



Stantec Consulting Services Inc.
45 Blue Sky Drive, 3rd Floor, Burlington MA 01803-2767

March 11, 2024
File: 179411162

Attention: Mr. Kenneth Perro, Chair
MILLBURY BOARD OF APPEALS
Municipal Office Building
127 Elm Street
Millbury, Massachusetts 01527

Dear Mr. Perro,

**Reference: Comprehensive Permit Application (40B)
Rice Pond Village Residential Development
17 Rice Road**

Subsequent to our letter report of February 1, 2024, and pursuant to the Board's request, Stantec Consulting Services Inc. (Stantec) has reviewed the Revised Comprehensive Permit submittal for proposed residential development consisting of 192 Units located within three 4 story buildings with access off Rice Road in Millbury. Materials received to date relate to date to this submittal include the following:

- Written response to Stantec's stormwater management system comments, dated February 21, 2024; Rice Pond Village Site Plan of Land (27 Sheets) revised February 19, 2024; Drainage Report revised February 19, 2024; October 24, 2023, Stormwater Report and Checklist, dated February 19, 2024, Waiver request letter, dated February 21, 2024, and supporting documentation each as prepared by Azimuth Land Design, LLC (ALD).

The Revised Comprehensive Permit submittal was reviewed for conformance with the Board's Rules & Regulations Governing Comprehensive Permit Applications Under General Laws 40B and generally accepted engineering practice.

We offer the following stormwater management system comments and recommendations in bold italic text regarding the Revised Comprehensive Permit submittal which are cross-referenced to our February 1, 2024, letter report for the Board's consideration.

STORMWATER MANAGEMENT SYSTEM

The submitted Revised Comprehensive Permit submittal provides a layout of the proposed open and closed storm drainage system facilities, including drain manholes, catch basins, piping, and subsurface infiltration chamber systems. The Revised Drainage Report, Stormwater Report and Checklist includes a narrative with attachments; pre- and post-development condition site hydrology analysis for the 2-, 10-, 25- and 100-year storm events and documentation addressing the MassDEP Stormwater Management Standards.

The Town's Comprehensive Permit Rules and Regulations Section 3.8 Drainage Calculations identifies information required for the Board to evaluate the environmental impact, effectiveness, and acceptability of the proposed measures, as well as meet the Massachusetts Stormwater Management Standards as set by the Department of Environmental Protection (DEP).

Design with community in mind



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MassDEP STORMWATER STANDARDS

We offer the following comments on the proposed stormwater management system, specifically for compliance with the ten performance standards as outlined in the MassDEP Stormwater Management Standards. To assist in our review, we recommend the MassDEP Stormwater Check List be provided by ALD.

Stantec (02/01/2024): ALD has provided the stormwater report and checklist. Comment addressed.

1. Standard 1 – No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The project is designed with no new untreated stormwater discharges into wetlands. We note the proposed three subsurface infiltration chamber systems are designed for the 2 through 100-year storm events and have no outlet. We recommend ALD provide stormwater calculations to confirm each subsurface infiltration chamber system will drain within 72 hours.

Stantec (02/01/2024): We recommend the submitted stormwater drawn down calculation for subsurface infiltration chamber system nos. 3 be revised to include the total storage volume in the system and calculations for subsurface infiltration chamber system nos. 1 and 2 be provided by ALD.

Stantec (03/11/2024): Additional stormwater draw down calculations for subsurface infiltration chamber system nos. 1, 2 and 3 are provided in the stormwater report. Comment addressed.

2. Standard 2 – Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development discharge rates.

The drainage analysis identifies a Type III 24-hr storm frequency for the 2 through 100-year storm events. We recommend rainfall amounts used be based on the 1998 Cornell University Study, NOAA Atlas Volume 10 Point Precipitation Frequency in estimating the pre and post development peak discharge rates for the 2, 10, 25, 50 and 100 yr. storm events as identified below.

Storm Frequency	24 Hour Rainfall
2 Year Storm	3.2 Inches
10 Year Storm	4.9 Inches
25 Year Storm	6.1 Inches
50 Year Storm	7.3 Inches
100 Year Storm	8.5 Inches

Stantec (02/01/2024): ALD has provided a revised drainage report with revised rainfall amounts. Comment addressed.

We recommend the Pre-Development and Post-Development Drainage Area Maps be revised to include the location, labels, and boundaries of all sub catchments. The maps should also include the location and labels of the drainage reaches and point of interest.



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Pre-Development sub catchment 503S and Post-Development sub catchment 504S have been addressed in the HydroCAD model but is not shown on the Drainage Area Maps and is not included in the peak flow rate summary. Pre-Development sub catchment 33S and post-development sub catchment 233S have been addressed in the HydroCAD model but is not included in the peak flow rate summary.

Stantec (02/01/2024): To assist in our review of the revised pre-post development calculations we recommend the Pre- and Post-Development Drainage Area Map be updated with the previously requested information and be provided by ALD.

Stantec (03/11/2024): The latest submission included Revised Pre- and Post-Development Drainage Area Map. Comment addressed.

As noted in the drainage report, the proposed three subsurface infiltration chamber systems are designed for the 2 through 100-year storm events and have no outlet. We recommend ALD provide hydraulic calculations of the closed drainage system identifying the drainage areas and system capacities for the 25 through 100-year storm events.

Stantec (02/01/2024): Hydraulic calculations of the closed drainage system identifying the drainage areas and system capacities for the 25 through 100-year storm events have not been included as part of this submission. We question modifications to the drainage system may be required to ensure the estimated drainage areas as identified in the analysis for storm events greater than the 25-year will be conveyed to the proposed infiltration systems.

Stantec (03/11/2024): Comment remains to be addressed.

