Connecticut
Light & Power

A Northeast Utilities Company

Connecticut Siting Council
Docket No. 435

STAMFORD RELIABILITY CABLE PROJECT
Stamford, Connecticut

DEVELOPMENT AND MANAGEMENT PLAN

Glenbrook and South End Substations

VOLUME I of III

October 31, 2013

Submitted to:
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Submitted by:
The Connecticut Light and Power Company
107 Selden Street
Berlin, CT 06037

VOLUME I
STAMFORD RELIABILITY CABLE PROJECT
DEVELOPMENT AND MANAGEMENT PLAN
Glenbrook and South End Substations

Table of Contents

List of Tables

List of Figures

Appendix A: DRAWINGS AND PHOTOGRAPHS

Volume II
(under separate cover)
D&M Plan - 115-kV Underground Transmission Line

Volume III
(under separate cover)
D&M Plan - General Appendices

1 INTRODUCTION

1.1 PROJECT OVERVIEW AND PURPOSE OF THE PLAN

The Connecticut Light and Power Company ("CL&P") has prepared this Development and Management Plan ("D&M Plan" or the "Plan") as part of the Stamford Reliability Cable Project ("SRCP" or "the Project"). CL&P proposes to construct and operate a new 115-kilovolt ("kV") underground transmission line, extending approximately 1.5 miles between CL&P's Glenbrook and South End Substations in Stamford (the "City"), and to make related modifications to both substations (Figure 1-1).

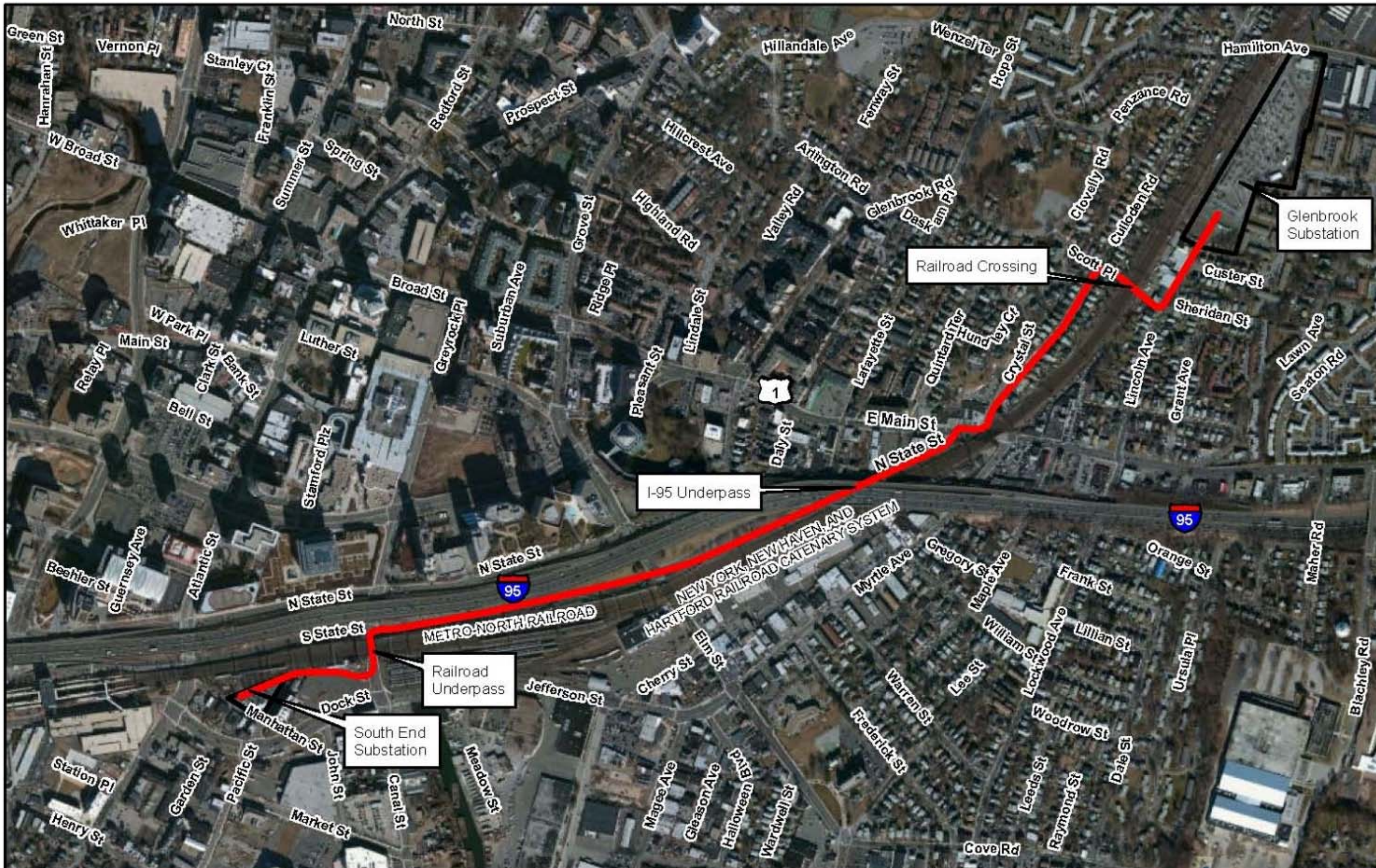
On January 18, 2013, CL&P submitted to the Connecticut Siting Council ("Council" or "CSC") an Application for a Certificate of Environmental Compatibility and Public Need for the Project (Council Docket No. 435). After public meetings, evidentiary hearings, interrogatories and related technical reviews, the Council approved the Project on September 5, 2013. Condition #2 of the Council's Decision and Order approving the Project requires that CL&P prepare a D&M Plan in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies ("RCSA"; *Requirements for a D&M Plan, Elements of a D&M Plan, Reporting Requirements*).

1.2 ORGANIZATION OF THE D&M PLAN

To address both the procedures unique to the substation modifications and the 115-kV underground transmission line components and to adhere to Project-wide specifications applicable to such work, this D&M Plan consists of three volumes:

- Volume I - A D&M Plan that addresses all construction activities for the modifications to Glenbrook Substation and South End Substation;
- Volume II - A D&M Plan that addresses all construction activities for the 115-kV underground transmission line; and,
- Volume III - A D&M Plan that contains Project-wide approvals, plans, guidelines, and specifications that apply universally to the construction activities at the Glenbrook and South End Substations.

This D&M Plan is Volume I, which addresses all construction activities associated with the modifications to Glenbrook Substation and South End Substation.


Glenbrook Substation
Railroad Crossing
I-95 Underpass
Railroad Underpass
South End Substation
METRO-NORTH RAILROAD
NEW YORK, NEW HAVEN, AND HARTFORD RAILROAD CATENARY SYSTEM
95
1
Green St
Hanrahan St
Vernon Pl
W Broad St
Whittaker Pl
Stanley Ct
Franklin St
Summer St
Spring St
North St
Bedford St
Prospect St
Hillcrest Ave
Hillandale Ave
Arlington Rd
Fenway St
Wenzel Ter
Hope St
Penzance Rd
Hamilton Ave
Clovelly Rd
Culloden Rd
Glenbrook Rd
Daskam Pl
Valley Rd
Highland Rd
Grove St
Ridge Pl
Suburban Ave
Broad St
Greyrock Pl
Luther St
W Park Pl
Main St
Relay Pl
Clark St
Bank St
Bell St
Stamford Plz
Lindale St
Pleasant St
Daly St
Lafayette St
Quintard Ter
Hundley Ct
Crystal St
Scott Pl
Custer St
Sheridan St
Lincoln Ave
Grant Ave
Lawn Ave
Seaton Rd
E Main St
N State St
Orange St
Maher Rd
Beehler St
Guernsey Ave
Atlantic St
S State St
Myrtle Ave
Gregory St
Maple Ave
Frank St
William St
Lockwood Ave
Lillian St
Ursula Pl
Blachley Rd
Cherry St
Elm St
Jefferson St
Dock St
Manhattan St
Station Pl
Henry St
Garden St
Pacific St
John St
Canal St
Market St
Meadow St
Magee Ave
Gleason Ave
Halloween Blvd
Wardwell St
Frederick St
Warren St
Lee St
Woodrow St
Dale St
Leeds St
Raymond St
Cove Rd

Map Location

Legend

PREFERRED ROUTE WITH CANAL STREET OPTION (UPDATED)

1:7,200 1" = 600'

0 600 1,200 Feet

N

Data Souce: ESRI Bing Imagery
AECOM Survey: May 2012

Stamford Reliability Cable Project

Figure 1-1
Preferred Route With Canal Street Option (Updated)

Connecticut Light & Power
A Northeast Utilities Company

AECOM

Date: July 22 2013

1.2.1 Volume I – Glenbrook and South End Substations D&M Plan

Volume l includes specific information relevant to the Project modifications to the Glenbrook and South End Substations. Volume l (Sections 1 through 10) includes general Project data and procedures that are pertinent to work at both substations, including regulatory requirements, general Project construction procedures and plans, overall construction schedule, environmental inspection, public outreach, and Council-required notices and reporting, including the process for requesting and noticing D&M Plan changes.

Table 1-1 (see pages 1-4 to 1-8) summarizes each of the Council's D&M Plan requirements and indicates where within the D&M Plan this information is located. For each D&M Plan requirement, Table 1-1 either identifies the location in the D&M Plan where the requirement is addressed or states why the requirement is not relevant to the substation modifications. Table 9-1 (see pages 9-1 to 9-3) identifies the requirements pertaining to substations contained in the Council's Decision and Order and Opinion for the Project.

All of the substation modifications will be implemented in upland areas within presently developed fenced portions of the two substations. As a result, certain regulatory requirements (e.g., those pertaining to water resources, forested vegetation clearing, active farmland protection) are not applicable to the substation modifications, as identified in Table 1-1 and are therefore not included in this D&M Plan.

Appendix A of Volume l provides detailed, site-specific construction information, plans, and drawings regarding the modifications to Glenbrook and South End Substations including:

- Key Map/Site Locus (Appendix A, Exhibit 1);
- Aerial Photograph of Glenbrook Substation and Surroundings (Appendix A, Exhibit 2);
- Aerial Photograph of South End Substation and Surroundings (Appendix A, Exhibit 2A);
- General Arrangement Plans (Appendix A, Exhibit 3); and,
- Sediment and Erosion Control Figures (Appendix A, Exhibit 4).

