State of Louisiana
Department of Natural Resources
Coastal Engineering Division

2005/2006 Annual Inspection Report

For

HUMBLE CANAL HYDROLOGIC RESTORATION PROJECT (ME-11)

State Project Number ME-11
Priority Project List 8

October 19, 2005
Cameron Parish

Prepared by:

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I. Introduction

The Humble Canal Hydrologic Restoration Project (ME-11) encompasses 4,030 acres (1228.34 ha) in Cameron Parish, Louisiana. The project is bounded by the Little Chenier Ridge to the south, the Mermentau River to the east, oilfield canals on the west, and an east-west trenaisse and an oilfield canal along the north. The marsh is classified as a fresh marsh with 74 percent of the project area being marsh and 26 percent open water, based on the Louisiana Department of Natural Resource's GIS data for 1988–90 (See Appendix A).

The Humble Canal Hydrologic Restoration Project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended and approved on the eight Priority Project List. The Humble Canal Project has a twenty –year (20 year) economic life, which began in March 2003.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Humble Canal Hydrologic Restoration Project (ME-11) is to evaluate the constructed project features, identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2003). The annual inspection report also contains a summary of maintenance projects, if any, which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C.

In 2003, the CWPPRA Task Force determined, due to the fact that LDNR was responsible for the operation and maintenance phase of the vast majority of CWPPRA projects, that LDNR would be the responsible party for all Post Storm/Hurricane Assessments. After Hurricanes Katrina and Rita, every project appeared to have been impacted by the storms; therefore, LDNR determined that all projects should be assessed for damages (Broussard, 2006). With concurrence from the federal sponsor, LDNR has decided to use the information obtained during this post hurricane assessment in this Annual Maintenance Inspection.

An inspection of the Humble Canal Hydrologic Restoration Project (ME-11) was held on October 19, 2005 under sunny skies and mild temperatures. In attendance were Mel Guidry, Stan Aucoin, and Darrell Pontiff from LDNR, along with Troy Mallach representing NRCS. All parties met at the boat launch on the Mermentau River in Grand Chenier, and traveled north to the Humble Canal Project Site. The annual inspection began at approximately 10:00 a.m. at the marine barrier on the juncture of the Humble Canal Project Outfall Channel and the Mermentau River.

The field inspection included a complete visual inspection of all project features. Staff gauge readings were used to determine approximate elevations of water, earthen embankments, water control structure and other project features. Photographs were taken at each project feature (see Appendix B) and Field Inspection notes were completed in the field to record measurements and any notable deficiencies (see Appendix D).

III. Project Description and History

The Humble Canal Hydrologic Restoration Project (ME-11) was completed in March 2003 and involved the installation of a water control structure consisting of 5 - 48" x 50' corrugated aluminum pipes with weir type drop inlets and flap gated outlets. Also 1 - 18" x 50' corrugated aluminum pipe with screw gate as well as all associated excavated access channels, embankments and timber bulkheads, approximately 88 linear feet of hyacinth fence, and approximately 100 linear feet of marine barrier fence. The structure is designed to improve the removal rate of excess water within the project area while preventing salt water from entering. The hyacinth fence will prevent large amounts of vegetation and debris from interfering with the operational capabilities of the structure. The marine barrier will prevent boats from getting too close to the structure. The principle project features of the Humble Canal Hydrologic Restoration Project include the following:

A. **Water Control Structure:** One water control structure consisting of 5 - 48" x 50' corrugated aluminum pipe with weir type drop inlets and flap gated outlets. Also 1 - 18" x 50' corrugated aluminum pipe with screw gate as well as all associated excavated access channels, embankments and timber bulkheads.

