

August 21, 2025

Tyler Paslaski, Permitting Specialist
Town of Franklin Conservation Commission
355 East Central Street
Franklin, MA 02038

**Re: 444 East Central Street
MassDEP File No. Not Yet Issued
Notice of Intent Peer Review #2**

Dear Mr. Paslaski:

BETA Group, Inc. (BETA) has reviewed revised documents and plans for the Notice of Intent (NOI) seeking approval for the construction of a 40B multifamily residential development and associated site features (the Project) at **444 East Central Street** in Franklin, Massachusetts (the Site). This letter is provided to present BETA's findings, comments and recommendations.

As noted by the Applicant, the Project's status as a 40B development precludes compliance with local bylaws if waived by the Zoning Board of Appeals. BETA has prepared this letter with the assumption that local Conservation Commission and stormwater management bylaws / regulations will be waived; therefore, compliance with these bylaws and regulations are not addressed.

BASIS OF REVIEW

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

- Response Letter entitled **Response to BETA Comments – Notice of Intent Peer Review**; prepared by Goddard Consulting, LLC and Allen & Major Associates, INC.; dated July 28, 2025. Attachments include:
 - WPA Form 3;
 - Regulatory Compliance Analysis;
 - Plans (10 Sheets) entitled **Existing Flood Plain Volume Exhibit**; prepared by Allen & Major Associates, INC.; dated June 18, 2025; unstamped and unsigned; and
 - Restoration, Replication and Mitigation Plan;
- Drainage Report entitled **40B Multi-Family Site Development**; prepared Allen & Major Associates, INC.; dated February 7, 2025 revised June 11, 2025, and July 21, 2025; stamped and signed by Carlton M. Quinn, MA P.E. No. 49923.
- Plans (43 Sheets) entitled **Civil Site Plans For: 40B Multi-Family Site Development**; prepared by Allen & Major Associated, INC. dated February 11, 2025 and revised through July 21, 2025; signed and stamped by Carlton M Quinn MA P.E. No. 49923 and Andrew J Ruggles, MA PLS. No. 58014.

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

- Site Visit on June 27, 2025
- **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
- **Chapter 300: Subdivision of Land From the Code of the Town of Franklin**, adopted September 29, 1986
- **Town of Franklin Best Development Practices Guidebook**, dated September 2016

PEER REVIEW UPDATE – AUGUST 21, 2025

The Applicant has provided revised materials and written comment responses pursuant to BETA’s July 10, 2025 peer review letter. BETA’s original comments from the July 10, 2025 peer review letter are included in plain text. Comment responses attributed to Goddard Consulting, LLC. (GC), are provided in *italics* and are prefaced with “GC:”. Comment responses attributed to Allen & Major Associated, INC. (AM), are provided in *italics* and are prefaced with “AM:”. BETA’s most recent responses are provided in **bold** and are prefaced with “**BETA2:**”. Responses provided by Goddard Consulting, LLC that exceed a paragraph in length are not provided within this letter for readability. Where responses are not provided, a note is provided to reference the attached original letter from Goddard Consulting, LLC.

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 15-acre Site is located at 444 East Central Street and consists of one (1) parcel identified as Map 284 Lot 066-000 in Franklin, Massachusetts. The Site is bounded to the north by East Central Street, to the west by commercial buildings and undeveloped forested areas, to the south by undeveloped forested areas and wetland complexes, and to the east by residential homes. The Site has historically been the operating location of Stobbart’s Nurseries, Inc. and includes several associated permanent and temporary structures within the northern portion of the Site. The southern, eastern, and western portions of the Site consist of undeveloped forested areas and wetland complexes. Stone, waste/compost, and fill piles are present in various locations throughout the Site.

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:

- Bank/Mean Annual High Water (MAHW);
- Bordering Vegetated Wetlands (BVW);
- Land Under Water (LUW);
- Bordering Land Subject to Flooding (BLSF);
- Riverfront Area (RA); and
- Isolated Vegetated Wetlands (IVW).

The boundaries of onsite Resource Areas were previously confirmed by an Order of Resource Area Delineation (ORAD) issued under MassDEP File No. 159-1306 on April 1, 2025. These boundaries include:

- Flags GCB1 to GCB15 (IVW);
- Flags GCC1 to GCC22 (IVW);

- Flags GCD1 to GCD31 (IVW);
- Flags GCA1 to GCA109 (BVW);
- Flags GCE1 to GCE9 (BVW);
- Flags GCMAWH A1 to GCMAHW30 (Bank/MAHW)
- Flags GCMAHW B1 to GCMAHW B19 (Bank/MAHW)
- Flags GCMAHW C1 to GCMAHW C107 (Bank/MAHW);
- Flags GCMAHW D1 to GCMAHW D4 (Bank/MAHW); and
- Portions of the onsite BLSF.

The Site is not located within any Surface Water Protection Areas (Zone A, B, or C), or Zone I, or Interim Wellhead Protection Areas. The Site is located 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 of the following soil type at the Site, Scarboro and Birdsall soils, 0 to 3 percent slopes with a Hydrologic Soil Group (HSG) rating of , 3 to 8 percent slopes, extremely stony slope with a Hydrologic Soil Group (HSG) rating of C/D, Freetown Muck, 0 to 1 percent slopes with a HSG rating of B/D, Merrimac fine sandy loam, 0 to 3 percent slopes with a HSG rating of A, Merrimac fine sandy loam, 3 to 8 percent slopes with a HSG rating of A, and Sudbury fine sandy loam, 2 to 8 percent slopes with a HSG rating of B.

Proposed work is associated with the construction of a 40B multi-family development consisting of four (4) residential buildings and one clubhouse buildings, surface parking, five (5) garage buildings, a dog park, two (2) stream crossings, stormwater management system, a dock, and other Site features (collectively referred to as “the Project”). More specifically, proposed activities include:

- Installation of a crushed stone-stabilized construction entrance;
- Stakeout of the grading and clearing limits and initiation of clearing;
- Installation of erosion and sediment controls;
- Demolition of existing structures;
- Removal of existing vegetation;
- Installation of the stormwater management system;
- Reuse of two (2) existing stream crossings;
- Installation of proposed roadways and pavement throughout the Site;
- Construction of the proposed buildings;
- Installation of utilities;
- Construction of a pool;
- Construction of a dock within the river;
- Construction of a wetland replication area
- Placement of loam and seed in all temporarily disturbed areas;
- Installation of Site features including lighting, bike racks, and fencing;
- Installation of plantings; and
- Removal of erosion and sediment controls following inspection by the Conservation Commission.

As reported by the Applicant, Project will result in direct impacts to the following Resource Areas:

- 385 square feet of impacts to Bordering Land Subject to Flooding;

- 211,010 square feet of impacts to Riverfront Area;
- 7,145 square feet of impacts to Isolated Vegetated Wetlands; and
- 100-foot Buffer Zone to BVW.

The Project proposes 1,682 square feet of compensatory flood storage to mitigate fill within BLSF and also proposes 7,145 square feet of wetland replication to mitigate for the fill of IVW.

BETA2: Impacts have been updated to include the following:

- **16.5 linear feet of impacts to Bank;**
- **72 square feet of impacts to BVW;**
- **160 square feet of impacts to LUW;**
- **2,580 square feet of BLSF and 4,131 cubic feet of flood storage lost; and**
- **370,970 square feet of impacts to Riverfront Area.**

Proposed mitigation has been updated to include the following:

- **12.5 linear feet of replacement of Bank;**
- **6,180 square feet of replacement of BVW; and**
- **6,604 square feet of replacement of BLSF and 15,957 cubic feet of replacement of flood storage.**

ADMINISTRATIVE AND PLAN COMMENTS

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

Table 1. NOI Plan

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

PLAN AND GENERAL COMMENTS

- A1. The Massachusetts Department of Environmental Protection (MassDEP) has not issued a DEP file number as of this writing.

GC: Goddard has reached out to MassDEP Central Regional Office to confirm that they have received all necessary materials and to inquire about the status of the issuance of a file number.

BETA2: MassDEP has not issued a DEP file number as of this writing.

- A2. The proposed tree line is currently only depicted on the Layout & Material Plan. Depict the proposed tree line on all sheets.

GC: Site plans have been revised to depict the proposed tree line on all relevant sheets.

BETA2: Comment addressed.

- A3. Resource Area impacts (both permanent and temporary) should be clearly labeled on the Project plans.

GC: A Resource Area Impacts plan sheet has been added to the plan set to illustrate impacts to resource areas proposed.

BETA2: Proposed impacts to IVWs and some impacts to BLSF have been depicted on Sheet EXH-5; however, Riverfront Area impacts; all BLSF impacts; LUW, Bank, and BVW impacts associated with the dock; and impacts associated with invasive species removal have not been depicted or quantified. The Applicant should confirm if impacts associated with invasive species removal have been quantified and included on the WPA Form 3 and within any provided impact summary. With regard to BLSF impacts, the Applicant appears to show alteration to some areas that are not currently designated as BLSF. As noted later in this letter, the boundary of BLSF may change upon further analysis of the floodplain. Comment remains.

- A4. Provide a note on the plans referencing the approved ORAD in effect for the Site.

GC: General Note #31 on Abbreviations and Notes Sheet C-001 has been added noting "An Order of Resource Area Delineation (ORAD), DEP File #159-1306, was issued for this site on April 1, 2025."

BETA2: Comment addressed.

- A5. Update the WPA Form 3 to include the proposed amount of fill within BLSF. The supporting calculations for BLSF fill should be summarized in a single table that discloses proposed fill, proposed cuts, and the resulting flood storage capacity at each elevation. The plan sheets depicting flood storage volumes are helpful but need to be summarized for the Commission to fill out an Order of Conditions.

GC: WPA Form 3 has been updated to more thoroughly and accurately represent alterations and replacements proposed within resource areas. A single table summarizing proposed fill and cut is provided in the revised Regulatory Compliance Analysis. Please see plan sheets depicting existing and proposed floodplain volumes, as well as quantities of cut and fill proposed within the floodplain, attached to the Regulatory Compliance Analysis.

BETA2: Comment addressed.

WETLAND RESOURCE AREAS AND REGULATORY REVIEW

BETA has completed a regulatory review of the submitted documents and plans, focusing on compliance with the regulations set forth in the Act.

The NOI application includes narrative information describing the Project and plans depicting the proposed work. BETA recommends that the Applicant review and address the comments in this letter related to the delineation of degraded RA, compliance with the RA Performance Standards, mapping of BLSF, and compliance with the BLSF Performance Standards prior to addressing other comments as these may have impacts of the proposed design. The proposed design also presents some constructability challenges that may result in additional Resource Area impacts and therefore warrants a closer review of grading and realistic limits of work. The Applicant will also be required to provide additional information on specific Project aspects such as the proposed dock, as the associated Resource Area impacts have been omitted from analysis in the NOI.

The Applicant has proposed several mitigation measures including the use of erosion controls, installation of a stormwater management system, construction of a wetland replication area even when not required by the Act, management of invasive species, planting of native vegetation, and preservation of land for conservation purposes. However, the submitted information documenting the proposed mitigation measures including the management of invasive species is not detailed enough to provide meaningful metrics for implementation or success and require additional consideration by the Applicant.

At this time, the Applicant has not provided sufficient information to demonstrate compliance with the provisions of the Act.

BETA2: The Applicant has provided plan updates and the submission of additional documentation to respond to BETA's previous comments regarding details of proposed work activities, providing realistic extents of grading and erosion controls, demonstrating compliance with applicable Performance Standards, and mitigation measures including invasives species management.

At this time, the Applicant has not resolved several comments from BETA's original letter that are critical to demonstrating compliance with the Act. Specifically, BETA is providing further justification in this letter as to why a floodplain analysis is warranted (notwithstanding FEMA's July 2025 mapping updates) and the necessity to correctly evaluate RA compliance on the Site, regardless of whether the Applicant elects to review the Site under 310 CMR 10.58(5) alone or in conjunction with 310 CMR 10.58(4). The RA Performance Standards evaluation, in BETA's opinion, will also require the Applicant to re-delineate the extents of degraded RA at the Site as previously requested. In addition, further details on invasive species management, construction of the proposed dock, and compliance with LUW/Bank Performance Standards are required.

It is recommended that the Applicant prioritize addressing comments related to BLSF and RA, as these may have impacts on the proposed design.

CONSTRUCTION COMMENTS

W1. The Project, as currently depicted, will disturb more than one (1) acre of land; therefore, a Notice of Intent (NOI) must be submitted to the Environmental Protection Agency (EPA) under the Construction General Permit (CGP) and a Stormwater Pollution Prevention Plan (SWPPP) must be prepared. The Commission could consider a Special Condition within the Order of Conditions that requires the submission of the SWPPP for review and approval prior to the commencement of work.

GC: The Applicant is aware that the project, as proposed, will be subject to jurisdiction under the EPA CGP and a SWPPP must be prepared. As noted by BETA, there are specific federal regulations already in place that the Applicant must adhere to, so the Applicant does not think this special condition is necessary, but ultimately defers to the Commission.

BETA2: BETA defers to the Commission on including a Special Condition within the Order of Conditions that requires the submission of the SWPPP for review and approval prior to the commencement of work. The Commission has historically required this on large development projects.

W2. The construction stockpile/staging area is currently depicted within the 200-foot RA with erosion controls surrounding a portion of the area. The construction stockpile/staging should be relocated out of the Resource Areas. If this is not feasible, erosion controls should be depicted around the entire stockpile/staging area within Resource Areas.