1.2.2 Volume II – 115-kV Underground Transmission Line D&M Plan

Volume ll includes plans and specifications that pertain to specific construction activities associated with the 115-kV underground transmission line route. Volume ll provides the transmission line counterparts of the substation materials noted above including:

- Key Map/Site Locus (Appendix A, Exhibit 1);
- Aerial Photograph of Preferred Route and Surroundings (Updated) (Appendix A, Exhibit 2);

- Plan and Profile and Detail Drawings (Appendix A, Exhibit 3);
- Sediment and Erosion Control Figures (Appendix A, Exhibit 4); and,
- Pavement Restoration Plan (Appendix A, Exhibit 5).

1.2.3 Volume lll – General Appendices

Volume lll includes Project-wide approvals, plans, guidelines, and specifications that apply universally to the construction activities at the Glenbrook and South End Substations as well as the underground transmission line route. In particular, Volume lll includes the following appendices:

Appendix A. Docket No. 435 Decision and Order

Appendix B. Northeast Utilities' *Construction and Maintenance Environmental Requirements Best Management Practices Manual: Connecticut, December 2011*

Appendix C. Spill Prevention and Countermeasures Plan

Appendix D. Soil Handling and Dewatering Plan

Appendix E. Snow Removal and De-Icing Procedures

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

Appendix G. City of Stamford Comments on D&M Plan

1.3 DEVELOPMENT AND MANAGEMENT PLAN DIRECTORY

Table 1-1 summarizes each of the Council's D&M Plan requirements and indicates either where in the Plan this information is located or why the requirement is not relevant to this component of the Project.

Table 1-1: D&M Plan Directory for Glenbrook and South End Substations - Compliance with RCSA Sections 16-50j-60, -61 and -62

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
16-50j-60	**Requirements for a D&M Plan**	
(a)	**Purpose.** The Council may require the preparation of full or partial D&M Plans for proposed energy facilities, modifications to existing energy facilities, or where the preparation of such a plan would help significantly in balancing the need for adequate and reliable utility services at the lowest reasonable cost to consumers with the need to protect the environment and the ecology of the state.	This D&M Plan (Volume l of lll) applies to modifications at the Glenbrook and South End Substations.

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
(b)	**When required.** A partial or full D&M plan shall be prepared in accordance with this regulation and shall include the information described in RCSA Sections 16-50j-61 to 16-50j-62, inclusive, for any proposed energy facility for which the Council issues a certificate of environmental compatibility and public need, except where the Council provides otherwise at the time it issues the certificate. Relevant information in the Council's record may be referenced.	This D&M Plan (Volumes I and III of III) includes all information applicable to the construction of the substation modifications for the Project.
(c)	**Procedure for preparation.** The D&M plan shall be prepared by the certificate holder or the owner or operator of the proposed facility or modification to an existing facility. The preparer may consult with the staff of the Council to prepare the D&M plan.	This D&M Plan was prepared by CL&P.
(d)	**Timing of plan.** The D&M plan shall be submitted to the Council in one or more sections, and the Council shall approve, modify, or disapprove each section of the plan not later than 60 days after receipt of it. If the Council does not act to approve, modify or disapprove the plan or a section thereof within 60 days after receipt of it, the plan shall be deemed approved. Except as otherwise authorized by the Council, no clearing or construction shall begin prior to approval of applicable sections of the D&M plan by the Council.	This D&M Plan (Volumes I and III of III) includes all relevant information for the substation modifications except for the list of contractor personnel as specified in Section 16-50j-61(c)(8). Contact information for the prime contractor(s) for the substation modification work will be provided to the Council in a supplemental submission, after substation contract award, prior to the commencement of construction.
16-50j-61	**Elements of D&M Plan**	
(a)	**Key Map.** 1"=2,000' USGS topographic map	Volume I, Appendix A, Exhibit 1
(b)	**Plan Drawings.** 1"=100' or larger, and supporting documents, which shall contain the following information:	Plan drawings, as well as aerial-based maps, included for each substation in Volume I, Appendix A, Exhibits 2, 2A and 3
1.	Edges of the proposed site and any existing site contiguous to or crossing the site, portions of the site owned by the company in fee, and the identity of property owners of record of the portions of the site not owned by the company in fee	Volume I, Appendix A, Exhibits 1, 2, 2A, and 3
2.	Public roads and public land crossings or adjoining the site	Volume I, Appendix A, Exhibits 2 and 2A
3.	Location of 50' contours along the site	Volume I, Appendix A, Exhibit 1
4.	Probable location, type, and height of the proposed facility and components (including each new transmission structure, position of guys, description of foundations, and locations of any utility or other structures to remain on the site or to be removed).	Volume I, Appendix A, Exhibits 1, 2, 2A, and 3
5.	Probable points of access to the site, and the route and likely nature of accessways, including alternatives	Volume I, Appendix A, Exhibits 1, 2, 2A, and 3
6.	Edges of existing and proposed clearing areas, the type of proposed clearing along each part of the site, and the location and species identification of vegetation that would remain for aesthetic and wildlife value	Except minor herbaceous/shrub clearing associated with substation staging areas, no vegetation clearing will be required. Volume I, Appendix A, Exhibits 1, 2, and 2A
7.	Identification of sensitive areas and conditions within and adjoining the site, including but not limited to:	

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
	A. Wetland and watercourse areas regulated under Connecticut General Statutes ("C.G.S.") Chapter 440 and any locations where construction may create drainage problems	N/A - No water resources will be affected by the substation modifications.
	B. Areas of high erosion potential	N/A - There are no steep slopes or highly erodible soils within or adjacent to any of the locations where Project work activities will occur at the two substations.
	C. Critical habitats or areas identified as having rare, endangered, or threatened, or special concern plant or animal species listed by the state or federal government	N/A - No rare or other listed species habitat has been identified along the Project route.
	D. Location of known underground utilities or resources to be crossed (electric lines, fuel lines, drainage systems and natural or artificial public or private water resources)	N/A - Except for any underground lines within the substations. Volume I, Appendix A, Exhibit 3
	E. Residences or businesses within or adjoining the site that may be disrupted during construction	Volume l, Section 5.6
	F. Significant environmental, historic and ecological features (significantly large or old trees, buildings, monuments, stone walls or features of local interest)	N/A - Work will occur within existing fenced substations.
(c)	**Supplemental Information**	
1.	Plans (if any) to salvage marketable timber, restore habitat and maintain snag trees within or adjoining the site	N/A - No forest clearing.
2.	All construction and rehabilitation procedures with reasonable mitigation that shall be taken to protect areas and conditions identified in 7(b), above, including but not limited to:	
	A. Construction techniques at wetland and watercourse crossings	N/A - No water crossings associated with work at the substations.
	B. Sediment & Erosion control and rehabilitation procedures, consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as updated and amended for areas of high erosion potential	Volume I, Sections 3, 5 and 6 and Appendix A, Exhibit 4
	C. Precautions and all reasonable mitigation measures to be taken in areas within or adjoining the site to minimize any adverse impacts of such actions or modifications on Endangered, Threatened, or special concern plant or animal species listed by federal or state agencies and critical habitats that are in compliance with federal and state recommended standards and guidelines, as amended	N/A - No rare species habitat has been identified along the Project route.
	D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features	N/A – Work will occur in upland areas and areas will be returned to pre-construction grades, to the extent practicable.
	E. Plans for watercourse bank restoration in accordance with Chapter 440 of the C.G.S.	N/A - No bank restoration is needed.
	F. Plans for the protection of historic and archaeological resources with review and comment from a state historic preservation officer of the Connecticut Department of Economic and Community Development ("CT DECD") or its successor agency	N/A - No historic impacts.
3.	Plans for the method and type of vegetation clearing and maintenance to be used within or adjacent to the site	N/A - Except minor herbaceous/shrub clearing associated with staging areas, no vegetation clearing will be required.

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
4.	Location of public recreation areas or activities known to exist or being proposed in or adjacent to the site, together with copies of agreements between the company and public agencies authorizing the public recreation use of the site to the extent of the company's rights thereto	N/A - No recreation impacts.
5.	Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site	Volume lll, Appendix D, Soil Handling and Dewatering Plan
6.	Locations of areas where blasting is anticipated	N/A - No blasting will occur within the substations.
7.	Rehabilitation plans, including but not limited to reseeding and topsoil restoration	Volume l, Section 3.2.6 and 3.2.9
8.	Contact information for the personnel of the contractor assigned to the project	To be provided after substation contract award, prior to commencement of construction.
9.	Such site-specific information as the CSC may require	No additional requirements
(d)	**Notice.** A copy, or notice of the filing of the D&M Plan, or a copy, or notice of the filing of any changes to the D&M Plan, or any section thereof, shall be provided to the service list and the property owner of record, if applicable, at the same time the plan, or any section thereof, is submitted to the CSC	Volume I, Section 7
(e)	**Changes to the Plan.** The CSC may order changes to the D&M plan, including but not limited to vegetative screening, paint color, or fence design at any time during the preparation of the plan	Volume I, Section 7.2, CL&P's Notice of Changes to D&M Plan
16-50j-62	**Supplemental Reporting Requirements**	
(a)	**Site Testing and Staging Areas.** The certificate holder, or facility owner or operator, shall provide the CSC with written notice of the location and size of all areas to be accessed or used for site testing or staging areas. If such an area is to be used prior to approval of the D&M plan, the CSC may approve such use on terms as it deems appropriate.	Volume I, Sections 3.2 and 7.1; Appendix A, Exhibits 1, 2, 2A, and 3.
(b)	**Notice**	
1.	The certificate holder, or facility owner or operator, shall provide the CSC, in writing with a minimum of two weeks advance notice of the beginning of:	Volume I, Section 7.1
	A. Clearing and access work in each successive portion of the site, and	
	B. Facility construction in that same portion	
2.	The certificate holder, or facility owner or operator, shall provide the CSC with advance written notice whenever a significant change of the approved D&M plan is necessary. If advance written notice is impractical, verbal notice shall be provided to the CSC immediately and shall be followed by written notice not later than 48 hours after the verbal notice. Significant changes to the approved D&M plan shall include, but not be limited to, the following:	Volume I, Section 7.2, CL&P's Notice of Changes to D&M Plan
	A. The location of wetland or watercourse crossing	
	B. The location of an accessway or structure in a regulated wetland or watercourse area	

RCSA Section	Description	D&M Plan (Section Reference, as Applicable)
	C. The construction or placement of any temporary structures or equipment	
	D. A change in structure type or location including, but not limited to, towers, guy wires, associated equipment or other facility structures	
	E. Utilization of additional mitigation measure, or elimination of mitigation measures. The CSC or its designee shall promptly review the changes and shall approve, modify, or disapprove the changes in accordance with subsection (d) of RCSA Section 16-50j-60	
3.	The certificate holder, or facility owner or operator, shall provide the CSC with a monthly construction progress report or a construction progress report at intervals determined by the CSC or its designee, indicating changes and deviations from the approved D&M Plan. The CSC may approve changes and deviations, request corrections, or require mitigation measures.	Volume I, Sections 7.2 and 7.3
4.	The certificate holder, or facility owner or operator, shall provide the CSC with written notice of completion of construction and site rehabilitation.	Volume I, Section 7.1
(c)	**Final Report.** The certificate holder, or facility owner or operator, shall provide the CSC with a final report for the facility not later than 180 days after completion of all site construction and site rehabilitation. The report shall identify:	Volume I, Section 7.3
1.	All agreements with abutters or other property owners regarding special maintenance precautions	
2.	Significant changes of the D&M plan that were required because of property rights of underlying and adjoining owners for other reasons	
3.	The location of construction materials which have been left in place including, but not limited to, culverts, erosion control structures along watercourses and steep slopes, and corduroy roads in regulated wetlands	
4.	The location of areas where special planting and reseeding have been done	
5.	The actual construction cost of the facility, including but not limited to the following costs:	
	A. Clearing and access	
	B. Construction of the facility and associated equipment	
	C. Rehabilitation; and	
	D. Property acquisition for the site or access to the site	
(d)	**Protective Order.** The certificate holder, or facility owner or operator, may file a motion for protective order pertaining to commercial or financial information related to the site or access to the site.	N/A

A CSC Decision and Order and Opinion Checklist (Table 9-1) can be found in Section 9. Table 9-1 presents the Council's requirements for the Project pursuant to the Docket No. 435 Decision and Order and Opinion and indicates where within the D&M Plan the relevant information is located.

