Coast 2050 Region 4

SABINE REFUGE PROTECTION (C/S-18)
C/S-18-MSPR-0197-4
PROGRESS REPORT NO. 4
for the period
January 27, 1995 to January 27, 1997

Project Status

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

Project Description

Impoundment No. 3 (figure 1) at Sabine National Wildlife Refuge in Cameron Parish, Louisiana, includes approximately 27,000 acres of freshwater wetlands that depend almost exclusively on precipitation as the source of fresh water. The tidally connected canals surrounding the impoundment hold brackish water, which would negatively impact the freshwater wetlands and fishery in Impoundment 3 if a breach developed in the impoundment levee. The west levee of Impoundment 3 also forms the east spoil bank along the Burton-Sutton Canal, which is used by barges and boats to reach two oil and gas fields located on the refuge south of Impoundment 3. Bank erosion along this canal, along with deterioration resulting from weathering of the spoil bank over time, prompted the need to protect this levee from further deterioration.

The Sabine Refuge Protection (C/S-18) project (figure 1) was designed to prevent further erosion of the Impoundment No. 3 west levee, and protect the existing freshwater wetlands from saltwater intrusion. The specific goals of the project are to restore and protect the west levee of the impoundment using dredged material and a free-standing rock dike, and to protect the existing freshwater vegetation within Impoundment No. 3 from saltwater intrusion via the Burton-Sutton Canal.

Construction of approximately 5.5 linear mi of free-standing, continuous rock dike along the east bank of the Burton-Sutton Canal (which forms the west bank of the impoundment) was completed in January 1995 (figure 1).

Monitoring Design

Color-infrared aerial photographs (1:24,000 scale) taken once preconstruction and twice postconstruction during years 3 and 18, will be ground-truthed to document changes in the acreage of vegetated and nonvegetated areas. This will be used to monitor changes in vegetation types and abundance within the impoundment, and in a reference area located west of the impoundment.

To document shoreline movement, shoreline markers denoting the vegetated marsh edge were established at 1000-ft intervals along the east bank of the Burton-Sutton Canal adjacent to the northernmost, central, and southernmost miles of the rock dike. Shoreline markers were also established along the west bank of the canal adjacent to the reference area (figure 2). Shoreline position relative to the shoreline markers will be monitored by direct measurement at 3-yr intervals.

Results/Discussion

Habitat Mapping: The preconstruction color-infrared aerial photographs (1:24,000 scale) were taken in November 1993. These have been scanned in, written to CD ROM, photomosaicked, and georectified using Global Positioning System (GPS) field data points by NWRC personnel. Additional color-infrared aerial photography is scheduled to be taken postconstruction, in the fall of years 1998 and 2013. Analyses of vegetation changes will occur after the first postconstruction aerial survey.

Shoreline Markers: During August 1995, Professional Engineering and Environmental Consultants of New Orleans completed a shoreline and cross-sectional survey of the Burton-Sutton Canal. This baseline survey data will be compared to future data sets to evaluate project success. Representative plan view and channel cross-sectional drawings from the survey are provided as examples in figures 2 and 3. The survey will be repeated in 1998.

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Construction Start:	December 1, 1994	
Construction End:	January 27, 1995	

