

December 4, 2024

Robert Moore, Environmental Health Technician
City of Haverhill
4 Summer Street
Haverhill, MA 01830

RE: Peer Review – Winter Street Remediation Notice of Intent
284 Winter Street, Haverhill, MA
Fuss & O'Neill Reference No. 20170390.U80

Dear Mr. Moore:

Fuss & O'Neill has conducted a review of the Notice of Intent (MassDEP File No. 033-1577) submitted by Anchor QEA on behalf of the Boston Gas Company, for the Winter Street Remediation project located at 284 Winter Street in Haverhill, Massachusetts (the "Site"). The remediation includes the installation of an air sparge and soil vapor extraction system at 284 Winter Street, and a temporary cap within a portion of the Mass-DEP Waterways licensed semi-permanent boom system within the Little River adjacent to 284 Winter Street. The Site is associated with MassDEP Release Tracking Numbers (RTNs) 3-32791 and 3-32875. We offer the following peer review comments based on compliance with the Wetlands Protection Act and the Haverhill Municipal Ordinance Chapter 253.

Fuss & O'Neill is familiar with this portion of the Little River, as we have been working for the City of Haverhill over the course of the past three years to design and permit the Little River Dam Removal and River Restoration (MassDEP File Nos. 33-1551 and 33-1552) just upstream of this proposed remediation. This review will also evaluate how the proposed remediation project may affect the previously permitted Little River Dam Removal and River Restoration.

Materials Reviewed:

1. HCC Local Application Form 3
2. Document titled "Proposed Upland Remediation Plan," dated September 16, 2024, prepared by Anchor QEA
3. Document titled "Proposed Sediment Remediation Plan," dated September 16, 2024, prepared by Anchor QEA
4. Document titled "Stormwater Report and Checklist," dated September 18, 2024, prepared by GZA
5. Document titled "284 Winter Street – Former MGP Haverhill," dated October 3, 2024, prepared by Anchor QEA
6. Document titled "Revised Phase III Remedial Action Plan & Phase IV Remedy Implementation Plan" dated June 13, 2024, prepared by GZA Geoenvironmental, Inc.

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Notice of Intent – Winter Street Remediation, September 2024 (MassDEP File #: 033-1577)

Wetlands Protection Act, Chapter 253 and Stormwater

1. The project narrative indicates that sediment removal activities are not being conducted, therefore turbidity management and/or monitoring is not proposed. We recommend that the Conservation Commission require the contractor or Applicant to closely monitor construction activities to ensure turbidity is not being generated within the river and require them to install turbidity management at the first sign of any turbidity discharge to the river to meet the performance standard for a limited project per 310 CMR 10.53(3)(q)(2)(b) for best management practices. The Commission may consider adding a Special Condition to require the selected contractor to have a turbidity curtain readily available for installation in the event of observations of excessive turbidity.
2. According to the performance standard for a limited project per 310 CMR 10.53(3)(q)(2)(a), hydrologic changes to resource areas shall be minimized. It appears that the temporary cap matting is to be placed atop the existing river channel bottom with only the weight of the core mat and stone armor mattress layer to resist movement. Please confirm that toe protection and/or a specific detail for keying in the matting at its ends is not required; or if it is required, provide typical detail(s).
3. As the project includes reuse of degraded or previously developed areas, which were degraded prior to August 7, 1996, the project requires evaluation under the Riverfront Area Redevelopment standards per 310 CMR 10.58(5) rather than the general performance standards for Riverfront Area. Please describe compliance with the Riverfront Area Redevelopment standards.
 - a. Although the project may qualify for a limited project, the Applicant must describe how performance standards are met to the maximum extent practicable. When considering meeting the standard for improvement over existing conditions per 310 CMR 10.58(5)(a), if applicable, the Applicant should consider opportunities for impervious area removal, installation of native species, and/or invasive species management. As the site is very developed, we suggest the Commission require invasive species management for species along the retaining wall, if present.
4. Please provide the FEMA FIRM and Flood Insurance Study and verify the project is located outside of the limits of the 100-year floodplain (i.e., bordering land subject to flooding (BLSF)). If applicable, please update the WPA Form 3 BLSF impact numbers reported.
5. Under the "LID Measure" of the MassDEP Stormwater Checklist for Stormwater Report the Applicant has checked "No disturbance to any Wetland Resource Areas." The project temporarily impacts Land Under Waterbodies and Waterways and Riverfront Area. The Applicant should check the box to indicate disturbance to wetland resource areas on the Stormwater Checklist.

