3. Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design project features and timing of construction.
4. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.
5. The project's first Project Cooperation Agreement (or similar document) should include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation features.
6. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA) and Louisiana Department of Natural Resources (LDNR). The Service shall be provided an opportunity to review and submit recommendations on the all work addressed in those reports.
7. The Corps should avoid impacts to public lands, if feasible. If not feasible the Corps should establish and continue coordination with agencies managing public lands that may be impacted by a project feature until construction of that feature is complete and prior to any subsequent maintenance. Points of contacts for the agencies potentially impacted by project features are: Kenneth Litzenger, Project Leader for the Service's Southeast National Wildlife Refuges and Jack Bohannon (985) 822-2000, Refuge Manager for the Bayou Sauvage National Wildlife Refuge (NWR), Office of State Parks contact Mr. John Lavin at 1-888-677-1400, National Park Service (NPS), contact Superintendent David Luchsinger, (504) 589-3882 extension 137 ([david\\_luchsinger@nps.gov](mailto:david_luchsinger@nps.gov)) or Chief of Resource Management David Muth (504) 589-3882 extension 128, ([david\\_muth@nps.gov](mailto:david_muth@nps.gov)) and for the 404(c) area contact the previously mentioned NPS personnel and Ms. Barbara Keeler (214) 665-6698 with the EPA.
8. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.
9. If mitigation lands are purchased for inclusion within a NWR those lands must meet certain requirements; a summary of some of those requirements is provided in Appendix A. Other land-managing natural resource agencies may have similar requirements that must be met prior to accepting mitigation lands; therefore if they are proposed as a manager of a mitigation site they should be contacted early in the planning phase regarding such requirements.

10. If a proposed project feature is changed significantly or is not implemented within one year of the date of our Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.
11. In general, larger and more numerous openings in a protection levee better maintain estuarine dependent fishery migration. Therefore, as much opening as practicable, in number, size, and diversity of locations should be incorporated into project levees.
12. Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable, especially structures located in tidal passes.
13. Flood protection water control structures should remain completely open except during storm events. Management of those structures should be developed in coordination with the Service, NMFS, LDWF, and LDNR.
14. Any flood protection water control structure sited in canals, bayous, or navigation channels that does not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
15. The number and siting of openings in flood protection levees should be optimized to minimize the migratory distance from the opening to enclosed wetland habitats.
16. Flood protection structures within a waterway should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered.
17. To the maximum extent practicable, structures should be designed and/or selected and installed such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet per second. However, this may not necessarily be applicable to tidal passes or other similar major exchange points.
18. To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts should be selected that would maintain sufficient flow to prevent siltation.
19. Culverts should be installed in construction access roads unless otherwise recommended by the natural resource agencies. At a minimum, there should be one, 24-inch culvert placed every 500 feet and one at natural stream crossings. If the depth of water crossings allow, larger sized culverts should be used. Culvert spacing should be optimized on a case-by-case basis. A culvert may be necessary if the road is less than 500-feet long and an area would hydrologically isolated without that culvert.

20. Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.
21. Levee alignments and water control structure alternatives should be selected to avoid the need for fishery organisms to pass through multiple structures (i.e., structures behind structures) to access an area.
22. Operational plans for water control structures should be developed to maximize the cross-sectional area open for as long as possible. Operations to maximize freshwater retention or redirect freshwater flows could be considered if hydraulic modeling demonstrates that is possible and such actions are recommended by the natural resource agencies.
23. The Corps shall fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.
24. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest.
25. Any proposed change in mitigation features or plans should be coordinated in advance with the Service, NMFS, LDWF, EPA and LDNR.
26. A report documenting the status of mitigation implementation and maintenance should be prepared every three years by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR and LDWF. That report should also describe future management activities, and identify any proposed changes to the existing management plan.

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## APPENDIX A

### Summary of basic mitigation land requirements before land is transferred to the U.S. Fish and Wildlife Service

**SUBJECT:** Revised Summary of basic mitigation land requirements before land is transferred over to the Service.

The following represents a summary of basic mitigation land requirements before land is transferred over to the Service. This does not necessarily represent a comprehensive list, but does represent our best effort to identify all land requirements within reason.

1. For inclusion into the National Wildlife Refuge (NWR) system the lands must be located within a refuge's acquisition boundary.
2. The Service must be provided copies of any easements/agreements for right-of-way on the property especially as it pertains to maintenance of such right-of-way, frequency of maintenance and costs associated with that maintenance if the maintenance is to be preformed by the landowner.
3. The area must be surveyed prior to acquisition by the United States or transfer to the Fish and Wildlife Service. The survey will be conducted by the Corps of Engineers (Corps) or an approved contractor. Boundaries must be marked and permanent monuments set at all corners. Copies of the surveyor notes, plats, etc. resulting from such survey must be provided to Service.
4. Language must be placed in the deed dedicating the mitigation land to fish and wildlife conservation in perpetuity.
5. When possible any restrictive covenants or liens shall be removed, especially if they could interfere with mitigation implementation, operation and/or maintenance.
6. Completion of a Level 1 survey for hazardous, toxic, and/or radioactive wastes with a copy being provided to the Service. If the Level 1 survey indicates the need for further investigations/surveys, those investigations/surveys must be completed and a copy provided to the Service. Lands having unremediated hazardous, toxic, and/or radioactive wastes present may not be accepted into a NWR. Remediated sites will be assessed for inclusion on a case-by-case basis. Documentation of the level of remediation is to be provided to the Service.
7. Funding mechanism for operation and maintenance of the mitigation lands and mitigation features (e.g., water control structures, timber stand improvements, etc.).
8. Documentation must be provided to the Service describing the mitigation goals and objectives in addition to a description of necessary operation and maintenance activities needed to accomplish the stated goals and objectives.

9. Mineral rights should be purchased. If it is not possible to purchase, then protection of surface rights via the following language:

"The vendors reserve for themselves, their successors and assigns, the right to explore, for, operate, produce, remove and transport, oil and gas from the lands herein described. The vendors reserve unto themselves, their successors and assigns, the right of ingress and egress over the said lands in pursuance of the reservations set forth above.

The land is now subject to oil and gas lease in favor of \_\_\_\_\_, as per lease of record in the records of \_\_\_\_\_, \_\_\_\_\_, pages \_\_\_\_\_ of Book \_\_\_\_\_, and the conveyance is subject to the rights of the lessee in said lease.

The oil and gas reservations made by the vendors herein in favor of themselves, their successors and assigns, shall be subject to the following stipulations, and any lease made by the vendors, their successors or assigns, subsequent to the date of this deed, shall contain the following stipulations for the protection of the vendee.

The vendors, their successors and assigns, agree that prior to entry upon the land for purposes of exploration, development or production of, oil and/or gas, they shall obtain a Special Use Permit from the U.S. Fish and Wildlife Service, which permit is for the purpose of providing for access and protecting the natural resources of the area for which the land was acquired, and whose terms and conditions will not unreasonably restrain the activities of the vendors, and their successors and assigns.

It is mutually understood between the parties that the intention of the Government in acquiring this area is to create a refuge for, and the protection of, wildlife in the area herein acquired, and the vendors will conform to, and be governed by, and the vendors herein bind themselves, their successors and assigns, agents and employees, to conform to, and be governed by, the rules and regulations pertaining to the protection of wildlife and refuge administration prescribed from time to time by the Secretary of the Interior or his/her authorized agent, the Director of Fish and Wildlife Service, except that such regulations shall not unreasonably restrain the exercise and use by the vendors, their successors and assigns, of the reservation set out in this agreement."

10. The Service would need a title commitment and policy in favor of United States of America that is in the American Land Title Association (ALTA) U.S. Policy 9/28/91 format as provided in Title Standards 2001.

If the title remains with the local-sharer or the Corps a General Plan as provided for under Section 3 of the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 et seq.) must be written. However, the Service may chose to not manage lands for which it does not have title.

## APPENDIX B

### National Marine Fisheries Service Baton Rouge Field Office

#### Recommendations for Fisheries Friendly Design and Operation of Hurricane and Flood Protection Water Control Structures and Supporting Appendices

##### SUMMARY

The purpose of this document is to: 1) identify design and operational guiding principles that would optimize passage of estuarine dependent marine fisheries species, or at least, minimize adverse impacts to their passage through hurricane and flood protection water control structures planned for the New Orleans District of the U.S. Army Corps of Engineers; and, 2) provide background literature for environmental justification and documentation. Specific projects for which this guidance should be considered include the Mississippi River and Tributaries, Morganza to the Gulf of Mexico Hurricane Protection Project; Donaldsonville to the Gulf Project; Supplemental Appropriations Projects, and the Louisiana Coastal Protection and Restoration Project (LACPR). However, these guiding principles would also pertain to any civil works projects that could include combinations of levees and/or water control structures. Project delivery teams should remain flexible to adapt these design principles on a case-by-case basis as new fishery resource information and project-specific hydraulics data become available.

In general, the ability of estuarine dependent marine fishery organisms to migrate to and from coastal habitats decreases as structural restrictions increase, thereby reducing fishery production. The physical ability (i.e., swimming speed) to navigate through a structure is not the only factor influencing fish passage. Both behavioral and physical responses govern migration and affect passage of fishery organisms through structures. These responses may vary by species and life stage. In addition, most marine fishery species are relatively planktonic in early life stages and are dependent on tidal movement to access coastal marsh nursery areas. For this reason, in general, the greater the flow through a structure into a hydrologically affected wetland area, the greater the marine fishery production functions provided by that area.

Data on marine fishery species migrations in the Gulf of Mexico are too limited to allow the development of definitive design and operational considerations for water control structures that would guarantee the protection of marine fishery production. Anecdotal comparisons can be made with data from water intake and fish passage studies from the west and east coasts. It should not be assumed that structures that have been determined to provide sufficient drainage capacity also optimize or provide adequate fishery passage. More investigation is warranted to refine and adaptively manage water control structure design and operations to minimize adverse impacts to fishery passage. Case specific recommendations for some features under the Mississippi Tributaries, Morganza to the Gulf of Mexico Hurricane Protection Project and LACPR are provided in the appendices. In addition, biological background information is provided in the appendices to assist in preparation of environmental documents required by the National Environmental Policy Act (NEPA).

Summary of guiding principles for designing and operating flood protection water control structures to maintain marine fishery passage:

- Generally, bigger and more numerous openings in hurricane and flood protection levees better maintain estuarine dependent fishery migration. As much opening as practicable, in number, size, and diversity of location should be considered.
- Flood protection water control structures in any watercourse should maintain pre-project cross section in width and depth to the maximum extent practicable, especially structures located in tidal passes.
- Flood protection water control structures should remain completely open except during storm events.
- Any flood protection water control structure sited in canals, bayous, or navigation channels that do not maintain the pre-project cross section should be designed and operated with multiple openings within the structure. This should include openings near both sides of the channel as well as an opening in the center of the channel that extends to the bottom.
- The number and siting of openings in flood protection levees should be optimized to minimize the migratory distance from the opening to enclosed wetland habitats.
- Structures should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered.
- To the maximum extent practicable, structures should be designed and/or culverts selected such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet/second. This may not necessarily be applicable to tidal passes or other similar major exchange points.
- To the maximum extent practicable, culverts (round or box) should be designed, selected, and installed such that the invert elevation is equal to the existing water depth. The size of the culverts should be selected that would maintain sufficient flow to prevent siltation.
- Culverts should be installed in construction access roads unless otherwise recommended by the natural resource agencies. At a minimum, there should be one, 24-inch culvert placed every 500 feet and at natural stream crossings. If the depth of water crossings allow, larger sized culverts should be used. Culvert spacing should be optimized on a case-by-case basis. A culvert may be necessary if the road is less than 500-feet long and an area would hydrologically isolated without that culvert.
- Water control structures should be designed to allow rapid opening in the absence of an offsite power source after a storm passes and water levels return to normal.
- Levee alignments and water control structure alternatives should be selected to avoid the need for fishery organisms to pass through multiple structures (i.e., structures behind structures) to access an area.
- Operational plans should be developed to maximize the cross-sectional area open for as long as possible. Operations to maximize freshwater retention or redirect freshwater flows could be considered if hydraulic modeling demonstrates that is possible and such actions are recommended by the natural resource agencies.

## INTRODUCTION

Various flood protection and environmental water control structures in hurricane protection levees are being designed and considered for inclusion with ongoing local and federal civil works projects within the boundaries of the New Orleans District. Design purposes of the structures vary and may include maintaining safe navigation and optimizing drainage and passage of fishery organisms. For the Morganza to the Gulf of Mexico hurricane protection project, an interagency Habitat Evaluation Team (HET) and NOAA's National Marine Fisheries Service (NMFS) identified economically important fishery species that should be considered when assessing structure impacts on estuarine fisheries migration. Both the federal and state governments manage some of these species. Primary species that could be affected by flood protection structures in Louisiana include brown shrimp, white shrimp, blue crab, red drum, black drum, spotted seatrout, sand seatrout, southern flounder, and gulf menhaden. Some information is included herein on forage species, the production of which is important to maintain as they serve as important links of the aquatic food web for many of the managed fishery species.

The Baton Rouge office of NMFS has developed preliminary design principles for hurricane and flood protection water control structures to reduce impacts to living marine resources, especially related to migrations of estuarine dependent species. The basis for the following recommended guiding principles is briefly discussed where supporting literature is available. Case specific examples for some features under the Mississippi River and Tributaries, Morganza to the Gulf of Mexico hurricane protection project and the Louisiana Coastal Protection and Restoration Project are provided in the appendices. Basic behavior and physiology effects on the passage of fishery organisms are discussed in detail in appendices C and D, to aid federal agencies in environmental evaluations and descriptions under NEPA.

This document has been developed in consideration of input from the interagency HET, university faculty, fish passage staff of various agencies, and cursory literature reviews. These design considerations are intended to address potential impacts to living marine resources pursuant to the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act. Impacts to resources managed under other authorities, such as the Endangered Species Act or the Marine Mammal Protection Act, are not addressed in this document.

### GUIDING PRINCIPLES FOR DESIGNING FISHERIES FRIENDLY FLOOD PROTECTION WATER CONTROL STRUCTURES

**1. Generally, bigger and more numerous openings in hurricane and flood protection levees better maintain estuarine dependent fishery migration. As much opening as practicable, in number, size, and diversity of location should be considered.**

Most of Louisiana's commercial and recreational fishery species must have access to estuarine marshes to successfully complete some part of their life cycle (i.e., they are estuarine-dependent). Estuarine-dependent fishery productivity is a measure of standing crop (the number of fishery organisms present at a point in time) and the turnover rate (the rate at which the population is

replaced). All things being equal, fishery production would be lower following levee and water control construction if structures retard turnover rate. This would be the case even while standing crop may appear normal. Restrictions in tidal movement caused by water control structures and levees would result in degraded or substantially changed species composition, which could alter fishery production and/or displace fisheries.

Marine transient species emigrate (i.e., move from coastal marshes towards Gulf waters) towards higher salinity water; therefore, a structure that maintains the greatest degree of opening while allowing the project objectives to be met would be desirable (Rogers et al. 1992).

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

Water control structures should be designed to have a water flow capacity (and similar dimensions where possible) comparable to the waterway before construction. Restricted water exchange in marshes enclosed by levees and water control structures diminishes recruitment and standing stocks of species that must migrate from coastal spawning sites to marsh nurseries (Rogers et al. 1994). As the amount of hydrologic control increases, the effect on migration and production of marine transients and residents increases. Greater restriction decreases turn over rate of estuarine-dependent fishery organisms, which decreases their production (Rogers et al. 1992). Slotted and fixed crest weirs have been found to delay immigration. As the degree of restriction increased from slotted weirs, to low elevation weir, and to fixed crest weirs, greater impacts to different fisheries species and their emigration were observed.

Design considerations for hurricane and flood protection water control structures should include features to accommodate vertical and horizontal fishery distribution patterns within interior marsh tidal pathways and coastal passes. Fishery organisms exhibit preferences by species, life stage, and in some cases tide cycle, for vertical and horizontal distribution within smaller or interior marsh tidal connections (Table 1). Behavioral and physiological responses, such as diel vertical migration, affect these preferred distribution patterns.

Study of Keith Lake Pass in Texas revealed that all portions of the water column, both vertically and horizontally, are used by fishery organisms (Hartman et al. 1987). Most estuarine-dependent fishery species preferred the bottom or shore zones during flood tides, but were much denser near the shores of the pass, in slower moving water, on ebb tide. This lateral movement on slack to ebb tides appears to be a behavioral action to prevent displacement from the pass during ebb tide to accelerate movement to marsh nursery areas. The study identified the response to light cycles with midday densities greatest at bottom and densities greatest at surface during dawn to dusk. Similar within pass distribution patterns were reported by Sabins and Truesdale at Grand Isle, Louisiana (1974).

Table 1. Table on fishery preference within the water column (Marotz et al. 1990; Herke and Rogers 1985; Hartman et al. 1987; Sabins and Truesdale 1974). "a" denotes juveniles; "b" denotes immigrating; "c" denotes emigrating; "e" denotes ebb tide; "f" denotes flood tide.

Species	Vertical Distribution			Horizontal Distribution
	Surface	Mid-depth	Bottom	Shore/Nearshore
brown shrimp <sup>b</sup>	X	X		X <sup>c</sup>
white shrimp <sup>b</sup>	X	X		
white shrimp <sup>c</sup>		X		X <sup>c</sup>
blue crab	X			X <sup>e</sup>
red drum <sup>a</sup>				X <sup>c</sup>
red drum <sup>b</sup>		X	X	
red drum <sup>c</sup>			X	
bay anchovy	X			
striped mullet	X			
Atlantic croaker <sup>a</sup>	X	X		X <sup>a</sup>
Atlantic croaker		X	X	X <sup>c</sup>
spotted seatrout		X	X	
sand seatrout		X	X	X <sup>c</sup>
gulf menhaden	X	X		
southern flounder				X <sup>f</sup>
black drum				X <sup>c</sup>

**3. Flood protection water control structures should remain completely open except during storm events.**

Fish passage should be optimized by the duration that structures remain fully open. Rozas and Minello (1999) reported that even when water-control structures were open, the densities of transient species were low inside areas enclosed by levees and water control structures as compared to natural areas.

Fisheries migration that temporarily may be impacted with storm related closures are listed in Table 2. The degree of impact would be influenced by the timing and duration of a structure closure relative to peak migration.

Table 2. Migration of economically important fisheries in Louisiana that temporarily may be impacted with storm related closures.

Species	Migration Period Overlapping with Hurricane Season
brown shrimp	April - mid July
white shrimp	July - November
blue crab	June - September
spotted seatrout	April - October
sand seatrout	April - October
red drum	August - December
black drum	March - July
southern flounder	September - October

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

Hartman et al. (1987) recommended structures not be constructed in a tidal pass. If a structure was constructed, they recommended the incorporation of several gates at several vertical and horizontal locations, with baffles near shore. Baffles near shore are to direct shore or near shore fish passage on ebb tides through the available structure opening(s) (e.g., gates in wing walls).

Structures should be designed and operated with multiple openings if the pre-project water depth and widths of a channel are not maintained. Multiple openings are necessary to optimize passage of fishery organisms that prefer to migrate along the sides, bottom, and top of channels. For example, Rogers et al. (1992<sup>a</sup>) recommended opening some vertical slots and top, middle, and bottom gates in a structure with multiple slots and gates.

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

The location and number of structures likely affects the abundance and distribution of estuarine fishery species within habitats that would be located on the protected side of levees and water control structures. Rogers et al. (1992<sup>b</sup>) determined that marine transient species were most numerous nearest the structures, partially due to the proximity of the openings with respect to the area enclosed. Similarly, other studies have shown there is a decrease in fishery species abundance and diversity the greater the distance from the access point (Peterson and Turner 1994). This can become more pronounced if an environmental gradient (e.g., salinity) exists between an access point and the interior habitat located on the protected side of structures (Cashner 1994).

**6. Structures should include shoreline baffles and/or ramps (e.g., rock rubble, articulated concrete mat) that slope up to the structure invert to enhance organism passage. Various ramp designs should be considered.**

Study of Keith Lake Pass in Texas revealed vertical and horizontal distribution patterns of fishery organisms in the pass (Hartman et al. 1987). Estuarine-dependent fishery organisms preferred the bottom or near shore zones on flood tides. Most organisms appeared near shores of the pass on ebb tide in slower moving water. Baffles near shore are to direct shore or near shore fish passage through the structure.

Many fish migrate along the water bottom. Water control structures with crests or inverts higher than the lower portion of a channel could impede migration through the deep-water portions of channels. Ramps can provide a means to guide organisms over and through structures and increase access of fisheries organisms to enclosed habitat (Lafleur 1994). Various ramp designs

need to be investigated.

**7. To the maximum extent practicable, structures should be designed and/or culverts selected such that average flow velocities during peak flood or ebb tides do not exceed 2.6 feet/second.**

In this preliminary investigation, no studies were located that evaluated the impacts of swimming speeds for the fishery species and life stages of concern in Louisiana. To avoid preventing or reducing ingress or egress of fishery organisms, preliminary guidance on water velocities through structures in Louisiana could be based on anecdotal comparisons with data available on general swimming speeds from studies on the west and east coasts (Tables 3 and 4).

Swimming speeds of estuarine and marine fish and crustaceans is a function of shape, stage of development, length, ambient temperature, light, and duration required for swimming performance. For most species, absolute speed increases as size increases. Generally, fish swimming speeds range from 2-4 body lengths/second with burst speeds up to 5 body lengths/second (Meyers et al. 1986).

Water intake studies have shown that maintaining water velocities less than 0.5 ft/sec would protect most fish and their life stages from being adversely affected by those flows (USEPA 2004). The species and life stages of fish for that study could not be located at this time and further investigation for Gulf of Mexico species is warranted. They also recommended creating horizontal velocity fields to avoid adverse affects on fish because fish are better able to orient to horizontal verses vertical flow. This could allow selective avoidance of water flows not preferred by fish or minimize disorientation or mortality rates caused by flows.

Eberhardt (personal communication) reported velocities exceeding 0.82 feet/second began to impede fish passage. Fish passage was decreased by 50% for velocities exceeding 2.6 feet/second. Based on evaluation of freshwater species, Gardner (2006) recommends keeping velocities through round culverts less than 1.8 ft/sec during 90% of the fish migration season. To improve fish passage through culverts, installing baffles within culverts should be considered to reduce flow velocity barriers for fish (Pacific Watershed Associates 1994).

Table 3. Water flow velocity thresholds for affecting fish passage or avoiding impingement within flows or on screens.

Source	Water Flow Velocity (ft/sec)	
Alyson Eberhardt, personal communication	0.82	Begin to impede
	2.62	Decreased fish passage by 50%
Gardner 2006	1.8	Critical velocity (freshwater fish)
Meyers et al. 1986	<0.49	To avoid impingement

USEPA 2004	<0.50	Protected 96% of the fish tested from impingement
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Table 4. Sustained fish swimming speeds. Adapted from Meyers et al. (1986). Note that no data was located for the fisheries species and life stages for the Gulf of Mexico.

Fish/life stage	Swimming Speeds (ft/sec)
Atlantic herring	0.19 – 0.3
Mullet	4.19
Horse mackerel	4.46
Sole	0.19 - 0.3
most larvae	0.82 – 0.98

Based on these limited data, larval fish could be adversely impacted by water flow rates exceeding 0.82 feet/second. Post-larval and juvenile stages of flounders could be impacted by flow rates around 1.0 ft/sec. Other species or larger life stages likely would not be adversely impacted until flow rates exceed 2.62 feet/second based on inferences from these data. Water flow velocity monitoring in the Terrebonne Basin by the U.S. Fish and Wildlife Service has found maximum flows through existing open channels exceeding 1.0 feet /second and in larger saline marsh channels and passes exceeding 2.0 feet/second.

If the spatial extent of flow velocity fields exceed the distance that can be traveled with sustained or burst swimming speeds of fishery organisms, those flows could prevent or reduce ingress or egress during the time which those flows exist. However, the degree of mortality from not being able to access nursery and foraging habitat is not known. High flow rates may aid passage of larval fish that primarily depend on passive transport for migratory distribution and access to estuarine habitat on the protected side of levees, if the high flows do not induce mortality from injury or fatigue. Water flow could exceed the fish swimming rates for short periods and still provide passage during low flows or during still water.

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

Design considerations should include installing baffles within culverts to reduce flow velocity barriers (Pacific Watershed Associates 1994). Passage of salmon and herring species has been shown to be impaired by culverts. With baffles or other similar features, still water areas could be created to enhance fish passage.

If water control structures include plunge pools, the invert elevation of the structure could be equal to the depth of the plunge pool if the plunge pool is deeper than the pre-project water depth. This deeper invert would optimize passage of fisheries species, in particular bottom dweller species.

Fish often require visual cues for orientation and exhibit faster swimming speeds at increased

light levels. Herring type fish (e.g., gulf menhaden) are particularly sensitive to light levels. However, although herring exhibited a preference for unshaded portions of treatments during both day and night periods, as little as 1.4% of the ambient light was necessary for their passage through a culvert (Mosser and Terra 1999).

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

**10. Water control structures should be designed to allow rapid opening in the absence of an offsite power source after storm passage and return of normal water levels.**

Regardless of structure size, designs and contingency plans should include means to rapidly open the water control structures when flooding risks subside after a storm. Designs and plans should include infrastructure, equipment, and staff necessary to open the structures even if offsite electricity is not available. Design safeguards should be developed to protect the structures from being damaged rendering them inoperable and locked in a closed configuration after passage of a storm.

