

January 17, 2017

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Topsfield Planning Board
Topsfield Town Hall
8 West Common Street
Topsfield, MA 01983
Martha A. Morrison; Chairwoman

RE: A&M Project #2165-01A
Rolling Green Elderly Housing
Development
470 Boston Street
Topsfield, MA 01983
**A&M Response Horsley Witten
Review Letter**

Dear Ms. Morrison:

On behalf of the applicant, Sarkis Development Company, Allen & Major Associates, Inc. (A&M), respectfully submits this peer review response letter regarding the comments generated by the Larson's (applicant's neighbor) engineer Horsley Witten Group for the proposed Elderly Housing Development known as Rolling Green, located at 470 Boston Street, Topsfield, Massachusetts.

The following comments below were noted by Ms. Janet Carter Bernardo, P.E., of Horsley Witten Group on December 21, 2016 and pertain to waiver requests, general comments, and comments related to the stormwater management; each comment is followed by A&M's response in **bold**.

COMMENTS:

1. It is not HW's intention to repeat the comments outlined in the Beals + Thomas November 22, 2016 independent peer review letter prepared for the Topsfield Planning Board. HW requests that the Applicant be required to respond to the Beals + Thomas letter point by point and that Beals + Thomas be given the opportunity to review and fully comment on the Applicant's response.

A&M Response: The Applicant concurs and has addressed the comments generated by Beals + Thomas in a separate response letter.

2. The proposed stormwater management system includes a discharge point labeled FES-3. This 15-inch pipe is directed towards the Larson property and the outfall is located approximately 30 feet from the Larson property boundary. FES-3 is the only discharge pipe from the large surface basin located in the center of the development. The proposed basin appears to collect stormwater from over 2.6 acres of the project site and the water will either infiltrate or discharge via the 15-inch pipe. If the proposed surface infiltration basin fails for any reason and infiltration no longer occurs at the estimated design rate, a significant portion of runoff from the developed site will discharge via FES-3 and flow downgradient directly toward the Larson's property. HW requests that FES-3 be relocated further from the Larson's property boundary and that it is directed towards the on-site wetland resource area to the north.

A&M Response: The plans have been updated appropriately, per the comment. See Drainage plan C4-B for the revised location of the 15-inch pipe outlet. The applicant is currently reviewing the proposed outlet location with the Town of Topsfield Conservation Commission.

3. HW has the following comments and suggestions regarding the HydroCAD calculations presented in the drainage report:

a) In determining the Curve Number (CN) values for the existing and proposed site, the Applicant characterized the surface material for all of the woods and a portion of the grass as “fair.” Typically, existing wooded conditions are considered “good” when forest litter and brush adequately cover the soil. Characterizing the existing conditions as “fair” instead of “good” results in a lower runoff volume and rate, essentially lowering the bar for the level of stormwater management required under the proposed conditions. HW suggests that the Applicant provide an explanation for the use of “fair” or revise the HydroCAD calculations.

A&M Response: All cover types described as “woods” have been revised to a designation of “good”, as forest litter and brush do appear to adequately cover the soil for the majority of the wooded areas on-site. Subcatchments which contain grass have been designated as either “good” or “fair” based on actual grass cover noted from multiple site visits.

b) The area characterized as woods within Hydrologic Soil Group (HSG) A and B is greater under proposed conditions than existing conditions. However, this difference is not evident in the design plans. HW suggests that the Applicant clarify and compare which areas are designated as woods under the existing and proposed development conditions.

A&M Response: Overall, the area characterized as woods for all HSG groups decreases on-site, as wooded areas are proposed to be cleared. The increase in area of woods for HSG A & B is attributed to the different shapes of the sub-catchment areas between pre- and post-development watershed areas. However, overall, the area attributed to woods decreases, as expected. For further clarity, the proposed treeline has been adjusted, and the existing tree line has been boldened and dashed in the Post-Development Watershed plan, sheet PWS, to highlight the existing versus proposed wooded areas.

c) The Applicant has used an exfiltration rate of 8.27 inches/hour for the underground infiltration systems (UIS) 1 and 2. This is a relatively rapid infiltration rate. HW did not see any indication of test pits conducted in the area of the proposed UIS 1 and 2 that confirm this rapid infiltration value. The Applicant used 1.02 inches/hour for the majority of the proposed infiltration systems; this lower rate seems to be a more appropriate rate for the site. HW recommends that the Applicant provide an explanation for the higher exfiltration rate or revise the calculations.