GC: Site plans have been revised to relocate stockpile and staging areas outside of the 200-ft Riverfront Area.

BETA2: Comment addressed.

- W3. The Applicant should provide further information on the proposed construction of the dock within the perennial stream including how the dock will be constructed and details on the structures proposed within the stream/LUW; any permanent and temporary impacts to Resource Areas (Bank, LUW, and BVW) associated with the construction of the dock; and how the dock will be maintained. Sufficient information has not been provided to permit the construction of the dock.

GC: Landscape Plans have been updated to provide all requested information as it relates to the design and construction of the dock including details illustrating the structures proposed within the stream/LUW and impacts to the Resource Areas (Bank, LUW and BVW). The dock and gangway are planned to be a prefabricated product similar or equal to the product line offered by the manufacturer, EZ-Dock (image included for illustrative purposes). The dock is low-maintenance, durable, and slip-resistant made of polyethylene. As such, maintenance is limited to sweeping the surface of the dock clean, and as it's a modular system, can be easily disassembled and stored as/if necessary during winter months.

BETA2: The Applicant provided sufficient information on the proposed dock. Proposed Resource Area impacts associated with the dock should be shown on Sheet EXH-5. Should the Commission approve the construction of the dock, it is recommended that a Special Condition requiring the removal and appropriate storage of the dock during winter months be included in the Order of Conditions.

Although not directly under the Conservation Commission's purview, the onsite stream may qualify as a "navigable waterway" per the Massachusetts Public Waterfront Act (Chapter 91) and therefore require a Chapter 91 license. It is recommended that a Special Condition be included in the Order of Conditions that requires the Applicant to either provide the Commission with a copy of the Chapter 91 License prior to construction of the dock or to provide written confirmation from MassDEP that the waterway does not qualify as "navigable". MassDEP is the only entity that can make the determination of navigability under the Chapter 91 program.

- W4. The proposed location of erosion controls conflict with proposed structures/grading at the following locations:

- FES1;
- FES5;
- FES6;
- FES7;
- The proposed dock;
- Retaining wall construction north of flag C50;
- The riprap proposed along FES8; and
- The grading near flag A10.

The proposed work and/or locations of erosion controls should be revised as necessary to resolve these conflicts.

GC: The erosion control line has been updated to avoid conflicts with proposed work.

BETA2: Comment addressed.

W5. The proposed work does not appear constructable without some level of temporary and/or permanent impacts to facilitate access and sufficient space to work at the following locations:

- FES1;
- The retaining wall north of C50;
- FES4;
- The proposed dock;
- The grading north of flag A40;
- FES3;
- FES5; and
- The placement of riprap north of flag A90.

The proposed design should be revised to either avoid impacts at these locations, or the associated impacts should be disclosed and appropriately mitigated. Particular attention should be given to the proposed retaining wall, as over excavation is required to install the leveling pad and place impervious fill per the detail provided.

GC: Locations of proposed features have been revised to limit impacts. The only unavoidable impacts are associated with the construction of the retaining wall north of flag A40. These impacts are now disclosed on the Resource Area Impacts plan sheet, which has been added to the plan set to illustrate permanent and temporary impacts proposed.

BETA2: All previously mentioned locations where impacts would be required have been revised with the exception of the retaining wall north of flag C50 and the proposed dock. Impacts associated with the retaining wall are shown on the Resource Area Impact Plan sheet. Impacts associated with the proposed dock are not depicted on the Resource Area Impact Exhibit. The Applicant should depict all proposed impacts on the Resource Area Impact Exhibit and confirm all associated narratives and the WPA form have been updated to reflect proposed impacts.

W6. The Project will require a significant area of earthwork. Provide a phasing plan to supplement the erosion control plan that limits the total area of disturbance at the Site at any time, with provisions to temporarily stabilize previous phases as appropriate before further advancing work.

GC: Detail regarding construction sequencing has been added to plan sheet C-002.

BETA2: Comment remains. Phasing to limit disturbance was not provided within the construction sequence. The Applicant notes that the schedule of work will be completed by the site contractor. The Commission could consider including a Special Condition requiring the chosen site contractor to provide a final construction sequence with phasing of construction, including temporary stabilization measures, prior to the commencement of work.

W7. Proposed snow storage is shown within the 100-foot Buffer Zone of the A Series wetland. Relocate snow storage outside of the 100-foot Buffer Zone to wetlands where feasible.

GC: Snow storage areas have been removed from within the 100-foot Buffer Zone of the A Series wetland.

BETA2: Comment addressed.

W8. The work proposed over the existing southern stream crossing (i.e., north of flag C50) depicts proposed linework that appears to denote a new culvert. The Applicant should clarify the intent at this location. If no new crossing is proposed, provide a cross section that demonstrates that

proposed utilities can be installed without conflicting with the existing pipe. Should the Applicant propose a new crossing, documentation of compliance with the Massachusetts Stream Crossing Standards to the extent practicable is required, and the plans will need to be supplemented with additional details, water control provisions, etc.

GC: No new stream crossing culverts are proposed, nor do the plans indicate such – perhaps the linework in the previous plan set was unclear. Regardless, a cross section of the stream crossing has been added to the plans illustrating utilities can be installed without conflicts with the existing pipe.

BETA2: Comment addressed. As noted on the provided profile, a Structural Engineer will be required to confirm the foundation, which will need to be constructed with the existing pipe placed through it. BETA recommends that a Special Condition be included in the Order of Conditions that requires the Applicant to secure an Amended Order of Conditions in the event that replacement of the pipe (or a section thereof) is required.

- W9. The northern stream crossing is proposed to be reused, and the existing piping will remain in place. BETA recommends that the engineer of record provide a statement certifying the condition of the pipe and the structural capacity to support the loading of the pavement courses, vehicular traffic, and construction equipment.

GC: The Applicant is amenable to a condition of approval requiring a statement from a structural engineer indicating the structural capacity of the northern stream crossing can support the loads. This can be provided prior to the commencement of construction.

BETA2: Comment addressed; see GC Response and W8 BETA2 for the recommended Special Conditions.

- W10. Use of silt fencing is traditionally not accepted by the Franklin Conservation Commission. BETA concurs with the use of the 12-inch compost filter tube as noted in the details. Additional controls will be required should the dock construction be pursued.

GC: Plans have been revised to remove silt fencing. Plans have been coordinated accordingly with the further detailed dock plans.

BETA2: Comment addressed.

MITIGATION COMMENTS

- W11. The Applicant has stated that invasive species including common reed (*Phragmites australis*), glossy buckthorn (*Frangula alnus*), Japanese knotweed (*Fallopia japonica*), and bittersweet (*Celastrus orbiculatus*) are present at the Site. During BETA's Site visit, these species and the following additional species were observed: purple loosestrife (*Lythrum salicaria*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), Norway maple (*Acer platanoides*), autumn olive (*Elaeagnus umbellate*), winged euonymus (*Euonymus alatus*), and bush honeysuckle (*Lonicera spp.*). These species were observed in areas proposed for development, but no formal invasive species removal plan has been provided for these species. The Applicant should provide information regarding the removal¹ of all invasive species at the site to ensure further spread does not occur during construction.

¹ Where invasive species removal/control/management is referenced in these comments, it is understood that complete long-term eradication is not intended by the Applicant's proposal.

GC: The management methods proposed are applicable to all identified invasive species on site. The Restoration, Replication and Mitigation Plan has been updated to reflect this and to provide additional detail regarding preferred management techniques and access considerations. An Invasive Species Management Coordination Plan (sheet L0) has also been added to the Landscape Plans which depicts the areas in which invasive species management is proposed.

BETA2: The Applicant should state if excavation is proposed within Resource Areas as a method to remove invasive species; if so, these impacts should be quantified. Within the ongoing management section, it is stated that mowing is a viable management option for continued maintenance. Japanese knotweed is a species that can vegetatively sprout by any fragment of the plant. This plant should not be mowed as it can cause the spread of the species. This should be detailed in any ongoing maintenance plans. With regard to the invasive species management plan as a whole, it does not appear that Site-specific recommendations for treatment are provided for specific areas of the Site. For example, there are general note about herbicide use, but it is anticipated that the Conservation Commission would want the Applicant to avoid herbicide use within wetlands to the extent feasible. In addition, it does not appear that the landscape plans capture all areas of the Site with invasive species populations (i.e., directly along the Bank of the onsite stream).

The Commission could consider requiring the Applicant to prepare a more Site-specific invasive species management plan during the public hearing process. Alternatively, the Commission could consider including a Special Condition in the Order of Conditions that requires this to be prepared prior to construction for review and approval.

- W12. The Applicant should provide the locations and areal extent of invasive species proposed for removal and provide additional details on the means and methods of removal in the submitted invasive species management plan. Dense stands of common reed are present along the Banks of the River and will require specific access and treatment considerations. Significant invasive species control efforts will be required along the River to ensure that the adjacent native plantings and restoration areas are not compromised. It is recommended that areas subject to invasive species management be monitored for at least three (3) growing seasons to document the efficacy of the control efforts.

GC: Additional details regarding invasive species management methods, especially with regard to the Phragmites and Japanese knotweed along the Banks of the River, have been added to the Restoration, Replication and Mitigation Plan. An Invasive Species Management Coordination Plan (sheet L0) has also been added to the Landscape Plans. Applicant is amenable to monitoring for three (3) growing seasons.

BETA2: See BETA2 response to Comment W11.

- W13. Areas proposed to be vegetated with native, herbaceous species should be monitored for at least three (3) growing seasons to demonstrate successful establishment and limited invasive species pressure. This could be conducted concurrently with the recommended invasive species control monitored noted above.

GC: This monitoring requirement has been incorporated into the Restoration, Replication and Mitigation Plan.

BETA2: Comment addressed. This could also be incorporated as a Special Condition in the Order of Conditions.

- W14. A monitoring protocol should be submitted by the Applicant to address the recommendations above for the Commission's review and approval. This protocol should include monitoring frequency, methodologies, corrective actions, metrics for success, and reporting schedule.

GC: The above monitoring protocols have been incorporated into the Restoration, Replication and Mitigation Plan.

BETA2: The Applicant should provide specific contents of the monitoring reports and metrics for determining success as it relates to the invasive species management plan. Comment remains.

- W15. It is recommended that areas subject to native plantings/restoration be mowed only once per year during late fall; this could be included as a Special Condition. If so, it is recommended that signage be required to demarcate these areas and this requirement in the field.

GC: The Applicant is amenable to the inclusion of a Special Condition prohibiting the wholesale mowing of naturalized areas more than once per year in late fall; however, mechanical removal of invasive species in these areas, including mowing, may be implemented for invasive species management purposes in limited portions of these areas. Due to these areas not being contiguous, installing signage is not practical.

BETA2: To ensure the success of native species and to support native fauna, mowing should not occur as a removal method for invasive species within naturalized areas. Invasive species found throughout naturalized areas should either be hand removed or treated with herbicide using a cut and treat method.

Signage could still be installed to demarcate the extents of naturalized areas, even if fragmented. BETA defers this to the Commission.

- W16. The species proposed for planting throughout the Site have been provided; however, the proposed quantity of native shrubs, native ferns & grasses, and native herbaceous plants should be provided within the plant schedule.

GC: Quantities of proposed plantings have been added to the plant schedules on Sheets L2.1-L2.3 of the landscape plans.

BETA2: Comment addressed.

- W17. The species include in the proposed seed mixes that will be used for stabilization should be provided on the plans.

GC: The species included in proposed seed mixes has been provided on the plans.

BETA2: Comment addressed.

- W18. Provide additional information on the preservation of land at the Site, including the legal means of preserving the land; the responsible entity for monitoring compliance with any deed restrictions or conservation restrictions; and an Operation and Maintenance Plan that ensures protection of Areas Subject to Protection/Jurisdiction under the Act. Any related Project facets that may be required to support this endeavor (i.e., establishing trails and posting signage) should also be disclosed.

GC: The southern portion of the site as depicted on the exhibit in the NOI submittal will be divided off as its own unbuildable lot and deeded to the Town of Franklin under the ANR process, to be approved by the ZBA under the Comprehensive Permit. As the Applicant will no longer own the land,

future management of the property is at the discretion of the Town. The Applicant is amenable to post signage along the southerly edge of the parking lot in front of the land to be deeded. Details for this signage can be coordinated with the Commission and can be added to the Plans in the next resubmission.

BETA2: BETA recommends the Commission include Special Conditions within the Order of Conditions stating that the transfer of property must occur prior to the commencement of work and that the Applicant must provide the Commission with a signage plan for review and approval, which the Applicant will then implement at their expense.

W19. BETA offers the following comments regarding the wetland replication area:

- a. The Applicant should provide the species within the proposed seed mix to be used in the Wetland Replication Area.
- b. The access point to the proposed wetland replication area should be demarcated on the plans to ensure the adjacent wetland is not impacted.
- c. Erosion controls should be depicted around the northern and eastern side of the wetland replication area to ensure sedimentation from adjacent grading work does not enter the existing wetland complex.
- d. A note should be provided requiring the Wetland Scientist to contact the Commission for review and approval of the final grades and proposed planting stock prior to planting. This could be included as a Special Condition in the OOC.
- e. The Applicant is proposing the reuse of the soil within the IVW that is proposed to be filled; however, the NOI states that invasive species are present within the existing IVW. It is recommended that the soil used in the wetland replication area be invasive species free to ensure the success of the wetland replication area.
- f. The monitoring requirements should include a requirement to document development of hydric soils and hydrology. In addition, the monitoring protocol should include corrective actions as necessary to ensure success of the area. BETA recommends that the monitoring period occur over three (3) growing seasons.

