



**State of Louisiana
Office of Coastal Protection and
Restoration
Operations Division**

2014 Annual Inspection Report

for

**CAERNARVON OUTFALL
MANAGEMENT
(BS-03a)**

State Project Number BS-03a
Priority Project List 2

June 2014
Plaquemines Parish

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I. Introduction

The Caernarvon Outfall Management Project (State Project No. BS-03a) was approved on the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) Second Priority Project List. The project is located to the south and west of Big Mar, a body of water which formed as the result of a failed agricultural impoundment. The project features are located entirely in Plaquemines Parish, and the project outfall area encompasses 15,556 acres in Plaquemines Parish. Project features are located on a number of streams in the outfall area. A map of the project area is included in Appendix A.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Caernarvon Outfall Management Project (BA-03a) is to evaluate the constructed project features to identify any deficiencies and to prepare a report detailing the condition of project features and recommending corrective actions needed. Should it be determined that corrective actions are needed, CPRA shall provide a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan May 15, 2003). The annual inspection report also contains a summary of maintenance projects 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. A summary of past operation and maintenance projects completed since completion of the Caernarvon Outfall Management Project are outlined in Section IV.

This annual inspection of the Caernarvon Outfall Management Project (BA-03a) was performed on June 16th, 2014. Weather consisted of partly cloudy skies, a temperature of approximately 85°F, and winds out of the SE at around 5 knots. Taking part in the inspection were: David Chambers, Erin Plitsch, Peter Hopkins, and Luke Prendergast of CPRA and Loland Broussard and Doug Baker of NRCS, the federal sponsor. The Annual Inspection sign-in sheet is included as Appendix E. On the date of the inspection, the diversion structure was closed. The Marsh Gage reading was +0.80 feet NGVD and the River Gage reading was approximately +6.50 feet NGVD, although the numbers and markings on the gage near the water surface were illegible due to fouling from the river. Except as otherwise noted, the photographs included in Appendix B were taken at the time of the inspection.

Note: Simon & Delany Resource Management, L.L.C., the O & M contractor for this diversion and the outfall project are often called upon to conduct specific inspections and perform maintenance tasks periodically between these annual inspections. On July 1, 2014, R. E. Buck Inc. DBA SeaTow Westbank will replace Simon & Delany Resource Management, L.L.C. as the O & M contractor.

III. Project Description and History

The Caernarvon Freshwater Diversion Structure on the east bank of the Mississippi River near Big Mar, was placed into operation in August 1991. The Caernarvon structure was funded by the Water Resources Development Act and constructed for the purpose of diverting Mississippi River water through Big Mar into the marshes to the south and west of Big Mar. Since the early 1900's, these

marshes had deteriorated, largely due to being isolated from direct river influxes by the construction of levees. This isolation, with the resultant absence of minerals and nutrients formerly regularly deposited during high river stages, caused a net loss of the organic soils prevalent in the project area. The specific mechanisms causing the soil loss included natural subsidence, erosion, salt water intrusion and oxidation.

In addition to the losses due to Mississippi River levee construction, the increased construction of navigation and oil/gas canals in the project area contributed to the problem. These straight canals provided a perfect avenue for saltwater intrusion, and the canals' high water velocity led to increased erosion rates.

An earlier hurricane also contributed to the loss of wetlands in the project area. In 1965, storm surges from Hurricane Betsy traveled over the above-discussed canals, and the forested swamp area in the northern part of the project area was destroyed by salt stress as the salt water from the storm surge became trapped behind Tigers Ridge.

From 1932 to 1990, approximately 5,550 acres of land in the project area were converted to open water via the above-discussed mechanisms. By 1978, saltwater intrusion had transformed the project area from a primarily intermediate marsh to primarily a brackish marsh. In addition, Hurricane Katrina (2005) caused significant damage to the entire project area.

The Caernarvon Freshwater Diversion Structure was intended to counter some of the mechanisms causing wetlands loss in the project area, primarily saltwater intrusion. Specifically, the Caernarvon structure was intended to increase wildlife and fisheries productivity, enhance emergent marsh vegetation growth, and reduce marsh loss.

