



Environmental Consulting & Restoration, LLC



July 2, 2019

Town of Hull
Conservation Commission
210 Central Street
Hingham, MA 02043

RE: Notice of Intent: Proposed Coastal Dune Restoration for the Town of Hull

Dear Members of the Conservation Commission:

On behalf of Laura Murphy McIntosh and Sarah Murphy Kiernan of 141 Beach Avenue, Hull, Massachusetts, Environmental Consulting and Restoration LLC (ECR), submits the attached alternative design for the Commission's consideration. While we agree with the town's overall objective of improving the storm damage prevention and flood control functions along this 450 linear foot stretch of land, it is our opinion that there is an opportunity to utilize alternate materials in the construction of a coastal dune including in the area opposite our clients' property that will provide materially more of a long-term net benefit in this developed/alterred area of Beach Avenue.

ECR has reviewed the May 2019 NOI submitted by the Woods Hole Group (WHG) for the proposed project located opposite 131-145 Beach Avenue and the supporting materials. The Project Need (Section B.2) focuses on the "high risk for flooding in near time horizons." As a result, the primary focus of our design alternative is flood control. The Existing Environment (Section B.3) describes the natural and man-made characteristics of the area in which the proposed dune would be located, but does not provide that information with respect to the Coastal Beach. Therefore, the need for additional sediment that would be supplied by the Coastal Dune to the Coastal Beach is not well-documented in the NOI. As a result, the interest of storm damage prevention is, in our opinion, a secondary focus for the project. This distinction has a direct correlation with our proposed alternative.

Replication and function of a Coastal Dune at this site is complicated by the fact that it will immediately abut the paved width of Beach Avenue and a continuous line of single-family dwellings, retaining walls, lawns etc. Unlike with most coastal dunes and as is required by current performance standards in the regulations, there is no room or opportunity for the landward migration of the dune as would be the case in nature and which is presumed in the regulations. There is no dispute that sediment from the proposed dune would, over time, migrate onto Beach Avenue and the private properties beyond by wind and storm overwash and that the town would be responsible for continuous removal and relocation of the sand to keep the road passable. The proposed fencing and planting of shrubs in our view will only marginally reduce the frequency of roadway maintenance.

It is our opinion that, consistent with the overall objective to protect inland areas from flooding, the combined use of bioengineering materials (e.g., coir) and sediment, as currently proposed is more advantageous and will be superior in resilience to the storm impacts. All of the same design criteria regarding flood elevations, wave heights, form and volume of the dune etc. defined by the WHG have been used in our alternative design (see attached figure). The design incorporates the installation of three rows of sand-filled coir envelopes or tubes anchored

between the low concrete wall and wooden posts, compatible sand cover and salt tolerant vegetation. This design would control flooding and provide sediment to the adjacent beach, but most importantly, significantly reduce the need to maintain Beach Avenue and the private properties. This design has been utilized and approved by the DEP in many coastal communities, including on Plum Island.

We look forward to a discussion of this project alternative at your next hearing. In the meantime, if you have any questions or require additional information, please contact me at (617) 543-1654.

Sincerely,
Environmental Consulting & Restoration, LLC

A handwritten signature in blue ink that reads "Stanley M. Humphries". The signature is written in a cursive style with a large initial 'S'.

