

188 MADAKET ROAD  
02554

*TOWN OF NANTUCKET  
MASSACHUSETTS*



DEPARTMENT OF PUBLIC WORKS

**PROJECT DESCRIPTION  
SCONSET BLUFF STABILIZATION  
November 13, 2013**

The purpose of this Notice of Intent application is to request approval from the Nantucket Conservation Commission for a coastal erosion control structure (CES) under the Massachusetts Wetlands Protection Act and the local Nantucket Wetlands Protection bylaw. The proposed work entails the installation of 4 geotextile tubes on Siasconset Beach at the toe of the bluff adjacent to lots numbered 85 through 107A Baxter Road. The tubes will be installed for a temporary period of time so as to allow the Town of Nantucket sufficient time to address moving the Baxter Road public right of way, the municipal water mains and services and the municipal sewer mains and services. The application is made under the Limited Project provision of the State Wetlands Protection regulations due to the requirement on the Town to maintain the public rights of way and municipal utilities.

The application is made by the Town of Nantucket and the adjacent property owners listed in the attached Appendix A.

The Town has been advised by Town Counsel that it is legally obligated to provide access to the properties on the Baxter Road public right-of-way. During the winter storms of 2013, significant retreat of the Sconset Bluff occurred, leaving the top of the bank as close as 30 to 40 feet to the edge of Baxter Road in several areas and 60 to 70 feet in many others. While erosion rates can vary substantially from year to year, another storm season similar to 2013 could render the road impassable and/or public water supply breached, leaving the residences at the north end landlocked and the town unable to provide fire protection and safe drinking water. If this were to occur the town would not be able to provide emergency services to these properties.

The project is proposed to be constructed on the Siasconset Beach. It entails four geotextile tubes stacked on top of each other with sand nourishment placed on top and extra nourishment at the ends of the tubes. It will be maintained until Baxter Road is relocated or the three year Conservation Commission Order of Conditions, and as extended by the Conservation Commission, has expired, whichever time period is shorter.

DIVISIONS

## **SITE OVERVIEW AND EXISTING CONDITIONS**

The project location is at the toe of the bluff at Sconset Beach. To the west is bluff and, at the top of the bluff, Baxter Road. To the north is Sankaty Head Lighthouse and to the south is residential property. A portion of the project is located on land owned by the Town of Nantucket with the remaining project on privately owned land. Only two properties, located in the middle of the project reach, include a residential structure. Structures on other properties have either been relocated or lost to bluff erosion.

Sconset bluff consists of dense sand that has proven to be highly erodible. The upper layers of the bluff includes some silt material intermixed with the sand, while at lower elevations (i.e., closer to the beach elevation) the material is a dense, poorly graded sand. Wave action erodes the material at the toe of bluff, causing failure of the bank, making toe protection the only viable option for stabilization of the roadway above. Concurrent with this application, the town is working to relocate Baxter Road. Four conceptual alternative plans have been developed that would extend Baxter Road from Sankaty Lighthouse area west to Polpis Road. Each alternative results in impacts to private properties and requires easements from property owners, which the town is in the process of securing. It is expected that securing the necessary easements, defining the road right-of-way, and completing the necessary design and construction would take a minimum of three years and possibly much longer depending on the easement negotiation process.

The Sconset Beach Preservation Fund, Inc. (SBPF) has made several other stabilization project applications for the toe of the slope on Sconset Beach, with the most recent application requesting authorization for hard armoring. There had been some hope that construction of the SBPF project would occur in fall 2013, which would mitigate the Town's concerns regarding the roadway and utilities. However, in August it became clear that the SBPF construction project would not occur this year. At that point, the town's Public Works Department began aggressively seeking methods to protect those sections of Baxter Road that appear in imminent danger of failing during this winter season.