The structure has a design discharge capacity of approximately 8,000 cubic feet of freshwater per second. Presently, 80% of the diversion water exits to the southeast via Bayou Mandeville into Lake Lery and eventually into Bayou Terre aux Boeufs. With 80% flowing to the southeast of Big Mar, only 20 % flows to the more-deteriorated marshes to the southwest of Big Mar. Prior to Hurricane Katrina, Gustav (2008) and Ike (2008), those percentages were closer to 66%—34%, respectively. An additional problem is that, prior to the present Caernarvon Outfall Management Project, much of the flow of water to the southwest channeled rapidly to the lower reaches of the basin and did not inundate the interior marshes as was originally intended. The present project promotes better utilization and distribution of water from the Caernarvon Freshwater Diversion Structure. As designed, project features allow water from the channels to flow into the marsh interior and cause the water to be retained in the marsh for a longer period of time.

The Caernarvon Diversion Outfall Management Project took one year to complete, starting on June 11, 2001 and completing on June 14, 2002. Because of change orders and other contractual issues, the Final Acceptance was not made until September 10, 2002. The Outfall Project receives fresh water from the Mississippi River through the Caernarvon Diversion Structure located on the east bank of the Mississippi River near the St. Bernard / Plaquemines Parish line. The Outfall Project benefit area consists of 18,200 acres and is bounded by the Forty Arpent Canal levee to the north and west, and by Lake Lery, Bayou Mandeville, and the Caernarvon Canal to the east. The southern boundary is a composite of undifferentiated marsh, Reggio Canal, the Pipeline Canal, and River aux Chenes.

The objective of the Outfall Project is to promote better utilization and distribution of freshwater and nutrients from the Mississippi River, introduced in the project area by the Caernarvon Structure, during low-diversion discharge periods. Management of the outfall will allow the water from existing channels into the interior of the marshes. Placement of plugs and culverts along with designated spoil bank restoration is expected to enhance water retention and distribution within the project area.

The project features are listed below:

Inspection photos of the features are shown in Appendix B of this report. Elevations are NAVD 88.

A. Site/Structure # 13 – Earthen channel plug with riprap armor located along the west bank of Bayou Mandeville. The plug is set at an elevation of +4.0 ft. and is 100 ft. long x 100 ft. wide with 18 inches of riprap armor. The crest of the structure is 10 ft. wide. The plug includes a one (1) 48” diameter corrugated aluminum pipe which passes through the rock fill plug at an elevation of -3.5 ft. with an aluminum combination gate attached to the pipe on the interior side of the marsh. A timber walkway to the gate is at elevation +4.0.

B. Site/Structure # 25 - Earthen channel plug with riprap armor located on the Forty Arpent Canal near Big Mar. The plug is set at an elevation of +4.0 ft and is 169 ft. long and 100 ft. wide with 18 inches of riprap armor. The crest of the structure is 10 ft. wide. The plug includes two (2) 48” diameter corrugated aluminum pipes which pass through the rock fill (and are supported by the rock fill) at an elevation of -4.0 ft. Earth fill has been placed on each side of the rock fill. Aluminum canal gates are attached to the end of each pipe on the exterior side of the marsh. A timber walkway to the gates is at elevation +4.0.

C. Site/Structure # 26 – Earthen channel plug with riprap armor plate located along Reggio Canal spoil bank. The plug is set at a crest elevation of +4.0 ft. and is 154 ft. long and 100 ft. wide and is capped with 18 inches of riprap rock. The crest of the structure is 10 ft. wide. The plug includes four (4) 48” corrugated aluminum pipe which pass through the earthen material at an elevation of -4.0 ft. Aluminum canal gates are attached to the end of each pipe on the exterior side of the marsh. The pipe and gates are supported by a timber pile system. A timber walkway is installed at elevation +4.0 ft.

D. Site/Structure # 32 – Riprap channel plug across an unnamed channel which flowed into Lake Lery at the west end of the lake. The plug is 117 ft. long and the 6 ft. wide plug crest is set at +4.0 ft. The 70 ft. stretch of channel from the plug eastward to Lake Lery has 2 feet thick riprap placed on both channel banks. Upon implementation of the BS-16 CWPPRA Project, this structure site will be completely covered with the spoil bank restoration feature of that project and will no longer be a component of the BS-03a Project. Construction of the BS-16 Project is expected to begin in March 2015.

