GRADY CONSULTING, L.L.C.
Civil Engineers ♦ Land Surveyors ♦ Landscape Architects

Narrative – 181 Edward Foster Road

Introduction

The proposed project is for work on an existing single-family residence. The applicant proposes a rear patio, a front walkway, repaving of the existing asphalt driveway, and resetting of the existing pavers nearest Edward Foster Road. The applicant also proposes landscape improvements to address the existing ponding to north of the dwelling, as outlined further below.

Existing Site

The site is located at 181 Edward Foster Road, within the Scituate R-3 Zoning District. The site abuts residential properties to the east, west, and south, and the Scituate Harbor to the north. Access to the site is through a shared driveway to the east off Edward Foster Road. There is an existing single-family dwelling, asphalt driveway and parking area, decks, a shed, maintained lawn, and landscaping features.

There is a Coastal Beach and Coastal Dune to the north of the dwelling. A portion of the site is within FEMA Flood Zone AE (EL. 15).

The site experiences surface water retention issues to the north, nearest Scituate Harbor. Test holes were completed by Grady Consulting, LLC on January 9, 2024. The test holes indicate the top fill layer of sandy loam and a restrictive clay layer between sandy loam and loamy sand layers. These restrictive layers are estimated to be the source of the retention issues.

Proposed Work

The proposed work includes a patio to the rear of approximately 401 square-feet, a walkway to the front of approximately 77 square-feet, repaving of the existing asphalt driveway, and resetting of the existing pavers nearest Edward Foster Road. This work is sited greater than 100-feet from the Coastal Bank and Coastal Dune. This work is within the mapped FEMA Flood Zone.

Landscape improvements are also proposed to address the existing surface water retention issues to the north of the dwelling. The proposal includes a 2,627 square-foot infiltration area to collect overland flow, roof drain flow, sump pump flow, and driveway overland flow. The infiltration area consists of two 8-foot diameter leaching pits within an open infiltration basin. The restrictive soil layers will be removed and replaced with 3-inch stones. The top 12-inches are proposed of 3-5-inch beach stones. A 2-foot-wide by 2-foot-deep by 110-foot-long stone subsurface stone trench is also proposed to promote infiltration of surface water. The landscape improvements are located within 100-feet from the Coastal Bank and Coastal Dune and within the mapped FEMA Flood Zone.

Roof drain and sump flow will be directed to a 24-inch-wide by 22-inch-deep drip trench. The trench is proposed of ¾-inch crushed stone, with a 6-inch ADS N12 perforated pipe, and 4-inches of peastone or crushed shells at the surface.

Driveway overland flow will be directed to a 12-inch diameter drain basin. Two 8-inch HDPE outlets are proposed from the basin to the infiltration; one outlet is proposed for normal stormwater flow and the other outlet is proposed for overflow.

All proposed work is within previously disturbed areas. The infiltration area is proposed within an area of existing lawn. The existing drainage conditions will be significantly improved through the removal of existing restrictive soil layers and the construction of the above-mentioned drainage system. The existing restoration area on site will not be disturbed or altered in any way.

Resource Area Protection

Massachusetts Wetlands Protection Act, M.G.L. c. 131, § 40 ("Act")

The proposed project is located within the 100' buffer zone to Coastal Bank and Coastal Dune. "For work in the buffer zone subject to review under 310 CMR 10.02(2)(b)3, the issuing authority shall impose conditions to protect the interests of the Act identified for the adjacent resource areas." 310 CMR 10.24

The proposed project will not have any adverse effects on the interests of the Act for the following resource areas:

310 CMR 10.27. Coastal Beach
means unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bankline or the seaward edge of existing human-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.

(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 work will not have any adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach. No work is proposed within the Coastal Beach.

(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.*
- *(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.*
- *(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.*

(d) 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.

The project does not propose a groin, jetty, solid pier, or other such solid fill structure.

WHEN A TIDAL FLAT IS DETERMINED TO BE SIGNIFICANT TO MARINE FISHERIES OR THE PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(6) SHALL APPLY:
Tidal Flat means any nearly level part of a coastal beach which usually extends from the mean low water line landward to the more steeply sloping face of the coastal beach or which may be separated from the beach by land under the ocean.

