BOSTON CANAL /VERMILION BAY SHORELINE PROTECTION (T/V-09)
T/V-09-MSPR-1295-1
PROGRESS REPORT NO. 1
for the period
November 1, 1994 to December 04, 1995

Project Description/Status:

The Boston Canal/Vermilion Bay Shoreline Stabilization Project was designed to evaluate the ability of a rock breakwater and vegetative plantings to abate wind-driven wave erosion along Vermilion Bay and at the mouth of Boston Canal, located in Vermilion Parish approximately 12 miles south of Delcambre, Louisiana (figure 1). In December 1994, rock bulkheads were constructed parallel to the banks of Boston Canal, extending into Vermilion Bay and then turning 90^{o} to follow the bay shoreline. Behind the breakwaters, sediment fences designed to capture sediment during overwash were installed. In October 1995, approximately 34,000 trade gallon-size plantings of smooth cordgrass (*Spartina alterniflora*) were planted along approximately 14 miles of bay shoreline from Mud Point on the western end, to Oaks Canal on the eastern end.

The project objectives are to maintain the integrity of approximately 466 acres of wetlands between Mud Point and Oaks Canal, to stabilize 14.3 miles of the Vermilion Bay shoreline, and to prevent further regression of the banks at the mouth of Boston Canal. The specific goals are to decrease the rate of shoreline erosion at the confluence of Boston Canal and Vermilion Bay by armoring the mouth of the canal with rock bulkheads, to increase the deposition of sediment adjacent to sediment-trapping fences behind the bulkhead, and to decrease the rate of shoreline erosion and maintain the integrity of approximately 466 acres of shoreline and interior marsh on the northern edge of Vermilion Bay by establishing *Spartina alterniflora* along the shoreline.

Monitoring Design

Sediment deposition behind the breakwater will be monitored along 5 east-west transects and 6 north-south transects once preconstruction and at years 8 and 16 to document the accumulation or erosion of sediments in the vicinity of the sediment-trapping fences. To document planting success, the planting area was divided into four land types, based on topography. A 3% sample of the vegetative plantings in each land type, consisting of 66 randomly selected plots of 16 plants each, will be monitored for percent survival, species composition, and percent cover at 6 months, and at

years 1, 3, 8, and 16. Continuous differential GPS coordinates will be established at the mean high water line along the existing shoreline adjacent to vegetative plantings in the project area and at a reference site located east of Avery Canal once preconstruction and at years 3 and 16 to document changes in shoreline position over time.

Results/Discussion

Rock breakwater: In October 1994, preconstruction elevational transects were surveyed across the rock breakwaters (figure 2). Comparison with data from an additional survey conducted in May 1995 revealed that up to 4.5 ft of sediment has been deposited between the breakwaters and the existing shoreline (figures 3 and 4). The exposed mudflats are being colonized by Walter's millet (*Echinochloa walterii)* and Coast water hyssop (*Bacopa monnieri)*. Observations to date suggest that the rock breakwaters have been highly effective in promoting and retaining sediment deposition at the mouth of Boston Canal.

Vegetative Plantings: Installation and final inspection of *Spartina alterniflora* plantings was completed October 8, 1995. Initial monitoring is scheduled for December 4-7. Results from this data will be discussed in the next Monitoring Progress Report.

Prepared on October 17, 1995, by Dona Weifenbach.

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Construction Start:	July 1, 1994	
Construction End:	October 4, 1995	