E. Site/Structure # 40 – Earthen channel plug with riprap armor along the Reggio canal spoil bank. The plug is 142 ft. long and 100 ft. wide. The crest of the structure is 10 ft. wide and is set at an elevation of +4.0 ft. The plug includes 2- 48” diameter corrugated aluminum pipes which pass through the rock fill at an elevation of -4.0 ft. Earth fill was placed on each side of the rock fill. The entire structure is capped with an 18” thick layer of rip-rap. Aluminum canal gates are attached to the ends of the aluminum pipes on the exterior side of the marsh. The pipe and gates are supported by a timber pile system, and a timber walkway to the gates is installed at elevation +4.0 ft.

F. Site/Structure # 50 – Earthen channel plug with riprap armor along the west bank of Bayou Mandeville. The plug is 55 ft. long and 100 ft. wide. The crest of the structure is 10 ft. wide and is set at an elevation of +4.0 ft. The plug includes one (1) 48” diameter corrugated aluminum pipe through an aggregate embankment at an elevation of -3.5 ft. The embankment is capped with an 18” thick layer of rip-rap. The pipe has a combination gate attached on the pipe end on the interior side of the marsh. The pipe and gate are supported by a timber pile system, and a timber walkway to the gate is installed at elevation +4.0.

G. Site/Structure # 52 – Earthen channel plug with riprap armor along DP Canal spoil bank. The plug is 100 ft. long and 100 ft. wide. The crest of the structure is 10 ft. wide and is set at an elevation of +4.0 ft. The plug includes two (2) 36” diameter corrugated aluminum pipes through the embankment at -3.0 ft. The embankment is capped with a 18” thick layer of riprap. Aluminum combination gates are attached to the end of each pipe on the interior side of the marsh. The two pipes are supported by a timber pile system, and a timber walkway to the gates is installed at elevation +4.0.

H. Site/Structure # 54 – Earth fill channel plug with riprap armor located at the intersection of Reggio Canal and Promised Land Canal. The plug is 140 ft. long and 150 ft. wide. The crest of the structure is 10 ft. wide and is set at an elevation of +4.0 ft. The plug includes two (2) 48” diameter corrugated aluminum pipes through the rock fill portion of the embankment at an elevation of -4.0 ft. Earth fill was placed of each side of the rock fill. The entire embankment is capped with a 18” thick layer of riprap. Aluminum canal gates are attached to the end of each pipe on the exterior side of the marsh. The pipes and gates are supported by a timber pile system, and a timber walkway to the gates installed at elevation +4.0 ft.

The existing spoil bank on the south side of Promised Land Canal was degraded in three locations on the west side of Structure # 54. The excavated material was placed on the south side behind the existing spoil bank.

I. Site/Structure # 56 - Rock riprap channel plug across an unnamed channel on the east side of the Reggio Canal. The plug is 208 ft. long and the side slopes of the plug are 3 horizontal to 1 vertical. The crest of the structure is 6 ft. wide and is set at an elevation of +4.0 ft.

J. Site #57 – Consists of 5,315 linear feet of spoil bank restoration along the east side of the Reggio Canal between the Delacroix Canal and Site # 54. The spoil bank restoration consists of an earth fill embankment placed on existing spoil to an elevation of +4.0 ft. with a 12 ft. top width and 3 horizontal to 1 vertical side slopes. The entire length of embankment was seeded to permanent vegetation.

K. Site # 58 – Consists of 5,244 linear ft. of spoil bank restoration along the west side of Bayou Mandeville between the Delacroix Canal and Site # 13. The spoil bank restoration consists of an earth fill embankment placed on existing spoil to an elevation of +4.0 ft. with a 12 ft. top width and 3 horizontal to 1 vertical slope. The entire length of embankment was seeded to permanent vegetation.