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

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

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## APPENDIX C

### BEHAVIOR

The physical ability (i.e., swimming speed) to navigate a structure is not the only factor influencing fish passage, especially for small structures. Behavioral responses to stimuli individually or interactively affect passage with physiological constraints or responses. Behavior generally can be categorized as schooling and non-schooling behavior.

#### SCHOOLING BEHAVIOR

Schooling behavior consists of strategies that provide hydrodynamic efficiency, reduced predation, increased efficiency in finding food, and increased reproductive success. Water control structures for flood protection impact large numbers of fishery organisms due to this group response. This could be because fish exhibit the tendency to approach and orient to other members of the species (i.e., biotaxis). This orientation confers a hydrodynamic advantage that is more efficient than individuals due primarily to vortices setup by lead fish. Schools function as a living organism where the group reacts to stimuli as an individual. It is this group reaction

that influences greater affect on passage through water control structures.

#### NON-SCHOOLING BEHAVIOR

Agonistic, territorial, and hierarchical behaviors are examples of non-schooling behavior exhibited by fish. Agonistic and territorial behaviors are largely unknown for the listed estuarine and marine fishery species of concern and their life stages. Structures that create physically taxing water flow velocities and some low flow areas may encourage these behaviors as fish compete for resting areas similar to competition seen with fish competing for resting areas within shrimp trawls or behind rocks in river riffle/pool habitat. It is possible these behavioral responses overall may not be that influential on fish passage through a structure, but may come more into play during low flow conditions such as lower tides or slack tide. Hierarchical behavior can often be driven by a combination of physiological responses and will be discussed in that section. Overall, investigation on behavioral responses to water control structures is needed to avoid and minimize adversely impacting fishery passage if not optimizing it.

### APPENDIX D

#### PHYSIOLOGICAL

Fishery species and life stages react differently to a current of water (i.e., rheotaxis). Generally, fish are better able to orient to horizontal versus vertical flow (Meyers et al. 1986).

#### Locomotion

There are two means for migratory transport of estuarine and marine fish and crustaceans: passive and active transport. Passive transport is drift of organisms carried by the tides and currents. Larval and post-larval fish and crustacean life stages are predominately transported passively by tides and currents. Passive transport via tidal forcing can play a strong role in migration of sub-adult and adult brown shrimp, white shrimp, and blue crabs. Active transport is movement by swimming, which is the primary means of locomotion for sub-adults and adult fish.

#### SWIMMING SPEED

Refer to guiding principles number 7 for details on swimming speeds relative to impacts on fish passage.

#### BEHAVIORAL/PHYSIOLOGY INTERACTION

Many fishery organisms exhibit hierarchical behavior. This is a direct response to stimuli, such as astronomical (e.g., tidal rhythm) or meteorological driven flows. For example, brown shrimp mediate transport by circadian or diel vertical migration. Brown shrimp move down in the water column or cease activity as they become negatively buoyant when low salinity and temperature water develop in estuaries with north winds associated with spring fronts. Brown shrimp activity resumes with their movement up in the water column with increasing water temperature, salinity, and hydrostatic pressure associated with the southerly gulf return following after a cold front (Rogers et al. 1993). Similar selective tidal stream transport was reported by Hartman et al. (1987). Fishery organisms identify tide changes by detecting altered velocity, salinity,

temperature, all of which can cue staging for immigration with an incoming tide. Future tidal pass or inlet studies are needed for better information on vertical distribution, depth preferences, and changes in buoyancy or behavior to evaluate active and passive transport of fishery organisms.

## APPENDIX E

### Reference Websites, Fish Passage Agency Representatives, and University Faculty

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<http://www.niwasience.co.nz/pubs/wa/11-2/passage>

USACE Portland District, Fish Passage Team

[http://www.nwp.usace.army.mil/pm/e/en\\_fish.asp](http://www.nwp.usace.army.mil/pm/e/en_fish.asp)

USACE, ERDC, Coastal Hydraulics Lab

<http://chl.erd.c.usace.army.mil/CHL.aspx?p=s&a=ResearchAreas:22>

USFWS Fish Passage Decision Support System

<http://fpdss.fws.gov/index.jsp>

NC State's Center for Transportation and the Environment website:

<http://www.itre.ncsu.edu/>

[http://itre.ncsu.edu/CTE/gateway/downloads/Culvert%20Impact%20Study\(December2002\).pdf](http://itre.ncsu.edu/CTE/gateway/downloads/Culvert%20Impact%20Study(December2002).pdf)

<http://itre.ncsu.edu/CTE/gateway/downloads/FishPassage.pdf>

FishXing software and learning systems for fish passage through culverts. This software is intended to assist engineers, hydrologists, and fish biologists in the evaluation and design of culverts for fish passage. It is free and available for download.

<http://stream.fs.fed.us/fishxing/>

- Allows for comparison of multiple culverts designs within a single project.
- Calculates hydraulic conditions within circular, box, pipe-arch, open-bottom arch, and embedded culverts.
- Contains default swimming abilities for numerous North American fish species.
- Contains three different options for defining tailwater elevations.
- Calculates water surface profiles through the culvert using gradually varied flow equations, including hydraulic jumps.

- Outputs tables and graphs summarizing the water velocities, water depths, outlet conditions, and lists the limiting fish passage conditions for each culvert.

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APPENDIX C  
LATIN NAMES FOR SOME SPECIES DISCUSSED IN THE REPORT  
AND/OR FOUND IN THE PROJECT AREA

PLANTS

American sycamore	<i>Platanus occidentalis</i>
Black willow	<i>Salix nigra</i>
Box elder	<i>Acer negundo</i>
Chinese tallow-tree	<i>Triadica sebifera</i>
Cypress	<i>Taxodium distichum</i>
Eastern cottonwood	<i>Populus deltoides</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Overcup oak	<i>Quercus lyrata</i>
Red maple	<i>Acer rubrum</i>
Red mulberry	<i>Morus rubra</i>
Roughleaf dogwood	<i>Cornus drummondii</i>
Sugarberry	<i>Celtis laevigata</i>
Sweet pecan	<i>Carya illinoensis</i>
Water oak	<i>Quercus nigra</i>
Willow oak	<i>Quercus phellos</i>

FISH

Banded pygmy sunfish	<i>Elassoma zonatum</i>
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Blue catfish	<i>Ictalurus furcatus</i>
Bluegill	<i>Lepomis macrochirus</i>
Blue sucker	<i>Cycleptus elongates</i>
Brook silverside	<i>Labidesthes sicculus</i>
Bullhead minnow	<i>Pimephales vigilax</i>
Channel catfish	<i>Ictalurus punctatus</i>
Chub shiner	<i>Notropis potteri</i>
Common carp	<i>Cyprinus carpio</i>
Dollar sunfish	<i>Lepomis marginatus</i>
Dusky darter	<i>Percina sciera</i>
Emerald shiner	<i>Notropis atherinoides</i>
Flathead catfish	<i>Pylodictis olivaris</i>
Freshwater drum	<i>Aplodinotus grunniens</i>
Ghost shiner	<i>Notropis buchani</i>
Gizzard shad	<i>Dorosoma cepedianum</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Golden topminnow	<i>Fundulus chrysotus</i>

Goldeye	<i>Hiodon alosoides</i>
Grass carp	<i>Ctenopharyngodon idella</i>
Green sunfish	<i>Lepomis cyanellus</i>
Inland silverside	<i>Menidia beryllina</i>
Largemouth bass	<i>Micropterus salmoides</i>
Logperch	<i>Percina caprodes</i>
Longear	<i>Lepomis megalotis</i>
Longnose gar	<i>Lepisosteus osseus</i>
Mimic shiner	<i>Notropis volucellus</i>
Mississippi silvery minnow	<i>Hybognathus nuchalis</i>
Orangespotted sunfish	<i>Lepomis humilis</i>
Pallid sturgeon	<i>Scaphirhynchus albus</i>
Paddlefish	<i>Polyodon spathula</i>
Pugnose minnow	<i>Opsopoeodus emiliae</i>
Redear	<i>Lepomis microlophus</i>
Red shiner	<i>Cyprinella lutrensis</i>
Redspotted sunfish	<i>Lepomis miniatus</i>
River carpsucker	<i>Carpodes carpio</i>
River darter	<i>Percina shumardi</i>
Shortnose gar	<i>Lepisosteus platostomus</i>
Shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>
Silverband shiner	<i>Notropis shumardi</i>
Silver chub	<i>Macrhybopsis storeriana</i>
Skipjack	<i>Alosa chrysochloris</i>
Slough darter	<i>Etheostoma gracile</i>
Smallmouth buffalo	<i>Ictiobus bubalus</i>
Spotted bass	<i>Micropterus punctulatus</i>
Spotted gar	<i>Lepisosteus oculatus</i>
Striped bass	<i>Morone saxatilis</i>
Threadfin shad	<i>Dorosoma petenense</i>
Warmouth	<i>Lepomis gulosus</i>
Western mosquitofish	<i>Gambusia affinis</i>
White bass	<i>Morone chrysops</i>
White crappie	<i>Pomoxis annularis</i>
White-striped bass hybrid	<i>Morone saxatilis x Morone chrysops</i>
Yellow bass	<i>Morone mississippiensis</i>
Yellow bullhead	<i>Ameiurus natalis</i>

#### AMPHIBIANS

American bullfrog	<i>Rana catesbeiana</i>
Cope's gray treefrog	<i>Hyla chrysoscelis</i>
Dwarf salamander	<i>Eurycea quadridigitata</i>
Eastern narrow-mouthed toad	<i>Gastrophryne carolinensis</i>

Fowler's toad	<i>Bufo fowleri</i>
Green treefrog	<i>Hyla cinerea</i>
Northern cricket frog	<i>Acris crepitans</i>
Pig frog	<i>Rana grylio</i>
Small mouth salamander	<i>Ambystoma texanum</i>
Southern leopard frog	<i>Rana sphenocephala</i>
Spring peeper	<i>Pseudacris crucifer</i>
Western chorus frog	<i>Pseudacris triseriata</i>
Gulf coast toad	<i>Bufo vallicipes</i>

## REPTILES

American Alligator	<i>Alligator mississippiensis</i>
Cooter	<i>Pseudemys floridana</i>
Copperhead	<i>Agkistrodon contortrix</i>
Cottonmouth	<i>Agkistrodon piscivorus</i>
Diamondback terapin	<i>Malaclemys terepin</i>
Eastern stinkpot turtle	<i>Sternotherus odoratus</i>
False map turtle	<i>Graptemys pseudogeographica</i>
Five-lined skink	<i>Eumeces fasciatus</i>
Racer	<i>Coluber constrictor</i>
Red eared turtle	<i>Pseudemys scripta</i>
Ring-necked snake	<i>Diadophis punctatus</i>
Smooth softshell turtle	<i>Trionyx muticus</i>
Snapping turtle	<i>Chelydra serpentina</i>
Watersnake	<i>Nerodia fasciata</i>

## BIRDS

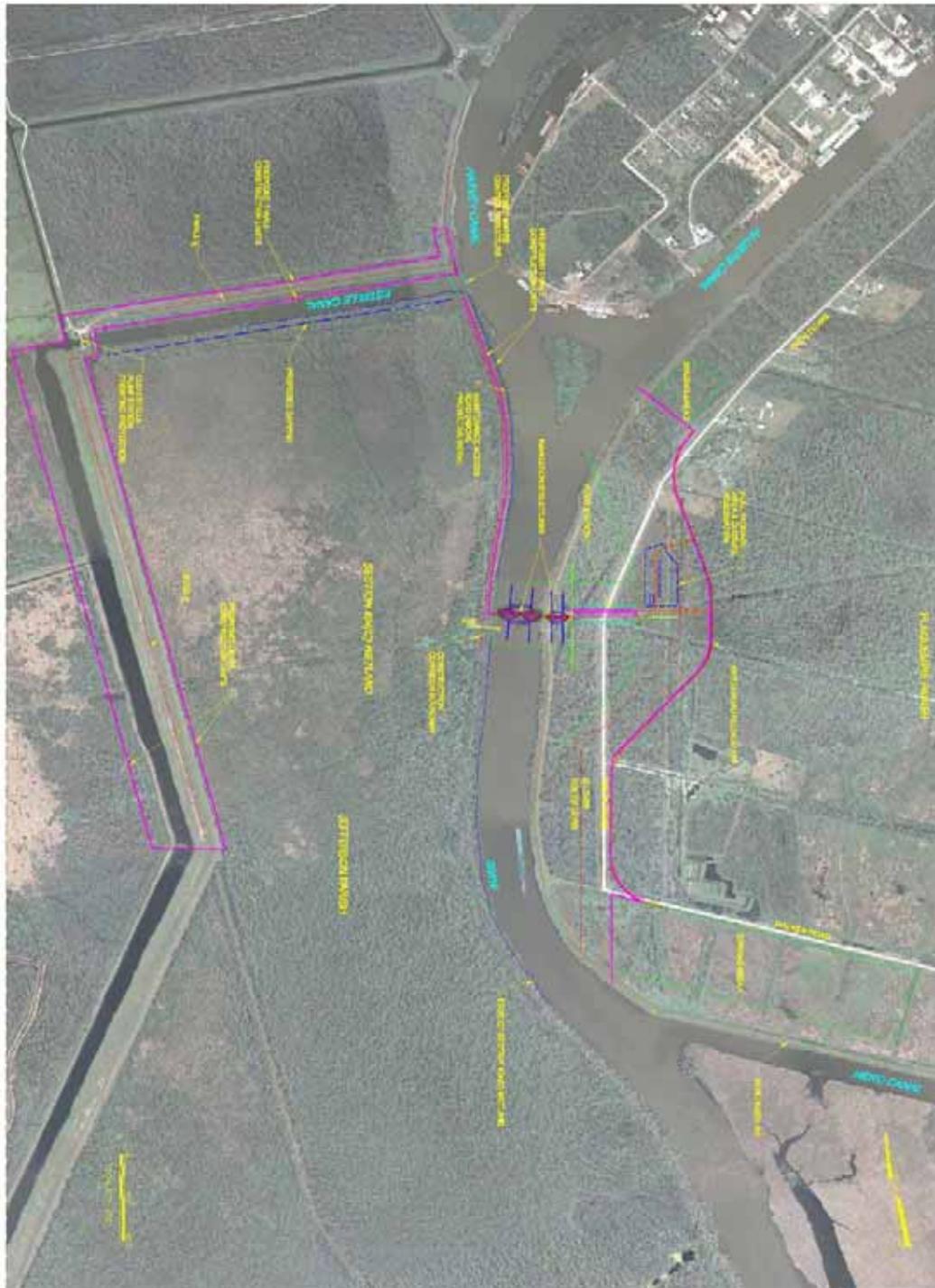
American wigeon	<i>Anas americana</i>
Anhinga	<i>Anhinga anhinga</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barred owl	<i>Strix varia</i>
Belted kingfisher	<i>Ceryle alcyon</i>
Black-necked stilt	<i>Himantopus mexicanus</i>
Blue-winged teal	<i>Anas discors</i>
Carolina chickadee	<i>Poecile carolinensis</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Eastern meadowlark	<i>Sturnella magna</i>
Gadwall	<i>Anas strepera</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
Greater white-fronted goose	<i>Anser albifrons</i>

Green heron	<i>Butorides virescens</i>
Green-winged teal	<i>Anas crecca</i>
Interior least tern	<i>Sterna antillarum athalassos</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning dove	<i>Zenaida macroura</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern pintail	<i>Anas acuta</i>
Osprey	<i>Pandion haliaetus</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Red-bellied woodpecker	<i>Melanerpes carolinus</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Snow goose	<i>Chen caerulescens</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Spotted sandpiper	<i>Actitis macularia</i>
White-eyed vireo	<i>Vireo griseus</i>
Wood duck	<i>Aix sponsa</i>

## MAMMALS

Bobcat	<i>Lynx rufus</i>
Cotton mouse	<i>Peromyscus gossypinus</i>
Coyote	<i>Canis latrans</i>
Eastern cottontail rabbit	<i>Sylvilagus floridanus</i>
Fox	<i>Vulpes vulpes</i>
	<i>Urocyon cinereoargenteus</i>
Fox squirrel	<i>Sciurus niger</i>
Hispid cotton rat	<i>Sigmodon hispidus</i>
Mink	<i>Mustela vison</i>
Nutria	<i>Myocaster coypus</i>
Muskrat	<i>Ondatra zibethicus</i>
Northern raccoon	<i>Procyon lotor</i>
Swamp rabbit	<i>Sylvaligus aquaticus</i>
Virginia opossum	<i>Didelphis virginiana</i>
White-tailed deer	<i>Odocoileus virginianus</i>

**Appendix J: Alternative Design Detail Sheets**



*WCC Conceptual Detail #1*





REPLY TO  
ATTENTION OF

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

NOV 04 2008

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

Mr. Lawrence E. Starfield  
Deputy Regional Administrator  
Environmental Protection Agency  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Dear Mr. Starfield:

The purpose of this letter is to request modification of the Environmental Protection Agency (EPA) Bayou aux Carpes 404 (c) Final Determination issued October 16, 1985. The US Army Corps of Engineers (Corps) requests that the EPA consider approving a modification that would allow the Corps to construct a segment of the West Bank and Vicinity Hurricane Protection Project / Hurricane and Storm Damage Risk Reduction System (HSDRRS) along the northeastern property boundary. The intent of the Corps proposed action is to reduce risk to the citizens of Greater New Orleans Metropolitan area by building a more resilient and reliable storm damage and risk reduction system. We can accomplish this by constructing an improved storm surge barrier system around the Bayou aux Carpes site, crossing the Gulf Intracoastal Waterway (GIWW) with a floodgate(s)/pumping station structure, and then tying into the existing Hero Canal Federal levee (GIWW West Closure Complex (GIWW WCC) alternative, see enclosed map and floodwall cross section).

The Corps has been working closely with EPA and other federal and state resource agency staff for several months to come up with the least environmentally damaging alternative that lowers the risk of storm surge damage to the greatest number of people in the area. It is our determination that the proposed action, GIWW WCC is the best alternative to provide the greatest level of risk reduction while minimizing environmental impacts. The Corps intends to make a final decision in the upcoming months concerning this project by circulating a draft of Individual Environmental Report (IER) # 12 and a Clean Water Act Section 404 (b) (1) public notice for a 30-day public comment period. Upon completion of the 30-day comment period, the Corps will review all comments received along with the data and analysis discussed in the IER in order to make a decision on the proposed action. The Corps will not make a decision on this portion of the proposed action until the EPA makes a determination on a modification to the Bayou aux Carpes 404 (c).

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The proposed alternative would require the construction of a floodwall and earthen berm along the eastern boundary of the 404 (c) site. To construct this alternative the Corps would need to impact an area within the 404 (c) area no greater than 4,200 LF by 100 LF. This action would impact no greater than 9.6 acres along the west bank of the GIWW within the Bayou aux Carpes 404 (c) area. Please refer to the enclosed documentation that describes in detail the:

- a. Need to modify the original HSDRRS alignment;
- b. Need to modify the Bayou aux Carpes 404 (c) Final Determination;
- c. Measures taken to ensure the avoidance and/or minimization of all adverse impacts to the Bayou aux Carpes 404 (c) area;
- d. Planning and design considerations to avoid additional impacts from any reasonable foreseeable future flood protection measures (i.e., the Louisiana Coastal Protection and Restoration (LACPR) Study);
- e. Plans for adequate site specific mitigation for all unavoidable adverse impacts to the Bayou aux Carpes 404 (c) area;
- f. Review of projected wetland impacts as per Corps 404 (b)(1) guidelines and the EPA 404 (b)(1) and 404 (c) procedures found in 40 CFR Parts 230 & 231; and
- g. Draft Path Forward with GIWW WCC.

Summarizing the above attachments: The Corps has determined that the GIWW WCC alternative, which alters the current system alignment, is the government's proposed action for this segment of the HSDRRS because this alternative would provide the most reliable, time sensitive and cost effective solution with the least adverse environmental impacts. Though this alternative would impact the Bayou aux Carpes 404 (c) area, the Corps agrees that final design efforts would utilize all feasible engineering and construction practices to reduce impacts to these nationally significant wetlands. In order to minimize the footprint of the surge barrier component to no greater than 4,200 LF by 100 LF along the western side of the GIWW within the Bayou aux Carpes 404 (c) area, the Corps agrees to investigate and utilize innovative techniques to design and build a structure that incorporates a floodwall and earthen berm rather than an earthen levee. The Corps would also locate the GIWW floodgate(s) as close to the Harvey and Algiers Canals confluence as engineeringly feasible in order to minimize impacts to the 404 (c) area. To further ensure the minimization of adverse impacts within the 404 (c) area, construction of the floodwall and earthen berm / access road would occur from the GIWW side of the construction area. In addition, project feature augmentations, such as allowing Old Estelle effluent into the 404 (c) area by gapping the spoil bank and removing the shell plug at Bayou aux Carpes, are being studied and would be incorporated as project features if the results of the

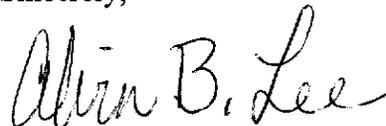
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environmental studies demonstrate that this proposed action would augment the Corps actions to minimize effects to the 404 (c) wetland habitat. Additional project feature augmentations, such as the gapping of other canal banks in the 404 (c) area are also being studied and would be incorporated into the project if it is found that the features further minimize impacts as a result of the Corps proposed action. The Corps agrees that mitigation for all unavoidable adverse impacts to the Bayou aux Carpes 404 (c) area would occur within the Bayou aux Carpes 404 (c) area and/or Jean Lafitte National and Historical Park. Mitigation projects would be designed and implemented concurrently with the design and construction of the floodwall and earthen berm / access road. Full mitigation within this unique environment may require mitigation in addition to acres indicated by the Wetland Value Assessment. The Corps further agrees to work in collaboration with the interagency team to monitor the area to ensure mitigation is successful in reaching its targeted goal and to utilize adaptive management efforts to ensure the project feature augmentations are assisting to minimize adverse impact within the 404 (c) area. The total funding required for the entire HSDRRS, \$16.8 billion, has been appropriated by Congress. This funding includes funds for the design and construction of all HSDRRS mitigation measures. The Corps would ensure that all impacts due to upgrading structures currently outlining the Bayou aux Carpes 404 (c) area would occur on the protected side and would not impact the 404 (c) area. Lastly, the GIWW WCC proposed action, would have the greatest adaptability to accommodate an enlargement associated with future system upgrades, i.e., LACPR.

We recognize the significance of this request and greatly appreciate the cooperation the EPA has shown in working with the Corps in our efforts to construct the most reliable hurricane risk reduction system possible.

If you have any questions or concerns please contact Mr. Gib Owen by E-mail: [gib.a.owen@usace.army.mil](mailto:gib.a.owen@usace.army.mil) or by phone at (504) 862-1337.

Sincerely,



Alvin B. Lee  
Colonel, US Army  
District Commander

Enclosure

See page 4 for list of copies furnished.

