DuBois & King inc.

322211P
September 16, 2014

Ms. Marcia Gasses
Town Planner and Land Use Administrator
Town of Barrington, Land Use Department
PO Box 660
Barrington, NH 03825

SUBJECT: Homestead Subdivision
Engineering Review

Dear Ms. Gasses:

As requested, we have completed our review of materials submitted by MJS Engineering, PC for the above referenced project with respect to drainage and roadway design. The following materials were provided for our review:

- Full size plan sets consisting of 23 sheets entitled "The Homestead Subdivision – Phase II, for Gerrior Lane Trust, 1550 Falmouth Road, Suite 15, Centerville, MA 02632," dated May 15, 2013 and last revised July 21, 2014.
- Drainage Analysis, dated May 15, 2013 and last revised on July 18, 2014.

Note that there was no response letter submitted with the package to describe how previous comments were addressed.

The following were noted during our review:

DRAINAGE COMMENTS

1. Our previous review comments noted that the HydroCAD input for Pond 1 does not match the conditions depicted on Sheet 5 of 6 prepared by Doucet Survey. Revisions were made to the HydroCAD, however there are still some minor differences in the invert elevations that are not likely to alter the conclusions of the report. However, since other revisions to the calculations are outlined below, we recommend that the discrepancies between the survey and engineering work be resolved.

2. Reach 4 in the post-development drainage model does not include the upstream land area that contributes flow. We recommend that this upstream area be modeled as a separate subcatchment, and routed to the reach.

3. We recommend that the engineer review the design of the 60" culvert (Pond 3P) and the associated plunge pool, based on the following:
    a. The plans call for the 60" culvert to be embedded 2", however the material used to fill the bottom of the pipe is not specified. We recommend that the material be added to the plans to facilitate proper construction.
    b. The plunge pool detail should be revised to reflect the dimensions specified by the riprap calculations.

4. Our previous comments noted that a number of proposed pipes were shown on the plans that were not included in the HydroCAD analysis. Additional information has been added to the plans to show that the driveway culverts are sized appropriately; however, the 24" culvert on St. Matthews Drive and the 12" culvert on the shared driveway have not been added to the HydroCAD model. We therefore recommend that these be added to the model with appropriate subcatchment areas to verify that grates and culverts are sized to accommodate the 50-year storm. ***(REPEAT COMMENT)***

5. Discrepancies were noted when comparing the gravel wetland outlet shown in the plan set to the HydroCAD input. We recommend that the engineer review the design and make the appropriate revisions. ***(REPEAT COMMENT)***

6. We recommend that the Gravel Wetland Pipe Outlet Detail be revised to reflect the dimensions shown on the 30" Nyoplast Weir Structure Detail.

7. We recommend that the drainage easement be expanded to include the existing drainage system on the southerly quadrant of the Gerrior Drive/Heritage Lane intersection, on proposed lot #1. ***(REPEAT COMMENT)*** It is noted that the appropriate change was made on Sheet C2, however, sheet 3 of 6 by Doucet Survey still shows the smaller easement area.

8. We recommend that test pit logs and soil data be provided for review of the gravel wetland design and to justify the omission of underdrain along the roadway cut sections. ***(REPEAT COMMENT)***

<u>ROADWAY COMMENTS</u>

1. The road design calls for a 3' shoulder width in cut sections, where a 6' shoulder width is required. We recommend that the drawings be revised accordingly.

2. We recommend that the applicant meet with the Road Agent to review the limits of the proposed paving on the private portion of Gerrior Drive.

3. The proposed stone check dam layer was left on when the Site Specific Soils Map was plotted.

If you should have any questions or comments, please call me.

Very truly yours,

DuBOIS & KING Inc.

Jeffrey A. Adler, P.E.
Senior Project Manager

JAA/mto

DuBois & King inc.