

May 1, 2024

Ms. Breeka Lí Goodlander, Agent
Town of Franklin Conservation Commission
355 East Central Street
Franklin, MA 02038

Re: Grove Street Residences – 121 Grove Street
MassDEP File No. 159-1286
Notice of Intent Peer Review

Dear Ms. Goodlander:

BETA Group, Inc. (BETA) has reviewed revised documents and plans for the project entitled **Grove Street Residences**, located at **121 Grove Street** in Franklin, Massachusetts. This letter is provided to present BETA's findings, comments and recommendations.

BASIS OF REVIEW

The following supplemental documents were received by BETA and will form the basis of the review:

- Peer Review responses entitled **Grove Street Residences – 121 Grove Street**; prepared by RJ O'Connell & Associates and Lucas Environmental; dated March 28, 2024. Inclusive of:
 - Peer Review Response Letter with Impact Analysis;
 - WPA Form 3;
 - Wetland & Buffer Zone Impact Exhibit;
 - Bankfull Determination Exhibits; and
 - Stream Crossing Hydrologic/Hydraulic Calculations.
- Plans (47 Sheets) entitled **Grove Street Development 121 Grove Street – Franklin, MA**; prepared by RJ O'Connell & Associates, Inc.; dated December 18, 2023, revised March 28, 2024; stamped and signed by Brian P. Dundon, MA P.E. No. 41505. Including:
 - Existing Conditions Plan (1 Sheet) entitled **Existing Conditions Site Plan 121 Grove Street Franklin Massachusetts**; prepared by Guerriere & Halnon, Inc.; dated May 20, 2022 and last revised November 9, 2023; stamped and signed by Robert E. Constantine II, MA P.L.S. No. 49611.
 - Landscape Plan (14 sheets) entitled **Grove Street Residences Franklin, MA**; prepared by Michael D'Angelo Landscape Architecture LLC; dated December 18, 2023; stamped and signed by Michael D'Angelo, MA P.L.A No. 4006.
- **Stormwater Management Report, Grove Street Residences, 121 Grove Street Franklin, Massachusetts**; prepared by RJ O'Connell & Associates, Inc.; dated December 18, 2023, revised March 28, 2024; stamped and signed by Brian P. Dundon, MA P.E. No. 41505.

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

- Site Visit on February 1, 2024
- **Massachusetts Wetlands Protection Act 310 CMR 10.00** effective October 24, 2014
- **Massachusetts Stormwater Handbook** effective January 2, 2008 by MassDEP

- **Stormwater Management Chapter 153 From the Code of the Town of Franklin**, Adopted May 2, 2007
- **Wetlands Protection Chapter 181 From the Code of the Town of Franklin**, dated August 20, 1997
- **Town of Franklin Best Development Practices Guidebook**, dated September 2016

PEER REVIEW UPDATE—MAY 1, 2024

The Applicant has provided revised materials and written comment responses pursuant to BETA's February 20, 2024 peer review letter. BETA's original comments from the February 20, 2024 peer review letter are included in plain text. Comment responses attributed to RJ O'Connell & Associates (RJOC) and Lucas Environmental (LE) are provided in *italics* and are prefaced with "*RJOC:*". The LE correspondence noted in the RJOC responses was not included in this letter for brevity; however, they are hereby incorporated by reference. BETA's most recent responses are provided in **bold** and are prefaced with "**BETA2:**".

BETA's responses in this letter identify additional information that should be provided by the Applicant to demonstrate compliance with the Act.

SITE AND PROJECT DESCRIPTION

The Site is 31.44 acres and includes two (2) parcels along the western limit of Grove Street in Franklin, Massachusetts, further identified by the Franklin Assessor's Office as Assessor's Map 295, Lot 1 (121 Grove Street) and Map 294, Lot 7 (0 Grove Street). The Site is bound to the north and west by Franklin State Forest, to the east by Grove Street, and to the south by an electric transmission line right-of-way. A walking path associated with Franklin State Forest bisects the northern portion of the Site. Improvements located within the eastern portion of the Site along Grove Street include a single-family dwelling, accessory buildings, gravel and paved driveways, and lawn areas. The remainder of the Site consists of mixed hardwood uplands vegetated with species including Eastern white pine (*Pinus strobus*), American beech (*Fagus grandifolia*), and red oak (*Quercus rubra*); palustrine and emergent wetland complexes; and maintained fields. Topographic relief at the Site generally follows a west-to-east orientation.

Resource Areas Subject to Protection under the Massachusetts Wetlands Protection Act (M.G.L. ch.131 s.40) and its implementing regulations at 310 CMR 10.00 (collectively "the Act"), as well as the Town of Franklin Wetlands Protection Bylaw (Chapter 181) and its associated regulations (collectively "the Bylaw") are present at the Site and include:

- Inland Bank (to intermittent stream);
- Bordering Vegetated Wetland (BVW);
- Land Under Water (LUW); and
- Isolated Vegetated Wetland (IVW).

The boundaries of some onsite Resource Areas were previously confirmed by an Order of Resource Area Delineation (ORAD) issued under MassDEP File No. 159-1261 on April 6, 2023. Previously confirmed boundaries are as follows:

- The WFA and WFC Series BVW;
- The WFB Series BVW to the property line;
- The WFD Series IVW;
- The BF1 Series Bank to the property line;
- The BF2 Series Bank to the property line; and

- The BF3 Series Bank to the WFB Series BVW.

The ORAD confirms that the WFA and WFC Series delineate the boundary of a single BVW complex as depicted on the submitted plans; however, the BF4 through BF9 series Bank boundaries, as shown on the provided Project plans, were not reviewed or approved under this ORAD. In addition, the off-site FRW Series BVW that projects Buffer Zone onto the Site was not confirmed under the ORAD.

The Site is not located within any Surface Water Protection Areas (Zone A, B, or C), or Zone I or Interim Wellhead Protection Areas, but the northeast corner of the Site is within a Zone II Wellhead Protection Area. There are no Outstanding Resource Waters (ORWs) or Areas of Critical Environmental Concern (ACEC) present, and the most recent Natural Heritage and Endangered Species Program (NHESP) mapping does not depict any Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife at the Site. There are no NHESP-mapped Certified or Potential Vernal Pools located within 100 feet of the Site.

Natural Resource Conservation Service (NRCS) soil maps indicate the presence various soil groups at the Site including Charlton-Hollis Rock outcrop complex with a Hydrologic Soil Group (HSG) rating of A/B, Ridgebury fine sandy loam with a HSG rating of D, Hinckley loamy sand with a HSG rating of A, and Merrimac fine sandy loam with a HSG rating of A.

Proposed work is associated with a residential development pursuant to M.G.L. Chapter 40B (40B) and includes the following activities (collectively referred to as “the Project”):

- Construction of 5 detached apartment buildings (330 total apartment units);
- Construction of a clubhouse, swimming pool, parking bays, and dog park;
- Construction of paved parking areas (574 total parking spaces) and access driveways;
- Construction of two (2) intermittent stream crossings for roadways;
- Installation of two (2) intermittent stream crossings for a pedestrian boardwalk;
- Installation of lighting and utilities (includes municipal water and sewer);
- Installation of stormwater best management practices (BMPs);
- Installation of erosion controls;
- Maintenance of landscaping and green space; and
- Grading.

The Project will result in direct impacts to Bank, BVW, and LUW. Portions of all five buildings and associated amenities are proposed within the 100-foot Buffer Zone to BVW/Bank and Building #4 will require the filling of a 2,015-square foot (sf) IVW. As a 40B development, this peer review has been prepared with the assumption that the Bylaw will be waived by the Franklin Zoning Board of Appeals (ZBA); therefore, the Project is being reviewed only under the Act. Accordingly, impacts to the IVW, which does not qualify as Isolated Land Subject to Flooding (ILSF) under the Act, are presumed to be non-jurisdictional under this filing. Should the Bylaw apply to the Project, this review would be subject to revisions.

The Project was filed under the Limited Project provisions at 310 CMR 10.53(3)(e) for the construction and maintenance of a new roadway or driveway requiring a Resource Area crossing to access uplands and 310 CMR 10.53(3)(j) for the construction of the proposed boardwalks.

ADMINISTRATIVE AND PLAN COMMENTS

The plan set (as identified above) is missing information and requires additional information for clarity.

BETA2: Comments related to the plan set have been addressed.