This page left blank intentionally

2 REGULATORY APPROVALS AND CONSULTATIONS FOR SUBSTATION MODIFICATIONS

2.1 REGULATORY APPROVALS AND REQUIREMENTS

This D&M Plan: (i) complies with the requirements of RCSA Sections 16-50j-60 through 16-50j-62 (*Requirements for a D&M Plan, Elements of a D&M Plan, Reporting Requirements*); (ii) incorporates CL&P's commitments as contained in the record of the Council's Docket 435 regulatory process; and (iii) reflects adherence to the conditions of the Council's certificate for the Project and other relevant regulatory approvals. All of the Project work will be at upland sites. Therefore, no regulatory authorization from the U.S. Army Corps of Engineers is necessary. Consequently, the controlling regulatory approvals for the substation construction activities are:

- The Council's Decision and Order for the Project, Conditions #1 through 10 (Volume III, Appendix A), and
- Connecticut Department of Energy and Environmental Protection ("CT DEEP") Contaminated Soil Transfer and Staging General Permit.

2.2 CONSULTATIONS

During the preparation of this D&M Plan, CL&P consulted with representatives of the City and provided information regarding the D&M Plan process, the equipment modifications and construction activities at the Glenbrook and South End Substations, and CL&P's outreach procedures. CL&P also provided to the City appropriate contact information for Project representatives prior to and during construction. Additional information regarding CL&P's community outreach process is included in Section 8.

As specified in the D&M Plan requirements, CL&P consulted with the State Historic Preservation Officer ("SHPO") confirming that the Project modifications to the two substations will not affect archaeological or historic resources. In addition, CL&P has compiled information concerning current land use, future land use patterns, and other environmental resources as a result of consultations with federal, state, and local agency representatives. Copies of Project correspondence were previously included in the Municipal Consultation Filing ("MCF") and the CSC Application.

This page left blank intentionally

3 GENERAL CONSTRUCTION PROCEDURES FOR SUBSTATION MODIFICATIONS

The Project modifications to each of the two existing substations will involve a sequential, phased, construction approach. The following sections summarize the general construction procedures that will be common to construction activities at each of the substations. Detailed site-specific construction drawings and plans are presented in Appendix A, Exhibit 3 of this Volume. Actual sequences and methods of construction may vary based on the characteristics observed at each substation and the final specific engineering designs for each location.

3.1 CONSTRUCTION MANAGEMENT AND CONTACT INFORMATION

Prior to the commencement of substation construction work, CL&P will provide the Council with contact information for the prime construction contractors, consisting of name, corporate address, telephone number, and e-mail.

The Project modifications at the two substations will be monitored by personnel from CL&P and CL&P's construction manager, POWER Engineers, Inc. ("POWER"). These personnel will be present for the construction of the Project modifications at both of the substations. Personnel will be based in the field and will observe and report on construction activities, including adherence to engineering, safety, and environmental requirements. A CL&P Environmental Scientist will be assigned to oversee the environmental requirements during construction.

3.2 GENERAL CONSTRUCTION SEQUENCE

CL&P will construct the Project in several stages, some overlapping in time. The following summarizes the sequence of activities for the modifications to the substations.

3.2.1 Staging Area Identification

To support construction, areas used to store equipment and materials necessary for construction (staging areas) will be located within the Stamford Area Work Center and the Glenbrook and South End Substations as follows:

Stamford Area Work Center: 626 Glenbrook Road, Stamford, Connecticut.
The area is approximately 177' x 117' x 177' x 84' and is located at the southwest corner of the existing parking lot. Approximate Area = 17,820 square feet.

Glenbrook Substation: 95 Hamilton Avenue, Stamford, Connecticut.
The area is within the fence line and is approximately 52' x 185', south of the substation fence. Approximate Area = 9,620 square feet.

South End Substation: The corner of Manhattan and Pacific Street, Stamford, Connecticut. The area is within CL&P's fence line and is approximately 79' x 69' x 48' (triangular in shape) at the north end of property. However, due to the limited space available at the South End substation, this location will be used only if necessary. Approximate area = 1,650 square feet.

Staging areas for the SRCP will be temporary and be in use only during Project construction and shortly thereafter. After completion of construction activities, these sites will be restored to substantially their preconstruction condition.

If additional sites were to be proposed, once the negotiations for the use of the site(s) were completed, the proposed locations would be submitted to the CSC for approval.

3.2.2 Site Preparation

The type of site preparation work required at each substation will vary, in accordance with the characteristics of each facility, the locations of the facility modifications, and the location of staging areas required to support the work. Site preparation may include the following best management practices ("BMPs"):

- Deploying temporary construction storage containers, and related equipment and materials to the substations or associated staging areas and setting up temporary services required to support construction (e.g., portable toilets).
- Establishing designated parking areas for construction workers.
- Erecting "construction zone" warning signs on public roads in the immediate vicinity of the substations.
- Installing protective fencing (e.g., snow fence) around work sites as needed.
- Installing and maintaining, as necessary, temporary soil erosion and sedimentation controls (e.g., silt fence, straw bales) around areas of planned pavement/soil disturbance. Such controls would be maintained and replaced, as necessary, throughout the construction process. The primary objective of these controls would be to minimize the potential for erosion and sediment migration away from construction activity.
- Maintaining temporary erosion and sedimentation controls until the disturbed areas are satisfactorily stabilized.
- Removing and/or graveling over minimal vegetation (if present) from work areas and equipment staging locations.

No grading or blasting is required within the substations for the planned equipment modifications. In general, site preparation work typically would involve the use of construction equipment such as backhoes, excavators, trucks (various sizes), compressors, and flat-bed trailers.

3.2.3 Soil Handling and Dewatering

Handling, transport, intermediate storage, and disposal of excess excavated material will be in accordance with the Soil Handling and Dewatering Plan prepared for this Project (Volume lll, Appendix D). Staging area locations, intermediate storage, treatment and/or disposal facilities, and associated property information will be provided to the CSC once the locations have been selected and agreements have been negotiated.

3.2.4 Erosion and Sediment Controls

To minimize the potential for erosion and sediment migration during construction, the following general construction BMPs will be used:

- Temporary erosion control structures will be placed around work sites prior to conducting any earth moving activities and will be inspected on a routine basis,
- Trench dewatering will not be conducted within 100 feet of a wetland or watercourse, unless a fractionization tank ("frac tank") or similar engineering controls for sediment containment is employed,
- Equipment will not be refueled within 100 feet of any wetland or watercourse, unless appropriate containment procedures are in place,
- Petroleum products will not be stored, mixed, or loaded within 100 feet of a wetland or watercourse,
- In case of an on-site reportable spill, personnel will contact the on-site construction manager who will then immediately contact the National Response Center at 1-800-424-8802 and the on-call emergency response contractor.

In addition to these BMPs, all construction activities will comply with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended). The sediment and erosion control figures are provided in Appendix A, Exhibit 4 of this Volume. Additional information pertaining to the anticipated erosion and sediment controls is located in Section 5.2.

3.2.5 Foundations and Equipment Installation

The process for installing structure and equipment foundations will generally involve excavation, form work, use of steel reinforcement, and concrete placement. No blasting will be required at either of the substations.

Excavated material will either be reused on-site or disposed of off-site in accordance with the specifications in the Soil Handling and Dewatering Plan (Volume III, Appendix D). Temporary spoil stockpiles will be protected with appropriate erosion and sedimentation controls as required.

The Soil Handling and Dewatering Plan that was prepared for the Project addresses handling, storage, and disposal of contaminated or polluted excess material removed during trenching and splice vault installation. Excess materials will be segregated where necessary and hauled off-site to approved disposal facilities or staging areas for subsequent reuse or disposal in accordance with federal, state and local regulations.

If groundwater is encountered in excavations, the water will be pumped from the excavated area and discharged in accordance with the Soil Handling and Dewatering Plan. The water may be discharged on-site into an appropriate sediment control basin; pumped into a temporary frac tank and then discharged into the municipal stormwater system; or pumped into a tanker truck for disposal at appropriate wastewater treatment facilities. Residual silt/sediment collected at the bottom of the frac tanks will be disposed off-site at an appropriately designated disposal facility. Proper catch basin inlet protection will be installed as needed to prevent disturbed soils excavate and construction debris from entering storm water systems.

After the foundations are installed, construction activities will shift to the erection of structures and equipment as specified for each substation modification. Such structures and equipment include steel structures, bus and insulators, circuit breakers, switches, instrument transformers, cable trench, lightning arresters, conduits and cables. In addition, new relay panels, and communications equipment will be installed within existing control enclosures.

3.2.6 Landscaping

No landscaping is proposed at South End Substation at this time due to lack of space and the possible effect of future City of Stamford development projects in the surrounding area. However, CL&P will continue to work closely with the City of Stamford to find a viable solution to address the aesthetics at the substation during and after this project.

3.2.7 Testing and Interconnections

Substation equipment and associated conductors and wires will be installed, as necessary, to connect the new 115-kV underground transmission line. All of the substation equipment will be commission-tested prior to final connection to the transmission grid.