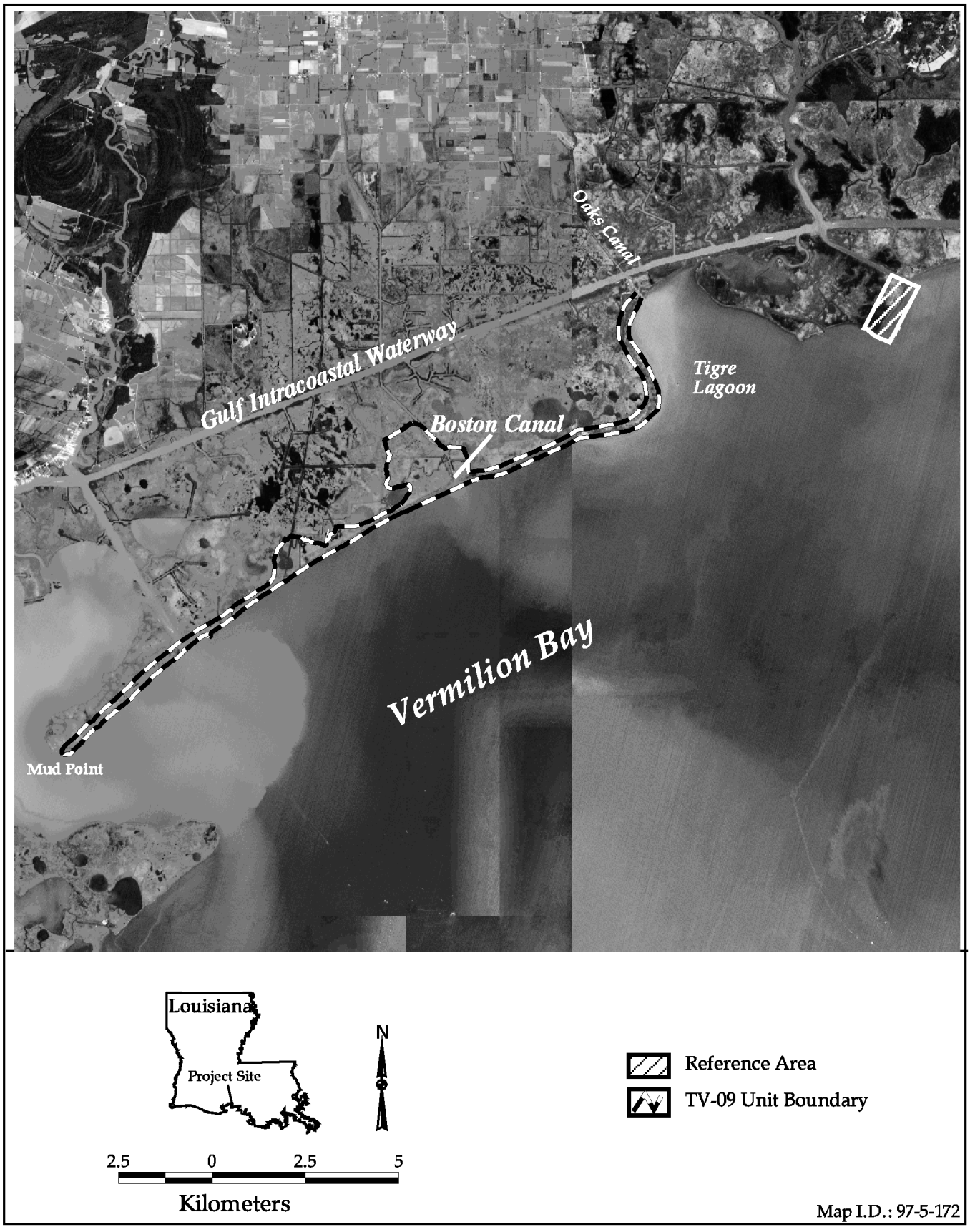

Figure 1. Boston Canal / Vermilion Bay Shoreline Protection (TV-09) project area.