Table 1. NOI Plan

NOI Plan Requirements	Yes	No
North Arrow	✓	
Registered PLS Stamp (Existing Condition Plans Only)	✓	
Assessors' Reference	BETA2: ✓	
Abutting Property Assessors' Reference	BETA2: ✓	
Survey Benchmark	✓	
Existing Conditions Topography (with source and date of survey)	BETA2: ✓	
Accurate Plan Scale	✓	
Plan Scale 1" = 40' or smaller	✓	

PLAN AND GENERAL COMMENTS

A1. The Massachusetts Department of Environmental Protection (MassDEP) has issued a DEP file number (159-1286) with the following technical comments:

- a. "The Commission may want to consider a third-party review due to the complexity of this project, including but not limited to the review of the proposed stormwater system and the intermittent streams not confirmed in the ORAD process".

RIOC: Third party peer reviews are being completed.

BETA2: No further comment.

- b. "It is recommended that phased erosion controls are provided in addition to the construction sequence. Temporary swales and basins shall be shown on (phased) erosion control plans".

RIOC: Phased erosion control plans have been completed and included in the revised plan set. These include temporary swales and basins. (See Sheets C-1A through C-1D).

BETA2: See BETA2 response to Comment W6.

- c. "The site of the future infiltration basins should not be used as temporary sediment traps for construction activities, see V2, Ch2, p91 of the SW Handbook".

RIOC: The plans have been revised to provide notes on the Erosion Control Plans that the bottom of the temporary sediment basin at the location of the infiltration basin (stormwater basin-1) shall be set one foot above the bottom of the proposed infiltration basin to ensure the underlying soil is not adversely impacted. Excavation of the bottom one foot to final grade and the installation of the crushed stone shall not be completed until after final stabilization. This last foot of excavation after site stabilization will remove all sediment and protect the underlying soil.

BETA2: According to the Massachusetts Stormwater Handbook, cited by MassDEP, an infiltration basin should never be used as a temporary sediment trap for construction activity. If excavation occurs, light earth-moving equipment for excavation of the infiltration basin should be used rather than heavy equipment due to the likelihood of compaction while using heavy equipment. The Commission could consider incorporating these requirements as a Special Condition.

- d. "The Commission may want to include the Operation and Maintenance of the proposed stormwater system as a perpetual conditions."

RJOC: Comment acknowledged. The applicant has no issue with the condition.

BETA2: No further comment. BETA concurs with the recommendation made by MassDEP.

- e. "Given the steep slopes and their proximity to wetlands, MassDEP recommends the Commission include a condition that requires an inspection of erosion controls prior to and following any storm events greater than 1".

RJOC: Comment acknowledged. The applicant has no issue with the condition.

BETA2: No further comment. The Project will disturb more than one acre of land, therefore a Notice of Intent (NOI) with EPA and a Stormwater Pollution Prevention Plan is required. To comply with the NPDES CGP, the contractor will be required to inspect erosion controls more frequently than identified in this comment.

It is recommended that the Applicant address MassDEP's comments above in addition to the comments provided herein by BETA.

- A2. Depict Assessors' references for both the Site and the abutting properties on all plan sheets.

RJOC: The Assessors references for the site and abutting properties have been added to the Overall Site Plan.

BETA2: Comment addressed. The Assessors' references for the Site and abutting properties have been added to the Overall Site Plan (Sheet OS-1).

- A3. The proposed tree line is currently only depicted on the Landscape Plan sheets. Depict the proposed tree line on all plan sheets.

RJOC: The proposed tree line has been added to all applicable site plan sheets.

BETA2: Comment addressed.

- A4. Provide survey dates/methods for all on-the-ground topographic and boundary survey efforts in the plan notes.

RJOC: The Existing Conditions Site Plan has been revised to include plan notes for the survey dates/methods for all on-the-ground topographic and boundary survey efforts.

BETA2: Comment addressed.

- A5. The narrative references filing under two (2) limited project provisions ((310 CMR 10.53(3)(e) and (3)(j)) but the WPA Form 3 references only one. Provide a revised WPA Form 3 referencing both limited project provisions for the record.

RJOC: The WPA Form 3 has been revised as requested. See Attachment #2.

BETA2: Comment addressed. The WPA Form 3 now references both limited project provisions.

- A6. Provide a revised WPA Form 3 that includes temporary and permanent impacts proposed to LUW and includes both temporary and permanent impacts to BVW. Only permanent impacts are currently listed on the WPA form.

RJOC: The WPA Form 3 has been revised as requested. See Attachment #2. Additionally, the impact numbers have been updated to show the temporary and permanent impact numbers (presented in the narrative of the original NOI), see LE Response Letter #1 within Attachment 1 of this letter.

BETA2: Comment addressed.

WETLAND RESOURCE AREAS AND REGULATORY REVIEW

BETA conducted a site visit and regulatory review of the submitted revised documents and plans, focusing on compliance with Resource Area definitions and Performance Standards set forth in the Act.

As noted above, an ORAD is in effect for the Site which confirms the boundaries of BVW, IVW, and the BF1, BF2, and BF3 Series Bank at the Site. Therefore, BETA only assessed Resource Area flagging in the field associated with the BF4 through BF9 Series Banks.

The Applicant has provided a comprehensive NOI filing with regards to filings requirements and supporting narratives. However, the NOI is missing a discussion of compliance with LUW Performance Standards and does not quantify proposed impacts to LUW for the proposed crossings. The stream/BVW crossings and boardwalks also require further detail on construction and sequencing to confirm all Resource Area impacts (temporary and permanent) are accounted for. In addition, the stream restoration area also requires further detail on construction and sequencing to ensure the establishment of appropriate hydrology/hydraulics and the long-term stabilization of Banks.

BETA noted several areas across the Project where constructability issues are apparent, including proposed grading tie-ins located under proposed erosion controls and what appears to be insufficient space to work and excavate for retaining wall construction along the faces of walls. As a result, the Project may actually require greater impacts to Resource Areas than what have been reported. In addition, select areas of BVW impacts along the retaining walls should be reassessed in the interest of avoiding/minimizing impacts.

At this time, the Applicant has not provided sufficient information to describe the Site, the work, or the effects of the work on the interests of the Act.

BETA2: The Applicant has submitted revised materials that address a majority of BETA's comments and have resulted in reduced BVW impacts, a revised limit of work that supports the Project's constructability, and stronger justification for Resource Area crossings and associated design choices. The Applicant has also provided construction sequencing and phasing plans; however, the timing of environmentally sensitive activities including stream/BVW crossings (roadways and boardwalks), the wetland replication area, and the stream restoration areas remains unclear. Additional information has also been provided to outline restoration of previously impacted BVW; however, information regarding temporary and permanent stabilization efforts of Bank and LUW associated with the daylighted stream channel is still required. In general, several Special Conditions have been recommended for potential use in an OOC; however, implementing Special Conditions in lieu of requiring the submission of additional/revised materials during the public hearing process is at the Commission's discretion. Per the stormwater management review, the Project is also anticipated to require significant blasting that could have hydrologic impacts on the adjacent BVW unless test pit data is provided behind Buildings No. 1 and 2 to support the assumption that no significant blasting will be required.

At this time, the Applicant has not provided sufficient information to describe the Site, the work, or the effects of the work on the interests of the Act.

RESOURCE AREA BOUNDARY COMMENTS

BETA conducted a Site visit on February 1, 2024 to assess existing conditions and to review Resource Area boundaries not approved under the ORAD.

- W1. The ORAD approved the Bank boundary of 3 onsite intermittent streams (BF1, BF2, and BF3); however, there are 6 additional Bank series shown on the existing conditions plan and described in the NOI narrative per the Commission's request (BF4, BF5, BF6, BF7, BF8, and BF9). Of these Bank series, the Applicant asserts that only BF9 meets the definition of a stream¹ under the Act.

BETA reviewed all additional intermittent stream Banks flagged as part of this Project and concurs with the delineated boundaries. It is recommended that the Commission consider these features jurisdictional intermittent streams.

RJOC: BETA's response is noted and furthermore, the impacts have been calculated very conservatively, assuming the referenced streams are jurisdictional to address BETA's following comments.

BETA2: No further comment.

- W2. BETA did not review the FRW Series BVW in the field due to its location on private property. Based on the Project plans, work is not proposed within its associated Buffer Zone. The Commission could consider including a finding in an Order of Conditions (OOC) stating that these boundaries are not approved as part of this filing.

RJOC: The Applicant agrees with this finding.

BETA2: No further comment.

CONSTRUCTION COMMENTS

- W3. Provide information supporting the location of the sewer line below the streambed at both stream crossings instead of within or along the roadway above the stream. Should the proposed location be required due to design/Site constraints, provide details on how construction will occur as it relates to the nature of the Resource Area impacts (i.e., open trench excavation versus directional drilling, and construction sequencing).