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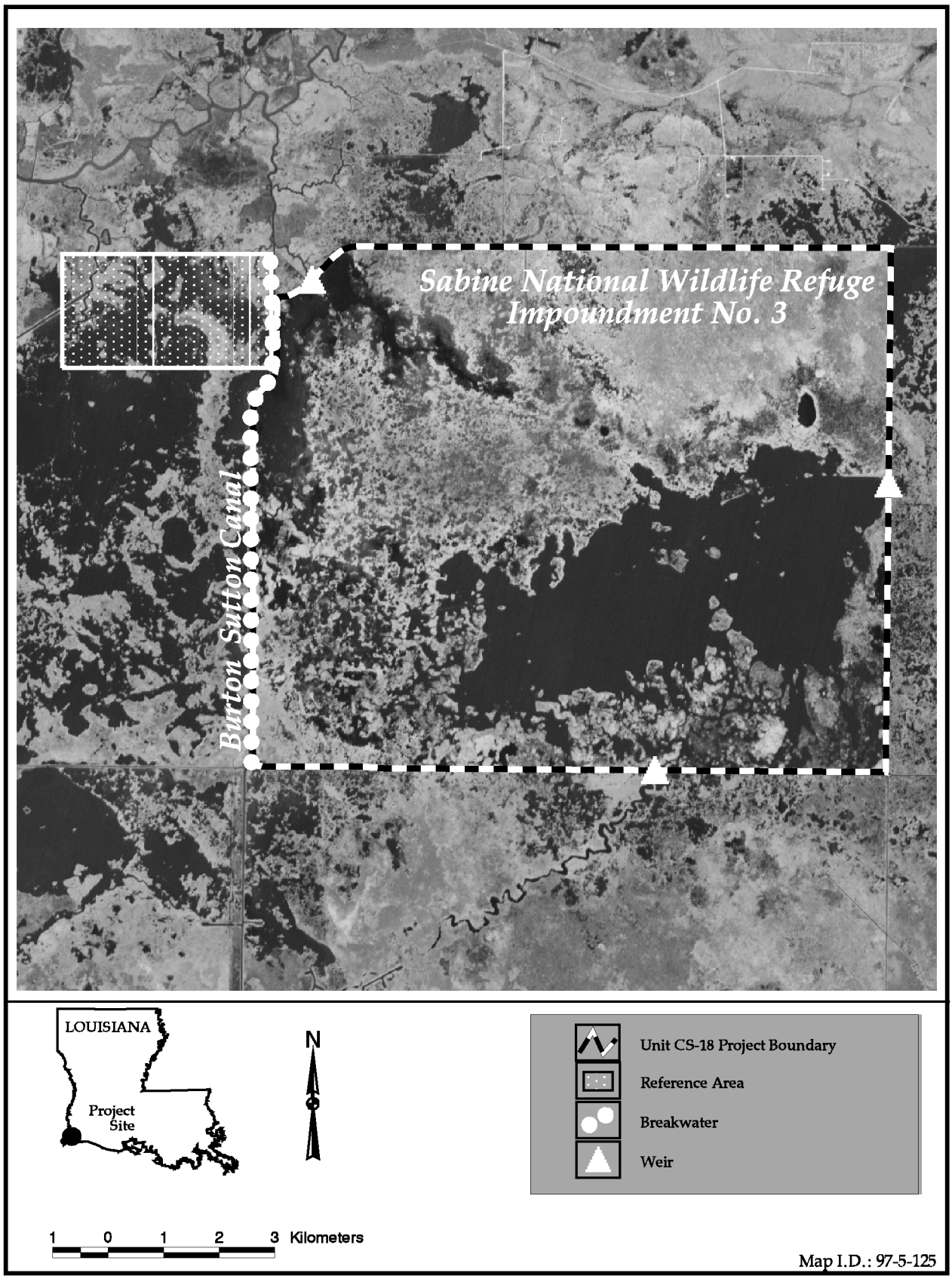

Figure 1. Sabine Refuge Protection (C/S-18) project area map.

