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April 13, 2021

Hingham Planning Board
210 Central Street
Hingham, MA 02043

Subject: **101 Gardner Street – Definitive Subdivision**

Dear Board Members:

This is to advise that we have reviewed the following documents prepared by Grady Consulting, L.L.C. related to the subject project:

- Definitive Subdivision Plan (12 sheets), dated February 26, 2021
- Stormwater Report, dated February 25, 2021
- Transmittal letter with attachments, dated March 2, 2021

The purpose of our review has been to evaluate conformance with the Hingham Zoning Bylaw (ZBL), Planning Board Rules and Regulations (R&R), MassDEP Stormwater Management Standards (SMS) and good engineering practice.

Background

The 4.95± acre site contains an existing single-family dwelling, detached garage, shed, gravel driveway, lawn area and wooded area. It is part of a larger, 50.92± acre parcel that is a part of the Boston Golf Club. The proposed definitive subdivision would create three new residential lots, a drainage lot and the roadway layout. The property is located at 101 Gardner Street and is within the Residence B Zoning District. The site is not located in any Hingham zoning overlay districts but it is located within a Zone II of a public well.

The proposed roadway would be a 308± foot long dead-end cul-de-sac roadway off Gardner Street. The road would be a “Limited Residential Street” with twenty-foot wide travel way, twelve-inch Cape Cod berms and grass strips located within a forty-foot wide right-of-way. No sidewalk is proposed and it is not required on Limited Residential Streets.

The stormwater system would consist of catch basins, drain manholes, high-density polyethylene (HDPE) pipe, sediment forebay and an open infiltration basin. Roof runoff from the dwellings on Lots 1 and 2 would be directed into subsurface infiltration systems consisting of concrete chambers surrounded by crushed stone. Roof runoff from the dwelling on Lot 3 would be directed into an existing depression at the southwest portion of the lot, where it would be infiltrated. Water service would be provided by new 8-inch ductile iron watermain connected to the Town’s distribution system in Gardner Street. Each dwelling would be served by individual

on site subsurface sewage disposal systems. Electric, telephone¹ and CATV¹ utilities would be located underground. No other utilities (natural gas) are shown on the plans.

Comments

Compliance with the Planning Board Rules and Regulations

1. We note that no waivers have been requested from the Planning Board Rules and Regulations.
2. R&R §3.C.2(a) requires two permanent benchmarks to be shown on the plan. One, temporary benchmark (nail in driveway) is shown.
3. R&R §4.B(4)(b) requires sloped granite curbing around the inside island of a cul-de-sac turnaround. Cape Cod berms are proposed.
4. As noted above, no proposed natural gas service is shown on the plans. If proposed, it should be shown in accordance with R&R §4.L(1).
5. In accordance with R&R §4.L(6) documentation should be provided to verify that there will be adequate water supply for domestic use and fire flow.
6. R&R §4.L(7)a. requires a ten foot wide electric easement around all Hingham Municipal Lighting Plant (HMLP) infrastructure. The Applicant should coordinate with HMLP as necessary.
7. R&R §5.L1(4) requires HDPE drain pipe to have rubber gaskets. A detail should be provided specifying rubber gaskets for the drain pipe as well as the bedding requirements of §5.I2.
8. R&R §5.L1(5) and §5.T3(6) require granite curb inlets with transition curbs at all catch basins unless the Board approves the omission of the curb inlets.
9. R&R §5.L1(9) requires all drain outfalls to end in a concrete or masonry headwall. A flared end section is proposed. If the Board approves the use of the flared end section, for durability, we recommend a reinforced concrete flared end section rather than HDPE.
10. R&R §5.R1(6) requires catch basins to be five feet in diameter and 8'-6" deep. The proposed catch basins are four foot diameter with a four foot sump, which is MassDOT and industry standard.
11. The Typical Water Trench Detail on Sheet 11 should specify the bedding and zone around the pipe to be sand in accordance with R&R §5.B3.

¹ Only electric is labeled on the plan but we assume telephone and CATV utilities would be installed in the same trench.

12. The Typical Roadway Sections on Sheet 11 should specify the gravel subbase material to meet the requirements of M1.03.1 in accordance with R&R §5.J3. The Sections should also show the grass strips to slope toward the roadway in accordance with R&R §5.A4(1).
13. The Board should determine whether street lighting should be included in the subdivision (R&R §5.X3).
14. The plans should show a ten foot wide street tree planting strip in accordance with R&R §5.B4.
15. A bound/monument detail should be shown on the plans.
16. Street name and stop signs should be shown on the plans in accordance with R&R §5.D4.

