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December 4, 2020

Ms. Beth Suedmeyer
Environmental Planner
Planning and Community Development
Town of Sudbury
278 Old Sudbury Road
Sudbury, Massachusetts 01776

Ref: 3rd Peer Review of the Stormwater Management for the
Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Dear Ms. Suedmeyer and Board Members:

The Horsley Witten Group, Inc. (HW) is pleased to provide the Sudbury Planning Board with this follow up technical peer review report associated with the stormwater management for the Mass Central Rail Trail project associated with the Sudbury-Hudson Transmission Reliability project. As noted in our September 18, 2020 initial peer review and further discussed in our November 23, 2020 second peer review letter, HW has reviewed the Stormwater Management Report prepared by VHB dated July 2020 and submitted to the Sudbury Planning Board and compared it to the follow up peer review letter prepared by BETA Group, Inc. (BETA) for the Sudbury Conservation Commission dated August 31, 2020.

The Project Site is a portion of the regional Mass Central Rail Trail (MCRT). Approximately 4.3 miles in length, the 82-foot wide right-of-way runs through a variety of neighborhoods as it crosses Sudbury. The portion of the trail relevant to the review conducted by BETA begins at the intersection of the Marlborough, Hudson, and Sudbury town lines. The trail continues southeast, crossing several roads before reaching a privately owned driveway. While the trail continues east towards the Town of Wayland, BETA reviewed only the portion of the trail between the town line intersection and the private driveway associated with #163 and #183 Boston Post Road.

In response to HW's second peer review dated November 23, 2020, VHB has provided the following documents to the Sudbury Planning Board:

- Letter to the Sudbury Planning Board, Supplemental Submission, in response to HW's Comment Letter, prepared by VHB, dated December 2, 2020 (67 pages).

For simplicity HW has eliminated any comments previously addressed by the Applicant and retained any recommended conditions of approval that the Planning Board may choose to consider.

Stormwater Review:

The following comments correlate to HW's November 23, 2020 letter. Follow up comments are provided in underlined bold font.

SW1. Clarify justification for abandonment of existing culvert pipes such that local drainage patterns will not be impaired.

Sept. 18, 2020 (HW): In its response to BETA, VHB has identified two culverts that were previously noted to be abandoned. The pipes have been relabeled to be retained on the July 2020 plan set. BETA referenced a Culvert Structure Assessment Memorandum from 2017, HW was not able to locate this document however agrees that BETA's request appears reasonable to update the assessment and locate any structures mentioned.

November 2020 (HW): HW recommends that the Planning Board consider a condition of approval stating that "a structural engineer is to inspect the culverts as noted in the Culvert Structure Assessment Memorandum from 2017 prior to any land disturbance. The Assessment is to be updated and culverts noted to be retained shall be protected and cleaned. Culverts found that require replacement shall be replaced with a crossing that meets the MA Stream Crossing Standards as accepted by the Conservation Commission."

December 2020 (HW): The Applicant is agreeable to this condition.

SW2. **Previously addressed.**

SW3 See WPA1. BETA recommends the Commission determine if this combined project qualifies as a Limited Project 310 CMR 10.53(3)(d).

Sept. 18, 2020 (HW): BETA and VHB are discussing this issue under the purview of the Conservation Commission. As BETA has noted the applicability of Limited Project provisions for a given project may only be determined by the issuing authority which is the Sudbury Conservation Commission.

For the Planning Board's information, 310 CMR 10.53 General Provisions (3)(d) states, *"The construction, reconstruction, operation and maintenance of underground and overhead public utilities, such as electrical distribution or transmission lines, or communication, sewer, water and natural gas lines, may be permitted, in accordance with the following general conditions and any additional conditions deemed necessary by the issuing authority:*

1. *the issuing authority may require a reasonable alternative route with fewer adverse effects for a local distribution or connecting line not reviewed by the Energy Facilities Siting Council;*
2. *best available measures shall be used to minimize adverse effects during construction;*
3. *the surface vegetation and contours of the area shall be substantially restored; and*
4. *all sewer lines shall be constructed to minimize inflow and leakage."*

Regarding the DCR bike path, the Massachusetts Stormwater Handbook (MSH) Volume 1, Chapter 1, page 3, sates that, the Stormwater Management Standards shall apply to the maximum extent practicable to footpaths, bike paths and other

paths for pedestrian and/or nonmotorized vehicle access.

