Coast 2050 Region 4

CAMERON PRAIRIE REFUGE PROTECTION (ME-09)
ME-09-MSPR-0297-3
PROGRESS REPORT No. 3
for the period
August 3, 1994 to June 13, 1997

Project Status

No additional data have been collected since the previous progress report.

Project Description

The Cameron Prairie Refuge Protection project is located in north-central Cameron Parish within the Cameron Prairie National Wildlife Refuge (figure 1) and encompasses 350 acres of highly organic freshwater wetlands (U.S. Fish and Wildlife Service 1991). The Gulf Intracoastal Waterway (GIWW) borders the project area to the south and threatens to breach into the refuge. Wave action caused by boat traffic within the GIWW has eroded most of the spoil banks that protect the refuge, allowing the high-energy and salinity waters of the GIWW to enter the project area. The resulting wave energy and saltwater intrusion destroys the fragile interior freshwater wetlands (Cameron Prairie National Wildlife Refuge 1991). In August 1994, a 13,200-ft rock breakwater was constructed 0-50 ft from (and parallel to) the northern bank of the GIWW in 3 to 4 ft of water. The purpose of the breakwater was to prevent the encroachment of the GIWW into the project area by preventing the waves caused by boat traffic from overtopping and eroding the remaining spoil bank.

Monitoring Design

In order to document shoreline movement, a Global Positioning System (GPS) survey will be conducted. The survey will map the position of the rock breakwater, the vegetated marsh edge behind the breakwater, and the shoreline of the reference area located 1 mi east and west of the breakwater. An as-built survey will be conducted, and surveys every 3 years thereafter to map shoreline position and shoreline changes over time. Shoreline positions will be compared to historical data sets available in digital format from 1956, 1978, and 1988.

Near-vertical color-infrared aerial photography (1:12,000 scale) will be obtained once prior to construction of the breakwaters and three times after construction in years 2, 5, and a later date to be determined. The photography will be used to document changes in marsh loss rates over time.

Results/Discussion

On July 20, 1994, the first survey of the rock breakwater using GPS equipment was conducted. The survey mapped the position of the rock breakwater, the shoreline behind the breakwater, and the shoreline of the reference area. The completed survey was georectified by the National Wetlands Research Center (NWRC) and will be compared to future GPS data sets to facilitate interpretation and evaluation of project effectiveness.

Color-infrared aerial photography for the preconstruction phase of the project was flown on November 1, 1993. The aerial photography has been georectified and ground truthed by the NWRC. Wetland gain/loss rates within the project area will be determined once the first set of postconstruction photography is flown in 1997.

Although not required by the monitoring plan, an elevation survey of the breakwater was completed in March 1995 to measure sediment deposition behind the breakwater and the relative position of the shoreline. Thirteen cross-sections were taken every 1,000 ft along the entire breakwater. Each cross-section consisted of elevations taken every 10 ft from approximately 40 ft behind the vegetated marsh edge to approximately 100 ft past the center line of the rock breakwater. The location of the cross-sections and a typical elevational profile is provided in figure 2. A completed set of the elevation survey data is located in the Louisiana Department of Natural Resources Abbeville field office. The baseline survey data will be compared to future data sets for interpretation and evaluation of breakwater performance in maintaining the original shoreline.

References

U.S. Fish and Wildlife Service 1991. Cameron Prairie National Wildlife Refuge Erosion Protection and Marsh Management Design Memorandum. Gibbstown, Louisiana: U.S. Fish and Wildlife Service Cameron Prairie National Wildlife Refuge. 7 pp.

Cameron Prairie National Wildlife Refuge 1991. Project information fact sheet. Gibbstown, Louisiana: U.S. Fish and Wildlife Service, Cameron Prairie National Wildlife Refuge. 7 pp.