A&M Response: Per the Massachusetts Stormwater Handbook, an exfiltration rate of 8.27 inches/hour is consistent with infiltration within a layer of sand. Per the July 7th 2016, form 11 Soil Evaluation data sheets, sand was determined to be the parent material for the footprint of UIS-2.

Since the original soil test pit evaluations, additional soil evaluation testing was performed on December 9, 2016 which determined the presence of a sandy loam within the footprint of UIS-1. The HydroCAD model has been revised accordingly with the correct infiltration rates.

d) The Applicant has used an estimated seasonal high ground water (ESHGW) elevation of 59.5 for UIS 1 and 2. Test Pit 8 appears to be located beneath UIS-2, however HW did not see any test pit data conducted within the larger footprint of UIS-1 as required by the Massachusetts Stormwater Handbook. The ESHGW for UIS-1 should be confirmed before approval of the project.

A&M Response: Since the original test pit evaluations on July 9th, additional soil evaluation testing was performed on December 9, 2016. This recent evaluation determined the presence of a sandy loam within the footprint of UIS-1. The infiltration calculations plans have been revised accordingly. The estimated seasonal high ground water is approximately elevation 56.0 within the footprint of UIS-1.

e) The Applicant has conducted a number of test pits throughout the property. The test pits are very comparable indicating loamy sand and sand. However, the majority of the smaller infiltration systems (UIS-3, UIS-9) do not have a test pit within their footprint as required by the Massachusetts Stormwater Handbook. HW recommends that the Applicant conduct additional test pits at the time of construction and provide documentation to the Town of Topsfield confirming that adequate separation has been provided between the bottom of the systems, and the ESHGW.

A&M Response: Additional soil evaluation testing was performed on December 9, 2016, including within UIS-3 and UIS-9. All proposed infiltration systems including UIS-3 and UIS-9 now have a test pit either within the system footprint, or within an allowable distance as mandated by the Massachusetts Stormwater Handbook.

f) The Applicant has evaluated three drainage study points comparing pre and post development conditions. It appears likely that the three study points are hydrologically connected and stormwater will eventually discharge from the project site via the western property boundary towards the Larson Property. It is not clear from the information presented if there will be an increase in flow and/or volume onto the Larson property which may have the potential to cause flooding over North Street during the larger storm events. HW requests that the Applicant provide documentation which clearly illustrates that the development will not increase flow or volume at the downgradient property boundary during all analyzed storm events.

A&M Response: The drainage report has been updated to show that the three study points combined will not result in a net increase in flow or volume during all analyzed storm events. See tables entitled "Total Study Peak Flows," and "Total Study Peak Volumes," which show an overall decrease in both peak flows and volumes for the post-development watershed.

4. Allen & Major Associates, Inc. mentioned in their December 9, 2016 letter that they are researching a method of road deicing to lessen chloride contamination of offsite parcels. This is a serious concern to the Larson property for the protection of their water resource areas. HW supports the Applicant's effort to find alternative methods of road and sidewalk deicing, and suggests that the matter be resolved prior to approval of the project.

A&M Response: It is understood this is a concern of the Larson's. To clarify the intent of the discussion, A&M mentioned the issue of deicing was being researched and the team was reviewing the alternative options.

As is lawful, it is noted that both the MA DOT & Town of Topsfield currently use rock salt (Calcium Chloride) and sand during the winter months on the roadways. Rock salt is used on both Route 1 (Boston Street) & North Street (directly adjacent to the Larson's ponds. Ultimately, rock salt as a deicing agent is the most efficient and economical option currently available. Adding rock salt to icy roadways lowers the freezing point of the water and helps prevent the roadways from being hazardous.