Furthermore 310CMR 10.53 General Provisions (6) states ***"****Notwithstanding the provisions of 310 CMR 10.58 (Riverfront Area), the issuing authority may issue an Order of Conditions for the construction, rehabilitation, and maintenance of footpaths, bikepaths, and other pedestrian or nonmotorized vehicle access to or along riverfront areas but outside other resource areas, provided that adverse impacts from the work are minimized and that the design specifications are commensurate with the projected use and are compatible with the character of the riverfront area. Generally, the width of the access shall not exceed ten feet of pavement, except within an area that is already altered (e.g., railroad beds within rights of way). Access shall not be located in vernal pools or fenced in a manner which would impede the movement of wildlife."*

It is HW's opinion that the Stormwater Management Standards are associated with an increase in impervious area and significant alteration to surface topography. The 10-foot wide bike path will increase impervious area and are required to apply the Massachusetts Stormwater Standards to the maximum extent practicable. The majority of the Eversource transmission line is below the surface and therefore does not significantly impact the stormwater except in areas where the proposed grades create steep slopes and where large areas of vegetation is cleared from woods to grass. To minimize any increase in runoff the cleared landscape should be replanted with hearty vegetation. The Eversource proposal includes replacing the existing 11-foot wide railroad ballast with a 14-foot wide gravel path that will be used to access the transmission line by vehicles. The anticipated frequency of vehicles using this gravel road should be provided to the Town of Sudbury as well as an explanation detailing the need for the 14-foot wide path to replace the 11-foot wide railroad ballast.

<u>November 2020 (HW)</u>: The Applicant has stated that Eversource requires a 14-foot wide access way for maintenance purposes. After construction is complete, the 14-foot wide gravel path will be utilized by Eversource once every three years. The gravel base material will stabilize the path and reduce erosion and rutting within the corridor.

The cross sections provided on Sheets 14-17 of the Eversource plan set indicate that 4" of loam and seed will be installed over the entire width of the disturbed area with the exception of a 10 foot wide section of 4" pavement to be installed by DCR for the bike path. Sheets 102-122 illustrate the various plantings to be installed as part of the Eversource project. Sheet 161 lists the planting schedule for the corridor.

It is HW's understanding that typical multi-use paths in Massachusetts require a minimum width of 10 feet for the comfort of the bike riders and pedestrians using the path at the same time. Furthermore, a typical multi-use path requires 2-3-foot-wide shoulders on both sides of the path. Therefore the 14-foot wide gravel base appears to be reasonable for the bike path.

Volume 3, Chapter 1, page 15 of the 2008 Massachusetts Stormwater Handbook states that impervious surfaces include roads, rooftops, parking lots, and sidewalks, when they are paved with concrete, asphalt, or brick pavers.

With the understanding that the Massachusetts Stormwater Handbook does not consider gravel to be impervious, it is HW's opinion that the proposed stormwater

management design for the proposed Eversource Transmission phase of the project complies with the Massachusetts Stormwater Standards.

The Town of Sudbury Stormwater Management Bylaw Regulations defines IMPERVIOUS SURFACE: Any material or structure on, above or below the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved surfaces (parking lots, sidewalks, driveways), roof tops, swimming pools, patios, and paved, gravel and compacted dirt surfaced roads.

With the understanding that the Town of Sudbury Stormwater Management Bylaw Regulations considers gravel to be impervious, it is HW's opinion that the stormwater management for the proposed Eversource Transmission phase of the project with a 14 foot wide gravel road is not in full compliance with the Town of Sudbury Stormwater Management Bylaw Regulations because there is an increase in peak discharge rates at several design points, and the Applicant does not provide the required recharge volume or water quality volume for the total impervious area.

