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September 27, 2019

VIA ELECTRONIC AND HAND DELIVERY

Mr. Mark D. Marini, Secretary
Department of Public Utilities
Commonwealth of Massachusetts
One South Station, 5th Floor
Boston, MA 02110

Re: Petition of Grafton & Upton Railroad Company, D.P.U. 19-39

Dear Secretary Marini:

Enclosed please find a Supplement to the Hopedale Board of Water and Sewer Commissioners' Motion to Intervene. As noted in the Hopedale Board of Water and Sewer Commissioner's August 30, 2019 Motion to Intervene, the Board was in the process of conducting a updated fracture trace study. Through this filing, the Board is submitting the completed fracture trace study to be considered as part of its Motion to Intervene in this proceeding.

Thank you for your attention to this matter. Please contact me with any questions.

Sincerely,

Peter F. Durning

Enclosure

cc: *(Via Electronic and First Class Mail)*
Edward J. Burt, Board of Water & Sewer Commissioners, Chair
Tim Watson, Town of Hopedale Water & Sewer Department, Manager
Jennifer Cargill, Hearing Officer
Sandra R. Austin, Esq.
James Howard, Esq.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 19-39

PETITION OF GRAFTON & UPTON)
RAILROAD COMPANY FOR AUTHORITY)
TO EXERCISE POWER OF EMINENT)
DOMAIN TO ACQUIRE PROPERTY IN)
HOPEDALE, MASSACHUSETTS)

**SUPPLEMENT TO THE HOPEDALE BOARD OF WATER AND
SEWER COMMISSIONERS' MOTION TO INTERVENE**

The Hopedale Board of Water and Sewer Commissioners (the "HBWSC") respectfully submits this supplement to its August 30, 2019 Motion to Intervene (the "HBWSC's MTI").

As noted in the HBWSC's MTI, the HBWSC included in its filing a Fracture Trace Analysis performed by the D.L. Maher Co. for the HBWSC in or around 2005. HBWSC's MIT, ¶ 11 and Exhibit D. Unfortunately, due to the passage of time and extenuating circumstances, the figure was the only remaining element from this Fracture Trace Analysis. HBWSC's MIT, ¶ 11.

The HBWSC commissioned a new Fracture Trace Analysis to provide the "Hearing Officer with a more comprehensive analysis of the critical importance of this portion of the Property for the Town of Hopedale's long-term public drinking water needs." HBWSC's MIT, ¶ 12.

The HBWSC retained Geosphere Environmental, LLC ("Geosphere") to perform a new Fracture Trace Analysis. HBWSC's MIT, ¶ 12. With this Supplement, the HBWSC hereby submits Geospheres' Fracture Trace Analysis, a copy of which is attached as Exhibit 1.

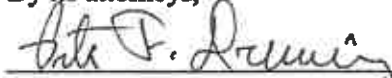
Rail line and west of the Mill River/Hopedale Pond wetland system. These three locations have a strong likelihood for providing a viable public drinking water well." Exhibit 1.

The HBWSC demonstrated in its Motion to Intervene that Hopedale's current need for an additional public drinking water supply is acute. HBWSC's MIT, ¶ 13. The HBWSC intends to pursue the possibility of developing one (or more) of the locations identified by Geosphere as a potential groundwater well.

The HBWSC respectfully requests that the Hearing Office take this supplemental information regarding the potential for a viable drinking water well on Property that is the subject of GURR's eminent domain action into account in its assessment of the HBWSC's standing to intervene and with respect to the HBWSC's request for an award of a taking or, alternatively, an easement for a portion of the Property for the protection of existing water supply areas and the development of future public water supply resources within the Town of Hopedale.

