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Rec. @ 9/10/15
Hearing from
E. Molden; NLC

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Nantucket Land Council

September 10, 2015

Dr. Ernie Steinauer, Chair
Nantucket Conservation Commission
2 Bathing Beach Road
Nantucket, MA 02554

Re: Siasconset Beach Preservation Fund NOI

Dear Commission,

We reiterate our opposition and concerns for the project as proposed which are contained in the administrative record and in our letter submitted on September 2, 2015. In light of recent communications among the Board of Selectmen, the Conservation Commission and the Siasconset Beach Preservation Fund, to come to an agreement involving the maintenance of the existing Geotube structure with additional elements for 3 years, we offer the following. We have reviewed the Special Conditions outlined in the DEP's Superseding Order of Conditions (SOC) for SE 48-2610 with our consultants, Applied Coastal Research and Engineering. We have addressed those conditions that should be included, at a minimum, in any Order of Conditions permitting the proposed work. The ***bold and italicized*** text has been added or edited from that originally included in DEP's SOC issued on December 19, 2014.

Special Conditions for OOC:

- 3) Prior to installation of the fourth tier of Geotubes ***and returns*** on lots 91, 93, 97, and 99, the proponents shall ascertain the width of the beach seaward of the existing Geotubes to determine whether there is sufficient beach width landward of mean high water (MHW) to conduct activities associated with the installation of the fourth tier and returns in accordance with the proposed construction methodology. In the event the beach is not sufficiently wide to allow Geotube installation in accordance with the proposed construction methodology, the proponents shall submit an alternative construction methodology for the ***Commission's review at a public hearing.***



- 4) Prior to installation of the fourth tier of Geotubes *and returns* on lots 91, 93, 97 and 99, the proponents shall *employ a Professional Engineer or a Professional Land Surveyor registered in the Commonwealth of Massachusetts to mark and certify* the MHW line with surveyed stakes, obtain Global Positioning System (GPS) coordinates along the MHW line and shall maintain the stakes throughout the duration of construction. GPS coordinates *and associated vertical elevations* shall be submitted to the *Commission* within 2 weeks of collection.
- 5) The staked position of the MHW line shall serve as a limit of work throughout the duration of construction. No work is allowed seaward of the MHW line under this OOC *during construction, mitigation, and/or maintenance of the project. If the stakes are washed out, they are to be reset immediately following the guidelines of Condition 4.*
- 6) Access to the beach shall be from Hoick's Hollow north of the project area. A gate or similar structure shall be installed to control vehicular access to the beach at the Hoick's Hollow access point.
- 7) All sand used to fill and cover the Geotubes shall be imported from an off-site source and shall be compatible in terms of grain size with the existing beach sediments.
- 8) As proposed, the sand-filled Geotube returns shall be installed in a manner to form closure between the existing Geotubes and the adjacent bluff without excavation into the coastal bank. All beach sand excavated to install the returns shall remain on the beach and shall be used to restore the beach following construction. *This material shall not be counted towards the required mitigation nourishment volumes.*
- 9) The ongoing beach monitoring/survey program currently conducted by the Woods Hole Group *(or other qualified Professional Engineer or a Professional Land Surveyor registered in the Commonwealth of Massachusetts)* shall continue. The monitoring program shall be conducted on a quarterly basis for *the 3 year life of the permit* in order to timely identify beach impacts that may be attributable to the Geotubes and to assess whether the mitigation program is adequate. Beach profiles shall be taken on a quarterly basis along the 44 proposed profile lines. Beach profiles shall be taken from the *top* of the coastal bank or coastal dune seaward to the -5 foot MLW contour. *The location of the top of bank or dune should be measured at all transect locations each time a monitoring survey is conducted.* Beach profile data and analysis shall be submitted to the *Commission* within 30 days of completion of the quarterly survey. *Project surveys shall not be performed within 30 days after placement or grooming of nourishment material. Surveys should be conducted in NAVD.*

New Condition) Provide annual monitoring of the top of the bank in the project area and north and south of the project limits for a distance of 1,000 feet through aerial photogrammetry, LiDAR, or a similar georeferenced method. Provide to the Commission calculations of annual changes in the volume of the coastal bank accounting for erosion and nourishment. An updated rate of annual erosion both in

the project area and in the unprotected areas located directly to the north and south of the project limits.

- 10) As proposed, offshore (bathymetric) profiles shall be taken on an annual basis. Offshore profiles shall be taken out to the -25 foot to -35 foot MLW 92 contour of 2,000 to 3,000 feet offshore, whichever is less. The bathymetric survey transects shall overlap the beach profiles (no gaps) and the tide gage used during the survey shall be surveyed into the same datum as the beach profiles. Bathymetry profile data and analysis shall be submitted to the *Commission* within 30 days of completion of the survey. *Surveys should be conducted in NAVD.*
- 11) An annual assessment report summarizing the beach and bathymetric profile monitoring program shall be *presented* to the *Commission at a public meeting* each year. This report shall, at a minimum provide an analysis of beach changes including volumetric changes between surveyed transects, assess location of the top of coastal bank and estimate bank retreat over the previous 12 months and calculate bank volume loss in the project area and 1,000 feet to the north and south. In addition, the report shall recommend any necessary changes to the beach nourishment program for the *Commission's* review. *All monitoring data (X, Y, Z data to a known horizontal and vertical datum) and analysis should be provided to the Commission and public in a universal electronic format at this time.*

The annual assessment report summarizing the beach and bathymetric profile monitoring program should be accompanied by a third party review of the report and preceding four quarterly survey reports. The third party review should include discussion and recommendations regarding the effectiveness of the structure, mitigation program and the erosion/accretion rates along the shoreline and bank. The third party reviewer shall be selected prior to construction of the fourth tier by SBPF, DEP, and the Commission. The Commission shall ultimately hold the responsibility to select and direct the independent third party reviewer to provide the Commission with the analysis, background, and data required to review the impacts and performance of this project.

