

Response of Squibnocket Farm, Inc. to Chilmark Conservation Commission Questions

Submitted: January 18, 2016

The following responds to the written questions that the Conservation Commission directed to Squibnocket Farm, Inc. on January 8, 2016 (as revised January 12, 2016). The Commission's question is repeated, followed by our response. Capitalized terms not defined below have the meaning given to them in the Notice of Intent (NOI):

1. *Are the cited studies, which indicate no significant impact to vegetation from shading when the causeway height to width ratio is at least 70%) applicable to the kind of vegetation currently in the BVW?*

Response: The cited studies evaluated salt marshes in North Carolina, but their conclusions were not limited to the types of vegetation present in those resources. We interpret the studies as having generic applicability to vegetated wetlands beneath roadway overpasses. As stated in the NOI narrative, the studies conclude that in order to avoid adverse impacts on underlying wetlands vegetation, a height-width (H/W) ratio of *at least* 0.70 is preferred. (The studies also suggest that it is preferable for a span to have a clear height of at least 9 meters (~30') in addition to a H/W ratio of greater than 0.70, but this obviously is not achievable or desirable in our situation, regardless of the marginal wetland protection benefits that might result from such a high span.) The referenced studies should not be read as establishing that a structure with a H/W ratio of 0.70 will necessarily have benign shadow effects, but merely, that structures with a H/W ratio less than 0.70 are likely to result in reduced productivity beneath. The studies do, however, corroborate our site-specific shadow study, which determined that shadows cast by the Low Causeway, which happens to have a H/W ratio slightly greater than 0.70, will have a negligible impact on the viability of the underlying BVW.

2. *Please indicate on a map the specific areas (9370 sq ft) subject to 'vegetation clearing' and other disturbances on the coastal bank and associated buffer zone at the project site. Please also indicate where the 9730 sq ft of impacted LSCSF is and the nature of the impact(s). (See page 6 of the NOI.)*

Response: The areas subject to vegetation clearing within coastal bank and associated buffer are within the "limits of work" shown on NOI Plan Sheet PC-1. The impacted LSCSF consists of all areas that are (1) within the "limits of work" shown on Sheet PC-1, and (2) below El. 15. The activities to occur in the impacted LSCSF areas consist of vegetation clearing, grading, placement of fill, and installation of epoxy-coated piles, followed by revegetation.

3. *What is the plan to deal with the spoils from the "shallow excavation" of land comprising the coastal bank and associated buffer zone between Squibnocket Pond and Squibnocket Road? (See page 5 of the NOI.)*

Response: We anticipate that there will be no excess excavated material generated during construction of the Access Project. Material excavated during Roadway construction will be reused to achieve final grades for the Roadway. If, contrary to expectations, there is any excess

material, it either will be made available to the Town for use in the construction of the new Town parking lot or dune, or transported off-site for lawful disposal or reuse.

4. *Please indicate the limit of work and placement of erosion control barriers for the roadway and causeway activities.*

Response: Limits of work and associated erosion controls are illustrated on NOI Plan Sheet ERC-1. A revised version of this sheet, showing limits of work within the Low Causeway section of the Project, is submitted with these responses.

5. *Please explain the plan, if any, to interrupt/slow the storm water flowing down the sloped paved road. How will the water flow be directed into the berm along its length.*

Response: The final grading for the Roadway, which will be depicted on final (100%) design plans for the Project, will direct runoff to the adjacent vegetated areas and bio-filtration swales in order to prevent the sheeting of runoff down the road.