Mr. Garret Graves  
Chairman  
Coastal Protection and Restoration  
Authority of Louisiana  
1051 North 3rd Street  
Capitol Annex Building  
Baton Rouge, Louisiana 70802

Mr. James McMenis  
LA Office of Coastal Protection  
8900 Jimmy Wedell Road  
Baton Rouge, Louisiana 70807

Mr. David Bindewald  
President  
Southeast Louisiana Flood  
Protection Authority - West Bank  
7001 River Road  
Marrero, Louisiana 70072

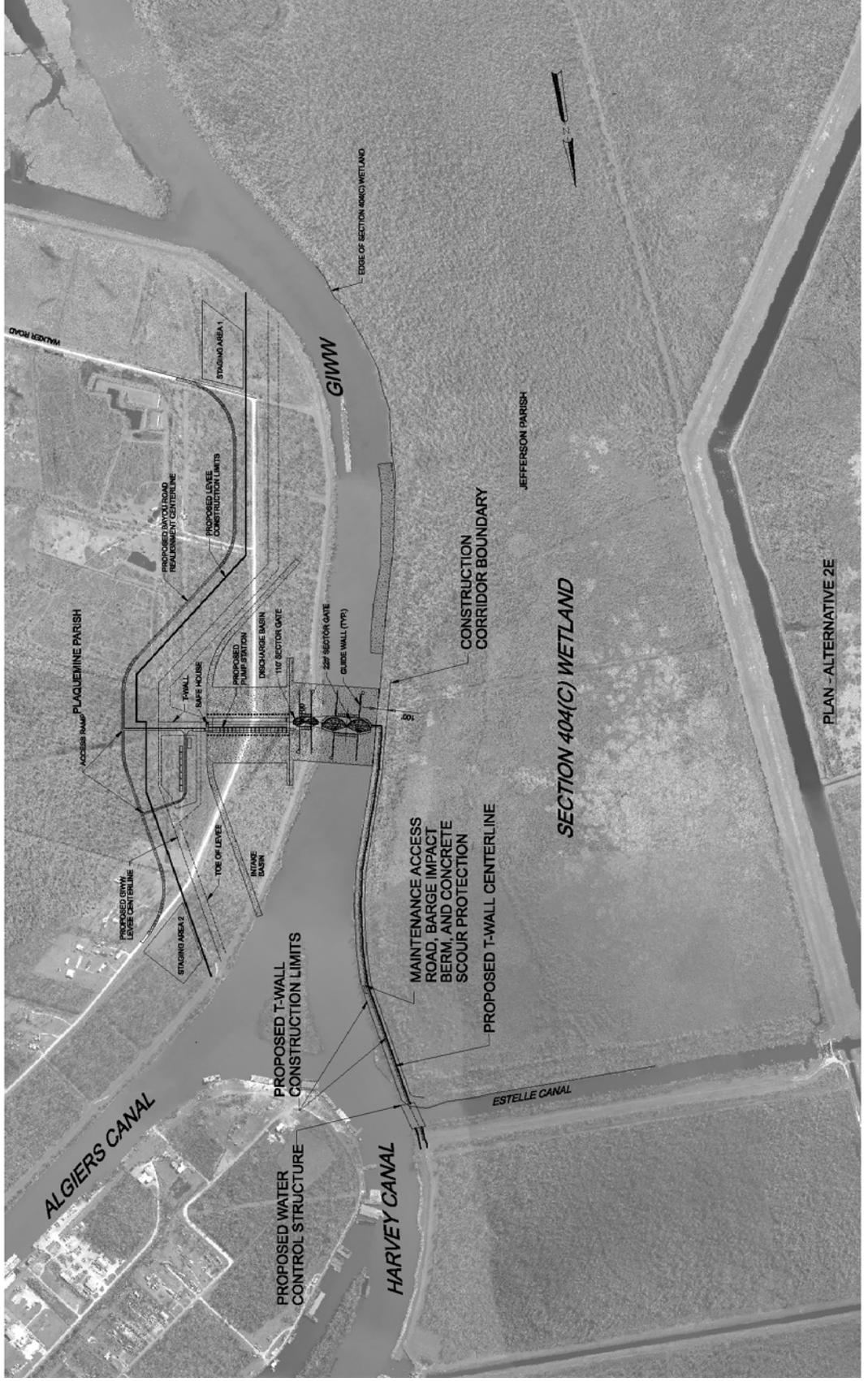
Mr. Jerry Spohrer  
Executive Director  
West Jeff Levee District  
7001 River Road  
Marrero, Louisiana 70072

Honorable Billy Nungesser  
Plaquemines Parish President  
8056 Highway 23, Suite 200  
Belle Chasse, Louisiana 70037

Mr. David Luchsinger  
Park Superintendent  
Jean Laffite National Historic Park and Preserve  
419 Decatur Street  
New Orleans, Louisiana 70130-1035

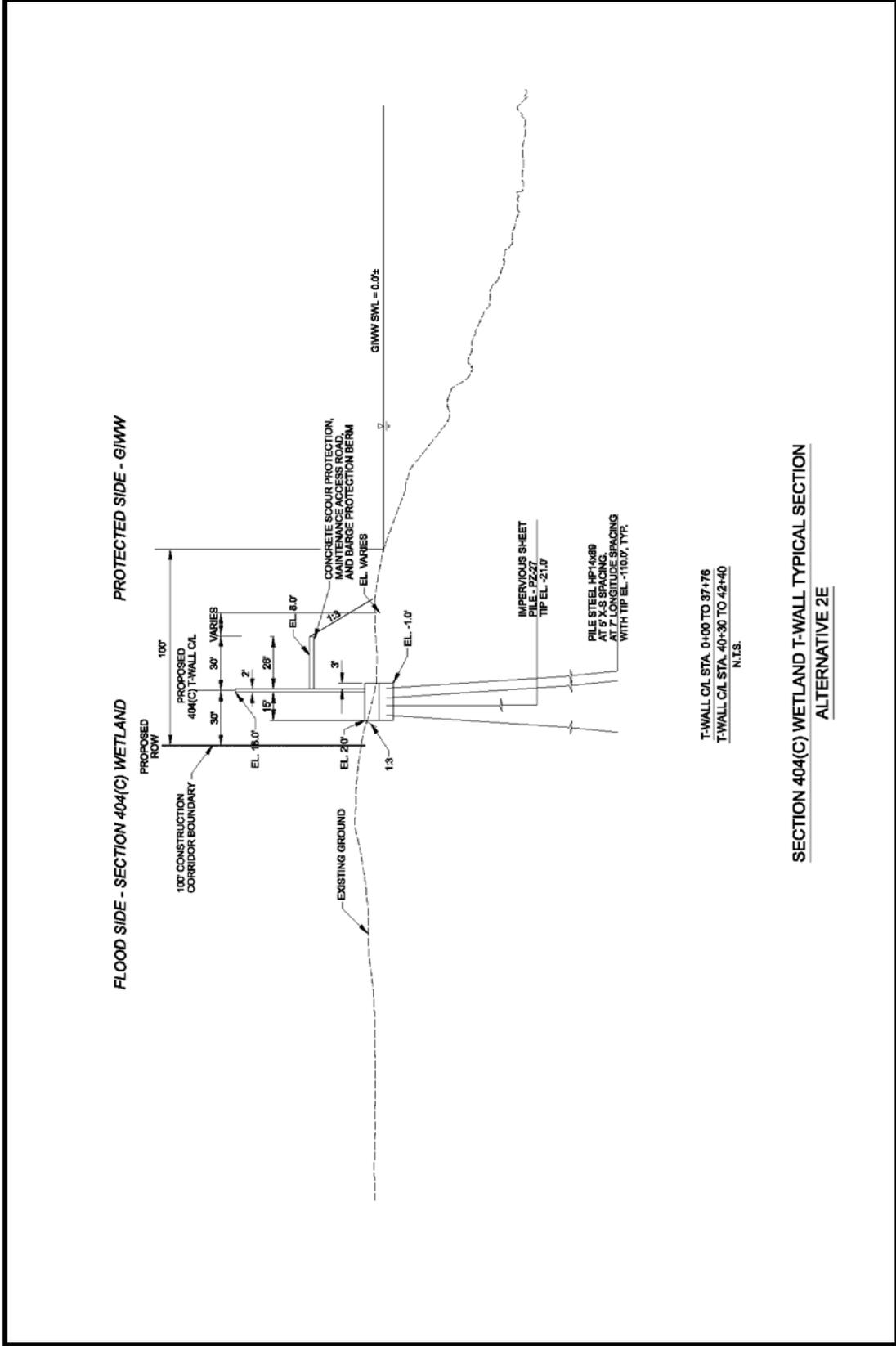
## CURRENT PROPOSED SITE PLAN

- LOCATION OF STRUCTURES WITHIN 404(C) AREA WOULD REMAIN AS SHOWN. MAXIMUM AREA OF IMPACT WOULD BE 100' WIDE BY 4200' LONG (9.6 acres).
- ORIENTATION OF PUMP STATION, GATE(S), BYPASS CHANNEL AND LEVEE ON EAST SIDE OF GIWW ARE NOT FINAL AND COULD CHANGE AS DESIGN PROGRESSES.



# TYPICAL PROPOSED 404(C) WALL SECTION

(FINAL DESIGN WOULD BE COMPLETED IN PARTNERSHIP WITH EPA AND NPS)



**a) The need to modify the current hurricane system alignment.**

The US Army Corps of Engineers (Corps) has been studying the current HSDRRS alignment, and based upon factors associated with system reliability has determined that in order to provide the greatest risk reduction, certain segments of the system must follow an improved alignment. The proposed new alignment for this project, GIWW WCC alternative, would significantly reduce risk to nearly 286,000 people living on the West bank of the Mississippi River. By removing 27 miles of parallel protection from the primary line of defense, this more streamlined surge barrier reduces the number of potential failure points in the system, increases quality control and certainty of subsurface conditions during construction, and minimizes human impacts since the existing footprint of the current system would not be widened to 100 year level of protection (LOP). This is a critical lesson learned from Hurricane Katrina in 2005. Catastrophic failure due to breaching along the 17<sup>th</sup> Street and London Avenue Outfall canals and the Inner Harbor Navigational Canal (IHNC) occurred because expanses of parallel protection were an inadequate risk reduction measure for such complex and challenging environments (USACE 2008). The structures may have been designed and constructed properly; however, there was an overall failure to incorporate new technologies and new risk reduction measures into the previous risk reduction system (USACE 2008). Hurricane Katrina brought many issues to the forefront. A major issue that surfaced was extensive reaches of levee, floodwall and floodgates provide numerous possible points of failure within the system and reduce the ability to maintain strict quality control. Hurricane Katrina also demonstrated that structures need to be resilient and must be constructed with the ability to reduce risk while withstanding system overtopping. The structures must still hold back the majority of the storm front, while some water may overtop the structure. In addition, having multiple lines of defense, such as a second barrier behind the initial surge barrier, i.e., the existing line of defense at pre Katrina authorized elevations, would even further ensure risk reduction within an area.

The Corps Project Delivery Team (PDT) identified all possible alignments in the area. All the alternatives were then evaluated according to various criteria, and all non-reasonable alternatives, i.e., those alternatives with overwhelming engineering challenges, were eliminated. In general, assessing all possible alignments demonstrated two things: system reliability increases as the actual length of the surge barrier decreases (deeming a further south, more streamlined alignment as most reliable) and this further southern alignment, which offers the most system reliability and protection, proposes to impact the Bayou aux Carpes 404 (c) area. There were five surviving alternatives brought forward from a preliminary alternative evaluation process conducted in early 2007. Two of those five alternatives were further analyzed and then eliminated due to non-constructability. The three surviving alternatives were then brought forward and further evaluated according to system reliability, environmental impacts, schedule and cost. These three surviving alternatives and the evaluation process were presented to EPA staff along with other Federal and state resource agencies to solicit input. In collaboration with the EPA and NPS, the Corps PDT revisited a previous alternative from the original proposed southern alignment that would maintain system reliability and additionally would minimize adverse environmental impacts. This fourth alternative was

evaluated against the same four criteria, was presented to the Federal and state resource agencies and local stakeholders, and was brought forward as the government's proposed action. Listed below are the proposed action and three other alternatives.

**The Proposed Action - The GIWW WCC alternative** would consist of the Corps along with its non-Federal partner, the State of Louisiana, constructing a floodwall and earthen / concrete barrier with an access road around the northern portion of the Bayou aux Carpes 404 (c) area. The barrier would run from the v-line levee situated west of the Bayou aux Carpes 404 (c) area to the Old Estelle pump station, west to east along the northern bank of the Old Estelle discharge canal, down the western bank of the GIWW within the Bayou aux Carpes 404 (c) area to a point where the alignment would cross the GIWW to the east bank to tie in with a levee being planned for construction along the northern side of the Hero Canal (see proposed action schematic below). Previously existing levee structures would be upgraded and/or replaced with floodwall to 14' / 16', the height specified for 100 year LOP, while a new floodwall with an earthen berm would be constructed along the western bank of the GIWW within the Bayou aux Carpes 404 (c) area. The new floodwall and earthen berm within the Bayou aux Carpes 404 (c) area would be no greater than 4,200 linear feet (LF) in length, no greater than 100 LF in width and 16' in height. Other features of the system include a navigation gate(s) system at the GIWW that would be 150 to 350 foot wide to allow for navigation and current reduction. Storm gates would be built to an elevation of 16'. The pump station would have a capacity between 20,000 and 25,000 cubic feet per second (cfs) to accommodate existing storm water discharges from the local parishes' drainage system. A by-pass channel would be built on the east bank of the GIWW to allow navigation on the GIWW during construction of the permanent gate structure. The existing Enterprise Gas pipeline would be relocated by directional drilling a new pipeline under the proposed bypass channel, the GIWW and the 404 (c) area. By directional drilling the pipeline under the 404 (c) area, the Corps not only avoids impacts to the area, but minimizes future impacts associated with maintaining the pipeline right-of-way across the area. These engineering specifics are the most current but are only preliminary and cannot be finalized without further investigation. Soil borings from the Bayou aux Carpes 404 (c) area are required to gather geotechnical specifics and give an indication of the actual floodwall and earthen berm footprint. The Corps submitted a letter on August 12, 2008 to EPA Region 6 and NPS requesting right-of-entry (ROE) within the Bayou aux Carpes 404 (c) area to conduct field surveys and obtain soil borings. Both the EPA and NPS responded quickly to the request granting ROE to begin the necessary data collection. The clearing to obtain boring samples occurred on October 6, 2008.

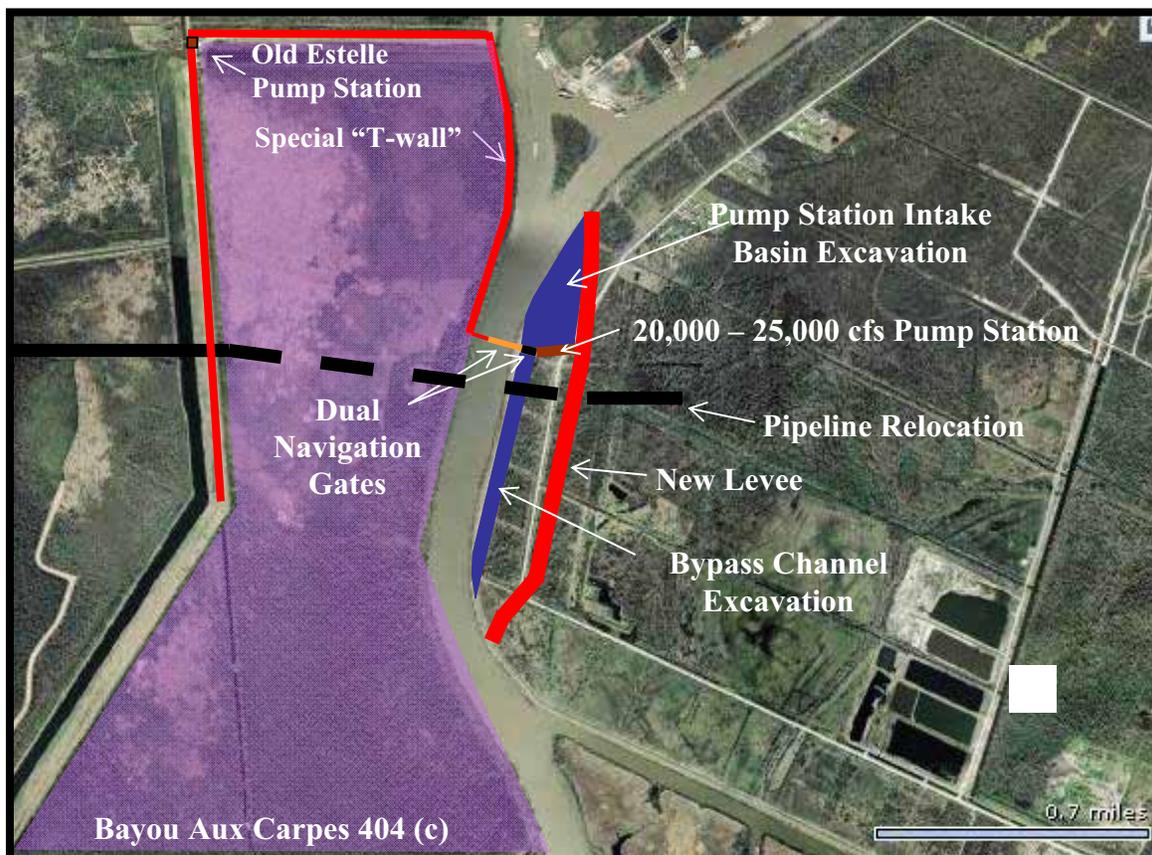


Figure 1. Conceptual GIWW West Closure Complex alternative schematic.

When the GIWW WCC alternative was evaluated with respect to system reliability, adverse environmental impacts, time and cost, it was determined the construction of this alternative alignment would dramatically increase system reliability. This proposed action reduces the primary line of defense by 36% and would be comparable in system reliability to GIWW A alternative, the other southern alignment, but would be much more reliable than the Algiers Gate or Parallel Protection alternatives (see alternative descriptions below). The GIWW WCC alternative would have the fewest adverse environmental impacts. Even though proposing to impact the Bayou aux Carpes 404 (c) area, this proposed alignment would minimize all direct and indirect adverse impacts to both the natural and human environments (see item 3 below). In addition, the proposed action would have a surge barrier in place, with reduced pumping capacity, by 2011, and would be more economical to construct than the AG or PP alternatives. See the alternative comparison tables below for specific details on system reliability, environment and schedule.

The GIWW A alternative is similar to the proposed action described above, but utilizes different levee and floodwall alignments. A navigable floodgate would be constructed in the GIWW approximately 1 mile south of the confluence of the Harvey and Algiers canals. The details regarding the navigable floodgate are identical to those described for the proposed action (GIWW WCC). The overall structure would include the floodgates,

pumping station, and by-pass channel as previously described. A new 3,000-foot long tidal exchange structure floodwall would be constructed west of the navigable floodgate across the EPA Bayou aux Carpes 404 (c) area to the V-Line Levee. The tidal exchange structure floodwall would be designed to utilize the smallest construction footprint possible to minimize environmental impacts. Gates in the wall would be constructed at specified locations in an effort to maintain the natural hydrology of the area. The floodwall would also be designed to facilitate the passage of wildlife. The navigable floodgate and tidal exchange structure would be constructed to the 100-year LOP 16'. The specific tie-in locations of the GIWW A alternative to other HSDRRS (IER #13 and #14) project elements would provide 100-year LOP to the study area without raising the parallel protection above that currently authorized along the Harvey and Algiers Canal Reaches.

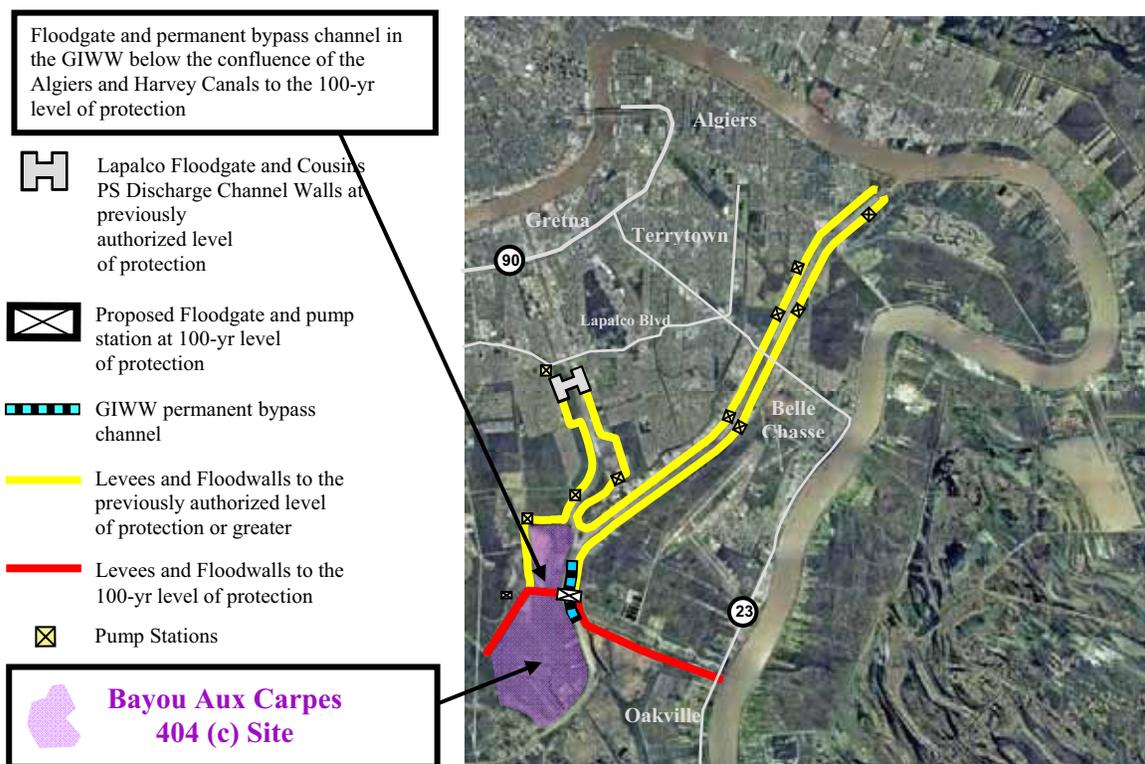


Figure 2. Conceptual GIWW A alternative schematic.

When the GIWW A alternative was evaluated with respect to system reliability, adverse environmental impacts, time and cost, the GIWW A alternative had comparable system reliability, schedule and cost to the proposed action (GIWW WCC); however, the adverse environmental impacts for the GIWW A alternative would be much greater than the proposed action. Though both alternatives would impact the Bayou aux Carpes 404 (c) area, the tidal exchange structure floodwall in GIWW A proposes to bifurcate the Bayou aux Carpes 404 (c) area and would result in irreparable direct and indirect impacts to the unique area (i.e., potential degradation or loss of flotant marsh located in the northern region of the 404 (c) area). In addition, this GIWW A alternative could preclude the possibility of including a portion of the Bayou aux Carpes 404 (c) area in the adjacent

Jean Lafitte National and Historical Park, where as the proposed action would create a more manageable situation for the NPS. While the GIWW WCC alternative also proposes a floodwall structure within the 404 (c) area, construction would be confined to a narrow footprint within a previously disturbed spoil bank along the west bank of the GIWW. The GIWW A alternative would also have a surge barrier in place, with reduced pumping capacity, by 2011, and would be much more economic to construct than the AG or PP alternatives. See the alternative comparison tables below for specific details on system reliability, environment and schedule.

The Algiers Gate alternative would require the construction of a navigable floodgate located on the Algiers Canal and major levee and floodwall improvements along the Harvey Canal, GIWW, and V-Line Levee. The AG alternative would include a 150-foot to 300-foot navigable floodgate located on the Algiers Canal, just above the confluence with the Harvey Canal. This navigable floodgate would require a permanent pumping station (approximately 20,000 cfs) adjacent to the gate, providing 100-year LOP along the Algiers Canal. Levee extending from the gate and pump station would need to be raised to 100-year LOP (14.0 feet). These improvements would tie into additional levee and floodwall improvements within the GIWW and Harvey Canal Reaches. Levees and floodwalls would be raised to 14.0 feet along both banks of the Harvey Canal, sections of the GIWW, and sections of the V-Line Levee. Levee improvements would specifically occur in two main locations. Existing levee on the eastern side of the GIWW would be raised from the navigable floodgate on the Algiers Canal to the Hero Canal Levee. In addition, existing levee on the west bank of the Harvey Canal would be raised from Lapalco Blvd. to the Estelle Pump Station Outfall Canal, west to the Estelle Pump Station, and continuing south along the V-Line Levee. Floodwall would be built to 14.0 feet on the east bank of the Harvey Canal from Lapalco Blvd. south to the GIWW. Floodwall would be used in this area in order to minimize impacts to existing development. These floodwall improvements along the Harvey Canal are currently being constructed under previous authorization. The proposed levee and floodwall improvements would require major modifications to the Harvey Canal Floodgate at Lapalco Blvd. and the Cousins Pump Station discharge channel. Fronting protection to the 100-year LOP would also be required at the Cousins Pump Station and all pump stations south of Lapalco Boulevard on the Harvey Canal, to prevent inundation of the existing pumps. These additional improvements would provide the desired 100-year LOP in coordination with levee tie-ins to additional HSDRRS projects (IER #13 and #14).

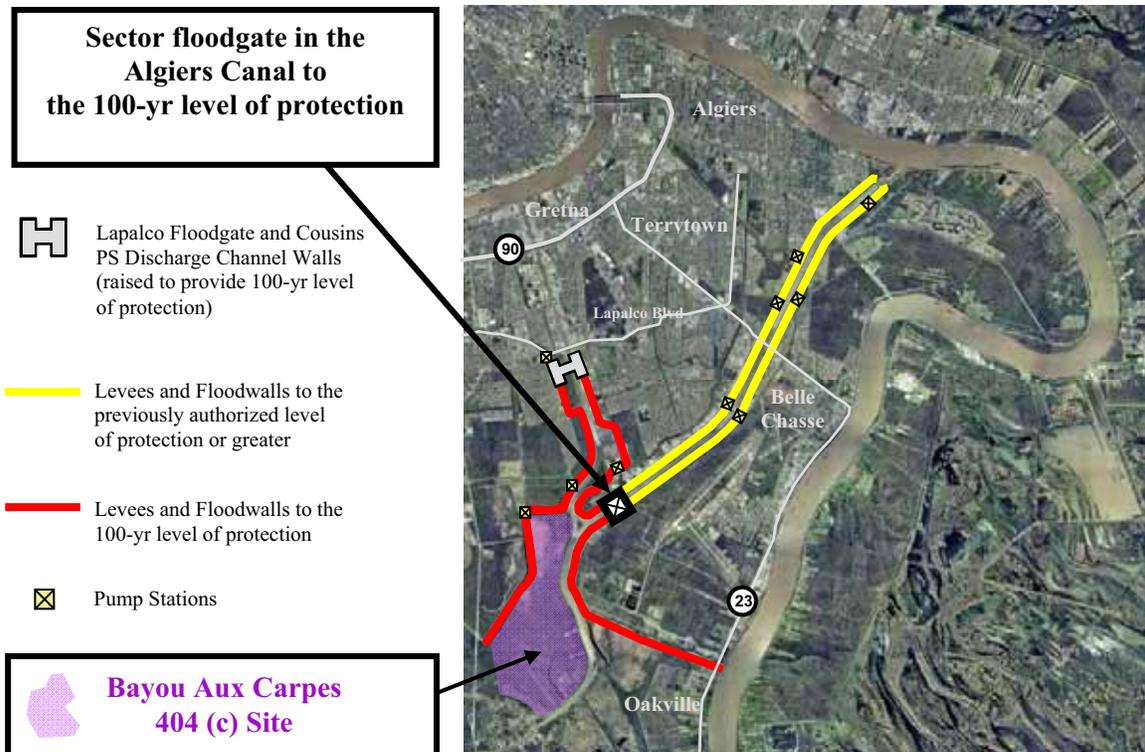


Figure 3. Conceptual Algiers Gate alternative schematic.