3.2.8 Grading

As noted above, work for the substations will be performed within the fence lines of the substations. Therefore, CL&P does not plan to change any existing elevations. Where limited grading may be required, the area will be substantially restored to existing grade and will be returned as closely as possible to pre-existing elevations and conditions.

3.2.9 Final Cleanup

As the final step in the construction process, all remaining construction debris will be collected and removed from each substation site. Construction debris will be properly disposed of in accordance with local, state and federal regulations. The contractor will remove all excess soil and rock and dispose of it in accordance with local, state and federal regulations, as outlined in the Soil Handling and Dewatering Plan. Because all of the substation modifications will involve equipment additions within the existing substation fence lines, site security will be afforded by the same fencing and other procedures already in place at each substation.

Within each substation, the areas affected by Project construction are expected to be stabilized using trap rock or gravel. Temporary staging areas will typically be restored to pre-construction conditions, with stabilization (revegetation or gravel) appropriate to each site.

This page left blank intentionally

4 CONSTRUCTION SCHEDULE, OUTAGES, AND WORK HOURS

4.1 CONSTRUCTION SCHEDULE INCLUDING OUTAGES

Outages will only be required for some portions of the modifications to each substation. The timing of these outages will dictate the planned construction schedule at the substations. As currently planned, the substation modifications are anticipated to begin in the first quarter of 2014.

4.2 WORK HOURS

With the exceptions noted below, construction work hours at each substation will typically consist of a 10-hour period occurring sometime between the hours of 7:00 AM and 7:00 PM, six days per week (Monday through Saturday). It is during these hours that construction activities that generate noise would typically occur. Although construction workers may arrive for work and leave work outside of these times, no noise-generating on-site construction activities will occur prior to 7:00 AM or after 7:00 PM.

However, certain activities, such as those that must be performed during outages and electrical modifications within the substation control enclosures, may also involve work during non-typical hours. In some cases, the work may occur on a continuous (24-hour) basis or on Sundays. The performance of these activities during non-typical work hours will be critical for completing the required work within the outage timing constraints. CL&P would notify the Council prior to initiating any noise generating work outside of previously approved work hours.

This page left blank intentionally

5 GENERAL CONSTRUCTION PLANS

5.1 SPILL PREVENTION AND COUNTERMEASURES PLAN

The Spill Prevention and Countermeasures Plan ("SPCP") is included in Volume III, Appendix C. The SPCP describes measures to minimize the potential for a spill of petroleum products or a hazardous or toxic substance and, in the event that a spill does occur, measures to contain and control the release to minimize the effects. CL&P requires all construction contractors to adhere to the procedures presented in this Plan during the construction of the Project.

5.2 EROSION AND SEDIMENTATION CONTROL MEASURES AND STORMWATER MANAGEMENT

Erosion and sedimentation control measures will be installed prior to the initiation of soil-disturbing activities and will be inspected and maintained throughout construction at each substation. Temporary erosion and sedimentation controls will be left in place until the areas disturbed by construction activities are permanently stabilized.

Permanent stabilization will consist of the application of pavement or gravel (for areas within the substation fence lines), or reseeding to establish a uniform vegetative cover of 70% density on disturbed soils that will not otherwise be paved or graveled (e.g., staging areas). After final stabilization is achieved, all temporary erosion and sedimentation controls will be removed and disposed of properly.

All erosion and sedimentation control practices will be in accordance with the following:

- *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended);
- Northeast Utilities' *Construction and Maintenance Environmental Requirements Best Management Practices Manual: Connecticut, December 2011* (Volume III, Appendix B); and,
- CT DEEP Contaminated Soil Transfer and Staging General Permit.

Sediment and erosion controls figures for each substation are included in Appendix A, Exhibit 4 of this Volume.

5.3 AIR QUALITY PROTECTION (DUST AND DIRT TRACKING) AND VEHICLE IDLING PROTOCOL

To minimize short-term adverse effects to air quality during construction, all work areas and staging areas will be watered, graveled, or swept as necessary to suppress dust emissions.

Additionally, crushed stone aprons will be installed at all gravel or dirt access points to public roadways, with the objective of minimizing tracking of soil onto the roadway.

Vehicular emissions will be limited by requiring contractors to properly maintain construction equipment and vehicles, and by minimizing diesel construction equipment idling time in accordance with regulatory standards. "Idling" is defined as the period when mobile construction equipment is not in motion or is not otherwise actively performing its designated function. Thus, "idling" does not apply to the use of certain types of mobile construction equipment (e.g., cranes, cement mixers) that may be stationary, but is actively operating at a work site.

For the Project, pursuant to RCSA 22a-174-18, the allowable idling time for diesel construction equipment is three minutes. However, under winter work conditions (when the ambient temperature is below 20-25 degrees Fahrenheit) the following apply:

- Construction equipment may require longer periods to warm up after overnight shut down or other extended periods of inactivity. Such "warm up" periods, as required to bring the equipment up to a safe operating temperature (as defined by the equipment manufacturer), are exempt from the idling specifications. However, most diesel engines take 3 minutes or less to warm up (contractors should consult the equipment-specific engine manufacturer's recommendations).
- Construction equipment may have to idle for longer periods to operate defrosting or heating equipment to ensure the safety and/or health of the driver.

5.4 HANDLING AND DISPOSITION OF EXCAVATED SOIL, GROUNDWATER, RECYCLABLE MATERIALS, AND WASTES

The construction contractor will be responsible for the proper handling and disposal of all excess soils, groundwater, recyclable materials, and other wastes generated during the construction process. Excavated soil and groundwater (if encountered in excavations) will be handled and disposed of in accordance with the procedures specified in the Soil Handling and Dewatering Plan (Volume III, Appendix D).

Recyclable materials, including all or portions of equipment to be removed from the substations (e.g., bus supports, switches), will be transported off-site for appropriate re-use, pursuant to CL&P policies. General waste materials and debris other than soil and groundwater will be collected in secure containers, which will be inspected regularly and removed for off-site disposal at approved, regulated waste disposal sites. In no case will solid or liquid wastes (except for excess soil or groundwater, if appropriate) be buried or otherwise disposed of on the substation sites.

5.5 LIGHTING AND NOISE MITIGATION

The substation modification work (including staging areas) will be concentrated on and in the immediate vicinity of the existing substations, and will have only minor and short-term effects of noise and light emissions. Further, any temporary construction-related noise and light emissions associated with the substation modifications will be mitigated by virtue of the location of Glenbrook Substation and South End Substation within largely industrial/commercial areas.

In general, construction activities would typically occur during the daytime (7:00 AM to 7:00 PM), when human sensitivity to noise is lower. Contractors will be required to properly maintain and muffle equipment and vehicles to minimize noise emissions. Construction-related noise, which would be short-term and highly localized in the vicinity of work sites, would typically result from the operation of construction equipment, truck traffic, earth moving vehicles and equipment, and jackhammers. Engine-powered construction equipment would be properly muffled and maintained to minimize excessive noise to the extent possible. In areas where rock removal is required, efforts would be made to schedule work to minimize noise and vibration disturbances. Once constructed, the operation of the substation modifications would not result in any adverse noise impacts.

The existing substations are equipped with safety lighting. Most substation construction activities will occur during daylight hours. Therefore, the need for temporary lighting will be limited. However, any temporary lighting that may be required for specific tasks will be focused on the work area and is expected to be needed only for a limited time.

5.6 SITE ACCESS, TRAFFIC CONTROL, AND CONSTRUCTION SIGNS

The construction of the substation modifications will take place entirely within the existing fence lines of both South End and Glenbrook Substations. However, to facilitate the modifications to the South End Substation, the need to close Manhattan Street may arise. Should this occur, measures to mitigate the effects would be implemented as will be described in the Traffic Management Plan (“TMP”). CL&P is working in close cooperation with the City to develop a TMP that meets their requirements. Construction at the substations will not affect railroads or other utilities (e.g., pipelines, water lines, stormwater, or sanitary sewers).

During construction, personnel traveling to and from work sites, as well as the movement of construction equipment, may cause temporary, localized increases in traffic. When heavy equipment must be transported along public roads for delivery to the work sites, temporary disruptions in local traffic patterns may occur. In addition, alternate traffic routes, which direct traffic away from distinct work sites may be utilized. Such traffic-volume increases would be localized and short-term, as would any potential alternate traffic routes.

5.7 UNANTICIPATED CULTURAL RESOURCES DISCOVERY PLAN

The substation modifications, which will entail only limited subsurface excavation, will be located in areas where soils have been disturbed by previous development. Consequently, the potential for locating intact, undocumented archaeological sites during substation construction activities is minimal.

All contractor personnel will be required to attend Project-specific environmental training, a component of which provides procedures for generally identifying and protecting cultural resources. The training will describe the procedures to be followed should potential cultural materials be discovered during the construction of the substation modifications. Specifically, construction personnel will be instructed to stop the task that resulted in the potential discovery and inform CL&P. CL&P would then contact a professional archaeological consulting firm and request that they respond to handle any potential cultural resource discoveries. Construction work at the potential cultural resource discovery site would not resume until authorized by the professional archaeologist and CL&P.

5.8 CONSTRUCTION EQUIPMENT AND VEHICLE WASHING

With the exception of cement trucks, no construction equipment or vehicle washing will be allowed on the substation sites or at associated staging areas. Cement truck wash-out will be allowed only in designated locations, which will be selected to minimize the potential for off-site environmental impacts. All wash-out areas will include measures to control and contain wash-water and to collect the cement wash-off for off-site disposal. Sediment and erosion control figures (Appendix A, Exhibit 4) identify a potential cement truck wash-out area for the Glenbrook Substation. No cement trucks will wash out at the South End Substation.

5.9 WATER SOURCES

Water may be required for dust suppression or other construction activities. All water sources must be pre-approved by CL&P.

5.10 SNOW REMOVAL AND DE-ICING PROCEDURES

Some of the substation construction activities may be performed during the winter, when snow and ice may have to be removed to allow work to proceed. Project procedures for snow removal and de-icing are provided in Volume III, Appendix E.

5.11 POST-CONSTRUCTION EMF MONITORING PLAN

Pursuant to Condition #2(f) of the Council's Decision and Order, CL&P has prepared for the Council's review a post-construction electric and magnetic field ("EMF") monitoring plan for the Project. This plan is included in Volume lll, Appendix F.

5.12 SUBSTATION CONSTRUCTION DESCRIPTIONS

5.12.1 South End Substation

At the 0.8-acre South End Substation site, the scope of work would include two categories: (1) electrical and physical work, and (2) substation protection and control work. Work within each category is identified below. General Arrangement Plans are included as Appendix A, Exhibit 3 of this Volume.