## **PROPOSED ACTIVITIES**

The application consists of placing approximately 1500 linear feet of geotubes extending from 85 Baxter Road to 107a Baxter Road. While initial application materials proposed two distinct sections of tubes only at the locations where roadway failure appears imminent and where no structures currently exist, the issue of flanking could not be resolved in the gap area between the two systems. Therefore, these application materials request a continuous run of geotube from 85 Baxter Road to 107a Baxter Road.

The proposed plan is a geotextile tube configuration that was developed in coordination with geotextile tube manufacturer Maccaferri, Inc. (or an approved equal). The MacTube® geotextile tube containers (geotubes) are made from a woven

## **DIVISIONS**

polypropylene (PP) geotextile. Manufactured in a sand color, the geotextile fabric is woven in a rip-resistant weave pattern for maximum resistance to mechanical damage. The system will consist of four tubes, each with a 45-foot circumference (approximately 19 feet wide and 6.5 feet tall). The tubes will be 100 or 200 feet long through the project area, with returns set at a 45-degree angle constructed with 50-foot long tubes. Following construction of the tubes (see below for construction methodology) sand cover will be provided and nourishment will be performed to protect the tubes and mitigate for loss of the bank as a sediment source. Aside from the design to provide adequate nourishment sand, maintaining cover over the tubes is critical to maintaining their life expectancy since the geotextile is prone to degradation from ultraviolet light. Sand fill will be secured from on-island sources of compatible sand.

The embankment above the toe shows evidence of rill erosion from rainfall and runoff from the grass areas along the top. The town is working with the property owners to reduce runoff that discharges over the top of the slope, and will provide a low berm along the easterly side of the roadway to direct water toward Baxter Road. This will only be completed in areas where the roadway contributes to flow of water over the bluff. In addition to redirecting runoff, jute netting will be placed on the bank face to protect the exposed soil. Netting will be placed this fall immediately upon receipt of approval to proceed. In the spring, native plantings (e.g., beach grass and woodier species) will be added to the slope to further reduce erosion.

#### **WETLANDS RESOURCE AREAS**

The proposed project is located on the coastal beach below the coastal bank. All work associated with the proposed project will be in the following resource areas which are subject to the jurisdiction of the Nantucket Conservation Commission under the State Wetlands Protection Act and the Nantucket Wetlands Protection Bylaw and Regulations:

- Coastal Beach
- Coastal Bank
- Land Subject to Coastal Storm Flowage

#### **COMPLIANCE WITH STATE AND LOCAL PERFORMANCE STANDARDS**

The installation of the proposed coastal erosion structure (CES) will occur on the beach resource area adjacent to the coastal bank resource area for the purpose of temporarily stabilizing the coastal bank adjacent to Baxter Road so that the Town can relocate Baxter Road and utilities. This proposed project is filed under the below cited section of the State Wetlands Protection Act:

“(7) 310 CMR 10.24 is not intended to prohibit the issuing authority from imposing such additional conditions as are necessary to contribute to the interests of M.G.L. c. 131, § 40 where the indicated minimizing measures are not sufficient.

#### DIVISIONS

(c) Notwithstanding the provisions of 310 CMR 10.25 through 10.35, the issuing authority may issue an Order of Conditions and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40 permitting the following limited project (although no such project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37):

1. Maintenance and improvement of existing public roadways”

Town Counsel has authored a memo which is attached as Appendix B that addresses this issue.

### **STATE WETLANDS REGULATION PERFORMANCE STANDARDS**

*Notations by the applicant regarding compliance with the performance standards are in italics below:*

#### **310 CMR 10.27 COASTAL BEACHES**

“WHEN A COASTAL BEACH IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION, FLOOD CONTROL, OR PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(3) through (7) SHALL APPLY”

“(3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.”

*The proposed improvements will increase bank stability and mitigation will insure that the proposed CES will not adversely impact the volume of sand generated by this area of beach. The proposed sand mitigation and nourishment are intended to prevent adverse effects on the ability of the bank to serve as a sediment source.*

“(4) Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:

(a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.

