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October 23, 2015
Project No 2035

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

RE: GRAFTON **Proposed Site Development, CEC Solar #1056 LLC**
207 Providence Road Special Permit and Site Plan Review
Response to Comment Second Graves Engineering Letter

Dear Mr. Laydon:

Field Engineering Co. Inc., has completed a review of the second comment review letter received by the Planning Board received from their consultant, Graves Engineering (GEI), on the above referenced Special Permit/Site Plan Review Petition for a proposed solar array. We have also performed test pits on the site within the stormwater management areas and made some minor revisions to the design based on the GEI comments as well as the results of the soil testing. Please find attached updated plans and Stormwater Management System Report Addendum 2 which addresses the remaining minor outstanding comments. Below, please find written narrative addressing the outstanding comments from the GEI Letter. (Numbering corresponds to the GEI letter dated October 21, 2015). Comments previously acknowledged as satisfied from the GEI letter have been omitted from our response.

Hydrology Review & MADEP Stormwater Management

14. Additional Graves Comment: The stormwater management system has been adjusted to reduce the rate of runoff at the analysis point. Also the level spreader at Detention Basin 1 was extended to re-establish distributed flow at this location. Based upon my discussion with the design engineer on October 15, modifications to the existing drainage swale at the northwest section of the property (near the Kell home and sheds) will be considered and incorporated into the plans. We understand that those revisions are forthcoming. Finally, confirmation from the property owner authoring this discharge point was not provided but the design engineer responded that the applicant is committed to working with the property owner. We defer to the Planning Board if the applicant needs to submit confirmation from the property owner.

Response: We have proposed to extend the existing swale behind the Kell home and sheds to intercept the water that will discharge from Detention Basin 1 and route that runoff around the structures. There is also a note on the plan to remove debris within the existing swale in order to maintain the functionality of the swale. As the attached calculations show, the proposed stormwater management system is provided a substantial reduction in the rate of runoff to this area. This (along with improvements to the swale) will serve as an improvement to existing conditions on this portion of the Kell property. As previously stated, the applicant committed to working with the property owner to ensure that there are no negative impacts to the northwest section of the property where the property owner's structures currently exist.

15. Additional Graves Comment: Based upon my discussion with the design engineer on October 15, modifications to the existing drainage swale at the northwest section of the property (near the Kell home and sheds) will be considered and incorporated into the plans. We understand that those revisions are forthcoming.

Response: See Response to Comment #14 above.

20. Riprap sizing calculations (e.g. stone size and apron dimensions) must be provided to demonstrate that the riprap aprons at the pipe outlets were adequately sized. Additional Graves Comment: Riprap sizing calculations were not provided.

Response: Riprap sizing calculations for the discharge points from the two detention basins are provided in the attached Stormwater Management System Report Addendum 2.

23. Additional Graves Comment: Soil testing was performed by the design engineer and witnessed by GEI on October 15, 2015. We understand that minor modifications to the stormwater basins may be forthcoming.

Response: We have proposed to provide a 6" sump within the Detention Basins below the lowest outlet orifice. This will serve as an area to allow groundwater that may seep into the basins from the upstream slopes to seep back into the ground as opposed to constantly flowing out of the basin further downstream. In addition, minor additional modifications to the outlet culverts have been performed to minimize the flow velocity leaving each basin.

General Engineering

29. The plans need to include a construction detail for the level spreader proposed at Detention Basin 1.

Response: A construction detail for each level spreader has been provided on the revised plans attached to this letter.

32. The drain manholes are fairly shallow but nevertheless ladder rungs should be included on the "Typical Drain Manhole" construction detail on Sheet 12.

Response: The drain manhole detail has been revised to provide ladder rungs as recommended by the consultant.

General Comments

33. On Sheet 5, there is a leader note for a drain manhole southeast of Detention Basin 1 that appears to apply to an earlier draft of the plans- the inlet pipe diameter of 12" is incorrect and the leader does not point to a manhole.

Response: We have revised Sheet 5 to address this comment. The leader note has been removed and the labels for the inlet pipe have been revised for accuracy as requested.

35. It would be helpful if pertinent dimensions (e.g. turnout at the electrical equipment pads, cul-de-sac diameter) of the driveway/access road were provided on Sheet 4 of the plans.

Response: Additional dimensions have been provided on the driveway/access road on Sheet 4 including radii at the turns to the electrical equipment pad and the diameter of the cul-de-sac.

Additional Comments

37. On the Post Development Watershed Plan (located in the Stormwater Management System Report Addendum 1) the T_c for subcatchment 2A is listed as 6.0 minutes. However the T_c used in the hydrology calculations for this subcatchment was 12.0 minutes. The plan should be revised to reflect what was modeled in the Stormwater Management System Report Addendum 1.

Response: A revised Post Development Watershed Plan has been included in Addendum 2, attached to this letter.

38. Sheet 5 of the plan set shows a 12-inch outlet pipe exiting Detention Basin 1. However in the Stormwater Management System Report Addendum 1, a 15-inch outlet pipe was modeled at this location. The information must be consistent.

Response: We have reviewed and revised the outlet pipes from each flow control structure for consistency with the updated calculations. These minor revisions are shown on the attached plans and Addendum 2.

39. The length of Detention Basin 2's outlet pipe, as measured off the plans, does not match the length used for the hydrology calculations in Stormwater Management System Report Addendum 1. The plans and the hydrology calculations need to be consistent.

Response: We have reviewed and revised the outlet pipes from each flow control structure for consistency with the updated calculations. These minor revisions are shown on the attached plans and Addendum 2.

40. Sheet 5 does not indicate the size or type of pipe to be installed at Detention Basin 2's outlet. Sheet 5 should indicate the size and type of pipe to be installed at this location and the plans should be consistent with the Stormwater Management System Report Addendum 1.

Response: We have reviewed and revised the outlet pipes from each flow control structure for consistency with the updated calculations. In addition, the size and type of pipe to be installed at Detention Basin 2's outlet is now specified on the plans.

41. Sheet 5 does not indicate the pipe inverts for the inlet and outlet elevations for the discharge pipe exiting Detention Basin 2. Sheet 5 should indicate the size and type of pipe to be installed at this location and the plans should be consistent with the Stormwater Management System Report Addendum 1.

Response: We have reviewed and revised the outlet pipes from each flow control structure for consistency with the updated calculations. These minor revisions are shown on the attached plans and Addendum 2.

We trust that this information and the updated plans and calculations shall address the minor additional concerns received in the GEI letter. It should also be noted that we have added five (5) additional plantings along the northern side of the site and a notation that the fence along the northern side shall be dark-colored vinyl coated as was discussed at the site walk.

We look forward to discussing this project further at the next scheduled public hearing on 10/26/15. If you need any additional information or have any questions please do not hesitate to contact me directly at 508-758-2749.

Very truly yours,
Field Engineering, Inc.

Richard R. Riccio III, P.E.
Project Manager

cc: Greg Carey, Clean Energy Collective LLC
Graves Engineering

Attachments (2)