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June 16, 2017

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Commonweal of Massachusetts
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Sudbury-Hudson Transmission Reliability Project (EEA #15703)

Dear Secretary Beaton:

Please accept my comments on the above-referenced project on behalf of the Town of Hudson. I will restrict my comments to two issues, flawed evaluation of the noticed variation and the noticed alternative route by the applicant, and inadequate consideration of the vulnerability of the Town of Hudson's drinking water supply. Other aspects of the Environmental Notification Form will be addressed by other boards and/or officials from Hudson.

<u>Flawed Evaluation of Alternatives</u>

Appendix A of this letter lists the environmental criteria used by Eversource in their Energy Facilities Siting Board submission (EFSB 17-02), Table 4-5 "Scoring Matrix" on pages 4-27 and 4-28. I reformatted this information to show each option separately. Note that the totals do not match exactly to Table 4-5, perhaps due to rounding and/or formula differences.

More importantly, Table 4-6 on page 4-29 of EFSB 17-02 is supposed to be a summary of the totals in Table 4-5 and ranks the projects from lowest impact to highest. There are some serious inconsistencies between Tables 4-5 and 4-6.

For example, the total score for Options 2A, 2B and 11, respectively, in Table 4-5 are 27.26, 17.60 and 21.37. In Table 4-6 they are 29.03, 19.37 and 25.41. Table 4-6 is completely inconsistent with the detailed calculations.

In Appendix A the totals indicate that Option 2B (underground along the MBTA right of way) has the least impact with a score of 17.66, Option 11 (underground in-street) is next with 21.46, and Option 2A (overhead along the MBTA right of way until Forest Avenue) has the greatest impact at 27.34.

Including constructability criteria with environmental criteria, as Eversource has done for this alternatives analysis, is a miscategorization. If anything, constructability is a subset of cost criteria (and may even be redundant). For the purposes of MEPA review, the last four constructability criteria should be ignored.

Backing these criteria out, the revised ranking is Option 11 – 14.69; Option 2B – 15.86; and Option 2A – 25.54. This correction alone changes the order of preference in favor of the in-street option. These results are listed in my Appendix B.

Examining the weighting that Eversource subjectively created for each category reveals serious flaws in their assumptions. These flaws err in favor of Option 2B. The criteria place too much importance on temporary effects. The first three criteria plus the Scenic Roadways criterion deal primarily with the construction phase. These criteria should be weighted to reflect their transient nature.

At the MEPA scoping session on June 12, 2017 Eversource stated that they will only have a 20-year lease with the MBTA. The weighting at the very most should reflect the percentage of time that the construction period comprises of the entire lease, which would certainly be less than 4 out of 20 years, or 20%. Therefore, the weighting should be no more than 1 out of 5, also 20%.

Finally, and of critical importance to the Town of Hudson, is that Eversource's weighting of the impact to public water supplies as a 3 is certainly not reflective of community prioritization. Without these water supplies, there are no communities. This is Hudson's highest priority and should be assigned a weighting of 5.

Appendix C reformats the project rankings using this improved weighting. This further separates Option 11 from the others as the least impactful on the environment.

The table below displays the evolution of the ranking discussed in the paragraphs above, up to and including the use of improved environmental weighting. Green depicts the option with the least impact to the environment, yellow in the middle and red the most impact.

	Appx A Raw Score	Appx B Environ only	Appx C Improved Weights
2A (OH)	27.34	25.54	25.41
2B (UG)	17.66	15.86	17.66
11 (streets)	21.46	14.69	11.08

Removing non-environmental criteria from the evaluations establishes the in-street option as having the least environmental impact. By improving the relative weights of the criteria that advantage becomes more pronounced. The in-street option is then unquestionably better from an environmental perspective.

Vulnerability of Public Water Supply

Attached after the appendices are aerial views showing two sections of the right of way route with the approximate locations of all of the Town's wells. Also attached are relevant sections of Eversource's hydrological study (VHB, Groundwater Hydrology Assessment: Hudson, MA Public Community Water System). That study states that the soil in the area is extremely porous and that there is rapid exchange between surface water and the aquifers. "The aquifer materials are highly transmissive to the flow of water" (page 3). "Permeability is approximately 90 ft/day" (page 3). "The aquifer is sensitive to surface spills and sources of contamination. Spilled liquids could rapidly seep down to the water table and enter the groundwater" (page 6). Because of this, Hudson's well sites are extremely vulnerable to both construction activity and herbicidal vegetation management along the right of way. As recently as November 14, 2016 our wells recorded elevated fecal coliform counts, probably from area wildlife. In response we were required to notify the public. Construction and vegetation management increases several fold the likelihood that harmful contaminants will be introduced into the groundwater.

