BSC GROUP

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Nature-Based Solutions Implementation Resource Guide

Nature-based Solution (NbS): Soil Management or Restoration

Project Number per matrix: **(10)**

PREREQUISITES

- Coordinate restoration with funder requirements.
- Obtain approval from the landowner.
- Obtain appropriate permits.

RECOMMENDED IMPLEMENTATION STEPS

- **Project Planning and Administration**
  - Set a goal based on a soil habitat type to mimic that habitat, or in the case of agriculture or landscaping, set a goal for a sustainable range for soil horizon depth, infiltration, and nutrients.
  - Coordinate efforts to pair restoration with public amenity features to ensure community investment, visibility, and assessment of best practices.
  - Assess bordering threats such as the proximity of established invasive seed sources.
  - Assess opportunities for coordinated habitat enhancement and educational resources.
  - Assess species and adjacent water resources.
  - Analyze soil characteristics and existing conditions: identify/test soil types, texture, organic matter content, pH, nutrient levels, and potential contaminants.
  - Assess topography: analyze slope, drainage patterns, and potential for erosion. Identify past land uses and potential impacts on soil health.
  - Assess existing plant cover and its role in soil health. See UMass Extension Services or contact a professional soil scientist.
- **NbS Installation**
  - Conduct site preparation to include invasive vegetation removal/management and installation of erosion control measures to prevent soil loss during restoration activities such as silt fences, erosion control blankets, and sediment basins.
  - Minimize soil disturbance during construction or restoration activities to prevent compaction and degradation. Limit heavy machinery use and unnecessary grading.
  - Evaluate tests of imported materials such as soil and compost for compatibility including clean and sustainable sources.
- **Maintenance**
  - Ensure a follow-up maintenance period of at least 90 days and an establishment period of two (2) years. The maintenance period should include watering as needed up to twice weekly, maintenance as needed to naturalize plantings, maintenance of erosion control measures, and periodic soil testing and amendments up to twice annually through the establishment period. Most natural landscapes should achieve self-sustainability within 5 years.

NATURE-BASED SOLUTION SPECS

N/A - variable

BUDGET ESTIMATE

- Budget and schedule contingent upon the scope of the construction project this is applied to.
- Ensure project budgets and contracts with private companies include sufficient retainage for maintenance and establishment periods costs and coordination costs for oversight. If in-house, ensure sufficient staff and a shared understanding of goals and methods.
- Use the BSC Group Nature-based Solutions budget tool to develop more detailed concept budgets

SCHEDULE ESTIMATE

- 2 year establishment period
- Construction time dependent on size of project.