



Coastal Protection and Restoration Authority of Louisiana

Office of Coastal Protection and Restoration

2009/2010 Annual Inspection Report

for

BOSTON CANAL/VERMILION BAY SHORE RESTORATION PROJECT (TV-09)

State Project Number TV-09
Priority Project List 2

January 14, 2010
Vermilion Parish

Prepared by:

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I. Introduction

The Boston Canal/Vermilion Bay Shore Restoration Project consists of approximately 466 acres of brackish marsh and open water. It is located in Vermilion Parish, approximately 12 miles south of Delcambre, LA on the northern bank of Vermilion Bay and at the mouth of Boston Canal. It is bounded on the south by Vermilion Bay, on the west by Mud Point, and on the east by Oaks Canal. (See Appendix A).

The Boston Canal/Vermilion Bay Shore 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 second Priority Project List. The Boston Canal/Vermilion Bay Shore Restoration Project has a twenty year (20 year) economic life, which began in October 1995.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Boston Canal/Vermilion Bay Shore Restoration Project (TV-09) is to evaluate the constructed project features to 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, OCPR 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, 2002). 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.

An inspection of the Boston Canal/Vermilion Bay Shore Restoration Project (TV-09) was held on January 14, 2010 under sunny and cold temperatures. In attendance were Stan Aucoin, Mel Guidry and Darrell Pontiff of (OCPR). NRCS was represented by Loland Broussard. Parties met at the Lafayette Field Office of CED and proceeded to the TV-09 project area. The annual inspection began at approximately 10:55 am.

The field inspection included a complete visual inspection of all features. Staff gauge readings were used, when available, to determine approximate elevations of water, rock dikes, earthen embankments, 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 deficiencies (see Appendix D).

III. Project Description and History

The Boston Canal Project involves the installation and maintenance of approximately 1,405 linear feet of foreshore rock dike along the northern bank of Vermilion Bay and both east and

west banks of Boston Canal at its convergence with Vermilion Bay. Also included is the installation of approximately 34,000 plantings of smooth cordgrass (~14 miles) along the northern bank of Vermilion Bay between Mud Point and Oaks Canal. The purpose of the project is to maintain the integrity of approximately 466 acres of wetlands in the vicinity of Boston Canal by stabilizing the northern bank of the Vermilion Bay shoreline and to prevent further regression of the banks at the mouth of Boston Canal.

The principal project features include:

- 1 - Approximately 1,405 linear feet of rock breakwater on the northern bank Vermilion Bay at the mouth of the Boston Canal in Vermilion Parish
- 2 - Approximately 1100 linear feet of sediment fencing which consists of all lumber, hardware and woven geotextile fabric.
- 3 - Approximately 34,000 smooth cord grass plants planted between Mud Point and Oaks Canal along the northern bank of Vermilion Bay.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since October 1995, the construction completion date of the Boston Canal/Vermilion Bay Shore Protection Project.

Maintenance Project – Loland Broussard: This maintenance project included the modification of the sediment trapping fences constructed behind the rock dikes by Loland Broussard of NRCS in concurrence with LDNR and at no cost to CWPPRA on March 7, 2002. Modification of the fences involved cutting the geotextile panels from the top of the fence down to approx. 6" below the mud line (~ 30") and removing the panel. The 4x4 wooden posts were not disturbed and left intact. The reinforcement wire behind each panel was severely deteriorated and virtually non-existent. The southern most fences were preventing sediment from filling the entire area behind the dikes. Since the fences have been removed, sediment has been more evenly distributed. Vegetation continues to increase.

Structure Operations: There are no operations associated with this project.

V. Inspection Results

Rock Dikes

For the most part, the rock dikes are in excellent post construction condition. The water was extremely low at the time of the inspection and there is no apparent toe scour or rock displacement. The western end of the dike where it ties into the Vermilion Bay shoreline has

not significantly worsened. A small gap left during original construction appears to have caused this problem. While the situation is similar on the SE tie-in, it is not as severe. No gap was left on this end during construction. Recommendations made to repair these gaps during the O & M inspection of June 2003 have been reconsidered due to costs and logistics associated with such repairs. These areas have been and will continue to be closely monitored, and should the situation significantly worsen, steps will be taken to close/stabilize these areas. Signage and associated pilings are stable and functioning. (Photos: Appendix B, Photos 1 - 3)

Sediment Fencing

The sediment fencing has been removed as stated in Section IV above.