*The engineers have designed the proposed improvements to be sized to the minimum length and height possible to stabilize Baxter Road.*

(b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.

*No groin is proposed by this project.*

### DIVISIONS

(c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.”

*No jetty is proposed by this project.*

“(5) Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.”

*Sand is to be used for beach nourishment as noted in this performance standard. Sand that is compatible with this performance standard will be used. This is supported in our application materials.*

“(6) In addition to complying with the requirements of 310 CMR 10.27 (3) and 10.27(4), a project on a tidal flat shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries and wildlife habitat caused by:

- (a) alterations in water circulation,
- (b) alterations in the distribution of sediment grain size, and
- (c) changes in water quality, including, but not limited to, other than natural fluctuations in the levels of dissolved oxygen, temperature or turbidity, or the addition of pollutants.”

*This project does not propose any work in a tidal flat.*

“(7) Notwithstanding the provisions of 310 CMR 10.27(3) through 10.27(6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.”

*This project will not have an adverse effect on specified habitat as there are no sites adjacent to or within the project area.*

### **310 CMR 10.30 COASTAL BANKS**

“WHEN A COASTAL BANK IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION OR FLOOD CONTROL BECAUSE IT SUPPLIES SEDIMENT TO

COASTAL BEACHES, COASTAL DUNES OR BARRIER BEACHES, 310 CMR 10.30(3)

through (5) SHALL APPLY:”

“(3) No new bulkhead, revetment, seawall, groin or other coastal engineering structure shall be permitted on such a coastal bank except that such a coastal engineering structure shall be permitted when required to prevent storm damage to buildings constructed prior to the effective date of 310 CMR 10.21 through 10.37 or constructed pursuant to a Notice of Intent filed prior to the effective date of 310 CMR 10.21 through 10.37 (August 10,

1978), including reconstructions of such buildings subsequent to the effective date of 310 CMR 10.21 through 10.37, provided that the following requirements are met:

- (a) a coastal engineering structure or a modification thereto shall be designed and constructed so as to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches due to changes in wave action, and
- (b) the applicant demonstrates that no method of protecting the building other than the proposed coastal engineering structure is feasible.
- (c) protective planting designed to reduce erosion may be permitted.”

*This standard states that new coastal structures are not permitted except when the structure is required to prevent storm damage to buildings construction prior to 1978. Baxter Road and the water main located on the eastern edge of the pavement were constructed prior to 1978. Without the proposed coastal structure Baxter Road will be lost and storm damage will occur. Since Baxter Road is not a building, the project does not meet this standard and waiver is required. The application materials provided with the NOI clearly outline why no alternatives to the proposed plan exist. Alternatives were evaluated that considered stabilizing the roadway from the top of the bluff rather than the bottom. Input and recommendations from the project geotechnical engineer clearly advised against such measures, leaving no alternatives but toe stabilization. The town is in the process of relocating Baxter Road, but this process is expected to take a number of years to implement.*

*The coastal engineering structure has been designed to minimize to the extent possible, adverse effects to adjacent beaches on adjacent beaches. These impacts are mitigated through the placement of sand nourishment. Protective plantings are proposed but cannot be installed until spring 2014. These are proposed to reduce rill erosion from the upper bank area.*

“(4) Any project on a coastal bank or within 100 feet landward of the top of a coastal bank, other than a structure permitted by 310 CMR 10.30(3), shall not have an adverse effect due to wave action on the movement of sediment from the coastal bank to coastal beaches or land subject to tidal action.”

*The project will not reduce the ability of the land to absorb and contain floodwaters or buffer inland areas from wave damage. In fact, the project is intended to prevent wave damage from occurring. The sand mitigation proposed is intended to absorb wave action, mimicking the natural bank condition.*

“(5) The Order of Conditions and the Certificate of Compliance for any new building within 100 feet landward of the top of a coastal bank permitted by the issuing authority under M.G.L. c. 131, § 40 shall contain the specific condition: 310 CMR 10.30(3), promulgated under M.G.L. c. 131, § 40, requires that no coastal engineering structure, such as a bulkhead, revetment, or seawall shall be permitted on an eroding bank at any time in the future to protect the project allowed by this Order of Conditions.”

