

DEI RESPONSES TO OUTSTANDING VHB COMMENTS

SITE PLAN

1. *The limit of clearing should be identified on the Site Preparation Plan. Any trees to remain should be identified and protected appropriately.*

The limit of clearing is identified on the Site Preparation plan as the silt fence/hay bale line. Additionally the landscape plan will identify trees that are to remain.

The landscape plan should be submitted to the Zoning Board for review. The trees to remain should reflect regrading proposed in the vicinity of the proposed leaching field.

The landscape plan has been submitted with the most recent package. The site preparation plan has been revised to include a tree protection detail and a note has been added that trees greater than 6-inch caliper are to be protected.

The site preparation plan has been updated. However, the landscape plan was not included in the package.

The landscape plan has been submitted and is being reviewed by VHB.

2. No further comment.
3. *The location of the accessible spaces should be shown the site plans.*

Two accessible parking spaces and associated walkways have been added to the plans. An 8-foot wide landing area for the accessible vehicle has been provided adjacent to the accessible space. The Landing area is the last point on each of the walkways and can be designated as ADA loading, this landing area and connection to the walkways will serve as the required aisle and ramp for each of the spaces.

The accessible aisles should comply with Section 23.4.6 of the Massachusetts Architectural Access Board Regulations and the ADA (whichever is more stringent). The access aisle should be on the same plane as the accessible parking space and clearly delineated. Accessible curb ramps should be provided as needed.

The accessible aisles and ramps have been identified.

Section 23.3.1 of the Massachusetts Architectural Access Board Regulations require that Accessible parking spaces serving a particular building, facility or temporary event shall be located on the shortest accessible route of travel from adjacent parking to an accessible entrance. The accessible space servicing Building A does not appear to meet this standard.

The accessible space has been relocated to meet the regulations.

4. *The existing sidewalk along the east side of North Avenue should be shown on the plans. Accessible curb ramps should be shown where the entrance driveway crosses the sidewalk.*

Accessible ramps are indicated on the plans, the proposed sidewalk ties into the existing sidewalk at the driveway curb-cut and the existing sidewalk is indicated with callouts.

The existing sidewalk is not clearly delineated on the Site Layout Plan.

The sidewalks have all been identified.

The accessible curb ramps should be detailed to conform to Massachusetts Architectural Access Board Regulations and the ADA (whichever is more stringent).

Additional ramps and sidewalks have been added to the plans to connect all the units and the sidewalks to comply with regulations.

5. *Will the development include a community mailbox or mail room? If so, accessible route should be shown from accessible units and accessible spaces to mailbox/mail room.*

A community mailbox has been indicated at the entrance drive. The layout plan provides a callout for the mailbox.

The community mailbox should be clearly labeled on the plan.

The mailbox has been added to the plan.

The mailbox had been added to the plan. The applicant shall provide an accessible route from all buildings to the community mailbox.

Additional ramps and sidewalks have been added to the plans to provide an accessible route to the mailbox.

6. No further comment.
7. No further comment.
8. No further comment.
9. *The proposed grading contour interval is two feet and does not provide adequate detail. Recommend applicant revise grading to use one foot contour interval.*

The two-foot contours are consistent with local practice and standard engineering practice. Additional grading detail will be provided using spot grades and detailed callouts where needed for the final construction documents.

Standard engineering practice dictates a contour interval consistent with the level of detail required to define appropriate grading and drainage patterns. Given the proximity of the proposed development to the existing property boundaries, VHB recommends that the applicant revise the grading to use one foot contour interval or additional spot shots be provided to better define grading along the property boundaries and in the vicinity of the proposed buildings.

The plans have been developed based on Section C.2.d.ii.1 and C.3.d.ii.4 of the Town of Weston Stormwater regulations that states, "The site's existing topography with contours at 2 foot intervals for work area." Additional detail has been provided where appropriate and where requested.

Additional spot shot information has been added to the Existing Conditions Plan. Recommend that this information be included on the Grading and Drainage Plan. Further recommend that 1 foot contours be used to better define the existing and proposed grading along the north and south property lines adjacent to Buildings A, B, C, D and E.

One foot contours have been developed and included in the existing conditions plan. One foot proposed contours have been added in the areas along the north and south property line adjacent to buildings A, B, C, and D.

10. *The slope west of the septic field has a maximum grade of approximately 1.5:1 (from elevations 146 to 150). Recommend max slope no greater than 3:1. Slope may be increased with recommendation from geotechnical engineer.*

A retaining wall and additional "overflow" parallel parking spaces have been identified in this area. A callout has been added to the layout plan indicating the location of the retaining wall.

A preliminary detail for the retaining wall should be provided. The typical length of parallel parking spaces is 22 feet. The plans should be revised accordingly.