(6) In addition to complying with the requirements of 310 CMR 10.27(3) and (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;
The proposed work will not alter water circulation.

(b) alterations in the distribution of sediment grain size; and
The proposed work will not alter the distribution of sediment.

(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.
The proposed work will not change water quality.

(7) Notwithstanding the provisions of 310 CMR 10.27(3) through (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.
The project is not located within any NHESP priority habitats.

310 CMR 10.28. Coastal Dune
means any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control.

(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:

(a) affecting the ability of waves to remove sand from the dune;
(b) disturbing the vegetative cover so as to destabilize the dune;
(c) causing any modification of the dune form that would increase the potential for storm or flood damage;
(d) interfering with the landward or lateral movement of the dune;
(e) causing removal of sand from the dune artificially; or
(f) interfering with mapped or otherwise identified bird nesting habitat.

The proposed infiltration area is an open basin and will not affect the ability of waves to remove sand, destabilize the dune, modify the dune, interfere with landward or lateral movement of the dune, remove sand from the dune artificially, or interfere with bird nesting habitats. The infiltration area will be a conversion of existing lawn.

(4) Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the

coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.
Not applicable.

(5): The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):

(a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;
(b) fencing and other devices designed to increase dune development; and
(c) plantings compatible with the natural vegetative cover.

Not applicable.

(6) Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.
The project is not located within any NHESP priority habitats.

There are no performance standards for work within Land Subject to Coastal Storm Flowage (the FEMA Flood Zone) under the Act.

SWR 10.05(10)

BUFFER STRIP

(b)(1)There shall be a continuous undisturbed Buffer Strip (herein after referred to as the Buffer Strip), a minimum of 50 feet in width, from the edge of all areas subject to protection as defined in the regulations, promulgated under Section 30700 of the Town of Scituate Code of Bylaws (with the exception of the Buffer Zone to Bordering Land Subject to Flooding, Isolated Land Subject to Flooding and Land Subject to Coastal Storm Flowage. As a general rule, the Buffer Strip shall be considered undisturbed if it is continuous, unaltered, and left in a natural state….

(b)(4) Pre-Existing Conditions in the Buffer Strip. The Commission may allow a condition or activity within the Buffer Strip if the applicant is able to demonstrate to the Commission's satisfaction that the condition or activity existed prior to the date of this amendment to the Scituate Wetland Protection Regulations.
The proposed work in the Buffer Strip is located in existing lawn which existed prior to the date of the amendment of the SWR. Additionally, the improvements will be located below grade and the Buffer Strip restored to lawn as previously existed.

SWR 10.38 Land Subject to Coastal Storm Flowage

GENERAL PERFORMANCE STANDARDS
(a) When the issuing authority determines that Land Subject to Coastal Storm Flowage (A, AE, and/or VE zones) overlays other resource areas listed in these Regulations, the applicable performance standards for each resource area shall be independently and collectively applied and the project shall be appropriately conditioned to protect all stated interests.
(b) When Land Subject to Coastal Storm Flowage (AE, AO and/or VE-zones) is significant to the interests of flood control and storm damage prevention, the following performance standards

shall apply: i. Any activity shall not have an adverse effect by increasing the elevation or velocity of flood waters or by increasing flows due to a change in drainage or flowage characteristics (e.g. change in direction) on the subject site, adjacent properties, or any public or private way. ii. Relative sea level rise and the landward migration of resource area in response to relative sea level rise shall be incorporated into the design and construction of structures and other activities proposed in Land Subject to Coastal Storm Flowage. At a minimum, for activities proposed in AE- & VE-zones, the historic rate of relative sea level rise in Massachusetts of 1 vertical foot per 100 years shall be incorporated into the project design and construction by, at a minimum, elevating the lowest floor 1 foot or higher above the base flood elevation in a FEMA-mapped AE-Zone, and setting the lowest horizontal structural member 2 feet or higher above the base flood elevation in a VE-Zone unless a higher elevation is determined by the Commission.
The proposed work within LSCSF will not have an adverse effect by increasing the elevation or velocity of flood waters or by increasing flows due to a change in drainage or flowage characteristics on the site, adjacent properties, or any public or private way. Sea level rise is not relevant to the improvements which will be located below grade.