*The project does not propose structures at the top of the coastal bank.*

#### DIVISIONS

## ***LOCAL WETLANDS BYLAW PERFORMANCE STANDARDS***

### **2.01 LAND UNDER THE OCEAN**

“Land Under the Ocean shall be presumed significant to an Interest protected by the Bylaw as referenced in Section A, therefore the following regulations apply:”

1. “Dredging shall be designed and carried out using the best available measures as determined by the Commission so as to have the least possible adverse effects or changes in marine productivity caused by changes in, or resulting from suspension or transport of pollutants, sediment transport, smothering of bottom organisms, accumulation of pollutants by organisms, destruction of habitat or nutrient source areas, or changes in water circulation and water quality.”

*This project does not propose any dredging.*

2. “All dredging shall use best available measures to minimize adverse effects caused by changes in bottom topography resulting in an increase in height and velocity of waves hitting the shore, localized changes in circulation patterns or in changes in sediment transport which affect natural replenishment of beaches or maintenance of channels.”

*This project does not propose any dredging.*

3. “Residential piers shall be constructed so as not to change shoreline movement of sediment, harm shellfish resources, obstruct commercial shellfishing, or obstruct the reserved public rights of fishing, fowling, navigation, or passage. Residential piers shall not displace public moorings without written approval from the Harbormaster. No solid fill piers shall be permitted.”

*This project does not propose any piers.*

4. “Construction of commercial piers shall be in compliance with the Town of Nantucket Zoning Bylaws and shall not affect sediment transport, and shall not destroy or pollute fisheries and shellfish habitat or nutrient source areas for those resources. No solid fill piers shall be permitted.”

*This project does not propose any piers.*

5. “Best available measures as determined by the Commission shall be used to minimize adverse effects of a commercial or residential pier on the interests protected by the Bylaw.”

*This project does not propose any piers.*

6. “Aquaculture projects shall be undertaken pursuant to such means as may be established by the Commission so as to have the least possible adverse effect on wildlife, erosion control, storm damage prevention, flood control, recreation or public access. No destruction of habitat or areas where shellfish feed, or change in water quality or circulation in any manner which adversely affects productivity of marine fisheries or shellfish beds shall be permitted.”

*This project does not propose any aquaculture component. This project will not have an adverse effect on habitat, fisheries or shellfish beds.*

## DIVISIONS

7. “No new bulkheads or coastal engineering structures shall be permitted to protect structures constructed or substantially improved after 8/78. Bulkheads may be rebuilt only if the Commission determines there is no environmentally better way to control an erosion problem, including in appropriate cases the moving of the threatened building. Other coastal engineering structures may be permitted only upon a clear showing that no other alternative exists to protect a structure built prior to 9/78, but not substantially improved, from imminent danger.”

*There is no other alternative for erosion control at this location other than the installation of a coastal erosion control structure.*

8. “Water dependant projects shall be designed and performed so as to cause no adverse effects on wildlife, erosion control, marine fisheries, shellfish beds, storm damage prevention, flood control, recreation, and aquatic vegetation.”

*Coastal erosion control structures are considered to be water dependent, however; no adverse effects are anticipated to land under the ocean as a result of the construction or removal of this temporary CES. This is supported by the fact that no work is proposed directly within the ocean with the possible exception of water withdrawal for creating the slurry that fills the tubes.*

## **Coastal Beaches**

### **“2.02 COASTAL BEACHES (and TIDAL FLATS)”**

“A Coastal Beach, Tidal Flat or Land within 100 feet of a Coastal Beach or Tidal Flat shall be presumed significant to the Interests Protected by the Bylaw, as referenced in Section A, therefore the following regulations shall apply.”