RJOC: To allow for gravity sewer connection to the town sewer system and crossing of other utilities and drainage the proposed sewer line needs to be below the streambed at both stream crossings. The sewer lines are proposed below the streambeds, and above the footings of the culverts. The installation of the sewer lines will occur using trench excavation at the same time as the construction of the culverts, while the streams are temporarily diverted, and the surrounding resource area protected. See response to W5 for details on construction which will occur at the same time as the culverts. The existing streambed soils will be removed and stockpiled separately for reuse in reestablishing the streambed. The sewer lines are to be bedded as noted on the detail on Sheet C-10 and then backfilled with the existing channel bed material up to the final channel elevation within the culverts.

¹ 310 CMR 10.04 "Stream means a body of running water, including brooks and creeks, which moves in a definite channel in the ground due to a hydraulic gradient, and which flows within, into or out of an Area Subject to Protection under M.G.L. c. 131, § 40".

BETA2: Comment partially addressed. BETA recommends that details relating to the installation of sewer lines as described above be included in the stream crossing construction sequence provided on Sheet C-1C.

- W4. Clearly label all Resource Area impacts (both permanent and temporary) on the Project plans. It is recommended that this information be included on the Grading and Drainage plans to supplement the callouts that are already present. Although a separate Resource Area impact exhibit is provided, it is at a larger scale and does not depict proposed grades.

RJOC: Additional Resource Area Impact Plans have been developed and added to the plan set as Sheet C-2D & C-2E. The plans clearly labels all MassDEP Resource Area impacts (both permanent and temporary) and depicts the proposed grades.

BETA2: Comment addressed.

- W5. Erosion controls should be depicted on all sheets to demonstrate Project constructability. BETA offers the following comments on the proposed erosion controls:

- a. Erosion controls consisting of siltation fencing and compost filter tubes are proposed to be installed across the stream at both intermittent stream crossings as shown on the Demolition and Erosion Control Plan (Sheets C-1A and C-1B). These erosion controls are not a typical method of in-water erosion, sedimentation, and/or turbidity control. Clarify what time of year the crossing work will occur, what erosion controls will be used for in-water work (i.e., cofferdams), and how water will be controlled during construction of the crossing. To comply with the Section 404 Massachusetts General Permit, in-water controls should only be in place while required to complete the crossing work. At a minimum, the Applicant should provide location-specific water control and dewatering details for the proposed culvert work.

RJOC: Phasing plans (C-1A through C-1D) have been developed to depict erosion control measures to be implemented during construction of the proposed project. The in-water erosion, sedimentation and/or turbidity controls have been revised at the proposed stream crossings to include sandbag cofferdams, pumps and water filter bags. These will be used to control the water flows within the intermittent streams during the construction of the culverts and to pump the water to the downstream side of the culverts to a filter bag. Details reflecting these controls have been provided on Sheet C-6. The crossing work will occur during forecasted dry periods and periods of low flow, where feasible. A note has been added to the plans that in-water controls will be removed as soon as possible once the work is completed and that area is stabilized.

BETA2: Comment partially addressed. Additional comments on the proposed water controls are as follows:

- **Use of silt fence to supplement the sandbag cofferdam as shown in the detail (Sheet C-6) is unlikely to contribute to the efficacy of the cofferdam. BETA recommends that silt fence be removed and replaced with an impermeable material that will cover and protect the sandbags such as wrapped plastic sheeting.**
- **The downstream side of both Intermittent Stream Crossings No.1 and No.2 shows use of silt fence/ compost sock through the stream channel as a water**

control. Silt fence is unlikely to be an effective control; however, compost filter tubes (or sandbags, depending on water depth) could be used as an added protection to the downstream Resource Areas and mark the limit of work. It is recommended that the Applicant select a different water control method for the intermittent stream crossings. Downstream water/ erosion controls at both stream crossing should be specified on the plans.

- **BETA recommends that the water filter bags for dewatering at both intermittent stream crossing be located further upgradient of the Resource Areas. A discharge of dewatering water to a Resource Area is subject to additional reporting requirements under the EPA NPDES for which this Project will be subject to.**
- **The Post Demolition Construction Sequence on Sheet C-1C does not identify a phase of the Project that the intermittent stream crossings will be installed. Revise the construction sequence accordingly or include this information on the Construction Phasing Plan (Sheet C-1E).**

The Commission could consider a Special Condition in the OOC that the Agent be notified prior to the construction of the intermittent stream crossings, and that a plan showing in-water controls and dewatering for each stream crossing be submitted to the Agent for review and approval prior to construction.

- b. No erosion controls are shown at the location of either of the proposed boardwalks. Depict erosion controls proposed for boardwalk construction, describe the anticipated method of construction, and quantify any additional temporary BVW impact associated with installation of erosion controls, anti-compaction measures (i.e., swamp mats), and access for construction.

RJOC: Erosion controls have been added adjacent to the proposed boardwalks within the existing wetlands and ground protection (construction) mats have been proposed at the intermittent stream crossings. The impact areas associated with the additional erosion controls have been revised and are reflected in the revised Wetland & Buffer Zone Impact Exhibit in Attachment 3 of this letter.

The applicant is anticipating constructing the boardwalks using a handheld helical pile installer for the screw pile bases. This will involve the use of chainsaws to clear the area and then using a walk behind skid steer to transport the building material through the proposed boardwalk corridor. However, if screw piles cannot be installed in some areas, due to shallow ledge, the contractor may need to install 12-inch concrete footings. Although helical piles are the preferred method of installation to minimize impact, the calculations of impact areas were conservatively calculated assuming the need for the 12-inch concrete footings.

The limits of work have been revised, as necessary, and the temporary/permanent BVW impact calculations have been updated as depicted on the Wetland & Buffer Zone Impact Exhibit in Attachment #3 of this response letter.

BETA2: Comment partially addressed. BETA recommends use of swamp mats throughout the length of the boardwalk installation where work is proposed within BVW. The Applicant should also provide a construction sequence for the proposed

boardwalks, similar to the sequence provided for the intermittent stream crossings on Sheet C-1C of the Project plans. The Commission could consider a Special Condition in the OOC that a boardwalk-specific construction sequence, including stabilization and restoration of temporarily impact BVW, be provided to the Agent for review and approval prior to construction.

- c. Erosion controls are depicted directly adjacent to the proposed retaining upgradient of the BVW near the proposed pool and clubhouse, and within Buffer Zone north of Building #3. Considering that over excavation is required to set the footings for segmented block walls, additional temporary BVW/Buffer Zone impacts are likely to be required at these locations and the limits of work do not appear to represent a constructable Project. The Applicant should revise the limits of work and disclose all impacts accordingly.

RJOC: The erosion controls in these areas have been reviewed and revised as necessary, the limits of work have been revised to ensure constructability. A cross-section detail showing the proposed wall, erosion control measures and wetland limits has been provided on Sheet C-16. This depicts areas where the proposed wall is at the closest proximity to the wetland and illustrates there is sufficient area for construction without impacting the wetland.

BETA2: Comment addressed. The provided detail shows that even at its closest point, 4 feet of work area between the erosion controls and retaining wall will be present. Furthermore, the impacts to BVW near the proposed pool and clubhouse have been eliminated.

- d. Erosion control placement is directly over areas of proposed grade tie-ins along several locations around the Project perimeter (e.g., northeast of Building #2). Provide locations for erosion controls that support constructability and disclose any additional temporary/permanent BVW impacts that may be required.

RJOC: The line type width depicted on the plans is not representative of the actual thickness of the erosion control in the field. The plans have been revised to depict a different line type that illustrates the true size of the erosion control measures. The limits of work have been revised, as necessary, and the temporary/permanent BVW impact calculations have been updated as reflected in Attachment #3 of this response letter.

BETA2: Comment addressed. A thinner line type has been used to depict erosion controls on the Project plans and proposed grade tie-ins no longer overlap with locations of erosion controls.

- W6. The Project will require significant clearing and grubbing. Provide a phasing plan to supplement the erosion control plan that limits the total area of disturbance at the Site at a time. This plan should also include timing on environmentally sensitive activities including stream/BVW crossings (roadways and boardwalks), the wetland replication area, and the stream restoration area. In addition, all staging/stockpile areas should be staked in the field prior to advancing phases. The Commission could consider a Special Condition in the OOC requiring the Applicant achieve stabilization to the satisfaction of the Commission or their Agent prior to advancing phases.

RJOC: Erosion and Sediment Control Plans (C-1C & C-1D) have been prepared to illustrate the construction phasing of the proposed site work. Additionally, a Construction Phasing Plan (C-1E)

has been prepared, and is included within the revised Plan Set, depicting the anticipated construction zones and sequences for the project.

