BSC GROUP

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Nature-Based Solutions Implementation Resource Guide

Nature-based Solution (NbS): Pond Creation/Alteration

Project Number per matrix: **6**

PREREQUISITES

- Obtain Town or City Conservation Commission/DPW/landowner approval.
- Obtain appropriate permits i.e. permit for excavation adjacent to wetlands.
- Coordinate restoration with MVP.
- Test soil for infiltration, contamination, and roadside hazards/impacts.
- Hire a Licensed Site Professional (LSP) to be 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.
    - 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.
    - Assess opportunities for coordinated habitat enhancement flood storage and stormwater controls.
    - Ensure clear communication and understanding of maintenance personnel and have a budget for oversight.
    - Plan for the construction period and post-construction period environmental monitoring.
- **NbS Installation**
    - Evaluate water table and soil profile for effective wetland establishment, and groundwater monitoring well(s).
    - Evaluate existing native shrub/tree species for effective naturalization.
    - Install access control measures where required.
    - Conduct site preparation to include erosion control & stockpile/mobilize staging area.
    - Prepare for significant soil disruption, peninsulas, islands, bends banks, and or dredge.
    - Install flow-altering features such as root wads, and vegetative rafts.
    - Select and plant native plant species.
- **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: ½ acre. (10,000 sq. ft. minimum)

BUDGET ESTIMATE

- Typical project budget (order of magnitude):
    - $25,000-$85,000/acre dredge heavy
    - $15,000-$25,000/acre dredge light
    - $5,000-$9,000/linear bank modified (10 yd.)
- 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 years establishment period