1. “The provisions of Section 2.01B (1-8) (Land Under the Ocean) shall apply to coastal beaches and tidal flats.”

*Please see narrative above for Land under the Ocean. There are no Tidal Flats in the project area.*

2. “No new bulkheads or coastal engineering structures shall be permitted to protect structures constructed, or substantially improved, after 8/78. Bulkheads may be rebuilt only if the Commission determines there is no environmentally better way to control an erosion problem, including in appropriate cases the moving of the threatened building. Other coastal engineering structures may be permitted only upon a clear showing that no other alternative exists to protect a structure built prior to 9/78, and not substantially improved, from imminent danger.”

*There is no other alternative for erosion control at this location other than the installation of a coastal erosion control structure.*

3. Dredging projects in flats must be done in accordance with such procedures as the Commission determines would disturb the absolute minimum amount of habitat possible for both the borrow site and the area in which spoils are placed.

*This project does not propose any dredging.*

## DIVISIONS

4. “Clean fill of compatible grain size may be used on a Coastal Beach but not on a Tidal Flat, only if the Commission authorizes its use, and only if such fill is to be used for a beach or dune nourishment project. All possible mitigation measures shall be taken, as determined by the Commission, to limit the adverse effects of the fill.”

*Sand is to be used for beach nourishment as noted in this performance standard. Sand that is compatible with this performance standard will be used. This is supported in our application materials, which clearly outline the alternatives evaluated for stabilizing Baxter Road and the conclusion that the only viable alternative, based on available engineering and geotechnical data, is stabilization of the toe of the bluff.*

5. No part of any septic system shall be placed in shifting sands or on a coastal beach. The septic leach facility shall be at least 100 feet from the spring high tide line.

*This project does not propose any septic system.*

6. “All work on projects which are not water dependent shall maintain at least a 25-foot natural undisturbed area adjacent to a coastal beach. All structures which are not water dependent shall be at least 50 feet from a coastal beach.”

*Coastal erosion control structures are considered to be water dependent.*

7. “In areas of eroding shoreline, the distance from all buildings to the coastal beach shall be at least 20 times the average annual shoreline erosion or 100 feet, whichever is the lesser. The average annual shoreline erosion rate shall be determined by averaging the annual erosion rate over a 150 year period ending the date the NNOI was filed, or if no NNOI was filed, the date construction began. If erosion data is not available for the 150-year period, the Commission shall determine the average annual erosion rate from such lesser time period for which erosion data is available. In cases where documentation can be provided to show that the use of the 150-year period is inappropriate to existing shoreline characteristics and trends, alternate shoreline change rates may be used when based on a preponderance of credible evidence.”

*This project does not propose any buildings.*

8. “Vehicular access for existing houses or for recreational use shall be as unpaved ways and shall be done in accordance with such procedures as the Commission determines will minimize any adverse effect on the beach and the Interests of the Bylaw.”

*This project does not propose any vehicular access to residential properties.*

9. “Fertilizers shall be used in accordance with the “Best Management Practices for Landscape Fertilizer Use on Nantucket Island”

*This project does not propose the use of any fertilizers.*

10. “The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw.”

*The Applicants acknowledge the right of the Commission to apply additional requirements to protect the Interests of the Bylaw.*

#### DIVISIONS

## **“2.05 COASTAL BANKS**

“Coastal Banks or Land within 100 feet of a Coastal Bank shall be presumed significant to the Interests Protected by the Bylaw as referenced in Section A, therefore the following regulations shall apply.”

1. “No new bulkheads, coastal revetments, groins, or other coastal engineering structures shall be permitted to protect structures constructed, or substantially improved, after 8/78 except for public infrastructures. Bulkheads and groins may be rebuilt only if the Commission determines there is no environmentally better way to control an erosion problem, including in appropriate cases the moving of the threatened buildings and/or public infrastructure. Other coastal engineering structures may be permitted only upon a clear showing that no other alternative exists to protect a structure that has not been substantially improved or public infrastructure built prior to 9/78, from imminent danger.”

