June 2, 2023

Wayland Conservation Commission
ATTN: Linda Hansen, Conservation Administrator
Wayland Town Hall
41 Cochituate Road
Wayland, MA 01778

Re: Technical Services – NOI, Cascades 40B Development
113-115 Boston Post Road, Wayland, MA
Stormwater Peer Review Update

To the Members of the Commission,

BETA Group, Inc. (BETA) has completed a stormwater management peer review based on supplemental materials received for the proposed 40B Development "Blackledge" at **113-115 Boston Post Road, Wayland, MA** (the Site). This letter is provided to outline BETA's findings, comments, and recommendations as they relate to the Massachusetts Stormwater Management Standards.

BASIS OF REVIEW

BETA received the following supplemental items via email:

- Letter entitled: ***Response to Peer Review Comments***; prepared by LEC Environmental Consultants, Inc.; dated May 3, 2023. Inclusive of:
    - Plan Set entitled: ***Cascade Residential Housing Development, Boston Post Road, Wayland, Massachusetts, Middlesex County;*** prepared by C1.0 Engineering, LLC; dated November 14, 2022 and revised through May 1, 2023; stamped and signed by William Doyle, MA P.E. No. 41510; 12 sheets.
    - Plan entitled: ***Existing Conditions***; prepared by Finegold Alexander Architects; dated July 21, 2017 and revised through January 12, 2018; stamped and signed by Robert Jordan Buckley R.L.S No. 30326; 1 sheet.
    - Plan entitled: ***Riverfront Area Restoration Planting Plan, 113-115 Boston Post Road, Wayland, Massachusetts*** prepared by LEC Environmental Consultants, Inc.; dated October 14, 2022 and revised through April 24, 2023; 1 sheet.
    - Stormwater Report entitled **"113-115 Boston Post Road, Wayland Massachusetts, Post Construction Stormwater Management Report"** prepared by C1.0 Engineering, LLC, dated November 14, 2022 and revised through May 1, 2023.

Review by BETA included the above items along with the following, as applicable:

- ***Massachusetts Stormwater Handbook***; effective January 2, 2008.
- ***Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas***

COMPILED REVIEW LETTER KEY

BETA reviewed this project previously and provided review comments in a letter to the Commission dated January 12, 2023, (*original comments in italics*). LEC Environmental Consultants (LEC) provided responses (responses in standard text) and BETA provided comments on the status of each (***status in bold italics***).

SITE AND PROJECT DESCRIPTION

The Site is comprised of two lots totaling 6.483 acres located at 113 & 115 Boston Post Road (Route 20), Wayland, Massachusetts. The Site is located on the southerly side of Route 20 and is bounded to the south by Pine Brook, a perennial stream. A portion of the Site is located on the opposite side of Pine Brook. The parcel at 113 Boston Post Road is 1.266 acres and is improved by an existing unoccupied single-family dwelling and a two-story carriage house. The parcel at 115 Boston Post Road, formerly the location of Mahoney's Nursery, is a 5.217-acre parcel improved with an existing storefront. Two greenhouses associated with the nursery have been removed, but remnants of the foundation and concrete walkways that were within the greenhouses are still visible on aerial imagery. Based upon aerial imagery, it additionally appears that several canopies were once installed in various areas around the nursery and greenhouses were removed prior to 2019.

All the parking areas and walkways around the former nurseries display areas were gravel, and there is no pavement onsite. Existing structures onsite covered an area of approximately 18,500± square feet.

The Applicant proposes to construct a 40B residential development which includes the following activities:

- Demolition of all existing commercial structures and cleanup of commercial debris;
- Demolition of the existing dwelling and carriage house;
- Installation of underground utilities including water, sewer, natural gas, and telecommunications;
- Construction of a multi-story structure with a footprint of 20,100± square feet;
- Installation of a 29-space parking lot at the east end of the structure;
- Installation of a 13-space parking lot at the west end of the structure;
- Installation of an 18-foot-wide emergency access roadway around the rear of the building;
- Construction of wastewater treatment plant with a 26' x 32' enclosure subject to a Groundwater Discharge Permit;
- Construction of 10,000± square foot subsurface sewage disposal system;
- Construction of infiltration basin at westerly end of the development; and
- Site grading.

