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JANUARY 3, 2025

Town of Arlington Conservation Commission
c/o Mr. David Morgan, Environmental Planner + Conservation Agent
Robbins Memorial Town Hall
730 Massachusetts Avenue
Arlington, Massachusetts 02476

RE: Revisions to Stormwater Management/Response to Peer Review
Thorndike Place Residential Development

Dear Members of the Arlington Conservation Commission,

On behalf of the Applicant, Arlington Land Realty, LLC, BSC Group, Inc. (BSC) is pleased to submit this supplemental response to peer review comments provided by GZA GeoEnvironmental, Inc. (GZA) relative to the Thorndike Place residential development (the Project) to be located off of Dorothy Road in the Town of Arlington. On August 1, 2024, GZA submitted written peer review comments (referenced as "Peer Review of Stormwater Mound Evaluation and Design Groundwater Elevation Proposed Thorndike Place Residential Development.") On October 4, 2024, BSC provided its initial response to the GZA peer review comments. Thereafter, at the October 24, 2024 public hearing on the Project, GZA requested that the groundwater mounding analysis for the primary underground infiltration system be performed based on the total volume of water infiltrated during the 100-year, 24-hour storm event. While BSC stands by our previous statement that the stormwater management system as previously submitted meets the requirements of the DEP's Stormwater Standards (the "Standards") as detailed within the Massachusetts Wetlands Protection Act (WPA) regulations, at 310 CMR 10.00, we have made the revisions detailed below to the infiltration system design to address GZA's request while maintaining compliance with the Standards. The revisions to infiltration systems detailed below have been made to accomplish the following while addressing comments made pertaining to groundwater mounding and drawdown in these systems:

1. The use of multiple infiltration systems more closely mimics existing groundwater recharge by providing infiltration throughout the Project site.
2. The systems were designed to reduce the overall volume of infiltration during a 100-year storm event to limit the potential impacts of groundwater mounding during this extreme storm.
3. Each infiltration system is designed to maximize the separation to Estimated Seasonal High Groundwater ("ESHGW").
4. The use of multiple infiltration systems throughout the site allowed the Project to eliminate the previously proposed rooftop detention system.

A complete set of revised Site Plans and revised Stormwater Report are attached to this letter. Additionally, to help simplify review, we are attaching a summary of just the revised calculations and a revised Grading & Drainage Plan (C-104) with the revised stormwater management system notated in red. The following specific revisions have been made to the stormwater management system design to respond to GZA's request while maintaining compliance with the Standards.

1. A revised version of the smaller underground infiltration systems in the townhouse driveways has been incorporated into the design. These systems had been removed in the last iteration of design as shown in BSC's filings of October 4, 2024. Each of the townhouse driveway systems (shown on the attached

Sheet C-104 as Infiltration Systems 2-6) consists of varying numbers of R-Tank XD units with the same footprint and a bottom of stone elevation of 7.0 (i.e., 3-feet above estimated seasonal high groundwater), and designed so they maintain a minimum of 10-feet separation from any building foundation. In larger storm events, these systems will overflow to a larger underground infiltration system (Infiltration System 1). A groundwater mounding analysis of these systems has been performed utilizing the total volume infiltrated during the 100-year, 24-hour storm event resulting in an expected groundwater mound of less than 1-foot. A drawdown analysis utilizing the full volume below the lowest outlet and the Rawls Rate for silt loam per GZA's request (0.27 in/hr) has been performed demonstrating that these systems will drain in less than the required 72-hours. The mounding analysis and drawdown calculations are included in Section 6 of the attached Stormwater Report and Summary of Revised Calculations.

