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UNDERWOOD
engineers

2817.00

March 18, 2024

Mr. Bart McDonough
Director of Planning and Community Development
Town Hall, Town of Newmarket
186 Main Street
Newmarket, NH 03857

Re: ***Railroad Street Mixed-Use Development***
Design Review Engineering Services
Newmarket, New Hampshire

Site Information:

Review No. 2

Tax Map/Lot#:	Map U-3 Lot 138A and U-4 Lot 16
Address:	3 Railroad Street
Zoning District:	M2A
Applicant:	CC Railroad Street Newmarket, LLC
Design Engineer:	Horizons Engineering

Site Plan Drawings Received:

- Site Plan Approval Drawings dated January 2023, revision date not listed, prepared by Horizons Engineering

Dear Mr. McDonough:

Underwood Engineers (UE) has reviewed the above information with regard to the Town of Newmarket's regulations and standard engineering practices. Please note any previous comment no longer listed has been satisfactorily resolved. We offer the following for consideration.

Site Plan

18. Water and Sewer Services:

a. A note should be added requiring a test pit prior to the tie-in of water service lines to the main, for advance determination of exact location, depth, material and size of existing water main.
b. A note should be added requiring the installation of water services over sewer pipes with a minimum of 18" of vertical clearance while maintaining 5.5' of minimum cover.

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Direction regarding the need for sleeving if clearances can not be achieved should be provided.

c. The proposed sewer service enters the existing manhole at an angle that could cause loss of structural integrity. We agree with the note included with the label regarding verification of the manhole's condition. It may require replacement with a larger structure to accommodate the angle shown.

19. **Fire Hydrant:** It is still unclear if a new fire hydrant installation is required of the project. Coordinate with the Newmarket Fire Chief and show on the plans as needed.

22. **General Notes:**

d. General note 18 (formerly number 19) still refers to the prior proposed layout of this site and, given the lot merger, no longer appears applicable to the current proposal.

Grading and Drainage Plan

29. **Discharge Locations:** We note the riprap apron at the infiltration overflow is now defined, but it appears the required size of the riprap area is too large to fit onsite if placed at the actual pipe outlet. As shown, the pipe discharges into the middle of the apron, rendering part of the apron useless so the full effect of velocity reduction is not achieved.

Stormwater Modeling and Management

35. **Cover Types:** UE measures approximately 400 to 500 SF of undisturbed slope per the grading plan in the southern corner, when taking into account area needed for equipment to install the rip rap apron, discharge pipe, and retaining wall. However, the area is minor and we are dropping the comment.

38. **Modeling:**

a. Based on the revised stormwater report narrative, it appears that the applicant has modeled the soils as Hydraulic Soil Group D in both the pre and post analysis. This change, while potentially conservative relative to evaluating certain drainage practices, also has the potential to artificially increase the run-off potential of the existing condition. As the (revised) narrative states, the site's soils have varied infiltration rates and by extension would likely have varied hydraulic soil group designations. The drainage model should follow accordingly in both pre- and post- development model runs.

39. **Infiltration Practice.** The comment has not been addressed and it appears that comment's intent has been misunderstood. Test Pit 3 does indicate soil characteristics that may be conducive to the proposed infiltration practice, while test pits 1 and 2 are considerably less favorable. However, test pit 3 is fill material and there is no information provided that confirms the limits or depths of the fill, consequently it is unclear if there is sufficient fill volume to support the proposed infiltration practice.

41. **PTAP Database:** Comment not addressed. The PTAP entry and response is required to confirm that application meets the stormwater treatment requirements of the site plan process.

New Comments

42. **Landscaping:** The Landscaping Plan indicates a proposed elm tree directly over the water service lines and the underground utility lines. While we realize the service lines will be private and repair/replacement will be the responsibility of the landowner, we recommend this tree be removed to eliminate the risk of tree roots damaging the pipes and for accessibility to the pipes.
43. **Details:** There is an extraneous detail on sheet C503, mistakenly labeled as Concrete Washout Detail.
44. **Stormwater Modeling:**
    a. For clarity, Pond 1P should be relabeled as underground infiltration and Pond 3P should be relabeled as drywell and all model nodes should be depicted on the pre and post development plans in the drainage report.
    b. Subcomment c below notwithstanding, allowing Pond 3P to overtop and then flow through Subcatchment 11 to Pond 1P may be viable, although the practice particularly in this arrangement of buildings, parking, and pedestrian traffic, should be avoided. It appears Post-Subcatchment S12 should be modeled as a stand-alone area since the discharge point is a drywell. The model currently ties S12 into the underground infiltration system (Pond 1P).
    c. The drywell (Pond 3P) is modeled with storage at th

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Allison M. Rees