March 21, 2014

Ms. Marcia Gasses
Town Planner and Land Use Administrator
Town of Barrington
P.O. Box 660
Barrington, New Hampshire 03825

Subject: River's Peak – Map 215 / Lot 1 – Cabernet Builders
Engineering Review

Dear Ms. Gasses:

As requested, we have completed our review of the plans and materials submitted for the above-referenced project. The plan set consisted of twelve (12) sheets with a December 4, 2013 date. The following were comments noted during the review.

1. The Building Setback lines of Lots 11 and 20 of Sheet 5 of 12 does not match the setback lines of Sheet 1 of 12.

2. The drainage analysis does not review the 24-hour peak rain storm event of the 50-year storm event frequency in accordance with Article 10.3.1, Section 1 of the Subdivision Regulations.

3. The drainage analysis does not review the effects of the downstream drainage facilities in accordance with Article 10.3.1, Section 2 of the Subdivision Regulations; including, but not limited to Nippo Brook, the wooden bridge of Nippo Brook, the roadway of New Bow Lake Road and the associated cross culvert(s).

4. Although a Drainage Report has been submitted regarding the proposed project and the results appear to be in accordance with Article 10.3.1, Section 7 of the Subdivision Regulations, Sheet W-2 that accompanied the report was not clear and difficult to follow with comparison to the report. We request that the Applicant prepare a plan that is more easily to follow and resubmitted for our review.

5. The application package does not include a traffic impact analysis in accordance with Article 10.5, Section 1 of the Subdivision Regulations.

6. The Typical Cross Section Detail (Sheet 9 of 12) does not identify that a minimum of four (4) inches of topsoil shall be placed on all disturbed areas in accordance with Article 14.11 of the Subdivision Regulations.

7. Sheets 1 and 2 do not identify the required minimum right-of-way width in accordance with Article 15.2.1 – Table 1 of the Subdivision Regulations.

8. The proposed roadway does not meet the minimum shoulder width in accordance with Article 15.2.1 – Table 1 of the Subdivision Regulations.

9. The plan set does not identify the design speed; hence, we are unable to confirm the design speed in accordance with Article 15.2.1 – Table 1 of the Subdivision Regulations. However, we continued our review of the roadway and design based the design speed of 25 m.p.h. As a result, we found the horizontal alignment and vertical profile does meet the minimum design of 25 m.p.h. values for the associated design speed as recommended in the American Association of State Highway and Transportation Officials (AASHTO) "Green Book".

10. We recommend that a note be added to Sheet 1 of 12 stating that all proposed driveways shall be built in accordance Article 15.3.2 of the Subdivision Regulations.

11. The plan set does not identify the intersection approach design speed. As a result, we are unable to confirm if the approach design speed in accordance with Article 15.7 – Table 2 of the Subdivision Regulations. We recommend that the Applicant identify the proposed approach design speed.

12. The proposed roadway exceeds the 2% maximum grade within 100-feet of an intersection in accordance with Article 15.7 – Table 2 of the Subdivision Regulations.

13. The proposed roadway does not meet the minimum curb radius in accordance with Article 15.7 – Table 2 of the Subdivision Regulations. We recommend that the Applicant review this Article and incorporate the associated terrain classification.

14. No profile intersection sight distance was provided in the plan set.

15. The Typical Roadway Cross Section Detail (Sheet 9 of 12) does not identify that all unsuitable material shall be removed from the roadbed in accordance with Article 15.8, Section 1 of the Subdivision Regulations. Please note, the roadbed shall be defined as the limits of the roadway including the area one (1) foot beyond the shoulders, ditches or toe of fill slope.

16. The proposed typical roadway cross section detail does not identify that the shoulder leveling material shall be NHDOT Item 304.33 in accordance with Article 15.8.2 of the Subdivision Regulations.

17. The proposed typical roadway cross section detail does not identify that disturbed areas within the proposed right-of-way shall consist of four (4) inches of loam and be in accordance with Article 15.8.3 of the Subdivision Regulations. We recommend that a note be added to Sheet 6 of 12 stating that all remaining disturbed areas be loamed and seeded in accordance Article 15.8.3 of the Subdivision Regulations.

18. No roadway cross sections were provided in the plan set.

19. Approximate stations 2+00 to 6+50 proposed drainage ditch profile exceeds 6% and is greater than the allowable 250 foot length, which is not permissible in accordance with Article 15.8.7, Section 4 of the Subdivision Regulations.

20. Approximate stations 0+50, 2+50, 12+25, 20+50 and 23+00 proposed culverts do not identify if headwalls are required in accordance with Article 15.8.7, Section 6 of the Subdivision Regulations. Some of the culverts indicate that flared-end sections are to be installed, but do not clearly identify if flared-end sections are required on both sides of the culvert. We recommend that the Applicant include headwalls on the inlet side of the culverts and flared-end sections on the outlet side of the culverts.

21. We request stormwater modeling of all pre and post-development 24-hour storm events, not just the 10-year as required by the New Hampshire Department of Environmental Service's Alteration of Terrain permit, be included in the Drainage Report.

22. We request that Sheets W-1 and W-2 of the Drainage Report include, along the subcatchment's flow path the time-of-concentration (Tc), segment points that match/supplement the types of overland and closed drainage flows identified within the stormwater model.

23. The Applicant is utilizing Isinglass River as the analysis point for comparison of the pre-/post-development runoff for the project. We request the Applicant evaluate within the stormwater model overland runoff characteristics from the development property boundary to the river (i.e. Reach 100, 200, and 400).

Informational Comments – no action required by the Applicant or the Board

1. The proposed roadway exceeds the maximum length in accordance with Article 15.2.1 – Table 1 of the Subdivision Regulations from both Boulder Drive and the gravel New Bow Lake Road. It is our understanding that the Board has approved a waiver for this item.

If you have any questions or comments, please do not hesitate to contact us.

Very truly yours,

DuBOIS & KING, Inc.

Scott M. Bourcier, P.E.
Project Manager

Approved by:

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

SMB / js