L. Site/Structure # 60 – Rock fill channel plug at the intersection of Reggio Canal and an existing pipeline canal. The plug is 200 ft. long and 100 ft. wide. The crest of the structure is 10 ft. wide and set at an elevation of +4.0. The adjacent earthen plug with riprap armor includes two (2) 36”

diameter corrugated aluminum pipes through the earthen plug at an elevation of -3.0 ft. The entire length of the plug is capped with an 18" layer of riprap. Aluminum combination gates are attached to the end of each aluminum pipe on the interior side of the marsh. The pipes and gates are supported by a timber pile system, and a timber walkway to the gates is installed at elevation +4.0 ft.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance

Three flow meters were installed at structures #26, #40, and #54 to replace the original flow meters, which were damaged during Hurricane Katrina. The objective was to monitor the flow of fresh water into the interior marshes to determine if it was necessary to maintain the associated channels to increase flow through these structures. The flow meters were installed in September 2011. Due to storms and malfunctioning equipment, the first full and complete set of flow data was not received until March 2012. Later that same year, the sensor of the flow meter at structure #26 was damaged, and the decision was made to discontinue monitoring at this site. The flow monitoring data that has been collected since the meters were initially installed has shown that structure #40 receives little flow, structure #26 has moderate flow, and structure #54 received that highest flow of the three monitored structures. Since the flow data collected to date should be sufficient to evaluate the performance of these structures, it is recommended that the two remaining flow meters be removed and the performance of these structure continue to be monitored through visual inspection.

The inspection team noted breaches in the spoil banks adjacent to three different structures: #13, #50, and #52. The dredging contractor for the Delacroix (DC) Canal plugged the breach at #52 in July 2011, but that breach was reopened soon after. Site #13 and site #50 have breaches at the tie-in of the rock dike and the canal bank

The O & M Contractor implements a maintenance schedule that keeps the project features in good operating condition. The new O & M Contractor will perform inspection and maintenance tasks in accordance with the same schedule. Some of the O & M tasks include: lubricating and periodic operation of each structure, cleaning and maintaining the wooden platforms, and spraying of the area for unwanted vegetation and insects. Periodic inspections of all project features also are performed and deficiencies are corrected.

2014 Structure Operations

The structure operation calls for sluice gates to remain open except during waterfowl season, when the gates at structures #52 and #60 may be operated at the discretion of the landowner. Combination gates are to operate passively as designed year-round; however, some were not in the lowered position, probably because adjacent breaches and/or low areas have rendered the structures ineffective. The contractor continues to perform periodic O & M of each of the gated structures; this includes cleaning and maintaining the timber platforms and periodic inspections as directed by CPRA.

In early 2008, the contract for operation of the main diversion structure was re-bid, with the operation and maintenance of the outfall structures included. That contract went into effect on July 1, 2008 and has been renewed in 2009, 2010, and 2011. Upon agreement with both parties, the contract may be renewed annually over a three year period. The current three year period will end

on June 30th, 2014. In May 2014, the O & M contract was re-bid once again, and the new O & M Contractor is scheduled to start on July 1, 2014.

V. Inspection Results (See Appendix B for photos of each site)

The diversion structure was not flowing during the inspection, so the project area was not subjected to diversion flows. When flowing, the diverted waters exit Big Mar on the southern end along a stretch of submerged or failed canal bank. On the date of the Annual Inspection, the inspection team determined that structure #25 was inaccessible and excluded it from the report. Similarly, structure #32 was omitted from the inspection, because Hurricane Katrina rendered the structure ineffective, and the shallow depth of Lake Lery rendered the structure inaccessible via outboard-powered boat. The spoil created by the Delacroix Canal dredging in 2011 has vegetated with shrubs, tall grasses, and willow trees.