GC: The project team has made the following revisions to wetland replication plans:

- a. *The species included in the seed mix proposed in the replication area has been added to the site plans. See also response to comment W17.*
- b. *The site plans have been updated to show that access to the replication area will be obtained via an existing cart path to limit disturbance to the greatest extent possible. The access path will be seeded upon completion.*
- c. *Erosion controls surrounding the replication area are now shown on the plans.*
- d. *A note has been added for the supervising wetland scientist to call for inspection and approval of completed grades and planting stock in the replication area.*
- e. *The narrative has been updated to indicate that soil originating from areas known to support invasive species shall not be reused.*
- f. *The monitoring requirements have been expanded and more clearly described.*

BETA2: Comment addressed.

WPA PERFORMANCE STANDARDS COMMENTS

According to WPA Form 3, the Project proposes 385 square feet of alteration to Bordering Land Subject to Flooding and 211,010 square feet of alteration to Riverfront Area (98,400 within the 0-100 foot RA and 112,610 within the 100- 200 foot RA) and is required to comply with the applicable Performance Standards set forth in the Act. Additionally, the Project proposes the installation of a dock within the onsite BVW, Bank, and LUW.

- W20. Invasive species proposed for removal including common reed and Japanese knotweed are present within the BVW and Bank associated with the onsite perennial stream. The Applicant should clarify if temporary impacts to Resource Areas will occur as a result of removing this vegetation. The Applicant should also clarify if supplemental plantings are proposed within Resource Areas where vegetation is removed.

GC: Temporary impacts in the form of invasive species management are likely to occur with the management of invasive vegetation. The Restoration, Replication and Mitigation plan has been updated to specify that native potted plants and/or native seed mix shall be placed in these areas if invasive vegetation is sufficiently managed that areas become unvegetated; however, the likelihood of this being a problem is believed to be low.

BETA2: Impacts related to the removal of invasive species should be quantified. The Applicant should determine if excavation of invasive species, specifically those that spread via rhizome, will occur within Resource Areas.

BANK (310 CMR 10.54)

- W21. Impacts to Bank associated with the installation of the proposed dock should be quantified and details regarding how the Project complies with the Performance Standards set forth in Act should be provided. Construction of a dock is considered a Limited Project under 10.53(3j) if all applicable standards are met.

GC: Proposed impacts to Bank for the installation of the dock amount to 4 lf (i.e. the width of the gangway). The impact does not consist of direct alteration, only the overhanging dock walkway. Nevertheless, this aspect of the project is eligible to be treated as a Limited Project under 10.53(3j). The dock has been selected to ensure that its minimal width does not materially effect the amount of light reaching below, such that vegetation is maintained.

310 CMR 10.53(j) states that limited projects may be permitted, such as, “[t]he construction and maintenance of catwalks, footbridges, wharves, docks, piers, boathouses, boat shelters, duck blinds, skeet and trap shooting decks and observation decks; provided, however, that such structures are constructed on pilings or posts so as to permit the reasonably unobstructed flowage of water and adequate light to maintain vegetation,” among others.

BETA2: The Applicant did not provide information on how the project complies with the Performance Standards set forth in 310 CMR 10.54(4). The Limited Project provisions are at the discretion of the Commission and require the Applicant to demonstrate that the Performance Standards are met to the maximum extent practicable. Comment remains.

BORDERING VEGETATED WETLAND (310 CMR 10.55)

- W22. Impacts to BVW for the installation of the proposed dock should be quantified and details regarding how the Project complies with the Performance Standards set forth in Act should be

provided. Construction of a dock is considered a Limited Project under 10.53(3j) if all applicable standards are met.

GC: Proposed impacts to BVW for the installation of the dock amount to 32 sf. The impact consists primarily of the overhanging dock gangway, and a minor direct impact for the installation of piles. Nevertheless, this aspect of the project is eligible to be treated as a Limited Project under 10.53(3j) as described in our response to comment W21.

BETA2: The Applicant states in the BVW Performance Standards narrative that 40 square feet of BVW impacts are proposed associated with improvements on the stream crossing; however, impacts associated with the installation of the dock are not mentioned. All proposed impacts should be quantified and discussed within the Performance Standard narrative and shown on the Resource Area Impact Exhibit.

LAND UNDER WATER (310 CMR 10.56)

W23. Impacts to LUW for the installation of the proposed dock should be quantified and details regarding how the Project complied with the Performance Standards set forth in the Act should be provided. Construction of a dock is consider a Limited Project under 10.53(3j) if all applicable standards are met.

GC: Proposed impacts to LUW for the installation of the dock amount to 160 sf. The impact consists only of shading caused by the dock float. This impact is unlikely to have any adverse impact, as no significant amount of aquatic vegetation is present within LUW in this area. Nevertheless, this aspect of the project is eligible to be treated as a Limited Project under 10.53(3j) as described in our response to comment W21.

BETA2: The Applicant did not provide information on how the project complies with the Performance Standards set forth in 310 CMR 10.56(4) and has not depicted proposed LUW impacts on the Resource Area Impact Exhibit.

BORDERING LAND SUBJECT TO FLOODING (310 CMR 10.57)

W24. The Applicant should provide further information regarding how the extent of BLSF at the Site was determined, as the ORAD only approved portions of the BLSF at the Site. Given the number of stream crossings / hydraulic restrictions present at the Site, this evaluation should be prepared by a Professional Engineer with experience in hydraulics. The Commission may require more up to date engineering information than what is provided by FEMA per (310 CMR 10.57(2)(a)3., particularly given the presence of a Zone A with no published base flood elevation.

GC: This response has not been provided in this letter for readability. Please see GC's response to this comment within the attached document.

BETA2: Regarding the Applicant's assertion of recorded/observed flood events, no tangible evidence has been provided to depict conditions related to any storm event at the Site. Therefore, a conflict exists in that no credible data of Site conditions relevant to the floodplain has been provided to support the Applicant's stance of the extent of flooding in a Zone A. It is BETA's position that the Commission reserves the right to require a floodplain analysis to accurately confirm the extents of BLSF at the Site. In addition, the Applicant mentions that a Zone X was present at the Site at the time of their writing, which is used as a basis to claim that the 100-year floodplain cannot also be present in that area. As noted in the Applicant's

response, there was no NFIP data in that portion of the Site; therefore, it is not accurate to accept the Zone X designation as a matter of fact.

As of July 8, 2025, FEMA has updated the map panel 25021C0309F to depict that a Zone A with no Base Flood Elevation (BFE) is present throughout the Site. Therefore, it is BETA's opinion that the change in floodplain mapping further supports the request for an analysis to accurately determine a BFE for the Site. It is BETA's understanding that the Applicant indicated to the Town via email on August 20, 2025 that this analysis would be performed in the coming weeks.

- W25. The Applicant stated that no significant wildlife habitat is present in the area of proposed work within BLSF. However, according to 310 CMR 10.57(1)(a)3, areas of BLSF located within the 10-year floodplain or within 100 feet of a Bank or BVW (whichever is further away) are presumed to be significant to the protection of wildlife, unless they have been extensively altered by human activity as defined in the regulations. While some portions of the BLSF within 100 feet of the Bank and BVW appear to meet the definition of "altered", portions of BLSF where work is proposed do not. Therefore, the Applicant should depict the 10-year floodplain boundary and quantify impacts to BLSF as appropriate to determine if a wildlife habitat evaluation is warranted.

*GC: As is necessary for human safety and vehicular access, the existing southern stream crossing needs to be bolstered. This area is the only location where fill is proposed within BLSF. Figure 3 below, dated 3/7/2025, depicts the approximate location of fill within BLSF in yellow. Goddard believes that this work clearly is proposed in an extensively human-altered area. The majority of this work area is comprised of a hardpacked gravel access roadway. Vegetation is limited, but the dominant vegetation in this area is common reed (*Phragmites australis*) and Japanese knotweed (*Fallopia japonica*), both invasive species that provide little habitat value.*

BETA2: As of July 8, 2025, FEMA has updated the map panel 25021C0309F showing a Zone A with no Base Flood Elevation (BFE) is present throughout the Site. The Applicant should provide an updated regulatory review of work proposed within BLSF, which should reflect the floodplain analysis that is anticipated to be performed by the Applicant.

RIVERFRONT AREA (310 CMR 10.58)

- W26. The Applicant should provide further information regarding the assertion that 153,170 square feet of the existing RA is degraded. BETA agrees that some areas of the RA are considered degraded as pavement, debris piles, and absence of topsoil were observed; however, several areas that are shown as degraded by the Applicant were determined to be non-developed/not degraded, as topsoil and vegetation are present. It is recommended that the Applicant reassess vegetated areas of the RA to determine if topsoil is present in all areas currently depicted as degraded. MassDEP precedent has established that the presence of topsoil can be a primary determining factor of whether RA is degraded². BETA has attached a field sketch with photographs to this letter for reference.

Compliance with Performance Standards should be reevaluated once these revisions are complete.

² Superseding Order of Conditions issued under MassDEP File No. 002-1015 (Attached)

GC: While the presence or absence of topsoil can be a factor for determining whether riverfront area is degraded, it is not the only consideration. The WPA regulations at 310 CMR 10.58(5) state that degraded riverfront area can be comprised of "impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds." Here, junkyards and abandoned dumping grounds define much of the area of degradation. Therefore, such areas are considered degraded by virtue of being junkyards or abandoned dumping grounds, regardless of the presence or absence of topsoil therein.

At this juncture, Goddard has not yet performed a follow-up site visit to review BETA's recommendations regarding existing degraded areas. This will be completed in the coming weeks. Regardless, the total square footage of the degraded areas in question would not amount to enough to impact whether the project remains compliant with the Performance Standards under 310 CMR 10.58(5).

BETA2: Comment remains. Areas of dumping are present throughout the site; however, areas determined as degraded by the Applicant on both the eastern and western side of the stream were not observed to, in BETA's opinion, qualify as "junkyards". Further, impervious surfaces are not present in these areas, and the presence of topsoil was observed. The Applicant should reassess the delineation of degraded versus non-degraded areas at the Site prior to completing their analysis of RA Performance Standards compliance.

W27. Areas of the RA that are not considered degraded are subject to the Performance Standards at 310 CMR 10.58(4). Details regarding how the Project complies with these Performance Standards set forth in the Act should be provided. As noted in the Superseding Order of Conditions referenced in Comment W26, a single Site can be evaluated under both 310 CMR 10.58(4) and (5) depending on the degraded status of different areas.

GC: This response has not been provided in this letter for readability. Please see GC's response to this comment within the attached document.

BETA2: Comment remains. The Applicant states in their response that RA at the site "consists predominantly of junkyards, absence of topsoil and dumping grounds." However, the figure provided by the Applicant shows that 178,830 sf of RA is degraded and 191,000 sf of RA is vegetated and considered non-degraded. BETA conducted a Site visit to specifically review RA, and it was determined based on field observations that several areas delineated by the Applicant as degraded RA are vegetated, have topsoil, and do not consist of junkyards or impervious surfaces (See W26, BETA2). Further, several of the Applicant's submitted documents provide different values for RA areas and impacts at the Site and should be corrected to the accurate values.

The disagreement between BETA and the Applicant on the RA Performance Standards provision is based in application. While BETA has specifically been asked by MassDEP to evaluate Sites under both sets of RA Performance Standards, the Applicant could elect to evaluate the Site under 310 CMR 10.58(5) if performed correctly. BETA's initial review recommended the use of both provisions at the Site due to several key issues identified with the Applicant's assessment of compliance under 310 CMR 10.58(5):

- The Applicant will be required to re-delineate the extents of degraded RA at the Site and depict these areas on the Project plans, as the delineation currently shown is incorrect based on BETA's Site observations. The proposed work and supporting

calculations should be overlaid onto this plan as previously requested to confirm that impacts are being quantified correctly.

- According to the Applicant's documentation, the majority of the RA on the west side of the Site is non-degraded, while BETA found the entire area to be non-degraded. In either scenario, the Project plans depicts work within 100 feet of the MAHW of the River where no degraded areas are currently present, which is non-compliant with the provisions of 310 CMR 10.58(5)(c).
- In reviewing the plans, it is clear that essentially the entirety of the outer 100-foot RA on the western side of the River (which BETA identified to be entirely non-degraded) will be subject to the proposed work. This would likely require far more restoration of RA than is currently proposed, and it is critical that the Applicant note that conducting restoration of RA in the interest of getting "credits" to alter non-degraded areas must consist of the restoration of currently degraded areas. Several areas of restoration are sited within non-degraded areas, and several areas of degraded RA are not proposed for restoration. The "Proposed Conditions in Riverfront Area" figure should be revised to include all areas of proposed work per 310 CMR 10.58(5)(d). Per this provision, the allowable area of proposed work does not only include proposed degraded areas.

It is recommended that the Applicant reevaluate compliance with RA Performance Standards, regardless of if one or both sets of Performance Standards are applied.; however, the reassessment of the delineation of degraded versus non-degraded areas should be completed first.

