



100 GROVE ST. | WORCESTER, MA 01605

March 5, 2020

Christopher McGoldrick
Town Planner
Grafton Municipal Center
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Grafton, MA 01519

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**Subject: Afonso Village
100 Westboro Street "Parcel D"
Special Permit and Site Plan Review**

RECEIVED

MAR - 5 2020

Dear Chris:

**Planning Board
Grafton, MA**

We received the following documents on January 24, 2020:

- Plans entitled Site Plan and Special Permit, Afonso Village, A Mixed Use Development, Parcel D, Grafton, MA dated January 14, 2020, prepared by Guerriere & Halnon, Inc. for D&F Afonso Builders, Inc. (12 sheets)
- Bound document entitled Application for Special Permit dated January 14, 2020, with attachments.
- Bound document entitled Application for Grafton Wetlands Bylaw Permit & Grafton Stormwater Bylaw Permit dated January 14, 2020, with attachments.
- Bound document entitled Stormwater Report "The Village At Institute Road Mixed Use", Grafton, MA dated January 14, 2020, prepared by Guerriere & Halnon, Inc. for D&F Afonso Builder Corp.
- Architectural plans entitled Afonso Village dated January 14, 2020, prepared by Gorman Richardson Lewis Architects. (12 sheets)

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' and supporting documents' conformance with applicable "Grafton Zoning By-Law" amended through October 21, 2019; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and standard engineering practices. As part of our review GEI visited the site on February 20, 2020.

Our comments follow:

Zoning By-Law

1. GEI has no issues with compliance with the Grafton Zoning By-Law except as noted in the following five comments.

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2. The proposed building and parking area setbacks from the property lines need to be clearly shown on the plans. Only two proposed parking area setback dimensions were shown at the northeast corner of the site. (§1.3.3.3.d.13)
3. There needs to be a construction detail for the eight-foot paved walking path. (§1.3.3.3.14)
4. Lot coverage calculations need to specify how much of the lot is covered by open space/landscaped areas. (§1.3.3.3.d.15)
5. For the two buildings with retail space located on the northern side of the site, the plans need to depict where the proposed loading area(s) will be. (§1.3.3.3.d.19)
6. There needs to be screening between the parking area and Westboro Road for the parking on the northern side of the site. (§12.7.2)

Hydrology & MassDEP Stormwater Management

7. GEI did not receive a map showing the post-development watersheds. Furthermore, the drainage map provided for the pre-development watershed was on 8-1/2" x 11" paper, which was too small and illegible to be of use for a peer review. To the extent we could, we relied upon information on the site plans and in the residential subdivision stormwater report during our review of the hydrology computations. As such, please consider our hydrology peer review comments to be preliminary. For any future submittals, the watershed maps need to be submitted on full-size (e.g. 24"x30") sheets.
8. The Afonso Village pre-development hydrologic model utilized the subdivision's post-development hydrologic conditions. GEI has no issue with this approach. However, the Afonso Village pre-development model is missing 1.56 acres of woods for subcatchment 3E and 0.08 acres of woods for subcatchment 4E that were modeled in the subdivision's post-development calculations. Although these areas would be expected to have minimal impact on the calculated peak discharge rates, for the record these missing areas should be added to the Afonso Village calculations.
9. The total impervious and grass areas modeled for the mixed-use site, 5.22 acres and 3.64 acres, respectively, do not appear to be unreasonable.
10. Compliance with MassDEP Stormwater Handbook appears to be reasonable except as noted in the following five comments.
11. As noted above, the hydrology computations have not been fully reviewed yet.
12. There needs to be at least one foot of freeboard as measured from the peak 100-year water surface elevation to the top of berm. As proposed, there will only be 0.67 feet of freeboard.
13. The outlet controls for Basin #1 need to be redesigned so that all discharged water up to and including the 100-year storm event is passed through the primary outlet structure, thereby reserving the emergency spillway for emergency conditions. The hydrology computations show the discharge of approximately 20 cfs from the emergency spillway during a 100-year storm event.

14. (Infiltration) Basin #1 was originally proposed to serve the residential subdivision. It has been redesigned to serve both the subdivision and the proposed Afonso Village mixed-use project. The bottom of the basin was lowered, and the basin was expanded easterly (roughly doubled in size) so that it is farther into a slope. The deepest earth cut to construct the revised basin will be approximately fourteen feet. Based upon the soil testing information currently available, the modified basin will not have a two-foot offset to high groundwater.
15. The design engineer needs to submit supporting documents to substantiate the total suspended solids (TSS) removal rates for the Stormceptor treatment units.
16. The Rational Method calculations overestimated the capacities of the pipes. For example, DMH-19 to WQMH-2 is a 24-inch HDPE pipe (n-value 0.12) with a slope of 0.0070 ft/ft; GEI estimated a pipe-full capacity of approximately 20 cubic feet per second (cfs). The Rational Method calculations depict this pipe to have a capacity of 24.61 cfs. The design engineer needs to recheck and revise the calculations as necessary.

