

Appendix F
**Post-Construction Electric and Magnetic Field
Monitoring Plan**

POST-CONSTRUCTION ELECTRIC & MAGNETIC FIELD MONITORING PLAN

STAMFORD RELIABILITY CABLE PROJECT

I. Introduction and Purpose

In accordance with the September 5, 2013 Decision and Order of the Connecticut Siting Council (the “Council”) in Docket 435, The Connecticut Light and Power Company (the “Company”) proposes the following post-construction electric and magnetic field monitoring plan for the Stamford Reliability Cable Project (the “Project”).

A primary purpose for electric and magnetic field (“E & MF”) measurements near to transmission lines is to make comparisons to levels predicted by calculations. This purpose is best served for an underground transmission line by selecting post-construction measurement locations where conductor configurations and depths are typical and representative, and where few if any confounding field sources and objects exist. A secondary purpose for such measurements can be to make comparisons between levels measured at points of interest before and after new line construction. However, those points of interest may not be at locations which best serve the primary purpose. Also, measurements of magnetic fields should not be so compared to predicted levels because power-flow circumstances can be significantly different at the times of these before and after measurements.

II. Monitoring Locations

The Company’s proposed monitoring locations for electric and magnetic fields are listed in Table 1 at the end of this plan. The selected monitoring locations capture the underground line on both sides of the existing overhead transmission lines. Additional considerations in location selection are as follows:

1. Measurement Location Characteristics

The Company chose one readily accessible monitoring location on either side of the existing overhead transmission lines along the line routes.

At each of the two monitoring locations listed in Table 1, measurements will be made on public roadways, and not on nearby private property outside of the public way, absent landowner approval.

To the extent possible, the Company chose measurement locations where: (1) cable configurations and depths are typical and representative; and (2) where possible, few if any confounding sources, such as local distribution lines, and objects exist, other than the existing overhead 115-kV lines.

III. Measurements for Line Segments

The Company will take a post-construction measurement of electric and magnetic fields twice at each of the listed locations within 10 months of commencement of new 115-kV line operation

For the locations selected to meet criteria II.1, the Company will measure electric and magnetic fields along a transect (i.e., profile) passing perpendicularly above new sections of underground 115-kV line, at the listed locations. The measurement path will extend to 25 feet from either side of the proposed cable.

IV. Measurement Instrumentation and Recording

The Company will record all electric and magnetic field measurements at a height of one meter (3.28 feet) above ground in accordance with the industry standard protocol for taking measurements near power lines (IEEE Std. 644-1994 [R2008], "*IEEE Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields From AC Power Lines*"). The resultant magnetic field will be measured with a 3-axis, recording digital meter (EMDEX II). Electric fields will be measured with an E-Probe attachment accessory to the EMDEX II meter. This accessory enables the EMDEX II to make single-axis measurements of the electric field. Both the EMDEX II magnetic field meter and the E-probe accessory meet the IEEE instrumentation standard for obtaining valid and accurate field measurements at power line frequencies (IEEE Std. 1308-1994, "*IEEE Recommended Practice for Instrumentation: Specifications for Magnetic Flux Density and Electric Field Strength — 10 Hz to 3 kHz.*") With this instrumentation, magnetic fields can be recorded continuously while walking and then plotted, whereas electric fields can be measured at spots and then recorded by hand in a data table and then plotted.

V. Reporting

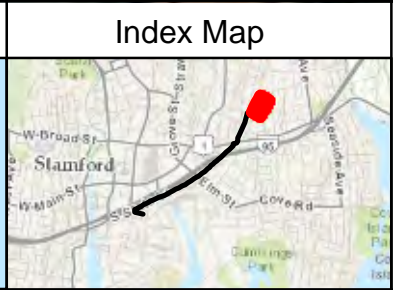
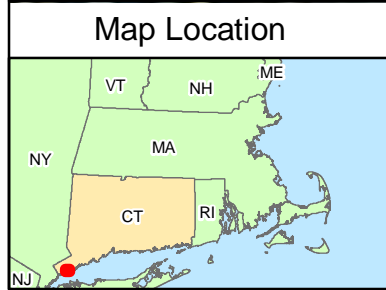
Within twelve months of the in-service date of the new 115-kV line, the Company will provide to the Council a report on these measurements with "true-up" comparisons to predicted values. "True-ups" are electric and magnetic field calculations that are based on site-specific conditions, including the actual conductor heights and depths at a location at the time the measurement is made, current flows on the lines at the time the measurement is made, and the terrain. These calculations are then compared with the measurements taken at the location. True-up comparisons of measurements with calculations will be performed and reported for some locations to demonstrate model accuracy

The report will also include aerial photographs on a scale of 1 inch equals 50 feet to mark each measurement location. For each magnetic field measurement, the coincident transmission line currents, as recorded by the CONVEX SCADA system, will be noted and reported. Additionally for each measurement location, the size of transmission line conductor types will be reported.

TABLE 1

**E&MF MONITORING LOCATIONS FOR
THE STAMFORD RELIABILITY CABLE PROJECT**

Site	Municipality	Location
1	Stamford	Lincoln Ave in the vicinity of Glenbrook S/S
2	Stamford	Culloden Rd between Scott Place and Crystal Ave



Legend

- Preferred Route With Canal Street Option (Updated)
- NU Property Line
- Parcel Boundary
- EMF Measurement

0 50 100 Feet

1:600 1" = 50'

Data Source: ESRI Bing Imagery; Town of Stamford 2009; NU 2013

Stamford Reliability Cable Project

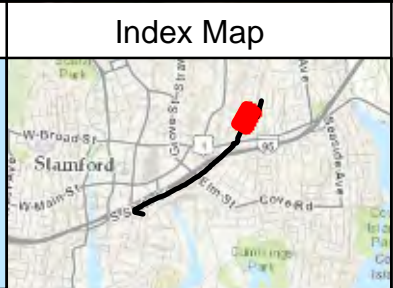
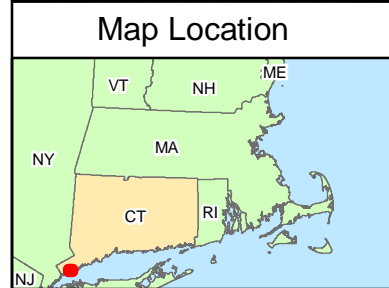
EMF Monitoring Location Maps

Mapsheets 1 of 2

Connecticut Light & Power
A Northeast Utilities Company

Date: September 10 2013

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Legend

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Stamford Reliability Cable Project

EMF Monitoring Location Maps

Mapsheets 2 of 2

AECOM

Date: September 10 2013

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