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April 7, 2022

Sutton Planning Board
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**Subject: Sutton Douglas Development
Definitive Subdivision Plan Review**

Dear Planning Board Members:

We received the following documents in our office on February 24, 2022:

- Correspondence from Land Design Collaborative to Sutton Planning Board dated February 15, 2022, RE: Form C Application for a Definitive Plan-Residential Subdivision, 61 Duval Road, Sutton, MA, 01590 with attachments.
- Correspondence from Land Design Collaborative to Douglas Planning Board dated February 15, 2022, RE: Form C Application for a Definitive Plan-Residential Subdivision, Mumford Street & 5 Forest Street, Douglas, MA, 01516 with attachments.
- Correspondence from Land Design Collaborative to Douglas Planning Board dated February 15, 2022, RE: Notice of Intent Application WPA Form 3 for a Residential Subdivision, Mumford Street & 5 Forest Street, Douglas, MA, 01516 with attachments.
- Plans entitled Definitive Plan Pursuant to the Town of Sutton Subdivision Rules and Regulations Section 3.C & Douglas Subdivision Rules and Regulations Section 4.2 for Sutton Douglas Development, Sutton & Douglas, MA dated February 10, 2022, prepared by Land Design Collaborative for Sutton Douglas Development LLC. (58 sheets)
- Document entitled Stormwater Management Report, Residential Subdivision, Duval Road, Sutton, Massachusetts, Forest Street, Douglas, Massachusetts dated February 2022, prepared by Land Design Collaborative for Sutton Douglas Development.
- Document entitled Hydrogeologic Assessment, Sutton Douglas Development dated December 17, 2021, prepared by Corporate Environmental Advisors for Land Design Collaborative.
- Document entitled Traffic Impact and Access Study, Proposed Residential Development, 61 Duval Road, Sutton, Massachusetts dated September 2021, prepared by Tetra Tech for Sutton Douglas development c/o Flynn Group Consulting.

Graves Engineering, Inc. (GEI) has been requested to review the documents for conformance with Subdivision Rules & Regulations, Sutton, Massachusetts with amendments through October 30, 2006, Zoning Bylaw, Sutton, Massachusetts with amendments through May 13, 2019, the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and generally accepted engineering practices. As part of this review, GEI visited the site on March 18, 2022.

Our comments follow:

Subdivision Rules & Regulations

1. On Existing Conditions Sheet 2, the elevations for TBM-B and TBM-C need to be provided. Additionally, on Existing Conditions Sheet 8, the elevations for TBM-D and TBM-E need to be provided. (§3(C)1.f)
2. Elevations every 50 feet need to be included on the road profiles, including Sheet C-301. GEI recommends elevations every 25 feet along vertical curves. (§3(C)2.l)
3. GEI understands a waiver was requested to allow for a 24-foot pavement width along Road "A" and a 22-foot pavement width along Road "B". GEI has no issue with these pavement widths and understands the Planning Board will address waiver requests. (§4(A)3)
4. Subdrains should be provided along Road "A" unless it is demonstrated that groundwater is greater than four feet below the road surface. (§4(B)1.a)
5. Rational Method pipe sizing calculations need to be provided. (§4(B)2.a)
6. The pipes along Road "A" need to have a minimum four feet of cover. Currently, a general cover of 3.3 feet is proposed. (§4(B)2.b)
7. The plans propose 2H:1V slopes outside the planting strips and sidewalks. Slopes of 3H:1V are required. (§4(K))
8. On Sheet C-404, the Bituminous Concrete Pavement construction detail lists material thicknesses for trucking areas as well as passenger car/parking areas; this construction detail appears to be for a commercial development and needs to be revised. It would be advantageous to have one road section for the entire subdivision. Sutton and Douglas have different road section requirements. GEI recommends that consideration be given to a road section consisting of twelve inches of gravel, 2-1/2 inches of binder asphalt and 1-1/2 inches of top course asphalt. (§5(F)2)
9. GEI understands a waiver was requested to eliminate granite curbing. The plans propose Type 3 (nearly vertical) bituminous curb, which is not customarily used in Sutton and can be prone to displacement by snowplows. GEI recommends that granite curb be provided at intersection radii and extending six feet beyond those radii, granite curb inlets and transition stones be provided at catch basins, and elsewhere Cape Cod berm be installed. Cape Cod berm is required in Douglas except for locations requiring granite curb. If not already done, the Planning Board may wish to solicit comments from the Sutton Highway Department. (§5(G))
10. A construction detail needs to be provided for the sidewalk showing all requirements outlined in Section 5(I) (e.g. sidewalk width, material, etc.).
11. GEI understands a waiver was requested to eliminate street trees. GEI doesn't have an issue with preserving existing trees. Any areas along the right-of-ways cleared of trees should have street trees planted. (§5(J)4)

Zoning Bylaw

12. GEI has no issues regarding compliance with the Zoning Bylaw.

Hydrology Calculations & Stormwater Management Review

13. GEI reviewed the hydrology computations; we have no issues with the modeling of the subcatchments, reaches and basins.
14. For the stormwater discharges from the project that occur in Sutton, the only analysis point is identified as L4 and consists of stormwater discharges to Duval Road and the abutting properties up-gradient of Duval Road. To address MassDEP Standard #2 at each individual discharge point, the hydrology computations need to be revised to analyze the pre- and post-development peak rates of runoff to Duval Road and each of the abutters separately. Of concern is the potential for increasing rates of stormwater to one or more of: the existing catch basin in Duval Road and the abutting properties at 49, 55, 59, 65 and 71 Duval Road.
15. The Total Suspended Solids (TSS) Removal calculations list a treatment train as catch basin to CDS-2015-4 to infiltration basin. However, several catch basins and drain manholes are CDS-2015-4 units (e.g. CB-2B near Duval Road). Thus, the TSS Removal calculations need be revised so these units are not double-counted.
16. The Stormwater Report needs to include the recharge and water quality volume calculations for Standards 3 and 4.
17. Soil testing needs to be performed at Basins 901, 1200, 1203, and 1300 to demonstrate a two-foot offset to groundwater.

General Engineering Comments

18. GEI reviewed the information in the Hydrogeologic Assessment and has no issue with the information presented nor with the conclusions of the assessment. The assessment evaluated hydrogeologic conditions on an area-wide level.
19. On Sheet C-202, the pipe between catch basin CB-2011B and FE-2010 will only have about 0.6 feet of cover where the pipe passes under the back of the sidewalk. The pipe needs to be deeper to allow for adequate base gravel thickness under the sidewalk and to minimize the potential for the sidewalk to crack over the pipe.
20. On Sheet C-202, the subdrain invert elevation (517.0) that connects to DI-3 on the west side of Road A needs to be raised so it is not lower than DI-3's out pipe.
21. The pipe diameter, slope, and length need to be included for Pipe D-1, the pipe connecting DI-1 to EX-CB at Duval Road.
22. On Sheet C-301, the outlet elevations of CB-9011A and CB-9011B need to be higher than the downstream manhole (DMH-9011).
23. On Sheet C-404, there are two typical road section construction details. Each construction detail needs to identify to which road(s) the construction detail applies.

24. The plans need to include a construction detail for the light pole itself, or a note stating that streetlights in Sutton will meet all Sutton requirements.

General Comments

25. GEI understands the traffic report will be reviewed by another consultant.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Principal

cc: Wayne M. Belec; Land Design Collaborative