Finally, MEPA should consider that Eversource has admitted to (though has shown no proof of) a limited 20-year lease arrangement with the MBTA. If we take them at their word, we must also recognize that the MBTA could have granted a much longer lease. That creates the chance that the lease may not be extended or renewed. This would mean that disruptions that occur during construction with either of the right of way options may recur in 20 years. This, of course, is not an issue with in-street infrastructure, where further disruption is not anticipated. This is yet another reason to consider the in-street option as the option with the least harmful environmental impacts.

Eversource did a poor job on their ENF and had to file a "corrected" ENF. Because of this and the reasons outlined in this letter, the Town of Hudson is requests that MEPA require Eversource to complete a comprehensive Environmental Impact Report with alternatives analyses and with proper consideration of Hudson's drinking wells.

Respectfully submitted,

Thomas Moses
Executive Assistant

Appendix A

Option 2A - overhead along the MBTA right of way

	weight	Score	Ext
Residential Land Uses	5	0.10	0.50
Commercial/Industrial Uses (Total Building Units)	4	0.21	0.84
Sensitive Receptors (Total Parcels)	5	0.13	0.65
Cultural Resources	2	0.32	0.64
Scenic Roadways (miles)	4	0.08	0.32
Potential for Traffic Congestion	5	0.27	1.35
Potential to Encounter Subsurface Contamination	1	0.31	0.31
Public Shade Trees	1	1.00	1.00
Tree Clearing (acres)	5	0.96	4.80
Wetland Resource Areas (acres)	5	0.93	4.65
Public Water Supplies (miles)	3	0.83	2.49
Conservation Lands (miles)	3	1.00	2.99
State-Listed Rare Species Habitat (acres)	5	1.00	5.00
Route Length	1	0.81	0.81
Trenchless Crossings	3	0.07	0.21
Existing Utility Density	3	0.15	0.45
Hard Angles (> 30 degrees)	1	0.33	0.33
Total Weighted Score			27.34

Option 2B - underground along the MBTA right of way

	weight	Score	Ext
Residential Land Uses	5	0.10	0.50
Commercial/Industrial Uses (Total Building Units)	4	0.21	0.84
Sensitive Receptors (Total Parcels)	5	0.13	0.65
Cultural Resources	2	0.32	0.64
Scenic Roadways (miles)	4	0.07	0.28
Potential for Traffic Congestion	5	0.27	1.35
Potential to Encounter Subsurface Contamination	1	0.31	0.31
Public Shade Trees	1	0.26	0.26
Tree Clearing (acres)	5	0.37	1.85
Wetland Resource Areas (acres)	5	0.35	1.75
Public Water Supplies (miles)	3	0.83	2.49
Conservation Lands (miles)	3	1.00	2.99
State-Listed Rare Species Habitat (acres)	5	0.39	1.95
Route Length	1	0.81	0.81
Trenchless Crossings	3	0.07	0.21
Existing Utility Density	3	0.15	0.45
Hard Angles (> 30 degrees)	1	0.33	0.33
Total Weighted Score			17.66

Option 11 - underground in-street

	weight	Score	Ext
Residential Land Uses	5	0.18	0.90
Commercial/Industrial Uses (Total Building Units)	4	0.15	0.60
Sensitive Receptors (Total Parcels)	5	0.42	2.10
Cultural Resources	2	0.23	0.46
Scenic Roadways (miles)	4	0.82	3.28
Potential for Traffic Congestion	5	0.84	4.20
Potential to Encounter Subsurface Contamination	1	0.45	0.45
Public Shade Trees	1	-	-
Tree Clearing (acres)	5	-	-
Wetland Resource Areas (acres)	5	0.03	0.15
Public Water Supplies (miles)	3	0.85	2.55
Conservation Lands (miles)	3	-	-
State-Listed Rare Species Habitat (acres)	5	-	-
Route Length	1	0.93	0.93
Trenchless Crossings	3	0.67	2.01
Existing Utility Density	3	0.98	2.94
Hard Angles (> 30 degrees)	1	0.89	0.89
Total Weighted Score			21.46