Stanley M Humphries
Coastal Geologist

CC: Department of Environmental Protection

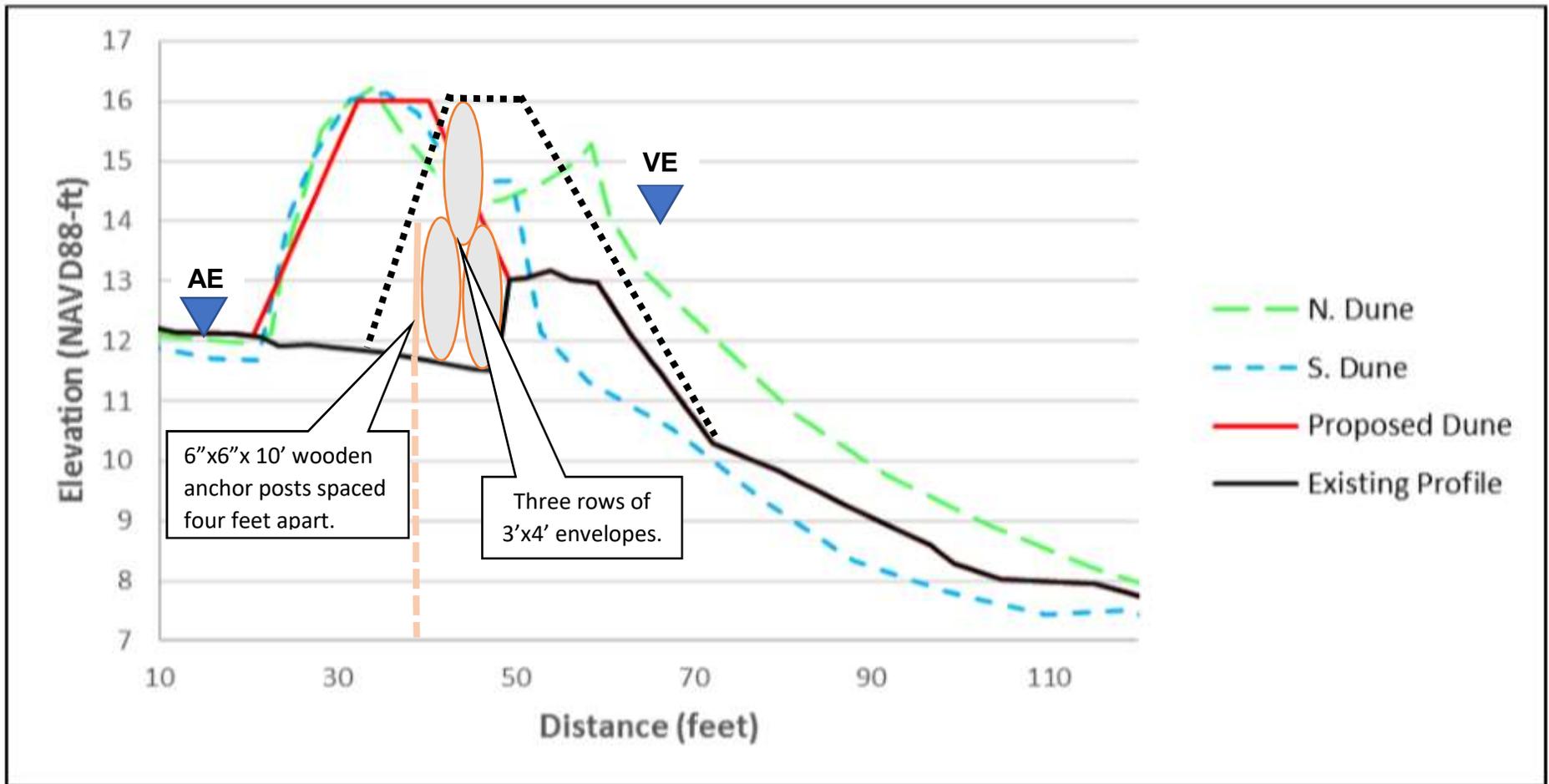


Figure 16. Comparison of proposed dune restoration (red line) versus the existing adjacent dunes to the north (dashed green) and south (dashed blue).

DUNE ALTERNATIVE: sand-filled coir envelopes, anchor posts, sand cover and vegetation. (dashed black).

NOTE: This Figure was taken from the WHG NOI and modified to show the proposed alternative and two flood elevations. Since there is a vertical exaggeration, the envelopes, in particular, are graphically distorted.