MEMORANDUM

TO: KATE FITZPATRICK

FROM: RICHARD LESTER

SUBJECT: REVIEW OF AUGUST 2018 EMF MEASUREMENTS – WEST ROXBURY TO NEEDHAM RELIABILITY PROJECT

DATE: SEPTEMBER 24, 2018

CC: RAY MIYARES, RICHARD MERSON, TIMOTHY MCDONALD

At the request of the Town of Needham (the "Town"), I have reviewed the EMF Monitoring Results Summary dated September 14, 2018. The summary documents the results of EMF measurements conducted on August 7, 2018 in accordance with the July 25, 2018 West Roxbury to Needham 115-kV Line Project Magnetic Field Measurement Plan (the "Plan"). Dr. Christopher Long and Mr. Andrew Desrosiers of Gradient Corporation, Eversource Energy's consultant, conducted the measurements. I was present at the time the measurements were conducted as the Town's expert.

The measurements were conducted in accordance with the Plan. The monitoring was performed from approximately 11:05 a.m. to 1:10 p.m. on August 7, 2018 when temperatures were approximately 91 to 92°F as confirmed by official records at Norwood Airport. Due to electricity use for cooling, the highest loads on electric transmission lines and therefore the highest associated magnetic fields frequently occur on hot summer days. The timing of the measurements met the requirement of the plan that the measurements be conducted when temperatures were 90°F or higher.

Gradient Corporation first measured 60-Hz magnetic field strengths along the six transects specified in the Plan. The Plan specifies that the monitoring should be completed along transects that extended 25 feet to either side of the new transmission line or to the extent practical. Due to private property, most transects did not extend 25 feet either side of the transmission line, but they went as far as was reasonable without entering private property. Magnetic field strengths were then measured along the length of the proposed route, beginning on High Rock Road and ending on Valley Road. The measurements were conducted along the side of the road where distribution lines were present, switching sides of the street whenever the distribution lines switched sides of the street. The measurements should therefore be representative of the highest magnetic field measurements associated with the overhead lines at the time the measurements were conducted.

The approximate range of 60-Hz magnetic field strengths measured along each of the six transects is summarized in Table 1. Ranges reported in Table 1 are approximate based on the figures provided in the EMF Monitoring Results Summary.

Table 1 Magnetic fields measured along the six transects

Transect	60-Hz Magnetic Field (mG)
High Rock Street at Richardson Drive	2 - 7
84 High Rock Street	4 - 13
South Street at Canterbury Lane	5 - 12
300 South Street	6 - 9
130 South Street	2 - 5
43 Valley Road	0 - 4

Magnetic field strengths along the proposed route of the transmission line ranged from less than 1 mG along some portions of Valley Road to nearly 80 mG at one location near the intersection of High Rock Street and Chestnut Street. A secondary peak value of approximately 50 mG occurred near the intersection of South Street and Webster Street. Observed magnetic field strength was generally greater along the first half of the route (from the MBTA bridge on High Rock Road to the intersection of South Street and Green Street) than the second half of the route (South/Green to 15 Valley Road). Magnetic field strength along the first half of the route was typically between 10 and 20 mG with occasional higher excursions. Magnetic field strengths along the second half of the route were typically less than 10 mG, and typically less than 5 mG from the intersection of Great Plain Avenue and Peacedale Road to the end of the route at 15 Valley Road.

These measurements are consistent with expectations along public ways with distribution lines and are not notably higher or lower than those found in many communities across Massachusetts. The peak measurement of nearly 80 mG is not uncommon when crossing a distribution or transmission line carrying a significant load. Overall, I believe these measurements represent an acceptable pre-construction baseline for magnetic fields along the Needham portion of the West Roxbury to Needham Reliability Project.

Please contact me at 857-366-2015 should you have any questions or wish to discuss the magnetic field measurements further.