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Construction Start:	January 31, 1994	
Construction End:	August 3, 1994	

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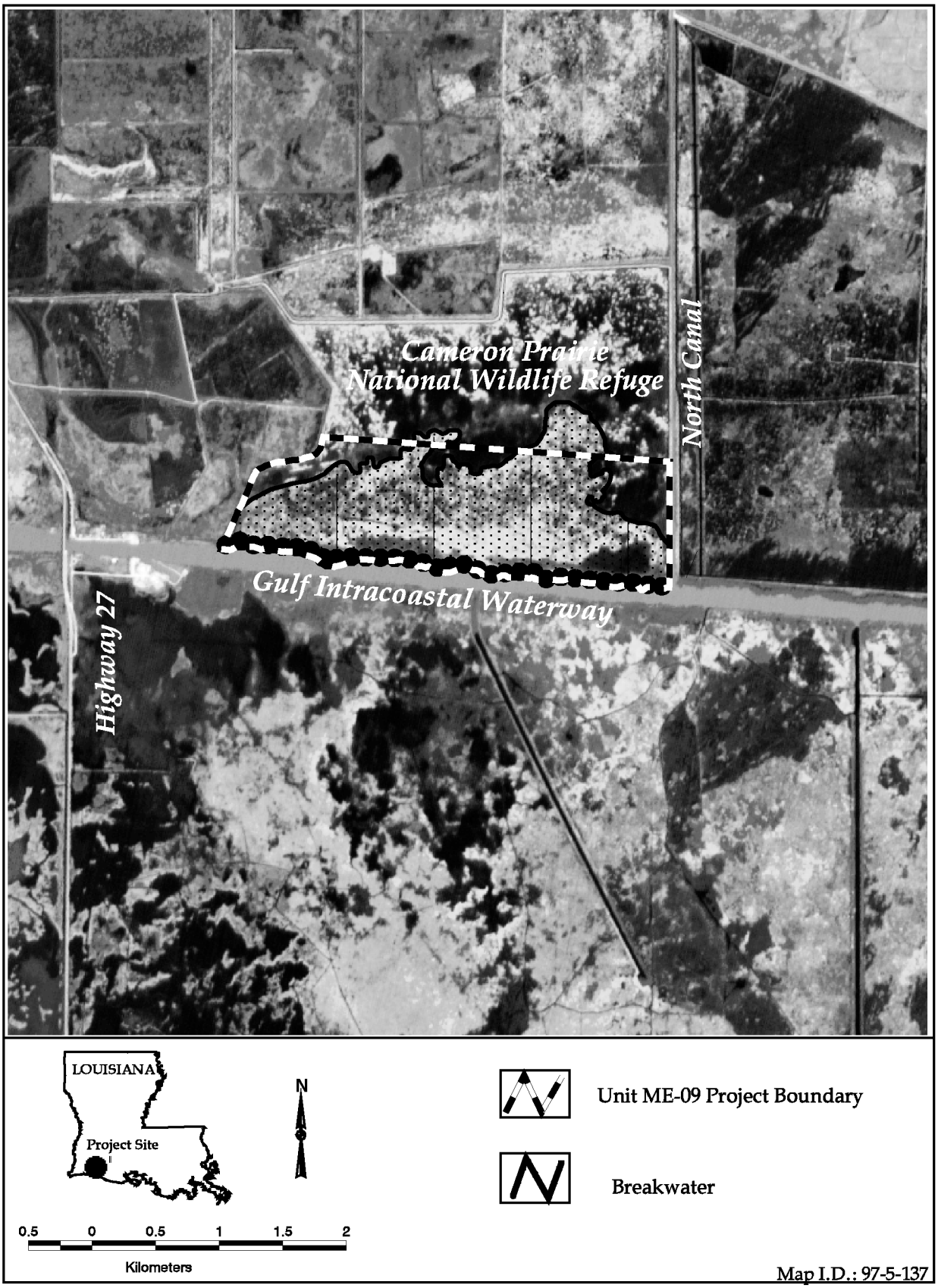

Figure 1. Cameron Prairie Refuge project location and features.

