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January 18, 2018

Ms. Emily Wentworth, Senior Planner/Zoning Administrator
Hingham Zoning Board of Appeals
210 Central Street
Hingham, MA 02043

Subject: **River Stone – Comprehensive Permit**

Dear Ms. Wentworth:

As a follow-up to our January 9, 2018 letter, this is to advise that we have reviewed the following supplemental documents related to the subject Comprehensive Permit Application:

- Comprehensive Permit Plan, River Stone (13 sheets), revised January 8, 2018, prepared by McKenzie Engineering Group, Inc. (MEG)
- Preliminary Hydrologic Analysis, dated January 8, 2018, prepared by MEG

As discussed at the January 10, 2018 public hearing, the supplemental documents were received two days before the hearing and we had not had an opportunity to review them in time to offer comments at the hearing. Our January 9th letter listed items that we believed were needed for us to offer advice to the Board as to the viability of the project and its potential effects on adjacent properties.

The following six comments from our January 9, 2018 letter are restated in plain text, followed by the current status of each in **bold text**:

1. The list of requested waivers in the application materials includes many ‘general waivers’ from various regulations. The waivers should explain the exact regulation from which relief is being requested so that the Board fully understands the implications of each requested waiver. **Not addressed to date.**
2. Updated plans to include the following:
 - a. Grading and drainage plan – **Received, see technical comments below.**
 - b. Utilities plan – **Received, see technical comments below.**
 - c. Landscaping plan – **No landscaping plan received to date.**
 - d. Construction details – **Received, see technical comments below.**
 - e. Exterior lighting plan with photometrics. **No lighting plan received to date.**
3. Stormwater management report and drainage calculations. **Received, see technical comments below.**

4. Soil information including test pits logs. We note that some test pit logs and locations are included in the Preliminary Hydrologic Analysis received today. However, there are none located within the footprint of the detention basin and many of the subsurface infiltration systems shown on the plan set received today. **See technical comments below.**
5. Documentation to demonstrate that adequate water supply is available for domestic use and fire protection. We note that two fire hydrants are shown on the plan set received today and suggest the Applicant consult with the Fire Department about the location and number of hydrants. **Not addressed to date.**
6. Sizing calculations for the septic soil absorption system to demonstrate that there is sufficient area for the system and required reserve area. **Not addressed to date.**

Technical Comments

General/Roadway Comments

1. There are proposed retaining walls shown on the plan which will be greater than four feet in height. Walls over four feet in height require a building permit and design by a registered structural engineer. Details of retaining wall design should be shown on the plans. A railing or an alternative protective barrier should be included on the top of the walls. A guardrail should be provided along the wall adjacent to Road B.
2. We note that the proposed retaining wall between Units 24-26 on the subject site and 64 Ward Street will be up to fifteen feet high and it is shown about five feet from the property line. The wall would retain the earth between the wall and the 64 Ward Street property line. We question whether this wall could be constructed without encroachment onto the 64 Ward Street property. We note that a wall of this height will present visual (on site) and safety (64 Ward Street) concerns.
3. Sidewalks are shown at four feet wide and are adjacent to the Cape Cod berm. To enhance public safety the sidewalks should be five-foot wide and they should be separated from the travel way with something more than a Cape Cod berm. We are in agreement with Mr. Jeffrey S. Dirk, P.E.¹ that a vertical curb or grass strip of sufficient width should be provided.
4. We also agree with Mr. Dirk that a sidewalk should be provided along Viking Lane between Road B and Ward Street.
5. We concur with Mr. Dirk's comment that the roadway widths should be a minimum of 24-feet in accordance with MassDOT standards.

¹ See Vanasse & Associates, Inc. January 4, 2018 letter to Ms. Emily Wentworth.