Appendix B

Option 2A - overhead along the MBTA right of way

	weight	Score	Ext
Residential Land Uses	5	0.10	0.50
Commercial/Industrial Uses (Total Building Units)	4	0.21	0.84
Sensitive Receptors (Total Parcels)	5	0.13	0.65
Cultural Resources	2	0.32	0.64
Scenic Roadways (miles)	4	0.08	0.32
Potential for Traffic Congestion	5	0.27	1.35
Potential to Encounter Subsurface Contamination	1	0.31	0.31
Public Shade Trees	1	1.00	1.00
Tree Clearing (acres)	5	0.96	4.80
Wetland Resource Areas (acres)	5	0.93	4.65
Public Water Supplies (miles)	3	0.83	2.49
Conservation Lands (miles)	3	1.00	2.99
State-Listed Rare Species Habitat (acres)	5	1.00	5.00
Total			25.54

Option 2B - underground along the MBTA right of way

	weight	Score	Ext
Residential Land Uses	5	0.10	0.50
Commercial/Industrial Uses (Total Building Units)	4	0.21	0.84
Sensitive Receptors (Total Parcels)	5	0.13	0.65
Cultural Resources	2	0.32	0.64
Scenic Roadways (miles)	4	0.07	0.28
Potential for Traffic Congestion	5	0.27	1.35
Potential to Encounter Subsurface Contamination	1	0.31	0.31
Public Shade Trees	1	0.26	0.26
Tree Clearing (acres)	5	0.37	1.85
Wetland Resource Areas (acres)	5	0.35	1.75
Public Water Supplies (miles)	3	0.83	2.49
Conservation Lands (miles)	3	1.00	2.99
State-Listed Rare Species Habitat (acres)	5	0.39	1.95
Total			15.86

Option 11 - underground in-street

	weight	Score	Ext
Residential Land Uses	5	0.18	0.90
Commercial/Industrial Uses (Total Building Units)	4	0.15	0.60
Sensitive Receptors (Total Parcels)	5	0.42	2.10
Cultural Resources	2	0.23	0.46
Scenic Roadways (miles)	4	0.82	3.28
Potential for Traffic Congestion	5	0.84	4.20
Potential to Encounter Subsurface Contamination	1	0.45	0.45
Public Shade Trees	1	-	-
Tree Clearing (acres)	5	-	-
Wetland Resource Areas (acres)	5	0.03	0.15
Public Water Supplies (miles)	3	0.85	2.55
Conservation Lands (miles)	3	-	-
State-Listed Rare Species Habitat (acres)	5	-	-
Total			14.69

Appendix C

Option 2A - overhead along the MBTA right of way

	weight	Score	Ext
Residential Land Uses	1	0.10	0.10
Commercial/Industrial Uses (Total Building Units)	1	0.21	0.21
Sensitive Receptors (Total Parcels)	1	0.13	0.13
Cultural Resources	2	0.32	0.64
Scenic Roadways (miles)	1	0.08	0.08
Potential for Traffic Congestion	5	0.27	1.35
Potential to Encounter Subsurface Contamination	1	0.31	0.31
Public Shade Trees	1	1.00	1.00
Tree Clearing (acres)	5	0.96	4.80
Wetland Resource Areas (acres)	5	0.93	4.65
Public Water Supplies (miles)	5	0.83	4.15
Conservation Lands (miles)	3	1.00	2.99
State-Listed Rare Species Habitat (acres)	5	1.00	5.00
Total			25.41

