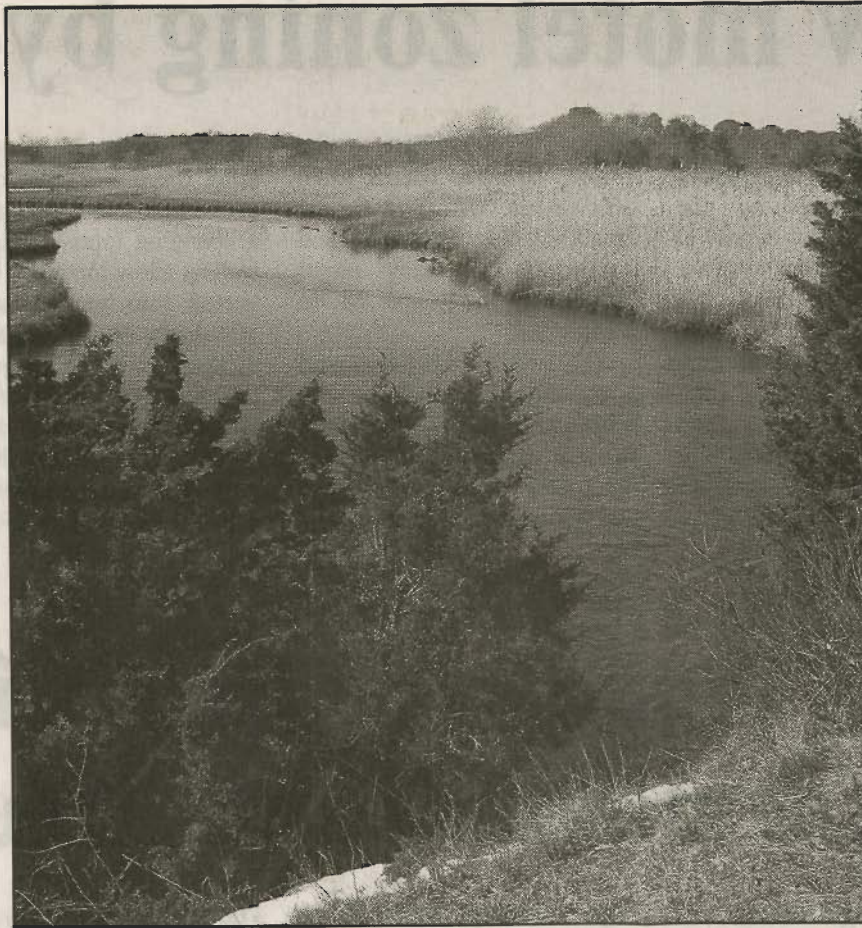


Culvert plan promises to restore salt marsh

By Nicole Muller
nmuller@cnc.com



Above: Looking west from Bridge Street, invasive reeds and water flow restricted by the deteriorating 24-inch culvert reflect a vista sharply different from its easterly neighbor. The proposed restoration project, which would install a 24-foot culvert, would open up this portion of the salt marsh.

Dennis Natural Resources Officer George Macdonald calls the proposed Bridge Street restoration project "a once in a lifetime opportunity."

The proposal would replace the failing 24-inch-diameter culvert with a 24-foot-diameter box culvert 60 feet north of the present location at a cost of just over \$1 million.

Macdonald described the upstream, salt marsh area west of Bridge Street in East Dennis as approximately 60 acres of degraded wetlands, 40 of which the conservation commission seeks to restore. Tidal waters entering and leaving the upstream creek are seriously limited by the existing, deteriorating 24-inch culvert, resulting in failing infrastructure in the roadway, degraded habitat, and invasive tall reeds and cattails choking out the water.

In 2003, Town Meeting appropriated \$150,000 for the project, and the conservation commission is seeking additional capital funding from the town, possibly at May Town Meeting.

"Dennis has a window of opportunity with a \$2 grant match for every dollar it spends," said Brian Howes of the School of Marine Science and Technology at UMass Dartmouth.

Craig Wood, the town's consultant from the Louis Berger Group, said it's up to the residents of Dennis to hear the facts and "figure out how valuable it is to them to have these systems restored."

Study results

A study has determined that a 24-foot box culvert would provide a "safe, durable, functional and cost-effective replacement for the existing culvert."

"The existing culvert is 24 inches wide, while the width of the downstream creek is 35 feet," Wood said. "A culvert of such small size conducting water flow from such a significant creek has caused the culvert to fail and collapse." A temporary repair is keeping the culvert operating.

Wood said the location of the existing culvert "is not where the natural creek wants to be." It redirects the high-tide water flow south, then arcs around about 40 feet to rejoin the natural flow eastward. When the tide recedes, the marsh does not empty

Right: An easterly, downstream view of the Sesuit salt marsh from Bridge Street shows a significantly wider flow of water, an absence of invasive reeds along the water's edge and a more aesthetically pleasing view of salt marsh and hay meadows.

Staff photos by Nicole Muller

because the undersized, failing culvert restricts flow back downstream.

Poor drainage has also caused rain-water damage to the Bridge Street embankment. "Looking upstream, you see bank erosion, the diversion of the natural flow of the creek, a narrow area of marsh along the creek and extensive overgrowth by the invasive species," Wood said. "There's also shrub swamp — trees and shrubs that



Public will have chance to comment

The Dennis Conservation Commission will conduct a series of public hearings on the Bridge Street culvert project prior to Town Meeting. Dates have not been scheduled.

want to grow but can't because of tidal restriction."

Tidal ebbs and surges in the upstream salt marsh are distinctly different from those on the downstream side. In the easterly marsh, tidal highs and lows show a nearly empty marsh at low tide, while the waters rise sharply at mean high tide. In contrast, the upstream area has a lower rise at high tide, and slow drainage through the existing culvert means the marsh never drains completely at mean low tide, creating a mucky, prohibitive habitat for vegetation, wildlife and fish.

"In a severe coastal storm event, [both under present conditions and with the proposed new culvert] water would come up and over Bridge Street," Wood said. The difference

would be that the larger culvert would allow faster drainage after the storm."

Expected benefits

Howes, who serves as technical director for the Massachusetts Estuaries Project, said, "Sesuit Harbor is a very healthy coastal embayment, and we don't want to hurt it. The project we propose should have only positive effects."

One of those is the reestablishment of the dwindling herring population in Sesuit Creek. "The town has long studied its migrating fish and the multiple restrictions on the herring trying to return to Scargo Lake where they were spawned. A collapsed 60-foot culvert is not something herring like to try to swim through. We believe [this project] would restore the creek to a significant fish run and enhance the area as a fisheries nursery."

Howes said nitrogen levels would not increase. "Scargo Lake reduces the nitrogen by sedimenting it out, protecting the harbor. With added flow to and from the lake, nitrogen levels would likely decrease. The filter system would become tighter as a result of the new culvert."