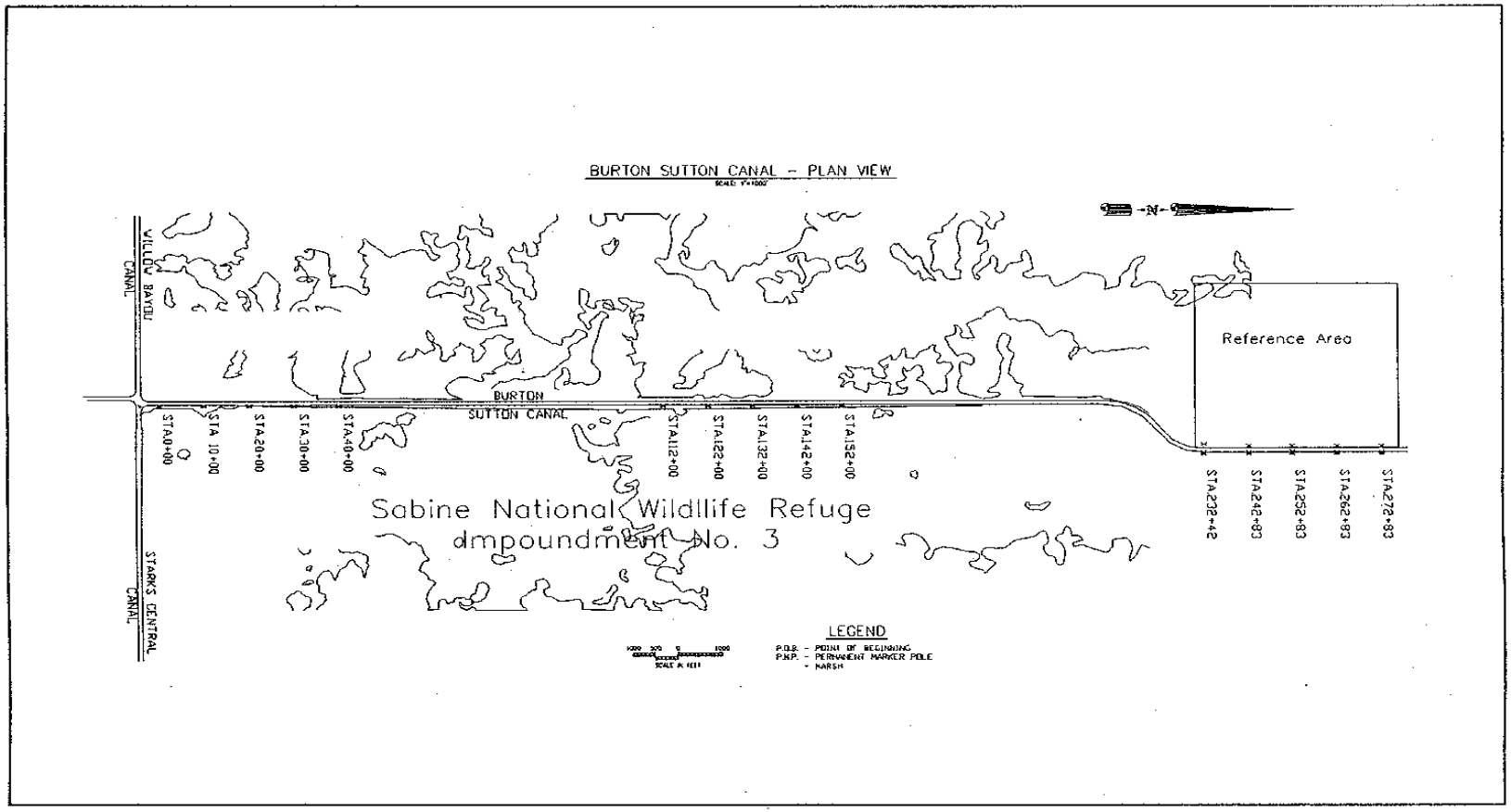

Figure 2. Plan view of the Sabine Refuge Protection (C/S-18) project rock dike along the Burton-Sutton Canal showing the location of the survey cross sections estblished to monitor shoreline movement.

