



# Flushing Improvement Assessment, Labor in Vain Brook

## Somerset, Massachusetts

Labor in Vain Brook, like many coastal tributaries, suffers from restricted tidal flow caused by at least three undersized culvert crossings. The Horsley Witten Group, Inc. (HW), in association with New England Environmental (NEE), was retained by the Massachusetts Riverways Program and the Massachusetts Wetlands Restoration Program, Office of Coastal Zone Management (CZM) to evaluate the feasibility and costs of replacing these culverts, estimate tidal flow, evaluate habitat improvements and other benefits of restoring optimal tidal flushing into the marsh, and prepare design plans for replacement of existing culverts.

HW accomplished the following under two phases of the project:

### Phase I:

- Deployment of water level pressure transducers to measure headwater/tailwater hydrodynamics of the existing culvert system;
- Delineation of watershed areas tributary to restricted culverts;
- Field surveying of tidal basins, surrounding areas and detailed culvert information;
- Hydrologic estimation of incoming flows from upland sources;
- Estimation of tidal flow hydraulics at each of three undersized culverts;
- Public presentation of feasible culvert improvements; and,
- Development of draft and final reports documenting findings.

### Phase II:

- Evaluation of altered flood condition threat associated with culvert replacements;
- Preparation of design plans and details for replacement of one of three culverts;
- Development of design plans and details for stream channel restoration; and,
- Peer review of sewer trunk main plans in vicinity of culvert replacement.

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