When the AG alternative was evaluated for system reliability, adverse environmental impacts, schedule and cost, it was determined this alternative would be less reliable than the proposed action (GIWW WCC) and GIWW A alternative but more reliable than the PP alternative. The AG alternative would reduce the primary line of defense by 18 miles. Though this alternative proposes to reduce the extent of parallel protection in the system along the Algiers Canal, there would still be areas with parallel protection serving as the primary line of defense along the Harvey Canal industrial reach. In addition, the line of parallel protection along the Harvey Canal industrial reach is situated behind the businesses and would not serve as a flood barrier to those industrial areas. The proposed action (GIWW WCC) would create a primary line of defense that would also reduce risk to those industrial areas and prevent flooding of the businesses. Construction of the proposed action would place the existing floodwalls and levees along the Harvey and Algiers canals as the secondary line of defense in the event of canal flooding due to system over topping. In addition, upgrading levee stretches west of the Harvey Canal would greatly increase the levee footprint and would impact both the human and natural environment. Adverse environmental impacts for this alternative would be greater than those of the proposed action (GIWW WCC). See the alternative comparison tables below for specific details on system reliability, environment and schedule.

The Parallel Protection alternative uses only improvements to existing levees and floodwalls along the GIWW, Harvey and Algiers Canal to achieve 100-year LOP. This alternative is similar to the AG alternative along the GIWW and Harvey Canal; however, there is no navigable floodgate built on the Algiers Canal. Instead, 100-year LOP is achieved along the

Algiers Canal by raising levees and floodwalls. Levee would be raised to 14.0 feet along the V-Line Levee to the Estelle Pump Station, continuing along the Estelle Outfall Canal, and finally running north along the western bank of the Harvey Canal to Lapalco Blvd. Major modifications to the Cousins pump station discharge walls and the Lapalco floodgate would be required. On the opposite side of the Harvey Canal (east bank), floodwall would be raised to 14.0 feet from Lapalco Blvd. to the Algiers Canal. The existing levees and floodwalls on both banks of the Algiers Canal would be modified from Hero cut to the Algiers Locks. Elevations of the levee and floodwall improvements along the Algiers Canal would range from 14.0 to 16.0 feet. Improvements to existing flood protection structures would consist of:

- Raising existing levees (which will require the acquisition of additional rights-of-way and the removal of numerous dwellings, apartment complexes, electrical transmission towers, modifying the bridge supporting piers for two vehicle bridges and one railroad bridge crossing the canal, degrading the existing levees, installing a high strength geotextile at elevation 0.0 and rebuilding the levee to the 100-year LOP);
- Constructing and modifying existing floodwalls; and
- Constructing floodwalls and floodgates on existing levees.

The construction options utilized throughout the Algiers Canal reach would be highly dependent upon localized land use and constructability. In addition to the levee and floodwall improvements, the PP alternative would require elevation modifications and flood protection tie-ins to all pump stations along the Harvey and Algiers Canals, the Algiers Locks, the Lapalco Sector Gate and the Estelle Pump Station. Some of these modifications have already occurred, or are currently under construction as part of a pre-Katrina authorized action. These modifications, and the PP alternative levee and floodwall modifications, would provide 100-year LOP in coordination with levee tie-ins with additional HSDRRS projects (IER #13 and #14).

Belle Chasse Tunnel - The existing lanes of south-bound LA 23 at Belle Chasse travel through a tunnel under the Algiers Canal; this complicates raising the LOP in that area. The tunnel structure is probably inadequate to support higher water loads that would be associated with the 100-year LOP. Two options have been identified:

- Locate the line of protection away from the canal to points beyond the tunnel entrances. This would require flood closure gates across the highway at each end of the tunnel. This plan would result in flooding of the tunnel during periods of high water, and it might even be necessary to require flooding of the tunnel to prevent structural damage from high water pressure.
- Abandon the tunnel and reroute the highway to a new high-level bridge. This plan would also require relocating the roadway and the addition of ramps to the bridge, and might require backfilling the tunnel for structural security.

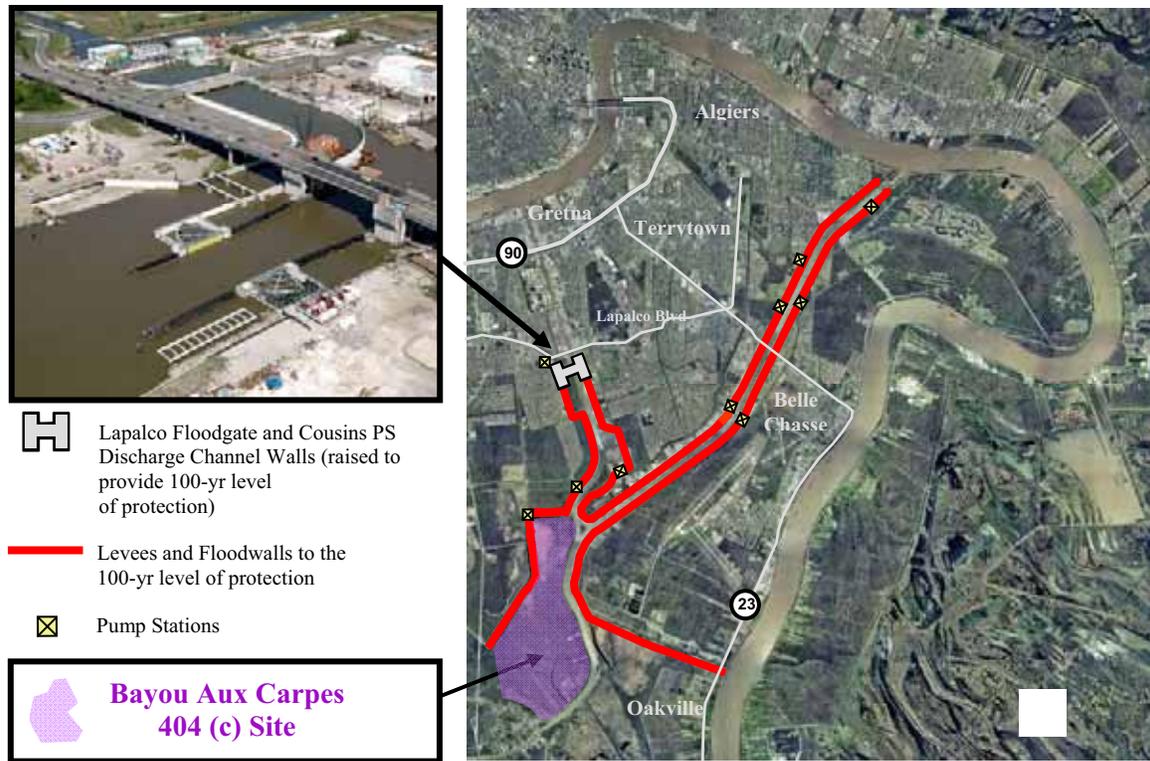


Figure 4. Conceptual Parallel Protection alternative schematic.

When the PP alternative was evaluated with respect to system reliability, adverse environmental impacts, schedule and cost, it was determined this alternative would have the lowest system reliability, have the most adverse socioeconomic impacts, have significant environmental impacts, require the most time to construct and be least economic. This alternative that keeps the approximately 27 miles of existing risk reduction system as the primary line of defense would be the least reliable because this alignment contains numerous potential failure points. In addition to reduced reliability, upgrading the current alignment would require large scale residential and commercial relocations and would have serious environmental implications (i.e. HTRW issues). See the alternative comparison tables below for specific details on system reliability, environment and schedule.

### Alternative Comparison Tables

The tables below demonstrate alternative comparisons for three criteria: risk and reliability, environment, and schedule. The criteria were broken out into multiple “sub-criteria” for a more thorough comparison among alternatives. Specific cost comparison information was excluded as it cannot be disclosed at this time.

**RISK & RELIABILITY COMPARISON**

		<b>GIWW WCC</b>	<b>GIWW A</b>	<b>AG</b>	<b>PP</b>
<b>Reliability</b>	Storm load exposure	Approximately 3 miles of storm frontage	Approximately 1 mile of storm frontage	Approximately 9 miles of storm frontage	Approximately 27 miles of storm frontage
	Overtopping frequency	Overtopping frequency more than GIWW A alternative but less than AG alternative	Lowest overtopping frequency because it has least lineal exposure and 2' superiority over 100-yr water elevations along entire storm front	Overtopping frequency more than GIWW WCC alternative but less than PP alternative	Highest frequency of overtopping because it has greatest lineal exposure and least superiority over 100-yr water elevations
	Overtopping volume	Overtopping volume more than GIWW A alternative but less than AG alternative	Lowest overtopping volume because it has the highest superiority over 100-yr elevations and shortest frontage	Overtopping volume more than GIWW WCC alternative but less than PP alternative	Highest overtopping volume because it has no superiority over 100-yr elevations and longest frontage
	Non-storm load exposure	More storm load exposure than GIWW A alternative but less than AG alternative	Least lineal exposure to non-storm loads. Not susceptible to vegetation and wildlife encroachment. Protection is perpendicular to the navigation, possibly affecting frequency or severity of collisions	Significantly more storm load exposure than GIWW WCC alternative but less than PP alternative	Greatest lineal exposure to non-storm loads. Earthen levees are susceptible to vegetation and wildlife encroachment. Protection is parallel to the navigation, possibly affecting frequency or severity of collisions
	Value to terrorists	Less value to terrorists than GIWW A alternative, but more than AG alternative	High because HPS features are concentrated in terms of location and value, but easier to monitor and defend	Less value to terrorists than GIWW WCC alternative, but more than PP alternative	Low because HPS features are distributed by location and value, but harder to monitor and defend
	Resistance to explosive devices	Lower resistance to man-portable explosives and more accessible to larger devices	Lower resistance to man-portable explosives and more accessible to larger devices	Lower resistance to man-portable explosives and more accessible to larger devices	High resistance to man-portable devices; vulnerability to larger devices is low because access would be difficult
	Transitions (levee-to-floodwall, floodwall-to-floodgate, etc)	Approximately 10	Least number of transitions approximately 6	Approximately 60	Highest number, approximately 90
	Compartmentalization	Creates 2 <sup>nd</sup> largest storm water storage subbasin	Creates the largest storm water storage subbasin	Creates smallest storm water storage subbasin	No new sub-compartments created
	Foundations	Same as GIWW A alternative, except for some levee reaches, in which case see PP alternative	Pile foundations are engineered	Same as GIWW A alternative, except for some levee reaches, in which case see PP alternative	Levee foundations would be non-engineered unless geo-textile or soil cement design alternatives are adopted; any T-wall foundations would be engineered
	Complexity	High; largest number of new HPS features, though many separate levee reaches are eliminated	High; largest number of new HPS features, though many separate levee reaches are eliminated	High; though lower than GIWW WCC and GIWW A alternatives	Low; largest number of reaches, but no new HPS features created
	Interdependency of features	8-9 pump stations upstream dependent on the new pump station	9 pump stations upstream become dependent on the new pump station	7 pump stations upstream depend on new pump station	No new dependencies
Redundancy	Pumping capacity is	Pumping capacity is	Pumping capacity is	No redundancy	

		supplied by 4 sets of 4 independently powered pumps; 2 generators provide redundant backup power supply to each set of pumps	supplied by 4 sets of 4 independently powered pumps; 2 generators provide redundant backup power supply to each set of pumps	supplied by 3 sets of 3 independently powered pumps; 2 generators provide redundant backup power supply to each set of pumps	
	Active vs. Passive control	Pump station and gates must be staffed before, during, and after a storm event; 1 additional pump station (Old Estelle) must be staffed	Pump station and gates must be staffed before, during, and after a storm event	Pump station and gates must be staffed before, during, and after a storm event; 30 flood gates and 4 pump stations must be operated	Levees are generally considered passive flood protection, but there are 47 floodgates, 33 sluice gates, and 19 butterfly valves that must be manually operated
	Operation & Maintenance	Most expensive	Most expensive	Less expensive than GIWW WCC and GIWW A alternatives, but significantly more than PP alternative	Least expensive
	Inspections and maintenance	More rigorous inspections	More rigorous inspections	More rigorous inspections	Less rigorous; only visual inspection of levee and floodwalls
	Quality control	Pre-fabricated components have added layers of quality control prior to placements and must satisfy industry standards; however, any specialized test procedures and resources required for these features may be a liability	Pre-fabricated components have added layers of quality control prior to placements and must satisfy industry standards; however, any specialized test procedures and resources required for these features may be a liability	Pre-fabricated components have added layers of quality control prior to placements and must satisfy industry standards; however, any specialized test procedures and resources required for these features may be a liability	Greatest opportunity for non-compliance with construction specifications; Quality during placement and compaction of earthen levees and floodwalls would vary over space and time
	Utility dependence	Pump stations and gates will require connection to utility grids	Pump stations and gates will require connection to utility grids	Pump stations and gates will require connection to utility grids	No connection to utility grids required
	Reliability Team Assessment (relative scoring)	7(extrapolated)	8	3	0
<b>Risk</b>	Hurricane seasons under construction	3	3	3	5
	Redundancy of system	Most redundant	Most redundant	Redundancy on Algiers Canal; no redundancy on Harvey Canal	No redundancy
	Uncertainty in subsurface conditions	More uncertain than GIWW A alternative, Less uncertain than AG alternative	Least uncertain	More uncertain than GIWW WCC alternative, Less uncertain than PP alternative	Most uncertain
	Barge impact causing catastrophic failure	Least susceptible	Least susceptible	More susceptible than GIWW WCC and GIWW A alternatives, but less than PP alternative	Most susceptible

**ENVIRONMENTAL COMPARISON**

	<b>GIWW WCC</b>	<b>GIWW A</b>	<b>AG</b>	<b>PP</b>
Total Wetlands and Non-wetlands Uplands Resources (Unavoidable Impacts)	<p><b>Direct Impacts:</b> 9.6 acres of Nationally significant 404 c area wetlands + 223.3 acres of direct impacts to BLH + 8.9 acres of swamp (not in 404 (c)) = <b>232.2. Total acres of wetland</b></p> <p><b>Indirect impacts:</b> -Minimal -Minimal impact to flotant marsh</p> <p><b>Other Details:</b> -Possible project feature augmentation by discharging Estelle PS storm water effluent into 404 (c) area (dependent on study and coordination with EPA and rest of Interagency team to minimize impacts to the 404 (c) area as a result of the Government's action. Could be engineered to allow storm water flow on 404 (c) area to better maintain the fresh/salt water regime -May return 20 acres of land currently on the protected side of levee to the flood side as part of the bypass navigation channel. Habitat could be restored to bottomland hardwood forest. -Wall along GIWW would prevent industrial debris and effluent from flowing into 404 (c) area.</p>	<p><b>Direct Impacts:</b> 5.1 acres of Nationally significant 404 (c) area wetlands + 112 acres (not in 404 (c)) = <b>117.1 Total acres of wetlands</b></p> <p><b>Indirect impacts:</b> -Bifurcation of the 404 (c) area alters wildlife migration and ground water flow -Impoundment of northern 519 acres of flotant marsh and the potential total loss of flotant marsh and degradation within the 404 (c)</p> <p><b>Other Details:</b> -Floodwall would be designed to allow drainage and exchange of surface water during non-storm conditions -The wall would be designed and built to control outflow of flooded marsh -This alternative may return 20 acres of wetlands to the flood side</p>	<p><b>Direct Impacts:</b> 161 acres of wetlands + 150 acres of BLH = <b>311 Total acres of wetland</b></p> <p><b>Indirect impacts:</b> -Minimal indirect impacts</p> <p><b>Other Details:</b> -Storm surge reduction by marsh and flotant -May return ~10 acres to flood side</p>	<p><b>Direct Impacts:</b> 150 acres of BLH + 50 acres BLH = <b>200 Total acres of wetlands</b></p> <p><b>Indirect impacts:</b> -Minimal indirect impacts</p> <p><b>Other Details:</b> - Storm surge reduction by marsh and flotant</p>
Socioeconomic/Human Resources	<p>-Relocation of 1 business and 1 pipeline (Enterprise Gas pipeline) -Harvey canal businesses would be included in the protection</p>	<p>-Relocation of 1 business -Bisecting 404 (c) degrades recreational use of area and potentially impacts hunting, bird watching, canoeing, kayaking, photography and commercial uses (swamp tours, etc.), though gates crossing the 404 c could accommodate the recreational use -Harvey canal businesses would be included in the protection</p>	<p>-Relocation of 13 residences and 3-4 businesses</p>	<p>-Relocation of 70 residences, 600 apartments, and 55 businesses</p>

Other: HTRW, borrow, air quality, noise quality, cultural, and aesthetics	-Minimal HTRW issues -keeps HTRW out of 404 c area -possible impacts due to borrow transport (likely barge in borrow to reduce impacts (3.5 M cy)) -Air quality medium impacts	-Minimal HTRW issues -minimal environmental impact due to borrow transport (250K cy) -minimal air quality issues	-Minimal HTRW issues on Harvey reaches (surge into area would pick up industrial debris, etc.) -possible Impacts due to borrow Transport (likely barge in borrow to reduce impacts (4.5 M cy)) -Air quality medium impacts	-Potential significant HTRW issues on Harvey reaches (surge into area would pick up industrial debris, etc.); landfills on Algiers reaches -Cultural issues: Antebellum homes -Impacts due to borrow Transport (9.54M cy) -Air quality high impacts
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**TIME COMPARISON**

	GIWW WCC	GIWW A	AG	PP
Construction Completion Date	MAR 2013	MAR 2013	AUG 2013	JUN 2013
100-year “wall of protection” completion date. Full pumping capacity would not be in place until Construction Completion date	JUN 2011	JUN 2011	JUN 2011	JUN 2013
Possible time slips due to real estate, relocations, environmental proceedings and litigation	Action within 404 (c) area, and relocation issues	Action within 404 (c) area and relocation issue Acquisition of property	Real estate and relocations issues	Real estate and relocation issues

**Summary**

The proposed action, GIWW WCC alternative proposes to alter the original system alignment and construct a streamlined surge barrier. The alternative would consist of 3 miles of levee and floodwall that would reduce the primary line of defense by 36%, a navigation gate(s) structure, a 20,000 -25,000 cfs pump station, 10 transition points, and a bypass channel. The existing protection at the approximate elevation 8.5’ would become the secondary line of protection during a storm event. Construction of this alternative would directly impact a total of 232.2 total acres of wetlands (9.6 acres of nationally significant 404 (c) wetlands), would have minimal indirect impacts to wetlands, and would have minimal socioeconomic impacts. Borrow requirement would be approximately 250,000 cubic yards (cy).

The GIWW A alternative also proposes to alter the original system alignment to construct a streamlined surge barrier. This alternative would consist of less than 1 mile (0.9 mi) of levee and floodwall that would reduce the primary line of defense by 41%, a navigation gate(s) structure, an approximately 20,000 -25,000 cfs pump station, 6 transition points, and a bypass channel. The existing protection at the approximate elevation 8.5’ would become the secondary line of protection during an event. This

alternative would directly impact 117.1 acres of wetland (5.1 acres of nationally significant 404 (c) wetlands) would bifurcate the 404 (c) area and have potentially significant, irreparable direct and indirect impacts to the northern impounded region (alter ground water flow, alter animal migration, potentially degrade float marsh, etc.) However, this alternative would have minimal socioeconomic impacts (i.e., residential or commercial relocations.) Borrow requirement would be approximately 3.5 M cy.

The AG alternative proposes to keep parallel protection along the Harvey Canal but build a gate at Algiers Canal to reduce the primary line of defense by 24%. This alternative would consist of 9 miles of floodwall (4 miles) and levee (5 miles), fronting protection at 4 pump stations, retrofitting the Lapalco Sector Gate, 30 floodgates on Harvey Canal, and 12 transition points. The existing protection at approximate elevation 8.5' behind the Algiers Canal gate would serve as secondary protection during an event. This alternative would impact 311 acres of wetlands, 13 residences, and 3-4 businesses. Borrow requirement would be approximately 4.5 M cy

The PP alternative proposes to keep the original alignment, approximately 27 miles of levee and floodwall, 47 floodgates on Algiers (17) and Harvey canals (30), approximately 90 transitions, 33 sluice gate structures, 19 butterfly valves, fronting protection and backflow suppression at 9 pump stations, retrofitting the Lapalco Sector Gate, and secure the Belle Chasse tunnel. This alternative would have no secondary line of defense during an event, would impact 200 acres of wetlands, 70 residents, 600 apartments and 55 businesses. Borrow requirement would be approximately 9.4 M cy.

### **Government's Proposed Action**

The Corps has determined that the GIWW WCC alternative, which alters the current system alignment, is the government's proposed action for this segment of the HSDRRS because this alternative would provide the most reliable, time sensitive and cost effective solution with the least adverse environmental impacts.

**b) The need to modify the Bayou aux Carpes 404 (c) Final Determination and why this modification is in the public's interest.**

After rigorous investigation of all possible alternatives and close collaboration with the EPA, other Federal and state resource agencies, and local stakeholders, the Corps has brought forward the GIWW WCC alternative as the proposed action. Though possible to design, engineer and construct all four previously discussed alternatives, the proposed action would provide the most system reliability and maximum risk reduction with the least adverse environmental impacts; therefore, the GIWW WCC alternative has been identified as the proposed action.

Since the alternative that would provide the most reliable, least risk, time sensitive and cost effective solution with the least adverse environmental impacts would require constructing a floodwall along the western bank of the GIWW within the Bayou aux Carpes 404 (c) area, the Corps requests a modification to the Bayou aux Carpes 404 (c) Final Determination.

The proposed action would serve the national public interest because it would significantly reduce the risk during a 100 year storm event for nearly 286,000 people, nearly 80,000 residences, and over 3,000 businesses on the West Bank of the Mississippi River. Given the lessons learned from Hurricane Katrina, it is in the national interests for the Federal government to wisely invest in the alternative that provides the lowest risk and is the least environmentally damaging. The hurricane system in New Orleans is only as good as the sum of its parts. By ensuring that all the parts are selected and constructed to the highest standards possible, the nation would benefit due to lower risk to the system and lower potential for catastrophic losses. The system, when completed, will provide the citizens of the area the opportunity to participate in the National Flood Insurance Program. Certification of the system to meet flood insurance standards is an issue critical to the full economic recovery of the area. Pre-Hurricane Katrina assets for the area at risk were valued at nearly 22 billion dollars. The GIWW WCC alternative would provide a more streamlined barrier system that would not only reduce the length of the hurricane system but would also create a primary and secondary line of defense during a storm event. The proposed action also builds upon the Federal mandate to avoid and minimize environmental impacts by reducing overall impacts to wetlands, bottomland hardwoods and people. The GIWW WCC alternative eliminates the need to relocate businesses and residents along the Algiers and Harvey canals that would be required if the Corps were to construct either the AG or PP alternatives. The construction of this proposed action would be a tremendous step forward for the nation in providing the 1% LOP congressionally authorized and demonstrates the Corps' drive to incorporate current, more adequate risk reductions measures into the system.

There are also overwhelming benefits to the overall economy of the nation from constructing this alternative. The proposed action serves the public interest of the nation as stated above by reducing risk for the City of New Orleans, but this alternative also provides for a more resilient Port of New Orleans.

The Port of New Orleans is the fifth largest port in the United States based on cargo handled, is the second largest in Louisiana after the Port of South Louisiana, and is the 12<sup>th</sup> largest in the United States for value of cargo. The Port of New Orleans handles approximately 84 million short tons of cargo a year, where as the Port of South Louisiana handles approximately 199 million short tons a year. The two Louisiana ports combined form the largest port system in the world by bulk tonnage, and the world's fourth largest by annual volume handled. The Port of New Orleans is a major transshipment point for steel, rubber and coffee. It is the largest port in the United States for rubber imports. Approximately 6,000 ships from nearly 60 nations dock at the Port of New Orleans annually. The chief exports are grain and other foods from the Midwestern United States and petroleum products. The leading imports include rubber, chemicals, cocoa beans, coffee, and petroleum. The port handles more trade with Latin America than does any other United States gateway, including Miami. In addition, the rail system is a major component in cargo transport, and the Port of New Orleans is the only seaport in the US with access to six class one rail roads (Port of New Orleans 2008).

New Orleans is also a busy port for barges. The Mississippi River and the Gulf Intracoastal Waterway (GIWW) in the New Orleans area are used to transport approximately 50,000 barges a year. Within the port, cargo (commodity) is transferred from barges to rail and overland transport for distribution across the country. In addition to shipping commerce, the Port of New Orleans is considered one of the nation's premier cruise ports. It handles nearly 700,000 cruise passengers a year (Port of New Orleans 2008).

Besides serving local interests and reducing risk to local residences and business for the purpose of public safety and securing the local economy, the construction of this proposed alignment (GIWW WCC alternative) would also serve the national interest and reduce risk for the Port of New Orleans, a cornerstone of the national economy.

**c) Planning and design efforts that have been incorporated into the proposed action to minimize impacts to the 404 (c) area.**

The Corps proposes to employ several measures to reduce the impacts to the Bayou aux Carpes 404 (c) area.