BETA2: Comment partially addressed. The Construction Phasing Plan (Sheet C-1E) does not indicate when the boardwalks will be constructed. Review of the Erosion and Sediment Control Plans, however, indicates that construction of the boardwalks, intermittent stream crossings, and wetland replication area will occur within Phase II of the Project.

The Commission could consider the following Special Conditions in the OOC:

- **The wetland replication area and the stream daylighting efforts will be established and temporarily stabilized prior to constructing the adjacent roadway crossing over the intermittent stream (Intermittent Stream Crossing No.1) and prior to any other Resource Area alterations at the Site.**
- **Prior to the start of construction, a revised construction phasing plan that outlines the timing on environmentally sensitive activities including stream/BVW crossings (roadways and boardwalks), the wetland replication area, and the stream restoration will be provided to the Commission or its Agent for review and approval.**

W7. In addition to a phasing plan for the entire Project, a construction sequence and plan specific to the proposed intermittent stream crossings should also be provided. This plan should include the following:

- a. Installation of erosion and sedimentation controls, and in water controls as appropriate;
RJOC: Phased erosion control plans for construction have been prepared on Sheets C-1A through C-1D and are included in the revised plan set. These plans provide sequencing for erosion control and construction.

BETA2: See BETA2 response to comment W5.a.

- b. Points of access by machinery to construct the crossings; and
RJOC: The demolition and erosion control plans (C-1A and C-1B) have been revised to depict the use of construction swamp mats to be used at the crossings for access for clearing/grubbing of the site; Erosion and sediment control phase II plans (C-1C and C-1D) have been prepared depicting the details of the construction of the culverts at the crossings with cofferdams, pumps and filter bags (details have been provided on Sheets C-5 and C-6).

BETA2: Comment addressed.

- c. Restoration of temporarily impacted LUW and Bank.
RJOC: Impacted areas of Bank will be restored to pre-existing conditions, i.e., the existing substrate will be restored to a natural state that are present prior to construction. The land between the Banks will also be restored to pre-existing conditions, which BETA is generally referring to as LUW.

BETA2: See BETA2 response to Comment W11 and W12.

W8. It is recommended that all chain link fencing provide a minimum of a 4-inch bottom gap to facilitate wildlife movement for small species.

RJOC: The Chain link fence detail on Sheet C-12 has been revised to include a note to provide a minimum of a 4-inch bottom gap under fencing to facilitate wildlife movement for small species.

BETA2: Comment addressed.

- W9. To apprise the Conservation Commission of federal permitting requirements, the Project will be required to obtain U.S. Army Corps of Engineers (USACE) approval under the Section 404 Massachusetts General Permit prior to commencing construction.

RJOC: The Applicant is aware of this requirement and will be submitting the appropriate documents to the USACE.

BETA2: Comment addressed.

MITIGATION COMMENTS

- W10. The "Existing Wetland Disturbance Exhibit" depicts areas of existing disturbed wetlands (12,485 sf) resulting from active mowing that will be restored as a part of the Project. A portion of the proposed restoration (as depicted by the Applicant) will be permanently impacted through construction of the clubhouse pool. Similarly, a portion of the proposed Boardwalk #2 is also within the proposed BVW restoration area. Revise the Exhibit and restoration totals accordingly or adjust the limits of work.

RJOC: The proposed retaining wall adjacent to the clubhouse pool has been revised to avoid both temporary and permanent impacts to the wetland. The existing, disturbed wetland areas will be restored via tilling and seeding, and immediately covered with a straw mat for erosion and sediment control. The disturbed wetland areas to be restored at Boardwalk #2 will be seeded below the boardwalk for restoration, however there will be footings installed within this area that will have an overall impact of approximately 5 sf. Therefore, there will be an overall wetland restoration area of 12,480 sf.

BETA2: Comment addressed. The proposed retaining wall near the clubhouse pool has been reconfigured to avoid impact to the adjacent BVW. The wetland restoration area total has also been revised to exclude permanent BVW impact associated with installation of the boardwalk footings.

- W11. BETA offers the following comments with regards to the wetland replication area and associated stream daylighting efforts:

- a. Provide a note on the Wetland Replication Plan (Sheet C-2C) stating that the Wetland Scientist will review the proposed wetland replication area for existing, native woody plants to retain and mark them in the field for preservation.

RJOC: The suggested note has been added to Sheet C-2C as Note #1 under General Wetland Replication Notes.

BETA2: Comment addressed.

- b. Provide a note requiring the Wetland Scientist to contact the Commission for review and approval of final grades and proposed planting stock prior to planting. This could be included as a Special Condition in the OOC.

RJOC: The suggested note has been added to Sheet C-2C as Note #2 under General Wetland Replication Notes.

BETA2: Comment addressed.

- c. BETA recommends that the wetland replication area and associated stream daylighting efforts be established and temporarily stabilized, at a minimum, prior to constructing the adjacent roadway crossing over the intermittent stream. Construction of the roadway and adjacent temporary drainage swale will severely limit access to the wetland replication area. This could be included as a Special Condition in the OOC.

RJOC: Construction phasing proposed for the project calls for the area of the wetland replication area to be used as a temporary sediment basin. Upon stabilization of the site, the temporary sediment basin will be removed and at that time the wetland replication and associated stream daylighting efforts will occur. Performing the work for the wetland replication and associated stream daylighting efforts at this time would also limit the risks of any damage to these areas during overall site construction.

BETA2: Comment remains. To prevent unnecessary compaction of the soil in the location of the wetland replication area and to establish mitigation areas early on in the Project's schedule, BETA advises against use of this area as a temporary settling basin during project construction. As previously noted, access will be limited following the construction of the roadway and the adjacent drainage swale.

- d. As part of the proposed wetland replication area, the Applicant proposes to daylight 180 linear feet (920 sf) of culverted stream; however, minimal details on sequencing and approach are provided. Provide information including the proposed profile of the streambed and the proposed bankfull width (and how these were determined), the proposed gradient of the stream, how the restored stream will tie into the existing BF2 Series streambed and Bank elevations, how the streambed and Banks will be stabilized (temporarily and permanently), and what type of substrate is proposed/how it was determined based on existing fluvial processes. Additional erosion controls will also be required to prevent sedimentation of the stream while the wetland replication area is being stabilized.

RJOC: Construction sequencing for the existing drainpipe removal and intermittent stream construction has been provided on Sheet C-1C. Additionally, Sheet C-2C has been revised to include a profile of the stream bed, depicting the slope and tie in elevations to the adjacent wetlands and proposed culvert. The plan view on Sheet C-2C has been revised to depict compost sock erosion and sedimentation barriers be installed on either side of the proposed intermittent stream until the wetland replication area is stabilized. Bankfull Determination Exhibits have been prepared and are included in Attachment #4 of this response letter depicting how the bankfull widths were determined for the stream crossings. Notes have been added to the intermittent stream details on Sheet C-9 stating that the existing streambed soils will be removed and stockpiled separately for reuse in reestablishing the streambed.

BETA2: Comment partially addressed. Attachment 4 shows the locations where bankfull width measurements were taken in the field at the locations of Intermittent Stream Crossings No.1 and No.2, and the submitted profile depicts how the daylighted stream channel will tie into adjacent existing grades. However, information regarding how the streambed and Banks will be stabilized (temporarily and permanently) and the type/rationale for selection of the streambed substrate within the daylighted channel

is still required. It is not anticipated that appropriate streambed material will be generated through the removal of the drain pipe to restore the daylighted portion of the stream channel. In addition, it is recommended that staked coir logs of an appropriate diameter be used to establish new Banks.

The Commission could consider including a Special Condition requiring a plan be submitted to the Commission or its Agent for approval prior to the construction of the wetland replication area and stream daylighting efforts which documents:

- A method for stabilization of the Banks associated with the stream daylighting efforts (i.e., coir logs and erosion control netting);
- Specific native seed mix proposed for use along the Bank; and
- Substrate proposed for the streambed.

W12. Provide a method for restoring temporary Bank and LUW impact areas and describe how Banks under the crossing will be graded and permanently stabilized and include notes pertaining to Resource Area restoration on the plan set.

RJOC: The Banks and land between the Banks (LUW per BETA), will be graded per the revised plans, dressed with an appropriate substrate to match the existing substrate, and stabilized. The Banks will be stabilized via loaming and seeding, along with installation of an erosion control blanket and compost socks on the slopes if necessary (Details on Sheet C-6 and C-9).

BETA2: Comment resolved.

W13. Discussion of alternatives to the southern stream crossing to access Building 1 references only one alternate location to the crossing as shown in the exhibit titled "Alternative Driveway Layout". This alternative does not take into consideration other configurations for Building 1 and associated amenities that would make a driveway to this Building from Grove Street feasible.

