rev. April 2007
Cost figures as of: March 2013

Shoreline Protection Foundation Improvements Demonstration (LA-06)

Project Status

Approved Date: 2004 **Project Area:** N/A
Approved Funds: $1.05 M **Total Est. Cost:** $1.05 M
Net Benefit After 20 Years: N/A
Status: Constructed
Project Type: Demonstration: Shoreline Protection
PPL #: 13

Location

The project is located along the southern shoreline of White Lake, from Will's Point to the western shore of Bear Lake, north of Pecan Island in Vermilion Parish, Louisiana.

Problems

Poor soil conditions in coastal Louisiana limit the cost effectiveness of shoreline protection dikes because of higher consolidation and settlement rates. This results in frequent and expensive project maintenance.

Restoration Strategy

The goal of this project is to investigate foundation improvement methods to reduce rock dike settlement. Shoreline protection in some areas is currently challenged in terms of cost effectiveness over a 20-year project life cycle because of poor soil conditions. The objective is to determine if a sand base can improve rock dike-bearing capacity and consolidation settlement design tolerance.

The demonstration project consists of over 5,400 linear feet of dike and will include two replicates of the test design. The test design will include two different foundation improvement treatments and a control. Each replicate will include three 900-linear-foot sample sections as follows: a control section consisting of unimproved dike; an improved section consisting of a sand foundation that would displace soft near-surface material; and an improved section consisting of a sand foundation with soft near-surface material removed via dredging. Each sample section is instrumented with four sets each of crown, front, and rear settlement plates, inclinometers, and extensometers at approximately 180-foot intervals, which will be monitored, recorded, and analyzed to determine the effects of the foundation improvements. Geotechnical borings were taken at each of the six sample sections during construction to more accurately determine underlying soil conditions.

Progress to Date

The Louisiana Coastal Wetlands Conservation and Restoration Task Force approved funding for this demonstration project at the January 2004 meeting and gave their approval to begin construction at their October 2004 meeting. Construction was completed on August 30, 2006.

Placement of sand foundation on geotextile in demonstration project reaches will test the benefits of improving native substrate. Metal pipes with settlement plates and other instrument clusters enclosed in white PVC pipe will be monitored for five years to determine the effects of the improved foundation on construction settlement and long term consolidation compared to control sections constructed on native substrate.

Another CWPPRA project, the South White Lake Shoreline Protection project (ME-22), has been selected as the host project for conducting this demonstration because it provides an environment where soil conditions are poor to very poor, the wave climate is harsh, and wetland loss is high. The demonstration is situated along Reach 5 of ME-22, which begins approximately six miles west from Will's Point and extends west along the shoreline for a maximum distance of approximately 15,200 linear feet.

This demonstration project is expected to provide more effective and economical methods for designing and constructing shoreline protection in areas that are currently not considered for shoreline protection because of their substrate limitations.

This project is on Priority Project List 13.

For more project information, please contact:

Federal Sponsor:
U.S. Army Corps of Engineers
New Orleans, LA
(504) 862-1597

Local Sponsor:
Coastal Protection and Restoration Authority
Baton Rouge, LA
(225) 342-4736

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Project Boundary

USGS
science for a changing world

N

0.25 0 0.25 0.5 Miles

0.3 0 0.3 0.6 Kilometers

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: June 23, 2004
Map ID: USGS-NWRC 2004-11-0385
Data accurate as of: January 7, 2005