The proposed stormwater control measures will be located along the westerly edge of the development. The existing 24" outfall from the Route 20 stormwater collection system to Pine Brook will be removed and replaced with an 18" culvert that will be directed into a swale that will provide some treatment prior to discharge into the stream. The runoff from the easterly parking area will be collected into three (3) catch basins and piped into an infiltration basin that will be the only infiltration SCM provided on site. The parking lot on the west side of the building will be graded to flow to a catch basin prior to discharge into the basin. The discharge from the proposed infiltration basin will flow into the proposed swale from the Route 20 outfall.

SUBSURFACE SEWAGE EFFLUENT DISPOSAL SYSTEM

The proposed sewage treatment plant will be located along the eastern edge of the parcel along the outside edge of the parking lot. The treatment plant components as proposed will be outside the limits of the Riverfront Area. The subsurface wastewater effluent disposal system will be located south of the parking lot and building. The system as proposed is a series of trenches that will be entirely within the outer riparian zone of the Riverfront Area associated with Pine Brook. The system will be approximately 100 feet from the edge of the flagged wetlands adjacent to Pine Brook along the northerly bank of the Brook. Approximately 6' of fill will be required to construct this system, and the edge of fill will extend into the inner riparian zone of the Riverfront Area to Pine Brook within 72 feet of the flagged bank at its closest point. Based upon its proximity to Pine Brook and its location within the Riverfront Area, BETA recommends that the Applicant provide information associated with the design of the proposed leaching facilities for further review, including the mounding analysis.

DEGRADED RIVERFRONT AREA

WETLAND PROTECTION ACT

During the site walk, BETA reviewed areas of the Site to determine if they met the definition of degraded Riverfront Area based upon a lack of topsoil per 310 CMR 10.58(5) of the Massachusetts Wetland Protection Act (the "Act")

> *"A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds".*

Although there is no definition of "topsoil" or its minimum depth requirements provided within the Act or its Regulations, the definition generally accepted to determine topsoil classification states:

> *"…topsoil is a mineral soil, formed at the surface or below an O horizon with little remnant rock structure, and one or more of the following properties: 1) accumulation of humified organic matter but dominated by mineral matter, and not dominated by E or B horizon properties; 2) properties resulting from cultivation, pasturing, or similar disturbance; or 3) morphology resulting from surficial processes different from the underlying B or C horizons*".[1]

This definition is cited from a Superseding Order of Conditions, MassDEP File No. 002-1015, and was therein referenced as parameters used to assist in the determination of classification of degraded areas by the Amesbury Conservation Commission and Massachusetts Department of Environmental Protection (MassDEP).

Topsoil is additionally assumed to be present if the area in question is well vegetated. In the Matter of Crystal Motor Express, Inc. versus the Lynnfield Conservation Commission, MassDEP concluded that "…because the site was well vegetated, it was subject to review under new development standards…"[2] and would not qualify as degraded or previously developed.

[1] Page 4 of Superseding Order of Conditions Denial MassDEP File No. 002-1015; dated January 30, 2013
[2] Page 5 of Superseding Order of Conditions Denial MassDEP File No. 002-1015; dated January 30, 2013

FINDINGS

The Applicant asserts that degraded Riverfront Area is present at the easterly edge of the parcel behind the existing house. Multiple test pits in this area revealed that topsoil was developing in the fill adjacent to the existing debris pile. It is BETA's opinion that based upon this observation of topsoil, the entire Riverfront Area from flag DRA#3 adjacent to the rockpiles along the property line and across to Flag DRA#17 is not degraded. The only exclusion within this area is the debris pile behind the carriage house.