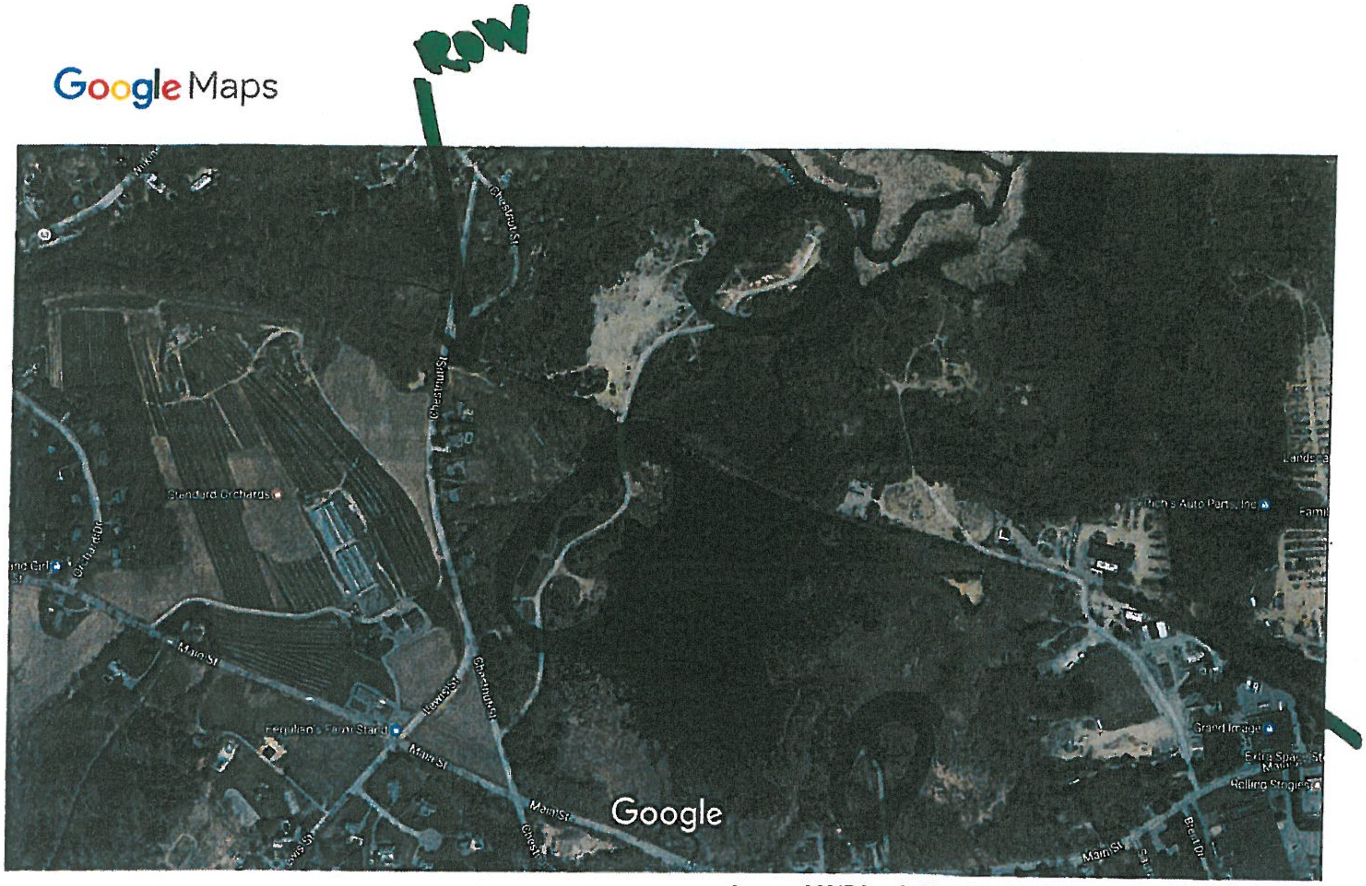
Option 2B - underground along the MBTA right of way

	weight	Score	Ext
Residential Land Uses	1	0.10	0.10
Commercial/Industrial Uses (Total Building Units)	1	0.21	0.21
Sensitive Receptors (Total Parcels)	1	0.13	0.13
Cultural Resources	2	0.32	0.64
Scenic Roadways (miles)	1	0.07	0.07
Potential for Traffic Congestion	5	0.27	1.35
Potential to Encounter Subsurface Contamination	1	0.31	0.31
Public Shade Trees	1	0.26	0.26
Tree Clearing (acres)	5	0.37	1.85
Wetland Resource Areas (acres)	5	0.35	1.75
Public Water Supplies (miles)	5	0.83	4.15
Conservation Lands (miles)	3	1.00	2.99
State-Listed Rare Species Habitat (acres)	5	0.39	1.95
Total			15.76

Option 11 - underground in-street

	weight	Score	Ext
Residential Land Uses	1	0.18	0.18
Commercial/Industrial Uses (Total Building Units)	1	0.15	0.15
Sensitive Receptors (Total Parcels)	1	0.42	0.42
Cultural Resources	2	0.23	0.46
Scenic Roadways (miles)	1	0.82	0.82
Potential for Traffic Congestion	5	0.84	4.20
Potential to Encounter Subsurface Contamination	1	0.45	0.45
Public Shade Trees	1	-	-
Tree Clearing (acres)	5	-	-
Wetland Resource Areas (acres)	5	0.03	0.15
Public Water Supplies (miles)	5	0.85	4.25
Conservation Lands (miles)	3	-	-
State-Listed Rare Species Habitat (acres)	5	-	-
Total			11.08

Google Maps



Imagery ©2017 Google, Map data ©2017 Google 200 ft

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Google Maps

Imagery ©2017 Google, Map data ©2017 Google 500 ft

Appendix 5-6

Attachment for the locations of the wells, aquifers, Wellhead Protection Areas, and Eversource Project and Noticed Variation.

