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June 08, 2022
VIA EMAIL

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

RE: 5-7 Turkey Shore Road
Special Permit Application
Initial Drainage and Stormwater Management Review (Task 1)

Mr. Ethan Parsons and Planning Board Members:

As requested, I have conducted an initial drainage and stormwater management review of the above referenced project with respect to generally accepted engineering design practices for small sites similar to that being proposed by the Applicant. Pertinent technical material received includes the following plans and documents.

- Copy of plans entitled 'Site Plan' (plan C-1) and 'Site Details' (plan C-2) for 5-7 Turkey Shore Road, Ipswich, MA, dated 3/14/22 and revised to 4/8/22, and prepared by ASB Design Group, LLC of Topsfield, MA.
- Copy of correspondence to the Ipswich Conservation Commission from ASB Design Group dated March 21, 2022 and regarding 'Summary Letter: Notice of Intent for Accessory Dwelling Unit (ADU) ...' and consisting of four pages.
- Copy of an 'Operation & Maintenance Plan' for 5-7 Turkey Shore Road ADU, dated 5/2/22 and revised to 6/1/22 consisting of one page. Author of the document is unidentified.

In addition to the above, the following material was received and examined for background and informational purposes only:

- Copy of a "Special Permit Application for Uses or Activities" dated 2/4/22.
- Copy of correspondence from Carl E. Gardner, Jr. to the Ipswich Planning Board dated April 28, 2022 regarding 'Special Permit Application – 5-7 Turkey Shore Rd. – Proposed ADU.'
- Copy of 'Proposed Planting List' dated 4/25/22. Author of the document is unidentified.
- Copy of various building elevations of the proposed accessory dwelling unit dated April 22, 2022 and prepared by Savoie-Nolan Architects, LLC.

At this time, the following comments and opinions are offered for your consideration relative to the proposed drainage and stormwater management approach.

Overview: The proposed stormwater management approach utilizes conventional best management practices to address stormwater runoff from the areas proposed for development (i.e., crushed stone trenches at the new roof drip edges, a rain garden, and a stone a crushed stone infiltration trench adjacent to the driveway) and to control erosion and sedimentation from the site during construction. These are common and acceptable approaches.

A numerical analysis of the development proposal (i.e., drainage calculations) was not provided, however, it should be noted that such analysis is not routinely conducted or required for small projects such as the one under consideration. As such, the project was evaluated relative to maintaining existing drainage paths (for off-site/upgradient runoff to continue to flow across the property) and for minimizing erosion and sedimentation both during and after development. Minor items are noted in the report below and are anticipated to be easily resolved by the Applicant's design team.

Stormwater Management, Drainage, and Grading:

1. Concern is noted relative to the potential for long term erosion/sedimentation from the gravel driveway onto the public way. To remedy this concern, the following suggestions are offered:
 - a. Shift the location of rain garden (or add a second rain garden) to the front (western) end of the driveway. Providing a rain garden at this location will significantly increase the amount of driveway area directed to the rain garden.
 - i. Include a driveway apron of cobblestone or pavers to better stabilize the driveway area directly adjacent to the public roadway.
 - ii. Provide additional spot grades on the driveway adjacent to the rain garden to maximize and clarify the driveway area intended to be conveyed to the rain garden.
 - iii. It should be noted that the proposed 'Infiltration Pipe' (currently proposed along the driveway) is not viewed favorably. This device will fill with driveway sediment over time and will most likely have a relatively short functional lifespan due to a lack of access to remove the sediment. By contrast, a rain garden will be easily accessible to facilitate the removal of any accumulated sediment.
2. Clarify the pipe which connects the 'Roof Drip Edge Infiltration System' to the proposed Rain Garden. The landscape features on the drawing obscure the pipe intended to be routed from the infiltration trenches to the rain garden.
3. The proposed patio shown at the rear (easterly side) of the ADU should be specified as a 'pervious paver patio' to be consistent with the intent stated in the project narrative.
4. Erosion Control Items:
 - a. The existing catch basin on Turkey Shore Road should be specified to be provided with a silt sack for the duration of construction.
 - b. Erosion control barriers are routinely located on development site plans and should be added to plan C-1.
5. Operation and Maintenance Plan Items:
 - a. Operation and Maintenance Plans are routinely provided with a maintenance/inspection checklist/spreadsheet for ease of documenting inspection and maintenance efforts. It is suggested that such a document be added to the Plan.

- b. Add an item for general inspection and maintenance of the gravel driveway (i.e., regrading and compaction of gravel to maintain plan intent, routine repair of ruts, potholes, and rills/erosion). Include a requirement to routinely check for erosion from driveway onto the public way and sweep when needed.
- c. Add an item for inspection and maintenance of drainage swales adjacent to the ADU and driveway (i.e., check for erosion/bare spots and revegetate as needed).
- d. Add an item for inspection and maintenance of the stone trench adjacent to the gravel driveway (if this item is retained for the project).

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

Very truly yours,

R.E. Puff

Robert E. Puff, Jr., PE

cc: Thad Berry, PE (via email to thadberry2@verizon.net)
Carl Gardner (via email to carlegardner@gmail.com)