Due to time constraints, no further test pits were conducted beyond the area behind the existing house. The remainder of the degraded Riverfront Area follows the edge of the perimeter gravel road behind the existing structures. Vegetation growth was observed within areas asserted by the applicant to be degraded Riverfront Area. These areas were along the westerly edge of the development where the perimeter roadway turns north back to the parking lot, and between the parking lot and Pine Brook. Although remnants of the gravel surfaces associated with the former nursery operations were observed within these areas, this gravel was not consistent with the dense, hard packed gravel of the parking area and perimeter roadway. In consideration of the vegetative growth observed within areas referred to as degraded by Applicant, it is BETA's opinion that the areas west of the existing structures, and between the parking lot and Pine Brook are not degraded. Furthermore, it is BETA's opinion that the limit of the degraded Riverfront Area extends from flag DRA#38 to the southeast corner of the existing wood hut and follows the stone wall west along the back edge of the parking lot to flag DRA#46. Based upon our experience with Massachusetts Department of Environmental Protection (MassDEP) regarding the definition of degraded Riverfront Area, BETA recommends that the applicant provide the commission with additional information to document that the areas between the gravel roads and buildings are consistent with the definition of degraded.

BETA2: A significant explanation from LEC has been provided in response, and the limit of the degraded riverfront area corresponds closely to the limits as outlined in the field. However, it must be noted that on a recent project in Yarmouth after the site walk, DEP interpreted an area inside the outer riparian as non-degraded only on the basis that remnants of the former paved surface were not present. Although after 50 years there was still no vegetative cover present in this particular area, DEP still determined the non-vegetated area to be non-degraded riverfront area. Based upon DEP's 2022 interpretation, the only degraded riverfront area for this site, would be the building footprints. BETA will defer the final interpretation of the degraded riverfront area to the Commission.

STORMWATER MANAGEMENT REVIEW

The Project proposes to use a single infiltration basin at the far westerly edge of the development. The design as presented is preliminary, and there are no construction details provided. In addition, there is no information on the proposed structure which identifies the first-floor elevation, the use, footprint area, access walkways, patios, and other landscape features. Based upon the preliminary nature of the submission, BETA's comments will be limited to general comments regarding the direction and nature of the hydrologic/hydraulic analysis. Comments regarding specific compliance with the standards will be addressed in later revisions.

BETA personnel visited the Site on January 4, 2023, to assess existing conditions and analyze topography and evidence of flow patterns. Consideration was given to the observations made at this Site visit in the comments below.

G1. The date of the existing conditions survey conducted by Beals & Thomas, Inc. is needed. The limit of the gravel surface area depicted on the plan is not representative of the limit of vegetative cover as shown on the aerial imagery viewed on MassGIS. A significant area which is indicated on the plans as a gravel surface is now well vegetated. BETA recommends that the design engineer review the aerial imagery from 2021 and adjust the cover types and CN values used in the stormwater analysis accordingly.

LEC: The report and calculations have been revised to account for the new vegetation.

BETA2: BETA recommends that the CN Value for the vegetated former gravel area be converted to Fair condition.

G2. In addressing Standard 3 in the drainage report, the existing site is described as "various buildings, a large heavily compacted gravel lot, and a wooded area. The existing buildings and the gravel lot are functioning as impervious surfaces." Gravel surfaces are not defined as impervious surfaces in the standards. In addition, all the gravel surfaces south of the parking lot are no longer heavily compacted and are covered by vegetation. CN values for these former gravel areas should be modified to reflect current conditions.

LEC: The Curve Numbers have been adjusted per discussions with Beta Group and the calculations have been revised.

BETA2: See comment above.

G3. The Hydro-CAD analysis assumes that the soils are all HSG B. However as noted in the drainage report, NRCS-WSS indicates that the soils are HSG A. Based upon the test pit logs and the percolation rates achieved by Onsite Engineering, it is BETA's opinion that the designation of the soils in the NRCS web soil survey as HSG A are correct. Additionally, the Scarboro soils adjacent to the brook are listed as HSG A/D. The HSG D designation should only be applied within the limits of the wetlands adjacent to the Pine Brook. Thus, all upland areas should be designated as HSG A in the analysis and CN values adjusted accordingly.

LEC: The HSG soil designations have been changed to A in all the uplands.

BETA2: Comment addressed.