The electrical and physical work is anticipated to consist of the following:

- Installation of temporary soil erosion and sedimentation controls (e.g., silt fence, straw bales). Such controls would be maintained and replaced as necessary throughout the construction process. The primary objective of these controls would be to minimize the potential for off-site erosion.
- Installation of foundation would involve excavation, form work, steel reinforcement, and concrete placement. Excavated material would either be reused on-site or disposed of off-site in accordance with applicable requirements.
- Installation of a riser pole for the cable termination and lightning arrestors.
- Installation of a motor operated disconnect ("MOD") switch with ground switch to serve as the line MOD for the cable line on a structure with the height matching the cable termination and ring bus heights.
- Installation of the control cables for the MOD in the existing conduits.
- Replacement of three CCVTs on the ring bus with three potential transformers ("PT").
- Installation of steel structure for disconnect switch.

The substation protection and control work is anticipated to consist of the following:

- Reconfiguring the primary and back up bus protection relays as line protection relay for the cable line.
- Calculating and establishing new line relay setting using the cable line impedance.

- Using the fiber optic cables installed with the underground cable line as communication path for cable line protection schemes.
- Installation of line metering.
- Update the System Control and Data Acquisition system ("SCADA") with new points associated with cable line relays and metering.

5.12.2 Glenbrook Substation

At the 4.9-acre Glenbrook Substation site, the anticipated work would include the same categories as those identified for the South End Substation: (1) electrical and physical work and (2) substation protection and control. Work within each category is identified below. General Arrangement Plans are included as Appendix A, Exhibit 3 of this Volume.

The electrical and physical work is anticipated to consist of the following:

- Installation of temporary soil erosion and sedimentation controls (e.g., silt fence, straw bales). Such controls would be maintained and replaced as necessary throughout the construction process. The primary objective of these controls would be to minimize the potential for off-site erosion.
- Installation of foundation would involve excavation, form work, steel reinforcement, and concrete placement. Excavated material would either be reused on-site or disposed of off-site in accordance with applicable requirements.
- Installation of steel structures to support new equipment.
- Installation of a 115-kV circuit breaker.
- Installation of a cable termination.
- Installation of a motor operated disconnect switch with motor operated ground switch to act as the line MOD for the cable line.
- Installation of lightning arresters on the termination structure.
- Installation of three potential transformers for relaying.
- Installation of the control cables for the breaker, PTs, and MOD in the existing trench.
- Installation of three 115-kV intermediate coupling capacitors for breaker protection.

The substation protection and control work is anticipated to consist of the following:

- Installation primary and back up relays for the 115-kV line to South End.
- Calculating and establishing new line relay setting using the line impedance.

- Installation of breaker failure relay(s) and breaker control.
- Using the fiber optic cables installed with the underground line as communication path for line protection schemes and for direct transfer trip.
- Using the fiber optic cables installed with the underground line to monitor cable temperature.
- Installation of line metering.
- Update SCADA with new points associated with circuit breaker, line relays and metering.

This page left blank intentionally

6 CL&P'S ENVIRONMENTAL COMPLIANCE PROGRAM

The substation construction contractor will be responsible for complying with all applicable environmental regulatory requirements, as well as with this D&M Plan. To verify the contractor's environmental compliance, CL&P will dedicate to the Project a team of management and field personnel, who will routinely monitor substation construction activities for conformance to this D&M Plan and to other Project-specific permits and/or approvals.

The Project's field environmental compliance program will be administered by CL&P and will include environmental inspectors, who will be assigned to monitor substation construction and will include updates of environmental conditions encountered in the Monthly Construction Progress Reports.

This page left blank intentionally

7 NOTICES AND REPORTS

7.1 NOTICES TO THE COUNCIL: START AND COMPLETION OF CONSTRUCTION (INCLUDING ACCESS AND VEGETATION CLEARING)

CL&P will provide written notification to the Council a minimum of two weeks in advance of each of the following:

- The commencement of vegetation clearing or access work at each substation.
- The commencement of substation construction.

CL&P will provide the CSC with written notice of the completion of substation construction (including site restoration and rehabilitation).

CL&P will also provide written notification to and seek approval from the Council regarding the location and size of all areas to be accessed or used for site testing or staging and not otherwise included in this D&M Plan.

7.2 NOTICE OF CHANGES TO D&M PLAN

7.2.1 D&M Plan Changes Requiring Notice to the Council

Pursuant to RCSA Section 16-50j-62(b)(2), the Council must pre-approve any significant changes to this D&M Plan, whereas CL&P (or its agent) will identify, track, and approve all changes, whether significant or insignificant. *No changes to the D&M Plan will be implemented without such documented approvals.*

CL&P will provide the Council with advance written notice whenever a significant change of the approved D&M Plan is necessary. If advance written notice is impractical, CL&P will provide immediate verbal notice to the Council, followed by written notice no later than 48 hours after the verbal notice.

RCSA Section 16-50j-62(b)(2) defines a "significant" change to the approved D&M Plan as including, but not limited to, Project modifications that entail a change in:

- The location of a wetland or watercourse crossing (not anticipated).
- The location of an accessway or structure in a regulated wetland or watercourse area.
- The construction or placement of any temporary structures or equipment.

- Transmission line structure type or location including, but not limited to, towers, guy wires, associated equipment, or other structures.
- Utilization of additional mitigation measures or elimination of mitigation measures.

In addition to the above criteria, CL&P proposes to define a "significant" Project change as one that would substantially reduce the amount of protection to the environment; substantially increase potential public concern; or would otherwise potentially result in a meaningful effect on the environment, the public, or other Project permits and approvals.

7.2.2 D&M Plan Change Approval Process

A request for a change to the D&M Plan may originate from the Project team, the construction contractor, or others, or be driven by regulatory approvals issued after the approval of the D&M Plan, with which the D&M Plan must be consistent. The following procedures will be used to identify, track, and obtain the approval of the Council, if required, for changes to this D&M Plan. Figure 7-1 provides a flow chart illustrating this change approval process.

7.2.2.1 Identify Proposed Project Change

A proposed change is identified and described by the change originator and provided to CL&P. Data to be provided will include, for example:

- Specifics of the change (location, type);
- Reason/need for the change;
- When the change is required (timing);
- Project schedule and cost implications (if applicable); and
- Effects (if any) on the environment and on the public.
- The Project change request will be supported by maps and drawings, as appropriate.

7.2.2.2 Assess Significance of Proposed Change

CL&P will evaluate each proposed change to determine whether it either:

- Represents a significant change to the approved D&M Plan and thus requires advance notification to and approval by the Council; or
- Constitutes a minor change requiring only CL&P approval.

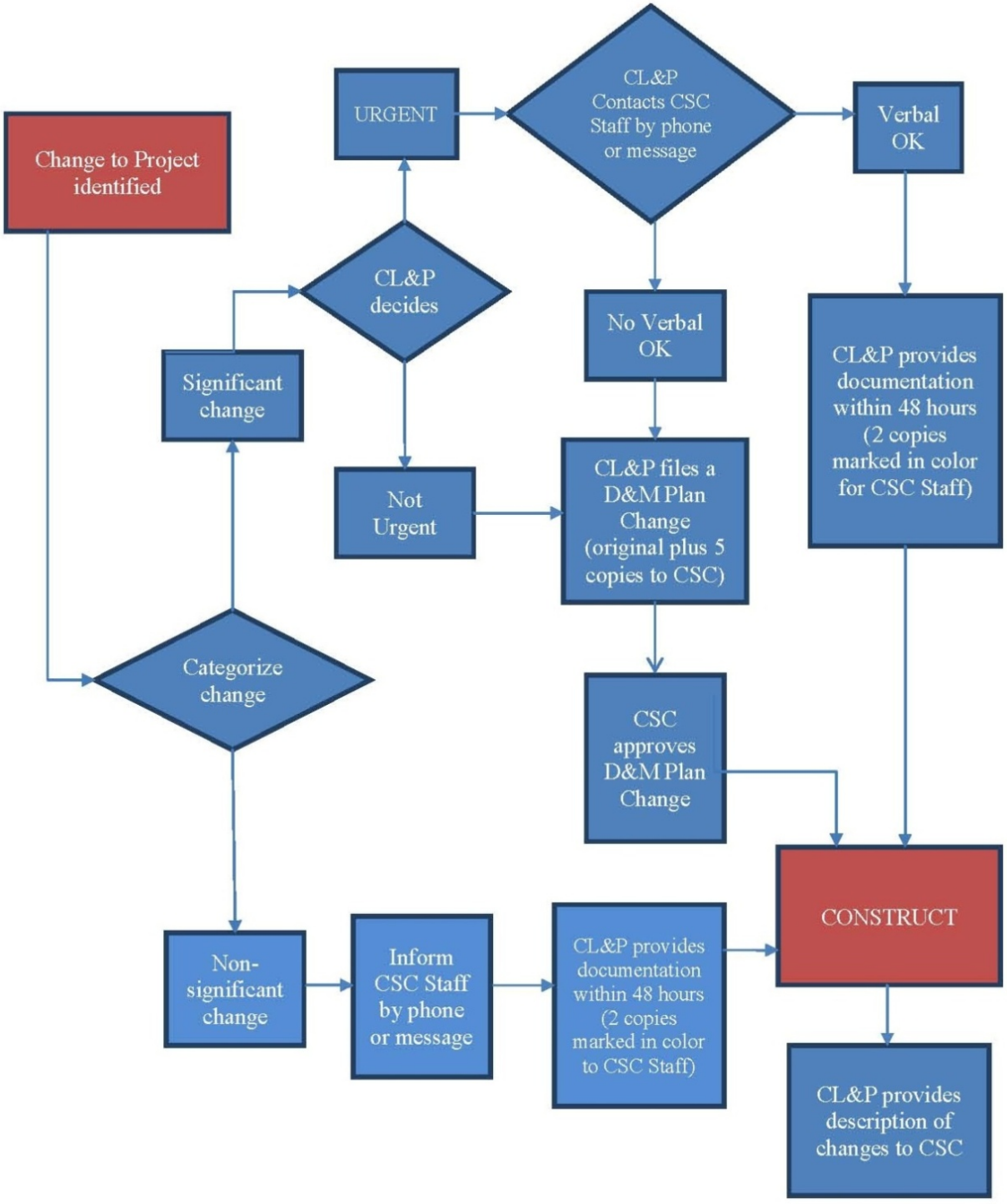


Figure 7-1: D&M Plan Change Process

7.2.2.3 Significant Changes Requiring Notice to and Prior Approval by the Council

After CL&P determines that a proposed change represents a significant change to the D&M Plan requiring notification to the Council and the Council's pre-approval, CL&P will categorize each proposed change as either "urgent" or "non-urgent", based on the following:

- **Urgent.** A Project change will be considered "urgent" if waiting until the next regularly-scheduled Council meeting to obtain approval of the change would have a negative impact on Project construction costs or scheduling, or if the provision of written notice is impractical for other reasons. For "urgent" changes, CL&P will provide verbal notification of the change to Council staff and will request that the Council approve the change expeditiously. CL&P will promptly implement the D&M Plan change in accordance with the Council's expedited approval (verbal or written). Not later than 48 hours after the provision of verbal notice of the D&M Plan change request to the Council, CL&P will file written notice to the Council, the service list and the property owner of record, if applicable. If the Council elects not to act on the proposed D&M Plan change request pursuant to the urgent (verbal) notice, CL&P will provide the Council, the service list and the property owner of record, if applicable with written notice of the proposed Project Change within 48 hours and will defer any construction activities related to the change request pending the Council's determination.
- **Non-Urgent.** If CL&P determines that a D&M Plan change request is "non-urgent", CL&P will provide written notice to the Council, the service list and the property owner of record, if applicable seeking the Council's consideration of the proposed D&M Plan change at the next regularly-scheduled Council meeting.