6. *The storm water catchment proposal is designed for what level of storm (eg typical/10/25 yr)? Describe the consequences if that level is exceeded.*

Response: As a "redevelopment project" within the meaning of 310 CMR 10.05(6)(k)7, the Access Project is not held to strict compliance with the Stormwater Management Standard relating to post-development discharge rates (310 CMR 10.05(6)(k)2). This means that the Project's open drainage system is not required to maintain "pre-development" rates of runoff for any specific design storm event. Instead, redevelopment projects are required to meet this standard to the "maximum extent practicable," and this requirement can be waived in this instance because most of the Project is located within LSCSF. Still, the standard is met because the pitched hillside construction of the vegetated swale will prevent it from overflowing during most storm events. During any precipitation events in excess of the swale's capacity, some portion of runoff from the Project site may be released from the swale to adjacent vegetated areas. This would be an ephemeral condition experienced only at the peak of the storm. (In considering pre- and post-construction rates of runoff, it is important to keep in mind that the Project will enable the Town's removal of the existing Town parking lot and abandoned portions of existing Squibnocket Road, effecting an overall net reduction of impervious cover in the Project area and a corresponding reduction of stormwater runoff during all storm events.)

7. *Please clarify the paragraph titled "Temporary Stabilization" (page 7 of the NOI).*

Response: The intent of this paragraph is to confirm that appropriate short-term measures will be used to stabilize exposed soils during construction to avoid, minimize and mitigate potential impacts to down-gradient resource areas. Temporarily disturbed areas will primarily fall within the vegetated hillside between Squibnocket Road and Squibnocket Pond, and not within "previously-paved" areas as inadvertently stated in the NOI. Temporary stabilization measures may include use of a gravel layer or crushed stone to facilitate continued access by construction equipment. Additional stabilization measures on steep slopes may include hydro-seeding with appropriate seed mixes, use of locally-procured straw or hay mulch and erosion control blankets as deemed necessary.

8. *Please confirm that the concrete slabs will lie atop the coastal bank (and beyond the BVW).*

Response: Confirmed. The at-grade concrete slabs at the terminal ends of the Low Causeway will lie atop the coastal bank, and not in BVW.

9. *Please detail what activities comprise the "minor alteration of the Coastal Bank" (See pp. 11-12 of the NOI).*

Response: The list of activities on pages 4-5 of the NOI narrative are the activities that will result in the "minor alteration" referenced on page 11.

10. *Please clarify why the performance standards for barrier beaches are included in the NOI, as it does not appear that any work is to be performed on or a barrier beach. (Note the ENF certificate indicates that 6500 sq ft of barrier beach will be impacted by the Access Project. Please clarify this issue.)*

Response: The NOI narrative does address the performance standards for barrier beaches, but only to indicate that these standards are satisfied because no work is proposed within barrier beach. The ENF (which was prepared prior to the completion of geotechnical studies at the Project Site) conservatively estimated 6,500 s.f. of barrier beach alteration may occur in connection with the Access Project. The actual number is 0 s.f. Admittedly the treatment of the barrier beach topic has not been as clear as possible, and we hope this response eliminates the confusion.

11. *Please detail the design rationale for the 10.8'/13' height of the causeway insofar as it is relevant to wetlands protection issues? Please also indicate separately any safety, resilience, cost, feasibility, visibility or other concerns considered.*

Response: Numerous considerations influenced the selection of the Low Causeway's design elevation. The elevation of the Low Causeway has only an indirect (if any) effect on the underlying wetlands, through shadowing, and the higher the elevation of the Low Causeway, the lower the indirect impact on the underlying wetlands. Furthermore, the higher the elevation of the Low Causeway, the less the structure will overwash, reducing the frequency and intensity of repair and maintenance events that that may require direct access across the wetland areas to perform. The proposed design strikes the best balance between the desire to have a high span for wetland protection purposes and the Committee's preference for a lower span that overwashes with some regularity but is responsive to engineering considerations such as those cited in the question (e.g., "safety and resilience"). Other factors included a desire to minimize the amount of excavation needed to construct the connecting Roadways, which are located in archaeologically sensitive areas. The rationale for the selected design and its consistency with the Committee's recommendations were presented in detail to the Chilmark Selectmen at their meeting on December 5, 2015. The Selectmen approved the design. As explained in the NOI and as elaborated in these responses, the design is protective of the underlying wetlands.