STORMWATER MANAGEMENT REVIEW

The proposed stormwater management design consists of six proposed underground infiltration systems (UIS) to be located throughout the development. Stormwater runoff will be conveyed to these systems via a closed drainage system consisting of catch basins, manholes, water quality units, trench drains, and roof drains. Overflow from the systems will be conveyed through outlet control structures to new outfalls which discharge to the existing perennial stream that flows across the property (A, B, and C Series wetlands).

GENERAL

- SW1. Identify rim elevations on drain structure tables and ensure that adequate separation is provided between the rim and invert elevations.

AM: The grading and drainage plan was revised to include rim elevations on the drain structure table.

BETA2: BETA recommends that the designer review the structure table. Several catch basins have less than 2.5' to the invert (CB Nos. 1,2, 4C, 9A, 9B, 9D, 18) which may not be buildable.

- SW2. Provide map delineating watershed areas for each of the proposed catch basins to verify data in structure table.

AM: The Catch Basin Watershed Exhibit (EXH-3) has been added to the Civil Plan Set. This plan illustrates the delineated watershed areas contributing to each catch basin.

BETA2: Comment addressed.

- SW3. Review hydraulic calculations for drainage pipes. Several pipe spans appear to be absent from the calculations. Ensure that drain pipes conveying stormwater runoff from offsite locations are adequately sized to prevent flooding of adjacent properties.

AM: All drainage piping has been added to the HydroCAD model. All drain pipes conveying stormwater runoff from abutters have been proposed to meet existing pipe capacities (size and slope) or been included in the pipe sizing analyses.

BETA2: The drainage piping design has been presented in the Hydro-CAD analysis. The calculations demonstrate that for most of the piping, the water surface elevations in the manholes are controlled by the tailwater conditions created by the proposed subsurface infiltration systems. Submergence of the collection system during a 100 Year frequency storm is normally anticipated, however in this design this situation occurs during the 10-year storm. In some instances, the tailwater effects are so significant that the velocities are less than 1.0 ft/sec (DMH 27) yet for a 2-year storm velocities in the same manhole are 3.35 ft/sec. BETA recommends that the collection system be designed to convey the 10 year design event similar to the 2 year storm flow conditions where the flows through the culverts are not controlled by the tailwater conditions.

- SW4. Review hydraulic calculation for the pipe segment between DMH21WQU to DMH20. The required capacity is greater than the provided capacity.

AM: Hydraulic calculations for pipe segments have been reviewed to confirm adequate capacity.

BETA2: See SW3 above

- SW5. Provide a label and invert information for the proposed DM to be installed on top of the existing drainage line, located directly west of the proposed pool. In addition, provide the data associated with the existing stormwater facilities on the adjacent lot at 440 East Central Street to ensure that this proposed connection does not interfere with the performance of the existing stormwater facilities.

AM: Invert information has been added to the drain manholes intercepting the drainage lines from 440 East Central Street that are discharged on the applicant's parcel. Proposed drainage pipes have been designed to match or exceed the drainage capacity of the existing pipes to confirm they will not interfere with the performance of the existing stormwater facilities.

BETA2: Comment addressed

- SW6. Identify the existing invert for the existing catch basin upstream of DMH25. Confirm that the outlet invert for DMH25 has been selected to maintain positive drainage from this existing catch basin to the new outfall.

AM: The existing invert has been identified on the plans, and the proposed design maintains positive drainage from the existing catch basin to the new outfall.

BETA2: Provide calculations which document the hydraulic capability of the existing catch basin is not impacted by the extension. In addition, BETA recommends that the watershed data for these 2 culverts be developed and routed through SP-2.

- SW7. Indicate the disposition of existing pipe segments and outfalls associated with offsite drainage connections from the west and all culvert crossings. Clearly indicate which segments are to be retained and which will be abandoned or removed.

AM: Plans have been updated to clearly indicate which segments of existing pipes will be retained.

BETA2: Comment addressed.

- SW8. Provide catch basin catchment and pipe size calculations to determine adequacy of grate inlet capacity and pipe sizes to accommodate 25-year storm event.

AM: A grate inlet capacity has been provided in the drainage report.

BETA2: See SW3 above.

- SW9. Review all locations where drainage and sewer utilities cross. Inverts for the proposed sewer system appear to be at a similar elevation to the proposed drainage, and therefore conflicts may occur at crossings. Recommend depicting all inverts on a single plan to evaluate conflicts.

AM: Sewer and drainage crossings have been called out on the utilities plan.

BETA2: Comment addressed

- SW10. Provide details for trench drain.

AM: A detail for the gravel trench drain has been provided.

BETA2: Trench drain detail has been provided; however, BETA recommends that surface elevations be shown on sheet C-103A for the trench at the northeast property line. It is difficult to see if the trench works with the grades on the abutting parcel.

- SW11. BETA recommends that the proposed outfalls be pulled back to the edge of fill and allow existing vegetation to be maintained to help stabilize the area prior to discharge. In addition, invert elevations at these outfalls should be noted on the plans.

AM: The proposed outfalls have been pulled back to the edge of fill to the maximum extent possible. The invert elevation of the outfalls has been added to the grading and drainage plan.

BETA2: Comment resolved.

- SW12. Consider providing a grate or similar measure at outfalls and culverts to prohibit access by pedestrians and wildlife.

AM: The proposed pipe outfalls are not large enough for access to pedestrians.

BETA2: BETA will defer this issue to the Commission.

- SW13. Evaluate if fencing or a similar barrier is needed along the proposed retaining walls and the crest of the slope along the perennial stream for pedestrian safety.

AM: The layout and materials plan were revised to show fall protection fencing on top of the retaining walls for pedestrian safety. Please see sheet C-507 for details of the wall with fence protection.

BETA2: No further comments

- SW14. Indicate any existing or proposed easements for the conveyance of stormwater across property lines. The proposed stormwater management system includes piped connections from the

abutting lot to the west, and the perennial stream and culverts carry stormwater runoff from offsite properties.

AM: There are no existing or proposed drainage easements on the site.

BETA2: There are 2 pipes that discharge onto the site from the abutting parcel at 440 East Central Street. As indicated by the response, there are no existing or proposed easements associated with either culvert. In addition, there are no calculations which indicate what the flow characteristics through these culverts will be. BETA recommends that calculations be provided which show that the proposed improvements will not impact the hydraulic capacity of the existing culverts. (See SW6 above)

MASSDEP STORMWATER STANDARDS

The project is subject to the Wetlands Protection Act and therefore must comply with the Massachusetts Stormwater Standards as outlined by MassDEP. Compliance with these standards is outlined below:

LOW IMPACT DEVELOPMENT (LID) TECHNIQUES

The project does not include any LID techniques as identified in the MA Stormwater Handbook.

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 eight new outfalls (FES 1 thru FES-8) which will discharge to locations immediately upgradient of wetlands. Stormwater runoff to these outfalls from on-site sources will first be treated by a subsurface infiltration system. Stormwater runoff from off-site sources will typically not receive treatment. Riprap aprons are proposed to mitigate erosion potential.

SW15. Provide calculations for sizing of riprap aprons, including stone sizing.

AM: Riprap sizing calculations have been provided.

BETA2: Calculations not found and detail on page C-504 does not call out the size and/or pad dimensions. Comment remains.

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 to mitigate increases to runoff rates with the use of subsurface infiltration systems. Calculations indicate a decrease in peak discharge rate to each study point.

SW16. Provide table comparing pre- and post-development runoff volumes for each design point.

AM: A table of pre- and post-development volumes has been provided in the drainage report.

BETA2: Comment addressed.

SW17. Revise watershed plans such that the soil group labels are not obstructing important existing and proposed information.

AM: The soil group labels on the existing and proposed watershed plans were revised to not obstruct the existing and proposed information.

BETA2: Comment addressed.

SW18. Revise node numbers for Ponds in HydroCAD model to clarify which system is being referred to. UIS4 is titled "Underground Chamber #5" and UIS5 is titled "Underground Chamber #6".

AM: The node numbers for ponds UIS5 and UIS6 were revised to correctly reflect the drainage system labels in the grading and drainage plan.

BETA2: Comment addressed.

SW19. Revise HydroCAD model to include UIS #4. This system's catchment area is anticipated to include portions of subcatchment P-2. Overflow from this system should be routed to Pond CC: Culvert Crossing.

AM: The proposed HydroCAD model was revised to include UIS #4. The proposed subcatchment "CB2" was added to delineate the outdoor area, which includes a paved pathway that was included in the model.

BETA2: Comment addressed

SW20. Revise the pre-development HydroCAD model to also include Pond CC: Culvert Crossing, modified for existing grading, for consistency between the pre- and post-development models.

AM: All culvert crossings have been added to both pre- and post-development models.

BETA2: Comment addressed.

SW21. Provide ponding analysis at 2nd culvert crossing also to ensure that the wetlands are not providing any attenuation capability more than the existing conditions. In addition, flood levels associated with Uncas Brook should be considered in the hydraulic calculations associated with the culverts.

AM: The stream crossings have been added to the model and provide ponding elevations.

BETA2: The ponding analysis is not complete because it does not include any flow from the watershed on the north side of East Central Street, nor does the calculation account for the potential flood levels in Uncas Brook. The calculations assume free discharge on LP2 and the real issue is that there are 2-24" culverts at the first crossing and only 1 at the second. In addition, there is no data shown on the plans relative to any of the existing structures at either location, including the outfall from East Central Street.

BETA has queried the USGS StreamStats for this site. The peak flow rates from the hydro cad analysis when compared with the StreamStats results are:

Storm frequency	2-year	10-year	100-year
Peak flow rates from Hydro Cad Analysis			
1st crossing	0.83 cfs	2.24 cfs	6.88 cfs
2nd crossing	0.78 cfs	2.08 cfs	7.42 cfs
Peak flow rate crossing East Central Street from StreamStats			
Inlet from East Central	11.7 cfs	26.9 cfs	54.8 cfs

Based on StreamStats, the watershed tributary to the East Central Street culvert is 109+ acres. Based upon the statistics, the contribution from the site to the peak flood flows through the site are not significant. However, the potential impact of the backwater effects of the flooding in the stream on the proposed stormwater improvements and/or the project itself must be

reviewed. This is extremely important because the proposed grading at the 2 crossings has elevated the roadways sufficiently that they now have the capability of raising flood levels to Elevation 278.0. This would inundate the entire site above the second crossing, a few of the abutters, and East Central Street. A copy of the StreamStats report for the crossing at East Central Street is attached hereto.

SW22. There are several isolated depressions on the site that should be considered in the existing conditions analysis.

AM: The existing conditions model has been updated to include low points in the analysis.

BETA2: Comment addressed.

SW23. Review routing for subcatchment P-13. Based on the grading and drainage plan, a portion of this subcatchment will be captured by the trench drain, but the majority of stormwater runoff will flow, unhindered, onto the Site for conveyance to UIS-1 or UIS-5.

AM: The subcatchment areas have been updated.

BETA2: This subcatchment area has been relabeled but it appears that the comment has been addressed.

SW24. Provide spot grades at the driveway entrance at East Central Street to confirm that roadway runoff will not be conveyed onto the Site.

AM: The grading and drainage plan was revised to show existing and proposed spot grades to ensure roadway runoff will not be conveyed onto the proposed site. The proposed design now incorporates a high point at the property line.

BETA2: Comment addressed.

SW25. Provide spot grades at internal “corners” along parking lot curbs, particularly around landscaping islands, to ensure positive drainage towards catch basins.

AM: Spot grades have been added to the plans.

BETA2: Comment addressed.

SW26. Review model for Subcatchment P-2. The plans indicate a paved pathway through this area that is not represented in the model.

AM: The subcatchment areas have been updated.

BETA2: Areas corrected. No further comments.

SW27. Review model for Subcatchments P-3, P-5, and P-6. The areas modelled as paved parking are inconsistent between the plans and the model.

AM: The subcatchment areas have been updated.

BETA2: Comment addressed.

SW28. Revise subcatchments E-5, E-6, E-7, P-10, P-12, and P-13 to use actual cover types, based on aerial imagery and survey data, rather than the more generic “1/4 acre lot” cover type.

AM: The cover types for subcatchment areas located off the property have been updated to accurately reflect the existing land cover based on aerial imagery

BETA2: Comment addressed.

SW29. Review soil group ratings utilized in the hydroCAD models. NRCS mapping indicates an HSGR of A for the majority of the Site, yet the hydroCAD model utilizes an HSGR of B.

AM: We selected the HSGR rating of A, based on evidence gathered through field investigations. Specifically, test pits excavated on-site revealed predominantly sandy soils. In addition, textural analyses confirmed low fines content, further supporting the classification. These findings collectively justify the assigned HSGR and ensure consistency with observed site conditions.

BETA2: Comment addressed.

SW30. Provide calculations for time of concentration for all subcatchments, rather than assuming a minimum TC of 6 minutes or other “direct entry” values. The designer is reminded that the Tc for a watershed is the greatest travel time, not distance, especially in the existing conditions analysis.

AM: The time of concentration values for each of the subcatchments are revised.

BETA2: Review the Tc flow paths for E-1 & E-6 which would apply also for P-5 & P-6.

SW31. Identify the weir elevation for proposed outlet controls structures on the plans to ensure consistency between the hydroCAD model and the design.

AM: Weir elevations for the proposed outlet control structures have been added to the plans.

BETA2: Comment partially addressed. Review DMH14OCS, the weir elevation is noted on sheet C-103B as 1.0’ higher than the rim.