Additional comment

- ***As noted by the DPW comment letter, dated December 29, 2023, drainage analysis of the subsurface infiltration chamber systems includes storage volume (crushed stone) above the top of each infiltration chamber system. We request documentation of the estimated storage volume identified in the drainage analysis for each infiltration system be provided by ALD.***

Stantec (03/11/2024): Comment remains to be addressed.

3. Standard 3 – Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures, including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.



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Stantec recommends ALD provide calculations to confirm the annual recharge from the post-development approximated pre-development conditions. We also request soil logs for test pit nos. 20 thru 23 be identified on the site plan and ALD address the labeling "Soil Test Results as Unofficial"

Stantec (02/01/2024): As noted by ALD, recharge calculations and copies of the deep observation holes #20-23 have been included in this submission. Comment addressed.

4. Standard 4 – Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:
 - a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
 - b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
 - c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook

We recommend the ALD provide the required Water Quality Volume and TSS Calculations.

Stantec (02/01/2024): ALD provided TSS and water quality calculations as part of this revised submission. We request documentation to confirm the TSS removal of the proposed water quality unit be provided by ALD.

Stantec (03/11/2024): ALD provided documentation from Contech Engineered Systems regarding the CDS system providing an approximate 80 percent TSS removal. Comment addressed.

5. Standard 5 – For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26 53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

The project is not associated with a land use with higher potential pollutant load; therefore, this standard is not applicable.

Stantec (02/01/2024): No additional comments.

6. Standard 6 – Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other Critical Area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a Critical Area if there



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is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "stormwater discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

The project is not associated with stormwater discharges near a critical area; therefore, the standard is not applicable.

Stantec (02/01/2024): No additional comments.

7. Standard 7 – A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater control measure requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

This project is a new development; therefore, this standard is not applicable.

Stantec (02/01/2024): No additional comments.

8. Standard 8 – A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

The Site Plan identifies an erosion control barrier and limit of work along segments of the site. We recommend details of the proposed erosion control measures; limit of the erosion control measures and a construction/phasing schedule that minimizes land disturbance be identified on the site plan. The project will require coverage under the NPDES Construction General Permit and preparation of a Stormwater Pollution Prevention Plan. We recommend this plan be provided to the Board.

Stantec (02/01/2024): As noted by ALD, an operation and maintenance plan during construction was included in the submission. We recommend details of the erosion control measure such as site construction entrance, diversion swales, temporary stockpiles and temporary settling basins as identified on ESC1 thru ESC3 be shown on the detail sheets and inlet protection on existing drainage structures on Rice Road be provided on ESC1 thru ESC3. We also recommend the need for additional erosion control measures located along the westerly property line/abutting 11 Rice Road property and the existing pond be evaluated by ALD. Additional items to be addressed include providing an anticipated construction schedule; size and location of land to be cleared at any given time and length of exposure time.

ALD has noted that a NPDES Construction General Permit and Stormwater Pollution Prevention Plan SWPPP will be filed prior to construction.



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Stantec (03/11/2024): Location/details of the erosion control measures, and anticipated construction schedule are provided on ESC1 thru ESC3 and D1 thru D4. We also note a NPDES Construction General Permit and Stormwater Pollution Prevention Plan SWPPP will be filed prior to construction. Comment addressed.

9. Standard 9 – A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

A long-term operation and maintenance plan was not included within the drainage report.

Stantec (02/01/2024): A post construction Operation and Maintenance Plan was included in the revised drainage report. We recommend access for inspection and/or maintenance to subsurface infiltration chamber system no.1 be addressed by ALD.

Stantec (03/11/2024): Access for inspection and/or maintenance to subsurface infiltration chamber system no.1 will be from the parking area behind Building No.1. We note the 15-foot wide gravel drive proposed centerline grade is 33 percent and request access by maintenance vehicles be addressed by ALD.

10. Standard 10 – All illicit discharges to the stormwater management system are prohibited.

An illicit discharge statement was not included as part of this submission.

Stantec (02/01/2024): As noted by ALD, an illicit discharge statement was included in the revised drainage report. Comment addressed.

GENERAL COMMENTS

- No calculations regarding the average annual load of Total Phosphorus and estimated pollution removal were included in the submittal. We question if the applicant has requested a waiver from the Board.

Stantec (02/01/2024): According to the Town of Millbury (MMC ch13.15), stormwater management systems for Major Projects shall be designed to meet an average annual pollutant removal equivalent to 50% of the average annual load of Total Phosphorous (TP) related to total post-construction impervious surface area on the site. As noted by ALD, annual load of total phosphorous from all runoff will be captured during infiltration. We recommend calculation be provided to confirm the average annual pollutant removal of 50%.

Stantec (03/11/2024): We recommend calculations be provided as per Town of Millbury (MMC ch13.15 Section 13.15.070 (b)(5)). Comment remains to be addressed.

- We recommend cross-sections of the three subsurface infiltration chamber systems as shown on Detail Sheet No. 3 identify the existing grade profile thru the cross-section.



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Stantec (02/01/2024): Comment remains to be addressed.

Stantec (03/11/2024): Existing grade profile of the three subsurface infiltration chamber system cross-sections are shown on Detail Sheet No. 3. Comment addressed.

- We recommend all drainage pipes shall be a minimum of 12-inches in diameter.

Stantec (02/01/2024): As required by the Town of Millbury, the minimum pipe size required is 12-inches. We question if the applicant has requested a waiver from the Board.

Stantec (03/11/2024): As noted by ALD, a waiver has been requested by the applicant.

If there are any questions regarding our comments and recommendations, please do not hesitate to call at 781-221-1134.

Regards,

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cc.Mr. Conor McCormack, Director of Planning & Development