B. **Water Hyacinth Fence:** Approximately 88 linear feet of hyacinth fence.

C. **Marine Barrier Fence:** Approximately 100 linear feet of marine vessel barrier fence.

Historically, floods occurring in spring inundated wetlands with fresh water. As water levels receded, salt water could slowly move into the basin through meandering bayous, especially during periods of low rainfall in late summer and early fall. The basin once functioned as a nursery for a variety of marine species that favor a low salinity environment. Projects initiated by various interests have disrupted the basin's natural processes. Extended periods of high water in the upper basin and saltwater intrusion in the lower basin have imposed physiological stresses on vegetated wetlands resulting in their conversion to open water (USDA/NRCS 1997). However, the vegetation in the project area was classified as freshwater marsh in 1968 (Chabreck et al. 1968), and vegetation maps produced in the last three decades still classify the project area as a freshwater marsh (Chabreck and Linscombe 1978,1988,1998).

The Humble Canal and its laterals were constructed for mineral exploration during the early 1950's and increased water exchange between the Mermentau River and the eastern end of Big Burn Marsh. Dredging of the Mermentau River in 1952 and construction of the

Mermentau River to the Gulf of Mexico Navigation Channel in 1978 provided greater commercial use of the Mermentau River Basin. But as with other deepwater shipping channels along Louisiana's fragile coast, one environmental consequence has been increased northward migration and intrusion of saltwater, and the deterioration of fresh water wetlands. In the south eastern portion of the project is a 24 inch open pipe allowing water flow into the project area. This also may be affecting salinity within the project.

The specific goals of the project are:

1. Increase present (yr 2000) land to water ratio.

2. Maintain mean water levels in the project area between 6 in below and 2 in above marsh level.

3. Maintain mean monthly salinity (0–3 ppt) in the project area after construction and prevent salinities from exceeding 7 ppt.

4. Increase or maintain the occurrence and cover of fresh marsh vegetation species in the project area.

5. Increase frequency of occurrence of submerged aquatic vegetation (SAV) in the project area.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: No maintenance has been necessary on this project.

2005 Structure Operations: In accordance with the operation schedule outlined in the Operation and Maintenance Plan, the structure was operated as required, by Miami Corporation personnel at no cost to LDNR. At present, a contract is being developed between Miami Corporation and LDNR for Miami Corporation to continue to operate the structure according to the permitted operational plan at no cost to LDNR.

V. Inspection Results

Marine barrier fence

The structure is in excellent condition. Some shrinkage of the sign lettering has occurred and the signs are slightly bent from Hurricane RITA damage. Bank tie-ins, pile caps, hardware, etc. is in excellent condition. No maintenance is required at this time. (Photos: Appendix B, Photo 1)

Hyacinth guard

This feature is in good condition. There is a large amount of debris and wrack material clogging the hyacinth guard. Maintenance is required at this time. (Photos: Appendix B, Photo 2)

Water control structure

Overall, the structure is in good post construction condition. The inspection noted erosion of the embankment behind each wing wall and over the structure along with an extensive amount of wrack clogging the inlet channel which is affecting flow through the structure. A nearby camp building has been deposited on the southern portion of the structure from Hurricane RITA storm surge, however it is not impacting the operation of the structure. Maintenance will be required at this time. Both agencies agreed to perform a structural assessment survey in 2006/2007 for comparison to previous as-built surveys. (Photos: Appendix B, Photos 3, 4 & 5)