General Engineering Comments

17. Sheet 3 needs to include a fence at the top of the retaining wall and guardrail between the wall and the parking area on the west side of the site. The wall will be up to approximately eighteen feet high. It appears that there isn't enough room between the wall and the sidewalk at the southwest corner of the parking area to accommodate a fence and guardrail.
18. On Sheet 4, there is discontinuity in the waterline north of the western most three-story residential building. The plans depict the waterline to be obstructed by a catch basin (CB17). The plans need to be revised to show how the waterline will pass by the catch basin.
19. On Sheet 4, the sewer service needs to be shown for the four townhouses on the eastern side of the site.
20. On Sheet 6, the temporary basin shows topographic contours, but elevation labels are missing. The elevations need to be shown to demonstrate how the temporary basin is to be constructed and that the permanent basin will not be compromised by over-excavation of the temporary basin. Typically, a temporary basin would be built at least one foot above the proposed basin's bottom to allow for the removal of the accumulated sediment and not to change the native material composition.
21. On Sheet 6, there needs to be erosion control barriers along the following abutting properties: 122 Westboro Road and 120 Westboro Road. Based upon the existing topography, both properties are expected to receive runoff and should be protected. There is a dashed line and a solid line near 120 Westboro Road; it is not clear which one represents the erosion control barriers.
22. On Sheet 6, the temporary stockpiles should have erosion control barriers to surround the stockpile or at a minimum the down gradient side of the stockpile. The erosion control barriers shown on Sheet 6 don't fully protect the down-gradient side of the stockpiles.
23. On Sheet 10, there needs to be a dimension depicting the depth that the bollard needs to be set into the concrete for the "Bollard Detail".

24. On Sheet 10, the "Wooden Guard Rail" construction detail needs to have a dimension depicting the depth that the guard rail needs to be set into the concrete.
25. On Sheet 11, there is a leader depicting a specific elevation for the crushed stone swale. This elevation needs to be revised to reflect the site conditions or removed.
26. The driveway length (19 feet) for the eastern-most townhouse dwelling unit is too short. Because space is needed between the garage door and the vehicle, a vehicle could encroach onto the sidewalk. Per Grafton policy, a driveway length of at least twenty-two feet needs to be provided.
27. The legend needs to include all symbols used. There are some symbols missing. For example, symbols for the streetlights, the wall mounted lights and fencing need to be added to the legend.
28. There needs to be more information regarding the handicap accessible parking to ensure compliance with Massachusetts Architectural Access Board (e.g. spot elevations).
29. For the benefit of the contractor, the construction detail for the trash enclosure should coordinate with the plan sheets. As shown in the detail, there should be two swing gates and a total length of twenty feet. Whereas the plans show a single swing gate and measure a total length of twenty-four feet. This information needs to be consistent.
30. There needs to be a construction detail for the outlet control structure in Basin 1.
31. There needs to be a construction detail showing a cross section of Basin 1.
32. There needs to be a construction detail for the vinyl screening fencing.

General Comments

33. Snow storage is proposed adjacent to the walking path at the south side of the site. Snow storage must not encroach upon the walking path. Unless the snow storage area is relocated, the Planning Board may wish to consider a condition in its decision that prohibits snow storage on the walking path.
34. On Sheet 4, there are two notes "6" PVC" near the two buildings on the northern end of the site. It is not clear to which pipes these notes apply.
35. On Sheet 5, there is a dashed line around the property, presumably the setback lines. This line needs to be labeled and rechecked. A portion of this line crosses onto Lot 23 on the southeastern side of the site.
36. For the benefit of the contractor, Sheet 3 should be clearer that the sloped granite edging is the typical curbing except at the corners and radius sections as noted in the vertical granite curbing detail on Sheet 12.
37. There appears to be a fence near the southern abutting subdivision. If a fence is proposed, then it needs to be labeled.

38. The stormwater basin (Proposed Basin #1) that will serve the private mixed-use Afonso Village development will also serve the Village at Institute Road residential subdivision. GEI understands that the applicant would intend to convey the subdivision's rights-of-way and supporting infrastructure, including the stormwater basins, to the Town of Grafton. Consideration will need to be given relative to which party(ies) will be responsible for maintenance of Proposed Basin #1; the Town should not be solely responsible.
39. GEI did not review for compliance with Town of Grafton Conservation Commission requirements.
40. GEI understands that the Town of Grafton Water and Sewer Departments will review for their respective departments.
41. GEI did not review the architectural plans.

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: Amanda Cavaliere; Guerriere & Hanlon, Inc.
Elizabeth A. Mainini, P.E.; Guerriere & Hanlon, Inc.