- A. Site/Structure # 13** – On the north end of the rock dike, there is a gap which is allowing water to flow freely into and out of that sector. The combination gate was in the up/open operating position to allow maximum uninterrupted tidal exchange into the marsh. The gate has a slight tilt, but it is not affecting the function. The timber walkway still lays separated from its support beam at one end. (See Photo 1, 2 & 3)
- B. Site/Structure # 25** – The inspection team did not attempt to inspect this feature due to inaccessibility at the time of the inspection. (Pre-Isaac 2012 Photo 4)
- C. Site/Structure # 26** – The gates were in the open position allowing water flow. There is thick vegetation covering the earthen/rock closure. The flow meter at this site was damaged during Isaac in September 2012, and was subsequently removed based on the decision to discontinue flow monitoring at this structure. The structure and outfall channel appeared to be in good condition. (See Photos 5 & 6)
- D. Site/Structure # 32** – The team did not inspect this feature because the depth of Lake Lery was too shallow for the boat to pass. Hurricane Katrina devastated that portion of the lake rim rendering this structure ineffective. (Photo 7)
- E. Site/ Structure # 40** – The gates remain in the open position. The structure and outfall channel are in good condition. (See Photos 8 & 9, flow meter site)
- F. Site/Structure # 50** – The combination gate was in the up/open position. Water was observed flowing around the structure at the tie-in to the south. During the 2013 inspection when the water surface was at the crest of the structure and the diversion flow was 717 cfs, water was observed flowing around the structure at each tie-in. Although no water was observed flowing around the structure tie-in to the north during the 2014 inspection, that may be due to the extremely low water level and lack of diversion flow. The timber walkway remains bowed. (See Photos 10, 11 & 12)
- G. Site/Structure #52** – The two combination gates were in the up/open position. The breach previously repaired by the dredging contractor has been re-opened and is between 10-15 feet in

width. The breach is allowing unimpeded flow between the channel and marsh. (Photos 14, 15 & 16)

- H. Site/Structure # 54** – The gates remain in the open position. No flow was visible through the culverts. (Photos 17 & 18, flow meter site)
- I. Site/ Structure # 56** – Although the water level was lower than the rock dike crest, the water was observed to overtop the rock during the 2013 inspection with a diversion flow of 717 cfs and a marsh gage reading of +1.76 feet NGVD. Vegetation remains on the entire rock closure. Soon after construction, the middle section of the plug subsided approximately 0.5 feet more than the sides. One warning sign is still leaning severely and is partially submerged (Hurricane Katrina damage). (Photo 19)
- J. Site # 57** – The spoil bank along the side of the Reggio Canal was well vegetated with grasses, shrubs and trees. No gaps in the spoil bank were noted (No Picture)
- K. Site # 58** –The vegetation on the spoil bank along the sides of the Bayou Mandeville includes grasses, shrubs, and trees. (No Picture). However, the aforementioned gaps were noted adjacent to structures #13 and #50.
- L. Site/Structure # 60** – The two combination gates were in the up/open position. The overall condition of the structure is good. There is a low area of the rock adjacent to the structure that water flows over at higher marsh water levels. (Photos 20, 21 & 22)

VI. Conclusions and Recommendations

Project Condition

CPRA concludes that the outfall management project needs evaluation by both federal and state parties to determine the effectiveness of the culverts and plugs. Many of the sectors outlined in the original project no longer have distinct borders. A maintenance event of this project would include using rock or sheet piling to close gaps and fill failure areas to reestablish the sector boundaries.

CWPPRA has approved the South Lake Lery Marsh Creation and Shoreline Restoration project (BS-16) for Phase II funding. Although budget constraints have modified the Lake Lery shoreline rehabilitation for the western shoreline, it is anticipated that the rock closure (structure #32) will be incorporated into this project. The project modification removed the marsh fill cell located behind the western shoreline.

Priority Gap Closures

It is recommended to fill the gaps noted along Bayou Mandeville adjacent to structure #13 and structure #50 as these gaps allow flow that does enter the marsh south of Big Mar to short-circuit back to Bayou Mandeville where the vast majority of diversion flow is already going. From past experiences regarding spoil bank repairs at the site, light weight rip rap is subject to vandalism in which unauthorized persons move rocks to clear a passage for navigation and earthen repairs tend to wash away when subjected to higher diversion flows, at least until they are well vegetated with

deep-rooted flora. Therefore, it is recommended that these gaps be closed with a larger class of rip rap that cannot be easily moved without specialized equipment.

In addition to the gaps at structure #13 and structure #50, there is also a gap adjacent to structure #52 and a low area by structure #60. A thorough investigation of the spoil bank along the D.P. Canal and the Reggio Canal should be conducted to determine if there are other gaps that may render repairs at #52 and #60 ineffective. Since the outfall project was designed to be effective at diversion flow of 2,000 cfs or less, it is recommended that such the spoil bank inspections be conducted during a period of approximately 2,000 cfs of diversion flow.