*Baxter Road and the water main located on the eastern edge of the pavement were constructed prior to 1978. The application materials provided with the NOI clearly outline why no alternatives to the proposed plan exist. Alternatives were evaluated that considered stabilizing the roadway from the top of the bluff rather than the bottom. Input and recommendations from the project geotechnical engineer clearly advised against such measures, leaving no alternatives but toe stabilization. The town is in the process of relocating Baxter Road, but this process is expected to take a number of years to implement.*

2. “Piers shall be constructed in compliance with the Town of Nantucket Zoning Bylaws using procedures determined by the Commission to be the best available measures to minimize adverse effects on Interests Protected by the Bylaw.”

*This project does not propose any piers.*

3. “All projects shall be restricted to activity as determined by the Commission to have no adverse effect on bank height, bank stability, wildlife habitat, vegetation, wetland scenic view, or the use of a bank as a sediment source.”

*The proposed improvements will increase bank stability and will not adversely impact habitat, vegetation or scenic view. The proposed sand mitigation and nourishment is intended to prevent adverse effects on the ability of the bank to serve as a sediment source.*

*A Waiver under Section 1.03F number 3a is requested to the Nantucket Wetlands Bylaw from the performance standard for Coastal Bank #3 “use of the bank as a sediment source.”*

4. “Elevated walkways designed not to affect bank vegetation shall be required for pedestrian passage over a bank.”

*This project does not propose any elevated walkways.*

## DIVISIONS

5. “All projects which are not water dependent shall maintain at least a 25-foot natural undisturbed area adjacent to a coastal bank. All structures which are not water dependant shall be at least 50 feet from a coastal bank.”

*Coastal erosion control structures are considered to be water dependent.*

6. “The septic leach facility of a septic system shall be constructed at least 100 feet from the top of the coastal bank and shall not be located within the face of the coastal bank.”

*This project does not propose any septic leaching facility.*

7. “In areas of an eroding coastal bank, the distance from all new structures to the coastal bank shall be at least 20 times the average annual erosion rate or 100 feet, whichever is the lesser. The average annual erosion rate shall be determined by averaging the annual erosion over a 150-year period ending with the date the NOI was filed, or if no NOI was filed, the date construction began. If erosion data is not available for the 150-year period, the Commission shall determine the average annual erosion rate from such lesser time for which erosion data is available. In cases where documentation can be provided to show that the use of the 150-year period is inappropriate to existing coastal shoreline characteristics and trends, alternate shoreline change rates may be used with the approval of the Commission.”

*The project does not propose structures at the top of the coastal bank.*

8. “All permits issued for the substantial improvement of an existing building or new construction of buildings under the Bylaw within 100 feet landward of the top of a coastal bank shall contain the specific condition that no coastal engineering structure of any kind shall be permitted on an eroding bank in the future to protect the project allowed by this permit, except those coastal engineering structures allowed by a waiver issued pursuant to Section 1.03F of these regulations.”

*This project does not propose any building structure.*

9. “The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw.”

*The Applicants acknowledge the right of the Commission to apply additional requirements to protect the Interests of the Bylaw.*

## **“2.10 LAND SUBJECT TO COASTAL STORM FLOWAGE”**

Land Subject to Coastal Storm Flowage or Land within 100 feet of Land Subject to Coastal Storm Flowage shall be presumed significant to the Interests Protected by the Bylaw as referenced in Section A, therefore the following regulations shall apply:

### DIVISIONS

1. “The work shall not reduce the ability of the land to absorb and contain flood waters, or to buffer inland areas from flooding and wave damage.”