6. There are six, presumably visitor², parking spaces shown on the south side of Road B over the septic leaching area. The sidewalk passes through these spaces which would require a pedestrian to step into Road B if a vehicle is parked in any of those spaces.
7. Roadway profiles are shown on Sheet C-3. However, the profiles show only the existing and proposed centerline grade of the roads. The profiles should show sewer, drain and water utilities (including sewer and drain structure rim and invert elevations). This information is required to verify that the proposed utilities may be installed without conflict.
8. We note that the Applicant has request waivers from ZBL Section IV-A to reduce the required front, side and rear setbacks to fifteen feet. However, at the rear of each unit is what is labeled as a proposed 'deck or patio.' If these will be decks (structures) then the setback would be as little as eight feet on Units 2-4, 6-9 and 18-21.
9. We note that the Applicant has requested a blanket waiver from ZBL Section IV-E.1.m, which requires roadways in multi-family developments to comply with the Planning Board Rules and Regulations Adopted Under the Subdivision Control Law (R&R). The Applicant has also requested a blanket waiver from the R&R. As noted above, waiver requests should identify each particular regulation for which the development will not comply. We believe that it is extremely important to identify where the project will not comply with Section 4 – Design Standards and Section 5 – Specifications for Construction of Required Improvements of the R&R. This is required to determine if the design complies with generally accepted public safety requirements and good engineering practice.

Drainage and Utilities

1. Drainage pipe sizing calculations should be provided along with rim and invert elevations for manholes and catch basins.
2. Figures 1-4 are missing from the Preliminary Hydrologic Analysis.
3. Some test pit data has been provided. However, the information indicates varying seasonal high groundwater levels throughout the site. Because of the varying groundwater levels, additional test holes are required at each of the proposed infiltration systems to verify that adequate separation from groundwater will be provided and that soils are suitable for infiltration. Test holes should be witnessed by an agent of the Town.
4. Comparing proposed grading to the HydroCAD model in the Preliminary Hydrologic Analysis, portions of subsurface infiltration systems (SSI's) P5, P6 and P15 will be above ground. SSI's P3, P7, P11 and P16 would have very limited cover and SSI P11 is located under the hammerhead turnaround which will be subject to traffic loading. As noted

² These spaces are not labeled with a 'V' as the other visitor spaces are.

above, test holes are required at each of the eighteen SSI's to verify seasonal high groundwater elevation. We suspect that many of the SSI's will need to be redesigned based on groundwater and cover constraints.

5. SSI P12 is modeled with 24 Cultec R-330XLHD chambers, yet only 22 chambers are shown on the plan.
6. Invert elevations should be shown for the roof drain piping, especially for the piping for Units 1-4, 6-9 and 25-28, to verify that there is adequate pitch to convey the roof runoff through the piping to the SSI's.
7. The infiltration rates used for depressions D-3 and D-4 should be modeled in inches per hour (in/hr) and not cubic feet per second (cfs). We note that the infiltration rates used for depressions D-1 and D-2 are modeled in in/hr.
8. All four of the depressions are modeled with a 24-foot long by 3-foot breadth broad-crested weir. These should be modeled with weirs that reflect the actual geometry of the depressions.
9. The storage in depression D-2 does not appear to be correct as there is an El. 57 contour shown on the plan and the storage in the model starts at El. 58.
10. The outlets for depression D-4 are modeled at the wrong elevations.
11. A detail should be provided for the existing (or proposed) outlet control structure for the detention basin so that we may verify that it is modeled correctly.
12. The Detention Basin Section on Sheet C-6 shows a sediment forebay. However, there is no sediment forebay defined on the grading plan, Sheet C-2.
13. To more clearly show that a foot of freeboard will be provided in the detention basin during a 100-year storm event, the El. 62 contour should wrap around the north and east sides of the basin.
14. All flared end sections and headwalls should be equipped with trash racks.
15. Components of the proposed septic system, including tanks and the soil absorption system are shown under proposed roadways. Information should be provided to document that the components are designed for loading as required by the Fire Department apparatus.
16. Full septic system design information will be required to verify compliance with Title 5 (310 CMR 15) and to determine where the project will not comply with the Hingham Board of Health Supplementary Rules and Regulations for the Disposal of Sanitary Sewage.

17. Erosion controls are detailed on Sheet C-10. The locations of erosion control barriers and the construction entrance should also be shown in plan.
18. The Hydrant Detail on Sheet C-9 specifies C-900 PVC pipe. Ductile iron pipe should be specified as noted elsewhere on the plans.
19. All water supply references to the Hingham Water Department or DPW should be changed to the Aquarion Water Company.

Our comments are based on information received to date and we anticipate additional comments as requested information is provided.

Please give us a call should you have any question.

Very truly yours,

AMORY ENGINEERS, P.C.

By:



Patrick G. Brennan, P.E.



PGB