RJOC: The applicant has consulted with the Project Traffic Engineer, Vanasse & Associates, Inc., and they have noted there are traffic-related concerns with adding a secondary driveway for Building 1. The concerns include:

- *Access management guidelines indicate that if one driveway adequately services the Project demand, a second driveway should not be considered. Access principles dictate that conflicts at intersections and driveways should be separated and the number reduced as much as possible.*
- *There is a potential for conflict due to differentials in speeds of vehicles entering and existing the site. Vehicles exiting a secondary driveway for Building 1 would need to accelerate to get up to speed on Grove Street while vehicles intending to enter the Main Driveway would need to decelerate. Given the distance that would be proposed between the two driveways, there are likely to be conflicts which will cause a safety concern.*
- *Good practice for site development is to avoid a scenario that can be confusing for emergency response. Without central connectivity throughout the project, emergency response personnel and vehicles could inadvertently use the wrong driveway requiring them to exit to Grove Street and then re-enter the second driveway.*

BETA2: Comment addressed. The Applicant has provided sufficient information to document that options to avoid and minimize impacts to BVW have been reviewed per 310 CMR 10.55(4)(b). BETA defers acceptance of the provided alternatives analysis to the Commission.

W14. BETA offers the following comments on the Landscape Plans:

- a. The proposed area of wetland fill north of the clubhouse is not depicted as being planted or stabilized on the Landscape Plans. Provide plantings within this area, unless fill is avoided.

RJOC: The plans have been revised accordingly.

BETA2: Comment addressed. Wetland fill is no longer proposed north of the clubhouse.

- b. Areas of proposed lawn that do not appear to be necessary for public use/access (i.e., south of Building #2 along the parking area) should be vegetated with native, herbaceous species and mowed only once per year during late fall. BETA recommends a Special Condition requiring this mowing schedule for all areas where native, herbaceous species are established.

RJOC: These areas are proposed as lawn by the Landscape Architect to allow for vehicle overhang over the curbing without resulting in degradation of higher growing ground species.

BETA2: The Applicant could explore the establishment of low-height, native vegetation within this area that would be compatible with the adjacent parking. Comment remains.

- c. The proposed Russian sage (*Perovskia a.* "Little Spire") should be replaced with a native species.

RJOC: The Russian sage has been removed and the plans have been revised accordingly.

BETA2: Comment addressed.

- d. The Applicant proposes several cultivars in the planting plan. Cultivars alter the natural fruiting and flowering processes of plant species and oftentimes diminish their value to native wildlife. It is recommended that cultivars be removed from the plan and replaced with true native counterparts.

RJOC: The cultivars have been removed and the plans have been revised accordingly.

BETA2: Comment addressed.

W15. The Applicant proposes restoration of Buffer Zone and disturbed BVW within several areas across the Site. The narrative notes that seed should be applied to "clean bare soil" in Buffer Zone restoration areas and does not specify any details regarding the preparation of the BVW restoration areas. It is recommended that the Applicant clarify if full tillage is proposed in all restoration areas; if so, additional erosion controls should be provided at the downgradient limits of disturbance.

RJOC: The applicant is proposing to till and seed the existing disturbed wetland areas. The areas will be covered with straw matting immediately after seeding for erosion and sediment control until stabilization occurs.

BETA2: Comment not addressed. Additional erosion controls have not been provided at the downgradient limits of disturbance. This will protect the adjacent, undisturbed BVW until vegetation is established within the restored areas.

WPA PERFORMANCE STANDARDS COMMENTS

The Project, according to the WPA Form 3, proposes 580 square feet of BVW impacts and 320 linear feet of Bank impacts. However, the narrative documents 585 sf of temporary and 580 sf of permanent (total 1,165 sf) impacts to BVW. Furthermore, the WPA Form 3 does not quantify any LUW impacts. The Applicant is required to quantify all temporary and permanent Resource Area impacts and demonstrate how the applicable Performance Standards are met.

The Project is also being filed under the Limited Project provisions at 310 CMR 10.53(3)(e) for the construction and maintenance of a new roadway or driveway and 310 CMR 10.53(3)(j) for the construction of the proposed boardwalk. The applicability of Limited Project provisions to the Project is at the sole discretion of the Commission based on the Applicant's efforts to provide an alternatives analysis and minimize impacts.

Bank (310 CMR 10.54)

W16. Provide a narrative to demonstrate compliance with the Performance Standards at 310 CMR 10.54(4). Although the roadway crossings meeting the Stream Crossing Standards are presumed to meet the Bank Performance Standards, an assessment must be provided for the boardwalks regardless of potential Limited Project status.

RJOC: A narrative has been provided to demonstrate the project's compliance with the performance standards under Section 310 CMR 10.54(4) of the WPA. The narrative includes a description of the construction of the proposed boardwalks and compliance with the performance standards for Inland Bank. See LE Response Letter #1 in Attachment 1 of this letter.

BETA2: Comment addressed. BETA defers to the Commission for approval of the Limited Project status.

W17. The Applicant should provide further justification for the southern intermittent stream crossing as part of its review under the Limited Project provisions. The alternatives analysis does not consider the establishment of a secondary entrance/egress off Grove Street that avoids a steep roadway slope by redesigning the layout of this portion of the Site so that the proposed roadway could be located where Stormwater Basin 1 is currently proposed.

RJOC: The applicant has consulted with the Project Traffic Engineer, Vanasse & Associates, Inc., and they have noted there are traffic-related concerns with adding a secondary driveway for Building 1. See Response to Comment W13.

BETA2: Comment addressed. See BETA2 response to Comment W13.

Bordering Vegetated Wetland (310 CMR 10.55)

W18. Provide depth to groundwater within the replication area to demonstrate that the proposed grading will result in Estimated Seasonal High Ground Water (ESHGW) levels occurring within 12 inches of the final surface elevation.

RJOC: It is expected that the proposed elevations will result in ESHGW to be within 12 inches of final grade based upon existing grades and observations of the adjacent wetlands. The applicant

suggests that soil testing to verify ESHGW elevation be performed at the time of the installation of the temporary sediment basin in this area. If testing reveals that the ESHGW will not be within 12" of the final surface elevation, but only minor elevation modifications are necessary, then field adjustments will occur at the time of construction under the supervision of the Wetland Scientist and/or Civil Engineer (with notification to the Conservation Agent). If significant modifications are necessary, the area shall be redesigned by the Wetland Scientist and/or Civil Engineer and submitted to the Conservation Department for review.

BETA2: The Commission could consider a Special Conditions in the OOC that requires verification of ESHGW be provided to the Conservation Commission or its Agent prior to construction of the wetland replication area to confirm sufficient hydrology is present.

- W19. The section view for the boardwalk on Sheet L301 references finished grade that will vary dependent on location. The Applicant should clarify that no grading will occur within BVW; if grading is proposed, quantify permanent impacts that are not only associated with shading. As previously noted, all temporary impacts associated with the construction of the boardwalk should also be quantified.

RJOC: A note has been added to Sheet C-4B and to the boardwalk detail on Sheet L301 stating that "No grading within the Bordering Vegetated Wetland shall occur in association with the construction of the boardwalks."

BETA2: Comment addressed.

- W20. The Applicant should provide justification for the permanent wetland impacts adjacent to the pool and clubhouse. The NOI narrative does not discuss the feasibility of adding angle points to the retaining wall and shifting stormwater infrastructure to avoid wetland impacts at this location.

RJOC: The retaining wall layout in this area has been revised to avoid both temporary and permanent wetland impacts.

BETA2: Comment addressed.

Land Under Water (310 CMR 10.56)

- W21. Disclose all temporary and permanent LUW impacts associated with the construction of the crossing. Based on BETA's knowledge of the Site, the intermittent streams at the locations of the proposed crossings flow for a significant portion of the year; accordingly, the mean low water level is above the thread of the stream and the streams have associated LUW.

RJOC: LE disagrees with BETA's assessment that LUWW is present on the site and has prepared a narrative detailing our position. However, assuming LUWW were present at the site, the narrative includes a summary of temporary and permanent impacts to LUWW. See LE Response Letter #1 in Attachment 1.

BETA2: The boundary of LUW in the Act under 310 CMR 10.56(2)(c) is the mean annual low water level. As established by case law in the 2007 Final Decision *In the Matter of Hoosac Wind Project*, "...the location of mean annual low flow level in an intermittent stream would logically vary depending on the amount of time the streambed is in fact dry...These streams would have a mean annual low flow above the thread of the stream" (14 CEPR 139). This decision supports that although the onsite intermittent stream may be dry for a period of time each year, LUW is still present. Based on field observations, it appears that flow may be present throughout a majority of the year within the intermittent streams subject to the proposed crossings.

