MJS ENGINEERING, PC CIVIL • ENVIRONMENTAL • CONSULTING ENGINEERING •
5 RAILROAD STREET, P.O. BOX 359, NEWMARKET, NH 03857 PHONE: (603) 659-4979, FAX: 659-4627
E-mail: mjs@mjs-engineering.com

November 12, 2014

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

Re: Response to Engineering Review Letter dated November 4, 2014
TurboCAM - Map 234 / Lot 1.5
Barrington, NH

Dear Ms. Gasses:

This letter is provided in response to the engineering review letter provided by DuBois & King, Inc., dated November 4, 2014. Please find enclosed the following:

DATE	# of Copies	DESCRIPTION
11/12/14	3	Revised Plan Sheets C2 & C9 - Full Size
11/12/14	12	Revised Plan Sheets C2 & C9 - 11x17
11/12/14	3	USGS Quadrangle Map with Watershed Overlay

The review comments by DuBois & King, Inc. are shown below in italics in their original order followed by responses by MJS Engineering.

REVIEW COMMENTS

1. *Although Sheet C2 - Grading, Drainage, Utilities & Erosion Control Plan identifies isolated temporary erosion protection measures (i.e. construction entrance, stone check dams, erosion control blanket) during construction activities in accordance with Article 3.5.3 of the Site Plan Regulations, the plan does not include limits of silt fence within disturbed areas.*

   Siltsoxx locations have been added to Sheet C2. A Siltsoxx Detail had been and will continue to be shown on Sheet C7. We trust that Siltsoxx can be used as an acceptable alternative to silt fence.

2. *The plan set does not include a temporary erosion protection measure construction entrance, or silt fence detail in accordance with Article 3.5.3 of the Site Plan Regulations.*

Sheet C2 provides notes with leaders pointing to the entrances to the proposed development requiring stabilized construction entrances. The Stabilized Construction Entrance Detail on Sheet C10 provides construction requirements.

Regarding silt fence, refer to Response #1.

3. *The Drainage Report does not reference the source of the rainfall data modeled in the drainage analysis.*

   Rainfall data is modelled based on 24-hr SCS rainfall for the Town of Barrington.

4. *The Drainage Report does not overlay the watershed boundary on a USGS quadrangle map. We were unable to confirm the watershed delineation.*

   Refer to the enclosed map.

5. *No percolation information was provided to support the 10-inches per hour infiltration rate reported on Page 2, Section 5, third paragraph of the Drainage Report.*

   A percolation test was performed and the infiltration rate was found to be faster than 2 minutes per inch (which exceeds 10 inches per hour).

6. *The drainage analysis for the StormTrap does not establish a Flood Elevation for the HydroCAD Pond P19.*

   The inside top of the storage chambers are set at elevation 208.5.

7. *The Drainage Report states that soils were determined to exceed the maximum 10-inches per hour for stormwater treatment. We recommend that stormwater be treated prior to the StormTrap system to ensure pollutants do not lead to early failure of the infiltration system.*

   In accordance with Env-Wq 1500 (AOT Regulations), pretreatment is provided in the form of deep sump catch basins, and treatment is provided by the underground infiltration basin (StormTrap system). To meet treatment requirements, the soil below the system must be amended to have a maximum infiltration rate of 10 inches per hour. A factor of safety of 2 is used in the design. Therefore, the design infiltration rate is 5 inches per hour.

8. *The pre-treatment measure Snout and Bioskirt appears to be only shown at DMH No. 2. We recommend that this pre-treatment measure be at all drainage structures (i.e. DMH No. 4, No. 6 and CB No. 7) immediately prior to discharging collected stormwater to the StormTrap system.*

   Snouts and Bioskirts have been added to all drainage structures which discharge directly into the StormTrap system. This includes DMH #4, DMH #6, CB #6, and CB #7. Sheets C2 and C9 have been revised accordingly.

9. *The drainage analysis modeled a 79.9-inch stone border around the StormTrap system. The StormStrap Installation Specification Note No. 2.B.4, located on Sheet*

C11, states a 2-foot minimum perimeter stone base. The 5'-0" Single Trap Detail, located on Sheet C11, does not specify a stone base perimeter width. Please confirm that the drainage analysis reflects the proposed design.

The drainage analysis accurately reflects the proposed design.

The 79.9 inch border being referred to (per the HydroCAD analysis) is not a stone border. It is actually the width of the concrete chambers which are located along the perimeter of the StormTrap system. The StormTrap system relies on concrete chambers along the perimeter which are of different dimensions and construction than the interior concrete chambers. The interior chambers are mostly open, allowing water to flow through while the perimeter chambers provide solid enclosing walls along the perimeter thus preventing water from flowing out along the sides.

Regarding the 2 foot perimeter stone base, as indicated by note 2.B.4 on Sheet C11, this requirement is also shown on the 5'-0" Single Trap Detail.

10. *We request the Applicant clarify the reason for the amended soil located under the stone subbase of the Stormtrap. It is our understanding that the soil is being amended to reduce the infiltration rate capacity. However, we are concerned that a" field mix of the amended soil will not be consistent and could lead to early failure of the infiltration system.*

Refer to Response #7. In addition, the amended soil mix will be field tested by a geotechnical engineer to confirm the 10 inches per hour infiltration rate, in accordance with Env-Wq 1504.14(e).

We trust this letter and enclosures have addressed the engineering review comments and recommendations made by DuBois & King, Inc. as well as the concerns of the Town of Barrington. If you need additional information, please do not hesitate to contact me at (603) 659-4979 x305.

Sincerely,

Jeff Garnett
Project Engineer

Cc: Jeffrey A. Adler, P.E.