General, Utilities, Stormwater & Erosion Control

1. The roofs of the proposed houses have been broken out of the overall site post-development drainage/ HydroCAD calculations and analyzed separately. These should be included in the overall post-development site analysis. We also request that a separate analysis be run to show what would happen if the proposed drywells for roof runoff were to fail. We believe that drywells for roof runoff are a beneficial best management practice but failure of these systems would not be surprising and we want to make sure that failure of these systems would not cause increased runoff to adjacent properties.
2. We note that the overall site post-development analysis is based on proposed grading as shown on the plans, including lot development. There are low areas on the proposed lots that are modeled as infiltration areas. These low areas will need to be maintained and proposed lot grading will need to be per plan to ensure that post development runoff is mitigated as proposed.
3. Additional soil testing on site is required. There are no test holes at the location of the proposed infiltration basin or the roof drywells. The groundwater elevation at the proposed infiltration basin is shown to be El. 125.9 on the Basin Detail (Sheet 10) and it is noted that the elevation is taken from test hole #1, however, test hole #1 was only excavated to El. 126.4 according to the test hole logs on Sheet 12. Additional test holes are also required for septic system design.
4. The Dry Well for Roof Drains detail on Sheet 12 shows 2'-5" of stone surrounding the concrete chambers but only 2 feet of stone is modeled in the calculations. The detail also specifies filter fabric to be installed below the stone under the chambers, which is not required, nor recommended.
5. We question the required recharge volume and water quality volume calculations in the Stormwater Report. The calculated recharge and water quality volumes are based on an impervious area of 19,189 square feet (s.f.) but the total post-development increase in impervious area taken from the HydroCAD calculations is 31,022 s.f. The proposed

paved area from the HydroCAD calculations is 23,867 s.f. With these figures, the required recharge volume would be 1,193 cubic feet (c.f.) and the required water quality volume would be 1,989 c.f. We note that the infiltration basin has sufficient capacity to satisfy both of these volume requirements.

6. The long term Operation and Maintenance Plan for the stormwater system specifies quarterly inspections for the sediment forebay and infiltration basin but the inspection checklist notes yearly inspections. These should be consistent.
7. In order to limit infiltration through the sediment forebay we recommend that the bottom of the forebay have 8- to 12-inches of loam.
8. The fifth paragraph in the Phase I Construction Sequence on Sheet 12, which states "Grade temporary shoulder and install water line," should be moved and combined with the ninth paragraph related to utility installation.
9. Sheet 8 of the plan set should specify that silt sacks are to be installed in the catch basins.
10. Septic Design calculations for a four bedroom and six bedroom dwelling are included on Sheet 12. Only Lot 2 has the required lot area to support the six bedroom dwelling. With a six bedroom dwelling on Lot 2 and four bedroom dwellings on Lots 1 and 3, the lot areas comply with Title 5 and the Hingham Board of Health Supplementary Rules and Regulations for the Disposal of Sanitary Sewage.
11. The proposed reserve leaching area for the dwelling on Lot 1 is shown to be located within the low area on the lot where stormwater is directed and infiltrated. This should be moved away from the low area.
12. There is an existing well on the property with a note stating that it is disconnected. Because the site is within a Zone II of a public well, we recommend that the well be decommissioned (sealed) by a Massachusetts Certified Well Driller to insure that well is appropriately sealed.
13. There is an existing well shown on the property at 111 Gardner Street and the note on the plan indicates that it could be either an irrigation or potable well. If this is a potable well, the proposed septic system on Lot 3 would need to be moved outside the 250 foot radius from the well.
14. The radius label for the curve on the west side of the cul-de-sac turnaround is missing.
15. A note should be added to water details on Sheet 11 specifying compliance with the standards and regulations of the Weir River Water System.
16. Based on the sight distance triangle sketch on Sheet 12 it appears that some trees may need to be trimmed to provide the required sight distance. This should be specified on the plans.

Please give us a call should you have any question.



Very truly yours,

AMORY ENGINEERS, P.C.

By:

A handwritten signature in blue ink that reads "Patrick G. Brennan".

Patrick G. Brennan, P.E.

PGB