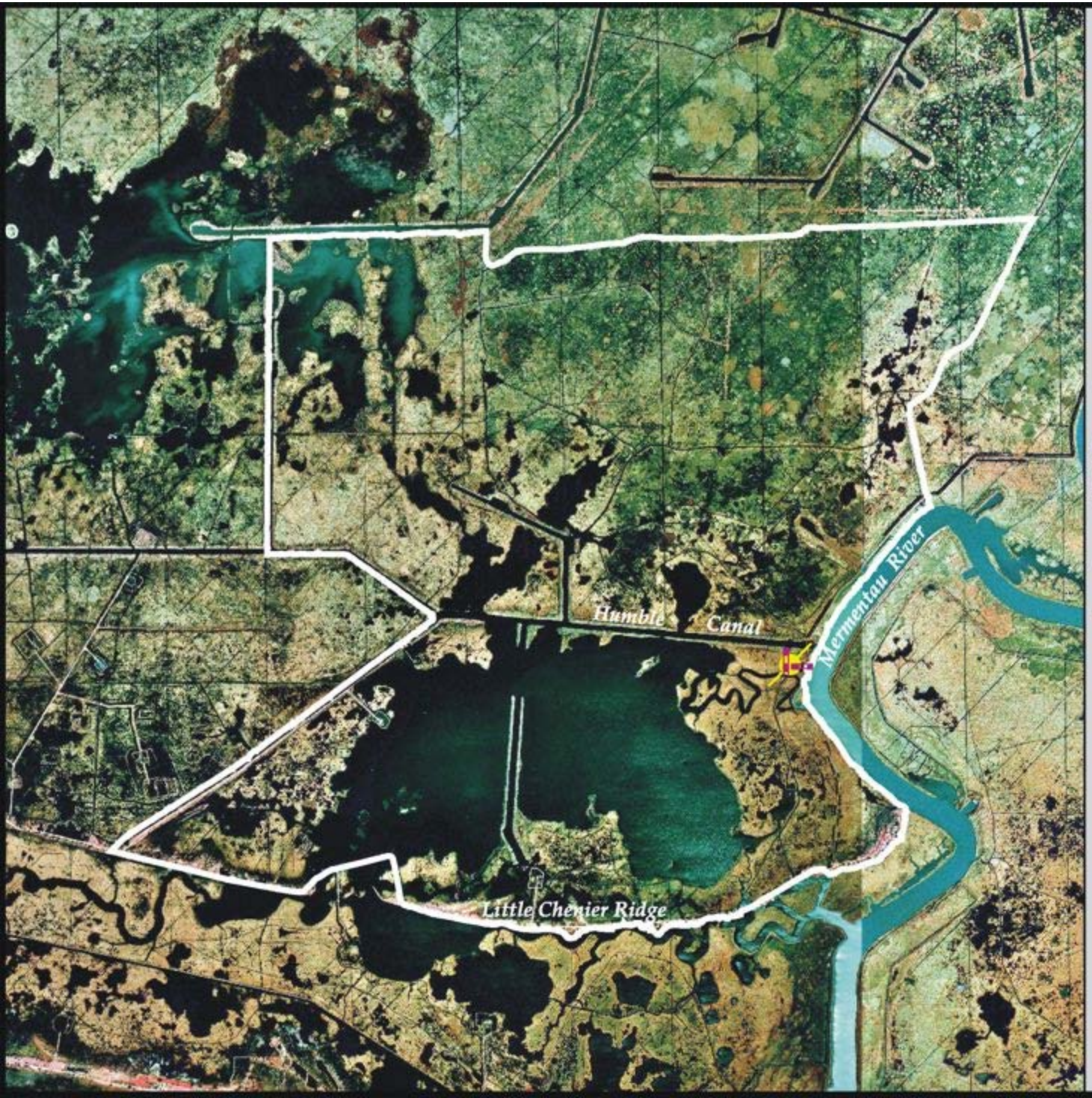
The earthen plug from the original Humble Canal was removed by Cameron Parish Gravity District to relieve high water levels from the storm surge of Hurricane RITA. (Photos: Appendix B, Photo 6)

VI. Conclusions and Recommendations

Overall, the Humble Canal Hydrologic Restoration Project is in good condition however it is not functioning as designed due to the clogged inlet channel. The aluminum stoplog design that was used on this project appears to be easy to operate, light, and should have a long maintenance free lifespan. A maintenance event is planned to clean the wrack and debris from the inlet channel to restore flow and repair the embankment around the structure with stone. Repairs are also necessary on some of the flap gates and lifting arms. A FEMA claim has been submitted for repair of the structure. A structural assessment survey is recommended as noted above for fiscal year 2006/2007. Ownership of the camp will try to be determined and a decision made about final disposition of this building.