The Planning Board may choose to consider a condition of approval to guarantee that the bike path phase of the project is constructed or in the event it is not that the stormwater management design for the Eversource phase is brought into full compliance with the Town of Sudbury Stormwater Regulations.

December 2020: The Applicant did not understand HW's comment. As clarification, the proposed project in front of the Planning Board is a bike path with an electrical transmission corridor beneath it. It is HW's opinion that the stormwater management for the bike path is being met to the maximum extent practicable. However, the electrical transmission corridor must be constructed first by Eversource and then the Department of Conservation and Recreation (DCR) will complete the bike path. The concern is that if the bike path is not constructed by DCR after Eversource has completed the transmission corridor, the final surface condition will consist of a 14-foot wide impervious gravel path that does not meet the Town of Sudbury Stormwater Regulations. The Planning Board may choose to consider a condition of approval to guarantee that the bike path phase of the project is constructed or in the event it is not that the stormwater management design for the Eversource phase is brought into full compliance with the Town of Sudbury Stormwater Regulations.

SW4. **Previously addressed.**

SW5. **Previously addressed.**

SW6. **Previously addressed.**

SW7. **Previously addressed.**

SW8. *Consider installing infiltration (trench) swale the entire length on the downslope side of the path to facilitate meeting the standards 2,3,4 and 6 more fully.*

Sept. 18, 2020 (HW): VHB has suggested in its response that the stormwater management system has been designed to the maximum extent practicable. BETA has developed a Summary Table of the Areas without Treatment and provided low, medium, and high priority Recommendations. HW has reviewed BETA's Summary Table provided at the end of BETA's August 31, 2020 peer review letter and Tables 3-8 in VHB's Sudbury Stormwater Management Plan Narrative dated July 2020. It is HW's

opinion that out of the 87 proposed watershed areas the following areas should be reevaluated at a minimum for additional treatment because the increase in flow is relatively significant and the practices discharge to cold water fisheries or vernal pools that may be impacted by an increase in flow or volume: Watersheds 5.14, 8.5, 9.1, 10.4, and 10.14. The table below illustrates these 5 watersheds with the peak flows in cubic feet per second (cfs) and peak volumes in acre-feet (af) for a 100-year storm event. Values for the other watershed areas and storm events can be found on pages 37-49 of the VHB Sudbury Stormwater Management Plan Narrative.

Watershed/ Design Point	Ex Peak Flow (cfs)	Prop Peak Flow (cfs)	Ex Volume (af)	Prop Volume (af)
5.14 (14.1 ac)	20.1	25.2	2.555	2.568
8.5 (4.2 ac)	13.6	17.6	1.571	1.803
9.1 (2.2 ac)	8.5	10.3	1.296	1.363
10.4 (4.8 ac)	13.8	18.8	1.628	1.676
10.14 (7.0 ac)	22.9	31.2	3.182	3.150

<u>November 2020 (HW)</u>: The Applicant has evaluated 69 design points.

- *The peak discharge rate for 33 of the 69 either remains the same or is reduced under proposed conditions.*
- *The peak discharge rate for 28 of the 69 will increase by less than 1.0 cfs for the 100-year storm event.*
- *The flow to 6 design points will increase by less than 1.8 cfs.*
- *Two design points will increase by less than 2.4 cfs.*

The Applicant has proposed 16 stormwater practices of approximately 6,900 linear feet along the 4.3-mile corridor.

In our September 2020 review, HW highlighted 5 watersheds/design points which we requested that the Applicant reevaluate. Stormwater practices are proposed for four of the design points originally questioned 5.14, 8.5, 10.4 and 10.14, as well as design point 5.13. HW reached out to the Applicant on November 4 and asked for additional clarification regarding how these watersheds/design points were reevaluated. The Applicant submitted an additional document dated November 10, 2020 as clarification.

During the November 18, 2020 Planning Board hearing the Applicant described the 5

design points and the stormwater management proposed for each. The Board requested that the Applicant revisit watershed 10.14 and the size of the proposed basin. If feasible the Board requested that the proposed basin be increased to further reduce the discharge to the design point. The Board also requested that the Applicant revisit watershed 9.1 and consider sloping the bike path towards Sudbury Lumber and install a stormwater practice to reduce the discharge towards Hop Brook at this location.