NRCS and CPRA will discuss with the landowner the feasibility of conducting a maintenance event in which repairs are made to gaps and breaches at structures #13 and #50, and, if deemed an effective course of action, additional repairs at structures #52 and #60 as well. A maintenance event to repair the gaps should be scheduled to occur during the approved period of the landowner's marsh management permit.

Flow meters

Flow meters were originally installed at structures #40, #26, and #54 to gage the effectiveness of these structures in allowing flow to the southwestern marsh area and to evaluate the need for dredging or making cuts downstream of the structures to improve their effectiveness in facilitating flow to those marsh areas. These flow meters were later used to monitor the effectiveness of the maintenance event in which the Delacroix Canal was dredged to improve flow to these structures.

In 2012, the flow meter at structure #26 was removed after the sensor was damaged. The decision was made to discontinue the flow monitoring at this site rather than to replace the damaged instrument.

Although the flow data collected since the initiation of this flow monitoring effort is sporadic due to storm damages and equipment malfunctions, the quantity of data collected to date should be sufficient to allow adequate evaluation of the performance of these structures such that the ongoing continuous monitoring of flows at these sites is no longer required. Therefore, it is recommended that the remaining two flow meters be removed until such time as changing site conditions warrant that they be placed back in service.

Structures

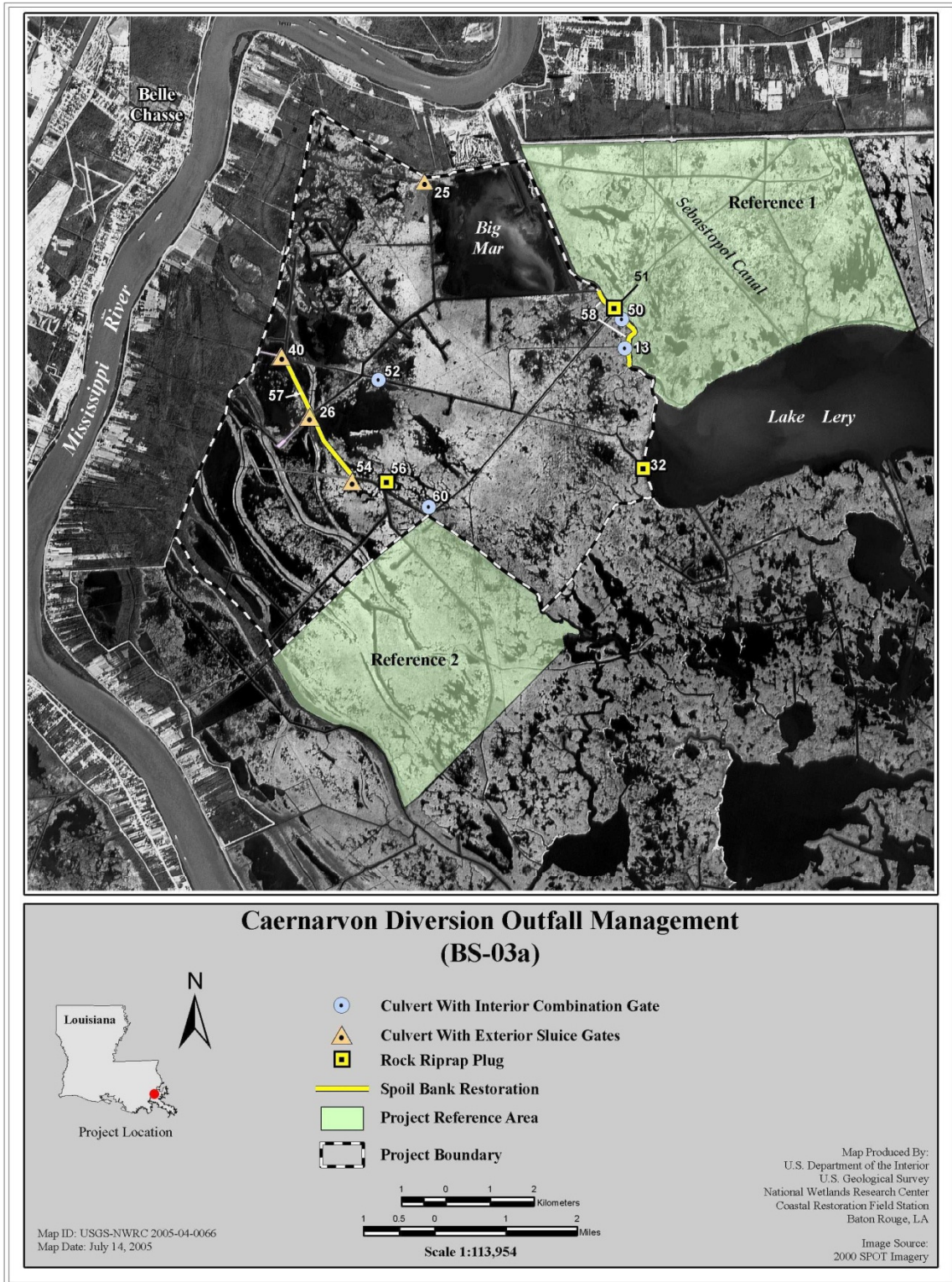
Another recommendation is to repair the decks at structures #13 and #50. The deck at structure #13 is not attached to the supports at one end, and the deck at structure #50 is bowed.