In addition, the approval of specific delineated boundaries does not correspond with the presence or absence of LUW at the Site. Per Section C of the issued ORAD, "...This Order does not, however, determine the boundaries of any resource area or Buffer Zone to any resource area not specifically noted above, regardless of whether such boundaries are contained on the plans attached to this Order or to the Abbreviated Notice of Resource Area Delineation". This is further supported by language included in the attachment to the ORAD which states, "...This ORAD does not approve any other Wetland Resource Areas".

Notwithstanding the above, the Applicant has provided sufficient details to disclose impacts to LUW and appears to meet the relevant Performance Standards. Comment addressed.

W22. Provide a narrative demonstrating compliance with 310 CMR 10.56(4).

RJOC: Assuming LUWW were present at the site, a narrative has been provided to demonstrate the project's compliance with the performance standards under Section 310 CMR 10.56(4) of the WPA. See LE Response Letter #1 in Attachment 1.

BETA2: Comment addressed.

STORMWATER MANAGEMENT REVIEW

The Project proposes to use a combination of 8 subsurface infiltration structures and 3 subsurface lined detention basins. The proposed detention basins are proposed below ESHGW and will require that ledge be removed to facilitate installation. Runoff from the surrounding impervious surfaces will be initially treated with proprietary separators. In addition, 3 stormwater basins are proposed to accept flows from either the subsurface detention basins or the subsurface infiltration structures prior to discharge. These 3 stormwater basins are located east of Building 2, east of Building 1, and between the clubhouse and Building #3. The Site is separated into 2 separate watersheds by 2 intermittent streams that flow from northwest to southeast across the site towards Grove Street, one of which discharges to a catch basin along Grove Street. A Zone II, which is tributary to 2 public water supply wells on the opposite side of Interstate 495, is present across the northeast corner of the Site adjacent to Grove Street.

The primary access into the Site is within the center of the parcel, southeast of Building #3, with 2 interior stream crossings proposed for roadway construction. These crossings will consist of 3-sided box culverts that measure 10 feet wide by 10 feet high. Streambed material will be maintained along the bottom of the culverts and approximately 4 feet of headroom will be provided at each culvert.

Topographic relief is present from west to east, towards Grove Street. Grades on site range from elevation 260 along Grove Street at the northeast corner of the parcel to elevation 372 at the northwest corner of the parcel. Due to the length of the buildings, there are proposed retaining walls along the outside of the paved areas around the buildings to allow for fills and cuts at each building. These walls range up to 16 feet in height at certain locations.

BETA offers the following general comments on stormwater management and Site design:

SW1. The base of the proposed retaining walls along western extent of each building will be far below existing grade and it is anticipated that blasting will be required to achieve this depth based on test pits logs within 25 feet of the BVW. As a result, significant groundwater inputs from the adjacent BVW are anticipated. There are no construction details provided for these walls; however, they are shown on the detail sheets as being segmented block walls.

Since the walls will allow free passage of water throughout a majority of the blocks, groundwater flow will impact the capability of the downgradient subsurface infiltration systems from functioning in accordance with the Standards. In addition, the Applicant should disclose the limits of work and potential BVW and groundwater impacts associated with the blasting (fracturing of bedrock).

RJOC: Cross-section details of the walls in the earth cut areas have been provided on Sheet C-15. The grading at the rear of Building 1 has been revised to raise the parking area and reduce the cut in that area. The excavation for the installation of the wall will include a geosynthetic clay liner on the face of the cut slope prior to backfilling with the existing soil. The clay liner will extend below proposed finish grade a nominal distance as a means to restrict the flow of water through the wall. The earth cuts in these areas will be 8 to 10 feet maximum. Based on the available soil test pits the shallowest rock appears to be at or about the same depth or deeper. No significant blasting will be required that will fracture bedrock, and we do not anticipate any adverse impacts to groundwater.

BETA2: There is no test pit data provided behind Buildings No. 1 or 2 to support the assumption that no significant blasting will be required. A majority of the deeper test pits are located within the valley close to the wetlands edge, where these geologic conditions are expected. BETA does not believe that the clay liner will effectively eradicate all the groundwater issues at the subdrains behind the proposed walls. Other design options inside the 50-foot Buffer Zone behind Buildings No. 1 & 2 requiring less blasting, or no blasting, should be presented to the Commission to minimize the likelihood of hydrologic impacts the adjacent wetlands. Alternatively, the Applicant should provide credible data that supports that no blasting is required under the current design. In addition, BETA recommends that all subdrain outlets be identified and located to ensure that they do not discharge towards the proposed infiltration BMPs.

- SW2. Several subsurface infiltration systems are within the 50-foot minimum setback from BVW per the Massachusetts Stormwater Handbook (the Handbook) including PSIS 4, 5, 7 & 8. These infiltration systems must be relocated to comply with the design requirements of the Handbook.

RJOC: The infiltration systems have been relocated to provide a 50-foot minimum setback from BVW. (Note: the infiltration system adjacent to the clubhouse (PSIS-7) has been removed from the design).

BETA2: Comment addressed.

- SW3. In accordance with Volume 2, Chapter 2 of the Handbook, all subsurface structures must have an appropriate number of observation wells to monitor the water surface elevation and serve as a sampling port. In addition, each must have an entry port to allow worker access for maintenance. Provide the required observation wells and entry ports.

RJOC: Notes have been added to each of the subsurface chamber systems (infiltration and detention) details, on Sheets C-8 and C-9, stating that a minimum of 4 inspection ports shall be installed per system (to be set at 4 corners of each system). Additionally, a note has been added to each of the subsurface corrugated metal pipe infiltration system details, on Sheet C-8, stating to "provide observation manholes with 24-inch covers at all corners and inlet/outlet pipes". These observation ports and manholes will provide access for monitoring and cleaning of the systems.

Details have been provided, on the detail sheets of the revised plan set, for both the observation ports and access manholes.

BETA2: A detail for the observation risers is not shown. The access manhole detail on Sheet C-7 is specific to the pipe infiltration systems only. Show all proposed observation risers in the plan view.

- SW4. Subsurface infiltration systems 1, 2, & 6 are located 5 to 15 feet upgradient of a stormwater basin. In each case, the water surface elevation in the basin during a rainfall event will be above the bottom of the subsurface infiltration system. This standing water is likely to raise groundwater levels above the bottom of the infiltration systems and restrict the ability of the systems to infiltrate. The Applicant should revise the design accordingly.

RJOC: Stormwater basins downgrade of subsurface infiltration systems 2 and 6 have been eliminated and the stormwater calculations have been revised accordingly. Stormwater Basin-1 (SWB-1) has been reviewed and the peak stormwater elevation is below the nearby infiltration system. The peak elevation within SWB-1 is 289.85 in the 100-year design storm and the bottom of stone elevation of subsurface infiltration system-1 (PSIS-1) is 295.70, therefore a 5.85' separation is provided from peak SWB-1 elevation to bottom of stone elevation of PSIS-1. Therefore, the SWB-1 is still being proposed as part of the drainage design.

BETA2: Based on the detail for PSIS-1, the top of the system is above the proposed grade. The proposed elevations for PSIS-1 or the grades above the system should be modified to provide the cover needed for the pavement. Regardless, Stormwater Basin 1 will impact groundwater levels below PSIS-1. BETA recommends that a mounding analysis be conducted for PSIS-1 with the assumed groundwater level at the spillway crest of Stormwater Basin 1.

- SW5. Subsurface infiltration systems 1, 2, 3, 4, 5, & 8 are all located approximately 5 feet from a proposed retaining wall. In each case, the grade at the base of the wall is either at or below the bottom of the proposed infiltration system. The proposed impervious barrier along the walls near the infiltration systems must, at a minimum, extend to the bottom of the walls, down to the lowest elevation at the base of the retaining wall to avoid breakout and circumventing the full infiltration/treatment process.

RJOC: The infiltration systems have been relocated to provide greater separation from proposed retaining walls. Additionally, cross-section details have been provided on Sheet C-14 depicting that the impervious barriers shall extend to one-foot below the bottom of wall.

BETA2: Comment addressed; impervious barriers have been designed as recommended.

- SW6. Provide monitoring wells and emergency low level outlets within all stormwater basins per the Handbook.

RJOC: An emergency low level outlet has been provided in the surface stormwater basin (SWB-1), and a note has been added to the detail on Sheet C-7 stating that a monitoring well shall be installed. The proposed location of the monitoring well has been provided on Sheet C-2A.

BETA2: BETA recommends that the monitoring well be shown in plan view.