PETITIONER,
HOPEDALE BOARD OF WATER AND SEWER
COMMISSIONERS

By its attorneys,


Peter F. Durning (BBO #658660)

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Dated: 9/27/2015

CERTIFICATE OF SERVICE

I, Peter F. Durning, hereby certify that I have served a copy of the foregoing Supplement to the Hopedale Board of Water and Sewer Commissioners' Motion to Intervene, by electronic mail and by first class mail postage prepaid upon counsel on the Department of Public Utilities

Service List:

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Peter F. Durning

Dated: 04/27/2019

Exhibit 1

September 25, 2019

Hopedale Board of Water & Sewer Commissioners
Tim Watson, Manager
Town of Hopedale Water & Sewer Department
78 Hopedale Street, P.O. Box 7
Hopedale, MA 01747

**RE: Fracture Trace Analysis
Hopedale, MA**

Dear Mr. Watson,

The following is a description of the fracture trace analysis (FTA) performed by Geosphere Environmental Management, Inc. (GEOSPHERE) for the Town of Hopedale, MA.

Fracture Trace Analysis

For bedrock groundwater supply exploration, a fracture trace analysis (FTA) is traditionally performed to provide information on the character (i.e. fractures in the rock) of the crystalline bedrock for a selected area. Unlike groundwater flow in sand and gravel aquifers which occurs through the pore spaces of the sand and gravel deposits, groundwater flow in crystalline bedrock occurs along open fractures in the rock. If there are few fractures in the rock, then there are only a few pathways for groundwater to migrate through the bedrock aquifer.

As indicated above, groundwater in crystalline bedrock travels through open fractures in the rock. These fractures vary in width, but are typically less than an inch wide. The fractures can be oriented vertical to or horizontal to the ground surface and can extend for various distances.

FTA is performed using a remote sensing (i.e. use of aerial photographs) method used to identify and map the locations of fracture traces. A fracture trace or photolinear is a line that marks the intersection of a fracture in bedrock with the ground surface. The goal of a FTA is to identify areas on aerial photographs that contain a high concentration of fractures of a significant length that might yield high amounts of groundwater.

Because water is one of the major weathering agents in rock, flow of water along fractures, in general, causes increased weathering and weakening of the bedrock along the fractures. This increased weathering causes geomorphic and soil moisture changes as well as changes in soil color, supporting biological processes, and vegetation. The weathering processes may manifest as straight stream segments, mark abrupt changes in course of a stream, alignment in a vegetation pattern, and alignment of topographic features. To assess these features, part of the FTA evaluation involves the review of existing topographic maps, surficial geology maps, and bedrock geology maps. These maps will aid in identifying photolinear features on the aerial photograph that meet the criteria as a fracture trace.

As indicated above, the most favorable location for a high yield bedrock well is at the intersections of multiple photolinears (fracture traces) of a significant length which may indicate a wide catchment area for a viable well.

The results of the FTA for Hopedale are shown on Figures 1 and 2. Two aerial photographs were used to identify the fracture traces. For the purpose of this analysis to identify a viable public drinking water well, the study included fractures that were at least 2,000 feet. As shown on the figures, there are fracture traces identified on either side of the existing Grafton-Upton Rail line. There are three locations where multiple fracture traces of significant length are intersecting in the area to the east of the Grafton-Upton Rail line and west of the Mill River/Hopedale Pond wetland system. These three locations have a strong likelihood for providing a viable public drinking water well. These areas are shown on the figures and designated as potential bedrock drilling locations. Further analysis through drilling would be required to confirm the presence of groundwater resources. The figures also depict a 400-foot radius circle is included around each of these three locations, which represents the sanitary protective area for each well. The Massachusetts Department of Environmental Protection (MA DEP) regulations designate this 400-foot radius area (approximately 12 acres) for activities associated with the operation and maintenance of a groundwater well. All other activities are prohibited from the sanitary protective area.

GEOSPHERE has performed numerous FTA studies in communities neighboring Hopedale. For these projects, we have identified a smaller number of fracture traces than what we identified for Hopedale in this study. We interpret the larger number of identified fracture traces as positive indicators for the favorable potential for high yield bedrock well(s) for the Town of Hopedale. GEOSPHERE recommends moving forward with bedrock exploration drilling at these three identified FTA locations.

If you have any questions, please feel free to contact us.

Sincerely,



Raymond W. Talkington, Ph.D., P.G., C.P.G.
Principal Hydrogeologist