SW32. Review HydroCAD model for UIS-1, UIS-2, UIS-3, UIS-4. The outlet invert elevation, and in some cases, the pipe diameter, is inconsistent with the plans.

AM: The HydroCAD and UIS system elevations on the plans have been coordinated.

BETA2: Comment addressed.

SW33. Clarify outlet design for UIS-3, UIS-4, and UIS-5. The models for each system identify two 9.0” vertical orifices/grates for each system. These orifices must be identified on the plans to ensure consistency between the model and the design.

AM: The outlet control design has been added to the plan set.

BETA2: The plan view does not identify the size of the orifices at these outlets. Comment remains.

SW34. Provide calculations for sizing of trench drain to ensure that offsite runoff will be captured, rather than bypassing the drain and flowing into UIS-1.

AM: The gravel trench drain outlet pipe has been added to the HydroCAD model to ensure proper sizing.

BETA2: See SW10 above.

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 indicates the presence of various soil groups predominantly including Merrimac fine sandy loam with Hydrologic Soil Group Rating (HSGR) A (high infiltration), Scarboro and Birdsall soils with HSGR A/D

(high infiltration when unsaturated, very low infiltration when saturated), and Sudbury fine sandy loam with HSGR B (moderate infiltration).

Test pits conducted at the Site indicate that subsurface soils are generally sand, with some areas of loamy sand or sandy loam. A Rawls Rate of **8.27** in/hr has been utilized in design of the subsurface infiltration systems. Groundwater (weeping, standing water, and/or redoximorphic features) was detected in test pits to varying depths ranging from 1.33 feet below grade to 5.83 feet below grade.

Groundwater recharge is proposed via six new subsurface infiltration systems. The project is expected to provide a recharge volume in excess of what is required. Calculations have been provided indicating five of the six SCMs will drawdown within 72 hours.

SW35. Recommend a condition that an agent of the town observe native soils after excavation for basins to confirm design assumptions.

AM: The applicant takes no exception to an agent of the town observing the excavation prior to infiltration installation as a condition of approval.

BETA2: BETA will defer this issue to the Commission

SW36. Provide plan identifying the location of previously completed test pits. Clarify if soil tests were completed in the footprint of proposed infiltration areas.

AM: The Test Pit Exhibit (EXH-1) has been added to the Civil Plan Set. This plan includes the locations and results of both previously completed and recently conducted test pits, as well as boring locations and monitoring wells. The proposed drainage system footprints are also shown to clearly demonstrate that the test pits were performed within the areas of the proposed drainage system.

BETA2: Comment addressed

SW37. Test pit logs identify two separate logs each for TP-112 and TP-113. Correct the labels as necessary.

AM: The compiled test pit log forms have been revised to correct the duplicate entries for TP-112 and TP-113

BETA2: Comment addressed.

SW38. The plans indicate several boring locations throughout the Site. Clarify if these borings have been completed and provide boring logs if available.

AM: The completed boring locations have been added to the Test Pit Exhibit, and the corresponding boring log information has been included in the Drainage Report.

BETA2: Comment addressed.

SW39. Test pit logs identify a depth to groundwater ranging from 1.33 ft below grade to 5.83 ft below grade. As the test pit locations are not depicted on the plans, it is unknown if shallow groundwater will conflict with the proposed systems.

AM: The test pit locations have been added to the Grading and Drainage Plans and are also provided on a separate Test Pit Exhibit for clarity.

BETA2: Based upon our review of the data, the ESHGW as noted on Sheet C-103A & B appear correct.

SW40. Based on the average depth to groundwater encountered the test pits, systems UIS-3, UIS-5 do not have adequate separation to groundwater. Review and revise these systems as necessary.

AM: Underground infiltration systems have provided at least 2' of separation to the estimated seasonal high groundwater elevations.

BETA2: No further comments.

SW41. BETA notes that test pits were conducted in May, outside of the period of probably high groundwater.

AM: It should also be noted that late spring was unusually wet this year, and high groundwater levels were recorded until early June.

BETA2: Based on USGS stream gauge data, stream flows in the region were high, thus based on the proximity of the site to Uncas Brook, BETA has no issues with the ESHGW determination.

SW42. Provide required mounding analysis where infiltration SCMs have less than 4 feet of separation to estimated seasonal high groundwater.

AM: Mounding analysis has been provided for all drainage systems and can be found in the appendix of the drainage report.

BETA2: The mounding shows that the mound is greater than 2': however, BETA recommends that the designer review the input data for the analysis. The discharge volumes do not correlate with the hydro-cad printout and the saturated thickness hydraulic conductivity appear off. In addition, all the tables are labeled UIS-1.

SW43. Provide drawdown calculations for all six subsurface systems. Only five systems are represented in the calculations.

AM: The MA DEP standard calculation spreadsheet was revised to include all the proposed subsurface systems. The calculation sheet can be found in the appendix of the drainage report.

BETA2: Comment addressed.

SW44. Recommend providing separate infiltration systems for roof runoff. These typically will require less maintenance and have a longer life span.

AM: Separate infiltration systems for roof runoff are not economically feasible on this project and are not required.

BETA2: BETA defers to the Commission on the use of the Site drainage infiltration areas for roof leader connections. However, the plans should depict the connection from the roof leaders at the rear of each building to the infiltration system if this approach is approved.

SW45. The proposed subsurface systems are to be installed in fill areas. Include a requirement to overexcavate the systems, as needed, to remove undesirable material such as fill.

AM: Drainage Note #16 has been added to C-001 stating – "Underground infiltration systems shall not be installed above fill. Contractor must over excavate unsuitable material, backfill, and compact with suitable material to be approved by the engineer and Geotech prior to construction".

BETA2: BETA recommends that the Commission add a condition which states the same.

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 includes the following treatment trains:

Treatment Train	SCM 1	SCM 2	Infiltration SCM	TSS Removal %
A	Deep Sump Catch Basin	Water Quality Unit	Subsurface Infiltration System	80%
B	Water Quality Unit w/ Inlet	None	Subsurface Infiltration System	80%

The project has been designed to provide at least 80% TSS removal for treated impervious areas. The proposed infiltration SCMs have been sized to treat the required 1-inch water quality volume.

Per Standards 5 and 6, the project is required to provide at least 44% TSS removal as pretreatment. Pretreatment is provided via deep sump catch basins and/or water quality units.

A Long Term Pollution Prevention Plan is included in the O&M Plan.

SW46. Remove pretreatment devices from TSS worksheet for total TSS; the 80% TSS provided by the subsurface system is inclusive of required pretreatment.

AM: The TSS worksheet has been revised.

BETA2: Comment addressed

SW47. Provide separate TSS Removal calculations for each outfall including pretreatment at each treatment train.

AM: The TSS worksheet has been revised to include each outfall.

BETA2: Comment addressed

SW48. Some impervious surfaces are not draining to treatment SCMs, including subcatchments P-7, P-9, and P-14. Provide required treatment for these areas.

AM: Additional mitigation has been provided to treat impervious areas.

BETA2: All the proposed impervious surfaces on site will be treated. No further comments.

SW49. Provide third party TSS removal rate documentation for proprietary water quality unit, including sizing calculations based on treatment flow rate.

AM: A third-party documentation has been provided in the drainage report.

BETA2: No further comments.

SW50. Confirm that adequate water quality volume is provided for system UIS-3. As noted in a previous comment, the impervious area proposed for subcatchment P-3 appears to be greater than what has been identified in the model. As such, the required water quality volume calculation may be inaccurate as well.

AM: The water quality volume calculations have been updated to reflect the impervious areas outlined in the Catch Basin Watershed Exhibit.

BETA2: Comment addressed.

SW51. Revise long-term pollution prevention narrative related to vehicle washing. There is a likelihood that residents may choose to wash their vehicles in the parking lot.

AM: There are no hose bibs or areas being designed for car washing on this project. The applicant takes no exception to the Commission adding a condition of approval that does not allow car washing infrastructure on this project.

BETA2: BETA will defer this to the Commission.

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 SCMs. The site is considered a LUHPPL and is thus required to comply with this standard. The project meets the additional treatment requirements for LUHPPLs (see standard 4). Subsurface structures are considered recommended SCMs for use in LUHPPLs. Source control and pollution prevention measures have been provided.*

SW52. Provide oil grit separator, sand filter, filtering bioretention area, or equivalent for treatment trains originating in any LUHPPL area. IF the water quality units are intended to meet this requirement, demonstrate that they have similar oil and grease treatment capabilities to the aforementioned controls.

AM: The water quality units and the hoods on the deep sump catch basins are intended to meet this requirement for oil and grease treatment.

BETA2: Comment addressed

SW53. Indicate means of emergency shut-off or containment prior to discharge to an infiltration SCM.

AM: A shutoff valve has been added to the inlet pipes of UIS-1. All other parking areas are not considered a LUHPPL.

BETA2: BETA does not agree with the interpretation being made by the applicant that only those portions of the site that qualify as a LUHPPL need to comply with the requirements of the standards. It is BETA's opinion that the entire site qualifies, therefore the entire site is subject. BETA recommends that shut off valves be added to all UIS inlets from the paved surfaces. Comment remains.

CRITICAL AREAS (STANDARD NUMBER 6): *Stormwater discharges to critical areas must utilize certain stormwater management SCMs approved for critical areas. The Site is located within a MassDEP mapped wellhead protection area – Zone II which is a critical area. The project meets the additional treatment requirements for critical areas (see standard 4). Subsurface structures are considered recommended SCMs for use in wellhead protection areas.*

REDEVELOPMENT (STANDARD NUMBER 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. The project does not qualify as 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. As the project proposes to disturb greater than one acre of land, a Notice of Intent will be required to file with EPA including development of a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP was not provided*

with the submission; the narrative indicates a SWPPP will be issued prior to construction. Erosion control measures are depicted on the plans including coir logs with silt fence, inlet protection, stabilized construction entrance, erosion control blanket, and designated stockpile areas with protection,

SW54. Provide measures to protect open excavations for subsurface structures during construction.

AM: As noted on sheets C-001 and C-002, excavations shall be protected with tubular barriers.

BETA2: Comment addressed.

SW55. Provide a general construction sequence including phasing of work on the plan.

AM: An estimated construction sequencing plan has been provided on sheet C-002. A more detailed phasing plan can be provided prior to construction start as a condition of approval.

BETA2: BETA recommends that submission of the SWPPP be considered as a condition.

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 Manual was provided with the Stormwater Management Report.

SW56. Provide signature(s) of the owner(s) on the Operation and Maintenance Plan (§153-18.B(5)).

AM: The Operation and Maintenance Plan has been signed by the owner.

BETA2: Comment addressed.

SW57. Include provision requiring a documentation submittal to the DPW confirming when maintenance has been satisfactorily completed (§153-18.B(6)).

AM: The applicant takes no exception to this being a condition of approval.

BETA2: BETA will defer this to the Commission

SW58. Provide map, drawn to scale, that shows the location of all stormwater SCMs in each treatment train and snow storage areas.

AM: The BMP plan (EXH-2) was added to the plan set to display all stormwater SCMS in each treatment train, as well as snow storage areas.

BETA2: The exhibit will need to be incorporated into the O & M Manual.

SW59. Include operation and maintenance requirements for trench drain and add to maintenance checklist.

AM: The stone trench drain has been added to the operation and maintenance checklist.

BETA2: Comment addressed.

SW60. Include operation and maintenance requirements for Pond CC: Culvert Crossing. This basin has been incorporated into the hydroCAD model and therefore must be maintained similar to a detention basin.

AM: The stream crossings have been added to the stormwater operation and maintenance checklist.

BETA2: Comment addressed.

SW61. Maintenance inspection ports are required on all subsurface systems which should be depicted in plan view and noted in the report.

AM: Maintenance Inspection ports were added to all subsurface systems and were noted in the drainage report.

BETA2: Because manholes have been provided at both the inlets and outlets from all subsurface systems, no further inspection ports are required and these will adequately serve as observation ports.

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

SW62. Provide owner's signature on Illicit Discharge Compliance Statement.

AM: The illicit Discharge Compliance Statement has been signed by the owner.

BETA2: Comment addressed.

REVIEW SUMMARY

Based on our review of the NOI submittal and Project plans, the Project as proposed does not fully comply with the Act or the Massachusetts Stormwater Management Standards. It is recommended that the comments herein be addressed prior to the issuance of an Order of Conditions.

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

Very truly yours,
BETA Group, Inc.



Anna Haznar
Staff Scientist



Jonathan Niro, PWS
Project Manager



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



Stephen Borgatti, PE, MENG
Senior Project Engineer

cc: Amy Love, Town Planner

Enclosed: Goddard Comment Responses
StreamStats Report



July 28, 2025

Franklin Conservation Commission
355 East Central Street
Franklin MA 02038

Re: Response to BETA Comments – Notice of Intent Peer Review
444 East Central Street, Franklin MA
(DEP File No. not yet issued)

Dear Franklin Conservation Commission,

Goddard Consulting, LLC (Goddard) is pleased to submit this letter on behalf of the Applicant, AJ Alevizos of TAG Central LLC, providing revised materials and responses to the peer review letter issued by BETA, dated July 10, 2025, in regard to the Notice of Intent (NOI) filed for 444 East Central Street, Franklin MA (Parcel ID: 284-66).

