



Stormwater Management (Structural)



THREATS ADDRESSED

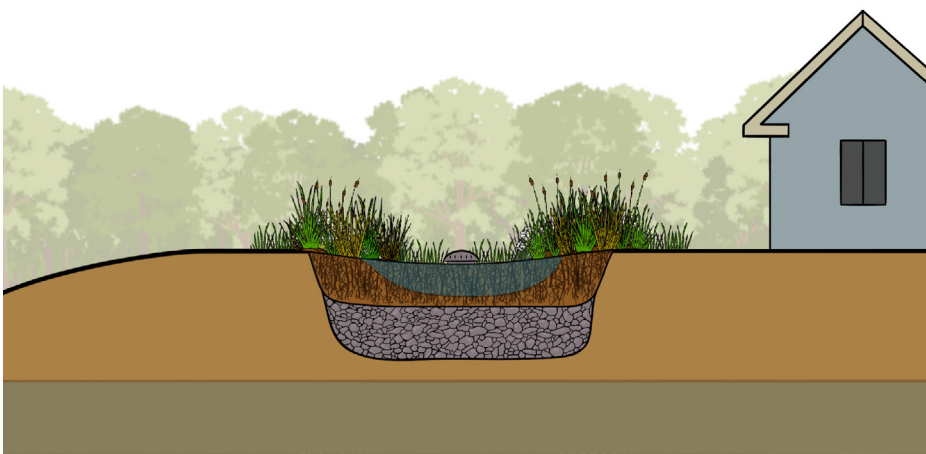
- Excess Nutrients
- Pollutant Inputs
- Algal Blooms
- Erosion
- Invasive/Nuisance Species

STRATEGY GOALS

- Protect
- Manage
- Rehabilitate

STRATEGY CO-BENEFITS

- Habitat: Neutral
- Aesthetics: Neutral
- Recreation: Neutral



- Permittable in Massachusetts**
Local planning process. List of potential permits available [here](#).
- Implemented on Cape Cod**
See examples of pond projects implemented on Cape Cod [here](#).
- Listed in 208 Plan Technologies Matrix**
Learn more about the nutrient management strategies in the Tech Matrix [here](#).
- Can be Performed at Homeowner Scale**
Some methods, for example rain gardens. Local review and permitting may be required.
- Nature-based Solution**
Some measures are nature-based.

DURATION OF BENEFITS

- Less than one month:
- One season or year:
- Multiple seasons or years:

MAINTENANCE REQUIREMENTS

- Monthly:
- Annually:
- Infrequent:

DESCRIPTION

Structural stormwater management techniques direct and treat stormwater to prevent or reduce point or non-point source pollutants from entering surface waters or groundwaters. They are designed, constructed, and maintained to attenuate peak flows, capture and treat runoff, and provide recharge to groundwater. Structural stormwater control measures are used to protect water quality and quantity by preventing pollution from stormwater and controlling and infiltrating it at its source. Structural stormwater control measures include basins, discharge outlets, swales, rain gardens, filters, including low impact development (LID) techniques, among others.

ADVANTAGES

- Scalable
- Manages stormwater before it enters the pond
- Can be inexpensive depending on which mechanism used
- Easy to identify problem areas
- Once installed, should be low-maintenance

CONSTRAINTS

- Need enough space to install right-sized stormwater controls to treat anticipated flows
- Design and installation can get expensive



IMPLEMENTATION

POTENTIAL ACTORS



Towns: Towns may install structural stormwater controls around town-managed ponds and pond watersheds



Pond Groups: May propose or support stormwater management projects around public or private ponds and provide a supportive role through education



Private Landowners: May propose or support stormwater management projects



Land Trusts: May support stormwater management projects and provide a supportive role through education

SITING REQUIREMENTS

- All ponds with stormwater inputs

INFORMATION NEEDS

- Stormwater sources
- Catchment area



IMPLEMENTATION EXAMPLES

Towns across Cape Cod are implementing stormwater management projects to protect freshwater ponds. For example, the Town of Eastham, with partners, is developing stormwater improvement projects to decrease the nutrients entering [Schoolhouse Ministers Pond](#), including a wet swale at Fisherman’s Landing behind Eastham Elementary School. In partnership with the Towns, the Association to Preserve Cape Cod is developing projects to [manage stormwater at public boat ramps](#).

RESOURCES

- The [Massachusetts Stormwater Management Handbook](#) provides detailed information on a wide variety of erosion control strategies.
 - The [New England Stormwater Retrofit Manual](#) also provides detailed information on a wide variety of stormwater control measures.
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COST ESTIMATE

Variable

Varies with technique, size, special features, and local site conditions

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ADDITIONAL FINANCIAL CONSIDERATIONS

Assessment: Planning, design, and permitting

Implementation: Materials and installation

Maintenance: Regular monitoring as site stabilizes and during storm events - once site stabilizes, minimal maintenance

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POTENTIAL FUNDING SOURCES

- Community Preservation Act
- Capital Budget
- Grants
- Private Funding

Additional information regarding potential funding sources is available [here](#).