- SW7. Based on the ESHGW elevation established by test pit 40, Stormwater Basin 1 is only 0.5 feet above groundwater, where a minimum of 2 feet is required. In addition, it has been designed as an Infiltration Basin and does not meet the minimum setback of 50 feet from BVW per the Handbook. The design should be revised accordingly.

RJOC: An emergency low level outlet has been provided in the surface stormwater basin (SWB-1), and a note has been added to the detail on Sheet C-7 stating that a monitoring well shall be installed. The proposed location of the monitoring well has been provided on Sheet C-2A.

BETA2: The basin is no longer being used to meet Standards 3 & 4 and is only serving as a dry retention basin. The floor of the basin has been raised and will now be 2' above ESHGW. No further comments.

- SW8. The discharges from PSDS 1 & 2 use a proprietary separator as terminal treatment for these treatment trains. In accordance with Volume 1, Chapter 1 of the Handbook, they cannot be used as terminal treatment and will require an alternative design.

RJOC: The drainage system layouts have been revised such that a proprietary separator is not used as terminal treatment. Terminal treatment for all captured stormwater runoff is provided via infiltration. The required TSS removal is achieved.

BETA2: Comment addressed. The two subsurface detention basins each discharge through an infiltration BMP prior to discharge. No further comments.

- SW9. The designer is assuming a total suspended solids (TSS) Removal Rate of 80% for all proprietary separators being used. According to Environmental Protection Agency (EPA) studies, these separators are only 40-45% effective. Generally, these systems proposed in Franklin have only been allowed for use as a final treatment in redevelopment situations where the existing stormwater collection system is being maintained. The TSS removal rate should only be 44% for all proprietary separators in the TSS removal calculations in the report.

RJOC: The TSS calculations have been revised to use a removal rate of 44% for all proprietary separators and the resulting calculations reflect full compliance with the regulations.

BETA2: Based on the proposed use of the proprietary separators for pretreatment, all the proposed discharges will meet the requirement for 80% TSS removal required under the Standards. However, the total TSS Removal provided by the development will not be 92% as reported. A separate TSS removal calculation should be presented for each discharge point. The designer should also note that the required pretreatment cannot be used in the calculations for the total treatment provided by the train.

- SW10. There are no hydrologic/hydraulic calculations provided for the 2 stream crossings. BETA recommends that this analysis be provided for review to ensure appropriate capacity and avoidance of potential issues related to scour, erosion, and flooding.

RJOC: A hydrologic/hydraulic calculation has been provided for the 2 stream crossings and is included in Attachment # 5 of this response letter. The calculations illustrate that the culverts at the stream crossings are more than adequately sized to handle the upstream flows for the 100-year design storm (an exhibit has also been included in Attachment #5 depicting the limits of offsite tributary areas to the intermittent streams).

BETA2: Comment addressed.

- SW11. CB-4 should be moved to the low point in the intersection to improve the angle into DMH-6.

RJOC: CB-4 has been relocated accordingly.

BETA2: No further comments.

SW12. The connection from CB-41 to DMH-29 is an acute angle which is opposite to the flow direction out of the manhole and should be corrected to a more obtuse angle.

RJOC: The connection has been revised accordingly.

BETA2: Comment addressed.

MASSDEP STORMWATER STANDARDS

The project is subject to the Massachusetts Stormwater Standards (310 CMR 10.05(6)(k-m)) as outlined by MassDEP. The Project's compliance with these Standards is outlined below:

NO UNTREATED STORMWATER (STANDARD NUMBER 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 proposes 7 new outfalls which will discharge stormwater runoff to the 2 intermittent streams that bisect the parcel. The runoff from the development around Building #1, Building #2, and the clubhouse area will flow into the proposed stormwater basins prior to discharge. These basins will function as infiltration basins; however, they provide no treatment benefits due to their proximity to BVW (i.e., within 50 feet). The final discharge location for these structures is within 25 feet of the BVW.

SW13. The stone sizing calculations for the riprap aprons were not included in Appendix B as noted in the legend.

RJOC: Rip-Rap Apron Sizing Calculations have been provided within Appendix B of the revised stormwater report.

BETA2: The nomographs are provided; however, the D₅₀ for each of the outfalls was not plotted. Complete the analysis and document that the rip rap size proposed is within the design conditions for Figure 1 of the appendix.

SW14. The impervious surface area tributary to DCB-50 exceeds ¼ of an acre and therefore does not conform with the design requirements in Volume 2, Chapter 2 of the Handbook.

RJOC: The proposed grading in this area has been revised and an additional catch basin has been added upgradient to decrease the tributary area to that DCB.

BETA2: Comment addressed. However, it should be noted that in several instances the catch basins provided are CDS units which discharge directly to the infiltration BMP. In those instances, the TSS removal associated with the deep sump catch basin is not available to be used in the train.

POST-DEVELOPMENT PEAK DISCHARGE RATES (STANDARD NUMBER 2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.* The Project proposes an increase in impervious area and changes to existing hydrologic patterns. Stormwater runoff will be directed to 8 new subsurface infiltration structures, 3 subsurface detention basins, and 3 stormwater basins. Stormwater Basin 1 has been designed as an infiltration basin. Calculations indicate a decrease in peak discharge rate and runoff volume to all onsite watersheds as a result of the Project.

SW15. The time of concentration (T_c) calculations for the existing conditions analysis are understated. As correctly noted in the report, T_c should be based upon the longest **time** of travel, not necessarily the longest distance. BETA recommends that the Applicant reassess flow paths, especially for the initial sheet flow path and slope.

RJOC: The Tc calculations for the existing conditions have been reviewed and minor adjustments have been made to the hydrologic analysis model within Appendix B of the revised stormwater report.

BETA2: BETA recommends that the designer review the paths again for the two existing watersheds towards DP-2 and DP-3. Compliance with Standard 2 is close and minor changes in the Tc could influence the design conclusion.

- SW16. The use of curve number (CN) values associated with hydrologic soil group (HSG) D within the central portion of the Site should be limited to areas of BVW. Several of the test pits performed in this area indicate that soils are classified as HSG A.

RJOC: The limits of designated HSGs used in the stormwater analysis are based upon the National Resources Conservation Services (NRCS) online web soil survey. These HSG designations provide estimates of runoff potential from the upper soils as described in the Massachusetts Stormwater Handbook Volume 3: Chapter 1, Page 13:

“For undisturbed soils in Massachusetts, NRCS has assigned each soil type to a Hydrologic Soil Group. However, that classification is based on the upper and not lower soil horizons.”

The onsite soil testing performed by RJOC, which yielded a Sand or Loamy Sand, HSG A soil, was required to determine the soil texture in the lower soil horizons (parent material) for infiltration system design. This does not represent the runoff potential from the upper soil horizons when calculating site hydrology. Therefore, the NRCS HSG designations, as depicted on the web soil survey, were used for determining the CN values for the analysis of stormwater runoff.

BETA2: The Ridgebury soils series are listed as HSG-C by Plymouth County. In addition, the description of the series by NRCS states that depth to dense till commonly is 36-49 cm and that “they normally occur in drainageways in uplands...”. Each of these descriptions fits the wetlands through the site and none of the test pits outside the limits of the wetlands confirm the presence of dense till. Comment remains.

- SW17. The stormwater basins are all retention basins with only an emergency spillway, however there is no discussion regarding dewatering between events. BETA recommends that a positive means of dewatering be provided for these basins.

RJOC: The drainage design has been revised to eliminate all surface stormwater basins, except for Stormwater Basin-1 (SWB-1). Calculations have been provided depicting that SWB-1 will drawdown within 72-hours, additionally an emergency drawdown outlet has been provided.

The locations of the formerly proposed surface stormwater basins are to be used for temporary sediment basins during construction (as depicted on Sheets C-1A through C1-D) but are to be removed/filled and the area revegetated after site stabilization. Final grading on Sheets C-2A and C-2B depict positive slopes away from outlets.

BETA2: Comment addressed. Based on the underlying soil beneath SWB-1, BETA agrees with the designer’s assessment.

- SW18. There is no opportunity for maintenance for the subsurface detention systems. Since they are lined with no opportunity for infiltration, the storage volume is critical to their success in meeting this Standard. Although the flow into these systems is treated by proprietary separators, their limited capabilities based on the EPA’s analyses indicate that the sediment which flows through these systems from the pavement areas will impact overall storage capacity over time. BETA

recommends that the Applicant review the design and find alternative above-ground means of providing storage to attenuate peak flow rates, which can be effectively maintained long-term.