1. The GIWW WCC alternative: The first measure employed was the derivation of the GIWW WCC alternative. Based on a system reliability study of the West bank and vicinity HSDRRS, the Corps had initially proposed the GIWW A alternative; however, after collaborating with EPA, National Park Service staff and other Federal and state resource agencies, the GIWW WCC alternative was derived to minimize adverse direct and indirect impacts to the Bayou aux Carpes 404 (c) area. The GIWW WCC alternative, which would maintain system reliability while minimizing adverse environmental impacts, was accepted by the Corps and brought forward as the proposed action. As described in the alternative comparison above, the GIWW WCC alternative limits adverse impacts to the 404

- (c) by building a structure with a narrow footprint (floodwall and earthen berm) on a previously disturbed area along the west bank of the GIWW.
2. Innovative techniques to build a floodwall along a navigable water way: The segment of the WBV HSDRRS 100 year LOP proposed within the Bayou aux Carpes 404 (c) area would be constructed as a floodwall in lieu of an earthen levee in order to ensure that the most reliable, least damaging alternative is in place. A floodwall can be built on a much smaller footprint than an earthen levee. The Corps recognizes that there are certain risks associated with placing a floodwall along a navigable waterway, but to minimize the footprint of this surge barrier component within the Bayou aux Carpes 404 (c) area, the Corps will investigate and utilize innovative techniques to design and build a structure with the narrowest footprint possible.
  3. Construction via water based equipment: The floodwall would be constructed within the 100' right-of-way. No additional construction easements would be required for wall construction.
  4. GIWW Gate location: The Corps proposes to move the gate on the GIWW as far north as practical to further reduce impacts. However, it is understood that the GIWW is a Federal navigation channel that is of national significance which requires that design of this structure be such that safety of users of the system be a paramount design consideration.
  5. Project features: The Corps also believes that it is feasible to complete alterations to existing project features to minimize adverse impacts that could potentially occur as a result of the construction of the GIWW WCC alternative along 4,200 LF of the eastern shoreline of the Bayou aux Carpes 404 (c) area. Another feature would be the redirection of the Old Estelle pump station storm water effluent into the 404 (c) area to introduce additional nutrients and fresh water into the system. Additionally, under the proposed action, the Corps would create gaps in several existing canals in the southern end of the 404 (c) area to promote improved hydrology within the 404 (c) area. Specifically, the shell plug at Bayou des Familles as well as plugs along other canals would be removed if study results demonstrate a positive benefit in minimizing the environmental impacts to the area can be achieved. All actions would be fully coordinated with EPA and the interagency team. Studies are underway at the Corps Engineering Research and Development Center (ERDC) in Vicksburg, Mississippi to determine the best possible design to allow for maximized benefit of this work in the Bayou aux Carpes 404 (c) area. Hydrology studies are ongoing and are expected to be completed by 17 October 2008. Environmental surveys are underway to determine the appropriate areas for the proposed spoil bank gapping within the Old Estelle discharge canal and for the removal of plugs in Bayou des Familles and other canals. In addition, the surveys will determine the appropriate water flow velocities within the 404 (c) when creating the gaps and removing canal plugs, and the appropriate nutrient loading levels. These studies will be integrated

into the efforts of the Interagency resource team that was formed early in the analysis phase to ensure that the national interest placed on the Bayou aux Carpes site meets the wisest and best use of the area.

**d) Planning and design considerations that have been taken to avoid additional impacts from any reasonably foreseeable future flood protection measures (i.e. the Louisiana Area Coastal Protection and Restoration (LACPR) Study) when designing hurricane protection to prevent further impacts to the 404 (c) area.**

In 2007, Congress authorized the Corps to conduct a study to be known as the Louisiana Coastal Protection and Restoration (LACPR) to determine viable projects to be considered for providing a higher level of risk reduction (Category 5) and coastal restoration for southern Louisiana. The Corps is not authorized by Congress to incorporate adaptations for LACPR when planning and designing the 1 percent risk reduction projects; however, the Corps is carefully considering the impacts that could occur if Congress authorized a larger project.

Of the alternatives investigated to reduce risk during a 100 year storm event, the GIWW WCC alternative (the proposed action) has the greatest adaptability to accommodate an enlargement. The Corps proposes that the upgrade to the floodwall and earthen berm be constructed via water access as currently proposed. In addition, all upgrades to levee and floodwall stretches that border the eastern and northern side of the 404 (c) area would be shifted to the protected side of the risk reduction system and would not impact the 404 (c) area. It is also not likely that a Category 5 upgrade to the risk reduction system would require movement of the navigation gate(s) structure.

The GIWW A alternative which would bisect the 404 (c) area would require additional construction impacts to cross the 404 (c) area, potentially compounding the ecological and hydrologic impacts to the area.

If the Algiers Gate alternative were constructed it would require further upgrades to the Harvey Canal and levees west of Harvey Canal, which would result in more business relocations, leaves Harvey Canal business on the flood side of the protection system, and has more direct environmental impacts. This would pose serious design considerations and costs given the length of the system (45,720 LF or 9 miles), the instability of the western side of the Harvey Canal, and the amount of upgrades to floodgates and pump stations required to reach the prescribed elevations.

The Parallel Protection alternative poses even more serious design and cost issues. Upgrading approximately 27 miles of the risk reduction system would include the upgrades and impacts listed above for the Harvey Canal and upgrades for all of the levees, floodwalls, and floodgates along the Algiers Canal, and the Belle Chasse tunnel. If upgrading the current alignment along the Algiers and Harvey canals for the 1 percent storm risk reduction system requires the relocation of approximately 700 people and 55

businesses, upgrading the system for a Category 5 system would potentially directly impact 1,000s of people and hundreds of businesses.

**e) Detailed plan for adequate site specific mitigation of unavoidable adverse impacts to the 404 (c) area, at a level commensurate with the significance of an action impacting wetlands with in a 404 (c) area.**

The Corps agrees that mitigation for unavoidable impacts to the unique and nationally significant Bayou aux Carpes 404 (c) wetlands would be determined in partnership with the EPA and NPS and that mitigation would occur within the 404 (c) area and/or the adjacent Jean Lafitte National Historic Park and Preserve. Mitigation projects proposed by EPA, NPS and other members of the Interagency team consist of spoil bank gapping of drill hole areas within the 404 (c) area, and tallow tree control projects within the Bayou aux Carpes 404 (c) area and the National Park. The Interagency team is committed to continue to investigate reasonable alternatives as the Corps moves forward with finalizing a construction alternative for the GIWW West Closure Complex. Once field surveys are conducted, and refined habitat units of impact are defined, mitigation projects can be explored and designs can be developed and submitted to the Interagency team for review. Once a decision is made by the Corps on the governments action for reducing risk in the Harvey and Algiers Canal area, mitigation projects would be fully developed. The Corps proposes to implement any required mitigation projects within the 404 (c) area concurrently with the design and construction of the floodwall and earthen berm / access road.

Currently a feasibility level analysis of the mitigation options is underway. A draft Wetlands Value Assessment (WVA) coordinated by US Fish and Wildlife Service has been provided to the Interagency team for comments. The Corps agrees that all impacts calculated by this WVA process will be fully mitigated. Even any unavoidable impacts to the Bayou aux Carpes area as a result of the investigative surveys and borings would be included in the final mitigation plan for the project. The Corps acknowledges the significance of the 404 (c) wetlands and agrees full mitigation for adverse impacts within this unique area may require mitigation in addition to the direct impacts calculated by the WVA to fully compensate for the impacts associated with constructing the Government's proposed action. Monitoring of the mitigation implemented would be conducted in collaboration with the EPA, the NPS, and other Federal and state resource agency partners. If monitoring reveals any issues, changes would be investigated and implemented to ensure full mitigation.

The Corps in partnership with the non Federal sponsor, the state of Louisiana, the EPA and NPS would closely monitor mitigation efforts within the 404 (c) area throughout the life of the project (50 years) to ensure the benefits of the mitigation projects.

The HSDRRS project is fully authorized and funded at 16.3 billion. This funding includes sufficient amounts to complete the design and construction of any identified mitigation measures.

**f) A review of projected wetland impacts as per the Corps 404 (b)(1) guidelines, and EPA 404 (b)(1) and 404 (c) procedures found in 40 CFR Parts 230 & 231.**

The Corps is preparing a Clean Water Act, Section 404 evaluation using standard methods and analysis practices. This evaluation will be coordinated with Federal and state resource agencies before being published for a 30-day public review period. The evaluation will follow the guidelines and procedures of 404 (b)(1) and 404 (c) as found in 40 CFR Parts 230 & 231.

A draft of the Corps 404 (b)(1) evaluation that would be available during the 30-day public comment period is provided below.

## SECTION 404 (b)(1) EVALUATION

The following short form 404 (b)(1) evaluation follows the format designed by the Office of the Chief of Engineers. As a measure to avoid unnecessary paperwork and to streamline regulation procedures while fulfilling the spirit and intent of environmental statutes, the New Orleans District is using this format for all proposed project elements requiring 404 evaluation, but involving no significant adverse impacts.

### **PROJECT TITLE: IER #12: WBV, GIWW, Algiers and Harvey Canals Hurricane Protection Alternatives**

#### **PROJECT DESCRIPTION.**

The proposed action, GIWW West Closure Complex (WCC), includes construction of a navigation/current reduction flow structure and gate in the Gulf Intracoastal Waterway (GIWW) south of the confluence of the Algiers and Harvey Canals and upstream of the Hero Canal, along with an adjacent pumping station and a by-pass canal. Upgrading of existing levees and/or construction of new levee structures will be required for 3 miles; approximately 4200 linear feet (LF) of floodwall construction along the west side of the GIWW, 3700 LF of floodwall improvements from the Harvey Canal to Old Estelle pump station, and 5700 LF of improvements along the V-line levee. This will result in approximately 3 miles of levee improvements or construction for this alternative.

Features of the system along the east side of the GIWW include a 150-to-300 foot gate and a 100-to-200 foot gate built to a protection elevation of 16 feet or greater, tied to the nearest flood protection levee. A pumping station of at least 20,000 cubic feet per second (cfs) will provide 100-year discharge and positive backwater prevention. The bypass channel will be used in the event of the closure of the primary closure structure. The adjacent 404 (c) area will be affected by the levee construction on the western side of the GIWW.

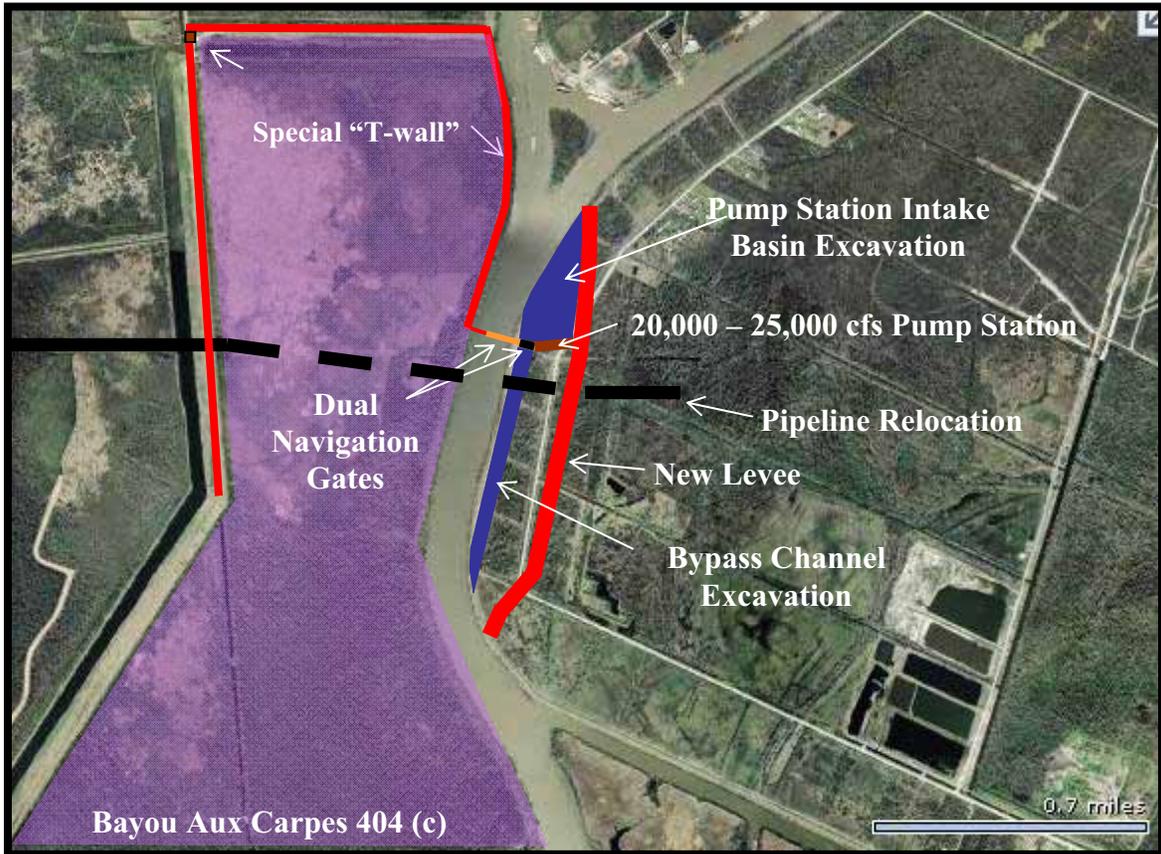
The current levee and floodwall system providing parallel protection for the GIWW, Algiers, and Harvey Canals is 27 miles long and will provide secondary protection to 8.5 feet NAVD.

The new levee design will require approximately 986,000 cubic yards of earthen material and 120,000 cubic yards of stone to construct.

The WCC alternative provides 100-year protection based upon improvements, enhancements, and construction confined to the GIWW reach in concert with tie-ins to improvement to the Hero Canal Levee (IER #13) and the Pipeline Canal Levee (IER #14).

Typical equipment utilized to accomplish the work outlined above will include water trucks, dump trucks, hole cleaners\trenchers, bore\drill rigs, cement and mortar mixers, cranes, graders, tractors/loaders\backhoes, bull dozers, front end loaders, aerial lifts, pile drivers, fork lift, generators and, marine vessels and barges.

FIGURE 1: IER 12



1. Review of Compliance (230.10 (a)-(d)).

Preliminary<sup>1</sup>

Final<sup>2</sup>

A review of this project indicates that:

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for environmental assessment alternative);

YES

NO\*

YES

NO

b. The activity does not appear to: (1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act; (2) jeopardize the existence of Federally listed endangered or threatened species or their habitat; and (3) violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);

YES

NO\*

YES

NO

c. The activity will not cause or contribute to significant degradation of waters of the United States including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, esthetic, and economic values (if no, see section 2);

YES

NO\*

YES

NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5).

YES

NO\*

YES

NO

2. Technical Evaluation Factors (Subparts C-F).

N/A

Not Significant

Significant\*

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).

- (1) Substrate impacts.
- (2) Suspended particulates/turbidity impacts.
- (3) Water column impacts.
- (4) Alteration of current patterns and water circulation.
- (5) Alteration of normal water fluctuations/hydroperiod.
- (6) Alteration of salinity gradients.

	X	
	X	
	X	
	X	
	X	
X		

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D).

- (1) Effect on threatened/endangered species
- (2) Effect on the aquatic food web.

	X	
	X	

2. Technical Evaluation Factors (Subparts C-F).

	N/A	Not Significant	Significant*
(3) Effect on other wildlife (mammals, birds, reptiles, and amphibians).		X	

c. Special Aquatic Sites (Subpart E).

(1) Sanctuaries and refuges.		X	
(2) Wetlands.			X
(3) Mud flats.		X	
(4) Vegetated shallows.		X	
(5) Coral reefs.	X		
(6) Riffle and pool complexes.	X		

d. Human Use Characteristics (Subpart F).

(1) Effects on municipal and private water supplies.	X		
(2) Recreational and commercial fisheries impacts.		X	
(3) Effects on water-related recreation.		X	
(4) Esthetic impacts.		X	
(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.		X	

Remarks. Where a check is placed under the significant category, preparer has attached explanation below.

Implementation of the proposed action will directly impact approximately 232.2 acres of wetland habitat. All wetland impacts will occur adjacent to sections of pre-existing ROW within the GIWW reach. The proposed action will primarily impact bottomland hardwood forest, cypress-tupelo swamp and marsh wetland habitats. The majority of the wetland impacts will occur on the eastern side of the GIWW due to the construction of the gate and bypass channel. Wetland impacts are minimized along the remaining sections of the alternative by utilizing floodwall and protected side shifts where necessary, particularly to avoid additional impacts to the EPA 404 (c) area. Among the wetlands potentially impacted by the proposed action, a total of 71 acres of forested wetland habitat will be impacted, specifically requiring in-kind mitigation. Approximately 9.6 acres of wetland impacts within the GIWW reach would potentially occur within the EPA Bayou Aux Carpes 404 (c) site.

3. Evaluation of Dredged or Fill Material (Subpart G).<sup>3</sup>

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material.

(1) Physical characteristics	<u>Yes</u>
(2) Hydrography in relation to known or anticipated sources of contaminants .....	<u>No*</u>
(3) Results from previous testing of the material or similar material in the vicinity of the project	<u>Yes</u>
(4) Known, significant sources of persistent pesticides from land runoff or percolation	<u>No*</u>
(5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances	<u>No*</u>
(6) Other public records of significant introduction of contaminants from industries, municipalities, or other sources	<u>No*</u>

3. Evaluation of Dredged or Fill Material (Subpart G).<sup>3</sup>

(7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities

No\*

(8) Other sources (specify)

No\*

\* All fill material will be free from contaminants before use in levee construction projects. The fill will come from multiple sources but will all meet minimal physical and chemical criteria being evaluated separate IERs.

Appropriate references:

1. Environmental Regulatory Code, Part IX. Water Quality Regulation, Louisiana Department of Environmental Quality, 1994, 3<sup>rd</sup> Edition.
2. State of Louisiana Water Quality Management Plan, Volume 5, Part B – Water Quality Inventory, Louisiana Department of Environmental Quality, Office of Water Resources, 1994.
3. Sector Gate South, Final Assessment Report, GIWW, Algiers and Harvey Canal and Highpoint Shooting Range, AEROSTAR Environmental Services, July 2008

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or the material meets the testing exclusion criteria.

YES

NO

4. Disposal Site Delineation (230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

(1) Depth of water at disposal site .....	<u>Yes</u>
(2) Current velocity, direction, and variability at disposal site .....	<u>No</u>
(3) Degree of turbulence .....	<u>Yes</u>
(4) Water column stratification .....	<u>No</u>
(5) Discharge vessel speed and direction .....	<u>NA</u>
(6) Rate of discharge .....	<u>Yes</u>
(7) Dredged material characteristics (constituents, amount, and type of material, settling velocities) .....	<u>Yes</u>
(8) Number of discharges per unit of time .....	<u>No</u>
(9) Other factors affecting rates and patterns of mixing (specify) .....	<u>No</u>

Appropriate references:

Same as 3(a).

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES

NO\*

5. Actions to Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of the recommendations of 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

YES

NO\*

Actions taken: A number of actions will minimize the adverse effects of the proposed actions.

5. Actions to Minimize Adverse Effects (Subpart H).

The material must meet certain criteria to be used in levee construction, and will be similar to material used in the original levee work.

According to the Corps, all material will be free from contaminants before use in levee rebuilding projects. The fill may come from many different areas being evaluated in separate IERs. Qualified contractors using the appropriate equipment to minimize impacts to wetland areas will place all material.

The new footprint of the levee was designed to minimize wetland impacts by utilizing existing ROW and non-wetland areas whenever feasible. Best Management Practices will be utilized during the placement of the fill to minimize runoff and turbidity.

6. Factual Determination (230.11).

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term (adverse) environmental effects of the proposed discharge as related to:

- |   |                              |     |
|---|------------------------------|-----|
| a. Physical substrate at the disposal site (review sections 2a, 3, 4, and 5 above). | <input type="checkbox"/> YES | NO* |
| b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5).   | <input type="checkbox"/> YES | NO* |
| c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5)               | <input type="checkbox"/> YES | NO* |
| d. Contaminant availability (review sections 2a, 3, and 4).                         | <input type="checkbox"/> YES | NO* |
| e. Aquatic ecosystem structure and function (review sections 2b and c, 3, and 5).   | <input type="checkbox"/> YES | NO* |
| f. Disposal site (review sections 2, 4, and 5).                                     | <input type="checkbox"/> YES | NO* |
| g. Cumulative impact on the aquatic ecosystem.                                      | <input type="checkbox"/> YES | NO* |
| h. Secondary impacts on the aquatic ecosystem.                                      | <input type="checkbox"/> YES | NO* |

\*A negative, significant, or unknown response indicates that the proposed project may not be in compliance with the Section 404 (b)(1) Guidelines.

<sup>1</sup> A negative response to three or more of the compliance criteria at this stage indicates that the proposed project may not be evaluated using this "short form procedure". Care should be used in assessing pertinent portions of the technical information of items 2a-d, before completing the final review of compliance.

<sup>2</sup> A negative response to one of the compliance criteria at this stage indicates that the proposed project does not comply with the guidelines. If the economics of navigation and anchorage of Section 404 (b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

<sup>3</sup> If the dredged or fill material cannot be excluded from individual testing, the "short form" evaluation process is inappropriate.

7. Evaluation Responsibility.

Evaluation prepared by:

Position: Robert H. Boudet, Senior Project Manager, AEROSTAR Environmental Services

Date: October 10, 2008

Evaluation reviewed by:

Position: Getrisc Coulson Environmental Manager, Ecological Planning and Restoration Section CEMVN

Position: Gib A. Owen, Chief, Ecological Planning and Restoration Section, CEMVN

Date:

8. Findings.

a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404 (b)(1) guidelines .....

**YES**

b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404 (b)(1) guidelines with the inclusion of the following conditions .....

c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404 (b)(1) guidelines for the following reason(s):

(1) There is a less damaging practicable alternative .....

(2) The proposed discharge will result in significant degradation of the aquatic ecosystem .....

(3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem .....

\_\_\_\_\_  
Date

Elizabeth Wiggins  
Chief, Environmental Planning  
and Compliance Branch

In addition, below is a path ahead for this project, the GIWW West Closure Complex – Individual Environmental Report 12. Since the project being proposed is a Federal action, it is in the public’s best interest to present all of the information concurrently. Thus it is in the government’s best interest to simultaneously publish for 30 day public review the draft Individual Environmental Report, the Corps Clean Water Act 404 (b)(1) public notice, and the EPA notice of consideration of a modification to the Bayou aux Carpes 404 (c) Final Determination. Additionally, given the Administration’s commitment to expedite the construction of the HSDRRS and the Corps’ stated goal of having the system in place by 2011, the simultaneous publishing of the government’s proposal is in the public’s best interest and is critical for moving this project towards completion.

## g) Draft Path Forward with GIWW WCC

Task	Duration	Start Date	Remarks
Colonel Lee Approved Proposed Action		7/10/2008	
Briefed Corps TFH Director		7/24/2008	
Briefed Corps MVD Commander		7/30/2008	
Briefed Corps HQ		8/13/2008	
Corps Submitted CZM, WQ, T&E, etc.		8/18/2008	
Public Meeting (IER 12,13,14)		8/21/2008	
Briefed Corps ASA		9/16/2008	
EPA Briefed HQ Level		9/30/2008	
NGO Quarterly Meeting		10/7/2008	
Submit Formal Request to EPA for Modification of 404 (c) Final Determination		11/4/08	
EPA Completeness Review		11/4/08	Review of Corps' Request for Modification Document
Complete Draft IER 12 and 404 (b)(1) Public Notice		TBD	EPA will get draft IER 12 to review before it goes out for public comments
IER 12 Public Review - Start	30	12/4/08	
IER 12 Clean Water Act Section 404 (b)(1) Public Notice public review	30	12/4/08	
EPA notice in Federal Register: Proposed modification; Request for comments to the proposed action; Notice for a public hearing regarding the proposed action	30	12/4/08	Concurrent Tasks
Corps Review Public Comments	7	1/3/09	Possibility for an addendum and second 30-day public review period if substantive comments received.
Joint Corps/EPA public hearing on proposed action		1/5/09	
EPA review of public comments on proposed action (with Corps support)	7	1/5/09	
Final IER and Clean Water Act Section 404 (b)(1) staffed for approval	7	1/10/09	IER 12 Decision Record routed for Commanders approval <sup>1</sup> (assumes no substantive comment) COL Lee signs Final IER 12 anytime after 1/11/09
EPA R6 sends all supporting documentation to EPA HQ	7	1/12/09	
EPA lists modification in Fed Reg.	1	1/19/09	
Final Modification Determination	30	1/19/09	Effective 30 days after publication (2/18/09)
Signing of Clean Water Act 404 (b)(1)	0	2/19/09	Approved by Chief PM-R

<sup>1</sup> Approval of IER 12 Decision Record allows Corps to proceed with approval of Project Description Document (Internal Corps Document) and a Project Partnering Agreement with the non-Federal Sponsor (State of Louisiana – (CPRA). 404 (b)(1) not signed by Corps until EPA modification is approved and published.

Literature Cited

US Army Corps of Engineers (USACE). 2008. Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System. Final Report of the Interagency Performance Evaluation Task Force (IPET). Volume 1-Executive Summary and Overview. June.

Port of New Orleans. 2008. "Port of New Orleans Overview." Accessed 15 September, 2008 from [http://www.portno.com/pno\\_pages/about\\_overview.htm](http://www.portno.com/pno_pages/about_overview.htm).