The warning sign at site #56 needs cleaning and the piling re-driven in an upright position.

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APPENDIX A

Project Features Map



APPENDIX B

Photographs



Photo No. 1, Site 13



Photo No. 2, Site 13



Photo No. 3, Site 13



Photo No. 4, Site 25 (pre-Isaac 2012)



Photo No. 5, Site 26



Photo No. 6, Site 26



Photo No. 7, Site 32 (2012 pre-Isaac)



Photo No. 8, Site 40



Photo No. 9, Site 40



Photo No. 10, Site 50



Photo No. 11, Site 50



Photo No. 12, Site 50



Photo No. 13, Site 51



Photo No. 14, Site 52



Photo No. 15, Site 52



Photo No. 16, Site 52



Photo No.17, Site 54



Photo No. 18, Site 54



Photo No. 19, Site 56



Photo No. 20, Site 60



Photo No. 21, Site 60



Photo No. 22, Site 60

Appendix C

Three-Year Operations & Maintenance Budgets

Caernarvon Outfall Management (BS-03a)																										
Federal Sponsor: NRCS																										
Construction Completed : September 10, 2002																										
																				OCPR Project Estimate	CWPPRA Allocated Money					
Current Approved O&M Budget	Year 0	Year - 1	Year -2	Year -3	Year -4	Year -5	Year -6	Year -7	Year -8	Year -9	Year -10	Year -11	Year -12	Year -13	Year -14	Year -15	Year -16	Year - 17	Year -18	Year -19	Project Life	Currently Funded				
June 2014	FY03	FY 04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	Budget	(Sum YR 0 to YR 19)				
State O&M	\$3,870	\$3,971	\$4,074	\$4,180	\$265,424	\$4,400	\$4,514	\$4,632	\$4,752	\$301,775	\$5,002	\$5,133	\$5,266	\$5,403	\$343,113	\$5,687	\$5,835	\$5,987	\$6,143	\$56,773	\$1,045,934	\$1,045,934				
Corps Admin																					\$0	\$0				
Federal S&A																					\$0	\$0				
Total																					\$1,045,934	\$1,045,934				
Projected O&M Expenditures																				Remaining Project Life	Current 3 year Request (FY15, 16, 17)					
Maintenance Inspection									\$4,752	\$4,876	\$5,002	\$5,133	\$5,266	\$5,403	\$5,543	\$5,687	\$5,835	\$5,987	\$6,143	\$6,302	\$46,166	\$16,212				
General Maintenance																					\$0	\$0				
Structure Operation									\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$400,000	\$150,000				
Federal S&A									\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$40,000	\$15,000				
State S&A									\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$80,000	\$30,000				
E&D									\$10,000												\$0	\$0				
Surveys									\$15,000												\$0	\$0				
Construction									\$265,000												\$0	\$0				
Construction Oversight									\$5,000												\$0	\$0				
Total					\$0	\$0	\$0	\$0	\$364,752	\$69,876	\$70,002	\$70,133	\$70,266	\$70,403	\$70,543	\$70,687	\$70,835	\$70,987	\$71,143	\$71,302	\$566,166	\$211,212				
Total O&M Expenditures from COE Report (Inception to present)				\$595,638.17	LanaReport June2014		Current O&M Budget less COE Admin						\$1,045,934				Current Project Life Budget less COE Admin				\$1,045,934					
State O&M Expenditures not submitted for in-kind credit				\$0			(State O&M Currently Funded + Fed S&A Currently Funded)										(State O&M Project Life Budget + Fed S&A Project Life Budget)									
Federal Sponsor MIPRs (if applicable) (REQUESTED MONEY)				\$0			Remaining Available O&M Budget						\$450,296				Total Projected Project Life Budget				\$1,161,804					
Total Estimated O&M Expenditures (as of June 2014)				\$595,638.17			(Current O&M - Total Est. O&M Expenditures)										(Remaining Project Life + Total Estimated O&M Expenditures)									
							Incremental Funding Request Amount FY15-FY17						\$ (239,083.83)				3 year surplus				Project Life Budget Request Amount				\$115,870	
							</																			

