



May 12, 2016

Mr. Joseph Laydon, Town Planner
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

Subject: Trinity Avenue Pump Station-25 R Trinity Avenue
Special Permit and Site Plan Review
Town of Grafton, Massachusetts

Dear Mr. Laydon:

On behalf of the Grafton Water District, Tata & Howard, Inc. (T&H) has prepared responses to the Special Permit and Site Plan Approval, Plans, and Notice of Intent (NOI) Review Response received via email dated April 15, 2016.

We have presented Graves' Comments from the April 15, 2016 correspondence in *italics*, and our responses in **bold**. We trust that this information addresses Graves' comments and serves as supplemental information to the Notice of Intent submitted in March 2016.

Design Report

Zoning By-Law

- 1. The address of the owner/applicant (Grafton Water District) must be provided on the plans (1.1.3.3.3.d.1)*
The plans have been revised to include the address of the owner/applicant.
- 2. The plans must identify the parcel's zoning district (underlying district and overlay district). (1.1.3.3.3.d.7)*
The plans have been revised to include the parcel's zoning districts.
- 3. The Locus Map on the Cover Sheet must have a scale and north arrow (1.1.3.3.3.d.8)*
The Cover Sheet has been revised to include an approximate scale and north arrow.
- 4. The following were missing from the Title Block: property owner; property address; assessor's Map/Lot number; and the professional engineer's address and phone number. The plans must be revised to include this missing information. (1.1.3.3.3.d.9)*

The plans have been revised to include the property owner; property address; assessor's map/lot number; and professional engineer's address and phone number.

5. *The ownership of the abutting land parcels need to be shown on the plans (1.1.3.3.3.d.11)*

The drawings have been revised to include the owners of the abutting land parcels.

6. *The building setbacks must be shown and labeled on the plans. (1.1.3.3.3.d.13)*

The drawings have been revised to include the building setbacks and are shown on Sheet C-2.

7. *The line weights of the property and easement lines are not dark enough to be seen and instead blend with lines showing the proposed work. The plans must be revised to make the property and easement lines legible. (1.1.3.3.3.d.13)*

The drawings have been revised to include legible property and easement lines.

8. *The proposed permanent easement on the east side of the property does not encompass the entire proposed drainage swale. It will be the applicant's responsibility to maintain the swale in the perpetuity. The plans and the dimensions of the permanent easement need to fully encompass the swale. (1.1.3.3.3.d.13)*

The proposed permanent easement has been revised.

9. *The proposed temporary construction easement on the east side of the property does not encompass the entire limit of work. The limits of the temporary easement need to encompass any proposed work (e.g. placement of erosion control barriers, grading and the defined limits of work). (1.1.3.3.3.d.13)*

The temporary construction easement is no longer proposed. All work is fully encompassed by the revised proposed permanent easement as discussed with the homeowners.

10. *Lot coverage calculations need to be provided and shown on the plans. (1.1.3.3.3.d.15)*

The drawings have been revised and lot coverage calculations are shown on the plans.

Regulations for the Administration of the Wetlands By-Law

11. *The plans only note the perimeter layout of the compensatory flood storage area. The plans must show the proposed elevations (by topographic contours and/or spot elevations as appropriate) within the compensatory storage area. Also, there need to be calculations (and supporting plans or sketches where necessary) that show the flood plain earth fill volumes and compensatory storage volumes in vertical foot increments. (V.B.5(a))*

The drawings have been revised to include topographic contours and spot elevations as appropriate within the compensatory flood storage area. Compensatory storage volumes shall be provided to the Conservation Commission prior to the next regularly scheduled meeting due to a delay in the wetland peer review and site walk. As discussed during the wetland peer review site walk, an alternative to the compensatory storage area is to excavate along the edges of the proposed driveway/gravel turnaround area in an effort to limit the tree clearing.

Hydrology & MADEP Stormwater Management

12. *The project was not identified as a critical area in the MassDEP Checklist for Stormwater Report. In our opinion, the Checklist for Stormwater Report must be revised to indicate that the project is located in a critical area (Zone 1 of the new public water supply wells).*

The Checklist for Stormwater Report has been revised to indicate that the project is located in a critical area (Zone I of a public water supply).