## Appendix L: IER # 12 Algiers Canal Dredging and Disposal Plan

### BACKGROUND

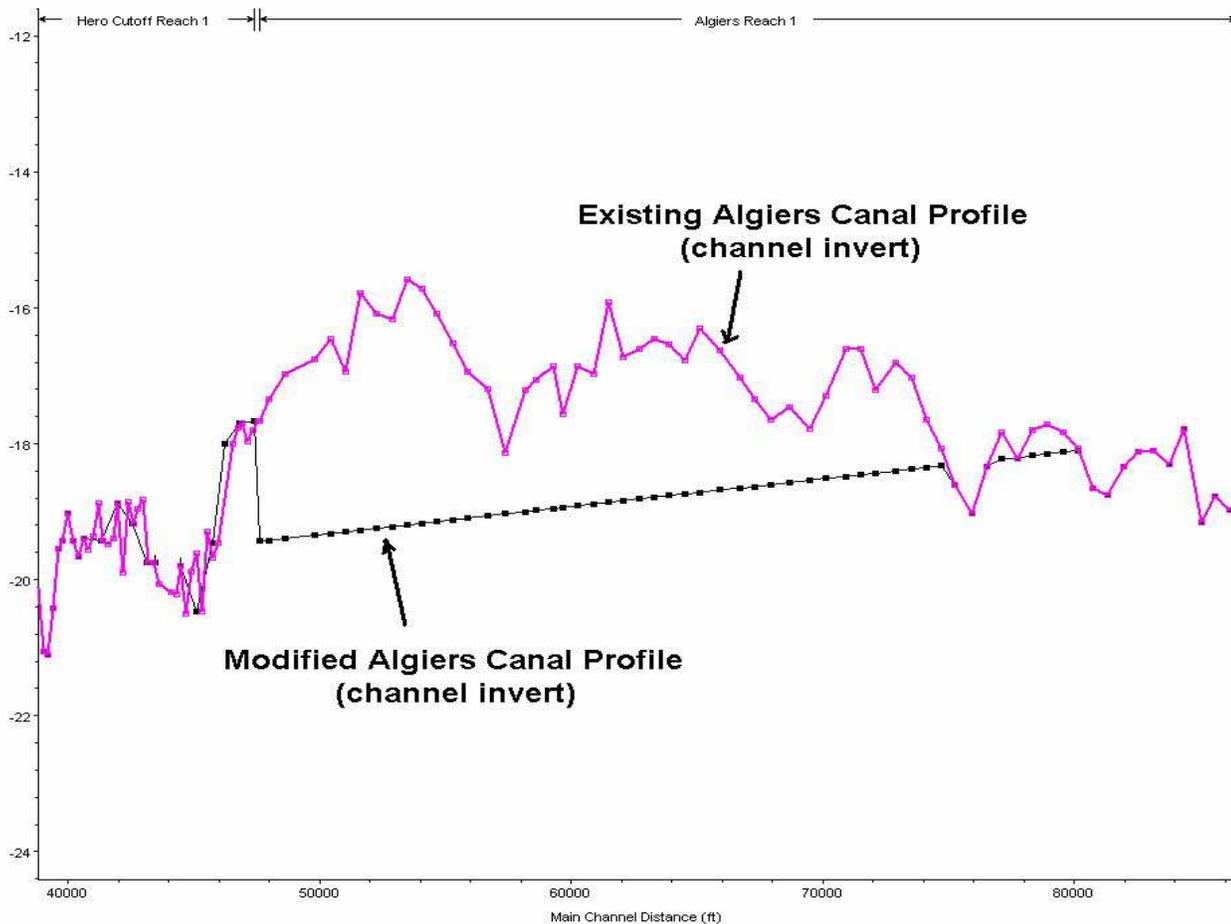
Based on the results of the HEC-RAS hydraulic models for the GIWW West Closure Complex, a still water level of 5.8 with a top of protection of 8.5 would require a 20,000 cfs pump station and minimize the work along Algiers and Harvey Canals. Dredging of the Algiers Canal would be required from the Belle Chasse Tunnel South to the Hero Cutoff. Geotechnical analysis conducted with the proposed dredged channel has shown that the existing levees will remain stable with the revised channel geometry. Based on preliminary design results it was determined that a retention basin still water level between 5 and 6 would minimize the required fortifications along the Algiers and Harvey Canals. With a levee built to design elevation 8.5, only one lift will be needed to maintain El. 8.5 over 50 years.

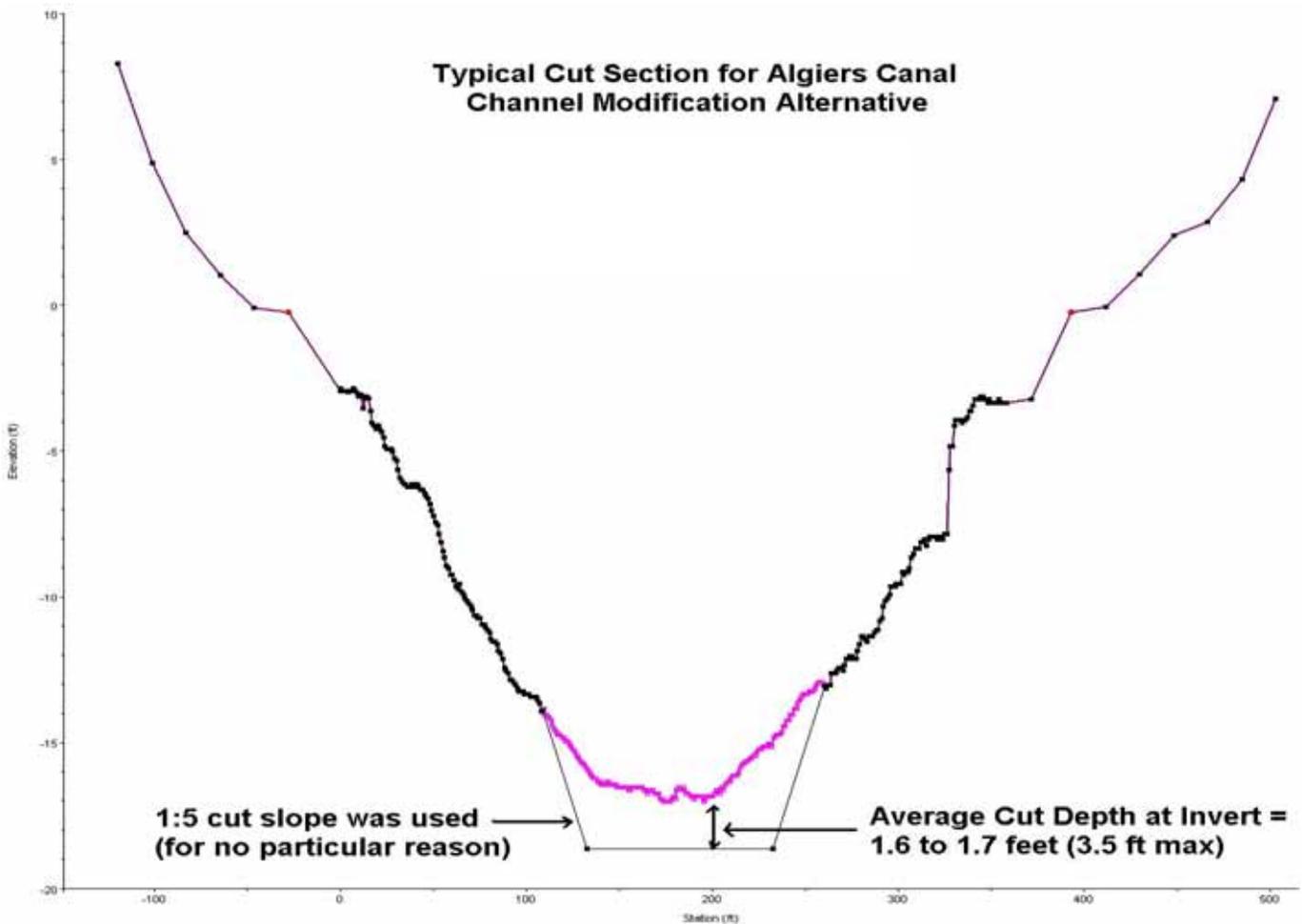
### METHODS

Currently the project team is exploring the possibility of dredging Algiers Canal to lower the water elevation in the retention basin behind the proposed gated structure.

Dredging is proposed to be performed between the Harvey/Belle Chasse tunnel, and the confluence of the Harvey Canal and Algiers Canal, a distance of approximately 4.9 miles. Dredging shall be performed to the grades, widths and slopes shown below.

### Algiers Channel Modification Profile Plot





## QUANTITIES

Approximately 700,000 cubic yards would be excavated from the Algiers Canal.

## FREQUENCY

The frequency of maintenance dredging would exceed 20 years.

## SEDIMENT TESTING

The CEMVN will notify your agency as to which course of action will be pursued once the results of the sediment tests are available and the National Park Service is consulted and accepts the Geocrib plan.

## DISPOSAL

The proposed action is for the dredge material to be utilized in a marsh restoration project in the JLNHPP. Material would be barged to the site from the Algiers canal (see figures 1-4). The plan is still being coordinated with resource agencies and will be decided once the full costs and benefits of the plans can be determined. Disposal options are being investigated as described below in case costs, logistics of the disposal plan, or contaminants are found to be an issue. The CEMVN would notify the appropriate resource

agencies as to which course of action would be pursued once cost estimates the results of the sediment tests are available and the National Park Service has agreed to the plan.

Disposal options are consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program. This requires that dredged material be used beneficially when practicable. Two alternatives have been discussed with the Interagency team. The first alternative is the disposal of the material into the JLNHPP Lake Salvador "Geocrib", and the second one is the use of the material in the Walker Road borrow pits. The Geocrib option is preferred because the wetlands created with this material would be counted as mitigation for the HSDRRS projects.

Provided the material is determined to not be contaminated, the material could be excavated via either

- a) hydraulic cutter head dredge and transported as a slurry to a disposal site(s) via pipeline, or
- b) via mechanical dredge (i.e. barge mounted dragline or backhoe) and placed in barges and transported to site, and either removed from the barges via a hydraulic pump and transported to the site via pipeline, or offloaded from barges, placed within trucks, and hauled to disposal site where it would then be mechanically offloaded into the disposal site.

The following alternative plan would be preferred for accomplishment of this task:

- a) Material from the Algiers Canal to be excavated by barge-mounted dragline/backhoe and transported via barge from Algiers Canal down the GIWW, Bayou Barataria and Lake Salvador, and placed within the Geocrib site in Jean Lafitte National Historical Park and Preserve. Retention dikes would be constructed as necessary in order to retain the dredged material and prevent effluent sedimentation from occurring outside of the site. Prior to disposal, a before disposal survey of the disposal site, as well as the water bodies adjacent to the disposal site, would be performed. This 16 mile transport option is shown in the figures below.

The following plans would be considered as alternatives to the preferred plan for accomplishment of this task:

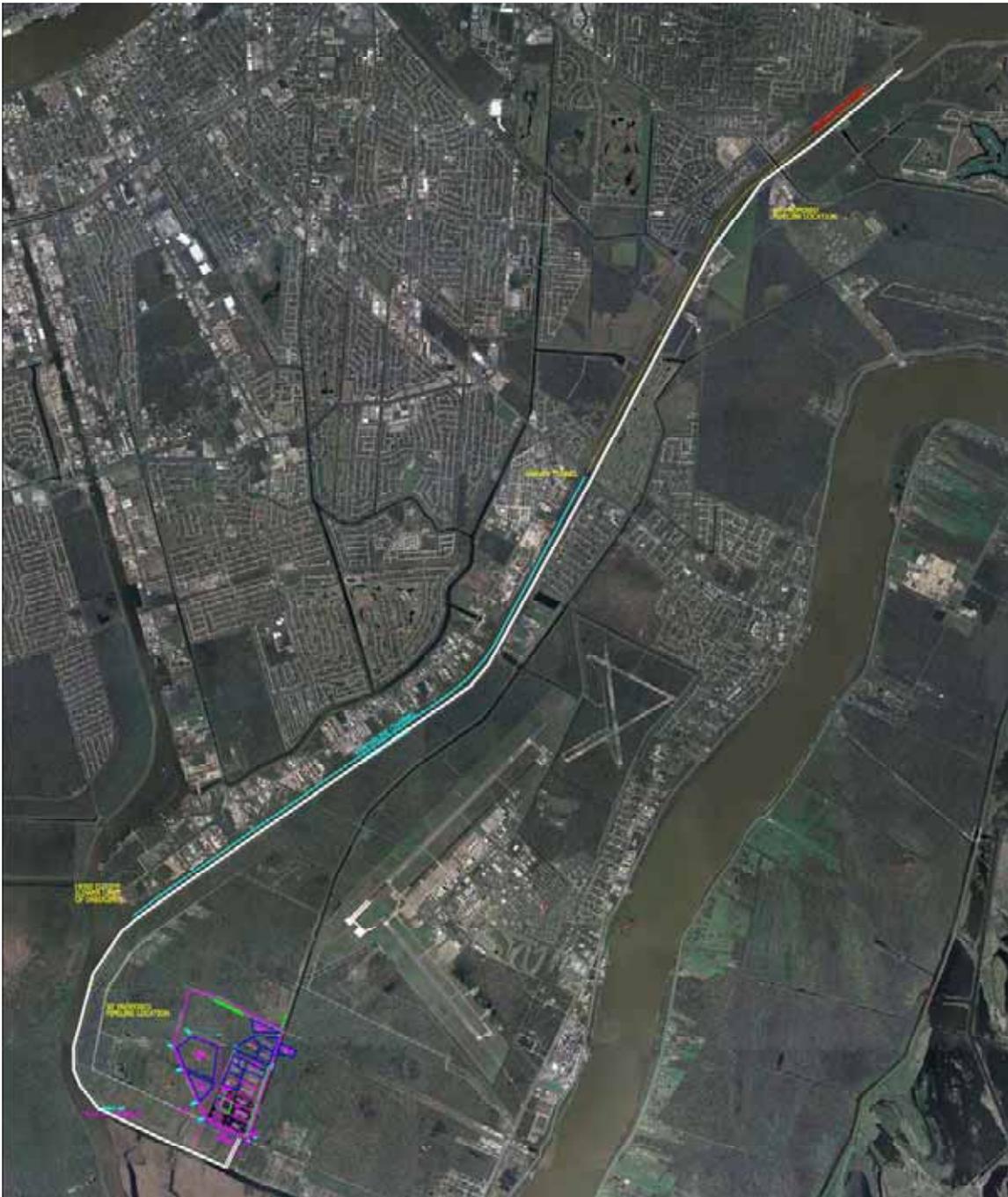
- b) Hydraulic cutter head dredging, with material excavated from the canal transported via barge from Algiers Canal down the GIWW, Bayou Barataria and Lake Salvador, and placed within the Geocrib site in Jean Lafitte National Historical Park and Preserve. Retention dikes would have to be constructed as necessary in order to retain the dredged slurry and prevent effluent sedimentation from occurring outside of the site. A silt screen/turbidity curtain may be installed to trap and prevent any sediment that might exit the site and fall out into the adjacent water bodies. Prior to disposal, a before disposal survey of the disposal site, as well as the water bodies adjacent to the disposal site, would be performed.
- c) Material from the Algiers Canal to be excavated by hydraulic cutter head dredge and transported via pipeline within Algiers and Hero Canals and placed within the Walker Roads borrow pits adjacent to Hero Canal. Retention dikes would be constructed around the pit(s) as necessary in order to retain the dredged slurry to the pit(s) and prevent effluent sedimentation from occurring outside of the pit(s). A marsh buggy dragline/backhoe would be used for construction of the retention dikes with borrow for retention dikes to come from within the pit(s) themselves. Waste water would be drained from the pit(s) via spill box weirs that would be constructed within the retention dikes paralleling Bayou Barrier canal. The spill box weirs would be controlled and monitored to assure that retention of the material is maximized and to prevent effluent sedimentation from occurring within Bayou Barrier. A silt screen/turbidity curtain would be installed in Bayou Barriere just north of the spill box to trap and prevent any sediment that might exit the weir and fall out into the canal/bayou. Prior to disposal, a before disposal survey of the

canal would be performed and the bayou restored to pre-disposal conditions if needed. The CEMVN considers this a beneficial use of the material because Plaquemines Parish would like for the borrow sites to be filled in. This option would cost approximately \$7 million.

- d) Material from the Algiers Canal to be excavated by barge-mounted dragline/backhoe and transported via barge and placed within the Walker Roads borrow pits adjacent to Hero Canal. The material could either be offloaded onto trucks and hauled to the Walker Road borrow pits, or removed from barge via hydraulic pump and transported via pipeline pumped to the Walker Road borrow pits. Retention dikes would be constructed around the pit(s) as necessary in order to retain the dredged material to the pit(s) and prevent effluent sedimentation from occurring outside of the pit(s). A marsh buggy dragline/backhoe would be used for construction of the retention dikes with borrow for retention dikes to come from within the pit(s) themselves. Waste water would be drained from the pit(s) via spill box weirs that would be constructed within the retention dikes paralleling Bayou Barrier canal. The spill box weirs would be controlled and monitored to assure that retention of the material is maximized and to prevent effluent sedimentation from occurring within Bayou Barrier. A silt screen/turbidity curtain would be installed in Bayou Barriere just north of the spill box to trap and prevent any sediment that might exit the weir and fall out into the canal/bayou. Prior to disposal, a before disposal survey of the canal would be performed and the bayou restored to pre-disposal conditions if needed. The Corps considers this a beneficial use of the material because Plaquemines Parish would like for the borrow sites to be filled in. This is a 7.5 mile transport option.
- e) If the material is found to be classified as contaminated then the material would be mechanically dredged (i.e. barge-mounted dragline or backhoe) and the excavated material would be placed in sealed barges and transported to a disposal site for contaminated material. Initial test conducted by the Corps do not indicate that the material is contaminate, but additional testing is underway. This is a 77 mile transport option to the Type I landfill in Venice, LA.



Figure 1. Extent of Dredging in Algiers Canal



*Figure 2. Pipeline Path from Algiers Canal to Walker Road Borrow Pits*



**Lake Salvador Shoreline Protection Project  
Marsh Restoration Phase**

Approximate Park Boundary

Figure 3. Geocrib Site Map

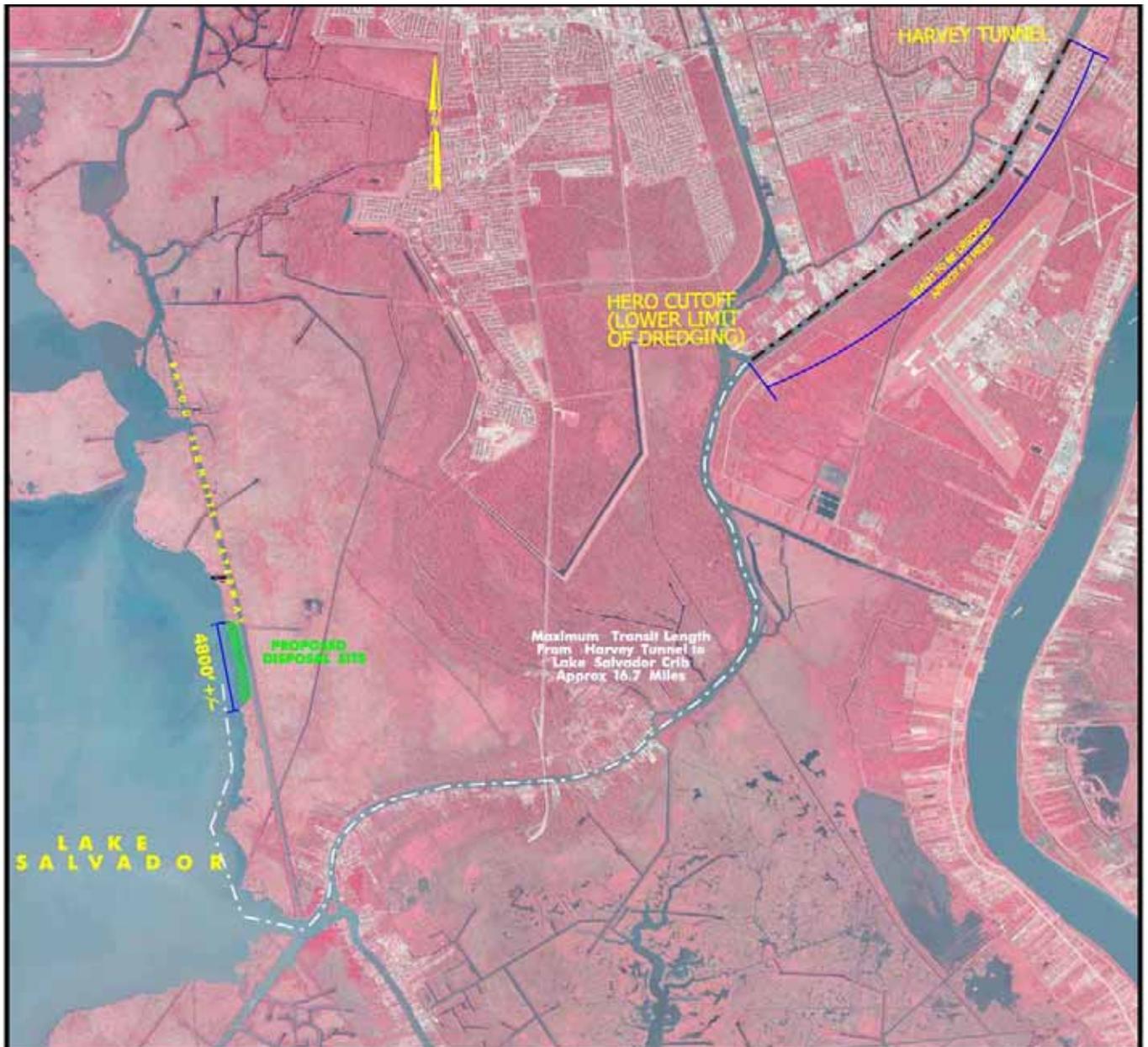


Figure 4. Barge Path from Algiers Canal to Geocrib Site

# Algiers Canal Dredging Extent and Beneficial Use Areas



Alternative Disposal Site  
 Proposed Disposal Site

0 2.5 5 Miles

Job No. EGIS-09-021  
 As of 29 Dec 2008


 US Army Corps of Engineers  
 New Orleans District



Section 84 was not covered from at least 1945 to at least 1949, appeared to be undeveloped from at least 1951 to 2004, and appears to have been used as Sector Gate construction staging since 2005.

Section 85 was not covered from at least 1945 to at least 1949, appeared to be undeveloped from at least 1951 to at least 1967, was not covered in 1969, appeared to be developed with the Cousins Pump Station in 1972, was not covered in 1975, and appears to have been developed with the Cousins Pump Station and commercial properties since at least 1980.

## 1.6 Findings and Conclusions

AEROSTAR has performed a Phase I ESA in conformance with the scope and limitations of ASTM Standard E 1527-05 of IER 12, located along the Algiers Canal-Intracoastal Waterway and Harvey Canal, Jefferson, Orleans, and Plaquemines Parishes, Louisiana, hereafter referred to as the site. Any exceptions to, or deletions from, this practice are described in Section 2 of this report. The Executive Summary serves as a summary of this report and presents the significant findings, conclusions and recommendations. The Executive Summary should not be considered a stand-alone document and must be evaluated in conjunction with the discussions, supporting documentation, and limitations within this ESA report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the site, except for those listed in Table 1 in Section 1.7 of this report.

## 1.7 Recommendations

Based on the information reviewed during this investigation, additional assessment is recommended at this time. On-site inspections of properties identified as recognized environmental conditions are recommended once access agreements are executed with the owners. Additionally, interviews with owners and occupants are recommended as access agreements are provided. Soil and groundwater assessment may be prudent at sites with identified recognized environmental conditions should acquisition of these sites be requested for construction activities. AEROSTAR recommends that these conclusions and recommendations be reviewed again as soon as 60% construction plans are available.

