

Douglas W. Domenech  
Secretary of Natural Resources



David A. Johnson  
Director

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF CONSERVATION AND RECREATION

**REPLY TO:**

Tappahannock Regional Office  
P. O. Box 1425  
Tappahannock, VA 22560  
Telephone: (804) 443-3803  
FAX: (804) 443-4534

203 Governor Street

Richmond, Virginia 23219-2010

(804) 786-1712

November 30, 2012

Ms. . .

Hayes, VA 23113

RE: SEAS# T13016

Dear ,

On October 24, 2012, I met with the both you, at your property, on . . . Creek in Gloucester County. The site visit was in response to your request for advisory assistance concerning a shoreline erosion problem.

The publication entitled Shoreline Situation Report: Gloucester County, Virginia reports the historical erosion rate for your area averages less than 1 foot per year. The erosion on your property appears to be caused by elevated water levels and waves associated with storms. The following recommendations are made as a result of the site visit and subsequent analysis of the problem:

1. The marsh grasses growing on your shore dissipate wave energy and bind the soil with their roots. We recommend you begin a periodic maintenance program for the grasses. Tidal debris should be periodically removed to prevent smothering of the grasses. The encroachment of trees and shrubs into the grasses should be prohibited. The program should increase plant vigor and promote growth.
2. In all segments where the marsh grasses are sparse or absent, we recommend establishment of marsh fringe. The establishment of the marsh fringe would involve planting smooth cordgrass and saltmeadow hay. The grasses may be purchased or transplanted from neighboring areas with permission.

Smooth cordgrass grows between the mean low and mean high tide elevations. Saltmeadow hay grows above the mean high tide elevation. Smooth cordgrass and saltmeadow hay should be planted from late April through June. Care should be taken to plant the grasses within the proper zone.

To transplant the grasses, dig healthy plants and be sure to obtain an adequate root mass. Plant the grasses on an 18-inch by 18-inch grid. We recommend fertilization at the time of planting. A slow release fertilizer such as Osmocote can be placed in the hole with the plant. You should use approximately one ounce per plant. An alternative to Osmocote is any available fertilizer such as 10-10-10. Approximately two ounces of the alternate fertilizer should be side-dressed about six inches from the plant. To prevent damage to the source area, do not remove large numbers of plants from one section. The source area should be fertilized after plugging. If you wish to purchase plants or have someone do the planting for you, see the enclosed list of suppliers and contractors. See the enclosed information concerning descriptions of the grasses.

3. To protect the shoreline and to enhance the existing fringe marsh, you may consider the construction of a riprap marsh sill. The structure should have a trapezoidal cross section with 2:1 side slopes. It should have a top elevation 1-foot above the mean high water elevation. A minimum of two layers of armor rock should be used. Each armor rock should weigh a minimum of 50 pounds. Install the rock so that a "V" notch is placed about every 50 feet along the improved section to allow tidal flushing to occur. A layer of filter cloth should be used under the riprap. See the enclosed cross-sectional view of a typical riprap breakwater (modified). Immediately following construction, we recommend filling the area landward of the sill with good-quality sand. This sand will provide an excellent planting media for marsh grasses.
4. We discussed the possible effectiveness of groins. If you decide to construct groins, we recommend a properly designed and constructed low-profile groin system. The groins should be constructed of salt-treated timber. All wood should be treated to a minimum of 1.5 lbs/cu.ft. of CCA. Tongue-and-groove or Wakefield lap construction should be used. All hardware used to build the groins should be galvanized. All sheet and fender piles should be buried a minimum of 3 feet below the existing bottom.

A low-profile groin has a maximum offshore height equal to the mean low water elevation. From this point, the top should rise shoreward with a slope of 10:1 (horizontal/vertical) or flatter until it reaches an elevation of 3.5 feet above the mean low water elevation. This elevation would then be maintained landward to the bank.

Immediately following construction, we recommend filling the groins with good-quality sand. Artificially filling the groin system should prevent the additional scour that may result if the groins are allowed to fill naturally.



5. During the site visit, we discussed the possible effectiveness of a gapped breakwater system as an alternative to the riprap sill and/or groins. The breakwaters provide protection for the beach by reducing the wave energy reaching the shoreline. Additionally, breakwaters will interrupt the along shore transport of sand causing it to be deposited in the lee of the structures. The height, length and placement of the structures can vary depending on the desired results. In general, the structures are placed parallel to the shoreline. Angular quarry stone is the most commonly used material for breakwater construction. The breakwaters should be constructed with a trapezoidal cross section. The side slopes should be 2:1 (horizontal:vertical) or flatter. A minimum of two layers of armor stone should be used. Each armor stone should weigh a minimum of 500 pounds. A layer of filter cloth should be used under the breakwater. See the enclosed cross-sectional view of a typical riprap breakwater.
6. The Phragmites (Reed Grass) growing on your property can be eliminated, but it is a generally a two year process. The first step is the application of a biodegradable herbicide that is non-toxic to animals and is approved by the U. S. EPA for use in wetlands. The herbicide should be carefully applied in the early fall. In late winter, the dead phragmites should be cleared to open the area to desired species. This process may need to be repeated for a second year.

The above recommendations are made in my capacity as an advisory agent in shoreline erosion control matters. The suggestions should not be considered as binding you to any particular course of action, as they are intended to indicate what we think would be the best solution in terms of cost and effectiveness. Our examination of the site or this report does not constitute permission by the Commonwealth, or its agencies, to proceed with implementation of control measures. Permits from State and Federal agencies are generally required for shoreline modification.

You should also be aware that success in shoreline erosion control can not be guaranteed, as there are many variables involved. In this regard, we suggest care in selecting a contractor. Our comments concerning construction are intended as guidelines developed from our experience in viewing structures that have been successful or have failed.

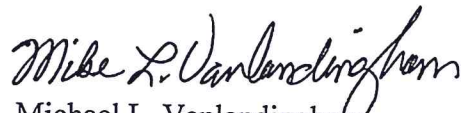
If you decide to construct a control measure, an assessment of the impacts of the project on the environment will be given by the regulatory agencies. Our advice is given with the idea of reducing environmental impacts associated with our recommendations. Although this has been considered in our recommendations, the permit reviewing agencies may desire additional information or measures.

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Services available through this office include: review of the permit application; review of design and construction plans; and inspection of structures under construction when plans have been reviewed by this office. We recommend that a copy of this report be attached to the permit application.

If we may be of further assistance or if you have any questions, please let me know.

Sincerely,

A handwritten signature in black ink, reading "Mike L. Vanlandingham". The signature is written in a cursive, flowing style.

Michael L. Vanlandingham  
Shoreline Engineer

Enclosures (12)