G4. The watershed area for the discharge culvert from the Route 20 outfall has been determined based solely upon the Route 20 pavement area only. BETA recommends that the design engineer develop a watershed based upon contour mapping from aerial imagery and develop a complete analysis of the flows to be expected from this outfall.

LEC: The watershed area has been adjusted per discussions with Beta Group.

BETA2: Comment addressed.

G5. The narrative in the drainage report states that the site development is in accordance with the standards therefore the redevelopment standards are not applicable. However, in the calculations presented in Appendix D the discussion is only regarding the increase in impervious area. Revise the calculations accordingly to show that all the impervious surfaces onsite are considered. Gravel parking is not considered an impervious surface under the standards and should not be included in this total. The only impervious surfaces onsite are the roof areas and the brick and concrete walkways.

LEC: The areas have been recalculated and the gravel emergency access drive has been calculated as gravel with permeability. The large patio at the rear of the project has been removed and will now be grass.

BETA2: The stormwater report continues to state in the Standard 3 description that "There is an overall significant decrease in impervious surfaces from pre- to post- development conditions, the impervious surfaces on site increase from the current 0.53 acres to 1.30 acres. BETA recommends that this language be modified accordingly.

Provide manufacturer's information regarding the proposed grid in the construction detail shown on Sheet C.2 for the proposed emergency access driveway.

G6. *If the intent is to design the Site as a redevelopment as shown on the checklist, then a redevelopment checklist is required.*

LEC: The site classifies as a redevelopment site; however, the project meets the Standards and does not require the redevelopment site credit of designing to the maximum extent practicable.

BETA2: Comment addressed.

G7. *The stormwater checklist indicates the project as redevelopment. As previously noted, the gravel parking and access roadways are not considered impervious surfaces as defined in the standards. Therefore, the amount of impervious proposed is greater than the existing impervious and cannot be considered as solely redevelopment. Reduced impervious area is checked off as an LID Measure implemented which is not true since there is an actual increase in impervious on site.*

LEC: The site classifies as a redevelopment site; however, the project meets the Standards and does not require the redevelopment site credit of designing to the maximum extent practicable.

BETA2: comment addressed.

G8. *The checklist indicates that a portion of the runoff from impervious surfaces onsite does not discharge to an infiltration BMP. However, the watershed map indicates that there are no impervious surfaces within watershed PDA3 which is the only area that does not discharge through the infiltration basin. Indicate on the plans where the untreated surface inside this watershed is located and describe why it is not being treated.*

LEC: The plans and calculations have been revised so that the two parking lots and the roof area all run through the retention basin. Both parking lots have their own independent Stormceptor particle separator units.

BETA2: Comment addressed.

G9. *The test pits conducted by Onsite Engineering in 2016 do not provide the elevations at the surface; therefore, the groundwater elevation cannot be shown with certainty. BETA recommends that new test pits be conducted, and groundwater levels established.*

LEC: The test pits and monitoring wells in the vicinity of the retention basin have been added to the plans and with their elevations. The test pit logs and monitoring well information have been added to the plan and the hydrogeologic analysis for the site has been provided, which includes all of the test pit, boring logs and groundwater analysis.

BETA2: Figure 5 Simulated ESHGW Contours, prepared by GEOSPHERE and included in the drainage report shows that ESHGW where the proposed infiltration basin is located ranges from elevation 156-154 feet. It is shown at OSE-TP 5 as elevation 155.0. The bottom of the proposed infiltration basin is Elevation 156.0. The design of the basin must be modified to meet the separation requirement from the ESHGW elevation.

G10. *The results of TP-5 from Onsite Engineering indicates that there is 90" of fill where the proposed infiltration basin is located. There are no details regarding this fill and in accordance with Volume 2, Chapter 2 of the Stormwater Handbook, "6. Infiltration basins should not be placed over fill materials."*

LEC: A note has been added to the plan to remove any fill material and replace with septic sand.

BETA2: BETA Recommends that the construction detail for the basin be modified to include the limits of the proposed excavation and the material specifications for the replacement soil.