<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the north of Section 1	The northern adjoining properties appear to have been commercially developed since at least 1967.	N29.873523, W-90.068499	Boat Stuf	Offsite concerns were noted from listings as Power Dynamics Hydraulic Equipment from at least 1975 to at least 2000.
		N29.873396, W-90.069586	Northern portion of Moser Fabrication	Offsite concerns were noted from a listing as Evans Corp. in 1961.
		N29.872149, W-90.069156	Majors Tool Company, Inc.	Offsite concerns were noted from lack of soil and groundwater quality information for this UST facility.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
1	Section 1 appeared to be commercially developed from at least 1961 to 2005, and appears to have been commercially developed and vacant commercial property since 2006.	N29.874387, W-90.068986	Southern portion of Moser Fabrication	Onsite concerns were noted from a listing as Evans Corp. in 1961 and drums and ASTs of unknown content and condition present onsite.
		N29.872149, W-90.069156	Majors Tool Company, Inc.	Offsite concerns were noted from lack of soil and groundwater quality information for this UST facility.
		N29.871057, W-90.067078	Western portion of Par 3	Onsite concerns were noted from a listing as Taylor Oil Field Rental in 1965 and the likely use of herbicides and pesticides.
		N29.870347, W-90.068285	Evans Corp.	Onsite concerns were noted from drums and ASTs of unknown contents and condition present onsite.
		N29.872654, W-90.068307	Vacant commercial property	Onsite concerns were noted from lack of commercial occupant information since at least 1961.
Adjoining properties to the east of Section 1	The eastern adjoining properties appeared to be commercially developed from at least 1967 to at least 2005, and appear to have been vacant commercial property since 2006.	N29.873024, W-90.067200	A-1 Electrical Contractors	Offsite concerns were noted from the drilling of Well 68731.
		N29.871526, W-90.066104	Eastern portion of Par 3	Offsite concerns were noted from a listing as Taylor Oil Field Rental in 1965 and the likely use of herbicides and pesticides.
2	Section 2 appeared to be residentially developed in 1951, and appears to have been commercially developed since at least 1967.	N29.868159, W-90.065564	Hydradyne Hydraulics, Inc.	Onsite concerns were noted from listings as a maintenance facility (1975-1980) and as Hydradyne Hydraulics since at least 2005.
		From N29.869274, W-90.067771 to N29.864629, W-90.066148	Dynamic Industries, Inc.	Onsite concerns were noted from a listing in 2005 of Dynamic Industries, present operations, the presence of drums and ASTs of unknown contents and condition, and a sandblast grit discharge into the Harvey Canal.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the east of Section 2	The eastern adjoining properties appeared to be commercially developed from at least 1967 to at least 1991, vacant commercial property from at least 1994 to at least 1996, commercially developed from at least 1998 to at least 2000, and appear to have been commercially developed and vacant commercial property since at least 2004.	N29.867842, W-90.063780	Vacant property	Offsite concerns were noted from lack of commercial occupant information since at least 1967.
3	Section 3 appears to have been commercially developed since at least 1967.	N29.862645, W-90.065297	Chet Morison Contractors, Inc.	Onsite concerns were noted from sandblasting activities and the presence of an AST of unknown contents and condition.
		From N29.863956, W-90.065967 to N29.863067, W-90.063670	Vacant commercial properties	Onsite concerns were noted from lack of commercial occupant information since at least 1967.
		N29.863028, W-90.063624	National Environmental Controls	Onsite concerns were noted from lack of regulatory information on this NFRAP facility.
Adjoining properties to the east of Section 3	The eastern adjoining properties appeared to be commercially developed from at least 1967 to at least 1991, vacant commercial property in 1994, commercially developed from 1995 to at least 2004, and appear to have been vacant commercial property since 2005.	N29.864165, W-90.062740	Vacant commercial properties	Offsite concerns were noted from lack of commercial occupant information since at least 1967.
4	Section 4 appears to have been commercially developed since at least 1967.	From N29.861966, W-90.065200 to N29.856299, W-90.063213	Premier Industries, Inc.	Onsite concerns were noted from listings as New Orleans Shipyard (1991) and Premier Industries (2005), present operations, and the presence of drums and ASTs of unknown contents and condition.
		From N29.862371, W-90.063542 to N29.856747, W-90.061538	Vacant commercial properties	Onsite concerns were noted from lack of commercial occupant information since at least 1967.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the east of Section 4	The eastern appeared to be commercially developed from at least 1972 to at least 1991 and appear to have been vacant commercial property since at least 1994.	From N29.862712, W-90.062039 to N29.857189, W-90.060113	Vacant commercial property	Offsite concerns were noted from lack of commercial occupant information since at least 1972 and the drilling of Well 167984.
5	Section 5 appears to have been commercially developed since at least 1980.	From N29.856266, W-90.063247 to N29.853316, W-90.062160	Nabors Offshore Corporation, Inc.	Onsite concerns were noted from listings of oil and gas well drilling companies (1980-2005), present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.856132, W-90.060598	Cell tower	Onsite concerns were noted from the presence of associated equipment of unknown condition.
Adjoining properties to the east of Section 5	The eastern adjoining properties appear to have been commercially developed since at least 1972.	N29.856914, W-90.059824; N29.855647, W-90.059408	Eastern portion of Nabors storage yard; electrical substation	Offsite concerns were noted from listings of oil and gas well drilling companies (1980-2005), present operations, and the presence of drums and ASTs of unknown contents and condition.
6	Section 6 appears to have been commercially and residentially developed since at least 1972.	N29.8521811, W-90.061881	Belle Chasse Marine Transport, Inc.	Onsite concerns were noted from the onsite tank farm and the listing as Mayronne Drilling Mud, Co. from 1980 to 1996.
		N29.852620, W-90.060242	Hassel's Trailer Park	Onsite concerns were noted from the drilling of Well 184790 and a listing as American Termite and Pest and the possible storage of associated chemicals.
		N29.852981, W-90.058564	AA Vacuum Truck Service, Inc.	Onsite concerns were noted from the listing as AA Vacuum Truck Service in 2000, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.852871, W-90.061743	Vacant warehouse	Onsite concerns were noted from lack of commercial occupant information since at least 1972.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
7	Section 7 appeared to be commercially developed from at least 1967 to at least 2005, and appears to have been commercially developed and vacant commercial property since 2006.	N29.851101, W-90.061800	US Minerals Stan Blast	Onsite concerns were noted from a listing as Avondale Boat Division in 1991, present operations, and the presence of ASTs of unknown contents and condition.
		N29.851837, W-90.059705	Center Staging, Inc.	Onsite concerns were noted from a listing as Degulf Supply, a pipeline supplier, from at least 1975 to at least 1991.
		N29.852285, W-90.059019	Crescent City Choppers, RT Manufacturing	Onsite concerns were noted from listings as a mobile laboratory company and as commercial-industrial businesses from at least 1975 to at least 2000 and present operations.
		N29.851790, W-90.058853	Swanson's Perfect Ponds	Onsite concerns were noted from a 2005 listing as a lawn and maintenance business and possible stored associated chemicals and substances.
		N29.850769, W-90.059068	Vacant Northrup- Grummon facility	Onsite concerns were noted from listings as commercial-industrial businesses since at least 1969 and the presence of an AST of unknown contents and condition.
Adjoining properties to the east of Section 7	The eastern adjoining properties appeared to be residentially developed from at least 1983 to at least 1991, vacant residential properties from at least 1994 to at least 2004, and appear to have been wooded property since 2005.	N29.852273, W-90.056413	Wooded property	Offsite concerns were noted from the drilling of Well 131717.
8	Section 8 appeared to be commercially and residentially developed from at least 1967 to at least 1995 and appears to have been commercially developed since 1996.	From N29.845751, W-90.057229 to N29.844176, W-90.056696	Boomtown Casino	Onsite concerns were noted from a 1975 listing as Tom Hicks Transfer Co., the presence of a storage area of drums and ASTs of diesel and unknown contents and condition.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
9	Section 9 appeared to be residentially developed in 1951, commercially and residentially developed from at least 1967 to at least 1991, commercially developed and vacant residential property from at least 1994 to 1995, and appears to have been commercially developed since 1996.	From N29.850110, W-90.058638 to N29.845751, W-90.057229	M-1 Swaco, Inc.	Onsite concerns were noted from listings as M-1 Swaco, an oil well drilling mud additives company and the presence of drums and ASTs of unknown contents and condition.
10	Section 10 appeared to be commercially and residentially developed in 1951, and appears to have been commercially developed since at least 1967.	N29.843634, W-90.057080	Mississippi River Recycling	Onsite concerns were noted from salvage company listings (2000-2005), present operations, road construction, and the presence of drums and ASTs of unknown contents and condition.
		N29.842559, W-90.056883	Goldin Metals	Onsite concerns were noted from a trucking company listing (1969), salvage company listings (1996, 2005), present operations, road construction, and the presence of drums and ASTs of unknown contents and condition.
Adjoining properties to the east of Section 10	The eastern adjoining properties appeared to be commercially and residentially developed from at least 1972 to at least 1991 and appear to have been vacant properties since at least 1994.	N29.845947, W-90.053560	Wooded property	Offsite concerns were noted from lack of commercial occupant information from at least 1972 to at least 1991.
11	Section 11 appeared to be residentially developed in 1951 and appears to have been commercially and residentially developed since at least 1967.	From N29.841457, W-90.055781 to N29.838547, W-90.054649	Bollinger Gretna Shipyards	Onsite concerns were noted from shipyard listing since at least 1996, present operations, road construction, regulatory status, and the presence of drums and ASTs of unknown contents and condition.
Adjoining properties to the east of Section 11	The eastern adjoining properties appeared to be residentially developed from at least 1967 to at least 2004, and appear to have been commercially developed since 2005.	N29.841391, W-90.052090	Captain Lee Jr. Marine, Inc.	Offsite concerns were noted from a 2005 listing as a contract designer and present operations.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
12	Section 12 appears to have been developed with the Hero Pump Station since at least 1951.	From N29.838547, W-90.054649 to N29.837520, W-90.054343	Hero Pump Station	Onsite concerns were noted from present operations and ASTs of unknown condition.
13	Section 13 appeared to be residentially developed from at least 1951 to at least 1983 and appears to have been commercially developed since at least 1986.	N29.836689, W-90.055009; N29.837239, W-90.053546	Beire Radio; Boat Stuf	Onsite concerns were noted from listings of various construction and oil field service businesses.
		N29.835537, W-90.054977	Cell tower	Onsite concerns were noted from the presence of associated equipment of unknown condition.
Adjoining properties to the east of Section 13	The eastern adjoining properties appeared to be residentially developed in 1951 and appear to have been commercially developed since at least 1967.	N29.837054, W-90.052335	Commercial warehouse	Offsite concerns were noted from lack of commercial occupant information since at least 1976.
Adjoining properties to the south of Section 13	The southern adjoining properties appear to have been commercially developed since at least 1986.	N29.833926, W-90.055845	Industrial Welding Supply Company	Offsite concerns were noted from listings from at least 1986 to at least 1991 as a pipeline company and a 2005 listing as a welding supply company and present operations.
14	Section 14 appeared to be residentially developed in 1951, commercially and residentially developed from at least 1967 to 2004, and appears to have been commercially developed since 2005.	N29.835898, W-90.056437	Royal Chemical Corporation	Onsite concerns were noted from listings as Royal Corp (1986-1991), present operations, and the presence of buckets and ASTs of unknown contents and condition.
		N29.0836002, W-90.057824	Barnett Marine Contractors, Inc.	Onsite concerns were noted from listings as Barnett Marine since at least 1986 and the presence of an AST of unknown contents.
		N29.835784, W-90.056717	Vacant warehouse	Onsite concerns were noted from lack of commercial occupant information since at least 1967.
Adjoining properties to the south of Section 14	The southern adjoining properties appear to have been commercially developed since at least 1986.	N29.833926, W-90.055845	Industrial Welding Supply Company	Offsite concerns were noted from listings from at least 1986 to at least 1991 as a pipeline company and a 2005 listing as a welding supply company and present operations.

<b>Table 1</b>				
<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
15	Section 15 appeared to be residentially developed in 1951 and appears to have been commercially developed since at least 1967.	N29.833944, W-90.059120	Elmwood Dry Dock and Repair	Onsite concerns were noted from dry dock listings since at least 1986, dilapidated barges, present operations, the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the southeast of Section 15	The southeastern adjoining properties appeared to be residentially developed from at least 1967 to at least 1998 and appear to have been commercially and residentially developed since at least 2000.	N29.833394, W-90.057230	Technical Fabrication, Inc.	Offsite concerns were noted from listings as Technical Fabrication since at least 2000.
16	Section 16 appeared to be residentially developed in 1951 and appears to have been commercially developed since at least 1967.	From N29.833526, W-90.060896 to N29.826836, W-90.068432	McDonough Marine Services, Inc.	Onsite concerns were noted from the drilling of Well 91772, listings as McDonough Marine Services since at least 1986, present operations, and presence of an AST of unknown contents and condition.
Adjoining properties to the southeast of Section 16	The southeastern adjoining properties appeared to be residentially developed from at least 1967 to at least 2004 and appear to have been commercially and residentially developed since 2005.	N29.830828, W-90.060664	B Wreckers, Co.	Offsite concerns were noted from present operations as a salvage and wrecker company.
		N29.830828, W-90.060664	CLC Liquidators, Inc.	Offsite concerns were noted from a 2005 listing as a wrecker company and present operations.
17	Section 17 appears to have been commercially developed since at least 1983.	N29.827134, W-90.062273	Alsem Industries, Inc.	Onsite concerns were noted from commercial-industrial listings since at least 1991, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.825435, W-90.064512	Marine Coatings and Linings, Inc.	Onsite concerns were noted from a 2000 listing as a construction company, present operations, and the presence of drums and ASTs of unknown contents and condition.
18	Section 18 appears to have been commercially developed since at least 1983.	N29.831126, W-90.056852	Midstream Barge Co.	Onsite concerns were noted from a 2005 listing as Midstream Barge, present operations, and the presence of drums and ASTs of unknown contents and condition.

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<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
		N29.829216, W-90.059086; N29.830674, W-90.056607	Universal Services and Associates; Bay Offshore, Limited	Onsite concerns were noted from the commercial-industrial listings since at least 1986, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.827131, W-90.061617	Dixie Offshore Transportation Inc.	Onsite concerns were noted from the commercial-industrial listings since at least 1991 and present operations.
		N29.830314, W-90.056427	Targa, Inc.	Onsite concerns were noted from present operations and the presence of drums and ASTs of unknown contents and condition.
		Unable to be located	Tom Hicks Oilfield and Hauling Company	Onsite concerns were noted from lack of regulatory information on this NFRAP facility.
Adjoining properties to the northeast of Section 18	The northwestern adjoining properties appeared to be residentially developed from at least 1967 to at least 2004 and appear to have been commercially and residentially developed since 2005.	N29.830828, W-90.060664	B Wreckers, Co.	Offsite concerns were noted from present operations as a salvage and wrecker company.
		N29.830828, W-90.060664	CLC Liquidators, Inc.	Offsite concerns were noted from a 2005 listing as a wrecker company and present operations.
19	Section 19 appears to have been commercially developed since at least 1980.	N29.931821, W-90.055671	Continental Construction, Co.	Onsite concerns were noted from the commercial-industrial listings since at least 2000, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.832107, W-90.054565	Efila Fiberglass Tanks	Onsite concerns were noted from listings as B&I Industries from at least 1991 to at least 2000, the drilling of Well 143396, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.832430, W-90.053278	River Construction, Co.	Onsite concerns were noted from a 2005 listing as River Construction, the presence of creosote-soaked poles, present operations, and the presence of drums and ASTs of unknown contents and condition.

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<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
		N29.830703, W-90.055858	Eymard Towing	Onsite concerns were noted from the presence of drums and ASTs of unknown contents and condition.
		N29.832430, W-90.053278	Fabricating Yard for Offshore Pylons	Onsite concerns were noted from lack of regulatory information on this ERNS site.
Adjoining properties to the northwest of Section 19	The northwestern adjoining properties appeared to be residentially developed from at least 1967 to at least 1972 and appear to have been commercially and residentially developed since at least 1983.	N29.833394, W-90.057230	Technical Fabrication, Inc.	Offsite concerns were noted from listings as Technical Fabrication since at least 2000.
		N29.833926, W-90.055845	Industrial Welding Supply Company	Offsite concerns were noted from listings from at least 1986 to at least 1991 as a pipeline company and a 2005 listing as a welding supply company and present operations.
20	Section 20 appears to have been commercially developed since at least 1972	From N29.832620, W-90.052270 to N29.834070, W-90.049738	Vacant commercial building; Superior Offshore, Inc.; Power Marine; and Wilson	Onsite concerns were noted from the numerous listings of several commercial businesses since at least 1986, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the north of Section 20	The northern adjoining properties appear to have been commercially developed since at least 1972.	N29.835082, W-90.051995; N29.835355, W-90.051057	SeaTrax Marine Cranes, Inc.; Simco Coatings, Inc.	Offsite concerns were noted from the numerous listings of several commercial businesses since at least 1986, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
21	Section 21 appears to have been commercially developed since at least 1983.	N29.835228, W-90.048990	Pelican Marine Supply, Inc., Pelican Grocery, Inc.	Onsite concerns were noted from listings as grocery and marine supply companies since at least 1986 and regulatory status.
		N29.834942, W-90.049798	Belle Chasse Boat and RV Storage	Onsite concerns were noted from present operations.
22	Section 22 appears to have been commercially developed since at least 1972.	N29.836787, W-90.048266	Scott Armature, Inc.; Climate Controlled Industrial Storage, Inc.	Onsite concerns were noted from listings as electric motor manufacturers and storage companies since at least 1986 and present operations.

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<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
		N29.837128, W-90.047564	United Tugs, Inc.	Onsite concerns were noted from a 2005 listing as United Tugs, present operations, and presence of an AST of unknown contents and condition.
Adjoining properties to the north of Section 22	The northern adjoining properties appeared to be residentially developed in 1972 and appear to have been commercially developed since at least 1983.		Fluid Systems, Inc	Offsite concerns were noted from listings of oil field service companies in 1986 and 2000 to 2005 and present operations.
			Junkyard	Offsite concerns were noted from lack of commercial occupant information since at least 1983 and present operations.
Adjoining properties to the northeast of Section 22	The northeastern adjoining properties appeared to be residentially developed from at least 1972 to at least 1991 and appear to have been commercially developed since at least 1994.	N29.837700, W-90.047256	Commercial property	Offsite concerns were noted from lack of commercial occupant information since at least 1994.
23	Section 23 appeared to be residentially developed in 1951 and appears to have been commercially and residentially developed since at least 1967.	N29.836538, W-90.045522	J. W. Stone Fuel Dock	Onsite concerns were noted from a tank farm, a 2005 listing as Belle Chasse Docks, and present operations.
		N29.837064, W-90.046331	Vacant storage yard	Onsite concerns were noted from listings of fabrication businesses since at least 1986 and the presence of ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 23	The northwestern adjoining properties appeared to be residentially developed from at least 1967 to at least 1991 and appear to have been commercially developed since at least 1994.	N29.837700, W-90.047256	Commercial property	Offsite concerns were noted from lack of commercial occupant information since at least 1994.
24	Section 24 appears to have been commercially developed since at least 1967.	From N29.837506, W-90.045367 to N29.837506, W-90.045367	Sunland Construction, Co.	Onsite concerns were noted from listings as oil field service and construction companies since at least 1980, regulatory status, present operations, and the presence of drums and ASTs of unknown contents and condition.

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<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the northwest of Section 24	The northwestern adjoining properties appear to have been commercially developed since at least 1972.	N29.840330, W-90.044201	H&E Equipment Rental	Offsite concerns were noted from listings of industrial equipment companies since at least 1980 and present operations.
		N29.840260, W-90.044823	General Mill, Inc.	Offsite concerns were noted from listings as engine companies since at least 1980 and present operations.
		N29.839931, W-90.045130	Jo-De Equipment Rental, New Orleans Party Rentals	Offsite concerns were noted from listings as an equipment rental business since at least 1980 and present operations.
		N29.839560, W-90.046122	Commercial property	Onsite concerns were noted from lack of commercial occupant information since at least 1972.
25	Section 25 appears to have been commercially developed since at least 1967.	N29.839645, W-90.042132	C&C Boat Works	Onsite concerns were noted from listings as Power Structure from at least 1986 to at least 1991, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
		N29.839645, W-90.042132	Omega Service Industries, Inc.	Onsite concerns were noted from lack of regulatory information on this UST facility.
Adjoining properties to the northwest of Section 25	The northwestern adjoining properties appear to have been commercially developed since at least 1972.	N29.841087, W-90.043292	Harbor Construction, Inc.	Offsite concerns were noted from present operations and the drilling of Well 105807.
		N29.841569, W-90.042636	Vacant commercial property	Offsite concerns were noted from lack of commercial occupant information since at least 1972.
26	Section 26 appeared to be commercially developed from at least 1972 to 2004 and appears to have been vacant commercial property since 2005.	N29.841579, W-90.039670	Southern Imports	Onsite concerns were noted from listings as transportation companies since at least 1980 and the presence of an AST of unknown contents and condition.
		N29.841579, W-90.039670	J.A. Brandt and Associates, Inc.	Onsite concerns were noted from lack of regulatory information on this UST facility.

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<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the northwest of Section 26	The northwestern adjoining properties appeared to be commercially developed from at least 1972 to at least 2004 and appear to have been vacant commercial property since 2005.	N29.842713, W-90.041028	Junkyard, vacant commercial property	Offsite concerns were noted from lack of commercial occupant information since at least 1972 and present operations.
27	Section 27 appears to have been commercially developed since at least 1972.	N29.842480, W-90.039050; N29.842494, W-90.037898	The Design Build Group, Inc., General Marine Leasing	Onsite concerns were noted from listings as Comet Construction (1986-1996) and General Marine Leasing (2005), present operations, and the presence of ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 27	The northwestern adjoining properties appear to have been commercially developed since at least 1972.	N29.843891, W-90.039452	Hobson Galvanizing, Inc.	Offsite concerns were noted from listings as galvanizing and manufacturing businesses since at least 1986, regulatory status, and present operations.
28	Section 28 appears to have been commercially developed since at least 1980.	N29.843974, W-90.035936	Westbank Business Center	Onsite concerns were noted from numerous commercial listings since at least 1980, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
		N29.843201, W-90.036823	H&E Equipment Services Crane Department- Reman Center	Onsite concerns were noted from listings as Production Management (1991) and B&B Trucking and Equipment (2000), present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.843201, W-90.036823	Coastal Equipment Company, Inc.	Onsite concerns were noted from lack of regulatory information on this CE – SQG facility.
Adjoining properties to the northwest of Section 28	The northwestern adjoining properties appear to have been commercially developed since at least 1972.	N29.845234, W-90.036772; N29.844845, W-90.037485	Rasmussen Equipment, Company; Office Park and Laredo Offshore Services, Inc.	Offsite concerns were noted from numerous listings as commercial-industrial businesses since at least 1986 and present operations.
		N29.844363, W-90.037806	Gulf Engine and Equipment, Inc.	Offsite concerns were noted from numerous listings as commercial-industrial businesses since at least 1986.

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<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
29	Section 29 appears to have been commercially developed since at least 1980.	N29.845074, W-90.034045	Baker Oil	Onsite concerns were noted from listings as commercial-industrial businesses since at least 1980, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.844288, W-90.034840	B&S Equipment site construction	Onsite concerns were noted from present operations and the presence of ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 29	The northwestern adjoining properties appeared to be commercially developed in 1972 and appear to have been commercially and residentially developed since 1983.	N29.846586, W-90.033984	Plant Performance Services Seco, Inc.	Offsite concerns were noted from listings as Seco Industries since at least 1986 and regulatory status.
		N29.845738, W-90.035550	Tiger Equipment and Supply	Offsite concerns were noted from listings as oil field service and industrial equipment companies since at least 1986.
		N29.845786, W-90.035290; N29.845503, W-90.035912	Keith's Diesel and Compressor; Universal Compression	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1986.
		N29.845738, W-90.035550	Baker Oil Tools	Offsite concerns were noted from lack of soil and groundwater quality information for this CE – SQG/UST facility.
30	Section 30 appears to have been commercially developed since at least 1980.	N29.846267, W-90.031868	Unitech Diesel	Onsite concerns were noted from listings as Louisiana Machine Power from at least 2000 to at least 2005, present operations, and the presence of drums and ASTs of unknown contents and condition.
		N29.846567, W-90.032524	Panther Helicopters	Onsite concerns were noted from listings as Offshore Service Ships (1980-1991) and Panther Helicopters (1996-2005), present operations, and the presence of ASTs of unknown contents and condition.
		N29.846445, W-90.031461	Marine Systems, Inc.	Onsite concerns were noted from lack of commercial occupant information since at least 1980.

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<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the northwest of Section 30	The northwestern adjoining properties appear to have been commercially developed since at least 1972.	N29.846586, W-90.033984	Plant Performance Services Seco, Inc.	Offsite concerns were noted from listings as Seco Industries since at least 1986 and regulatory status.
		N29.847567, W-90.031687	Marsh Buggies, Inc.	Offsite concerns were noted from listings as equipment rental companies since at least 1986.
		N29.847958, W-90.032082	Junkyard	Offsite concerns were noted from lack of commercial occupant information since at least 1972 and present operations.
31	Section 31 appeared to be commercially developed from at least 1983 to at least 1986, vacant commercial property from at least 1989 to at least 1991, and appears to have been commercially developed since at least 1998.	N29.847097, W-90.030614	RV park; Delta Ice, Air, and Heat, Inc.	Onsite concerns were noted from lack of commercial occupant information since at least 1983 and present operations.
Adjoining properties to the northwest of Section 31	The northwestern adjoining properties appeared to be residentially developed in 1972 and appear to have been commercially developed since 1983.	N29.848595, W-90.031164	Torq/Lite, Inc.	Offsite concerns were noted from listings as industrial equipment businesses in 1986 and 2005.
		N29.847958, W-90.032082	Junkyard	Offsite concerns were noted from lack of commercial occupant information since at least 1972 and present operations.
32	Section 32 appears to have been commercially developed since at least 1980.	N29.848527, W-90.029504	Plains All American Pipeline, LLP	Onsite concerns were noted from listings as BP companies since at least 1991.
		N29.848427, W-90.029711	OFS, Inc.	Onsite concerns were noted from listings as commercial-industrial businesses since at least 1980.
		N29.847836, W-90.029742	F&K Fabrication, Inc.	Onsite concerns were noted from listings as commercial-industrial businesses since at least 1980, present operations, and the presence of ASTs of unknown contents and condition.
		N29.848018, W-90.030163	Delta Coatings, Inc.	Onsite concerns were noted from listings as Delta Coatings from at least 1991 to at least 2005, present operations, and the presence of drums and ASTs of unknown contents and condition.

