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03 March 2023

Mr. Glenn R. Clancy, P.E. Director Office of Community Development Town of Belmont 19 Moore Street, 2<sup>nd</sup> Floor Belmont, MA 02478

### Re: TRC Technical Stormwater Peer Review: Response to Comments Belmont Hill School Belmont, MA Langan Project No. :151021201

Dear Mr. Clancy,

On behalf of Belmont Hill School (BHS), Langan is providing responses to the TRC Technical Stormwater Peer Review of the Stormwater Management Report and Permit Plan Set for Belmont Hill School located at 350 Prospect Street in Belmont, MA. The TRC review letter was sent by the town to BHS on 21 February 2023. The TRC review was independently commissioned by town residents Mary and Michael Moskowtiz, who reside at 257 Prospect Street.

BSC Group, Inc. (BSC) is the Stormwater Peer Reviewer contracted by the town for the project. We have reviewed the TRC comments with BSC and provide responses below in **bold** to those comments that BSC determined warranted a response from Langan.

### TRC REVIEW COMMENTS

1., 2., 4., and 5.

Langan Response: Based on our coordination with BSC and a determination by BSC, a response is not necessary for comments 1, 2, 4, and 5 as they are either not required by state or local stormwater regulations or are not necessary from a technical perspective and industry standards.

3. Comment: The boring and test pit logs provided are watermarked "draft". Final logs should be provided for review.

# Langan Response: The "draft" watermark has been removed and final logs are now included in the revised Stormwater Management Report. Please see Appendix J. The information presented in the logs did not change.

6. Comment: The HydroCAD model for the infiltration chambers (Pond B3) includes a 12 inch vertical orifice at elevation 257.80, following a weir structure. This orifice was not found in the plan set. While it does not appear to impact the results of the final calculations, this discrepancy should be addressed or corrected.

Langan Response: The 12-inch orifice in the HydroCAD model represents the 12inch discharge pipe for infiltration system B3. We have modified the HydroCAD model, removing the 12-inch orifice and replacing it with a 12-inch pipe. This change did not impact the model results. The revised Stormwater Management Report is attached.

7. Comment: The proposed infiltration chambers will be installed in the location of an existing building to be demolished. Details and specifications should be provided regarding the removal of the existing foundation, elevations in relation to the infiltration chambers, methods to restore the infiltration capacity beneath the foundation, backfill specifications, etc.

Langan Response: The existing building and foundation will be removed in order to install the infiltration system. We have added note 9 to the storm drainage note on CS-002 that states the existing building foundations are to be removed as required within the limits of the underground infiltration system B3. The project engineer, a competent soils professional as a defined by the Massachusetts Stormwater Handbook, shall inspect the subgrade conditions at these locations. If material that is inconsistent with a sandy loam, loamy sand, or sand is encountered below the porous pavement or infiltration system B3, the project engineer shall perform a falling head permeameter test (ASTM D5126-90 Method) or collect a representative sample and send to a laboratory for testing to determine the USDA Textural Soil Classification. If the infiltration rate from the falling head permeameter test is less than the design rate of 0.80 in/hr for infiltration system B3 or the USDA Textural Soil Classification is not a sandy loam, loamy sand, or sand, the contractor shall excavate at least 2 feet below the bottom of the system, remove existing material and place a material that has been laboratory tested and confirmed to have a USDA Textural Soil Classification of a sandy loam, loamy sand, or sand up to the bottom of the crushed stone foundation for the porous pavement or infiltration system B3.

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8. Comment: The stormwater design relies entirely on porous asphalt and infiltration. Proper long term maintenance is critical to ensure the system functions as designed. Per the Belmont Stormwater Management and Erosion Control Rules and Regulations, the "long-term Operation and Maintenance Plan shall at a minimum include... how future property owners will be notified of the presence of the stormwater management system and the requirement for proper operation and maintenance". This provision was not found in the plan. The Long Term Operation and Maintenance Plan should be revised accordingly.

Langan Response: Belmont Hill School agrees to notify in writing future property owners of the presence of the storm water management system and the requirements for proper operation and maintenance. This has been added to the Long Term Operation and Maintenance Plan. Please see Appendix H of the revised Stormwater Management Report.

9. Comment: The groundwater mounding calculations use an infiltration rate of 0.39 inches/hour for Porous Pavement B1. However, infiltration rates as high as 1.37 inches/hour were reported within B1 (Infiltration Test IT-6). A lower infiltration rate results in a lower mounding height. Therefore, the mounding calculations should utilize either an average infiltration rate of all tests within B1 or the highest infiltration rate.

### Langan Response: We have included an additional groundwater mounding analysis for B1 using the infiltration rate of 1.37 inches/hour. It does not have a significant impact to the groundwater mounding or impact the design. Please see Appendix G of the revised Stormwater Management Report for the analysis and summary.

Comment: The groundwater mounding calculations use an infiltration rate of 0.8 inches/hour for Infiltration Chambers B3 based on the results of Infiltration Test IT-3. However, IT-3 is located approximately 35 feet north of the Infiltration Chambers. The results of Infiltration Test IT-304 (1.28 inches/hour), which is located in the vicinity of B3, should be used.

Langan Response: We have included an additional groundwater mounding analysis for B1 using the infiltration rate of 1.37 inches/hour. It does not have a significant impact to the groundwater mounding or impact the design. Please see Appendix G of the revised Stormwater Management Report for the analysis and summary. Should you have any questions or require any additional information, please contact me at (617) 824-9126 or <u>hholmes@langan.com</u>.

Sincerely, Langan Engineering and Environmental Services, Inc.

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**Hilary Holmes, PE** Senior Project Engineer

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Frank Holmes, PE Senior Associate

Cc: G. Schneider, Belmont Hill SchoolK. Durfee Cardoza, Avalon Consulting GroupA. Yogurtian, Town of BelmontD. Rinaldi, BSC Group

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