G11. *Test pits 3 & 4 by Onsite Engineering noted in Figure 1 of the drainage report indicate that Estimated Seasonal High Groundwater (ESHGW) is elevation 159.2+. These two test pits are each adjacent to the proposed entrance pond. The bottom of this pond is proposed at elevation 158.0, which is 1.2' in the groundwater. By exposing groundwater to this direct flow, the pollutant load associated with this discharge will directly impact ground water quality without treatment. BETA recommends that the basin either be moved west where groundwater levels are lower or eliminated.*

LEC: The basin has been eliminated.

BETA2: The basin has been eliminated; no further comments required.

G12. *In accordance with Volume 2, Chapter 2 of the Stormwater Handbook, flow into the proposed infiltration basin will require 44% pretreatment for the infiltration basin to achieve 80% TSS Removal. The exception to this is the roof runoff which can be piped directly into the basin. As proposed, the pretreatment provided for the runoff from Route 20 and the west parking lot is not documented. Provide a description of the measures to be implemented and the design calculations which document that they are adequately sized in accordance with the Handbook.*

LEC: Separate Stormceptor units have been added to each of the parking lots and the Route 20 drain has been disconnected. Contech specified a Stormceptor 450i Catch Basin inlet for the west parking lot and a Stormceptor 1515-3-C inline unit for the east parking lot.

BETA2: Based upon a report from the EPA, the proprietary separators are approximately 40% effective. (See Attached) BETA has normally allowed these units to be usedas pretreatment units which will provide the 44% TSS Removal required prior to the infiltration SCM. This is consistent with the requirements for discharges to Cold Water Fisheries as outlined in Volume 1 Chapter 1, page 20 of the Handbook, which states

> *"For discharges near or to cold-water fisheries, proprietary BMPs may be used for pretreatment only, unless verified for such other uses by STEP or TARP. "*

Since the STEP and TARP program has been discontinued, It is our opinion that using them exclusively for treatment should be reserved when they are needed to meet the MEP requirement for redevelopment (Standard 7). In this instance also, the design provides no treatment for the roof runoff.

G13. Provide TSS Removal calculation sheets for each of the treatment trains.

LEC: The calculation sheets have been added to the drainage report.

BETA2: See comment G12 above.

G14. There are soil logs in the drainage report for 12 shallow test pits conducted by Beals & Thomas on 12-22-2017 to determine the limit of the degraded Riverfront Area, however, the location for these pits is not identified on the existing conditions plans and should be provided.

LEC: The Hand Dug test pit locations have been added to the plans.

BETA2: Comment addressed.

G15. There are 2 test pits nos. 20 & 21 identified in the drainage report in the plan shown as Figure 1 from Onsite Engineering dated January 2017. Depth to Estimated Seasonal High Groundwater and estimated percolation rates are indicated in the figure however no logs have been provided. Both test pits are in the infiltration basin area and the logs are required to confirm the notes. In addition, if the depth to ESHGW as indicated is correct than the bottom of the infiltration basin is less than 2' above maximum groundwater and the design should be adjusted accordingly.

LEC: Onsite Engineering Test Pits #20 and #21 are located on the eastern portion of the site at the location of the septic system. The hydrogeologic report contains those logs and locations.

BETA2: The hydrogeologic report cannot be located. As shown on Figure 2 in the Stormwater Report prepared by Geosphere, the 2 test pits are located in the area of the proposed leaching facilities for the sewage disposal system however the depth to groundwater indicated in the original plan does not seem to correlate to the actual conditions. The issues with the OSE test pits should be resolved.

G16. The flow path for EDA 1A is 389'. The flow path for PDA-3 is 504'. The runoff from these two watersheds follows the same flow pattern. Since the flow paths are not impacted by the development, the Tc calculation for the existing conditions should not be less than proposed. Adjust the calculations accordingly.

LEC: The flow paths have been adjusted.

BETA2: Comment addressed.

G17. The calculation for PDA-2 describes all the pavement as unconnected however all the pavement is collected in the catch basins and is directly connected. Modify the description in the HYDRO-CAD analysis accordingly since it will impact the peak flow rates.

LEC: The descriptions have been modified.

BETA2: Comment addressed.