*The project will not reduce the ability of the land to absorb and contain floodwaters or buffer inland areas from wave damage. In fact, the project is intended to prevent wave damage from occurring. The sand mitigation proposed is intended to absorb wave action, mimicking the natural bank condition.*

2. “Building upon areas subject to coastal storm flowage in locations where such structure would be subject to storm damage may not be permitted. If permitted, all construction must be in compliance with state and local building code regulations for flood hazard areas.”

*Baxter Road falls within the definition in the local bylaw for a “structure”:*

*“Structure - a combination of materials assembled at a fixed location to give support or shelter such as a building, framework, retaining wall, platform, bin, radio antenna mast, or the like. The term structure may also be applied to appurtenances that are constructed of impervious surfaces, such as but not limited to swimming pools, recreational playing courts, roads”*

*No structures are proposed that would be regulated by state or local building codes.*

3. “All private underground fuel tanks shall be outside the 100-year floodplain. Commercial tanks shall be outside the 100-year floodplain, or if the Commission determines this is not practicable, the commercial tanks shall be secured so that they cannot float loose.”

*No fuel tanks are proposed.*

4. “Building upon areas subject to coastal storm flowage in locations where such structure would be subject to storm damage may not be permitted. If permitted, all construction must be in compliance with state and local building code regulations for flood hazard areas.”

*No structures are proposed that would be regulated by state or local building codes.*

5. “Fertilizers shall be used in accordance with the “Best Management Practices for Landscape Fertilizer Use on Nantucket Island”

*No fertilizers are proposed to be used.*

6. “The Commission may impose such additional requirements as are necessary to protect the Interests Protected By the Bylaw.”

## DIVISIONS

*The Applicants acknowledge the right of the Commission to apply additional requirements to protect the Interests of the Bylaw.*

In summary, this proposed project has been designed to be a temporary measure to stabilize the bluff below Baxter Road while the Town takes the necessary time to move the roadway pavement and the public utilities in the roadway, which includes municipal water and municipal sewer. The proposed coastal erosion control structure (CES) will be installed at the toe of the coastal bank on the coastal beach which is land subject to coastal storm flowage.

**All applicable performance standards are met except the performance standard for Coastal Bank (#3) "...use of the bank as a sediment source." Due to this, a waiver is requested under Section 1.03F number 3a: "The Commission may grant a waiver from these regulations when the Commission finds that, given existing conditions, the proposed project will not adversely impact the interests identified in the Bylaw and there are no reasonable conditions or alternatives that would allow that project to proceed in compliance with the regulations."**

The project has been proposed so as not to create an adverse effect on the site. Nourishment mitigation of 20 cubic feet per linear foot has been proposed so as to insure that the littoral system has an adequate source of sediment. This amount has been chosen because it exceeds the calculated amount that could be expected from this section of beach without the CES installed.

The geotube alternative has been chosen because of its hardiness. Lesser alternatives have been dismissed because they cannot be depended on for consistent stabilization of the slope in a series of storms. The jute or coir logs are not able to withstand forceful storms, especially in series. When breached they require complete reinstallation. Strictly sand nourishment has not been proposed due to concerns expressed in previous applications regarding protection of the ocean cobble habitat. The town is not prepared or able to maintain these lesser alternatives at all times. The hardest installation that the Town feels could be allowed by the Conservation Commission is what has been proposed. Rock stabilization has not been proposed because that has not been permitted to date. The Town feels that this geotube alternative is the best option to temporarily stabilize the Baxter Road bluff during the time it needs to move the roadway and municipal utilities.

(508) 228-7244  
(508) 228-7245  
(508) 228-7289  
FAX

**APPENDIX A**  
Property owners list

**DIVISIONS**

ENGINEERING HIGHWAY SEWER SANITATION FORESTRY MOSQUITO CEMETERY RECYCLING

(508) 228-7244  
(508) 228-7245  
(508) 228-7289  
FAX

**APPENDIX B**  
Town Counsel memo

**DIVISIONS**

ENGINEERING HIGHWAY SEWER SANITATION FORESTRY MOSQUITO CEMETERY RECYCLING