RJOC: The subsurface detention systems will be maintained in the same manner as the subsurface infiltration systems, as noted in the O&M within Appendix E of the revised stormwater report. Monitoring of the systems for any sediment accumulation will be performed through the observation ports in the systems. As noted above, the flows are treated using deep sump catch basins and proprietary separators to remove 58% TSS prior to entering these systems. In the event there is sediment observed within the system of more than 3" of average depth, maintenance will occur through the observation ports. The maintenance is accomplished using a high-pressure water nozzle in an observation port to suspend the sediments and then the vacuuming of the water and sediments through an adjacent observation port to remove the sediments. Sewer and pipe maintenance companies have vacuum/Jet Vac combination vehicles to perform this maintenance.

BETA2: As documented by the EPA, the proprietary separators have difficulties with suspended solids which will tend to fill the voids in the stone. To ensure that the suspended solids do not impact the voids in the underlying stone, BETA recommends the use of a filter fabric wrap around the inlet row in the system. It is referred to as an "Isolator Row" by Storm Tech. This will ensure that the suspended solids remain in the first row and can be vacuumed as noted.

RECHARGE TO GROUNDWATER (STANDARD NUMBER 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable.* NRCS soil maps indicate that soil in the area of proposed modifications is predominantly Charlton-Hollis-Rock Outcrop Complex with HSG A & B ratings depending on the slope. The center of the Site, which is coincidental with BVW complexes, is a Ridgebury Fine Sandy Loam with rating of HSG C/D. Test pits conducted at the Site by the Applicant indicate that the entire site is shallow to bedrock. Only 3 test pits (7, 42, & 43) achieved 10 feet of depth without encountering ledge, while all others encountered refusal from 6 to 9 feet in depth. The layer above the ledge varies from a loamy sand to a sand.

Recharge is proposed via 8 new subsurface infiltration systems and 1 infiltration basin, which will capture runoff from most of the proposed impervious surface areas. The proposed systems will provide a recharge volume in excess of what is required by the Standards per the Applicant's documentation. Drawdown calculations indicate that the subsurface basins will drain within 72 hours.

SW19. In accordance with the Handbook, 2 test pits are required within the footprint of each proposed infiltration system. Additional test pits are required within the footprint of 5 of the subsurface infiltration systems to meet this requirement.

RJOC: After the reconfiguration of the drainage design noted previously, a minimum of 2 test pits are provided within the footprints or within reasonable proximity of all infiltration systems. For Stormwater Basin-1, PSIS-2 and PSIS-7 there has been extensive soil investigation in the area, as outlined below:

- *PSIS-2: 1 test pit within the system and 3 additional within 50' of the system.*
- *PSIS-7: 1 test pit within the system and 2 additional within 15' of the system.*
- *SWB-1: 4 test pits within 30' of the bottom of the basin.*

RJOC believes the soil testing performed in close proximity to each of these systems provide evidence that the soil types and groundwater elevations used in the design as accurate.

BETA2: Based on the revised configuration of the infiltration BMPs, BETA agrees that no additional soil testing is required for the design. However, BETA offers the following regarding **PSIS-3:**

- The description for TP-7 states that ESHGW was established by the soil evaluator based on the depth to weeping. However, in TP-8, redoximorphic features were observed with no weeping visible. In each test pit, the C Horizon is described as sand. Due to the lack of redoximorphic features in TP-7, BETA recommends that a *Frimpter* adjustment be conducted for this ESHGW determination.

SW20. There are no calculations provided to verify the static storage volume provided in the subsurface systems. The stage-storage table for each system should be provided to verify the volumes shown in the appendix.

RJOC: The stage-storage tables for each system have been provided within Appendix B of the revised stormwater report.

BETA2: Comment addressed.

SW21. The overall impervious surface area at the Site should be developed to ensure that at least 65% of these surface areas are directed to an infiltration structure.

RJOC: Calculations illustrating that at least 65% of the impervious surface area is being directed to the infiltration facilities are provided within Section 9.2 of the stormwater report.

BETA2: Comment addressed.

TOTAL SUSPENDED SOLIDS (STANDARD NUMBER 4): For new development, stormwater management systems must be designed to remove 80% of the annual load of Total Suspended Solids (TSS). The Project will treat areas of pavement with deep sump catch basins, proprietary filters, and infiltration structures. As a Site with a rapid infiltration rate (>2.4 in/hr), the Project is required to treat the 1 inch water quality volume (WQV) and provide at least 44% TSS removal prior to discharge to an infiltration BMP.

SW22. The pretreatment cannot be included in the total treatment rate provided by the treatment train and must be isolated. The TSS Removal sheets should be modified appropriately including a separate sheet to identify the pretreatment provided.

RJOC: The TSS removal sheets, in Appendix B of the revised stormwater report, have been updated accordingly and illustrate compliance with the removal requirements

BETA2: See SW8 above.

HIGHER POTENTIAL POLLUTANT LOADS (STANDARD NUMBER 5): Stormwater discharges from Land Uses with Higher Potential Pollutant Loads (LUHPPLs) require the use of specific stormwater management BMPs. The project is not considered a LUHPPL - **standard not applicable.**

CRITICAL AREAS (STANDARD NUMBER 6): Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. A portion of the Project is located within a critical area. These standards will be applicable to the development. – **standard met.**

REDEVELOPMENT (STANDARD NUMBER 7): Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. The project is not considered a redevelopment – **standard not applicable.**

EROSION AND SEDIMENT CONTROLS (STANDARD NUMBER 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.* Due to the Project proposing to disturb over 1 acre of land, the Applicant will be required to file a Notice of Intent with the EPA and develop a Stormwater Pollution Prevention Plan (SWPPP). Erosion control measures are depicted on the submitted plans including silt fencing, mulch socks, catch basin inlet protection, stabilized construction entrances, and temporary sedimentation basins.

SW23. BETA recommends that a draft SWPPP be submitted to the Commission for their review given the density of the Project, with specific phasing.

RJOC: A draft SWPPP has been provided in Appendix D of the revised stormwater report.

BETA2: Comment addressed.

SW24. The design indicates that swales with stone check dams will be used along the edge of the BVW. Based on the existing and proposed grades, the Applicant should depict the proposed grading of swales to ensure that they can be installed and be effective in protecting the BVW during the construction process.

RJOC: The plans have been revised to provide proposed spot elevations along the temporary drainage swales on Sheets C-1A and C-1B which shows they can be installed as shown. As noted in the plans the location of erosion and sediment controls within the construction limits will be relocated as necessary during construction to protect the resource areas and surrounding undisturbed areas.

BETA2: Comment addressed.

OPERATIONS/MAINTENANCE PLAN (STANDARD NUMBER 9): *A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.* A Stormwater Operation and Maintenance (O&M) Manual was provided with the Stormwater Management Report.

SW25. Provide an annual budget for O&M.

RJOC: An annual budget of \$15,000-\$20,000 has been provided within the O&M.

BETA2: Comment addressed.

SW26. The O&M Plan should be signed by the Applicant.

RJOC: The applicant has signed the O&M Plan.

BETA2: Comment addressed.

SW27. The manufacturer's maintenance requirements for the proprietary separators should be included in the plan.

RJOC: The manufacturer's maintenance requirements has been added to the O&M, in Appendix E of the revised stormwater report.

BETA2: Comment addressed.

ILLICIT DISCHARGES (STANDARD NUMBER 10): *All illicit discharges to the stormwater management system are prohibited.* An Illicit Discharge Compliance Statement was provided with the submission.

SW28. The Illicit Discharge statement should be signed.

RJOC: The applicant has signed the illicit discharge statement.

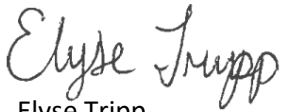
BETA2: Comment addressed.

REVIEW SUMMARY

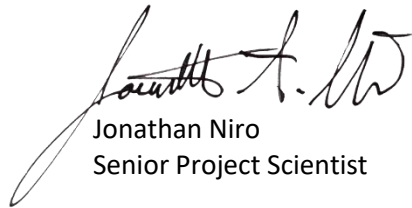
Based on our review of the NOI submittal and Project plans, the Applicant has not submitted sufficient information to describe the Site, the work, and the effects of the work on the interests of the Act. In addition, the Project does not presently comply with the Massachusetts Stormwater Management Regulations.

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

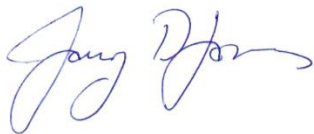
Very truly yours,
BETA Group, Inc.



Elyse Tripp
Scientist



Jonathan Niro
Senior Project Scientist



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

cc: Amy Love, Town Planner
Bryan Taberner, AICP, Director of Planning & Community Development
Matt Crowley, P.E., BETA

Attachments:

Attachment A: 2007 Final Decision *In the Matter of Hoosac Wind Project*