The Fort Meadow Brook Aquifer that the Kane and Chestnut Street wells obtain water from is an unconfined, stratified sand-and-gravel aquifer of glacial origin that extends over a one square-mile area between Chestnut Street on the west, Main Street to the south, Boons Pond to the east, and Sudbury Road to the north. The glacial deposits of sand and gravel originated from outwash-plain and ice-contact deposits during glacial melting approximately 10,000 years ago. These deposits are deep, ranging to approximately 100 feet below ground surface, and are underlain by poorly-sorted, dense, glacial till. The aquifer materials are highly transmissive to the flow of water, with measured transmissivities on the order of 11,600 to 19,600 ft^2/day, averaging 15,000 ft^2/day (Whitman & Howard, 1991). Permeability is approximately 90 ft/day on average, and groundwater flow velocities range from approximately 2 to 3.1 ft/day (Whitman & Howard, 1988).

The Fort Meadow Brook Aquifer is recharged with water from a combination of precipitation onto the overlying land surface, and to a large degree from water infiltrating from the Assabet River and Fort Meadow Brook. The natural groundwater flow direction is to the north, but the pumping of these wells captures water from the Assabet River located to the north, and induces localized radial flow towards the wells from all directions (Whitman & Howard, 1991).

The groundwater aquifer that the Cranberry well obtains water from is also an unconfined, stratified sand-and-gravel aquifer of glacial origin. The glacial deposits of sand and gravel originated in post-glacial lakes and streams from outwash-plains, kettleholes, and ice-contact deposits such as kames and eskers during glacial melting approximately 10,000 years ago. These deposits are less deep than at the Fort Meadow Brook Aquifer, grading below depths of approximately 40 feet into finer-grained materials that are unsuitable for productive wells. Drilling refusal, likely on the underlying bedrock, has been encountered between 70 and 100 feet below grade in the general area. The aquifer materials are highly transmissive to the flow of water (Earth Tech, 2000).

The Cranberry aquifer is recharged primarily with water from precipitation onto the overlying land surface, and to a smaller degree from water infiltrating from the Hop Brook tributary and adjacent wetlands. The natural groundwater flow direction is generally to the southeast, parallel to the Hop Brook tributary, but is complex and variable, and the pumping of the Cranberry well may induce localized radial flow (Earth Tech, 2000).

III. Description of the Eversource Project and Noticed Variation

The Sudbury-Hudson Transmission Reliability Project would consist of electric transmission lines that would follow the unused MBTA corridor through the Town of Hudson and surrounding towns. VHB understands that both the Project and Noticed Variation would follow the existing MBTA right-of-way.

Appendix 5-6

Meadow Brook Aquifer) and 3 (Cranberry Bog Aquifer) of the Attachment. Groundwater would be able to continue flowing as it does presently, beneath the structures. Due to the high permeability and transmissivity of the sand and gravel materials in the aquifer, groundwater would be able to flow readily around and under the structures. Potentially, minor amounts of groundwater mounding could occur on the upgradient side of the structures which would develop the hydraulic gradient sufficient to counteract any minor impediment to flow that might be caused by the manhole structure.

For the Noticed Variation, the caissons would extend below the groundwater level; however, due to the small size of the caissons relative to the distance between each, groundwater would simply flow under and around the caissons without any impact.

V. Conclusions and Recommendations

Neither the Project or Noticed Variation would have any appreciable effect on groundwater flow rates or directions, nor would either option impact the yield of the Hudson municipal wells.

With the Project, for the majority of the length of the route within Hudson and its Wellhead Protection Areas, subsurface Project features would be placed above the elevation of the groundwater, and thus could not affect it. In the localized segment of the Project near the Fort Meadow Brook crossing, deeper project components (manholes) would slightly extend into the water table, but would not alter groundwater flow rates or directions because construction would enter only a small fraction of the aquifer, which is highly permeable, allowing groundwater to flow under and around the structures in the same rates and directions and it does presently.

For the Noticed Variation, due to the small size of the caissons relative to the spacing, groundwater would simply flow under and around them without any impact.

Because the overburden is highly permeable sand and gravel, the aquifer is sensitive to surface spills and sources of contamination. Spilled liquids could rapidly seep down to the water table and enter the groundwater. Therefore VHB recommends development and implementation of a Spill Prevention and Response Plan to address project construction equipment, fuels, lubricants, and any other liquid or hazardous materials that may be on site during construction. Best Management Practices should be established for spill prevention and cleanup. If over 1,320 gallons of oil are to be stored above-ground, a Spill Prevention, Control, and Countermeasure Plan ("SPCC Plan") stamped by a professional engineer would be required in accordance with United States Environmental Protection Agency ("EPA") regulation Title 40 CFR 112, Oil Pollution Prevention.