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March 19, 2021

Nahant Conservation Commission
Nahant Town Hall
334 Nahant Road
Nahant, MA 01908

**RE: NOI Review
Northeastern University – Coastal Sustainability Institute**

Dear Members:

As requested, Hardy + Man Design Group (**HMDG**) has reviewed the Notice of Intent application and supporting documents for the referenced filing. Our review is focused primarily on Stormwater Management and related engineering considerations of the project filing. We acknowledge that EcoTec, Inc is conducting a parallel review of the project as it relates to ecological and administrative aspects of the filing.

Information reviewed included:

- Notice of Intent application and supporting documentation.
- Plan set for Coastal Sustainability Institute dated July 31, 2020.
- Stormwater Report prepared by Nitsch Engineering, Dated July 31, 2020.
- Resident comments received via email dated March 16, 2021.

Generally, the application is considered complete and has the information required for initial review and discussion with the Board. We offer the following comments based on our initial review of the project materials received to date:

- 1) In general, resource areas (especially flood zones & local 100-foot buffer), the limit of work and specific erosion control measures should be clarified on the plan set. This information is required to properly evaluate the project relative to regulations (including Local By-law).
- 2) Based on discussions at the site walk, it was indicated that the proposed parking is based on Zoning requirements and exceeds the owner's anticipated needs. We recommend consideration of additional LID measures (i.e. grass pave, etc.) to reduce impacts of the proposal.
- 3) Existing grades should be shown on the grading plan for evaluation of grading impacts.
- 4) The plans refer to Landscape Architect drawings for site layout & grading. However, those plans were not provided for evaluation.

- 5) Specific detailed information for each infiltration, Bioretention and Stormwater Garden area should be provided. Construction details for each should reference elevations and depth to ESHGW or ledge based on the test pits. We question, in particular, Stormwater Garden #2 and the separation to ledge encountered.
- 6) There appears to be two test pits labelled TP-105. The plans should be revised to correctly label the test pits. This comment relates to comment 4 and the relationship of Stormwater Garden 2 to ledge.
- 7) The Stormwater report states that the infiltration systems were designed to maintain a minimum of two feet between the bottom and ESHGW. Stormwater Management Policy indicates "Mounding analysis is required when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four (4) feet and the recharge system is proposed to attenuate the peak discharge from a 10-year or higher 24-hour storm (e.g., 10-year, 25-year, 50-year, or 100-year 24-hour storm)". A mounding analysis should be provided for any systems that do not provide four foot separation to ESHGW (including ledge).
- 8) TP-104 at subsurface infiltration system 2 indicates fill to a depth of 90-inches. The plans should be revised to clearly note that all unsuitable materials should be removed from this location and specify a soil type to replace this fill.
- 9) Grading in the northerly parking lot appears to direct stormwater flows away from the proposed catchbasins. This grading should be revised to capture runoff from this lot.
- 10) The grading in the area of the northerly parking lot does not appear to provide proper pipe coverage for WQ1, WQ2 & DMH 207. The plans should be revised to provide proper coverage and rim to invert depth to correspond with the construction details.
- 11) Grading and text for the southerly parking lot are difficult to read. The plans should be revised to better depict the proposed condition in this location.
- 12) Subsurface System 1 appears to need an additional isolator row to treat flows from CB-300.
- 13) Erosion controls should be shown for the proposed water main and hydrant construction North of the proposed building.
- 14) Water Quality Volume calculations should be included in the analysis of compliance with Standards 3 and 4.
- 15) Recharge Volume Calculations for the Bioretention Basin should be revised to use the bottom area vs the top.
- 16) The hydroCAD calculations do not appear to model Storm Garden 2. These calculations should be provided so proper sizing can be evaluated.
- 17) Drawdown Calculation sheets 3-4 appear to be missing from our copy of the stormwater report. These calculations should be provided for evaluation.
- 18) Documentation in support of the TSS removal calculations for all proprietary treatment units should be provided in accordance with Volume 2, Chapter 4 of the

Stormwater Handbook. Specifically, this documentation should be third party verified and not from the manufacturer.

- 19) The Stormwater Checklist indicates that a TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided. We were unable to find this documentation in the materials provided.
- 20) We recommend that the material stockpiles be clearly defined on the plan set and proper erosion controls detailed.
- 21) The Operation & Maintenance Plan should be revised to include required maintenance of the Storm Gardens.
- 22) The Operation & Maintenance Plan indicates that the subsurface infiltration basin is to have observation ports. The observation ports should be clearly indicated on the plans and construction details revised to make these mandatory, not "optional". Additionally, the details should more clearly identify which system (SC-740 vs SC-310) is to correspond to which subsurface system.
- 23) The Operation & Maintenance Plan indicates that snow shall be pushed to designated snow removal areas. We were unable to find those locations on the plans. The plans should be revised to indicate where the designated snow removal areas are located.
- 24) The submission indicates that a draft SWPPP will be provided prior to any land disturbance. Standard 8 requires a Construction Period Pollution Prevention Plan be included with the Stormwater Report. We recommend that that this information be provided for evaluation.

We have made every effort to review and summarize this submission. Based on the nature of the review comments, it is anticipated that revisions and additional review will be required. If you have any questions regarding this submittal, please feel free to contact me at 781-335-1464. **HMDG** appreciates the opportunity to provide you with these engineering services.

Sincerely,

Shawn P. Hardy, P.E.