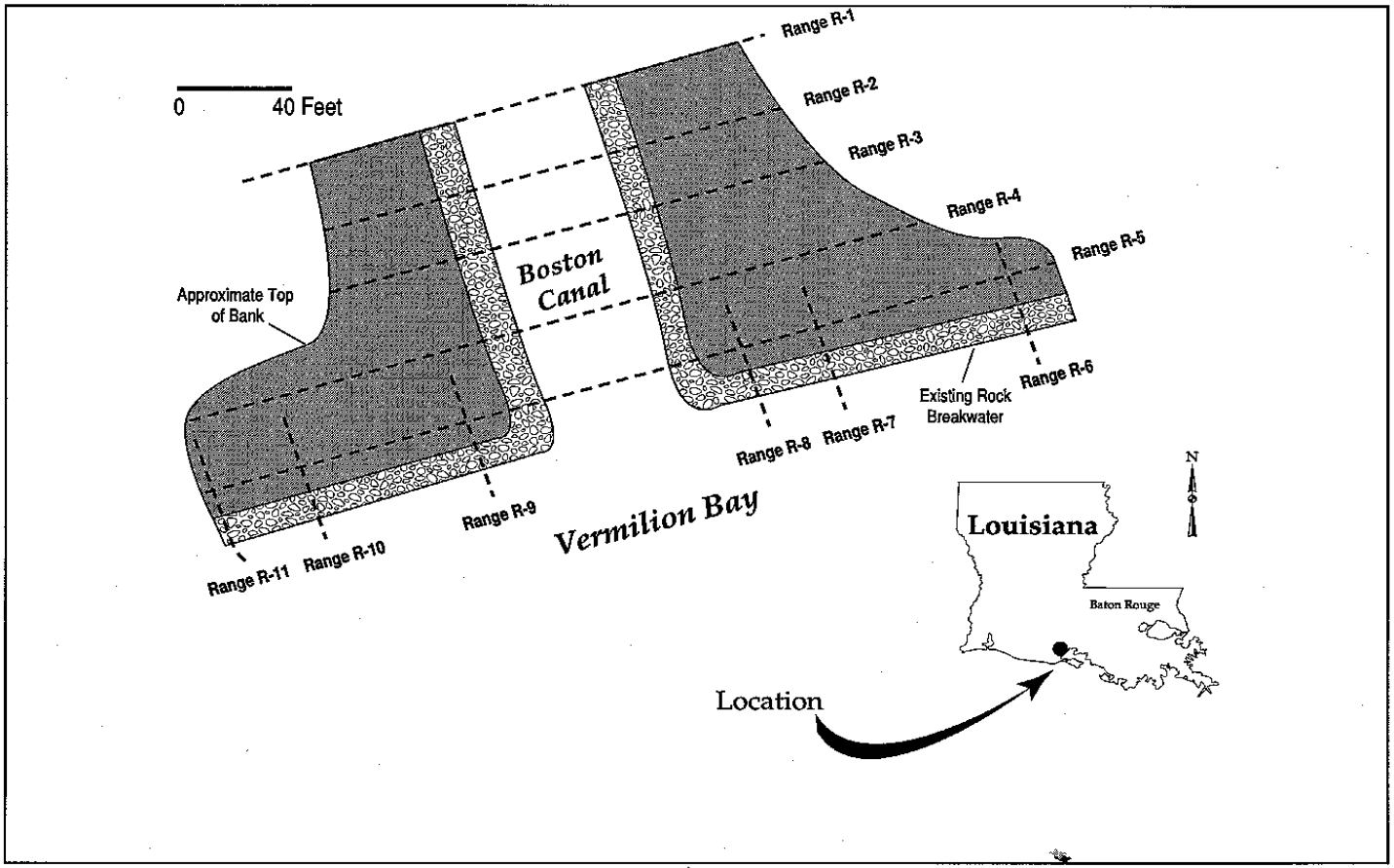

Figure 2. Boston Canal/Vermilion Bay Shoreline Protection (T/V-09) cross section of the mouth of Boston Canal labeling elevational transects.