12. *If the width/height ratio of the proposed causeway is reduced to 70%, what would the elevation of the deck be and what impacts (positive or negative) would this have on the concerns noted in the immediately preceding question.*

Response: The NOI estimates a H/W ratio of 0.89. This likely is a slightly high estimate because it assumes the pile bents, at one-foot high, will have a negligible shading effect. Furthermore, the ground surface of the BVW is between elevation of El. 1 and 2. As the NOI narrative states on page 2, the Low Causeway is "approximately 9 feet above the existing grade for the majority of the span." With a span width of 12', this means that the H/W ratio is likely between 0.75 and 0.80 than 0.89. A reduction of the H/W ratio from 0.75 to 0.70 would lower the span by only 0.6 foot (7.2"), while marginally increasing the span's shadow impacts, exposing the span to more frequent overwash and damage, and potentially reducing its longevity. As discussed in our response to the Commission's first question, 0.70 is not a rule or standard below which there definitely will be adverse impacts, and above which there definitely will not be adverse impacts. Rather, the studies indicate that ratios above 0.70 are more likely to be protective than ratios below 0.70.

13. *In terms of protecting wetland resource interests, is there a material difference between a paved or gravel/dirt access road?*

Response: A gravel/dirt access road is more prone to erosion and sedimentation than a paved roadway, and requires more frequent maintenance. From the perspective of protecting adjacent wetlands, a paved road is for these reasons preferable. We do not believe the difference is "material," particularly where, as here, storm water runoff from the roadway will be treated in vegetated areas and bio-filtration swales.

14. *Can the height of the elevated causeway be designed with a hydraulic, adjustable feature to progressively raise the causeway deck as needed over time? If so, how will this affect the two connectors from Squibnocket and Squibnocket Farm Roads? If this was feasible, what would be the estimated additional or reduced impacts on the resources versus the current proposal?*

Response: It is not feasible in cost or practical terms to construct a hydraulically-controlled, adjustable height causeway. We are aware of no precedent for such an approach, and no reason for considering it because, as demonstrated, the Low Causeway complies with all relevant wetland performance standards and with the Committee's recommendations.

15. *Please provide an exit plan that outlines when and how the elevated causeway, utilities and causeway connectors on each end will methodically be removed as the shoreline and mean high tide continues to migrate to the north. This plan should specify how close mean high tide will be to the most vulnerable section of the causeway and connectors to trigger the development and submission of a plan for further managed retreat. This trigger should be done such that there will be sufficient land area for the required equipment to perform the work.*

Response: The Low Causeway is designed for a useful life of at least 50 years. Based on

historic and predicted rates of erosion, our expectation is that the Low Causeway will survive much longer than that. It is not possible to plan in any meaningful detail for a relocation project that would occur, if ever, only at such a distant future time and in a natural and regulatory environment that cannot be predicted. We respectfully suggest that instead of developing a detailed plan for "how" the Low Causeway will be replaced or relocated if the need arises, the task should focus on defining "when" the process of planning for such a project should commence. The "most vulnerable section" of the Low Causeway is at its approach to Money Hill. By "most vulnerable," we mean that this is the portion of the Low Causeway with the smallest setback from mean high water. That distance is approximately 100 feet. We suggest that a planning process for a possible relocation or replacement project be initiated when the distance between either of the causeway's ends (south or north) and mean high water narrows to 10 feet.

16. What type of heavy equipment will be used in the vulnerable areas of the transitional areas at each end of the causeway where land topography will be altered? This question also applies also to the paved road leading to the causeway. What is the perimeter of disturbance beyond the roadways edge?

Response: Until a contractor is selected for the Project, the actual equipment to be used during construction cannot be defined. We expect that the equipment used will include a track or rubber tired crane, dump trucks, backhoes, bulldozers, front end loaders, and service trucks. This equipment will operate within the limits of work shown on NOI Sheet PC-1.

17. Presuming that there will be some gas powered tools or machines on site, what are the plans in how to use gas on site and plans to avoid any contamination of the resource area with gas or oil.

Response: Equipment mobilized to the Project Site will be refueled outside of vegetated resource areas, in construction staging areas that have secondary containment. In the unlikely event of any releases of gas or oil, whether or not to wetland resource areas, spill response will be performed immediately in accordance with the Massachusetts Contingency Plan and other applicable law.

