



Professional Civil Engineering • Professional Land Surveying • Land Planning

---

150 Longwater Drive, Suite 101  
Norwell, MA 02061  
Tel: 781-792-3900  
Fax: 781-792-0333  
[www.mckeng.com](http://www.mckeng.com)

May 29, 2024

Mr. Tobin Shulman, Chair  
Zoning Board of Appeals  
Town of Stoneham  
35 Central Street  
Stoneham, MA 02180

Via: E-Mail to [tobin.shulman@gmail.com](mailto:tobin.shulman@gmail.com)  
[msagarino@stoneham-ma.gov](mailto:msagarino@stoneham-ma.gov)

Re: **Comprehensive Engineering Review  
The Residences at Spot Pond  
5 Woodland Road  
Stoneham, MA**

Dear Mr. Shulman:

McKenzie Engineering Group, Inc. (MEG) has reviewed the proposed Residences at Spot Pond Comprehensive Permit Application for conformance with the Stoneham Zoning Bylaw (ZBL), the Stormwater Management Rules and Regulations, Massachusetts Department of Housing and Community Development Comprehensive Permit Regulations (760 CMR 56.00), Massachusetts Department of Protection (MassDEP) Stormwater Management Standards, and sound engineering practices.

The following documentation was received and served as the basis for our third review:

- Plans entitled "The Residences at Spot Pond, 5 Woodland Road, Map 27, Lots 3, 3CM & 6, Stoneham, MA," prepared by Allen and Major Associates, Inc., dated November 16, 2023, revised May 15, 2024 (Site Plans).
- The stormwater management report entitled "Drainage Report – The Residences at Spot Pond, 5 Woodland Road, Map 27, Lots 3, 3CM & 6, Stoneham, MA," prepared by Allen and Major Associates, Inc., dated September 8, 2023, revised May 20, 2024 (Drainage Report).
- Allen and Major Associates, Inc. response letter dated May 17, 2024.

MEG offers the following updated comments regarding the documentation of the proposed site plan. Most of our comments have been satisfactorily addressed. The text in **red bold font** provides our comments regarding the Applicants' response to our emails in *blue*. **Yellow highlighted** responses require an Applicant response.

**McKenzie Engineering Group, Inc. Emailed Comments – May 8, 2024**

## 1. C-103 Layout &amp; Materials Plan

- a. Garage sizes
- b. Label the 60' striped area at Building B

*A&M Response: The Layout and Materials plan sheet has been revised as recommended.*

**MEG Response: Comment satisfied.**

## 2. C-104 Grading &amp; Spot Grades Plan

- a. Treatment & detail for the 1.5:1
- b. Detail for the 1:1 riprap slope

*A&M Response: The Grading & Spot Grades plan sheet and details sheet C-504 has been revised as recommended.*

**MEG Response: Comment satisfied.**

## 3. C-105A Drainage Plan

- a. The infiltration system #1 configuration does not match the HydroCAD configuration.
- b. Test Pit data for TP-101 does not match the soil logs.

*A&M Response: The Drainage plan sheet and HydroCAD for system #1 have been revised as recommended. Test pit data for TP-101 on the Form 11 sheet and Drainage plan appear to match, with depth at 156" and fine loamy sand denoted for the bottom fill layer.*

**MEG Response: Comment satisfied.**

## 4. C-105A Drainage Plan

- a. There are numerous inconsistencies with the pipe sizing table.

*A&M Response: The pipe sizing table has been rectified with the revised drainage plan.*

**MEG Response: Review DMH-3(WQU) against sheet C-105B.**

## 5. C-106 Utility Plan

- a. Electric conduit for EV chargers?

*A&M Response: Electric conduit for the EV chargers will be shown on the final Construction Documents for the project.*

**MEG Response: Comment satisfied.**

## 6. C-502 Details

- a. Where are the double grate catch basins?

*A&M Response: The double catch basin detail has been deleted from the Detail sheet.*

**MEG Response: Comment satisfied.**

## 7. C-503 Details

- a. The fence detail should be 6' high.

*A&M Response: A detail for the 6' high fence at the pool area has been provided on Detail Sheet C-502.*

**MEG Response: Comment satisfied.**

## Drainage Report

## 8. Why flood elevation for Pond 3P in HydroCAD?

*A&M Response: The flood elevation has been provided for both ponds which correlates to the elevation of the lowest outlet invert to confirm the water quality and recharge volumes provided for each pond.*

**MEG Response: Comment satisfied.**

## 9. Calculations for Infiltration Pond #3 are not complete.

*A&M Response: The calculations and drainage report have been updated as requested.*

**MEG Response: Comment satisfied.**

## 10. Pipe sizing table

- a. The pipe inlets to the proposed infiltration systems would be below peak elevations in all storms modeled. This will impact the available capacity of the pipes. Please update the pipe calculations to include the water surface elevation (hydraulic grade line) and freeboard using MassDOT procedures.
- a. AD-3 is missing from the table.
- b. Header to DMH-31 is missing from the table.
- c. The minimum pipe cover should be 1 foot, not 0.69.
- d. Show pipes from infiltration systems to outlet control structures (OCS).
- e. Previous calculations used a 100-yr storm for pipe sizing from OCS, and this submission uses a 25-year storm.
- f. There are numerous inconsistencies with Sheet 105B.

