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December 22, 2021  
VIA EMAIL

Ipswich Planning Board  
Town Hall  
25 Green Street  
Ipswich, MA 01938

RE: 55 Waldingfield Road  
Site Plan Review & Special Permit Applications  
2<sup>nd</sup> Drainage and Stormwater Management Review (Task 2)

Mr. Ethan Parsons and Planning Board Members:

As requested, I have continued a drainage and stormwater management review of the above referenced project. In response to the initial (Task 1) review dated September 8, 2021, I have received the following supplemental or revised plans and documents as prepared by Hancock Associates of Danvers, MA (unless otherwise noted).

- Copy of correspondence from Hancock Associates to the Ipswich Planning Board, dated October 21, 2021, regarding ‘Response to Initial Drainage and Stormwater Management Review (Task 1).’
- Copy of correspondence from Hancock Associates to the Ipswich Planning Board, dated December 14, 2021, regarding ‘Response to Verbal Peer Review.’
- Copy of correspondence from Hancock Associates to the Ipswich Planning Board, dated December 15, 2021, regarding ‘Response to Verbal Peer Review.’
- “Permit Site Plan (to accompany a Great Estate Preservation Development Special Permit) 55 Waldingfield Road...” consisting of four (4) sheets, dated October 20, 2021 and revised to December 14, 2021.
- “Stormwater Report in Support of A Great Estate Preservation Development (GEPD) Special Permit for 55 Waldingfield Road...” dated July 2021 and revised to December 2021, including appendices for a Long Term Pollution Prevention Plan, a Construction Period Pollution Prevention Plan, and an Operation and Maintenance Plan.

***Overview:*** The proposed stormwater management design has been revised, and the study area expanded, to incorporate existing topographic depressions within the adjacent horse pasture south/southeast of the development proposal. In addition, post development grading of the pasture is proposed to control and direct flow towards a large existing depression in the southern corner of the property (adjacent to Waldingfield Road). No objection is offered to this approach in concept, however, the design engineer may wish to reconsider the amount of grading proposed to achieve the design intent (i.e., the amount of proposed grading appears excessive with respect to what necessary).

In addition to the above, the following remaining comments and opinions are offered for your consideration relative to the stormwater management design and the MA DEP Stormwater Management Standards.

### **Stormwater Management, Drainage, and Grading:**

1. Pre Development Calculations: Exception is taken to the computer model of pond 1P. The detailed topographic worksheet clearly indicates that additional storage volume and exfiltration is available southeasterly of the assumed P1 location. Based on this observation, it is anticipated that the pre development runoff rate at design point 2 is somewhat overestimated for the pre development 10 and 100 year storms (i.e., that the ability of the area to exfiltrate and temporarily store runoff is underestimated by the model). Revised calculations should be conducted in this area to confirm that adequate post development runoff mitigation is provided.
2. Pre vs Post Runoff Comparison: Exception is taken to the composition of design point 2. Topographic plans indicate that subcatchment 4 flows toward and across a low point in Waldingfield Road, whereas subcatchment 3 is separated from this flowage by a high point within and along Waldingfield Rd (to the east). As such, the current design point 2 should be split into two analysis points, with the first point comparing pre development pond 2P and post development pond 3P discharges (note that the current calculations indicate a significant increase in runoff rate during the 100 year storm at this location), and the second comparing the pre development runoff rates from the combination of pond 1P and subcatchment 3 with the post development runoff rate from subcatchment 3.
3. Greater specificity should be provided relative to the proposed regrading of the horse pasture. Notations, spot grading, and dimensions should be provided that reflect the assumptions made in the calculations (in particular, with respect to pond discharge locations, elevations, and lengths). Furthermore, since these areas are part of the stormwater management design, they should be included in the 'Operation and Maintenance' document for routine inspection.
4. As noted in the 'initial' review, no calculations were provided relative to stormwater impacts associated with the eastern 500 linear feet of driveway widening (i.e., the driveway segment from the project entrance at Waldingfield Road into the site approximately 500 feet). The design engineer has indicated that this section is analyzed as part of a Phase 1B development proposal, however, review of that proposal has not been authorized by the Planning Board, or conducted by this reviewer, to date.
5. Remaining drafting and housekeeping items:
  - a. Prior comment requested that a note be placed on the drawings to specify that all runoff from the roof of the new building addition is required to be conveyed to the infiltration chamber (as assumed in the calculations). This note was not found on the plans.
  - b. The proposed 'Soil Stabilizer' detail should include manufacturer product information and/or material specifications. In addition, the intended use of the product should be indicated on the plans and in the 'Section for Pea Stone' detail.
  - c. The 'Peak Runoff Table' contained on pages 3 and 9 of the Stormwater Report should be updated to reflect the results of the revised calculations.

### **DEP Stormwater Management Standards:**

1. Standards 4 and 8 – As previously requested, the Long Term Pollution Prevention Plan (LTPPP) and the Construction Period Pollution Prevention Plan (CPPPP) should be revised to address the subjects contained in the 'Checklist for Stormwater Report.' The documents should be revised and reformatted as needed. Reference should also be made to the 'initial' review (September 8, 2021) for additional specific items requested beyond those in the 'checklist.'
  - a. It is further noted that the LTPPP is written largely with respect to construction, but does not contain substantive instruction with respect to long term operation at the site. Similarly, the CPPPP contains certain items which should be included in the LTPPP.

2. Standard 10 – The submitted Illicit Discharge Compliance Statement should be signed and dated for the record.

**Additional Planning Board Considerations:** The following items are suggested for consideration by the Planning Board in relation to quality assurance and long term care of the drainage and stormwater management infrastructure.

1. To ensure that construction of the stormwater management system is conducted in accordance with the design, an as-built plan of the completed project should be submitted to the Planning Board along with a report from the engineer of record indicating whether or not construction complies with the design intent. The as-built plan and engineering report should also be appended to the final version of the 'Operation and Maintenance Plan' prepared for the stormwater management system, for the property owner's future use and reference.
2. The following documents are suggested to be incorporated as part of any Planning Board approval:
  - a. The 'Construction Period Pollution Prevention Plan' to clarify responsibilities relative to sedimentation and erosion control during construction.
  - b. The 'Operation and Maintenance Plan' to provide guidance for the long term maintenance of the drainage and stormwater management systems.
  - c. The 'Long Term Pollution Prevention Plan' (LTPPP) to provide guidance relative to long term management of the site.

Please feel free to contact me if you have any questions or require any additional clarification of the above comments and opinions.

Very truly yours,

*R.E. Puff*

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Robert E. Puff, Jr., PE

cc: C Wear, PE (via email)