13. *Drainage maps showing drainage basin delineations were not included with the Stormwater Report. Nevertheless we don't have an issue with the pre- and post-development drainage areas used in the Rational Method Calculations for pre- and post- development peak rates of runoff. Nevertheless, if the Stormwater Report is resubmitted for any reason, the revised report needs to include pre- and post-development drainage area plans.*

Drainage maps have been completed and will be attached to the revised Stormwater Report.

14. *The calculations used to determine peak discharge rates in the pre- versus post development conditions used the same "C" coefficient for both conditions. (The "C" coefficient represents ground cover.) The post development "C" coefficients don't account for the driveway on the north portion of the site nor do they account for the gravel and the grass ground cover on the southern portion of the site.*

The peak discharge rate calculations have been revised to account for the appropriate "C" coefficients as represented by the existing and proposed ground cover. Permeable pavement will be used outside of the Zone-I to allow for the post-development peak discharge rates to be less than the pre-development discharge rates. A revised stormwater report will be issued to the Conservation Commission prior to the next regularly scheduled meeting.

15. *The submission did not include calculations that demonstrated that the post-development peak discharge rates do not exceed the pre-development peak discharge rates for the 2-year and 10-year storm event. Calculations for the 2-year and 10-year storm event must be submitted as required by Stormwater Management Standard 2.*

The peak discharge rate calculations have been revised to include the calculations required by Stormwater Management Standards. A revised stormwater report will be issued to the Conservation Commission prior to the next regularly scheduled meeting.

16. *Soil testing data was not provided to show the seasonal high groundwater elevation. GEI could not determine if the proposed elevation of the infiltration system will satisfy the minimum two-foot offset to groundwater. The bottom of the stone surrounding the chambers (elevation 287.5 feet) is lower than the nearby wetland resource area.*

Due to the inability to access the proposed pump station site, test pit data is not available to determine the seasonal high groundwater elevation. Following installation of the access road and bridge crossing, the specifications shall carry provisions for the Contractor to complete a test pit under the direction of a certified soils evaluator to determine the seasonal high groundwater in the area of the proposed infiltrator system. Should the system need to be mounded, the mounding will be completed outside of the wetlands and floodplain resource areas so not to effect the existing resource areas.

17. *The Construction Period Stormwater Pollution Prevention plan refers to Appendix F, however this appendix was not provided. Appendix F must be provided with the Stormwater Report.*

The Construction Period Stormwater Pollution Prevention plan Appendix F reference refers to the related specifications included in the Notice of Intent submittal to the Conservation Commission. Related specification sections have been included in the revised Stormwater Report.

18. *The Long Term Pollution prevention Plan refers to Appendix G, however this appendix was not provided. Appendix G must be provided with the stormwater Report.*

Appendix G in the Long Term Pollution Prevention Plan should reference Attachment 5 – Operation & Maintenance Plan.

General Engineering

19. *GEI did not review the structural design of the bridge or abutments.*

The structural design of the bridge abutments has been designed by a Commonwealth of Massachusetts Registered Professional Structural Engineer. See plans for contact information.

20. *Sheets C-1 through C-4 show a ten-foot wide bridge deck, which seems unusually narrow for the maintenance and delivery vehicles expected to need to access to the site. On Sheet C-6, the “Bailey Bridge” construction detail shows the usable portion of the bridge deck being 12-1/2 feet wide, which seems to be more reasonable for the proposed use that ten feet. The applicant should consider the width needed to serve*

their needs and the plans revised accordingly to show a consistent deck width.

The design plans, construction details, and notes have been revised to be consistent with a 12-1/2 foot wide access road and bridge deck.

21. *On Sheets C-1 through C-4, the wing walls of the bridge abutments were not drawn consistent with the abutment construction detail on Sheet S-5. The wing walls were drawn at angles other than 45° to the abutment and at lengths shorter than 16 feet. The information must be consistent. If constructed at a 45°, the wing walls will affect the limits of work, the proposed grading and possibly the 24" water main location.*
The structural drawings have been revised to be consistent with Sheets C-1 thru C-4. The wing walls are 14 feet and will be constructed at a 60° angle.

22. *On Sheet C-3, a proposed 292 topographic contour is shown at the northern abutment between the abutment and the eastern wing wall. The top of both the abutment and the wing wall will be higher than elevation 292; the contour needs to be revised. Also in this area, the proposed 294 and 296 topographic contours tie into what appear to be bridge members or retaining walls along the side of the road; the structures along the road need to be identified.*

The Grading Plan (Sheet C-3) has been revised.