G18. There are not enough grades shown on the Grading Sheet (C-1.0) to show that the runoff from the pavement on the east side of the building will be collected by the basins.

LEC: Grades have been adjusted and a note has been added that walk and parking lot drain to CB #302.

BETA2: The grades as shown are incorrect. The rim elevation for CB 302 is 175.3, which is higher than the grade as shown at elevation 174.5+. Comment remains.

G19. The calculations for PDA-3 do not account for the modified CN value associated with the patio or the emergency access roadway. The CN values associated with this use should be accounted for.

LEC: The patio has been removed and the gravel access drive CN has been accounted for.

BETA2: comment addressed.

G20. There are no details provided for the proposed infiltration basin embankments. Provide a detail for this structure including crest width, material, gradient of side slopes, surface treatment, spillway design, and general material requirements.

LEC: A detail has been added that illustrates the cross section of the basin embankment and the spillway.

BETA2: More dimensional detail is required to define this embankment including crest elevation, crest width, depth and limits of fill removal, replacement material specifications, and bottom material type and depth.

G21. There is a 3' high check dam identified on the plan in the infiltration basin however, there is no explanation for its purpose. If the intent is to provide a sediment forebay for pretreatment, then the area inside the forebay cannot be used for exfiltration. Explain its purpose and intent and adjust the Hydro-CAD analysis accordingly.

LEC: This has been removed from the design.

BETA2: Comment addressed.

G22. Based upon the plans, the proposed infiltration basin is located 34.3+ feet from the adjacent wetlands. In accordance with Volume 1, Chapter 2 of the standards, infiltration structures should be a minimum of 50' from waters of the commonwealth. In addition, Item 6 of the Standards espoused in Volume 1, Chapter 1 of the Handbook, states:

> *"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''*

The discussion relative to compliance with this standard should be included in the narrative.

LEC: The retention basin is now located 107 feet from the stream. There are two outlets, one that drains west and one that drains to a newly created swale where the Route 20 drain pipe has been cut back about 110 feet to "daylight" the stream.

BETA2: By scale, the toe of the proposed embankment is 57+ feet from the last wetland flag on the abutting lot which is the nearest point to the abutting resource. See comment G12 above relative to the treatment level provided. It should also be noted that the connection of the outlet with the Route 20 Swale would be considered a direct discharge to an ORW. The applicant should expand their explanation of this issue to justify the connection.

G23. In accordance with Volume 2, Chapter 2 of the Handbook, the infiltration basins require monitoring wells and emergency dewatering capability.

LEC: Monitoring wells have been indicated on the plans and an emergency dewatering pipe has been added.

BETA2: Move the monitoring well inside the basin.

G24. Provide stone sizing calculations for each of the outfalls.

LEC: Stone sizing calculations have been added to the plans at the new daylit pipe/stream and for the retention basin spill way.

BETA2: Comment addressed.

G25. In accordance with the Standards, the manufacturer should provide the calculations necessary to document that the proprietary filter will continue to provide the documented TSS removal when installed in-line.

LEC: The manufacturers information has been added to the plan.

BETA2: See comment G12 above.

G26. Sheet 5 of the drawing set entitled "Flood Zone Elevation Plan" displays the 100-year floodplain. The limits of the floodplain as shown appear to have been taken directly from the current FEMA FIS map. Included are 4 HEC-RAS stream sections with corresponding water surface elevations that match the elevations shown on the FEMA FIS map. There is no explanation provided in the drainage report or on the plan as to how the water surface elevations were determined. If the intent is to extend the FEMA detailed analysis past the Site and document actual flood elevations, then the HEC-RAS results and base assumptions should be presented.

LEC: This plan was for information only and was to present the existing FEMA information and their cross sections from their HEC-RAS model. This is the area where the Route 20 pipe is that is being day-lit will occur and the grades will be lowered resulting in a cut or an increase in flood volume.

BETA2: Based upon the response, it appears that the data presented in the cross sections identified is directly from the FEMA detailed analysis. No further comments.

G27. The "Project Site Owner's Manual", included with the Stormwater Management Report, is missing inspection requirements for catch basins.