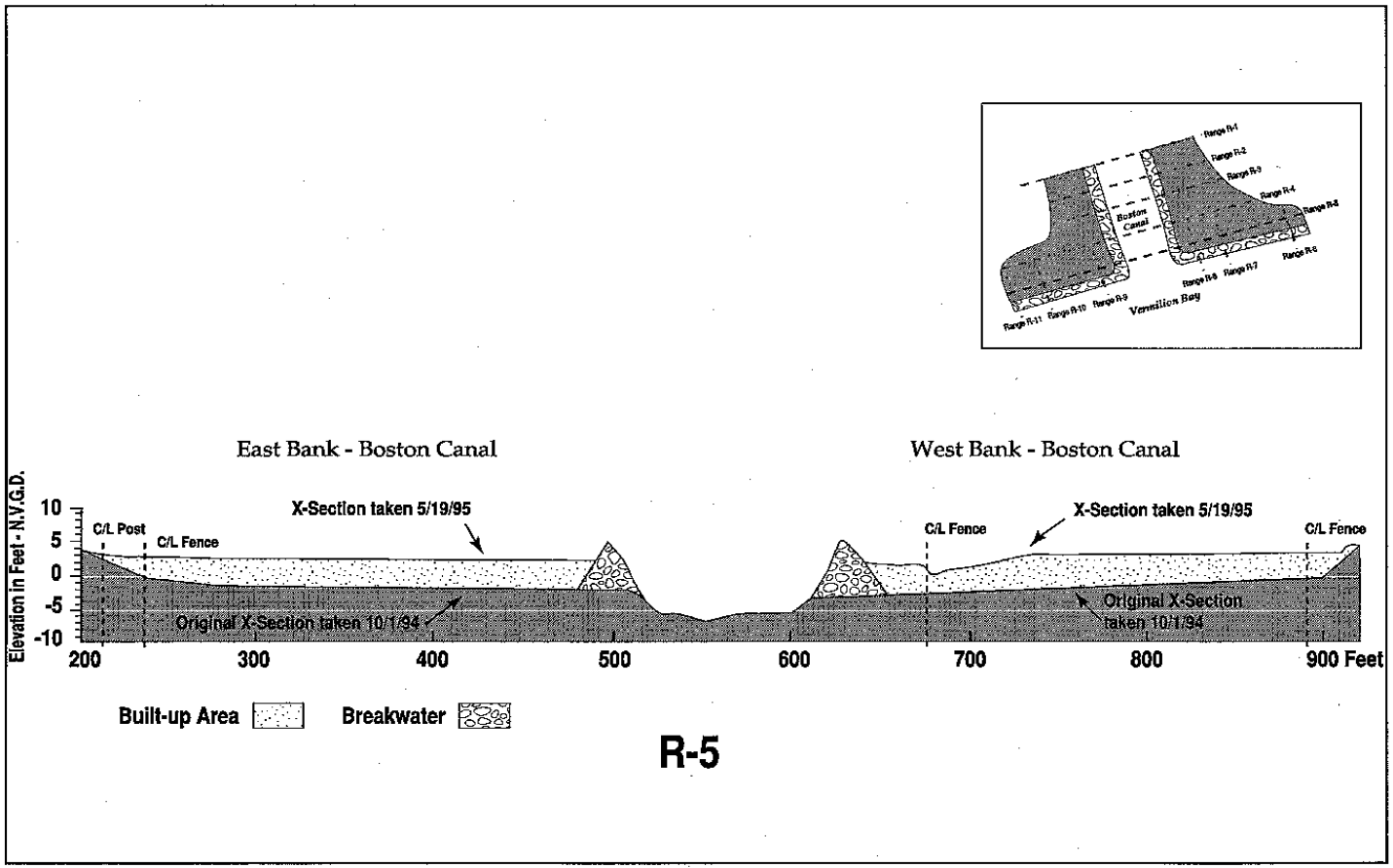

Figure 3. Boston Canal/Vermilion Bay Shoreline Protection (T/V-09) elevational profile of east-west transect R-5 showing accretion.