Smooth Cordgrass plantings

The shoreline plantings were not directly inspected on this trip due to time and wave constraints. All vegetation in the area adjacent to the mouth of the Boston Canal, including the vegetation behind the rock dikes, is in good condition. (Photos: Appendix B, Photo 4)

A separate field trip to inspect the shoreline was conducted by NRCS and OCPR on April 14, 2010. The following report was prepared by Cindy Steyer with NRCS:

Field Trip Report

To: Britt Paul, ASTC/WR, NRCS, Alexandria, LA
Brad Sticker, SCE, NRCS, Alexandria, LA

From: Cindy S. Steyer, CVS, NRCS Baton Rouge, LA

Subject: TV-9 Boston Canal Shoreline Planting Component – General Condition Check

Date: December 8, 2010

cc: Loland Broussard, CS, NRCS, Lafayette, LA
Christine Thibodaux, Monitoring Mgr, OCPR, Lafayette

In addition to rock dikes constructed at the mouth of Boston Canal, the TV-9 vegetative shoreline planting of smooth cordgrass (*Spartina alterniflora*) was installed along approximately 13.25 miles of the northern shoreline of Vermilion Bay in 1995. The goal of this project component was to reduce the rate of shoreline loss by 50%. The latest shoreline change analysis from OCPR is not yet available however indications are that the shoreline has remained relatively stable overall. In earlier years, indications were that the shoreline actually prograded in some stretches, and the smooth cordgrass planting had developed into a continuous vegetative band that was effectively buffering the shoreline from the wave energy generated across the long fetch of Vermilion Bay. In some areas, even where the shoreline was a cut-bank configuration when planted, it was found that the smooth cordgrass buffer had become well established and appeared to be accreting sediment and forming a more gently sloping shoreline. However three severe hurricanes – Lili, Rita and Ike –impacted the area since 2002 causing some loss in some areas. After the first few years, monitoring specifically of the shoreline planting per se was discontinued because the plantings had been found to have expanded into the desired ‘hedge’ and the individual plants were no longer distinguishable. Shoreline monitoring since then consisted of change analysis using GPS data collected along the shoreline at intervals.

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Since the project planting was performing beneficially through the project life but recently sporadic observations indicated that some losses had occurred, it was felt that an assessment should be made to determine if, and how much, replacement plantings should be conducted as an O & M activity. On April 14, 2010, Loland Broussard, Christine Thibodaux, OCPR monitoring manager, and I conducted a rapid surveillance of the entire 13.25-mile vegetative shoreline planting of smooth cordgrass (*Spartina alterniflora*) to determine its current condition. The following is a description of findings regarding the TV-9 Planting Component.

TV-9 Boston Canal Project Field Trip – Shoreline Planting Check

April 14 2010 – Waypoints & Photos – Moving east, from Oaks Canal, to west, Mud Point:

Water level was higher than usual due to sustained southerly winds with very choppy bay conditions and waves impacting the shoreline.

WP325 – @ Oaks Canal

WP326 – @ Point Champlain

WP327 – small break in smooth cordgrass community along shoreline

From Oaks Canal to WP328 (approx. 27,500 lf), the smooth cordgrass buffer was found to be generally continuous along the shoreline, fronting the roseau, big cordgrass or other marsh species, with only a few very small breaks. Also, for the most part, the monitoring posts that were still present were on or very near the shoreline after 15 years and three severe hurricanes:









An example of the occasional small breaks seen in the smooth cordgrass buffer in this stretch:



Then buffer resumes:



This shoreline is obviously subject to high wave energy:









WP328 – start of a large break in the smooth cordgrass community along shoreline

WP329 – end of break in smooth cordgrass community along shoreline (approx. 1,100 lf)

WP330 – start of stretch of higher erosion & lack of smooth cordgr – just east of Boston Canal.

WP331 – @ west side of mouth of Boston Canal – smooth cordgrass veg buffer missing (approx. 1,450 lf)

Typical shoreline between WP328 & WP329 and WP330 & WP331 where no buffer exists:



WP332 – @ west side of mouth of Boston Canal – salinity 8.6ppt; begin just small stretches or clumps of smooth cordgrass buffer left in this reach;

WP333 – end of breaks in smooth cordgrass veg buffer (breaks total approx. 3,300 lf):



WP334 – Roseau and shell only at this site (approx 350 lf):

WP335 – east of pipeline crossing – a good bit of smooth cordgrass missing for a stretch

WP336 – lots of shell in this area with a lot of smooth cordgrass veg missing (between WP335 & WP 336
probably would need to replant 50% of approx 2,500 lf)

WP337 – gap in smooth cordgrass veg (approx 500 lf)

Examples of where mainly shell & Roseau are present where smooth cordgrass is missing:



Example of where smooth cordgrass buffer remains between breaks:



WP338 – start of a long extent of missing veg buffer with some smooth cordgrass present in just small clusters;
more posts were found off of the shoreline along here.
From WP338 to WP340 (probably need to replant 75% of 870 lf):



WP339 – shoreline with small clusters of smooth cordgrass continues:



WP340 – end of break in smooth cordgrass community along shoreline;
WP341 – more trees present along the shoreline in this area with big gaps in smooth cordgrass community along shoreline (approx 450 lf – end of old canal plug):



WP342 – another big gap in smooth cordgrass community along shoreline east and west of an existing pipeline crossing (probably need to replant 50% of 2,200 lf here)
WP343 – start of another stretch with smooth cordgrass community starting and stopping along shoreline
WP344 – end of the stretch with interrupted coverage –waypoint a little bit west of actual end (probably need to replant 50% of 1,700 lf between WP343 and WP344)



WP345 – interrupted coverage starts again
WP346 – end of stretch with interrupted coverage (need to replant approx. 50% of 1,625 lf here)
WP347 – large bare shell area east of 4-Mile Cutoff, aka Vermilion River Cutoff (approx 500 lf):



WP348 – west side of 4-Mile Cutoff, gap in smooth cordgrass initially then buffer resumes:



WP349 – large gap in smooth cordgrass buffer, lots of reworked shell present along here:





Between the west side of the 4-mile Cut and WP349, have three or four spots ranging from 100 to 200 LF that need replanting – estimate approx 500 lf needing replanting.



WP350 – start of a gap in smooth cordgrass veg buffer

WP351 – start of smooth cordgrass veg again (approx 1,900 lf requiring replanting):



WP352 – start of a gap in smooth cordgrass veg buffer to end (approx 500 lf requiring replanting to the end of the project shoreline).

WP355 – West end of project – smooth cordgrass buffer resumes toward the NE along north side of peninsula.

WP356 – 4-Mile Cut: Staff gauge reading +2ft, salinity 7.8ppt.

Overall, we found that the smooth cordgrass had formed a continuous vegetative buffer for the most part along the eastern half of project shoreline, which fared better than the western half, where at various points the smooth cordgrass buffer stopped and started along several long stretches of the shoreline, or were found to be completely missing. It is roughly estimated that an approximate equivalent of 16,000 to 16,500 linear feet (approx 3 miles) of shoreline would require replanting as an O&M activity. This would equate to approximately 7,000 to 10,000 trade gallon transplants at approx cost of \$56,000 to 80,000.