*A&M Response: The drainage report has been updated as requested with hydraulic grade lines MassDOT calculations. Pipe sizing is based on a 25-year storm event consistent with the MassDEP Stormwater Handbook.*

**MEG Response: Review DMH-3(WQU) against sheet C-105B.**

## 11. TSS removal

- a. Need TSS removal for runoff to DMH-27.

*A&M Response: Total suspended solids (TSS) removal for all 4 water quality units prepared by the manufacturer have been provided with the revised drainage report indicating 90% TSS removal at a minimum. Additional TSS treatment is achieved via deep sump catch basins and*

*infiltration systems lined with Isolator rows.*

**MEG Response: The required volume should be 25,171 CF, not 22,828 CF (the last cell value of 2,323 CF was omitted). The water quality provided is 24,226 CF; therefore, Standard 4 has not been met.**

#### **McKenzie Engineering Group, Inc. Emailed Comments – May 1, 2024**

12. The project is located within a DCR priority watershed; therefore, the project needs to maximize treatment 90% TSS, 60% Phosphorus removal, and a 1" water quality depth.

*A&M Response: The updated drainage report MassDEP standard calculations indicate the project meets a 1" water quality depth and 90% TSS removal or greater. As the project is not subjected to DCR regulations since the project is located entirely outside of DRC owned land, the phosphorous removal calculations were performed in accordance with the Town of Stoneham's stormwater regulations which indicate that 0.8 inches of runoff from the post-construction impervious areas shall be retained on-site. Calculations have been provided in the MassDEP standard calculations in the Appendix of the revised drainage report.*

**MEG Response: The closed-pipe system discharges into the drainage system on Woodland Road, which is agreed to be under DCR jurisdiction. DCR projects are subject to Federal Environmental Protection Agency (EPA) municipal storm sewer system (MS4) General Permit Requirements. While this Project is not a DCR project or a project on DCR property, runoff from the Site eventually discharges into Spot Pond, located within a DCR priority watershed. Therefore, MEG suggests that 90% TSS and 60% total phosphorous removal rates should be obtained. The calculations provided demonstrate greater than 90% TSS removal rates. 60% total phosphorus removal can be achieved once the Water Quality calculations are revised, as the required Water Quality Volume is based on 1 inch.**

13. It appears that less than 65% of the total impervious areas are directed to the infiltration BMPs. Therefore, the project does not comply with Standard 3-Recharge. I apologize for not catching this during my first review.

*A&M Response: Per the revised drainage report, 65% of the total impervious areas on-site are now directed to the proposed infiltration BMPs. No infiltration credit is taken for stormwater directed to the existing MWRA drainage basin.*

**MEG Response: Comment satisfied.**

#### **McKenzie Engineering Group, Inc. Emailed Comments – April 29, 2024**

14. Clarification on the soil logs and whether all material encountered during test pits was fill?

*A&M Response: All material encountered during test pits was noted as fill material. The test pit Form11 logs have been revised to clarify this.*

**MEG Response: Comment satisfied.**

**Additional Comments to A&M in an email dated May 23, 2024:**

HydroCAD analysis Pond 1P-UIS-1:

1. Check the primary 15" outlet pipe. Sheet C-105A calls for a 24" pipe.

HydroCAD analysis Pond 2P-UIS-2:

1. Check the primary 18" outlet pipe. Sheet C-105A calls for a 24" pipe.
2. Per the Stormwater Handbook, the most restrictive soil should be used for the Rawls Rate, which would be TP-104 Fine Sandy Loam with a Rawls Rate of 1.02 in/hr., not 2.41 in/hr. Note prior HydroCAD analysis used a Rawls rate of 1.02 in/hr.

Standard 3 - Stormwater Recharge Calculations:

1. The required volume should be the total volume for all impervious areas (6,293 CF) from page 1, plus a capture adjustment (see Volume 3, chapter 1, page 28 of the Stormwater Handbook). There is more than enough recharge volume. However, the calculations should be updated.

We thank you for the opportunity to assist the Stoneham Zoning Board of Appeals with the engineering review of this Project. Should you have any questions, please do not hesitate to contact me.

Very truly yours,

MCKENZIE ENGINEERING GROUP, INC.



Susan B. Spratt, P.E.  
Project Manager

Bradley C. McKenzie, P.E.  
President

Cc: Robert W. Galvin, Esq.  
Emily Wortman, Director of Planning & Community Development  
Brett Gonsalves, Director of Public Works