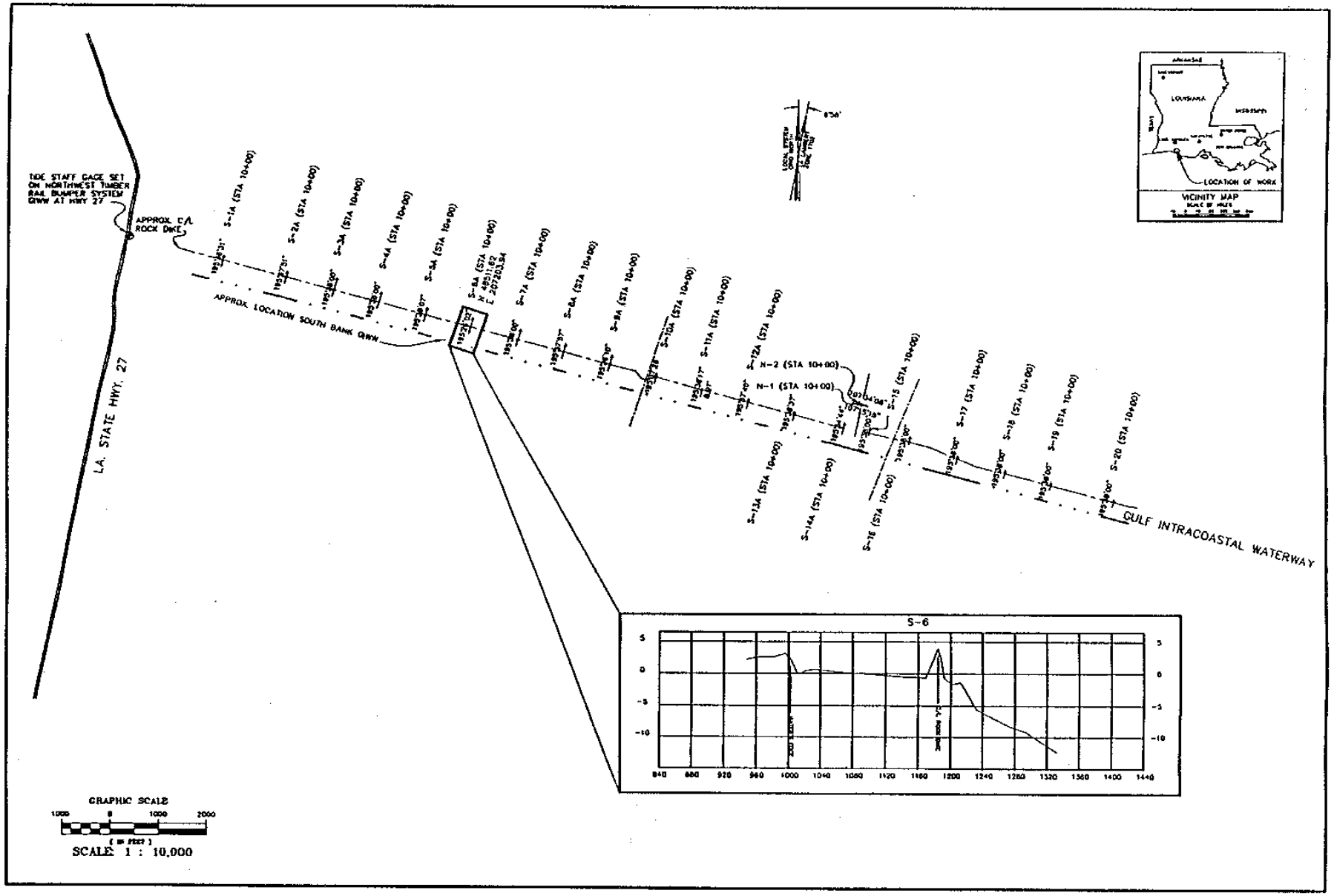

Figure 2. Cross-sectional survey locations with a typical elevational profile