Appendix A

Project Features Map



Humble Canal Hydrologic Restoration (ME-11)

Water Control Structure

Dredge Channel

Project Boundary

USGS
science for a changing world

Louisiana

Project Location

N

2000 0 2000 Feet

500 0 500 1000 Meters

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quadrangle

Map Date: July 28, 2003
Map ID: USGS-NWRC 2003-11-097
Data accurate as of: April 4, 2003

Appendix B

Photographs

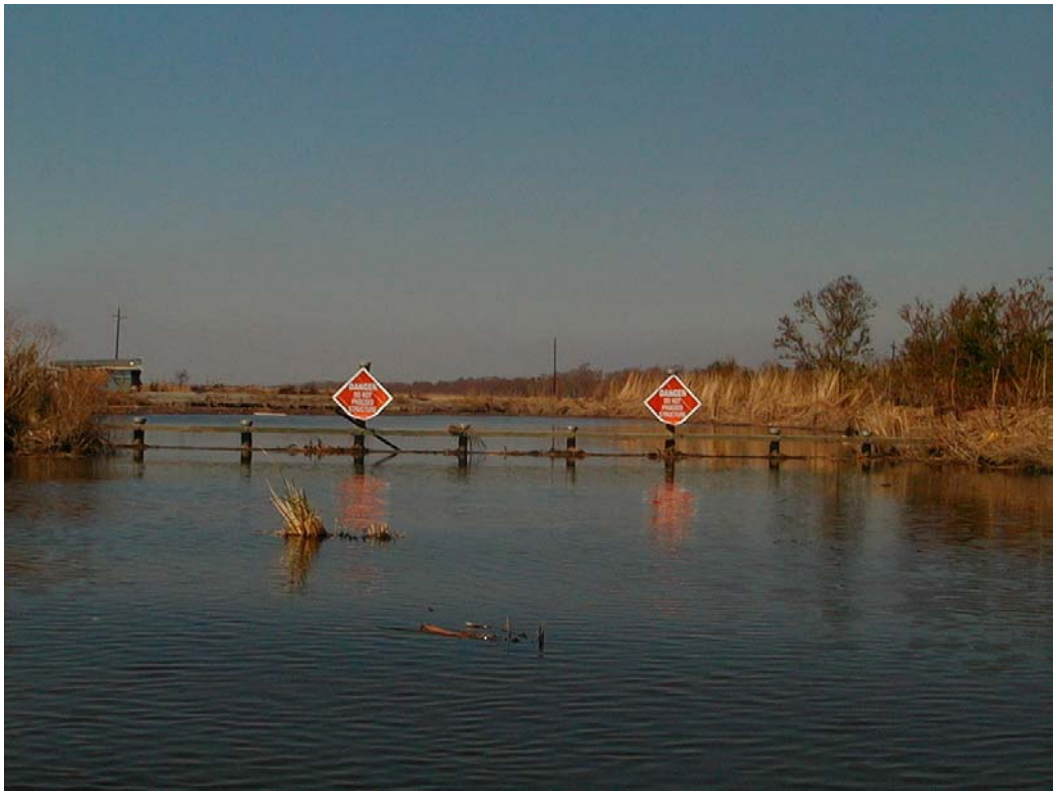


Photo 1, Marine barrier with signage.