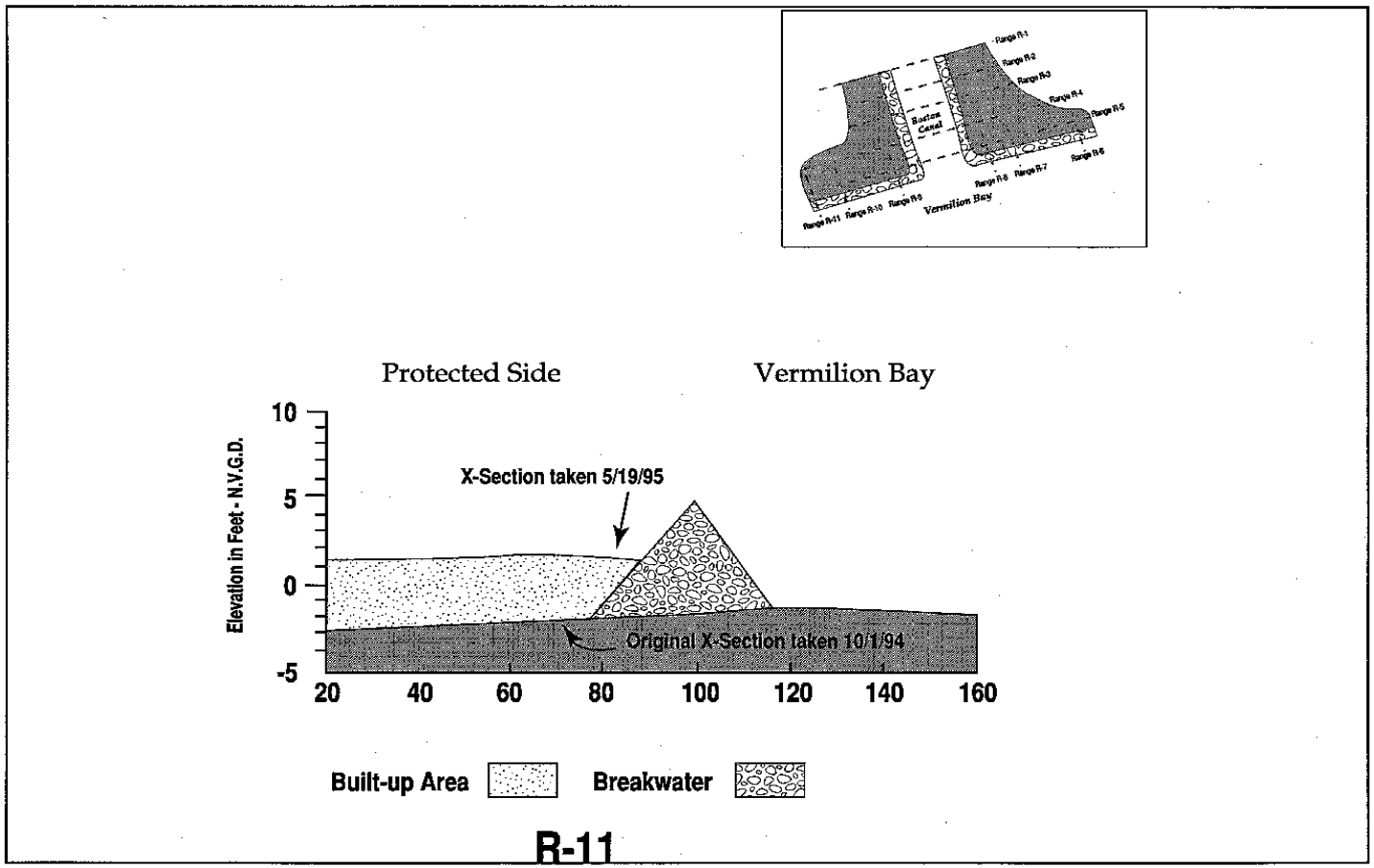

Figure 4. Boston Canal/Vermilion Bay Shoreline Protection (T/V-09) elevational profile of north-south transect R-11 showing accretion.