A list of attached documents is as follows:

- 444 East Central Street MassDEP NOI Peer Review, Allen & Major Associates, Inc., 7/24/2025
- Revised WPA Form 3
- Regulatory Compliance Analysis, Goddard Consulting LLC, revised through 7/28/2025, inclusive of:
 - o Existing Flood Plain Volume Exhibit, Allen & Major Associates, Inc., 6/18/2025
 - o Proposed Flood Plain Volume Exhibit, Allen & Major Associates, Inc., 7/25/2025
 - o Flood Plain Volume Cut/Fill, Allen & Major Associates, Inc., 7/25/2025
 - o Preservation Land Exhibit, Allen & Major Associates, Inc., 6/9/2025
- Restoration, Replication and Mitigation Plan, Goddard Consulting LLC, revised through 7/28/2025
- Drainage Report, Allen & Major Associates, Inc., revised through 7/21/2025
- Civil Site Plans For: 40B Multi-Family Site Development, 444 East Central Street, Franklin MA, Allen & Major Associates, Inc., revised through 7/21/2025

Sincerely,
Goddard Consulting, LLC

Chris Frattaroli
Lead Wetland Scientist

CC:
AJ Alevizos, TAG Central LLC

Goddard and the project team have reviewed the comments provided by BETA and offer the following responses.

Comment A1:

The Massachusetts Department of Environmental Protection (MassDEP) has not issued a DEP file number as of this writing.

Response:

Goddard has reached out to MassDEP Central Regional Office to confirm that they have received all necessary materials and to inquire about the status of the issuance of a file number.

Comment A2:

The proposed tree line is currently only depicted on the Layout & Material Plan. Depict the proposed tree line on all sheets.

Response:

Site plans have been revised to depict the proposed tree line on all relevant plan sheets.

Comment A3:

Resource Area impacts (both permanent and temporary) should be clearly labeled on the Project plans.

Response:

A Resource Area Impacts plan sheet has been added to the plan set to illustrate impacts to resource areas proposed.

Comment A4:

Provide a note on the plans referencing the approved ORAD in effect for the Site.

Response:

General Note #31 on Abbreviations and Notes Sheet C-001 has been added noting “An Order of Resource Area Delineation (ORAD), DEP File #159-1306, was issued for this site on April 1, 2025.”

Comment A5:

Update the WPA Form 3 to include the proposed amount of fill within BLSF. The supporting calculations for BLSF fill should be summarized in a single table that discloses proposed fill, proposed cuts, and the resulting flood storage capacity at each elevation. The plan sheets depicting flood storage volumes are helpful but need to be summarized for the Commission to fill out an Order of Conditions.

Response:

WPA Form 3 has been updated to more thoroughly and accurately represent alterations and replacements proposed within resource areas. A single table summarizing proposed fill and cut is provided in the revised Regulatory Compliance Analysis. Please see plan sheets depicting existing and proposed floodplain volumes, as well as quantities of cut and fill proposed within the floodplain, attached to the Regulatory Compliance Analysis.

Comment W1:

The Project, as currently depicted, will disturb more than one (1) acre of land; therefore, a Notice of Intent (NOI) must be submitted to the Environmental Protection Agency (EPA) under the

Construction General Permit (CGP) and a Stormwater Pollution Prevention Plan (SWPPP) must be prepared. The Commission could consider a Special Condition within the Order of Conditions that requires the submission of the SWPPP for review and approval prior to the commencement of work.

Response:

The Applicant is aware that the project, as proposed, will be subject to jurisdiction under the EPA CGP and a SWPPP must be prepared. As noted by BETA, there are specific federal regulations already in place that the Applicant must adhere to, so the Applicant does not think this special condition is necessary, but ultimately defers to the Commission.

Comment W2:

The construction stockpile/staging area is currently depicted within the 200-foot RA with erosion controls surrounding a portion of the area. The construction stockpile/staging should be relocated out of the Resource Areas. If this is not feasible, erosion controls should be depicted around the entire stockpile/staging area within Resource Areas.

Response:

Site plans have been revised to relocate stockpile and staging areas outside of the 200-ft Riverfront Area.

Comment W3:

The Applicant should provide further information on the proposed construction of the dock within the perennial stream including how the dock will be constructed and details on the structures proposed within the stream/LUW; any permanent and temporary impacts to Resource Areas (Bank, LUW, and BVW) associated with the construction of the dock; and how the dock will be maintained. Sufficient information has not been provided to permit the construction of the dock.

Response:

Landscape Plans have been updated to provide all requested information as it relates to the design and construction of the dock including details illustrating the structures proposed within the stream/LUW and impacts to the Resource Areas (Bank, LUW and BVW). The dock and gangway are planned to be a prefabricated product similar or equal to the product line offered by the manufacturer, EZ-Dock (image included for illustrative purposes). The dock is low-maintenance, durable, and slip-resistant made of polyethylene. As such, maintenance is limited to sweeping the surface of the dock clean, and as it's a modular system, can be easily disassembled and stored as/if necessary during winter months.



Figure 1: Representative photo of proposed dock.

Comment W4:

The proposed location of erosion controls conflict with proposed structures/grading at the following locations:

- FES1;
- FES5;
- FES6;
- FES7;
- The proposed dock;
- Retaining wall construction north of flag C50;
- The riprap proposed along FES8; and
- The grading near flag A10.

The proposed work and/or locations of erosion controls should be revised as necessary to resolve these conflicts.

Response:

The erosion control line has been updated to avoid conflicts with proposed work.

Comment W5:

The proposed work does not appear constructable without some level of temporary and/or permanent impacts to facilitate access and sufficient space to work at the following locations:

- FES1;
- The retaining wall north of C50;
- FES4;
- The proposed dock;
- The grading north of flag A40;
- FES3;
- FES5; and
- The placement of riprap north of flag A90.

The proposed design should be revised to either avoid impacts at these locations, or the associated impacts should be disclosed and appropriately mitigated. Particular attention should be given to the proposed retaining wall, as over excavation is required to install the leveling pad and place impervious fill per the detail provided.

Response:

Locations of proposed features have been revised to limit impacts. The only unavoidable impacts are associated with the construction of the retaining wall north of flag A40. These impacts are now disclosed on the Resource Area Impacts plan sheet, which has been added to the plan set to illustrate permanent and temporary impacts proposed.

Comment W6:

The Project will require a significant area of earthwork. Provide a phasing plan to supplement the erosion control plan that limits the total area of disturbance at the Site at any time, with provisions to temporarily stabilize previous phases as appropriate before further advancing work.

Response:

Detail regarding construction sequencing has been added to plan sheet C-002.

Comment W7:

Proposed snow storage is shown within the 100-foot Buffer Zone of the A Series wetland. Relocate snow storage outside of the 100-foot Buffer Zone to wetlands where feasible.

Response:

Snow storage areas have been removed from within the 100-foot Buffer Zone of the A Series wetland.

Comment W8:

The work proposed over the existing southern stream crossing (i.e., north of flag C50) depicts proposed linework that appears to denote a new culvert. The Applicant should clarify the intent at this location. If no new crossing is proposed, provide a cross section that demonstrates that proposed utilities can be installed without conflicting with the existing pipe. Should the Applicant propose a new crossing, documentation of compliance with the Massachusetts Stream Crossing Standards to the extent practicable is required, and the plans will need to be supplemented with additional details, water control provisions, etc.

Response:

No new stream crossing culverts are proposed, nor do the plans indicate such – perhaps the linework in the previous plan set was unclear. Regardless, a cross section of the stream crossing has been added to the plans illustrating utilities can be installed without conflicts with the existing pipe.

Comment W9:

The northern stream crossing is proposed to be reused, and the existing piping will remain in place. BETA recommends that the engineer of record provide a statement certifying the condition of the pipe and the structural capacity to support the loading of the pavement courses, vehicular traffic, and construction equipment

Response:

The Applicant is amenable to a condition of approval requiring a statement from a structural engineer indicating the structural capacity of the northern stream crossing can support the loads. This can be provided prior to the commencement of construction.

Comment W10:

Use of silt fencing is traditionally not accepted by the Franklin Conservation Commission. BETA concurs with the use of the 12-inch compost filter tube as noted in the details. Additional controls will be required should the dock construction be pursued.

Response:

Plans have been revised to remove silt fencing. Plans have been coordinated accordingly with the further detailed dock plans.

Comment W11:

The Applicant has stated that invasive species including common reed (*Phragmites australis*), glossy buckthorn (*Frangula alnus*), Japanese knotweed (*Fallopia japonica*), and bittersweet (*Celastrus orbiculatus*) are present at the Site. During BETA's Site visit, these species and the following additional species were observed: purple loosestrife (*Lythrum salicaria*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), Norway maple (*Acer platanoides*), autumn olive (*Elaeagnus umbellata*), winged euonymus

(*Euonymus alatus*), and bush honeysuckle (*Lonicera spp.*). These species were observed in areas proposed for development, but no formal invasive species removal plan has been provided for these species. The Applicant should provide information regarding the removal of all invasive species at the site to ensure further spread does not occur during construction.

Response:

The management methods proposed are applicable to all identified invasive species on site. The Restoration, Replication and Mitigation Plan has been updated to reflect this and to provide additional detail regarding preferred management techniques and access considerations. An Invasive Species Management Coordination Plan (sheet L0) has also been added to the Landscape Plans which depicts the areas in which invasive species management is proposed.

Comment W12:

The Applicant should provide the locations and areal extent of invasive species proposed for removal and provide additional details on the means and methods of removal in the submitted invasive species management plan. Dense stands of common reed are present along the Banks of the River and will require specific access and treatment considerations. Significant invasive species control efforts will be required along the River to ensure that the adjacent native plantings and restoration areas are not compromised. It is recommended that areas subject to invasive species management be monitored for at least three (3) growing seasons to document the efficacy of the control efforts.

Response:

Additional details regarding invasive species management methods, especially with regard to the Phragmites and Japanese knotweed along the Banks of the River, have been added to the Restoration, Replication and Mitigation Plan. An Invasive Species Management Coordination Plan (sheet L0) has also been added to the Landscape Plans. Applicant is amenable to monitoring for three (3) growing seasons.

Comment W13:

Areas proposed to be vegetated with native, herbaceous species should be monitored for at least three (3) growing seasons to demonstrate successful establishment and limited invasive species pressure. This could be conducted concurrently with the recommended invasive species control monitored noted above.

Response:

This monitoring requirement has been incorporated into the Restoration, Replication and Mitigation Plan.

Comment W14:

A monitoring protocol should be submitted by the Applicant to address the recommendations above for the Commission's review and approval. This protocol should include monitoring frequency, methodologies, corrective actions, metrics for success, and reporting schedule.

Response:

The above monitoring protocols have been incorporated into the Restoration, Replication and Mitigation Plan.

Comment W15:

It is recommended that areas subject to native plantings/restoration be mowed only once per year during late fall; this could be included as a Special Condition. If so, it is recommended that signage be required to demarcate these areas and this requirement in the field.

Response:

The Applicant is amenable to the inclusion of a Special Condition prohibiting the wholesale mowing of naturalized areas more than once per year in late fall; however, mechanical removal of invasive species in these areas, including mowing, may be implemented for invasive species management purposes in limited portions of these areas. Due to these areas not being contiguous, installing signage is not practical.

Comment W16:

The species proposed for planting throughout the Site have been provided; however, the proposed quantity of native shrubs, native ferns & grasses, and native herbaceous plants should be provided within the plant schedule.

Response:

Quantities of proposed plantings have been added to the plant schedules on Sheets L2.1-L2.3 of the landscape plans.

Comment W17:

The species include in the proposed seed mixes that will be used for stabilization should be provided on the plans.

Response:

The species included in proposed seed mixes has been provided on the plans.

Comment W18:

Provide additional information on the preservation of land at the Site, including the legal means of preserving the land; the responsible entity for monitoring compliance with any deed restrictions or conservation restrictions; and an Operation and Maintenance Plan that ensures protection of Areas Subject to Protection/Jurisdiction under the Act. Any related Project facets that may be required to support this endeavor (i.e., establishing trails and posting signage) should also be disclosed.

Response:

The southern portion of the site as depicted on the exhibit in the NOI submittal will be divided off as its own unbuildable lot and deeded to the Town of Franklin under the ANR process, to be approved by the ZBA under the Comprehensive Permit. As the Applicant will no longer own the land, future management of the property is at the discretion of the Town. The Applicant is amenable to post signage along the southerly edge of the parking lot in front of the land to be deeded. Details for this signage can be coordinated with the Commission and can be added to the Plans in the next resubmission.

Comment W19:

BETA offers the following comments regarding the wetland replication area:

- a. The Applicant should provide the species within the proposed seed mix to be used in the Wetland Replication Area.
- b. The access point to the proposed wetland replication area should be demarcated on the plans to ensure the adjacent wetland is not impacted.

- c. Erosion controls should be depicted around the northern and eastern side of the wetland replication area to ensure sedimentation from adjacent grading work does not enter the existing wetland complex.
- d. A note should be provided requiring the Wetland Scientist to contact the Commission for review and approval of the final grades and proposed planting stock prior to planting. This could be included as a Special Condition in the OOC.
- e. The Applicant is proposing the reuse of the soil within the IVW that is proposed to be filled; however, the NOI states that invasive species are present within the existing IVW. It is recommended that the soil used in the wetland replication area be invasive species free to ensure the success of the wetland replication area.
- f. The monitoring requirements should include a requirement to document development of hydric soils and hydrology. In addition, the monitoring protocol should include corrective actions as necessary to ensure success of the area. BETA recommends that the monitoring period occur over three (3) growing seasons.

