February 25, 2025

Earth Removal Stormwater Advisory Committee
173 Main Street
Groton, MA 01450

RE: "Gratuity Brook Farm Estates" – Stormwater Review
63 Gratuity Road
Groton, MA, 01450

Dear Members of the Committee,

Please find eclosed two (2) copies of the revised Definitive Subdivision plan for "Gratuity Brook Farm Estates" located at 63 Gratuity Road, Groton, MA. This letter is specific to the review of the Stormwater Management System and the comments raised in the technical review letter (#2) from Nitsch Engineering, dated December 19, 2024, and comments raised at the Earth Removal Stormwater Advisory Committee (ERSWAC) meeting on September 17, 2024.

The plans have also been revised to address the comments specific to the flooding issues associated with Gratuity Brook. The plans have revised show updated floodplain information, revised the layout of Theresa Lane, and elimination of 2 Duplex Buildings (4 Units) from the development. The project now includes a total of 12 Duplex Buildings, 24 Units.

The following items address the outstanding comments individually with *LandTech responses in italics.*

NITSCH COMMENTS – STORMWATER

Groton Stormwater Design Criteria and the Massachusetts Stormwater Management Standards

6) Section 352-13.G. states the Applicant shall use the curve number (CN) values as provided in Table 2 to calculate stormwater runoff rates for pre-/post-construction ground surface conditions.

The Applicant has used some CN values that are different from the values found in Table 2. The CN values used for grass cover assume a "good" condition while this Section requires CN values for grass cover assume a "poor" condition since the post-construction amount of grass cover cannot be predicted or guaranteed (refer to Note 2 under Table 2). Also, the proposed CN value used for woods assumes a "good" condition while this Section requires the proposed CN value for woods assumes a "fair" condition since the soils will be compacted due to the equipment used to remove trees. The Applicant should revise the hydrologic calculations to only utilize CN values from Table 2.

LTC Response #1: The hydrologic model has been revised to utilize curve numbers provided in Table 2 of section 352-13. G.

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The post-construction CN value used for woods in the hydrologic model has not been revised to assume a "fair condition". The Applicant should revise the hydrologic calculations to use the post-construction CN value for woods from Table 2 or demonstrate that no disturbance of the remaining woods will occur during construction.

LTC Response #2: The CN value used for woods in the hydrologic model assumes a "good condition". The plan set provides significant detail for the limits of Construction with this development and the preservation of the areas designated as open space. This includes requiring a surveyor to stake the limits of work, installing erosion control along the limit of work, and inspections by the Town prior to any tree clearing. These measures, along with the requirement (typical condition) that any modification of the plan requires approval from the Planning Board, ensure that no disturbance of the remaining woods will occur during construction.

General Comments

8) The Applicant should sign and date the illicit discharge statement.

LTC Response #1: No response provided.

The illicit discharge statement has not yet been signed and dated.

LTC Response #2: The illicit discharge statement has been signed and dated.

9) Since the Applicant is using NOAA Atlas 14 rainfall depths, their hydrologic model should use the NOAA 24-hour Strom Type and Strom Curve D.

LTC Response #1: The hydrologic model has been revised to NRCC rainfall data with a Type III 24-hour storm type.

Nitsch takes no exceptions to this response. However, a Type II 24-hour storm type was used for the 25-year storm event for both pre-development and post-development in the hydrologic model. The model should be updated to utilize a Type III 24-hour storm type for all storm events.

LTC Response #2: The hydrologic model has been updated to utilize a Type III 24-hour storm type for all storm events.

17) CDS Separator #3 (labeled #1 on the Plans) has an outlet invert elevation of 211.70, but the bottom elevation of Sediment Forebay #3 is 212.00. This design will cause runoff backup into the closed drainage system. The Plans should be revised to eliminate this backup condition and provide positive drainage from CDS Separator #3 into Sediment Forebay #3.

LTC Response: The plans have been revised to alter the layout of Therese Lane due to the floodplain shown on the most recent FEMA flood hazard map. Due to the altered layout,

Infiltration Basin #3 and the stormwater collection system directing runoff to this basin have been removed from the site design.

EARTH REMOVAL STORMWATER ADVISORY COMMITTEE - SEPTEMBER 17, 2024 MEETING COMMENTS

1. General comments issued by various members expressing concerns with historic flooding in this area. This includes showing the limits of the 100-year floodplain better, confirm basement elevations, and concern that the 'cul-de-sac' for Therese Lane may be too close to areas that flood.

   LTC Response: Federal Emergency Management Agency (FEMA) is in the process of updating the Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) for the Town of Groton and the surrounding area with Preliminary Flood Maps available to the public. While not final, the plan set has been revised to include this updated floodplain information.

   The floodplain in this area is associated with the Nashua River and the Gratuity Brook Tributary. Previously, the floodplain, Zone AE, terminated offsite to the north and east without impacting on the locus property. The revised floodplain, Zone A, no Base Flood Elevation, extends significantly onto the property along the westerly property line to Jenkins Road. The extents of the floodplain mimic the location of Gratuity Brook diverging to the south as the brook extends to the east. Analyzing contours, the elevation of the floodplain is assumed to be 210.3 +/-, and is most likely a result of surcharging conditions down-gradient.

   Further, LandTech reviewed the floodplain and how it diverges to the south, away from Gratuity Brook. While it is expected that flooding would surcharge Gratuity Brook further east than is shown on the updated flood maps, the elevation of the bank of the river, along the east-west portion, is greater than the 100-year flooding event elevation, and is therefore any additional surcharge would be confined to the stream channel. The floodplain does extend south, away from Gratuity Brook, due to the fact that the existing elevations for this area are less than the 100-year floodplain elevation, elevations less than 210.3 +/-.

   The elevations of dwellings have also been reviewed, and plans have been updated, to raise basement slab elevations along Gratuity Brook and Floodplain. All basement slab elevations are set to be above the flooding limits to minimize potential impacts to the proposed dwellings.

Thank you and please feel free to contact our office if you have any additional comments.

Sincerely,
LANDTECH CONSULTANTS, INC.

Matthew A. Waterman, P.E.
Senior Project Engineer/Manager