2. With respect to the larger, primary infiltration system, the StormTrap underground chamber system has been modified into two (2) separate underground infiltration systems (shown on the attached plans as Infiltration System 1 and Infiltration System 7) that collect and infiltrate runoff from different areas of the site, as described below.

    a. Infiltration System 1 consists of 77 3.0-foot StormTrap chambers with a bottom elevation of8.0. Overflow from the R-Tank infiltration systems in the townhouse driveways, area drains behind the townhouses, and the roof of the multi-unit building are routed through this system. This system maintains a separation from ESHGW of 4.0-feet, and therefore a groundwater mounding analysis is not required per DEP's Massachusetts Stormwater Handbook. A drawdown analysis using the full volume below the lowest system outlet and the Rawls rate for silt loam demonstrates that the system will drain in less than the required 72-hours (see Section 6 of the attached Stormwater Report and Summary of Revised Calculations).

    b. A separate underground infiltration system, Infiltration System 7 (see attached Sheet C-104), has been located to the west of Infiltration System 1 and consists of 25 1.75-foot StormTrap chambers with a bottom elevation of 7.15 (which corresponds to 3.15-feet above ESHGW). This system collects runoff from driveway and paved areas associated with the multi-unit building. A groundwater mounding analysis of this system has been performed utilizing the total volume infiltrated during the 100-year, 24-hour storm event resulting in an expected groundwater mound of less than 3 feet. A drawdown analysis utilizing the full volume below the lowest outlet and the Rawls Rate for silt loam has been performed demonstrating that this system will drain in less than the required 72-hours (see Section 6 of the attached Stormwater Report and Summary of Revised Calculations). As part of this design, an additional trench drain has been added to the driveway entrance to the multi-unit building to collect runoff and route it into Infiltration System 7 after passing through a water quality unit.

    c. During larger storm events, both Infiltration Systems 1 and 7 overflow to a flared end section (FES-1) to the south of the multi-family building via outlet control structures that connect to a new drain manhole. This is the same discharge point as in the previous designs (see attached Sheet C-104). Please note that the two systems are not connected to each other, but overflow to the same point.

3. The original trench drain in the entrance to the multi-unit building is no longer routed to an underground infiltration system. Stormwater collected in this trench drain, after passing through a water quality unit, will be routed to the same overflow point as Infiltration Systems 1 and 7 (see attached Sheet C-104). Required recharge and TSS removal calculations have been updated to reflect this revision and continue to demonstrate compliance with Stormwater Standards 3 and 4, respectively.

4. The rooftop detention system, or "blue roof," that was previously shown on a portion of the multi-unit building roof has been eliminated from the design. Additionally, the outlet that previously discharged the remaining portion of roof runoff to a flared end section within the open space area of the building

has been eliminated as well, and all roof runoff from this building is routed via roof drains to Infiltration System 1 (see attached Sheet C-104).

5. On November 20, 2024, McPhail Associates, LLC (McPhail) performed two (2) soil borings on the Project site in the areas of proposed Infiltration Systems 1 and 7. These soil borings were performed to better understand the depth to a restrictive layer to more accurately determine the initial saturated thickness to be used in groundwater mounding analyses for the Project. All previous groundwater mounding analyses were performed using an initial saturated thickness of 5-feet, which represented the maximum depth of test pits performed below ESHGW. These borings, included in the attached McPhail memorandum (included as Appendix G of the attached Stormwater Report and Summary of Revised Calculations), showed a marine clay layer with a highest elevation between -12.1 and -17.4. Based on this additional data, all groundwater mounding analyses have been performed using an initial saturated thickness of 16-feet representing the depth between ESHGW (4.0) and the marine clay layer (-12.1).

As previously stated, the plan and stormwater management system revisions described above have been incorporated into the Site Plan Set and Stormwater Report, which are both attached in addition to the Summary of Revised Calculations. As previously stated during the Commission's public hearings on the Project, BSC believes that this design continues to demonstrate full compliance with all the Stormwater Standards of the Wetlands Protection Act and fully responds to all comments and questions received from GZA as the peer reviewer. We look forward to discussing this matter further as the public hearing process moves forward. Please feel free to contact me at (617) 896-4386 or drinaldi@bscgroup.com should you have any questions on the information attached.

Sincerely,
BSC GROUP, INC.

Dominic Rinaldi, PE
Senior Associate

Attachments: Revised Thorndike Place Notice of Intent Site Plan Set (December 10, 2024)
Revised Stormwater Report (December 2024)
Revisions to Stormwater Management Design (December 2024)