7.2.2.4 Non-Significant D&M Plan Change: No Council Pre-Approval Required

Minor changes to the approved D&M Plan will require CL&P approval prior to implementation, as well as Project documentation.

7.3 REPORTS

Table 7-1 identifies the written reports that will be provided to the Council. CL&P will include updates of environmental conditions in the Monthly Construction Progress Reports.

Table 7-1: **Reports to be Provided to the Council**

Report Type (Regulatory Requirement)	Content
Monthly Construction Progress Report (RCSA Section 16-50j-62(b)(3))	Report will also identify changes and deviations to the approved D&M Plan, minor changes that did not require Council action as well as an update of environmental conditions encountered during the installation of the underground transmission cable.
Final Report (RCSA Section 16-50j-62(c))	CL&P will provide to the Council a final report no later than 180 days after the completion of all site construction and rehabilitation. The report will identify the following: • All agreements with abutters or other property owners regarding special maintenance precautions. • Significant changes to the D&M Plan that were required because of property rights or underlying and adjoining owners or for other reasons. • The location of construction materials that have been left in place, including but not limited to, culverts, erosion control structures along watercourses and steep slopes, and corduroy roads in regulated wetlands. • The location of areas where special plantings and reseeding have been performed. • The actual construction cost of the facility, including but not limited to the following costs: - Clearing and access; - Construction of the facility and associated equipment; - Rehabilitation; and - Property acquisition for the site or access to the site.
Operating Report (Docket No. 435, Decision and Order, Condition #7)	Within three months after the conclusion of the first year of the operation of all Project facilities, and annually thereafter for three years, CL&P will provide to the Council a report that describes the overall condition, safety, reliability, and operation of the transmission systems.

This page left blank intentionally

8 COMMUNITY OUTREACH

8.1 COMMUNITY OUTREACH ON D&M PLAN

Pursuant to Condition #2 of the Council's Decision and Order, CL&P served the D&M Plan on the City of Stamford and to all parties to the Project (Council Docket 435) for comment. On September 18, 2013, CL&P met with City officials, briefed them on the Plan, responded to any questions, and sought their comments. Documents containing comments from staff of the City of Stamford are included in Volume lll, Appendix G.

In addition, CL&P has provided the opportunity for public participation in the D&M Plan review process by posting the filed Plan on the Project web site (www.stamfordcable.com). A letter was also sent to all abutting property owners of record, notifying them of the Project's approval and subsequent submittal of the D&M Plan to the Council, and inviting their comment on the Plan by contacting Project representatives via email (TransmissionInfo@nu.com) or CL&P's Transmission Information Line (1-800-793-2202). Any comments received will be forwarded to the Council.

8.2 COMMUNITY OUTREACH DURING CONSTRUCTION

Throughout the Project planning and the Council's siting processes, CL&P conducted extensive community outreach, including a public open house during the Municipal Consultation Phase of the siting process. CL&P will continue its outreach efforts throughout the Project's construction phases and will notify affected stakeholders of upcoming construction activities.

As described above, the Transmission Information Line and email address are currently in operation and will continue as the primary means for residents, businesses, and other stakeholders to contact Project representatives during construction of the Project. The public can also access the Project website, which provides an overview of the Project, a map of the Project facilities, and contact information.

Once construction begins, the Project website will include regular updates on construction activities that will be easily accessible by town residents, businesses, and other stakeholders. Briefings will be held with nearby residents and businesses most affected by construction activities to review the construction process, key construction stages, and expected timelines. Project representatives will also contact adjacent and nearby residents and businesses to notify them of upcoming construction activities and address any specific questions or concerns.

This page left blank intentionally

9 ADDITIONAL ELEMENTS PURSUANT TO COUNCIL ORDER

9.1 CSC DECISION AND ORDER AND OPINION CHECKLIST

Table 9-1 presents the Council's requirements for the Project as provided in the Docket No. 435 Decision and Order and Opinion and indicates where within the D&M Plan the relevant information is located.

Table 9-1: D&M Plan Directory of Docket No. 435 Decision and Order and Opinion Requirements for Glenbrook and South End Substations

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
Condition No.	**Decision and Order**	
(1)	The Certificate Holder shall construct the proposed transmission circuit along the Preferred Route with Canal Street Option (Update).	D&M Plan Volumes I, II and III
(2)	The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of Stamford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:	Applies to the City of Stamford. Volume I, Section 8
	a. A detailed site plan showing the underground route, splice boxes, provisions for underground cable protection, substation improvements, and equipment and material staging areas;	Volume I, Appendix A, Exhibit 3 Volume II, Appendix A, Exhibit 3 Staging Areas will be identified and submitted to the Council for review and approval
	b. Identification of horizontal directional drill and jack and boring sites;	Volume II, Section 3.4 Volume II, Appendix A, Exhibit 3
	c. An erosion and sediment control plan (that includes provisions for any areas for the temporary storage of fill materials), consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* as amended;	Volume I, Appendix A, Exhibit 4
	d. A spill prevention and countermeasures plan;	Volume III, Appendix C
	e. A vegetative clearing plan;	Except minor herbaceous/shrub clearing associated with potential staging areas at the Glenbrook Substation, no vegetation clearing will be required.
	f. A post-construction electric and magnetic field monitoring plan;	Volume I, Section 5.11 and Volume III, Appendix F
	g. A schedule of construction hours during nights and/or weekends and mitigation of lighting and noise;	Volume I, Section 4
	h. A blasting plan;	N/A - There will be no blasting at either of the substations
	i. A restoration plan to include vegetation and paving	Volume I, Sections 3.2.6 and 3.2.9

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	j. A decommissioning plan;	Volume I, Section 9.2
	k. Identification of developed areas for staging and equipment lay down, field office trailers, sanitary facilities and parking before establishing a new area;	A portion of the Glenbrook Substation site may be used as a staging area. CL&P would identify the area and seek the Council's approval prior to using the site.
(3)	The Certificate Holder shall conform to the Council's Best Management Practices for Electric and Magnetic Fields.	Volume I, Section 5.11
(4)	The Certificate Holder shall comply with all future electric and magnetic field standards promulgated by State or federal regulatory agencies. Upon the establishment of any new standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.	To be addressed as part of CL&P operations and maintenance.
(5)	The Certificate Holder shall obtain necessary permits from the United States Army Corps of Engineers, the Connecticut Department of Energy and Environmental Protection, and the Connecticut Department of Transportation and/or Metro North Railroad prior to the commencement of construction.	N/A for U.S. Army Corps of Engineers permit. Volume I, Section 2
(6)	The Certificate Holder shall include an update of environmental conditions encountered during the installation of the underground transmission system as part of any periodic progress reports to be provided to the Council, as determined in the Development and Management Plan.	Volume l, Section 7.3 and Table 7-1
(7)	The Certificate Holder shall provide to the Council an operating report within three months after the conclusion of the first year of operation of all facilities herein, and annually thereafter for a period of three years, with information relevant to the overall condition, safety, reliability, and operation of the transmission systems.	Volume I, Section 7.3 and Table 7-1
(8)	This Decision and Order shall be void if all construction authorized herein is not completed within four years of the effective date of the Decision and Order, or within four years after all appeals to this Decision and Order have been resolved.	Volume I, Section 4.1
(9)	This Certificate may be surrendered by the Certificate Holder upon written notification to the Council.	
(10)	The Council may reopen this docket under changed conditions should the regionalized allocation of the costs of this Project differ substantially from the representations made by the Certificate holder.	
Page No.	**Opinion**	
3	The Council urges that the applicant consider current and future modifications at the South End Substation to ensure it is protected not only against a 500-year flood but also against a storm surge that might go beyond that.	Volume I, Section 9.2.2
4	To ensure the proposed Project is properly developed, the Council will require the Applicant to submit a D&M Plan that will include:	
	a. Provisions for public comment and review,	Volume l, Section 8 Volume ll, Section 8

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	b. Detailed site plans identifying structure and equipment locations,	Volume I, Exhibit 3 Volume II, Exhibit 3
	c. A Sediment and Erosion Control Plan, consistent with the 2002 Connecticut Guidelines for Sediment and Erosion Control,	Volume I, Exhibit 4 Volume II, Exhibit 4
	d. A Spill Prevention, Control and Countermeasures Plan,	Volume III, Appendix C
	e. Provisions for re-vegetation and maintenance of the proposed ROW,	Volume I, Sections 3.2.6 and 3.2.9 Volume II, Section 3.7
	f. Provisions for the inspection and monitoring of the proposed underground cable and other accessory equipment, and	Volume I, Section 7.3 and Table 7-1 Volume II, Section 7.3 and Table 7-1
	g. Pre-construction and post-construction measurements of electric and magnetic fields.	Volume III, Appendix F (Post-construction)

9.2 SUPPLEMENTAL PLANS AND INFORMATION

9.2.1 Decommissioning Plan

See Decommissioning Plan in Volume II for the proposed underground transmission line.

9.2.2 Flood and Storm Surge Mitigation

South End Substation has been identified as a site for which flood mitigation would be needed. Although a final decision has not yet been made on the type of mitigation that will be implemented, CL&P plans to file for approval (separately from this proceeding) of the mitigation when the solution has been confirmed.

This page left blank intentionally

10 GLOSSARY AND TERMS

Arrester (surge arrester): Protects lines, transformers and equipment from lightning and other voltage surges by carrying the charge to ground. Arresters serve the same purpose as a safety valve on a steam boiler.

BMPs: Best Management Practices

Bus: Electrical conductor that serves as a common connection between the source of electric power and the load circuits.