It is HW's opinion that once the Applicant has revisited these two locations and provided its findings, the proposed stormwater management design for the proposed bike path complies with the Massachusetts Stormwater Standards to the maximum extent practicable.

The revised Stormwater Management Report includes the following values:

Watershed/ Design Point	*Ex Peak Flow (cfs)*	*Prop Peak Flow (cfs)*	*Ex Volume (af)*	*Prop Volume (af)*
5.14 (1.1 ac)	*1.1*	*1.6*	*0.152*	*0.184*
8.5 (4.2 ac)	*13.2*	*13.3*	*1.305*	*1.295*
9.1 (2.2 ac)	*8.0*	*9.5*	*1.207*	*1.230*
10.4 (4.8 ac)	*6.3*	*7.4*	*0.627*	*0.627*
10.14 (7.0 ac)	*9.7*	*11.7*	*1.320*	*1.282*

December 2020: During the November 18, 2020 Planning Board hearing, the Board requested that the Applicant revisit watershed 10.14 and watershed 9.1. The Applicant provided additional documentation to address these two locations.

The Applicant reconfigured the proposed stormwater design for watershed 10.14 and expanded the proposed stormwater basin. The proposed peak flow and discharge volume were further reduced. HW finds the design of the revised basin acceptable.

The Applicant revisited watershed 9.1 and have proposed to crown approximately 575 feet of the bike path to reduce the discharge to the adjacent tributary to Hop Brook. Furthermore, the Applicant provided photographs and additional explanation regarding the flow paths and constraints within this watershed area. It is HW's opinion that the Applicant has met the stormwater management standards to the maximum extent practicable for watershed 9.1.

SW9. **Previously addressed.**

SW10. **Previously addressed.**

SW11. **Previously addressed.**

SW12. **Previously addressed.**

SW13. **Previously addressed.**

SW14. **Previously addressed.**

SW15. **Previously addressed.**

SW16. **Previously addressed.**

SW17. **Previously addressed.**

SW18. **Previously addressed.**

SW19. **Previously addressed.**

SW20. **Previously addressed.**

SW21. **Previously addressed.**

SW22. **Previously addressed.**

SW23. **Previously addressed.**

SW24. **Previously addressed.**

SW25. **Previously addressed.**

SW26. **Previously addressed.**

SW27. **Previously addressed.**

SW28. Conduct test pit/borings at the location of each proposed "area of increased infiltration" to verify soil conditions, infiltration rates, and groundwater levels.

Sept. 18, 2020 (HW): VHB has provided some test borings conducted along the 4.3-mile length of corridor to be developed. BETA has recommended additional testing be conducted to verify the soils for a few of the areas of increased infiltration. Furthermore, BETA has recommended that a condition be included requiring that additional soil testing be conducted during construction and provided to the Town for review. HW agrees that additional soil testing during construction is valuable and requiring the testing as a condition of approval is appropriate.

November 2020 (HW): HW recommends that the Planning Board include a condition of approval requiring additional soil testing be conducted during construction in the vicinity of Station 502+00, Station 511+00, Station 570+00, and Station 579+00.

December 2020: The Applicant is agreeable to this condition.

SW29. **Previously addressed.**

SW30. **Previously addressed.**

SW31. **Previously addressed.**

SW32. **Previously addressed.**

SW33. **Previously addressed.**

SW34. **Previously addressed.**

SW35 Provide draft copy Stormwater Pollution Prevention Plan SWPPP for review.

Sept. 18, 2020 (HW): VHB has provided a draft copy of the SWPPP as requested. BETA has recommended that the final SWPPP be provided to the Town prior to construction and has listed several items to be included. HW agrees that the final SWPPP should be provided to the Town with all applicable attachments.

November 2020 (HW): HW recommends that the Planning Board include a condition of approval requiring the Applicant to provide a final SWPPP prior to land disturbance.

December 2020: The Applicant is agreeable to this condition.

