



June 30, 2016

Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

RE: Springhill Suites by Marriott, 556 Main Street, Falmouth, MA

Horsley Witten Group, Inc (HW) has been retained by Mr. Gilbert Lavoie who lives nearby to the proposed project at 7 Morse Pond Road in Falmouth. Mr. Lavoie has expressed concerns about potential flooding of his basement due to high groundwater levels as a result of the proposed project and seeks to more fully understand the likely impacts of this project on his property and any possible remedies.

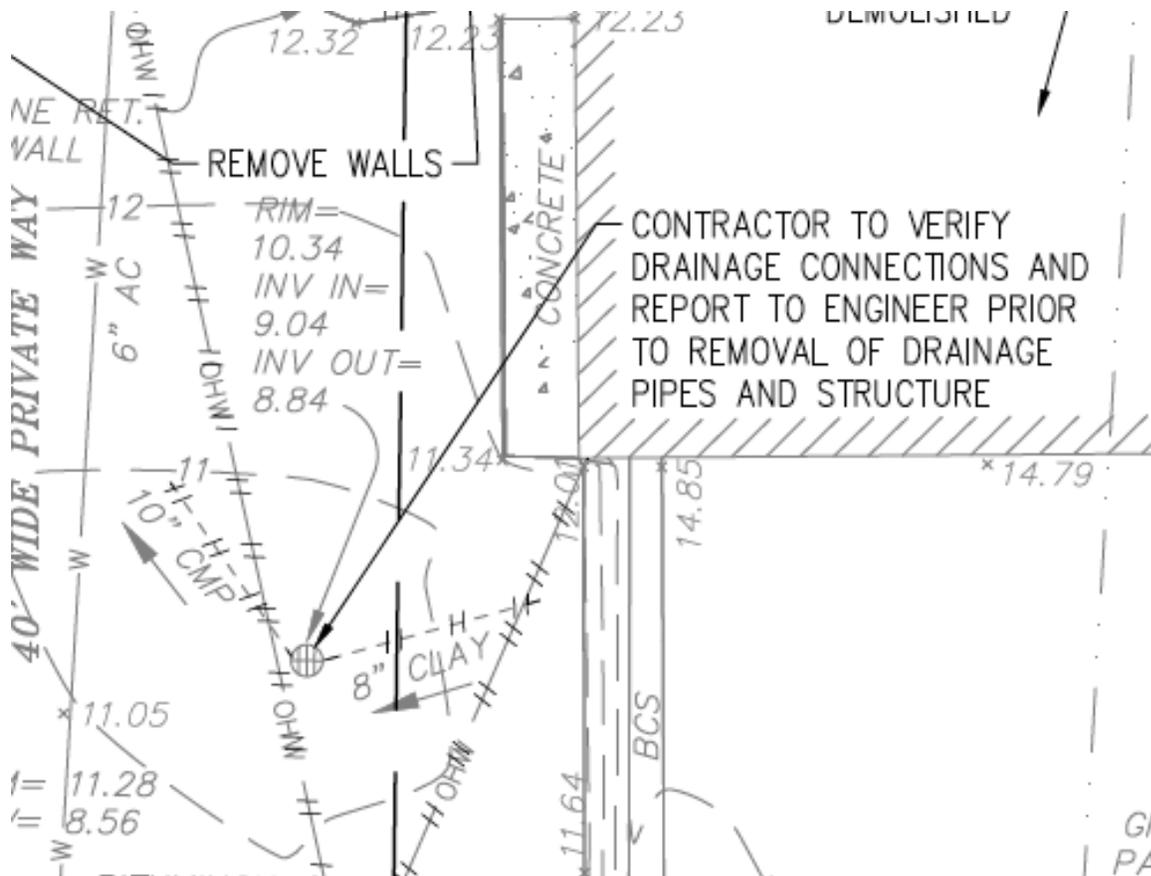
The proposed plan includes an extensive stormwater infiltration system to recharge virtually all of the stormwater runoff from rooftops, driveways and parking areas on-site. Plan C4 shows three areas identified as “R tanks” where stormwater infiltration is proposed (see excepted plan below).

According to the hydrologic report submitted by the applicant, the proposed stormwater infiltration volume exceeds the required infiltration rate by more than a factor of four. Specifically the report indicates that the “required recharge volume” is 1828 cubic feet and the “volume provided” by the proposed stormwater infiltration facilities will recharge 8074 cubic feet (see excerpt below).

$$\begin{aligned} \text{Adjusted Required Recharge Volume} &= \text{Required Recharge Volume} * \text{Capture Area Adjustment Factor} \\ &= 1,828 \text{ CF} * 1.02 = \mathbf{1,865 \text{ Cubic Feet}} \end{aligned}$$

The recharge volume will be provided within the subsurface chambers and the void spaces in the crushed stone surrounding the chambers below the invert elevation (12.15) of the outlet pipe to discharge point DP1. The volume provided is **8,074** cubic feet (3,626 cf in pond 1PA, 1,994 cf in pond 1PB, and 2,451 in pond

low spot on the plan that includes a note, “contractor to verify drainage connections and report to engineer prior to removal of drainage pies and structures” (see excerpt below).



The proposed stormwater infiltration structures are much closer to the northern property boundary than is the structure identified in the existing conditions plan. This suggests that groundwater mounding associated with the project may be increased at the abutting and nearby properties along the northern property boundary.

There are multiple, readily-available analytical methods (e.g. the Hantush methodology) to economically assess groundwater mounding impacts associated with proposed infiltration projects. More complicated numerical modeling techniques (e.g. MODFLOW models) can also be applied to assess these types of impacts.

On behalf of our client, Mr. Gilbert Lavoie, we ask that the Commission request a hydrologic impact assessment of the proposed stormwater infiltration system before approving the project. Specifically we suggest that the applicant clarify the existing site conditions and stormwater routing and then conduct a groundwater mounding analysis of the proposed conditions. The

groundwater mounding analysis should evaluate both short term events (such as the 10-year and 100-year storms) as well as long term (steady state) conditions that will result from prolonged infiltration. Short and long term water table changes should be evaluated at the property boundary. In the event that this analysis suggests that the project will result in increased water table conditions at the surrounding properties we recommend that that the applicant evaluate the significance of groundwater mounding to neighboring properties as well as options to mitigate any significant impacts.

Thank you for the opportunity to comment on this project. If you have any questions, please contact me at 508-833-6600.

Sincerely,

HORSLEY WITTEN GROUP, INC.

A handwritten signature in black ink, appearing to read "Neal M. Price". The signature is written in a cursive, flowing style.

Neal M. Price
Senior Hydrogeologist

Jeffrey Ribeiro

From: Jonathon Idman
Sent: Tuesday, June 30, 2015 2:38 PM
To: Jeffrey Ribeiro
Cc: Scott Michaud
Subject: FW: Springhill Suites groundwater mounding
Attachments: CCC_Springhill Suites_groundwater comment.pdf

For the record...

From: Neal Price [<mailto:nprice@horsleywitten.com>]
Sent: Tuesday, June 30, 2015 2:35 PM
To: Jonathon Idman
Cc: glavoie@massmed.org; Scott Horsley
Subject: Springhill Suites groundwater mounding

Dear Mr. Idman,

I understand that Scott has been in contact with you regarding the proposed Springhill Suites project in Falmouth. For your consideration at tonight's meeting, attached please find a letter from us requesting that the Applicant assess potential groundwater mounding impacts.

Thank you,

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Neal Price

Senior Hydrogeologist  
Senior Project Manager

Horsley Witten Group

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