Appendix D

Field Inspection Form

2014 Annual Inspection Report
CAERNARVON OUTFALL MANAGEMENT
State Project No. BS-03a

FIELD INSPECTION CHECK SHEET								
Project No. / Name:	Caernarvon Outfall Management BS-03a			Date of Inspection:	6/16/2014	Time:	10:30 AM	
Structure No.	See Report Section III			Inspector(s):	OCPR: David Chambers, Peter Hoopkins, Erin Plitsch, Luke Prendergast NRCS: Loland Broussard, Doug Baker			
Structure Description:	See Report Section III			Water Level:	Marsh:	+0.8 NAVD88	River:	+6.50 NAVD88
Type of Inspection:	2014 Annual Inspection			Weather Conditions:	Cloudy and Warm, Wind Calm (0 cfs Diversion)			
Item	Condition	Physical Damage	Corrosion	Photo	Observations and Remarks			
CMP Culverts Earthen / Rock Embankment	Good	Minor	None	Appendix B	Culverts appear to be clear. Water surface elevations were 1-2 feet below the crest of the structures. Scale of scouring at tie-ins needs to be reviewed and level of severity determined. Breaches are present at sites #13, # 50, & #52.			
Water Control Gates	Good	None	Moderate	Appendix B	All water Control Gates appear to be in good condition. The O&M contractor has been reportedly lubricating, cleaning, and operating all gates on a scheduled basis. Gears on the gates are clean. Bolts holding gearbox to the gate structure are stainless steel.			
Rock Canal Closures	Good	See Remarks	N/A	Appendix B	The rock plug at structure #56 appears to have settled thus allowing overflows during diversion operation. Depth of settlement needs to be determined. From the notes of previous inspection reports: a small v-notch opening in structure #32 is present.			
Timber Piling at Culverts	Good	None	None	Appendix B	Structure #13 is listing as the timber piles settle unevenly. All other timber pilings are in good condition.			
Timber walkways at Culverts	Good	See Remarks	N/A	Appendix B	The timber support posts for the timber walkways settled excessively causing the 2x6 timber walkway to bend and twist. Minor monthly maintenance is requested. Minor damage consists of bowing deck boards.			
Spoilbank Restoration	Fair	Minor	N/A	Appendix B	Vegetation (grasses, shrubs, and trees) has flourished along the banks. Minor scouring is evident at shoreline/water surface interface. CPRA needs to check with Delacroix Corp on the conditions of their marsh management permit.			
Flow Meters	Good	None	N/A	Appendix B	Flow meters installed at structures No. 26, 40, and 54 were placed back online in 2011. Flow meter at structure #26 was removed due to damage and not replaced. The decision was made to remove the two remaining flow meters, since the data collected to date adequately details the flows through these structures.			

Appendix E

Annual Inspection Sign-In Sheet

