Department of the Environment

Facts About...

Shoreline Stabilization

Marsh Creation

Erosion and sedimentation (the deposition of sediment) are natural processes, but often are in conflict with our use of the shoreline. The most noticeable problem created by erosion is the loss of waterfront property. Waterfront property values are high, so many owners spend considerable time and money protecting their shoreline from erosion.

Tidal marshes form the transition zone between open water and upland. They are recognized as vital links in the food chain of the Chesapeake Bay. Tidal action in marsh areas provides nutrients that are converted to plant material. The plant material is grazed upon directly by wildlife and waterfowl, or is transported by the tide to open water to nourish fish and other aquatic organisms.

Tidal marshes provide habitat for thousands of species of plants and animals. Many of these species, particularly fish, shellfish, and furbearing animals are of direct commercial and recreational importance. Marshes also provide natural shore erosion control, better water quality, and recreation and education opportunities. Planting a marsh along an eroding shoreline, therefore, provides shore protection and many environmental benefits.

Marsh creation is suitable for many areas along tidal waters. However, for sites subject to high or moderate wave energy, or a wide fetch, it may be necessary to include an offshore structure such as a sill for additional protection. Sills may be placed in a linear or staggered manner, with several openings to allow aquatic life access to the marsh.

Photo: Team SWAMP, University of MD

Photo: MD Dept. of Natural Resources

Marshes may be placed in front of existing bulkheads to provide habitat. **Marshes may be built successfully along most shorelines. <u>However, where marshes did not previously occur, a natural shoreline that re-creates typical conditions is preferred.</u>**

Marsh Creation Guidelines

1. Sites with high amounts of soft sediments (muck) may not be suitable for marsh creation. Be certain that existing substrate will support placement of sand without sinking. Additional investigation may be necessary to determine suitability.

2. Design and construct project so that the low marsh is covered by open water during the mean high tide.

3. Use primarily sandy soil as a substrate for plants. No more than 10% of the fill substrate shall pass through a standard number 100 sieve.

4. Grade site at 10:1 so that the low marsh extends to the mean low water line.

5. If necessary, delay planting until several tidal cycles have passed to check for subsidence. For minor subsidence, more sand should be placed on the site.

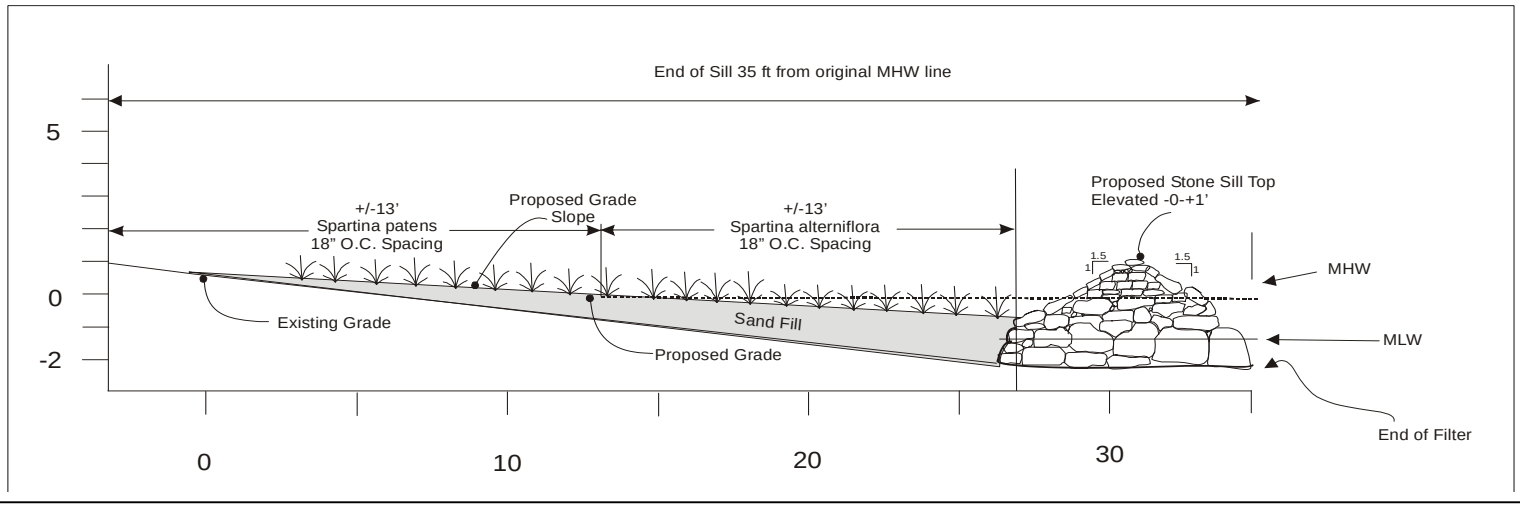
6. Use native vegetation to stabilize eroding bank. Allow sun to reach marsh plants.

7. Use a low profile structure. Do not place rock directly on marsh or as a revetment. Place base of sill on filter cloth channelward of mean low water line. Sides of the sill should have an approximate 1.5:1 slope.

8. The height of the sill should range from 0 - +1 foot above the mean high water line.

9. Include openings through vents with staggered placement or additional rock to line the bottom of the opening to allow for flushing, sediment accretion, and wildlife access.

Marsh Creation With Sill



Properly maintain the marsh creation project.
Plants that are removed or die during the early stages of growth must be replaced immediately to insure the undisturbed growth of the remaining plants. The selective pruning of trees is also a good maintenance practice, as plants need sunlight. After significant growth has occurred only periodic inspections may be necessary. Protection measures, such as fencing, must be taken to keep waterfowl from eating the young plants. Proper maintenance will help ensure that the marsh creation project remains successful at preventing erosion and providing wildlife habitat.


Photo shows sinking substrate (Team SWAMP)


Photo: MD Dept. of Natural Resources

Other maintenance suggestions:

1) Remove debris and trash.
2) Do not mow vegetation.
3) Limit use of lawn fertilizers.
4) Re-plant as necessary

Is More Information Available?

The guidance documents and fact sheets are available, free, from the Water Management Administration,
Tidal Wetlands Division,
1800 Washington Blvd., Baltimore, MD 21230 (410) 537-3837
http://bit.ly/1z6i7Xz

- Shore Erosion Control Guidelines for Waterfront Property Owners
- Shoreline Stabilization How: to Select a Contractor
- Shoreline Stabilization: How to Select a Shoreline Stabilization Practice
- Shoreline Stabilization: Maintaining Your Shoreline Stabilization Practice
- Shoreline Stabilization: Marsh Creation
- Marsh Creation Sample Drawings