A typical retaining wall detail has been added and the spaces have been adjusted to 22-feet.

The proposed dimensions should be added to the parking spaces. The introduction of the parallel spaces eliminates the turnaround for the parking area behind Buildings D and E. Stamped engineering drawings of the retaining wall should be included with the Building Permit Application.

Dimensions have been added to the parking spaces. Furthermore, the site design requires a total of 32 spaces; however, 36 spaces have been provided. The revised site plan identifies 4 parking spaces at the rear of the property that will be used for snow storage while maintaining the number required parking spaces at 32.

11. *Additional grading detail is required at the 24-inch inlet west of Building C to ensure no impact on abutting property.*

Additional grading detail has been provided.

Recommend additional detail per Comment 9 above.

Additional detail has been added using spot grades.

See comment 9 above.

One foot contours have been developed and included in the existing conditions plan. One foot proposed contours have been added in the areas along the north and south property line adjacent to buildings A, B, C, and D and in the area of the outlet/inlet control structure.

12. *Stormwater Infiltration #2 is within 40 feet of the neighboring residence to the south. The applicant should verify that infiltration system will not adversely impact the residence.*

The proposed setback is double that required by state standard and is further away from the property line than the existing low point at the site currently. Currently the low point of the site is at the property line, the proposed plan makes it 40-feet from the property line. The groundwater elevations are greater than 4-feet below the infiltration systems and the infiltration rates of the soils are close to 2 minutes per inch. Additional soil testing in this area has been conducted to verify.

The Stormwater Handbook provides setback requirements for Infiltration Basins and Trenches. However, it does not list setbacks for subsurface structures. Although the proposed infiltration system meets the requirements for infiltration trenches it does not meet the setback requirements for infiltration basins. In this situation, a Mounding analysis is warranted to demonstrate no impact to the existing abutter or proposed buildings.

Mounding analysis has been provided. The existing condition all of the stormwater infiltrates at the property line where the historic 18-inch pipe once was located, the current design improves this condition by moving the infiltration further away from the property line.

The stormwater mounding analysis should be revised using the variables consistent with the mounding analysis for the septic system. The Specific Yield (S_y) should be 0.28 and the horizontal hydraulic conductivity should be 65 ft/day.

The mounding analysis for the Existing Condition and for the North and South infiltration systems have been revised to incorporate the variables suggested by VHB. The three mounding analysis have been included in the drainage report. The analysis indicate that there is little effect to abutting properties caused by the mound from both of the proposed infiltration systems and that the proposed infiltration systems result in less affect than exists under the current condition.

- 13. No further comment.
- 14. No further comment.
- 15. No further comment.
- 16. No further comment.
- 17. No further comment.
- 18. *A plan showing locations of site lighting fixtures and illumination levels should be included in the site plans.*

Landscape plans are being developed that illustrate a lighting plan. The landscape and lighting plan will be advanced based on input from the Town of Weston.

The landscape and lighting plan should be submitted to the Zoning Board for review.

The landscape and lighting plans have been provided.

The landscape plan is not included with the site plans.

The landscape plan has been submitted and is being reviewed by VHB.

- 19. No further comment.
- 20. No further comment.
- 21. *The rear elevation for Buildings C, D and E show a proposed deck, however no decks are indicated on site plan. Applicant should clarify.*

The architectural plans have been revised to indicate no decks on these units.

Sheet D-3 shows stairs and landings at the rear of Building D on the first floor. These stairs are not reflected on the site plan.

The plans have been revised to eliminate the stairs.

Architectural plans were not included in the site plans to confirm that stairs have been eliminated.

Architectural plans have been provided and the location and/or elimination of all decks has been coordinated.

- 22. No further comment.

23. No further comment.
24. No further comment.
25. No further comment.
26. No further comment.
27. No further comment.
28. No further comment.
29. *The existing conditions hydrologic model indicates that runoff from the site is collected in a low point at the southeast corner of the site. This area is modeled as a pond with an overflow weir as the only outlet. The model does not account for potential infiltration from this low point. Given the soils underlying the site it is recommended that the model be revised to account for infiltration.*

The calculations have been revised from the original design to include an infiltration rate typical for the loamy topsoil at the low point of the property.

In the existing conditions stormwater model the engineer uses an infiltration rate of 1.65 inches per hour to reflect the infiltration rate of the existing depression on-site. The engineer should provide back-up information to support this infiltration rate.

As discussed, we have identified the topsoil as being the most restrictive layer. Based on the soil testing at the site and the NRCS soil survey, the topsoil at the property is the most restrictive layer and that soil is classified as a sandy loam which has a Rawls number of 1.02. To be conservative, the Rawls number of 2.41 for Loamy Sand was used in the calculations to conservatively develop the existing conditions for infiltration of the surface water.