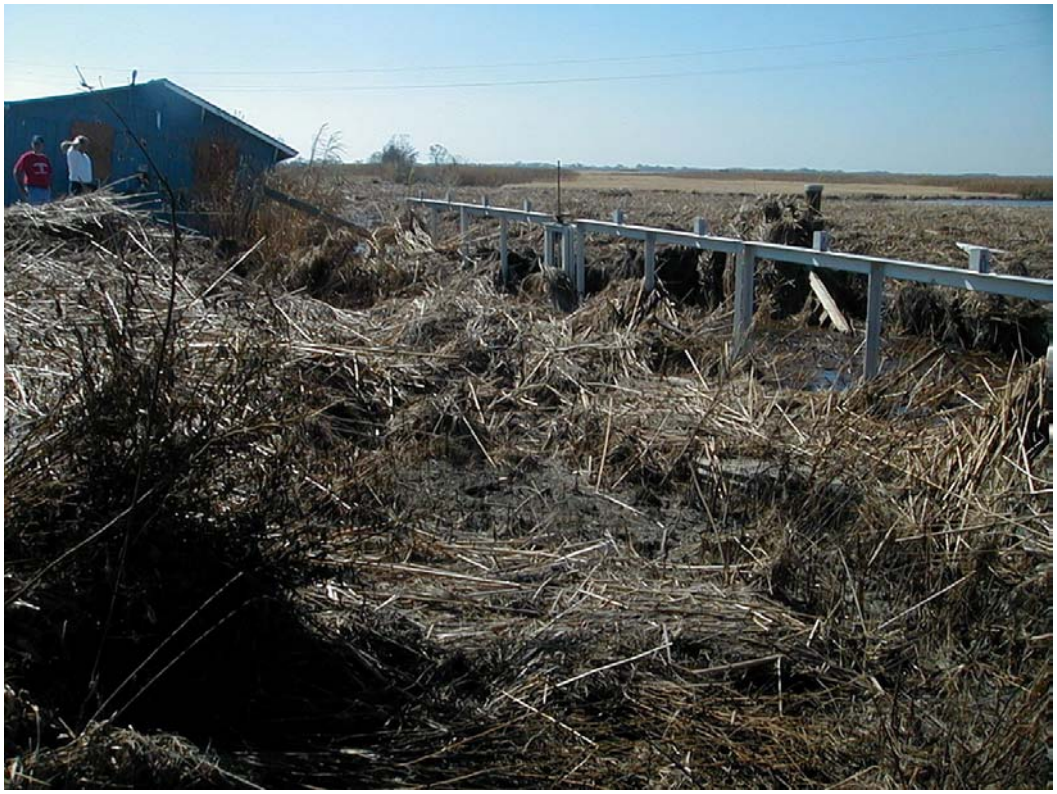


Photo 2, Inlet side showing hyacinth fence in background covered with debris, as well as embankment of structure.