Response:

The project team has made the following revisions to wetland replication plans:

- a. The species included in the seed mix proposed in the replication area has been added to the site plans. See also response to comment W17.
- b. The site plans have been updated to show that access to the replication area will be obtained via an existing cart path to limit disturbance to the greatest extent possible. The access path will be seeded upon completion.
- c. Erosion controls surrounding the replication area are now shown on the plans.
- d. A note has been added for the supervising wetland scientist to call for inspection and approval of completed grades and planting stock in the replication area.
- e. The narrative has been updated to indicate that soil originating from areas known to support invasive species shall not be reused.
- f. The monitoring requirements have been expanded and more clearly described.

Comment W20:

Invasive species proposed for removal including common reed and Japanese knotweed are present within the BVW and Bank associated with the onsite perennial stream. The Applicant should clarify if temporary impacts to Resource Areas will occur as a result of removing this vegetation. The Applicant should also clarify if supplemental plantings are proposed within Resource Areas where vegetation is removed.

Response:

Temporary impacts in the form of invasive species management are likely to occur with the management of invasive vegetation. The Restoration, Replication and Mitigation plan has been updated to specify that native potted plants and/or native seed mix shall be placed in these areas if invasive vegetation is sufficiently managed that areas become unvegetated; however, the likelihood of this being a problem is believed to be low.

Comment W21:

Impacts to Bank associated with the installation of the proposed dock should be quantified and details regarding how the Project complies with the Performance Standards set forth in Act should be provided. Construction of a dock is considered a Limited Project under 10.53(3)j if all applicable standards are met.

Response:

Proposed impacts to Bank for the installation of the dock amount to 4 lf (i.e. the width of the gangway). The impact does not consist of direct alteration, only the overhanging dock walkway. Nevertheless, this aspect of the project is eligible to be treated as a Limited Project under 10.53(3)j. The dock has been selected to ensure that its minimal width does not materially effect the amount of light reaching below, such that vegetation is maintained.

310 CMR 10.53(j) states that limited projects may be permitted, such as, “[t]he construction and maintenance of catwalks, footbridges, wharves, docks, piers, boathouses, boat shelters, duck blinds, skeet and trap shooting decks and observation decks; provided, however, that such structures are constructed on pilings or posts so as to permit the reasonably unobstructed flowage of water and adequate light to maintain vegetation,” among others.

Comment W22:

Impacts to BVW for the installation of the proposed dock should be quantified and details regarding how the Project complies with the Performance Standards set forth in Act should be provided. Construction of a dock is considered a Limited Project under 10.53(3)j if all applicable standards are met.

Response:

Proposed impacts to BVW for the installation of the dock amount to 32 sf. The impact consists primarily of the overhanging dock gangway, and a minor direct impact for the installation of piles. Nevertheless, this aspect of the project is eligible to be treated as a Limited Project under 10.53(3)j as described in our response to comment W21.

Comment W23:

Impacts to LUW for the installation of the proposed dock should be quantified and details regarding how the Project complied with the Performance Standards set forth in the Act should be provided. Construction of a dock is consider a Limited Project under 10.53(3)j if all applicable standards are met.

Response:

Proposed impacts to LUW for the installation of the dock amount to 160 sf. The impact consists only of shading caused by the dock float. This impact is unlikely to have any adverse impact, as no significant amount of aquatic vegetation is present within LUW in this area. Nevertheless, this aspect of the project is eligible to be treated as a Limited Project under 10.53(3)j as described in our response to comment W21.

Comment W24:

The Applicant should provide further information regarding how the extent of BLSF at the Site was determined, as the ORAD only approved portions of the BLSF at the Site. Given the number of stream crossings / hydraulic restrictions present at the Site, this evaluation should be prepared by a Professional Engineer with experience in hydraulics. The Commission may require more up to date engineering information than what is provided by FEMA per (310 CMR 10.57(2)(a)3., particularly given the presence of a Zone A with no published base flood elevation.

Response:

Figure 2 below illustrates two flood plains onsite, Zone X in the northerly area of the site and Zone A (100-year floodplain) in the south. Zone A constitutes BLSF, and its boundaries have

already been defined under the approved ORAD; Zone A's undefined, estimated boundaries per FEMA are also shown on the Exhibit. Zone X does not constitute BLSF, and its boundaries are already shown on FEMA's maps.

The approved ORAD confirmed the extent of BLSF as depicted on the approved site plans to the south of a point located at latitude/longitude -71.377480, 42.078607 (i.e. south of the southern culvert on site, as shown on the Exhibit). BLSF to the south of this point was confirmed at elevation 271'. Everything north of this point is already defined officially as a Zone X, per FEMA, which does not equate to BLSF.

Generally, BLSF corresponds to the 100-year floodplain mapped by FEMA. However, in this case, no flood elevation is provided by FEMA. Given no flood elevation was provided by FEMA for the 100-year flood plain, the WPA regulations state that "where NFIP Profile data is unavailable, the boundary of Bordering Land Subject to Flooding shall be the maximum lateral extent of flood water which has been observed or recorded." As discussed in the ANRAD proceedings with the Commission, no flooding has been observed or recorded north of the above-referenced latitude/longitude.

A 100-year floodplain is not mapped by FEMA in this northern area in question, and no evidence exists indicating that it floods, so there is no presumption that BLSF should exist in the northern area; rather, there is more evidence supporting the contrary.

Although Comment W24 states that the Commission may require more up to date engineering information than is provided by FEMA per 310 CMR 10.57(2)(a)3, it omits the language stating that the Commission may only impose this requirement "in the event of a conflict". No information or data has been produced that conflicts with either the Applicant's delineation of the BLSF or the Applicant's assertion that BLSF does not exist north of the identified latitude/longitude point. In fact, all the information available indicates that no BLSF exists in the northerly area in question. FEMA defines this entire area as Zone X, and clearly Zone A cannot exist where a Zone X does. No Zone A is depicted by FEMA in this area. Information provided during the ANRAD process further supported the position that this area does not flood.

The Applicant has provided documentation and analysis supporting the delineation of BLSF as shown on project plans currently and as approved under the ORAD, which is consistent with FEMA's mapping and in compliance with WPA Regulations. No conflicting information has been produced, either in the ANRAD process or the NOI process.

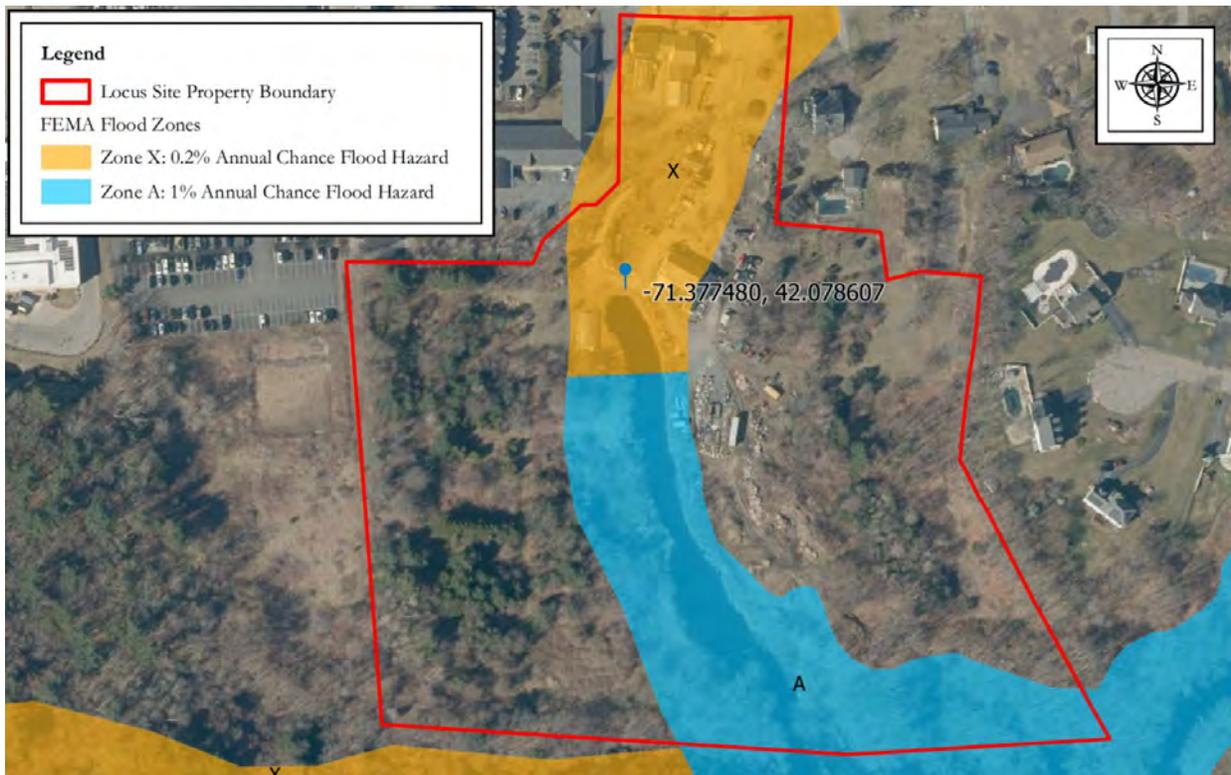


Figure 2: Floodplain exhibit depicting FEMA's mapping and longitude/latitude point referenced in ORAD.

Comment W25:

The Applicant stated that no significant wildlife habitat is present in the area of proposed work within BLSF. However, according to 310 CMR 10.57(1)(a)3, areas of BLSF located within the 10-year floodplain or within 100 feet of a Bank or BVW (whichever is further away) are presumed to be significant to the protection of wildlife, unless they have been extensively altered by human activity as defined in the regulations. While some portions of the BLSF within 100 feet of the Bank and BVW appear to meet the definition of "altered", portions of BLSF where work is proposed do not. Therefore, the Applicant should depict the 10-year floodplain boundary and quantify impacts to BLSF as appropriate to determine if a wildlife habitat evaluation is warranted.

Response:

As is necessary for human safety and vehicular access, the existing southern stream crossing needs to be bolstered. This area is the only location where fill is proposed within BLSF. Figure 3 below, dated 3/7/2025, depicts the approximate location of fill within BLSF in yellow. Goddard believes that this work clearly is proposed in an extensively human-altered area. The majority of this work area is comprised of a hardpacked gravel access roadway. Vegetation is limited, but the dominant vegetation in this area is common reed (*Phragmites australis*) and Japanese knotweed (*Fallopia japonica*), both invasive species that provide little habitat value.



Figure 3: Oblique aerial image depicting area of proposed work within BLSF in yellow.

Comment W26:

The Applicant should provide further information regarding the assertion that 153,170 square feet of the existing RA is degraded. BETA agrees that some areas of the RA are considered degraded as pavement, debris piles, and absence of topsoil were observed; however, several areas that are shown as degraded by the Applicant were determined to be non-developed/not degraded, as topsoil and vegetation are present. It is recommended that the Applicant reassess vegetated areas of the RA to determine if topsoil is present in all areas currently depicted as degraded. MassDEP precedent has established that the presence of topsoil can be a primary determining factor of whether RA is degraded. BETA has attached a field sketch with photographs to this letter for reference. Compliance with Performance Standards should be reevaluated once these revisions are complete.

Response:

While the presence or absence of topsoil can be a factor for determining whether riverfront area is degraded, it is not the only consideration. The WPA regulations at 310 CMR 10.58(5) state that degraded riverfront area can be comprised of “*impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds.*” Here, junkyards and abandoned dumping grounds define much of the area of degradation. Therefore, such areas are considered degraded by virtue of being junkyards or abandoned dumping grounds, regardless of the presence or absence of topsoil therein.

At this juncture, Goddard has not yet performed a follow-up site visit to review BETA’s recommendations regarding existing degraded areas. This will be completed in the coming weeks. Regardless, the total square footage of the degraded areas in question would not amount to enough to impact whether the project remains compliant with the Performance Standards under 310 CMR 10.58(5).

Comment W27:

Areas of the RA that are not considered degraded are subject to the Performance Standards at 310 CMR 10.58(4). Details regarding how the Project complies with these Performance Standards set forth in the Act should be provided. As noted in the Superseding Order of Conditions referenced in Comment W26, a single Site can be evaluated under both 310 CMR 10.58(4) and (5) depending on the degraded status of different areas.

Response:

Goddard does not agree that a single site can or should be evaluated under both 310 CMR 10.58(4) and (5). Evaluating different parts of the site under different standards is inconsistent with the intent of the regulations. There is simply nothing in the regulations to suggest an intention to review a riverfront area in a discordant, piecemeal fashion (rather than as a singular holistic project) as comment W27 suggests. Here, significant portions of the riverfront area are undeniably degraded from previous development. Topsoil is present in certain portions of the degraded riverfront area as discussed in our response to comment W26 above; however, this fact does not diminish the overall characterization of the riverfront area on this site which consists predominantly of junkyards, absence of topsoil and dumping grounds. Clearly, this project consists of the redevelopment of a previously developed area rather than the new development of an undeveloped area.

Analyzing this (or any) project under two different sets of criteria could lead to chaotic and impractical results, which is not the intent of the WPA. The WPA is intended to protect the riverfront, while working to enhance the quality of previously developed riverfront areas via redevelopment. From a holistic point of view, it is clear this project as proposed meets the overall intent and mission of the WPA as the project results in not only the protection of the riverfront area, but also an enhancement of the riverfront area as compared to existing conditions.