In the proposed condition, because the infiltration basins are located in the gravely sandy soils with percolation rates faster than 2 minutes per inch, the closest Rawls number for this material is for sand with a rate of 8.27 in/hour. The proposed conditions infiltration rate of 8.27 in/hour was used.

The infiltration rate for surface infiltration for the proposed conditions model is 1.65 inches/hour. Recommend using a Rawl's rate of 0.52 in/hr for loam.

As agreed at the last session of the ZBA public hearing, VHB (in an email dated 11/22/16) suggested to DEI and TetraTech parameters for a sensitivity analysis, the results of which VHB would use to determine the infiltration rates to be used by DEI in a final version of the stormwater management or drainage report. By emails dated, respectively, 11/22/16 and 11/23/16, DEI and TetraTech agreed to the parameters of the sensitivity analysis suggest by VHB. DEI then provided VHB with the requested sensitivity analysis.

Based on VHB's review of the sensitivity analysis, VHB then directed DEI to use a surface infiltration rate of 1.02 in/hr and a subsurface infiltration rate of 8.27 in/hr. for the final version of the stormwater management system. The full substantive text of VHB's email confirms the highly conservative nature of this set of infiltration rates:

I completed a quick look through the sensitivity analysis. At this point, I recommend that the analysis be completed assuming a surface infiltration rate of 1.02 in/hr and a subsurface infiltration rate of 8.27 in/hr. The stormwater system should be designed to achieve no increase in runoff or volume at North Avenue and no increase in water surface elevation on abutting properties. I think this

approach will conservatively size the infiltration chamber as the 1.02 in/hr surface infiltration rate will generate more runoff from the depression on 277 North Avenue which in turn require additional storage on the 269 North Avenue site to mitigate the runoff. This infiltration rate will also help to identify the likely highest ponding elevation for the various design storms on 277 North Avenue. I also recommend that the model should be revised so that the exfiltration is set to the lowest elevation of the pond.

The drainage report has been revised as instructed by VHB and accompanies, in a separate document, this response to comments. DEI awaits VHB final comments on the drainage report.

- 30. No further comment.
- 31. No further comment.
- 32. No further comment.
- 33. *Stormwater management report should include pipe sizing calculations for the closed-pipe drainage system.*

All of the significant drain pipes have been modeled in the HydroCAD model and the report printout has been adjusted to provide the capacity analysis of all the pipes. Because of the configuration of the system, all pipes are designed to convey the 100-year storm.

Sizing calculations should be provided for all pipes conveying stormwater runoff.

The HydroCAD model provides an analysis of the system using tailwater affects. All of the pipes and retention basins are connected in series. The calculations identify the condition of all of the pipes and the flood elevations.

Sizing calculations should be provided for the pipes outside of the infiltration system.

Sizing calculations have been provided for the pipes not modeled in the HydroCAD or directly associated with the infiltration basins.

- 34. No further comment.
- 35. No further comment.
- 36. No further comment.
- 37. No further comment.
- 38. *Applicant should provide calculations for the proposed sewer main demonstrating adequate capacity and design velocity per TR-16.*

The calculations will be provided.

The applicant shall submit calculations for review.

The calculations have been provided in a previous review.

It does not appear that the calculations were submitted. Please resubmit for review.

The sewer main design flow spread sheet has been provided with this submittal.

- 39. No further comment.
- 40. No further comment.

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73. *The proposed subcatchment area breakdowns are not consistent between the Proposed Conditions Watershed Plan and the HydroCAD model. The applicant should clarify.*

The Catchment maps have been revised per the latest calculations.

It appears that Subcatchment P-4 is not delineated on the Proposed Conditions Watershed Plan. This subcatchment should be added to the plans.

The subcatchment information has been moved closer to the subcatchment and a leader has been added to help identify the data. This has been added to the plans.

74. No further comment.

75. No further comment.

76. The Flood elevation on 269 North Avenue for Proposed Condition without 18-inch pipe connection included in Table 3: Peak runoff rates, flood elevations and total volumes do not appear to match the results of the HydroCAD model. The table should be updated accordingly.

The calculations have been revised based on the infiltration rates from the sensitivity analysis and the data in the table has been updated.

77. The Flood Elevation on 277 North Avenue for Proposed Condition without 18-inch pipe connection is greater than the Current Conditions without 18-inch pipe connection in the 10-year storm event. The applicant should discuss potential impacts to 277 North Avenue.

The calculations have been revised based on the infiltration rates from the sensitivity analysis and the data has been updated.

78. There are apparent oscillations in the results for Infiltration Basin #1 and #2 in the 25-year storm event and greater. Recommend modeling Infiltration Basin #1 and #2 as one structure as a means to eliminate the oscillations.

The calculations have been re-developed to indicate Infiltration Basin #1 and #2 as a single basin to eliminate the oscillations.