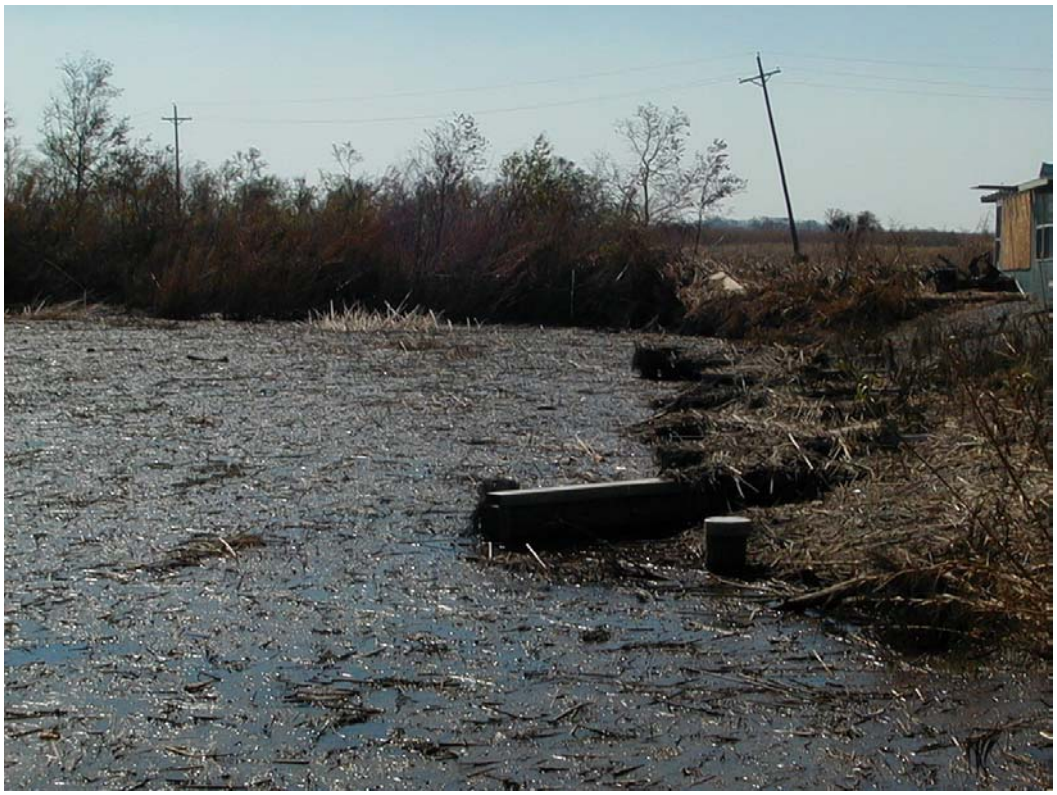


Photo 3, Outlet side of structure covered with wrack.

Photo 4, Showing camp on southern end of structure embankment.

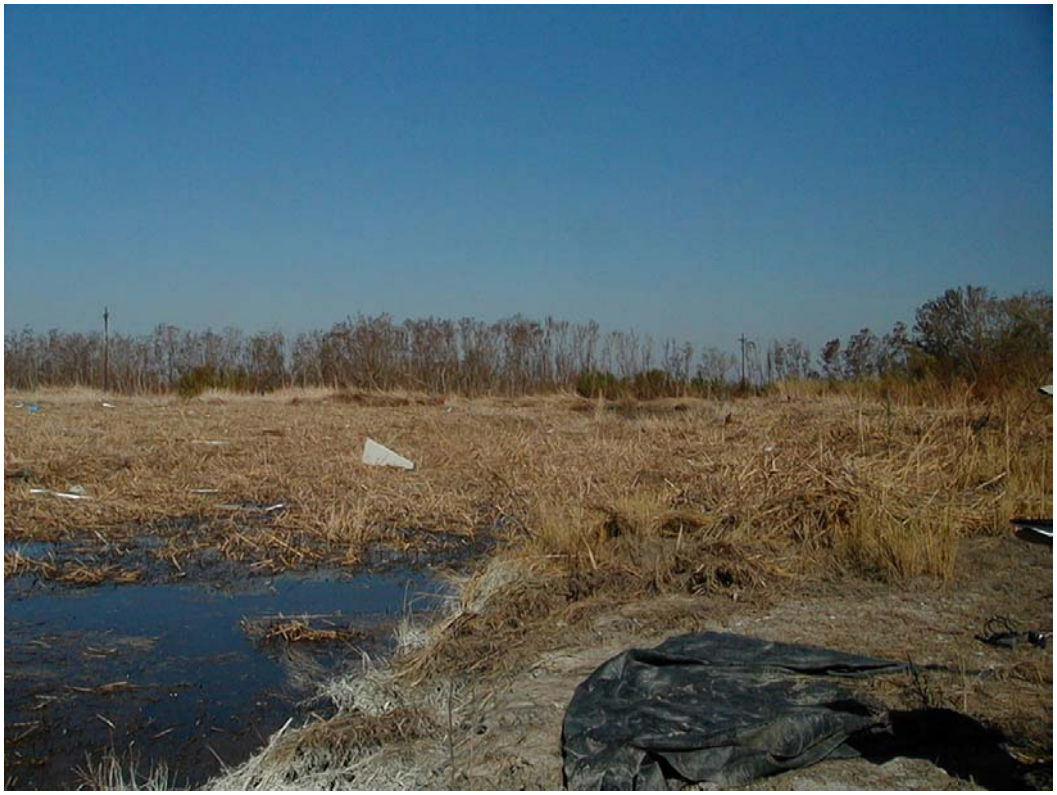


Photo 5, Showing clogged inlet channel, view looking north.