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<b>Properties with Recognized Environmental Conditions</b>				
<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the northwest of Section 32	The northwestern adjoining properties appear to have been commercially developed since at least 1980.	N29.849179, W-90.029851	Door 2 Door	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1980.
		N29.848936, W-90.030443	Tri-Star Supply, Co.	Offsite concerns were noted from listings as Sullair Gulf States in 1980 and Tri-star Supply since at least 1991.
		N29.848858, W-90.030608	Hydra Force, Inc.	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1980.
		N29.848595, W-90.031164	Torq/Lite, Inc.	Offsite concerns were noted from listings as industrial equipment businesses in 1986 and 2005.
33	Section 33 appears to have been commercially developed since at least 1972.	N29.848465, W-90.027647	Canal Barge, Co.	Onsite concerns were noted from listings as Canal Barge since at least 1980, present operations, and the presence of drums of unknown contents and condition.
		N29.849265, W-90.028373	Hose Specialty and Supply, Co.	Onsite concerns were noted from listings at an industrial machinery business since at least 1991, present operations, and the presence of drums of unknown contents and condition.
Adjoining properties to the northwest of Section 33	The northwestern adjoining properties appeared to be residentially developed in 1972 and appear to have been commercially developed since at least 1980.	N29.850092, W-90.028984	Aerial Access Equipment	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1986 and present operations.
		N29.849661, W-90.029180	Swaglok Capital Valve and Fittings, Inc.	Offsite concerns were noted from listings as Capital Valve and Fittings since at least 1980.
		N29.849448, W-90.029485	Margan Equipment Rental	Offsite concerns were noted from a 2005 listing as Margan Equipment Rental and present operations.
		N29.850409, W-90.028513	Bluewater Rubber Gasket	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1980 and present operations.

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<b>Properties with Recognized Environmental Conditions</b>				
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34	Section 34 appears to have been commercially developed since at least 1972.	N29.850090, W-90.025912	NREC	Onsite concerns were noted from listings as Marine Engine (1980-1991) and Universal Machine (1996-2000), present operations, and the presence of ASTs of unknown contents and condition.
		N29.849460, W-90.027075	Sugarland Garden Soils and Materials	Onsite concerns were noted from the presence of ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 34	The northwestern adjoining properties appeared to be residentially developed in 1972 and appear to have been commercially developed since at least 1980.	N29.851517, W-90.027099	Acme Truck Line, Inc.	Offsite concerns were noted from listings as a trucking company since at least 1980 and present operations.
		N29.850548, W-90.028067	Commercial property	Offsite concerns were noted from listings as commercial businesses.
35	Section 35 appeared to be residentially developed from at least 1972 to at least 1975, commercially developed from at least 1980 to at least 1986, commercially and residentially developed from at least 1989 to 1995, and appears to have been commercially developed since 1996.	N29.850699, W-90.025250	Ace Transportation Inc.	Onsite concerns were noted from a 2005 listing as B&V Trucking and Equipment, present operations, and the presence of an AST of unknown contents and condition.
		N29.851159, W-90.024548	T. O.'s Lawn and Landscaping; Atlas Boats	Onsite concerns were noted from listings as commercial-industrial companies (1980-1996) and a lawn and landscaping business (2005), present operations and the presence of ASTs of unknown contents and condition.
		N29.851233, W-90.025320	Marcel's Limousines	Onsite concerns were noted from present operations and the presence of ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 35	The northwestern adjoining properties appeared to be residentially developed in 1972, commercially developed from at least 1983 to at least 1986, commercially and residentially developed from at least 1989 to at least 1995, and appear to have been commercially developed since 1996.	N29.581598, W-90.023981	Conmaco	Offsite concerns were noted from regulatory status, listings as Conmaco since at least 1986, and present operations.
		N29.851877, W-90.026036	CMP Coatings, Inc.	Offsite concerns were noted from as marine coatings businesses since at least 1986 and present operations.

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<b>Properties with Recognized Environmental Conditions</b>				
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36	Section 36 appears to have been commercially developed since at least 1972.	N29.852176, W-90.023470	Vacant commercial property	Onsite concerns were noted from a 2000 listing as Wire Line and Testing.
		N29.581598, W-90.023981	Conmaco	Onsite concerns were noted from present operations, and the presence of drums and ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 36	The northwestern adjoining properties appeared to be residentially developed in 1972 and appear to have been commercially developed since at least 1980.	N29.853259, W-90.024727	Point Eight Power, Inc.	Offsite concerns were noted from listings as Point Eight Power since at least 1986 and present operations.
		N29.853055, W-90.024908	Sulzer Enpro, Inc.	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1986 and present operations.
		N29.581598, W-90.023981	Conmaco	Offsite concerns were noted from regulatory status, listings as Conmaco since at least 1986, and present operations.
37	Section 37 appears to have been commercially developed since at least 1967.	N29.853263, W-90.023083	Point Eight Power Structural Division	Onsite concerns were noted from lack of commercial occupant information since at least 1967 and present operations.
Adjoining properties to the northwest of Section 37	The northwestern adjoining properties appear to have been commercially developed since at least 1967.	N29.854176, W-90.024030	Pacific-Gulf Wire Rope, Inc.	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1986 and present operations.
38	Section 38 appears to have been commercially developed since at least 1983.	N29.854531, W-90.021664	Williams Group; Intracoastal Truck and Trailer Services, LLC; Southeastern Logistics, LLC; SAT Services, LLC; DWT Service, LLC	Onsite concerns were noted from listings as an oil field service company from at least 1986 to at least 2000 and the presence of an AST of unknown contents and condition.
		N29.853958, W-90.022075	JYD Auto Recyclers	Onsite concerns were noted from present operations.

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<b>Properties with Recognized Environmental Conditions</b>				
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39	Section 39 appeared to be commercially developed from at least 1983 to at least 1986, residentially developed from at least 1989 to at least 1991, and appears to have been developed with the Whitney-Barataria Pump Station since 1995.	N29.855800, W-90.021207	Whitney-Barataria Pump Station	Onsite concerns were noted from lack of commercial occupant information and the presence of ASTs of unknown contents and condition.
Adjoining properties to the west of Section 39	The western adjoining properties appear to have been commercially developed since at least 1983.	N29.855901, W-90.022826	Tetra Applied Technologies, Inc.	Offsite concerns were noted from listings as commercial-industrial companies since at least 1986 and present operations.
		N29.856974, W-90.021978	D&M Steel, Inc.	Offsite concerns were noted from a 2005 listing as D&M Steel and present operations.
40	Section 40 appears to have been commercially developed since at least 1967.	N29.857621, W-90.019933	Circle, Inc. storage yard	Onsite concerns were noted from lack of commercial occupant information and the presence of drums and ASTs of unknown contents and condition.
Adjoining properties to the west of Section 40	The western adjoining properties appeared to be residentially developed in 1967, commercially and residentially developed in 1972, and appear to have been commercially developed since at least 1983.	N29.858452, W-90.021276	Circle, Inc.	Offsite concerns were noted from listings as Circle since at least 1986 and present operations.
41	Section 41 appears to have been commercially developed since at least 1967.	N29.859260, W-90.018664	Southern portion of Versabar, Inc.	Onsite concerns were noted from listings as commercial-industrial businesses since at least 1986, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the west of Section 41	The western adjoining properties appeared to be commercially developed from at least 1967 to at least 1996 and appear to have been vacant commercial property since at least 1998.	N29.859469, W-90.020378	Commercial property	Offsite concerns were noted from listings of commercial-industrial companies since at least 1986.

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42	Section 42 appears to have been commercially developed since at least 1967.	N29.861993, W-90.017103	Northern portion of Versabar, Inc.	Onsite concerns were noted from listings as commercial-industrial businesses since at least 1986, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the west of Section 42	The western adjoining properties appear to have been commercially developed since at least 1983.	N29.862989, W-90.018897	Wooded and vacant commercial properties	Offsite concerns were noted from lack of commercial occupant information since at least 1983.
43	Section 43 appears to have been commercially developed since at least 1972.	N29.864633, W-90.015381	C&C Marine and Repair	Onsite concerns were noted from listings as commercial-industrial businesses from at least 1986 to at least 1996, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
			Global Divers and Contractors, Inc.	Offsite concerns were noted from lack of soil and groundwater quality information for this UST facility.
Adjoining properties to the west of Section 43	The western adjoining properties appeared to be residentially developed from at least 1967 to at least 1969 and appear to have been commercially developed since at least 1972.	N-29.865586, W-90.016852	Mickey O'Conner General Contractor	Offsite concerns were noted from a 2005 listing as Mickey O'Conner General Contractor.
44	Section 44 appears to have been commercially developed since at least 1972.	N29.868236, W-90.013831	Concrete company	Onsite concerns were noted from listings as concrete companies since at least 2000, present operations, and the presence of ASTs of unknown contents and condition.
			N29.866907, W-90.013687	C.F. Bean
Adjoining properties to the west of Section 44	The western adjoining properties appear to have been commercially developed since at least 1967.	N29.869407, W-90.014753	Pre-heat, Inc.	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1980 and present operations.

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		N29.868125, W-90.015257	Western Wireline Services, Inc.	Offsite concerns were noted from listings as Western Wireline since at least 1980 and present operations.
		N29.867563, W-90.016066	Tuboscope, Packard Truck Lines, Inc., Packard Pipe Terminals, Inc.	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1991 and present operations.
		N29.868535, W-90.015081	Vacant commercial property	Offsite concerns were noted from lack of commercial occupant information since at least 1967 and the presence of ASTs of unknown contents and condition.
45	Section 45 appears to have been commercially developed since at least 1972.	N29.869651, W-90.012419	Quick Recovery Auto Salvage	Onsite concerns were noted from a 2005 listing as Quick Recovery Auto Salvage, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the west of Section 45	The western adjoining properties appear to have been commercially developed since at least 1972.	N29.869414, W-90.014654	L&M Machine Works, Inc.	Offsite concerns were noted from listings as an engine repair business (1986) and L&M Machine Works (1996-2005) and present operations.
		N29.870333, W-90.013906	Pre-heat, Inc.	Offsite concerns were noted from listings as commercial-industrial businesses since at least 1980, present operations, and the presence of ASTs of unknown contents and condition.
		N29.870987, W-90.013654	Commercial building	Offsite concerns were noted from lack of commercial occupant information since at least 1972.
46	Section 46 appeared to be commercially developed from at least 1983 to at least 1986, vacant commercial property from at least 1989 to at least 1991, commercially developed from at least 1994 to at least 1996, vacant commercial property in 1998, and appears to have been commercially developed since at least 2000.	N29.871502, W-90.011289	Double Aught Construction	Onsite concerns were noted from listings as fabrication and construction companies and present operations.
		N29.872068, W-90.011598	Cell Tower	Onsite concerns were noted from the presence of associated equipment of unknown condition.

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Adjoining properties to the west of Section 46	The western adjoining properties appeared to be residentially developed from at least 1967 to at least 1972 and appear to have been commercially developed since at least 1980.	N29.872289, W-90.011815	Southern Snow, Inc.	Offsite concerns were noted from listings as Lesser Radiator Service (1980-1996) and Southern Snow Manufacturing (1980-2005) and present operations.
		N29.871906, W-90.012257	Faucheux Welding Fab, Inc.	Offsite concerns were noted from listings as Faucheux Welding Fab since at least 1986 and present operations.
47	Section 47 appeared to be residentially developed from at least 1945 to at least 1951 and appears to have been developed with the Plaquemines Parish Welcome Park and Belle Chasse Tunnel since at least 1967.	N29.872622, W-90.010526	Plaquemines Parish Welcome Park (West Bank), Belle Chasse Tunnel	Onsite concerns were noted from the presence of an AST of unknown contents and condition.
48	Section 48 appeared to be residentially and agriculturally developed from at least 1945 to at least 1949 and appears to have been residentially developed since at least 1951.	From N29.872990, W-90.009753 to N29.879690, W-90.005744	Residential subdivision	Onsite concerns were noted from the drilling of Well 11675 and past uses for agriculture.
		N29.879290, W-90.006815	N.C. Hero, Jr.	Offsite concerns were noted from lack of soil and groundwater quality information for this UST facility.
Adjoining properties to the west of Section 48	The western adjoining properties appeared to be residentially and agriculturally developed from at least 1949 to at least 1949 and appear to have been residentially developed since at least 1951.	N29.874552, W-90.011851	Residential subdivision	Offsite concerns were noted from past uses for agriculture.
49	The western adjoining properties appeared to be agriculturally developed and pastureland from at least 1949 to at least 1949 and appear to have been undeveloped since at least 1951.	From N29.879690, W-90.005744 to N29.882969, W-90.004072	Wooded property	Onsite concerns were noted from the drilling of Well 6699 and past uses for agriculture.
Adjoining properties to the west of Section 49	The western adjoining properties appeared to be agriculturally developed and pastureland from at least 1949 to at least 1949 and appear to have been undeveloped since at least 1951.	From N29.880266, W-90.008353 to N29.883821, W-90.006678	Wooded property	Offsite concerns were noted from past uses for agriculture.

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50	Section 50 appeared to be pastureland from at least 1945 to at least 1949, appeared to be residentially developed in 1972, and appears to have been developed with the Planters Pump Station and a residence since at least 1983.	N29.883933, W-90.004044	Planters Pump Station	Onsite concerns were noted from pump station improvements and the presence of drums and ASTs of unknown contents and condition.
		N29.883814, W-90.005515	Residence	Onsite concerns were noted from the presence of drums and ASTs of unknown contents and condition.
51	Section 51 appears to have been wooded land and pastureland since at least 1983.	N29.885586, W-90.002094	Wooded property, pastureland	Onsite concerns were noted from the dead vegetation observed onsite.
52	Section 52 appeared to be pump station construction in 1972 and appears to have been developed with the S&WB #13 Pump Station since at least 1983.	N29.895838, W-89.997622	S&WB #13 Pump Station	Onsite concerns were noted from the presence of ASTs of unknown contents and condition.
Adjoining properties to the northwest of Section 53	The northwestern adjoining properties appeared to be residentially developed from at least 1972 to at least 1991 and appear to have been residentially and commercially developed since at least 1994.	N29.905369, W-89.991404	Gas station, dry cleaners	Offsite concerns were noted from lack of regulatory information.
54	Section 54 was agriculturally developed from at least 1945 to at least 1949, appeared to be residentially developed from at least 1967 to at least 1996, and appears to have been residentially and agriculturally developed since at least 1998.	From N29.906395, W-89.986879 to N29.914834, W-89.975372	Residences, wooded property	Onsite concerns were noted from past and present uses for agriculture, the presence of buckets of unknown contents and condition, and the presence of dumping.
Adjoining properties to the northwest of Section 54	The northwestern adjoining properties appeared to be agriculturally developed from at least 1945 to at least 1949, residentially developed from at least 1967 to at least 1996, and appear to have been residentially and agriculturally developed since at least 1998.	From N29.897424, W-90.000437 to N29.908490, W-89.988983	Residential subdivisions	Offsite concerns were noted from past and present uses for agriculture.
55	Section 55 was undeveloped and agriculturally developed from at least 1945 to at least 1949 and appears to have been developed with the Algiers Lock since at least 1967.	From N29.915688, W-89.971368 to N29.913898, W-89.974582	Algiers Lock	Onsite concerns were noted from past uses for agriculture and the presence of an AST of unknown contents and condition.

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<b>Section Number</b>	<b>Section Summary</b>	<b>Center Location</b>	<b>Facility Name/Use</b>	<b>Recognized Environmental Conditions</b>
Adjoining properties to the north of Section 55	The northern adjoining properties appeared to be agriculturally developed from at least 1945 to at least 1949 and appear to have been residentially developed since at least 1967.	N29.916419, W-89.973835	Wooded property	Offsite concerns were noted from past uses for agriculture.
Adjoining properties to the northeast of Section 55	The northeastern adjoining properties appeared to be agriculturally developed from at least 1945 to at least 1949 and appear to have been developed with a portion of the Algiers Lock since at least 1967.	N29.916768, W-89.970142	Northernmost portion of Algiers Lock	Offsite concerns were noted from past uses for agriculture.
57	Section 57 appears to have been developed with the S&WB #11 Pump Station since at least 1967.	N29.909753, W-89.977735	S&WB #11 Pump Station	Onsite concerns were noted from the presence of buckets, drums, and ASTs of unknown contents and condition and an area of staining.
59	Section 59 appears to have been commercially developed since at least 1983.	N29.902911, W-89.985298	Industrial park	Onsite concerns were noted from listings of commercial-industrial businesses since at least 1980 and the presence of drums and ASTs of unknown contents and condition.
		N29.903322, W-89.986403; N29.903647, W-89.985621	Cell Tower and Radio Tower	Onsite concerns were noted from the presence of associated equipment of unknown condition.
Adjoining properties to the southeast of Section 59	The southeastern adjoining properties appear to have been commercially developed since at least 1980.	N29.901836, W-89.984612	Industrial park	Offsite concerns were noted from listings of commercial-industrial businesses since at least 1980 and the presence of buckets and ASTs of unknown contents and condition.
0.13 miles south of Section 59	The property appears to have been commercially developed since at least 1980.	N29.899784, W-89.985192	Daigle Quick Shop	Offsite concerns were noted from lack of soil and groundwater quality information for this LUST facility.
60	Section 60 appears to have been under construction for levee improvements since 2006.	From N29.902559, W-89.987937 to N29.898470, W-89.991766	Grassy property, levee construction	Onsite concerns were noted from the presence of drums of unknown contents.

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61	Section 61 appears to have been commercially developed since at least 1983.	N29.894578, W-89.993070	The Mud Masters Group	Onsite concerns were noted from lack of commercial occupant information since at least 1983, present operations, and the presence of drums and ASTs of unknown contents and condition.
62	Section 62 appears to have been commercially developed since at least 1983.	N299.893506, W-89.994045	Vacant commercial property	Onsite concerns were noted from lack of commercial occupant information since at least 1983 and the presence of an AST containment area.
63	Section 63 appears to have been commercially developed since at least 1967.	N29.891135, W-89.995497	French's Welding and Maintenance and Pelican Commercial Waste Services	Onsite concerns were noted from listings as Fleming Equipment and Construction (2000) and Pelican Commercial Waste Services (2005), present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
64	Section 64 appears to have been commercially developed since 1995.	N29.888907, W-89.996123	Tri-State Oil	Onsite concerns were noted from listings as Tri-State Oil since at least 2000, present operations, and the presence of ASTs of unknown contents and condition.
65	Section 65 appeared to be residentially developed from at least 1998 to at least 2000.	N29.886900, W-89.997929	Wooded property	Onsite concerns were noted from the drilling of Well 101223.
66	Section 66 appeared to be pump station construction in 1994 and appears to have been developed with the Belle Chasse Pump Station 2 since 1995.	N29.884360, W-89.999630	Belle Chasse Pump Station 2	Onsite concerns were noted from present operations, pump station improvements, and the presence of drums and ASTs of unknown contents and condition.
67	Section 67 appeared to be residentially developed from at least 1945 to 1951 and appears to have been commercially developed since at least 1967.	From N29.873146, W-90.005451 to N29.870269, W-90.008407	Western portion of Bayou Barriere Golf Club	Onsite concerns were noted from the use of herbicides and pesticides, the drilling of Well 18029, and the presence of ASTs of unknown contents and condition.
Adjoining properties to the southeast of Section 66	The southeastern adjoining properties appeared to be residentially developed from at least 1945 to at least 1949, appeared to be commercially and residentially developed in 1951, and appear to have been commercially developed since at least 1967.	From N29.883913, W-89.997892 to N29.869461, W-90.005191	Eastern portion of Bayou Barriere Golf Club	Offsite concerns were noted from use of herbicides and pesticides.

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68	Section 68 appeared to be residentially developed from at least 1945 to 1951; developed with the Plaquemines Parish Welcome Park, the Belle Chasse Tunnel, and residences from at least 1967 to at least 1972; and appears to have been developed with the Plaquemines Parish Welcome Park and Belle Chasse Tunnel since at least 1983.	N29.870945, W-90.007921	Plaquemines Parish Welcome Park (East Bank), Belle Chasse Highway and Tunnel	Onsite concerns were noted from the presence of ASTs of unknown contents and condition.
70	Section 70 appears to have been developed as a park since at least 1994.	N29.858845, W-90.015182	Louisiana's Medal of Honor Park and Museum	Onsite concerns were noted from the presence of an AST of unknown contents and condition.
71	Section 71 appears to have been commercially developed since at least 1972.	N29.855197, W-90.016040	Barriere Construction, Co.	Onsite concerns were noted from listings as Barriere Construction from at least 1980 to at least 1996, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
72	Section 72 appears to have been commercially developed since at least 1980.	N29.853413, W-90.017394	Kostmayer Construction, Co.	Onsite concerns were noted from listings of construction companies (1980, 1996, and 2005), present operations, levee construction, and the presence of buckets, drums, and ASTs of unknown contents and condition.
73	Section 73 appears to have been developed with the Belle Chasse Pump Station 1 since at least 1967.	N29.852514, W-90.019228	Belle Chasse Pump Station 1	Onsite concerns were noted from listings as the Belle Chasse Drainage Department since at least 2000, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
75	Section 75 appeared to be residentially developed in 1951 and appears to have been developed with the jet fuel pipeline and loading dock since at least 1998.	N29.836753, W-90.067661	NAS-JRB	Onsite concerns were noted from the presence of the jet fuel pipeline and the presence of ASTs of unknown contents and condition.
76	Section 76 appears to have been undeveloped since at least 1951.	N29.815582, W-90.067661	Wooded property	Onsite concerns were noted from the presence of a buried petroleum pipeline.

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Adjoining properties to the east of Section 76	The eastern adjoining properties appear to have been commercially and residentially developed since at least 1983.	N29.810925, W-90.068358	High Point Shooting Grounds	Offsite concerns were noted from listings as High Point Shooting Grounds (1996; 2005) and present operations.
77	Section 77 appears to have been undeveloped since at least 1951.	N29.816133, W-90.083072	Wooded and grassy property, Pipeline Canal	Onsite concerns were noted from presence of a buried petroleum pipeline and the drilling of Well 174164 and Well 183151.
78	Section 78 appears to have been developed with the Old Estelle Pump Station since at least 1967.	N29.826906, W-90.083008	Old Estelle Pump Station	Onsite concerns were noted from presence of a buried petroleum pipeline, present operations, and the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the west of Section 78	The western adjoining properties were developed with a drill hole from at least 1966 to at least 1989 and appear to have been undeveloped since at least 1991.	N29.827973, W-90.086022	Wooded property and pastureland	Offsite concerns were noted from presence of a buried petroleum pipeline and the drilling of Well 79407.
79	Section 79 appears to have been undeveloped since at least 1951.	N29.827973, W-90.086022	Wooded and grassy property, unnamed canal	Onsite concerns were noted from presence of a buried petroleum pipeline.
81	Section 81 appears to have been developed with the New Estelle Pump Station since at least 1998.	N29.833768, W-90.068714	New Estelle Pump Station	Onsite concerns were noted from present operations and the presence of drums and ASTs of unknown contents and condition.
82	Section 82 appears to have been undeveloped since at least 1951.	N29.845680, W-90.062258	Wooded property	Onsite concerns were noted from levee construction.
83	Section 83 appeared to be developed with ponds from at least 1983 to at least 2005, and appears to have been undeveloped since 2006.	N29.857365, W-90.067139	Wooded property	Onsite concerns were noted from the ponds located on the section from at least 1983 to at least 2005.
Adjoining properties to the west of Section 83	The western adjoining properties appeared to be developed with ponds from at least 1983 to at least 2005, and appear to have been undeveloped since 2006.	N29.856451, W-90.068875	Wooded property	Onsite concerns were noted from the ponds located on the section since at least 1983 and the drilling of Well 122343.

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84	Section 84 appears to have been used as Sector Gate construction staging since 2005.	From N29.867601, W-90.069960 to N29.870213, W-90.069786	Sector Gate construction	Onsite concerns were noted from the use of the property as Sector Gate construction staging and the presence of buckets, drums, and ASTs of unknown contents and condition.
85	Section 85 appeared to be developed with the Cousins Pump Station in 1972 and appears to have been developed with the Cousins Pump Station and commercial properties since at least 1980.	N29.872214, W-90.073076	A&B Valve and Piping Systems storage yard	Onsite concerns were noted from listings as oil field service and pipeline companies since at least 1980.
		N29.872536, W-90.071597	Southern portion of Petrex	Onsite concerns were noted from listings as Petrex since at least 1996, present operations, and the presence of ASTs of unknown contents and condition.
		N29.871311, W-90.073290	Cousins Pump Station	Onsite concerns were noted from present operations, pump station improvement, and the presence of buckets, drums, and ASTs of unknown contents and condition.
Adjoining properties to the north of Section 85	The northern adjoining properties appear to have been commercially developed since at least 1980.	N29.872729, W-90.073175	A&B Valve and Piping Systems	Offsite concerns were noted from listings as oil field service and pipeline companies since at least 1980 and the presence of ASTs of unknown contents and condition.
		N29.873216, W-90.071962	Northern portion of Petrex	Offsite concerns were noted from listings as Petrex since at least 1996, present operations, and the presence of ASTs of unknown contents and condition.

The remainder of this report is organized as follows: Section 2 describes the scope of work and limitations for this report; Section 3 presents a site description; Section 4 presents user provided information; Section 5 presents a records review; Section 6 presents a summary of the site reconnaissance; Section 7 presents a summary of interviews; Section 8 presents a summary of AEROSTAR's findings and opinions; Section 9 presents a summary of AEROSTAR's conclusions; Section 10 presents any deviations from the ASTM standard; Section 11 provides additional services conducted as part of this Phase I ESA; Section 12 presents the references; Section 13 presents the signatures of environmental professionals preparing and reviewing the report; and Section 14 presents the qualifications of the environmental professionals participating in this Phase I ESA. Figures are included in Appendix A. The property record information is included in Appendix B. Site photographs are included in Appendix C. A computerized regulatory agency database search is included in Appendix D. Historical research documentation is included in Appendix E. Interview documentation is included in