Using only sand and eliminating salt use was considered as an alternative. While the sand would provide traction, the lowering of the freezing point of the water and providing a melting capacity would not be possible with only sand. As the health and safety of the over 55 residents is ultimately the most important factor, this option was abandoned.

After researching the issue, the applicant has concluded the balanced approach is truly the best option to address the Larson's concern and the residents' safety. Rather than spreading the maximum amount of rock salt with every application of sand, the applicant has concluded the best method is to reduce the salt to only that which is necessary for public safety.

Lastly, it is understood the Larson's have requested one of the proposed snow storage areas that is 80 ft from the Larson's property be removed (located between units 18 & 19). While this removes a significant area of snow storage on the parcel, the applicant has agreed this change can be completed. See enclosed Snow Storage Plan; C-7, that has been updated.

5. The Applicant has described the intended use of fertilizers and pesticides within the Project site. As appropriate HW suggests that the Town of Topsfield condition the use of organic fertilizers throughout the parcel as described in the Applicant's Operation and Maintenance Plan.

A&M Response: While the use of organic fertilizers is an available option, the Operations & Maintenance Plan has been updated to include both synthetic & organic fertilizers as options. Additionally, the landscape areas are located outside the 100 foot buffer zone to the wetlands.

6. The Applicant has located one of the proposed subsurface wastewater systems approximately 5 feet from the Larson's property boundary. HW requests that the system be shifted further from the property boundary or relocated to the proposed reserve area. A 25 foot landscaped buffer zone is required per Section 3.16.C.1.q, and the subsurface system will limit the landscaping opportunities in this area.

A&M Response: The proposed septic locations have been reviewed by the septic designer, and the soil absorption system will be minimum of 10.0' from the Larson's property lines. In the future, the septic design will be adjusted and an updated plan will be submitted. The applicant is coordinating with the Topsfield Conservation Commission about the shifting of the drainage outlet in this area prior to making the septic design updates.

7. A proposed landscaping plan has been provided in accordance with Section 3.16.C.1.q. The planting scheme consists of a variety of predominately native species. The plan also includes *Pyrus Calleryana* (callery pear) which some consider an invasive species; we suggest that the *Pyrus Calleryana* be replaced with a native alternative. HW further suggests that the proposed plantings along the western property boundary be replaced with conifer trees for a denser buffer in accordance with Section 3.16.E.2. In addition, we suggest that the Applicant ensure that the plantings can and do survive significant grazing from the large deer population in the area. We understand that the subject of screening materials has been discussed, with a general consensus that spruce seemed to offer the most deer resistant and dense screening qualities.

A&M Response: To clarify, *Pyrus Calleryana* is not on the Massachusetts Invasive Species list and is not an invasive tree. However, the Pear can be substituted for another option. Additionally, the screening material options are being reviewed. In the future, the applicant will be submitting an updated landscape plan with these changes.

8. The Applicant has provided an Operation & Maintenance Plan for Long Term Pollution Prevention on-site. HW recommends that the Applicant is required to provide the Town with annual reports indicating that the maintenance has occurred as described.

A&M Response: Utilizing the Operations & Maintenance Log that is part of the A&M drainage report, the applicant concurs that the town can be provided with an annual update of the log.

If you have any questions or comments, please do not hesitate to contact me at (781)-935-6889. We look forward to further discussing the project at the Topsfield Planning Board public hearing on February 7th. Please provide A&M with the time and place of that public hearing.

Very truly yours,

ALLEN & MAJOR ASSOCIATES, INC.



Ryan Bianchetto, LEED AP
Project Manager

Cc via email: Sarkis Development Company
Eaglebrook Engineering

Enclosures: 1) Revised Site Plans for Rolling Green Elderly Housing Development, prepared by Allen & Major Associates, revised through January 17, 2017
2) Drainage Report, revised through January 17, 2017