23. *On Sheet C-3, the layout of the proposed 292 topographic contour at the gravel turnaround area needs to be re-evaluated by the design engineer and revised. The contour was drawn to connect to the west side of the bridge abutment. Instead the contour needs to connect to the right side of the abutment.*

The Grading Plan (Sheet C-3) has been revised.

24. *On Sheets C-3 and C-4 there are several leaders that don't point to the correct components, such as: "limit of pump station work"; "24x36 hyd tee..."; "1" polyethylene tubing..."; and "24" DI water main". The plans must be revised to have all leaders point to the correct components.*

All leaders have been revised to point to the correct components.

25. *The dimensions of the chambers shown on the "Underground Drainage Basin" construction detail on Sheet C-6 are inconsistent with the Cultec chamber information provided in the Stormwater Report. The information in the two documents must be consistent.*

The Underground Drainage Basin construction detail (Sheet C-6) has been revised to be consistent with the Cultec chamber information provided in the Stormwater Report.

26. *The width dimension show on the Gravel Access Road detail on Sheet C-7 is not consistent with what was shown on Sheets C-1 through C-4. Likewise, Note 17 on Sheet C-4 states that the access road will be 12 feet wide. The information on the plans must be consistent.*

The design plans, construction details, and notes have been revised to be consistent with a 12-1/2 foot wide access road and bridge deck.

27. *The following construction details are missing from the plan set: swale details and check dam detail.*

A typical road, grass-lined channel, check dam section detail has been included on Sheet C-7.

28. *Based upon the proposed topographic contours, a swale with a "V" cross section is proposed. This type of cross section is prone to erosion at the channel invert and therefore should be avoided. A cross section with a flat bottom or a parabolic cross section would be satisfactory.*

The swale design has been revised to reflect a parabolic cross section.

29. *There are 1H:1V slopes along the east and west sides of the access driveway. The slopes must be suitably stabilized (e.g. turf reinforcement matting) if grass is proposed. The plans need to specify the extents and type of stabilization to be provided.*

See Note #2 on Sheet C-3.

30. *The proposed slope shown on the Road Profile on Sheet C-3 does not match the proposed contours shown on the layout view. The plans must be revised so that the contours and slopes on the layout and profile views are consistent. The plan view shows a slope of approximately 14% between the proposed 306 and 308 topographic contours but the profile shows a slope of 10%.*

The plans have been revised to be consistent with a 10% slope along the access road in the plan and profile.

31. *The driveway grading at the intersection of Trinity Avenue needs to be revised to keep stormwater runoff in the gutter from entering the site via the new driveway.*

The plans have been revised to include spot elevations along the entrance to the access road to prevent stormwater runoff entering the site from Trinity Avenue.

32. *To prevent sediment from entering Trinity Avenue, a stabilized construction entrance needs to be installed and maintained at the site entrance until the driveway pavement is placed.*

The plans have been revised to require a stabilized construction entrance. See Sheet C-2. Provisions will also be included in the appropriate specification sections.

33. *The existing utility pole at the project entrance will need to be moved from the center of the proposed driveway. The plans should note that the utility pole must be moved.*

The plans have been revised to include a note to remove the existing utility pole. See Sheet C-3.

Conservation Commission-Related Issues

34. *After the wells are constructed, a pumping test is to be performed on the new wells. The Conservation commission may wish to inquire where the water from the pumping test will be discharge and what measures will be in place to protect the resource areas.*

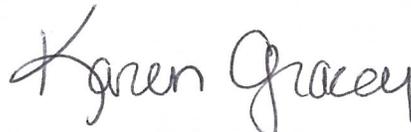
The existing production wells were constructed in 2013. A pumping test is not proposed with this project.

35. *On the north side of the site, the riprap apron encroaches into the wetland resource are and should be moved to stay outside the resource area.*

The riprap apron has been revised to stay outside the resource area.

A revised stormwater report will be issued to the Conservation Commission prior to the next regularly scheduled meeting. We will continue to work closely with the Town of Grafton on this important project. If any additional information or clarifications are required, please do not hesitate to contact our office to expedite the NOI review and approval.

Sincerely,
TATA & HOWARD, INC.



Karen L. Gracey, P.E.
Vice President

cc: Grafton Conservation Commission
Matthew Pearson, Grafton Water District
Jeffrey M. Walsh, P.E., Vice President Graves Engineering Inc.