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September 14, 2021

Duxbury Board of Health
Town Hall
878 Tremont Street
Duxbury, MA 02332

Subject: **0 Keene Street, Parcel 014-011-006 – Septic System & Drainage Design**

Dear Board Members:

This is to advise that we have reviewed the Site Plan (2 sheets), Stormwater Management Design Calculations and transmittal letter with attachments, all dated August 26, 2021, prepared by Grady Consulting, LLC, for the proposed dwelling and septic system at the subject location. The purpose of our review has been to evaluate conformance with 310 CMR 15 - The State Environmental Code (Title 5) and the Town of Duxbury Supplementary Rules & Regulations to the State Environmental Code (R&R).

The site is located off the north corner of Keene and Summer Streets (Route 53). It is within the Residential Compatibility (RC) zoning district. The property is not within the Aquifer Protection Overlay District (APOD) nor is it within a FEMA flood zone. The proposed septic system is designed for a three bedroom dwelling and town water is proposed to serve the dwelling from a connection to the existing water main in Keene Street. There are bordering vegetated wetlands located on and adjacent to the lot and their associated buffer zones encompass most of the lot.

The stormwater design includes a pair of concrete drywells for roof runoff and a rain garden which would take overflow from the drywells. The septic system would include a 1,500 gallon tank, distribution box and a 35-ft. long by 12.4-ft. wide GeoMat leaching field. The GeoMat leaching system is a MassDEP approved alternative subsurface soil absorption system. We note that the MassDEP approval, Condition 9 allows the system to be installed within five feet of a cellar wall and the proposed system is about six feet off the cellar wall.

The Applicant is requesting one variance from R&R Section 1.10(1)(a) which requires the soil absorption system (SAS) to be a minimum of 150 feet from wetlands. The proposed SAS is 88.3 feet from the wetlands but it is located the furthest distance from the wetlands that it can be on this lot. It is also located on the opposite side of the dwelling from the nearest wetland.

Comments:

1. The Stormwater Management Design Calculations indicate that there will be no increase in stormwater runoff from the lot under proposed conditions for the 2-, 10- and 25-year storm events as required by R&R Section 1.15(1)(a). However, we note the following:

    a. The HydroCAD model includes a swale that is supposed to convey runoff from the driveway to the rain garden. However, based on the proposed grading it appears that runoff would flow around the rain garden rather than into it. The model should be revised to reflect this.

b. The HydroCAD model has six inches of crushed stone below the concrete drywells but the detail on Sheet 2 shows one foot of stone. This should be consistent.

2. In accordance with the Septic System Application Checklist, the following is required:

   a. Floor plans should be submitted.

   b. The proposed driveway and house are shown on the plan but any walks or other impervious areas should also be shown if proposed.

   c. Rick Grady's soil evaluator certification number should be include under Septic Note 3.

   d. The effluent tee filter on the outlet from the septic tank should be specified to have a support leg.

3. The GeoMat SAS design calculations indicate that the design flow provided will be 507 gallons per day.

4. The future homeowner will need to be educated on the GeoMAT SAS requirements, particularly that there can be no impervious surface above the SAS and no planting within five feet of the SAS.

5. The Subsurface Sewage Disposal System profile on Sheet 2 shows a foundation drain. There should not be a foundation drain on the side of the house that the SAS is on.

6. The total lot area should be listed on the plan.

7. To avoid confusion, Town of Duxbury Checklist Notes 4 and 7 should indicate that there are wetlands within 150 feet of the system and a variance is required. Same comment for Note 6 on Sheet 1 and Septic Note 9 on Sheet 2.

Please give us a call should you have any question.

Very truly yours,

AMORY ENGINEERS, P.C.

By:

PGB

Patrick G. Brennan, P.E.