Route 1 Town Line Brook Flood Control and Marsh Restoration Project
Revere, Massachusetts

Corps permit 1997-00838, DEP 61-294
Action items to remedy noncompliance with permit conditions

Edward Reiner US EPA, February, 2010
Potential Restoration Areas
Townline Brook - Rumney Marsh
Flooded wetlands prior to 2001 tidegate repair
Action items

- Repair interior tide gauge
- Clean exterior tide gauge
- Install automatic water level readers
- Obtain base line plant survey from 2000
- Perform new plant survey
- Supplement wetland & flood plain elevation information as needed
- Obtain professional services to adjust SRTs
Action items (cont.)

- Incrementally adjust SRTs to determine appropriate tidal water level settings
- Monitor and evaluate water level changes on wetlands and flood concerns
- Meet with permit and resource agencies to evaluate data and potential changes to permit requirements
- Develop SRT operational protocol
- Evaluate additional mitigation
Action items (cont.)

- Evaluate maintenance needs
- Sediment removal
- Trash rack debris removal
- Grout seals on SRTs
- SRTs
- Standard flap gates
- Stop logs
Repair interior tide gauge

- Large type
- To 0 feet MSL NGVD 1929
Clean exterior gauge
Install automatic water level readers

- Interior and exterior of culvert

Green Harbor River, Marshfield
Obtain base line plant survey

- Coastal Wetland Inventory previously done by ENSR (July 22, 1998 updated in 2000)
- 1” = 100’ scale with two-foot contour interval and additional spot grades at roughly 100’ spacing.
- Wetland cover types shown
- Approximate elevation of low salt marshes 2-3’ NGVD base.
- Distribute to agencies.
New plant survey

- This is necessary in order to document current conditions of the wetlands
- Compare to baseline plant survey results
Document presence of invasive species

- Perennial Pepperweed
- Phragmites
- Others
Obtain elevation survey of upstream wetland/floodplains

- Baseline survey included spot elevations
- Supplement as needed
- Correlate elevation with vegetation and condition of wetland and floodplain areas
Obtain professional services to adjust SRTs
Purchase necessary parts

- Six shorter float arms may be needed to allow side installations on all three SRTs without interference
Incrementally adjust SRTs

- Current setting: SRTs are closing near elevation 1.0 NGVD
- Determine the maximum water levels consistent with flood protection needs
- Need to survey upstream drainage features and wetlands as water levels are increased
- Previous operation had SRTs closing at elevation 3.0 – 4.0
Incrementally adjust SRTs (cont.)

- All three SRTs may need to be set initially with the back floats on the side arms to read water levels lower than the SRT hinge point.
- Appropriate adjustment for higher water levels will require removal of some or all ballast fluid from bottom floats.
- Fluid is alcohol based anti-freeze.
Compliance with original permits

- Monitoring, adjustment, and reporting conditions 17-19 MA DEP WQC
- Development of Operational Protocol Condition 21 MA DEP WQC
- Maintenance obligations per condition 14 MA DEP WQC
- Review conditions and suggest changes where appropriate
Evaluate leakage through grout seal and stop logs

- Grout seal repair
- City was concerned high tides go over and around stop logs
- Check to see if additional height of stop logs are needed
- Coordinate inspections with MA DCR
Maintenance needs

- Periodic removal of trash at trash racks
Trash problems
Remove past debris left on site
Address sediment problems

- DOT 2001 constructed sediment basin is full
- Sediments may be moving into the culverts
- Assess need for maintenance dredging
Additional Actions

- Upstream channel debris removal
- Floodplain and wetland mitigation plans
- Protection of floodplain areas
- Potential impacts from Route 1 transportation improvement project on access for maintenance of trash racks and tidegates
Propose changes to permit conditions

- Water level changes
- Management and operation of tidegates
- Monitoring requirements
Evaluate additional mitigation

- Preservation of floodplain and wetlands
- Excavation for flood storage
- Excavation for wetland restoration
- Invasive species control