

July 16, 2025

Earth Removal Stormwater Advisory Committee  
c/o Ms. Michelle Collette  
Stormwater Inspector/ADA Coordinator  
173 Main Street  
Groton, MA 01450

RE: Nitsch Project #13346.36  
Nashoba Satellite  
Emergency Facility  
Stormwater Review  
Groton, MA

Dear Committee Members:

Nitsch Engineering (Nitsch) has received and reviewed the following documents:

1. Stormwater Management Permit Application (18 pages), dated June 23, 2025, and prepared by Vanasse Hangen Brustlin, Inc (VHB);
2. The Site Plans (the Plans) entitled "Nashoba Satellite Emergency Facility" (25 sheets), dated June 23, 2025, and prepared by VHB; and
3. Stormwater Management Report (271 pages), dated June 23, 2025, and prepared by VHB.

Nitsch has reviewed the Plans and supporting documents to determine conformance to the following:

1. "Stormwater Management – Low Impact Development" Regulations, Chapter 198, from the Code of the Town of Groton, latest version;
2. "Earth Removal Stormwater Advisory Committee" Regulations, Chapter 352, Article II, Stormwater Design Criteria from the Code of the Town of Groton, latest version; and
3. The Massachusetts Stormwater Management Standards.

This letter is limited to the review of the stormwater management system only.

#### **WAIVERS REQUESTED BY THE APPLICANT**

1. Section 352-11.C.(7) – A waiver is being requested to allow the infiltration basin to be used as a treatment BMP even though it is in an area with a rapid infiltration rate greater than 2.4 inches per hour.

Nitsch recommends the Applicant consider incorporating additional treatment BMPs to meet the requirements of this Section. Examples of additional treatment BMPs include the SiltPrison treatment system and hydrodynamic separators. Please note this waiver request should also include Section 352-11.C.(5).

Based on our review, Nitsch offers the following comments:

#### **GROTON STORMWATER DESIGN CRITERIA AND THE MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS**

1. Section 352-9 states low-impact development (LID)/green infrastructure techniques must be incorporated into development and redevelopment projects unless it can be shown that the use of LID techniques is not feasible. Applicants must use decentralized systems that involve the placement of a number of small treatment and infiltration devices located close to the various impervious surfaces that generate stormwater runoff in place of a centralized system comprised of closed pipes that direct all drainage from the entire site into one large detention basin.

Most of the developed portion of the site drains via catch basins and drainage pipes to a large infiltration basin located at the northwest corner of the property. The Applicant should provide information on why decentralized systems could not be utilized for stormwater management.

2. Section 352-11.C.(3) states the compaction of soils in designated recharge areas must be minimized during and after construction.

Nitsch recommends the proposed Plans include a note or callout to minimize compaction in recharge areas during construction.

3. Section 352-11.C.(14) states a mounding analysis must be performed when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four feet and the recharge system is proposed to attenuate peak discharge from a ten-year or higher twenty-four-hour storm. The mounding analysis must demonstrate that the recharge volume is fully dewatered within 72 hours and that the groundwater mound that forms under the recharge system will not break out above the land or water surface of a wetland. The Hantush or other equivalent method may be used to conduct the mounding analysis.

The mounding analysis provided for Infiltration Basin #1P should be updated. Some of the inputs for the groundwater mounding calculator do not match the site and design information. The results of the mounding analysis show the groundwater rises above the bottom of the basin, and the groundwater mound does not fully dissipate after three days.

4. Section 352-11.C.(15) states recharge shall not be concentrated to one area. It shall be distributed to multiple areas throughout the site.

Stormwater recharge for all proposed impervious areas is designed to occur at a single large infiltration basin. The Applicant should consider options for providing recharge at multiple areas throughout the site.

## GENERAL COMMENTS

5. The Stormwater Pollution Prevention Plan (SWPPP) should be submitted before construction begins to address pollution prevention measures. Nitsch recommends this requirement be included as a condition of the stormwater management permit.
6. Since the Applicant is using NOAA Atlas 14 rainfall depths, their hydrologic model should use the NOAA 24-hour Storm Type and Storm Curve D.
7. The Plans note the existing drainage outfall from the onsite wetland resource area will be maintained. Nitsch recommends the outfall pipe be cleaned and video inspected to confirm it is in good condition.
8. Figure 2 should be updated to include the time of concentration flow paths for the existing catchment areas.
9. The "Y" dimension for Flared End Section (FES) No. 400 on the "Flared End Section (FES) with Stone Protection" detail on Sheet C801 should be updated to 15.5 feet minimum.
10. The Hydraulic Pipe Analysis in Appendix A includes a column for the design flow rate, but the value is a duplicate of the pipe full flow capacity. This analysis should be updated to include the design flow rate for each pipe to confirm they do not exceed pipe capacities.
11. In the hydrologic model, the storage volume for Infiltration Basin #1P (Pond 1P) should include the volume of the infiltration basin only and not the sediment forebay.

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12. The overflow weir elevation at Infiltration Basin #1P should be updated to be consistent between the hydrologic model (elevation 220.6) and the Plans (elevation 221.0).
13. A minimum of one foot of freeboard is recommended for Infiltration Basin #1P. Based on the grading design, the west end of the basin closest to Main Street has 0.1 feet of freeboard during a 100-year storm. The rest of the basin has adequate freeboard of 1.1 feet.
14. The Geotechnical Report indicates the soils in the area of Infiltration Basin #1P are predominantly sand (>50%) with trace (0-10%) to some (20-35%) silt. Groundwater was measured in two borings (GZ-7 and GZ-8) at elevation 214.0. These two borings do not appear to be within the footprint of the basin. Nitsch recommends at least two test pits be conducted within the footprint of this basin to confirm the soil texture (per NRCS methodology) and estimated seasonal high groundwater elevation are consistent with the borings, and to verify the exfiltration rate of 8.27 inches/hour is appropriate based on the soil conditions. The test pits should be logged by a competent soils professional and preferably a licensed soil evaluator.

## RECOMMENDATIONS

Nitsch recommends the outstanding items noted above be addressed by the Applicant prior to the Earth Removal Stormwater Advisory Committee granting approval of the Stormwater Management Permit for the Nashoba Satellite Emergency Facility.

If the Earth Removal Stormwater Advisory Committee has any questions, please let us know.

Very truly yours,

**Nitsch Engineering, Inc.**



Rones Lubin  
Senior Project Designer

Approved by:



Jared E. Gentilucci, PE, CPESC, LEED AP BD+C  
Deputy Director of Civil Engineering

RL/jeg