CEO: Chief Elected Official

Certificate: Certificate of Environmental Compatibility and Public Need (from the Connecticut Siting Council)

C.G.S.: Connecticut General Statutes

Circuit: A system of conductors (three conductors or three bundles of conductors) through which an electrical current is intended to flow and which may be supported above ground by transmission structures or placed underground.

Circuit Breaker: A switch, located in substations, that automatically disconnects power to the circuit in the event of a fault condition. It performs the same function as a circuit breaker in a home.

City: City of Stamford

CL&P: The Connecticut Light and Power Company

Conductor: A metallic wire, busbar, rod, tube or cable which serves as a path for electric current flow.

Conduit: Pipes, usually PVC plastic, typically encased in concrete, or rigid galvanized steel ("RGS") for housing underground power and control cables.

Construction: Construction refers to Project activities commencing with work site/staging area preparation through final restoration and site stabilization.

Council or CSC: Connecticut Siting Council

CT DECD: Connecticut Department of Economic and Community Development

CT DEEP: Connecticut Department of Energy and Environmental Protection

D&M Plan: Development and Management Plan (required by the Connecticut Siting Council)

Decision and Order: Council approval of the Project

Distribution Line or System: Facilities that transport electrical energy from the transmission system to the customer.

Disconnect Switch: Equipment installed to isolate circuit breakers, transmission lines or other equipment for maintenance or sectionalizing purposes.

Docket 435: Council Docket number for the Project

Electric Field: Produced by voltage applied to conductors and equipment. The electric field is expressed in measurement units of volts per meter (V/m) or kilovolts per meter (kV/m); 1 kV/m is equal to 1,000 V/m.

Electric Transmission: The facilities (69 kV+) that transport electrical energy from generating plants to distribution substations.

EMF: Electric and magnetic fields.

Environmental Inspector, Environmental Monitor: Environmental scientist retained by CL&P to monitor the conformance of Project construction to the environmental requirements

Fault: A failure (short circuit) or interruption in an electrical circuit.

Frac Tank: Fractionization tank used to temporarily hold water pumped from Project excavations or otherwise used during Project construction activities

Idling: The period when mobile construction equipment is not in motion or is not otherwise actively performing its designated function.

Independent Environmental Inspector(s): Environmental scientist with formal training in civil or environmental engineering, retained by CL&P but reporting to the Council to verify compliance with the Council's Decision and Order

kV: Kilovolt, equals 1,000 volts

Line: A series of overhead transmission structures which support one or more circuits; or in the case of underground construction, a duct bank housing one or more cable circuits.

Magnetic Field: Produced by the flow of electric currents; however, unlike electric fields, most materials do not readily block magnetic fields. The level of a magnetic field is commonly expressed as magnetic flux density in units called gauss (G), or in milligauss (mG), where 1 G = 1,000 mG.

MCF: Municipal Consultation Filing

MOD: Motor Operated Disconnect

NU: Northeast Utilities (CL&P is a wholly owned subsidiary of NU)

OH (Overhead): Electrical facilities installed above the surface of the earth.

Project: Stamford Reliability Cable Project

Protection/Control Equipment: Devices used to detect faults, transients and other disturbances in the electrical system in the shortest possible time. Customized or controlled per an entity's operational requirements.

PT: Potential transformer

PURA: Public Utilities Regulatory Authority (part of CT DEEP, formerly Department of Public Utility Control)

RCSA: Regulations of Connecticut State Agencies

SCADA: System Control and Data Acquisition system

SHPO: State Historic Preservation Office

SPCP: Spill Prevention and Countermeasures Plan

SRCP: Stamford Reliability Cable Project

Substation: Part of the electric transmission system, a high-voltage electrical facility with a fenced-in yard containing switches, transformers, line-terminal structures, and other equipment enclosures and structures to regulate and distribute electrical energy, such as receiving power

from a generating facility, changing voltage levels, limiting power surges, etc. Adjustments of voltage, monitoring of circuits and other service functions take place in this installation.

Terminal Structure: Structure typically within a substation that ends a section of transmission line.

TMP: Traffic Management Plan

Transformer: A device used to transform voltage levels to facilitate the efficient transfer of power from the generating plant to the customer. A step-up transformer increases the voltage while a step-down transformer decreases it.

Transmission Line: Any line operating at 69,000 or more volts.

USGS: United States Geological Survey (U.S. Department of the Interior).

Vegetation Clearing: Removal of forest vegetation. May also refer to mowing or cutting of scrub-shrub vegetation.

Voltage: A measure of the push or force that transmits energy.

Watercourse: Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private.

Wetland: Is an area of land consisting of soil that is saturated with moisture, such as a swamp, marsh, or bog.

Volume I
D&M Plan - Glenbrook and South End Substations

Appendix A: DRAWINGS AND PHOTOGRAPHS

Exhibit 1: Key Map/Site Locus

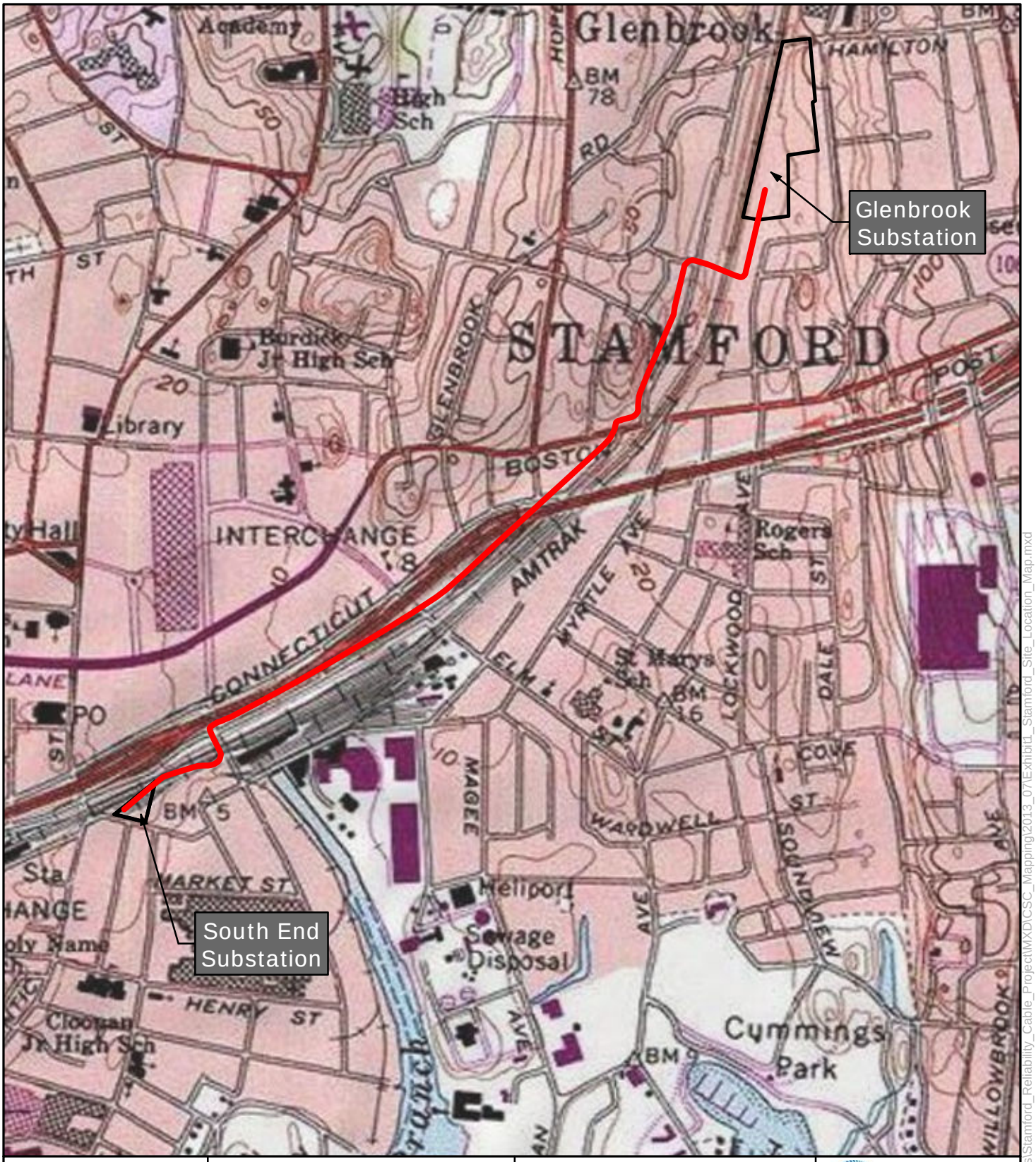
Exhibit 2: Aerial Photograph of Glenbrook Substation and Surroundings

Exhibit 2A: Aerial Photograph of South End Substation and Surroundings

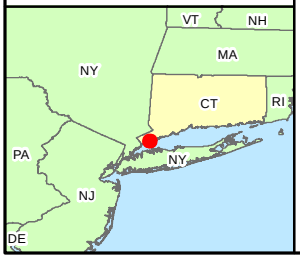
Exhibit 3: General Arrangements Plans

Exhibit 4 Sediment and Erosion Control Figures

Exhibit 1: Key Map/Site Locus



Map Location



Legend

PREFERRED ROUTE WITH CANAL STREET OPTION (UPDATED)

PROPERTY LINE

0 500 1,000 Feet

Scale: 1:12,000 (1 inch = 1,000 ft)

N

Stamford Reliability Cable Project

Exhibit 1
Key Map/Site Locus

Preferred Route With Canal Street Option (Updated)

Connecticut Light & Power
A Northeast Utilities Company

AECOM

July 22 2013

Map Projection: State Plane CT, NAD83, US Feet.
Image Source: ESRI ArcGIS Online Imagery Server.

