

COPY

Andrews Survey & Engineering, Inc.

Land Surveying • Civil Engineering • Site Planning

January 22, 2021

Grafton Planning Board
30 Providence Road
Grafton, MA 01519

Re: *Peer Review*
Flexible Development – Definitive Subdivision
Stanley & Lisa McGriff – 11 Wheeler Road
ASE Project #2018-207

RECEIVED

January 22, 2020

Planning Board
Grafton, MA

Exhibit 21

Dear Members of the Board:

Andrews Survey & Engineering, Inc. (“ASE”) has received comments submitted to your office by Graves Engineering, dated November 20, 2020 from their review of the above referenced project. ASE responses to peer review comments (latest in *italics*) have been provided for comments that are needed to be addressed and are in **bold** below. The comment numbering has been maintained.

Zoning By-Law

1. Each plan sheet must be sequentially numbered (i.e. 1 of 35, 2 of 35, etc.).
(§3.3.3.3)
Plans revised to show sequential numbering.
2. For the horizontal layout, the plans need to cite the bearing system from a referenced plan, true north or magnetic north. (§3.3.3.6)
A reference was added to North Arrow to cite the bearing system.
3. On Sheet C4, there is an inconsistency between the plan sheet an inset for the northwestern corner of the common land. It appears that the bearing system on the definitive plans was revised after the preliminary plans were prepared. The inset utilizes the same bearing that was shown on the preliminary plans that were last revised July 29, 2020. The information in the inset needs to be consistent with the rest of the definitive plans. (§3.3.3.9)
Bearing in the inset was revised to be consistent with plan sheet.
4. Bounds were only proposed along the rights-of-way. The plans must be revised to also include bounds at all angle points along the easements, access routes and open space areas and at points where easement lines and property lines intersect. (§3.3.3.10 & §4.8.1)
Plans were revised to include bounds in all locations listed above.
5. On Sheet CB, additional (every twenty-five feet) existing and proposed elevations need to be provided for the vertical curve between stations O+73.76 and 2+28.18. (§3.3.3.16(b))
The vertical curve has been labeled every 25’

6. There are two benchmarks shown on the post-development drainage map that need to be included on the Definitive Plans. (§3.3.3.16(d))
Benchmarks from post-development drainage map were added to Definitive Plans.
7. GEi defers to the Planning Board whether the Landscape Plan (Tree Plan) needs to be prepared by a certified arborist. (§3.3.3.20)
No action required.
8. On Sheet CB, the K-value used for the sag vertical curve needs to be no less than 35.
Vertical curve has been revised with a K-value of 35
9. The electrical/cable/television utility lines cross underneath the sidewalk at station 3+80+/- and then extend under the road. These utility lines need to be two feet outside the back edge of the sidewalk. (§4.7.1.3)
Utility lines revised to be two feet outside the back edge of the sidewalk.
10. On Sheet C11.1, the "Concrete Sidewalk" and the "Proposed Road Cross-Section" construction details need to be revised to propose a four-inch-thick concrete sidewalk per MHD Section 701. (§5.5)
Details revised to propose a four-inch-thick concrete sidewalk.
11. On Sheet C11.1, the "Concrete Bound Detail" needs to be revised to require granite bounds.
Detail revised to require granite bounds.
12. Also, per current practice in Grafton, bounds in wooded areas (e.g. open space bounds) only need to extend 6" to 9" above the ground surface instead of 3'-6" as cited in Note 2 of the construction detail. (§5.11.3)
Note 2 revised to bounds extending 6" to 9" above the ground surface.
13. The design engineer will need to consult with Grafton DPW relative to the type of streetlight luminaire, mast arm and pole. The "Pole Light" construction detail on Sheet C11.4 does not appear to be consistent GEi's understanding of streetlight requirements. (§5.13)
Messages were left with Grafton DPW to verify pole light construction detail. Waiting on response from DPW. Added a note on detail for contractor to coordinate with the department of Public Works regarding construction materials to be used.
14. Per the dimensions on the standard cross section and GEi's understanding of Grafton Water District requirements, the water main must be under the shoulder of the road instead of under the pavement. (Standard Cross Section, Minor Street C)
Water main location revised to be under the shoulder of the road.

Zoning By-Law

15. GEi has no issues relative to compliance with Grafton Zoning By-Laws excepted as noted in the following comment.
No action required.

16. The site is located in the Water Supply Protection Overlay District. The plans propose only an infiltration basin for groundwater recharge. Greater groundwater recharge could be achieved by capturing and recharging roof runoff where site conditions allow. (§7.5.D)
The required groundwater recharge calculations have been met.

Hydrology & MassDEP Stormwater Management

17. GEI reviewed the hydrology computations and found them to be in order except as noted in the following comment.
18. In the post-development HydroCAD computations, Subcatchment SC11 needs to include the paved driveways for Lots 5 and 6.
Paved driveways for Lots 5 and 6 added to Subcatchment SC11. Proposed conditions outflow runoff remains the same.
19. Compliance with the MassDEP Stormwater Standards and Handbook is reasonable except as noted in the following two comments.
20. Access to the stormwater basin is proposed down a 3H:1V (33%) slope. For access to a stormwater basin, the slope must not exceed 20%.
A 10' wide access has been added with a slope not exceeding 20%
21. For Standard #3, the recharge calculations incorrectly compare the required infiltration volume to the volume of water that could be impounded in the stormwater basin. The required infiltration volume must be compared with the volume of water impounded below the lowest outlet orifice (Static Method) or compliance must be demonstrated by one of the two Dynamic Methods.
Volume of water impounded revised to the volume of the sediment forebay.
22. For Standard #4, the total suspended solids (TSS) calculations took credit for 25% TSS removal at the catch basins and another 25% credit at the sediment forebay. The 80% removal rate for the infiltration basin requires "adequate pre-treatment", which is provided at the catch basins or the forebay. For the record, the credit for TSS removal at either the catch basins or the forebay needs to be deleted. Nevertheless, the overall system will achieve 80% TSS removal as required by MassDEP.
TSS Removal worksheet revised to only include infiltration basin. The overall system still achieves 80% TSS removal as required by MassDEP as noted above.

General Engineering

23. On Sheet C6, the sidewalk ends at Lot 4's driveway. Terminal ends of a sidewalk must be located outside of a driveway and must consist of a handicap accessible ramp.
Sidewalk revised to extend outside Lot 4's driveway. Accessible curb ramp added to plan and detail added to Sheet C11.3.

General Comments

24. For the benefit of the contractor, there should be a note on the plans stating that the vertical granite curb inlets need to be placed at all catch basins, perhaps the note could be on Sheet C11.1.

Detail revised on Sheet C11.1 to state "Vertical Granite Curb Inlet at Catch Basins"

25. GEi did not review for compliance with the Grafton Wetland Regulations nor the Grafton Stormwater Regulations. The design engineer should be cognizant of these local regulations (e.g. rainfall amounts, TSS removal prior to discharging to an infiltration BMP).

Reviewed Grafton Wetland Regulations and Stormwater Regulations for compliance.

26. GEi understands that the sewer infrastructure will be reviewed by the Grafton Sewer.

No action required.

27. Department and the water infrastructure will be reviewed by the Grafton Water District.

No action required.

We hope this serves your needs at this time. Should you have any questions or require additional information, please contact this office.

Very truly yours,
ANDREWS SURVEY & ENGINEERING, INC.



Jude Gauvin, EIT
Senior Project Manager

Attachments:
Recharge calculations (Standard #3)
TSS Removal Worksheet
Revised Plan Set Dated 1/22/21

Copy to: Graves Engineering