SW36 **Previously addressed.**

SW37. **Previously addressed.**

SW38. **Previously addressed.**

SW39. Provide perimeter erosion controls along the south side of the Site near stations 391+50, 405, 516, 545 through 555, 557, 565, and 753, and the north side of the Site near stations 565 through 569 and 580 through 585.

Sept. 18, 2020 (HW): VHB is not in agreement with BETA's need for additional erosion controls. HW recommends that a preconstruction visit be a condition of approval at which time the acceptance of the location of the erosion control barrier along the perimeter can be finalized. However, it should be clear in the bid documents that a representative from the Town of Sudbury may require additional perimeter controls at numerous locations.

November 2020 (HW): HW recommends that the Planning Board include a condition of approval requiring the Applicant to conduct a preconstruction meeting with a Town Representative to confirm the final placement of erosion controls.

December 2020: The Applicant is agreeable to this condition.

SW40. Provide a construction phasing plan that limits the area of the Site disturbed at any one time to mitigate environmental impacts and risk of erosion.

Sept. 18, 2020 (HW): VHB stated that the construction schedule will be determined by the Contractor once one is engaged. BETA defers to the Town as to the need for a construction schedule. HW recommends that a preconstruction visit be a condition of approval at which time the construction schedule and acceptance of erosion control barrier can be finalized.

*November 2020 (HW): HW recommends that the Planning Board include a condition of approval requiring the Applicant to conduct a preconstruction meeting with a Town Representative to confirm the construction schedule and the final placement of erosion controls***.**

December 2020: The Applicant is agreeable to this condition.

SW41. Provide measures to protect infiltration systems during construction.

Sept. 18, 2020 (HW): VHB has stated that the infiltration basins will not be used as sediment basins during construction. BETA has requested additional assurance and a

construction schedule. To verify that the infiltration basins do not receive excessive sediment during construction, HW recommends that the basins be protected by an erosion control barrier or constructed after the gravel base layer is complete.

November 2020 (HW): HW recommends that the Planning Board include a condition of approval requiring the Applicant to protect the infiltration areas with erosion control barriers during construction.

December 2020: The Applicant is agreeable to this condition.

SW42. **Previously addressed.**

SW43. **Previously addressed.**

SW44. **Previously addressed.**

SW45. **Previously addressed.**

SW46. **Previously addressed.**

SW47. **Previously addressed.**

SW48. **Previously addressed.**

SW49. **Previously addressed.**

SW50. **Previously addressed.**

SW51. Provide illicit discharge compliance statement signed by the Owner.

Sept. 18, 2020 (HW): VHB has agreed to provide a signed illicit discharge statement once construction is complete. The MSH Volume 1, Chapter 1, page 25 states that the illicit discharge statement should be provided prior to the discharge of stormwater runoff to the post-construction stormwater best management practices. HW recommends that the signed statement be provided prior to any land disturbance.

*November 2020 (HW): HW recommends that the Planning Board include a condition of approval stating that the Applicant will provide a signed illicit discharge statement prior to land disturbance***.**

December 2020: The Applicant is agreeable to this condition.

Additional HW comment Sept. 18, 2020:

During the site walk, HW observed the two 36-inch corrugated metal culverts at approximately Station 539 + 50, to allow the passage of Dudley Brook. The metal culverts were showing signs of deterioration. HW recommends that further investigation be conducted to verify the long-term functionality of these culverts and the possibility of repairing them be considered.

November 2020 (HW): HW recommends that the Planning Board consider a condition of approval stating that "a structural engineer is to inspect the culverts as noted in the Culvert Structure Assessment Memorandum from 2017 prior to any land disturbance. The Assessment is to be updated and culverts noted to be retained shall be protected and cleaned. Culverts found that require replacement shall be replaced with a crossing that

meets the MA Stream Crossing Standards as accepted by the Conservation Commission."

December 2020: The Applicant is agreeable to this condition.

Please do not hesitate to contact me at 857-263-8193 or at jbernardo@horsleywitten.com with any questions regarding these comments.

Sincerely,

Horsley Witten Group, Inc.

Janet Carter Bernardo, P.E.
Senior Project Manager