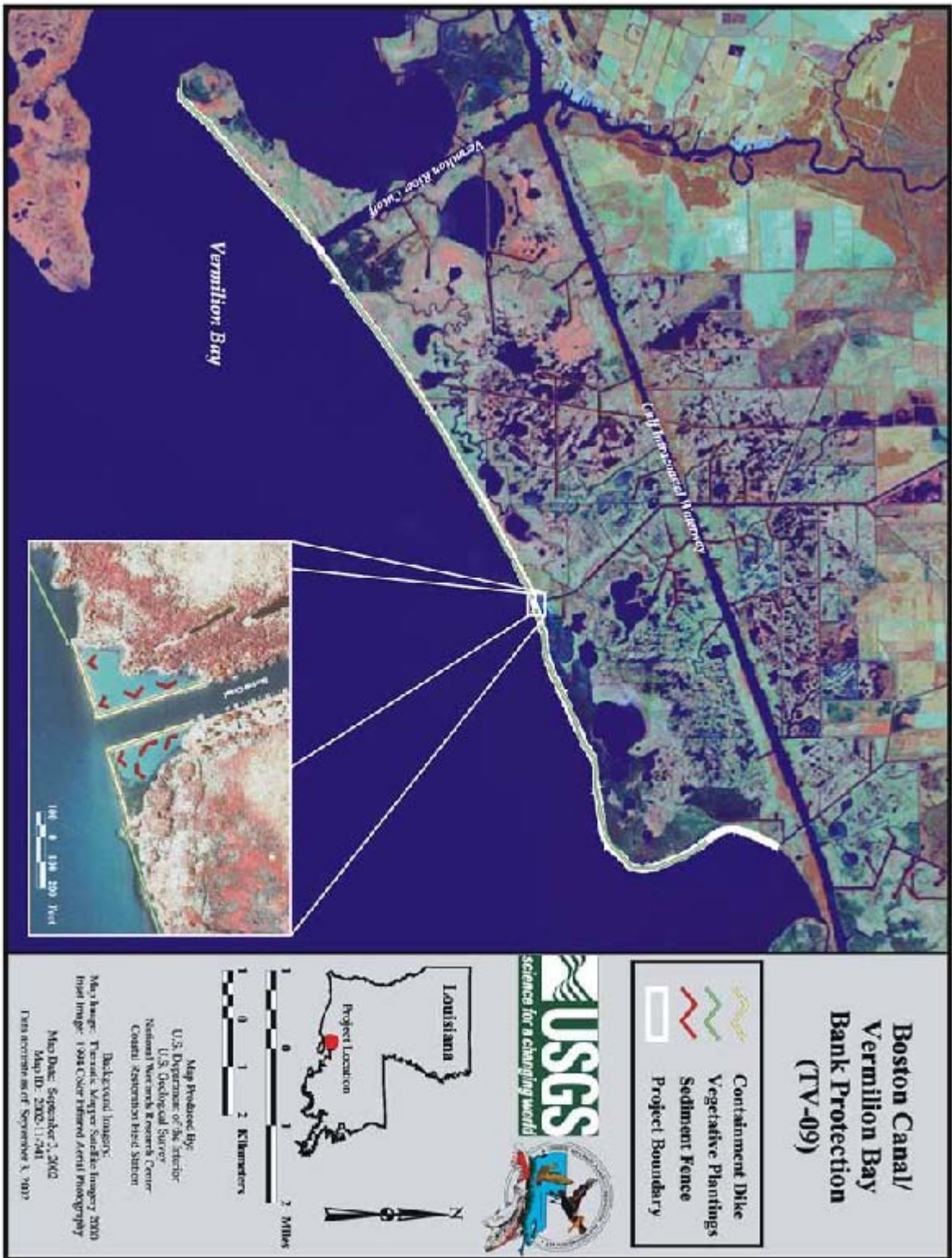
Five years remain in the TV-9 project life. Therefore, I recommend replanting most bare areas, as the general performance of the planting component over the past 15 years has been very successful, and the shoreline appears to be very stable with little to no loss where the smooth cordgrass buffer remains intact.

VI. Conclusions and Recommendations

The Boston Canal/Vermilion Bay Shore Restoration Project is in good condition and functioning as intended. Installation of a staff gauge in the vicinity is recommended. Maintenance items to be addressed in CY 2010:

- Install staff gauge

Appendix A
Project Features Map



Appendix B

Photographs



Photo No. 1, View of Boston Canal at the bay shore looking north



Photo No. 2, Close up view of the rock dike and vegetation behind the dike



Photo No. 3, View of western rock dike



Photo No. 4, Typical view of vegetative plantings along the bay shore

Appendix C

Three Year Budget Projection

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BOSTON CANAL/ TV-09 / PPL 2
Three-Year Operations & Maintenance Budgets 07/01/2010 - 06/30/2013

<u>Project Manager</u>	<u>O & M Manager</u>	<u>Federal Sponsor</u>	<u>Prepared By</u>
Pat Landry	Mel Guidry	NRCS	Mel Guidry

	2010/2011	2011/2012	2012/2013
Maintenance Inspection	\$ 5,909.00	\$ 6,086.00	\$ 6,269.00
Structure Operation			
Administration		\$ -	\$ -

Maintenance/Rehabilitation

10/11 Description: Install staff gage

E&D	
Construction	\$7,500.00
Construction Oversight	
Sub Total - Maint. And Rehab.	\$ 7,500.00

11/12 Description

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

12/13 Description:

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

	2010/2011	2011/2012	2012/2013
Total O&M Budgets	\$ 13,409.00	\$ 6,086.00	\$ 6,269.00

O & M Budget (3 yr Total)	\$ 25,764.00
Unexpended O & M Budget	\$ 144,534.00
Remaining O & M Budget (Projected)	\$ 118,770.00

Appendix D

Field Inspection Form

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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: Boston Canal/Vermilion Bay Bank Protection

Date of Inspection: January 14, 2010 Time: 10:55 a.m.

Structure No.

Inspector(s): Stan Aucoin, Darrell Pontiff, Mel Guidry (OCPR)
 Loland Broussard (NRCS)

Structure Description: Rock Dike

Water Level Inside: _____ Outside: _____

Type of Inspection: Annual

Weather Conditions: sunny and cold temperatures

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Cables	N/A				
Signage / Supports	Good				
Rock Dike	Excellent			3-Jan	Southeast and southwest tie-ins not significantly worse. Will be monitored.
Vegetative Plantings	N/A			4-Jan	Not directly inspected on this trip.

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