- 12) Post –Storm monitoring reports shall be submitted following all significant storms. A storm will be considered “significant” if there are sustained winds over 40 mph over at least a 6 hour period according to NOAA’s National Climate Data Center, Nantucket Memorial Airport station, *or if it requires additional re-nourishment and/or re-grading and manipulation of the existing nourishment template.* The post-storm monitoring report shall include, at a minimum, photo-documentation of the condition of the Geotubes and nourishment sand within the project area, estimate of the volume of sand lost from the sand template, estimate of the beach level in front of the Geotubes to determine if replenishment is needed, estimate of volume of sand (if necessary) and schedule for delivery, identification of the location of any exposed geotextile or of any repair required to the geotextile, and visual observation of the ends of the Geotubes to determine if flanking is occurring. Such reports shall be submitted to the *Commission* as soon as

possible following all significant storms but no later than 7 days from the end of the storm.

- 13) Sand mitigation shall be at a rate of 22 cubic yards per linear foot (cy/lf) per year in accordance with the following schedule:
 - a. Provide initial cover of 22 cy/lf during and/or immediately following construction of the fourth tier and returns.
 - b. Annually in April: Provide additional sand and/or adjust the existing template to obtain a minimum two foot cover over the Geotubes to protect them from UV degradation. The volume of any sand placed in April shall be recorded and counted towards the annual 22 cy/lf requirement.
 - c. Annually in September-November: Place an additional volume of sand, to ensure a substantial portion of the sand template volume (10-15 cy/lf) is available at the onset of the winter storm season. Throughout the winter, place additional sand on an as-needed basis, in accordance with the replenishment trigger in the Milone and MacBroom's November 12, 2013 letter (i.e., if half the vertical height of the lowest Geotube is exposed, place a minimum of 2 cy/lf). If the balance of the 22 cy/lf volume is not placed in its entirety before March 1, the balance of the sand will be placed by March 31.
 - d. Delivery tickets from sand supplier shall be provided annually to the Commission to document the total volume of sand provided on a yearly basis. *This shall include the volume of sediment placed on the beach, on top of the structure, and across the bank face reported and accounted for independently.*
 - e. *A detailed schedule shall be provided to the Commission documenting each time nourishment was placed, groomed and/or manipulated in any way in the project area.*
- 14) If there is not adequate space to provide the entire mitigation volume within the project area footprint, then any remaining sand shall be placed in a berm at the toe of the coastal bank and landward of MHW within 300 feet of the ends of the Geotubes. Any additional sand placed outside of the project area shall be equally distributed to the areas north and south of the project area.
- 15) Failure of the SBPF to conduct the actions set out in subsections (a) to (e) herein shall constitute a project failure ("failure criteria") if not performed within the stipulated timeframes or within such other reasonable periods of time as determined by the *Commission* in the event of a delay in performance outside the control of SBPF, or if there are unmitigated adverse impacts from the project. *Meeting any of the failure criteria listed herein authorizes the Commission to order the removal of the Geotube project.* The "failure criteria" include:
 - a. Failure to provide the sand mitigation as required in Special Conditions #s 13 and 14.
 - b. Failure to conduct the shoreline monitoring and post-storm monitoring as required in special Conditions #s 9 through 12.
 - c. Failure to repair and/or replace damaged geotextile tubes in a timely manner. If repair or replacement cannot be accomplished within 30 days from the date of the

- damage, SBPF shall notify the *Commission* before 30 days have elapsed and provide a repair schedule for *Commission* review and approval.
- d. Excessive loss in updrift or downdrift beach cross section that can be attributed to the project. *"Excessive loss" shall be indicated by 3 successive quarterly surveys documenting an erosion rate that exceeds the average annual erosion rate for that transect, or adjacent transect if the transect has been newly added to the monitoring survey protocol.*
 - e. Failure to maintain adequate beach width in front of the Geotubes. If the beach in the project area erodes so that the position of MHW migrates landward to the seaward edge of the second tier of geotextile tubes for any two consecutive quarterly surveys, then within 30 days of completion of the second quarterly survey SBPF shall contact the *Commission*.
- 16) In the event certain failure criteria have been met and the *Commission* orders Geotube removal, then the geotextile fabric shall be cut, removed and properly disposed of. Following removal of the geotextile fabric, sand from the Geotubes shall be spread along the beach landward of MHW. SBPF shall ensure the escrow fund is maintained in place as of the date of this OOC to ensure the availability of funds to pay for the removal of the Geotubes. Lack of adequate funds in the escrow account shall not negate SBPF's requirement for Geotube removal.
- 17) The SBPF shall be responsible for the retrieval and proper disposal of all geotextile products associated with this project in the event wave action and erosion destroys or otherwise causes damage to the Geotube system.
- 20) The Commission shall be provided with periodic updates (at least every 6 months) on the status of efforts to relocate alternative access and public utilities' infrastructure at the northern end of Baxter Road.
- 25) Upon completion of the proposed installation of the fourth tier of Geotubes *and returns* on lots 91, 93, 97, and 99, a partial Certificate of Compliance shall be requested in accordance with General Conditions No. 11, and under the provisions of 310 CMR 10.05 (9)(d). A statement from a Professional Engineer or a Professional Land Surveyor registered in the Commonwealth of Massachusetts certifying compliance with the plans and conditions of this OOC and SOC shall accompany the request for a partial Certificate of Compliance.

Thank you for your time,



Emily Molden
Resource Ecologist