Photo 6, Earthen plugged removed by Cameron Parish Gravity District to relieve high water levels.

Appendix C

Three Year Budget Projection

HUMBLE CANAL / ME-11 / PPL8

Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08

Project Manager	O & M Manager	Federal Sponsor	Prepared By
Pat Landry	*Mel Guidry*	*NRCS*	*Mel Guidry*

	2005/2006	2006/2007	2007/2008
Maintenance Inspection	$ 4,955.00	$ 5,250.00	$ 5,407.00
Structure Operation	$ -	$ -	$ -
Administration		$ 4,000.00	$ -
Maintenance/Rehabilitation			

05/06 Description:

E&D	
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	$ -

06/07 Description: Maintenance event to clean inlet channel,repair rock embankment (damages from Hurricane RITA)

E&D	$ 17,000.00
Construction	$ 60,500.00
Construction Oversight	$ 11,100.00
Sub Total - Maint. And Rehab.	$ 88,600.00

07/08 Description:

E&D	
Construction	$ -
Construction Oversight	$ -
Sub Total - Maint. And Rehab.	$ -

	2005/2006	2006/2007	2007/2008
Total O&M Budgets	$ 4,955.00	$ 97,850.00	$ 5,407.00

O &M Budget (3 yr Total)	**$ 108,212.00**
Existing O & M Budget	**$ 213,491.00**
Remaining O & M Budget (Projected)	**$ 105,279.00**

OPERATION AND MAINTENANCE BUDGET WORKSHEET

HUMBLE CANAL HR PROJECT / PROJECT NO. ME-11 / PPL NO. 8

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	$5,250.00	**$5,250.00**
General Structure Maintenance	LUMP	1	$0.00	**$0.00**
Engineering and Design	LUMP	1	$17,000.00	**$17,000.00**
Operations Contract	LUMP	1	$0.00	**$0.00**
Construction Oversight	LUMP	1	$11,100.00	**$11,100.00**

ADMINISTRATION

LDNR / CRD Admin.	LUMP	1	$2,000.00	$2,000.00
FEDERAL SPONSOR Admin.	LUMP	1	$2,000.00	$2,000.00
SURVEY Admin.	LUMP	0	$0.00	$0.00
OTHER				$0.00
			TOTAL ADMINISTRATION COSTS:	**$4,000.00**

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:					
Secondary Monument		EACH	0	$0.00	$0.00
Staff Gauge / Recorders		EACH	0	$0.00	$0.00
Marsh Elevation / Topography		LUMP	0	$0.00	$0.00
TBM Installation		EACH	0	$0.00	$0.00
OTHER					$0.00
				TOTAL SURVEY COSTS:	**$0.00**