Potential Impacts to Little River Dam Removal and River Restoration

6. It is important that the temporary cap be designed to withstand normal and flood flows that are anticipated within this section of the Little River since it will likely be in-place for potentially 2 years or until the full-scale remediation project is implemented (currently planned for the summer of 2026). Based on the results of Fuss & O'Neill's hydraulic (HEC-RAS) model, both pre- and post- dam removal flow velocities in the section of the Little River downstream of the Winter Street Bridge range from 2.1 feet per second during low-flow or dry-weather conditions to 6.8 feet per second during flood conditions. Additionally, pre-

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and post- dam removal maximum shear channel stresses within this portion of the river channel were computed to range between 0.15 to 0.92 lbs/sf. Please specify what flow velocity and/or shear stress the reactive core mat with organoclay and 6-inch armor mattress is designed to withstand. Please confirm and provide the size/gradation of the stone armor to be used to create the armor mattress.

7. The applicant notes that it intends to install the temporary cap in the Little River prior to March 1, 2025, in adherence to Time of Year restrictions. This will allow the cap to be in place ahead of anticipated work associated with the Little River Dam Removal and River Restoration project. It is our opinion that this will help isolate the impacted sediment in the capped area from effects of the dam removal process (i.e. temporary changes in river flow velocity and/or volume resulting in increased scouring potential). Additionally, the extent of proposed temporary cap, as shown on the *Figure 4 – Proposed Sediment Remediation Plan* does not extend into the River Restoration project limits of work, so it is our opinion that the temporary cap will not adversely affect or impede the planned restoration work.

Environmental Remediation Plan

The materials listed above were reviewed to evaluate how the proposed remedial strategy may impact the environmental condition of Little River and how it may affect or impede the planned Little River Dam Removal and River Restoration project. The intent of this review was not to opine on the efficacy of the proposed remedial strategy to address the release condition or the historical response actions undertaken. Based on this review, Fuss & O'Neill offers the following comments:

8. For treatment of volatile compounds in the subsurface of the Site, the applicant proposes the use of an air sparging/soil vapor extraction (AS/SVE) system that will span both saturated and unsaturated portions of the upland subsurface. As noted by the applicant, the system is proposed to be installed in phases and there are contingency plans for mitigation of effects on the river. The applicant should provide an outline of the contingency plan(s) in the event the AS/SVE system causes unforeseen impacts to the Little River, such as enhanced migration of non-aqueous phase liquids (NAPL) or volatile compounds into the surface water and/or sediment adjacent to the Site. The applicant should also provide a plan for long-term visual and/or analytical monitoring of both sediment and surface water quality both adjacent to, and downstream of, the Site during construction and operation AS/SVE system.
9. The applicant proposes installation of a temporary cap along a 275-foot linear stretch of the Little River. The proposed temporary cap will consist of reactive core matting (RCM) overlain by a 6-inch "armor layer" composed of stone contained within a geotextile. It is our opinion that the proposed temporary remedy for the Little River will help isolate contaminants migrating from the Site to the Little River. Additionally, we agree that the existing semi-permanent boom system will help capture any NAPL and/or sheen that is able to migrate through or around the margins of the proposed temporary cap. The applicant should provide information on any contingencies in place if NAPL and/or contaminants are found to be migrating outside of the proposed 275- foot linear temporary cap or boom system during the implementation of the remedy.
10. The applicant notes that a permanent remedial approach for the impacts within the Little River is still in design with implementation anticipated in summer 2026. The applicant should confirm whether the temporary cap is designed to remain effective until the implementation of the full-scale remediation or if maintenance and/or replacement of the temporary cap components may be necessary before that time.

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The applicant should further confirm its plans to monitor the integrity of the temporary cap following installation.

11. The applicant proposes cleanup and removal of debris (including general trash and vegetation) in the proposed work area associated with the temporary cap. It is our opinion that this cleanup associated with the installation of the temporary cap should enhance the water quality of the Little River in the work area.
12. The project narrative section 1.4.1 indicates impacts were observed on the Little River during pilot testing of the AS/SVE system. The applicant should further describe the impacts observed in the Little River during the pilot test and contingency plans to address such impacts should they be observed during installation and operation of the system.
13. At the conclusion of installation of the AS/SVE and temporary cap systems, the applicant should provide to the City of Haverhill surveyed as-built plans of the systems, so that the City can understand baseline in-stream and upland conditions at the portion of the Little River adjacent to the Site, prior to start of the Little River Dam Removal and River Restoration Project.

Sincerely,



April Doroski, PWS, CPSS
Wetland Scientist | Permitting Specialist



Daniel F. Delany, PE
Vice President | Office Manager

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