The language of the WPA regulations for riverfront area redevelopment must be considered carefully. The introductory paragraph of the riverfront area redevelopment standards reads “*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.*” Note that this provision does not state that a previously developed riverfront area “consists only of” degraded areas, “is comprised of” degraded areas, or “is defined by the presence of” degraded areas. It simply states that a previously developed riverfront area “contains” degraded areas, which is categorically true of the locus site.

At 310 CMR 10.58(5)(a), the regulations go on to state that “*[a]t a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40,*” which this proposed project very clearly does, as described above. This provision continues in reading that “*[w]hen a lot is previously developed but **no portion** of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.*” Note that this provision does not state that the requirements of 310 CMR 10.58(4) shall be met if some portions of the riverfront area are degraded, only that those requirements shall be met if **no portion** of the riverfront area is degraded, which is clearly not the case in this instance.

Applying both sets of riverfront area standards can actually result in projects that are less protective of the riverfront areas, as would be the case for this project. In accordance with the regulations, the proposed project is to be evaluated under only the redevelopment performance standards at 310 CMR 10.58(5). As designed, the project enables the restoration of 27,120 square feet of presently degraded riverfront area. These areas are primarily situated immediately adjacent to the stream (i.e. 0 feet of vegetation or buffer adjacent to the stream), especially on the eastern side. Proposed restoration activities (plantings with native trees, shrubs and seed mixes) will restore existing degraded riverfront area and establish new vegetation/buffer generally measuring at least 25 to 50 feet, with the establishment of as much as +/- 100 feet of vegetated buffer between developed areas and the stream. New alteration proposed within existing non-degraded riverfront area is situated almost entirely in the outer riparian zone (i.e. over 100' from the stream). If evaluation under 10.58(4) is required for work proposed in presently non-degraded portions of the riverfront area, the project would inherently be limited in its ability to provide restoration as currently designed. In this interpretation, the bifurcated application of the two separate sets of riverfront area performance standards would favor a project design that allows degraded riverfront area immediately adjacent to the stream to remain as-is, in lieu of restoration of areas immediately adjacent to the stream and development of areas farther from the stream. Therefore, the site would remain with little to no vegetated riverfront area to protect the stream in much of the northern and eastern portions of the site. This would also result in more construction closer to the residential neighborhood at the east of the site.

The Superseding Order of Conditions (SOC) referenced in comment W26 is more than a decade old and does not change the interpretation here. Firstly, SOC's are not legally binding or precedent-setting in any way. Additionally, the 2013 SOC appears to describe a site that had very limited degraded riverfront area and a substantial portion of non-degraded area. In contrast, the site subject to this application is very clearly substantially degraded.

A much more recent SOC issued by MassDEP (DEP File No. 234-0922) on 10/8/2024 approved a project that proposed the expansion of a building and yard space into a non-degraded riverfront area. In this SOC proceeding, MassDEP did not require the Applicant to analyze the project under both 310 CMR 10.58(4) and 10.58(5). Instead, analysis under only 10.58(5) was appropriate, because the mitigation/restoration provided in order to comply with the redevelopment performance standards offered a greater level of protection to the stream and its associated riverfront area, despite the project encroaching into previously non-degraded riverfront area.

The interpretation of the riverfront area regulations taken is the same Goddard has successfully utilized on countless other permitted projects across the state and the same that has been presented to the Commission from the beginning of the LIP Review process, where the Commission voted to unanimously support the project due to its merits of protecting and, indeed, enhancing the resource areas on site. Documentation of compliance with the applicable performance standards has been outlined in the attached Regulatory Compliance Analysis. With the inclusion of over 27,000 square feet of restoration, it is clear that this project has been designed to align with the intent of the Wetlands Protection Act by improving

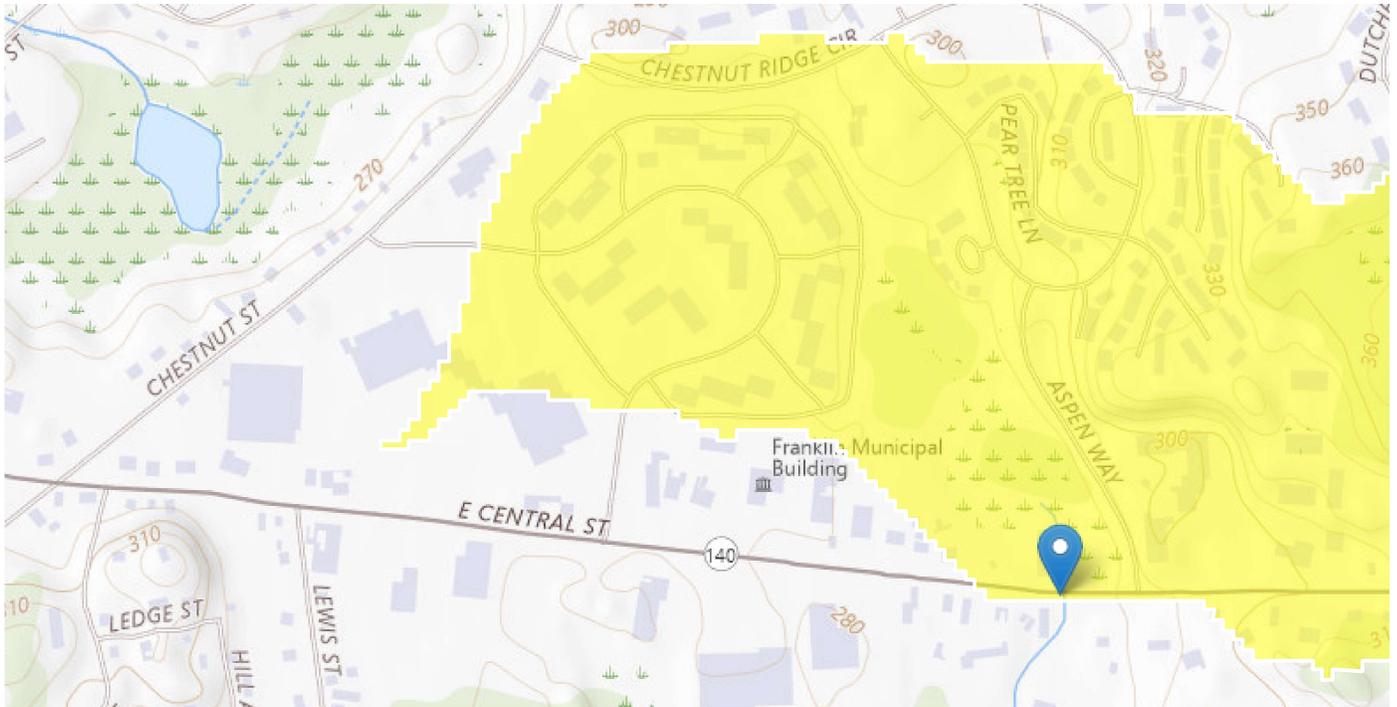


previously degraded areas and establishing substantial areas of native vegetation where none currently exists, among other things.

Goddard and the project team believe that the responses and revised materials provided sufficiently address BETA's comments and enable the Commission's complete review of the proposed work. If you have any questions, please feel free to contact us at (508) 393-3784.

StreamStats Report

Region ID: MA
Workspace ID: MA20250815134857528000
Clicked Point (Latitude, Longitude): 42.07967, -71.37704
Time: 2025-08-15 09:49:21 -0400



Report on flows crossing East Central Street onto the site

[+ Collapse All](#)

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
ACRSDFT	Area underlain by stratified drift	0.0996	square miles
BSLDEM10M	Mean basin slope computed from 10 m DEM	5.425	percent
BSLDEM250	Mean basin slope computed from 1:250K DEM	1.078	percent
CAT1ROADS	Length of interstates lmt'd access highways and ramps for lmt'd access highways, includes cloverleaf interchanges (USGS Ntl Transp Dataset)	0	miles
CAT2ROADS	Length of sec hwy or maj connecting roads; main arteries & hws not lmt'd access, usually in the US Hwy or State Hwy systems (USGS Ntl Transp Dataset)	0	miles

Parameter Code	Parameter Description	Value	Unit
CAT3ROADS	Length of local connecting roads; roads that collect traffic from local roads & connect towns, subdivisions & neighborhoods (USGS Nat Transp Dataset)	0.29	miles
CAT4ROADS	Length of local roads; generally paved street, road, or byway that usually have single lane of traffic in each direction (USGS Ntnl Transp Dataset)	2.61	miles
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	210121.7	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	870200.2	meters
CROSCOUNT1	Number of intersections between streams and roads, where the roads are interstate, limited access highway, or ramp (CAT1ROADS)	0	dimensionless
CROSCOUNT2	Number of intersections between streams and roads, where the roads are secondary highway or major connecting road (CAT2ROADS)	0	dimensionless
CROSCOUNT3	Number of intersections between streams and roads, where roads are local connecting roads (CAT3ROADS)	1	dimensionless
CROSCOUNT4	Number of intersections between streams and roads, where roads are local roads (CAT4ROADS)	0	dimensionless
CRSDFT	Percentage of area of coarse-grained stratified drift	55.51	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	14.8	feet per mi
DRFTPERSTR	Area of stratified drift per unit of stream length	1.41	square mile per mile
DRNAREA	Area that drains to a point on a stream	0.17	square miles
ELEV	Mean Basin Elevation	302	feet
FOREST	Percentage of area covered by forest	28.9	percent
LAKEAREA	Percentage of Lakes and Ponds	0	percent
LC06STOR	Percentage of water bodies and wetlands determined from the NLCD 2006	0	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	85.6	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	43.2	percent
LFPLENGTH	Length of longest flow path	0.72	miles
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless
MAXTEMPC	Mean annual maximum air temperature over basin area, in degrees Centigrade	15.6	degrees C

Parameter Code	Parameter Description	Value	Unit
OUTLETX	Basin outlet horizontal (x) location in state plane coordinates	210175	feet
OUTLETY	Basin outlet vertical (y) location in state plane coordinates	869925	feet
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	55.51	percent
PRECPRIS00	Basin average mean annual precipitation for 1971 to 2000 from PRISM	49.4	inches
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	0.0708	miles
WETLAND	Percentage of Wetlands	5.83	percent

➤ Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Statewide 2016 5156]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.17	square miles	0.16	512
ELEV	Mean Basin Elevation	302	feet	80.6	1948
LC06STOR	Percent Storage from NLCD2006	0	percent	0	32.3

Peak-Flow Statistics Flow Report [Peak Statewide 2016 5156]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR²: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	11.7	ft ³ /s	5.86	23.4	42.3
20-percent AEP flood	20.1	ft ³ /s	9.9	40.8	43.4
10-percent AEP flood	26.9	ft ³ /s	12.9	56	44.7
4-percent AEP flood	37	ft ³ /s	17.1	80	47.1
2-percent AEP flood	45.6	ft ³ /s	20.4	102	49.4
1-percent AEP flood	54.8	ft ³ /s	23.7	127	51.8
0.5-percent AEP flood	64.9	ft ³ /s	27.2	155	54.1
0.2-percent AEP flood	79.7	ft ³ /s	31.8	200	57.6

Peak-Flow Statistics Citations

Zarriello, P.J.,2017, Magnitude of flood flows at selected annual exceedance probabilities for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2016–5156, 99 p. (<https://dx.doi.org/10.3133/sir20165156>)

➤ Flow-Duration Statistics

Flow-Duration Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLDEM250	Mean Basin Slope from 250K DEM	1.078	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	1.41	square mile per mile	0	1.29
DRNAREA	Drainage Area	0.17	square miles	1.61	149
MAREGION	Massachusetts Region	0	dimensionless	0	1

Flow-Duration Statistics Disclaimers [Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Flow-Duration Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
50 Percent Duration	0.157	ft ³ /s
60 Percent Duration	0.125	ft ³ /s
70 Percent Duration	0.106	ft ³ /s
75 Percent Duration	0.0897	ft ³ /s
80 Percent Duration	0.105	ft ³ /s
85 Percent Duration	0.0746	ft ³ /s
90 Percent Duration	0.075	ft ³ /s
95 Percent Duration	0.0367	ft ³ /s
98 Percent Duration	0.0247	ft ³ /s
99 Percent Duration	0.0167	ft ³ /s

Flow-Duration Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (<http://pubs.usgs.gov/wri/wri004135/>)

➤ Probability Statistics

Probability Statistics Parameters [Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.17	square miles	0.01	1.99
FOREST	Percent Forest	28.9	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1
PCTSNDGRV	Percent Underlain By Sand And Gravel	55.51	percent	0	100

Probability Statistics Flow Report [Perennial Flow Probability]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR²: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	PC
Probability Stream Flowing Perennially	0.731	dim	71

Probability Statistics Citations

Bent, G.C., and Steeves, P.A., 2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006-5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

➤ Maximum Probable Flood Statistics

Maximum Probable Flood Statistics Parameters [Crippen Bue Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.17	square miles	0.1	3000

Maximum Probable Flood Statistics Flow Report [Crippen Bue Region 2]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	1570	ft ³ /s

Maximum Probable Flood Statistics Citations

Crippen, J.R. and Bue, Conrad D. 1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p. (<https://pubs.usgs.gov/wsp/1887/report.pdf>)

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Application Version: 4.29.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1