GEOTECHNICAL

GEOTECH DESCRIPTION:					
Borings		EACH	0	$0.00	$0.00
OTHER					$0.00
				TOTAL GEOTECHNICAL COSTS:	**$0.00**

CONSTRUCTION

CONSTRUCTION DESCRIPTION:					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
Rock Rip rap	0	0.0	45	$100.00	$4,500.00
Aggregate Surface Course	0	0.0	60	$100.00	$6,000.00
	0	0.0	0	$0.00	$0.00
Filter Cloth / Geogrid Fabric		SQ YD	0	$0.00	$0.00
Navigation Aid		EACH	0	$0.00	$0.00
Signage		EACH	0	$0.00	$0.00
General Excavation / Fill		CU YD	0	$0.00	$0.00
Dredging		CU YD	0	$0.00	$0.00
Sheet Piles (Lin Ft or Sq Yds)			0	$0.00	$0.00
Timber Piles (each or lump sum)			0	$0.00	$0.00
Timber Members (each or lump sum)			0	$0.00	$0.00
Hardware		LUMP	1	$0.00	$0.00
Materials		LUMP	1	$0.00	$0.00
Mob / Demob		LUMP	1	$40,000.00	$40,000.00
Contingency		LUMP	1	$0.00	$0.00
General Structure Maintenance		LUMP	1	$10,000.00	$10,000.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
				TOTAL CONSTRUCTION COSTS:	**$60,500.00**

TOTAL OPERATIONS AND MAINTENANCE BUDGET: **$97,850.00**

Appendix D

Field Inspection Form

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: ME-11 Humble Canal

Date of Inspection: October 19, 2005 Time: 10:00am

Structure No. N/A

Inspector(s): LDNR- Stan Aucoin, Mel Guidry & Darrell Pontiff
NRCS- Troy Mallach

Structure Description: 5 - 48" x 50' corrugated aluminum pipe with weir type drop inlets and flap gated outlets/ 1 1 - 18" x 50' corrugated aluminum pipe with screw gate

Water Level Inside

Type of Inspection: Annual

Weater Conditions: Sunny and Clear

Item	Condition	Pysical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	good				
Steel Grating	good				
Stop Logs	good				Stoplogs on this structure are made of aluminum and should last practically forever.
Hardware	good				
Timber Piles	good				
Timber Wales	good				
Galv. Pile Caps	good				
Cables/ lifting device	good				The lifting apparatus was not on site.
Signage /Supports	good				
Rip Rap (fill) (foreshore dike)	good				
Eathern Embankment	fair			3	Erosion has occurred behind each wingwall and over the structure.
				4	A camp building has been deposited on the southern end of the structure.
Inlet Channel/Plug				5 & 6	Inlet channel completely clogged with wrack and debris, earthen plug removed by Cameron Parish GDD.

What are the conditions of the existing levees? Stable on both the inlet and outlet channels. Assessment survey to be performed in '05-'06. Exposed cloth near the structure as noted.
Are there any noticable breaches? No
Settlement of rock plugs and rock weirs? N/A
Position of stoplogs at the time of the inspection? Unkown
Are there any signs of vandalism? No

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: ME-11 Humble Canal

Date of Inspection: October 19, 2005 Time: 10:00am

Structure No. N/A

Inspector(s): LDNR- Stan Aucoin,Mel Guidry & Darrell Pontiff
NRCS- Troy Mallach

Structure Description: Marine Barrier Fence

Water Level N/A

Type of Inspection: Annual

Weater Conditions: Sunny & Clear

Item	Condition	Pysical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	good				
Steel Grating					
Stop Logs	N/A				
Hardware	good				
Timber Piles	good				
Timber Wales	good				
Galv. Pile Caps	good				
Cables	N/A				
Signage /Supports	good			1	Some odd shrinkage of the lettering on the warning signs. Still no cause for concern. Signs slightly bent from Hurricane RITA damage.
Rip Rap (fill)	N/A				
Eathern Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: ME-11 Humble Canal

Date of Inspection: October 19, 2005 Time: 10:00 am

Structure No. Hyacinth Fence

Inspector(s): LDNR: Stan Aucoin, Mel Guidry & Darrell Pontiff
NRCS: Troy Mallach

Structure Description:

Water Level N/A

Type of Inspection: Annual

Weather Conditions: Sunny and Clear

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	good				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	fair			2	Hyacinth fence is covered with wrack and debris.
Timber Piles	good				
Timber Wales	good				
Galv. Pile Caps	good				
Cables	N/A				
Signage /Supports	N/A				
Rip Rap (fill)	N/A				
Earthen Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticeable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Appendix E

Locations to be Monitored