BSC GROUP

803 SUMMER STREET, BOSTON, MA 02127 - www.bscgroup.com

TEL 617-896-4300 - 800-288-8123

Nature-Based Solutions Implementation Resource Guide

Nature-based Solution (NbS): Stream Flow Alterations

Project Number per matrix: **7**

PREREQUISITES

- Obtain Town or City Conservation Commission, DPW, and/or landowner approval.
- Obtain appropriate permits, i.e. permit for excavation adjacent to wetlands.
- Coordinate restoration with funder (e.g., MA MVP), if applicable.
- Test soil for infiltration, contamination, and roadside hazards/impacts.
- Hire a Licensed Site Professional (LSP) available for unexpected hazards.
- Ensure an accessible route for diversion or upland dewatering area.
    - 1:2 ratio for dewatering area to areas of dredge if applicable.

RECOMMENDED IMPLEMENTATION STEPS

- **Project Planning and Administration**
    - Assess potential erosion contamination impacts.
    - Assess potential flood/groundwater impacts.
    - Maintain stability through critical mass and coordinated invasive control.
    - Assess invasive soil seed bank & rootstock.
    - Assess bordering threats such as the proximity of established invasive seed sources.
    - Evaluate vertical adjacent grading impacts to flow and collection.
    - Evaluate water table and soil profile for effective wetland establishment, and groundwater monitoring well(s).
    - Evaluate existing native shrub/tree species for effective naturalization.
    - Assess opportunities for stacked projects coordinated habitat enhancement flood and stormwater controls.
    - Plan for the construction period and post-construction period environmental monitoring.
    - Ensure clear communication and understanding of maintenance personnel. Budget for oversight.
- **NbS Installation**
    - Install access control measures where required.
    - Conduct site preparation to include erosion control and stockpile/mobilize staging area
    - Prepare for significant soil disruption, peninsulas, islands, bends banks, and or dredge.
    - Place flow-altering features, root wads, and vegetative rafts.
    - Plant selected native species, along with mulching, watering, and weeding during maintenance period.
- **Maintenance**
    - Support 2 year establishment period to include bi-annual removal of invasive plants and weeds, annual replacement of failed plantings, and watering, as needed, to naturalize plantings.

NATURE-BASED SOLUTION SPECS

- Typical project size: 3,000 sq. ft. (300 sq. ft. minimum)

BUDGET ESTIMATE

- Typical project budget (order of magnitude): $15,000 - $20,000
- Use the BSC Group Nature-based Solutions budget tool to develop more detailed concept budgets

SCHEDULE ESTIMATE

- Pre-construction monitoring of groundwater table (minimum 1 growing season, preferably multiple growing seasons)
- 2 days of construction per unit
- 2 year establishment period