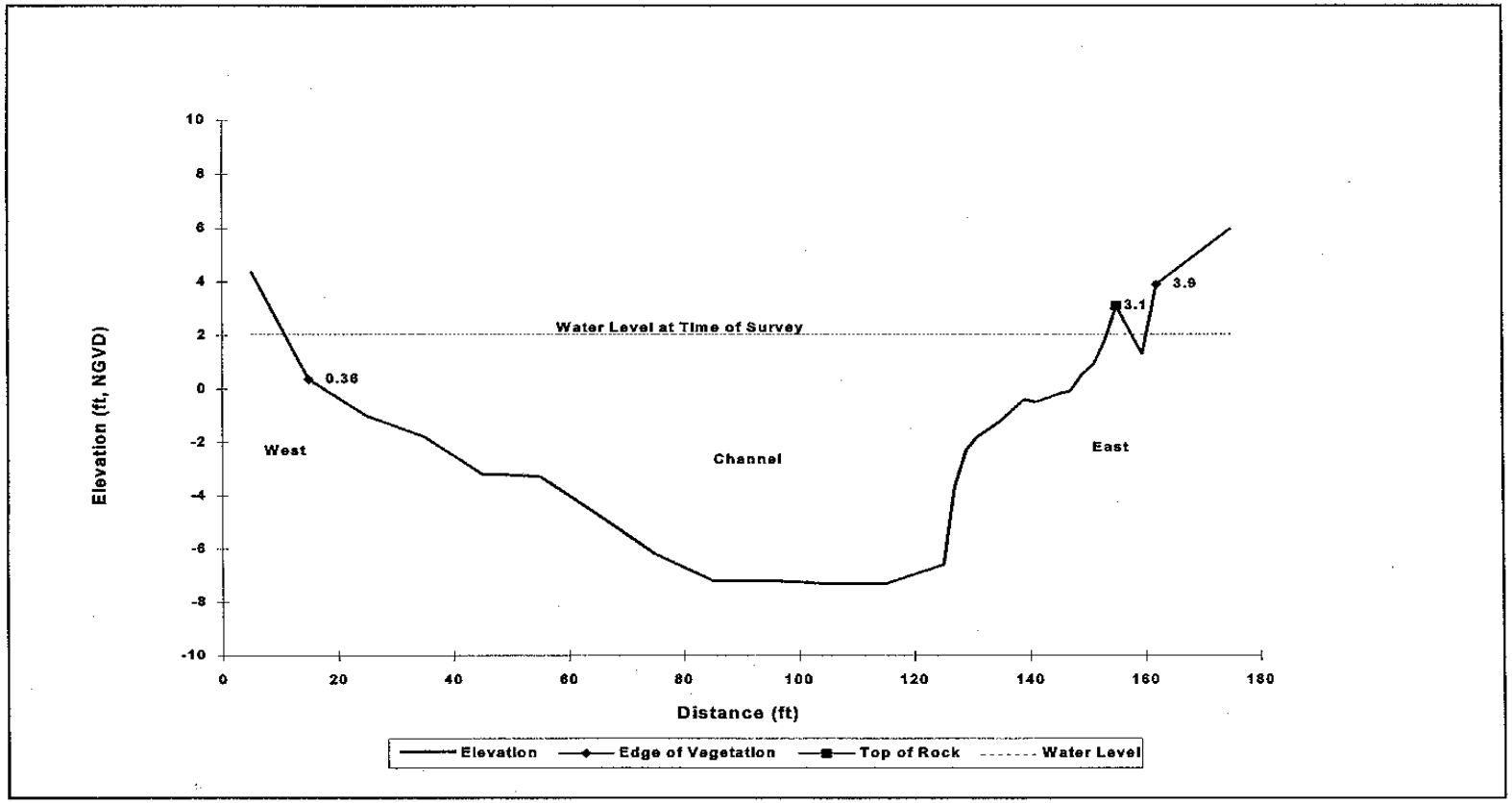

Figure 3. Cross-sectional view of the Burton-Sutton Canal at Station 272+83 on the west side of Impoundment No. 3 at Sabine National Wildlife Refuge, showing channel profile, locations of the vegetative edge, the Sabine Refuge Protection (C/S-18) project rock dike, and the water level at the time of the survey in October 1995.