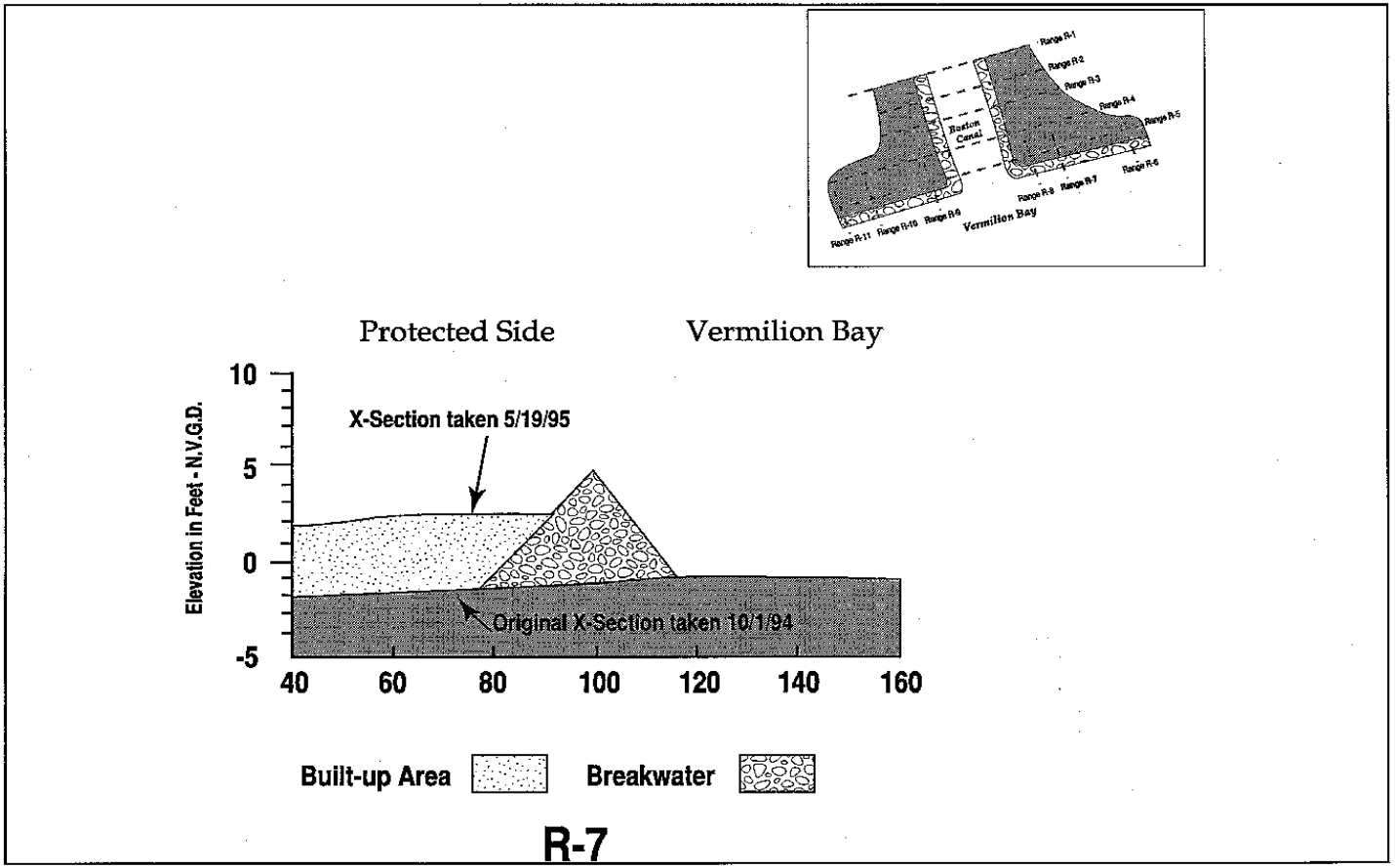

Figure 5. Boston Canal/Vermilion Bay Shoreline Protection (T/V-09) elevational profile of north-south transect R-7 showing accretion.