LEC: Catch basin inspections have been added.

BETA2: Inspection requirements are 4x per year, not just the first year.

G28. Maintenance requirements for the infiltration basin should reflect the requirements in Volume 2, Chapter 2 of the standards.

LEC: Maintenance requirements have been added.

BETA2: Comment Addressed.

G29. The disturbance area will exceed 1.0 acre and the site is therefore subject to the EPA Construction General Permit. BETA recommends that the Storm Water Pollution Prevention Plan, which is required in conjunction with the EPA permit, be submitted to the commission for their review & approval.

LEC: The National Pollution Discharge Elimination Systems, (NPDES) and Stormwater Pollution Prevention Plan, (SWPPP) are typically applied for by the site contractor, general contractor an

owner prior to construction. A contractor has not been engaged at this time, typically the Conservation Commission makes this a Condition prior to commencing work on the site.

BETA2: BETA will defer this to the Commission.

G30. The illicit discharge statement should be signed by the Owner/Applicant

LEC: Applicant has signed the drainage report on .pdf pages #8 and #120.

BETA2: Comment addressed.

Based upon the revised design, BETA has the following additional comments regarding the proposed stormwater design.

G31. ***There appears to be an issue with the datum. The grades depicted on the existing conditions plan are approximately 2.5' lower than the elevations BETA found with an RTK unit. This same differential is present in the FEMA cross sections also. BETA recommends that the applicant confirm the benchmark datum.***

G32. ***The assumption that the Tc for EDA 2 is 6.0 minutes is not appropriate. The Tc should be the longest duration travel time not the longest distance.***

G33. ***There is an existing isolated depression located on the far westerly edge of the parcel. Based upon the existing conditions topography, it appears that this depression will store approximately 15-18" of water before it reaches the crest of the berm that forms the pond at elevation 155.3. Nearly the entirety of the watershed flows into this ponding area. The existing condition analysis should be modified to include routing through this depression which will act like an infiltration basin prior to discharge into the brook.***

G34. ***At the west edge of the principle building on the site, the existing grades direct runoff into the building entrance where there are 4 catch basins indicated. The designer should document where these basins flow to or whether they are infiltration structures. The existing conditions analysis should be modified accordingly.***

G35. ***BETA recommends that the outlet from the Stormceptor 450i be combined with the outlet from DMH 352. This will effectively maximize the separation distance between the inlet and outlet in accordance with Volume 2, Chapter 2 of the handbook.***

G36. ***Inside the proposed infiltration basin, BETA recommends that the A horizon identified on OSE-TP5 be removed. This will expose the better C1 horizon soils below and will allow the designer to increase the infiltration rate to 2.41 inches per hour.***

G37. ***In the analysis for the proposed flow into the infiltration basin, the water surface in the basin should be assumed to be an impervious surface with a CN value of 98.***

G38. ***The HYDRO-CAD calculations cannot be used to determine that the infiltration basin has been designed in compliance with Standards 3 & 4. Storage documentation in accordance with Volume 3, Chapter 1 should be provided in the report.***

G39. ***The proposed discharge channel from the Route 20 outfall should be moved upstream away from the existing culvert to avoid any potential damage to the culvert that may arise from the installation. In addition, the contours at the outlet adjacent to the stream are incorrect. BETA***

recommends that the designer look at the potential to continue the existing stonewalls across this discharge point to minimize the impact on the stream bank.

G40. ***Southwest of the outfall from the basin, the proposed grading along the outside of the embankment results in approximately 2,500 square feet of additional disturbance within the inner riparian zone. BETA recommends that the designer review this grading and reduce the disturbed area accordingly.***

DEP Stormwater Standards

In consideration of the above comments, BETA will await the Applicant's responses prior to issuing final comments relative to compliance with the Standards.

Summary

Based on our review of the Project documents and plans, the Applicant has not provided the Wayland Conservation Commission with sufficient information to demonstrate compliance with the MassDEP Stormwater Management Standards, and generally accepted engineering practices. BETA does not recommend the issuance of permit approvals at this time.

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.

Gary D. James, P.E.
Senior Project Manager