18. Please provide an indicative time table for all phased construction activity at the project site.

Response: No definitive construction schedule has been prepared yet because the start date for construction cannot be identified until the permitting process has been completed, construction services and materials are procured, and any applicable time of year restrictions are met. Conceptually, the construction process would take 17 weeks in total, divided into the following phases: (1) a mobilization phase of three weeks; (2) a Low Causeway construction phase of 12 weeks; (3) a Roadway construction phase of three weeks (overlapping with final three weeks of Low Causeway construction); and (4) demobilization for two weeks.

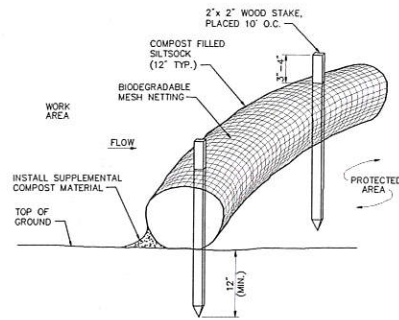
19. The NOI states that there will be 25 sq ft of permanently impaired BVW. Does the Applicant take the view that no replication is necessary under the performance standards set out at 310 CMR 10.55(4) and, if so, why?

Response: In both absolute terms and relative to the overall size of the Project Site, the proposed 25 s.f. permanent loss of BVW as a result of pile installations is de minimis. We believe that it falls within the discretion of the Conservation Commission under 310 CMR 10.55(4)(b) to not require replication for this very small loss. Replication is ordinarily not pursued, and is difficult to implement successfully, on such a small scale. If, however, the Conservation Commission does require replication, we suggest that this be accomplished, at the Proponent's expense, as a 50 s.f. addition to the BVW replacement area proposed as part of the Town Project.



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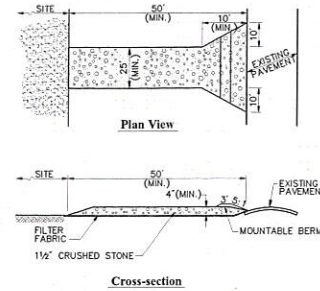
HALEY
ALDRICH



- Notes:**
1. SILT SOCK SHALL BE FILTREXX SILT SOCK, OR APPROVED EQUAL.
 2. SILT SOCKS SHALL OVERLAP A MINIMUM OF 12 INCHES.
 3. SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
 4. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
 5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

Siltsock - Erosion Control Barrier

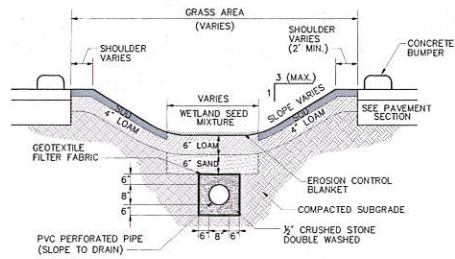
N.T.S. Source: VHB 6/08 LD_658



- Notes:**
1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
 2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED, PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
 3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

Stabilized Construction Exit

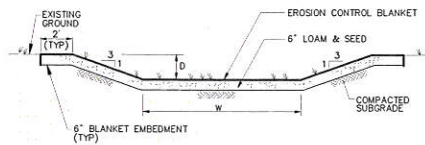
N.T.S. Source: VHB 6/08 LD_682



Biofiltration Grass Swale

N.T.S. Source: VHB 6/08 LD_174

SWALE DESIGNATION	W	D
TBD	TBD	TBD
TBD	TBD	TBD



Grassed Swale

N.T.S. Source: VHB 6/08 REV LD_371



Squibnocket Road

No.	Revision	Date	Appr.
1	Erosion Controls	1-15-2016	

Designed by: _____ Checked by: _____
Issued for: _____ Date: _____
Notice of Intent December 18, 2015

Not for Construction
Drawing Title
**Squibnocket Farms
Erosion Control and
Resource Areas**

Drawing Number

ERC-1

Sheet 1 of 1

Project Number
13160.00