Path: Y:\Projects\NorthEast_Utilities\Stamford_Reliability_Cable_Project\MXD\CSC_Mapping\2013_07\Exhibit1_Stamford_Site_Location_Map.mxd

Exhibit 2: Aerial Photograph of Glenbrook Substation and Surroundings

Culloden Rd

Metro-North Railroad

Hamilton Ave

Glenbrook Substation

W 021Z 5096

S 014 3672

W 020 5096

Lincoln Ave

N 001 2072

N 002 2072

N 003 2072

N 004 2072

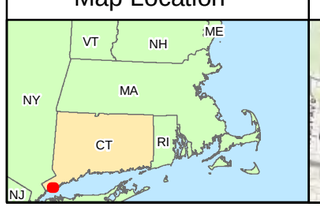
N 005 2072

W 094 4950

Custer St

Parcel ID	Owner
W 021Z 5096	CONNECTICUT LIGHT & POWER CO
W 020 5096	WERNER GERALD L
N 001 2072	TENAGLIA ANGELINA B EST OF
W 094 4950	HOUSING AUTHORITY CITY OF STAMFORD
S 014 3672	CONNECTICUT LIGHT & POWER CO
N 005 2072	GUROIAN MICHAEL
N 004 2072	SZATANEK EDWARD ET AL
N 003 2072	JOSEPH AMISIAL ET AL
N 002 2072	BRIDTTER RICARDO

Map Location



Index Map

Legend

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

0 100 200 Feet

1:1200 1" = 100

Data Souce: ESRI Bing Imagery; Town of Stamford 2009

Stamford Reliability Cable Project

Exhibit 2
Aerial Photograph of Glenbrook Substation and Surroundings

Mapsheet 1 of 1

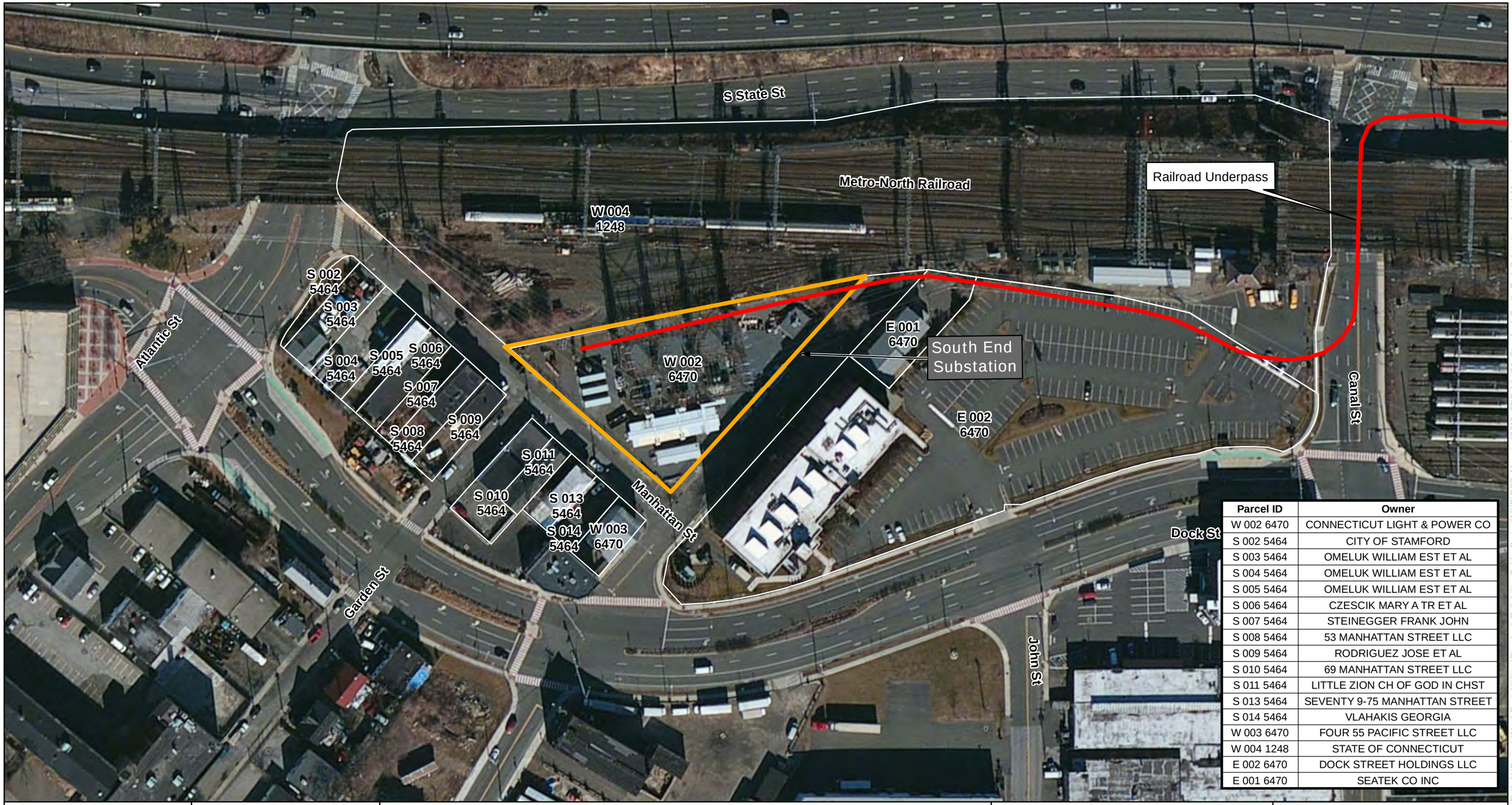
Connecticut Light & Power
A Northeast Utilities Company

AECOM

Date: September 4 2013

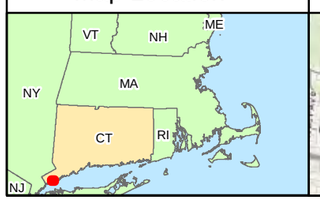
Path: Y:\Projects\NorthEast_Utilities\Stamford_Reliability_Cable_Project\MXD\CSC_Mapping\2013_05\Revisions_06_22_For_Katie\Exh 2 Glenbrook Substation Aerial_Mapping.mxd

Exhibit 2A: Aerial Photograph of South End Substation and Surroundings



Parcel ID	Owner
W 002 6470	CONNECTICUT LIGHT & POWER CO
S 002 5464	CITY OF STAMFORD
S 003 5464	OMELUK WILLIAM EST ET AL
S 004 5464	OMELUK WILLIAM EST ET AL
S 005 5464	OMELUK WILLIAM EST ET AL
S 006 5464	CZESCIK MARY A TR ET AL
S 007 5464	STEINEGGER FRANK JOHN
S 008 5464	53 MANHATTAN STREET LLC
S 009 5464	RODRIGUEZ JOSE ET AL
S 010 5464	69 MANHATTAN STREET LLC
S 011 5464	LITTLE ZION CH OF GOD IN CHST
S 013 5464	SEVENTY 9-75 MANHATTAN STREET
S 014 5464	VLAHAKIS GEORGIA
W 003 6470	FOUR 55 PACIFIC STREET LLC
W 004 1248	STATE OF CONNECTICUT
E 002 6470	DOCK STREET HOLDINGS LLC
E 001 6470	SEATEK CO INC

Map Location



Index Map

Legend

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

0 100 200 Feet

1:1200 1" = 100

Data Souce: ESRI Bing Imagery; Town of Stamford 2009

Stamford Reliability Cable Project

Exhibit 2A
Aerial Photograph of South End Substation and Surroundings

Mapsheet 1 of 1

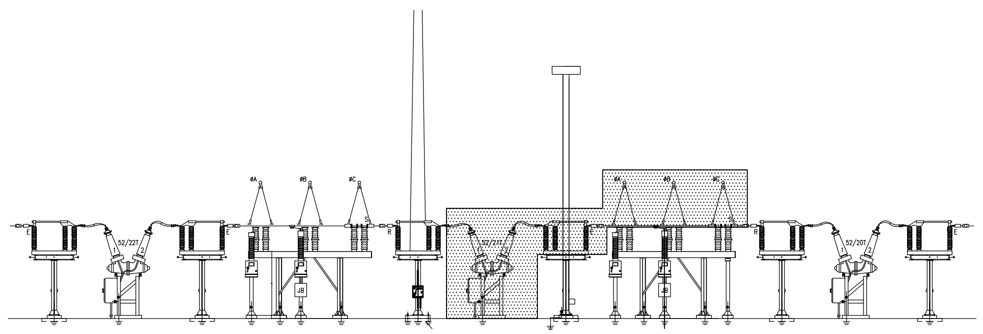
Connecticut Light & Power
A Northeast Utilities Company

AECOM

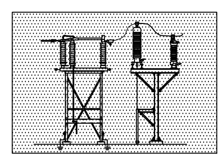
Date: October 23 2013

Path: Y:\Projects\NorthEast_Utilities\Stamford_Reliability_Cable_Project\MXD\CSC_Mapping\2013_07\Exhibit2A_Stamford_South_End_Substation_Aerial_Mapping.mxd

Exhibit 3: General Arrangements Plans

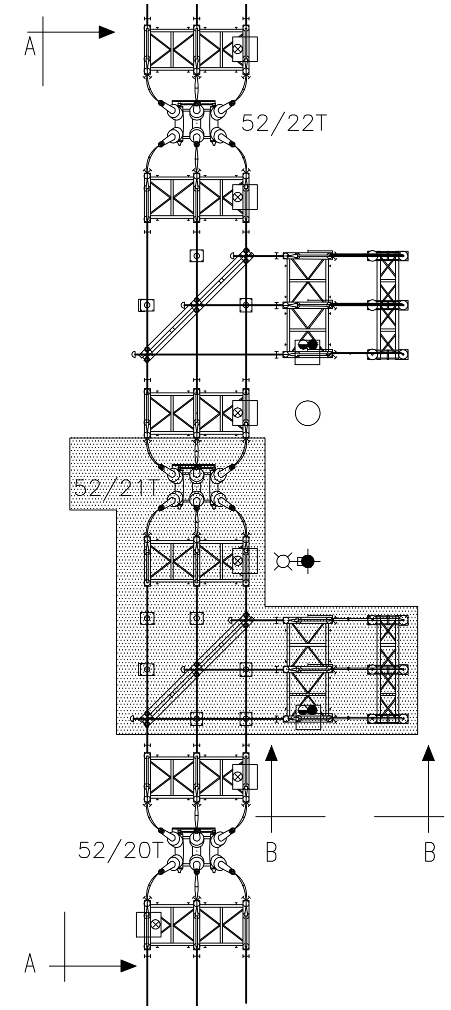


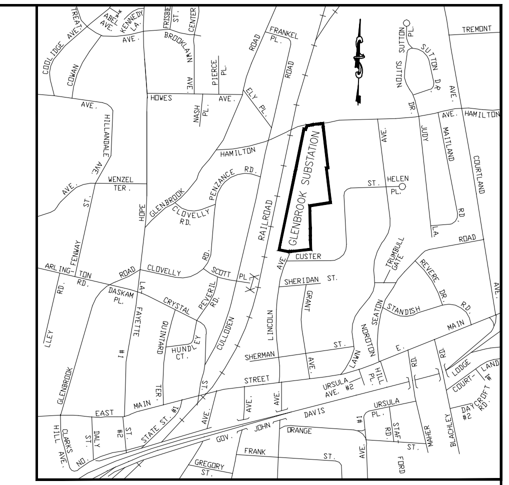
Section A–A



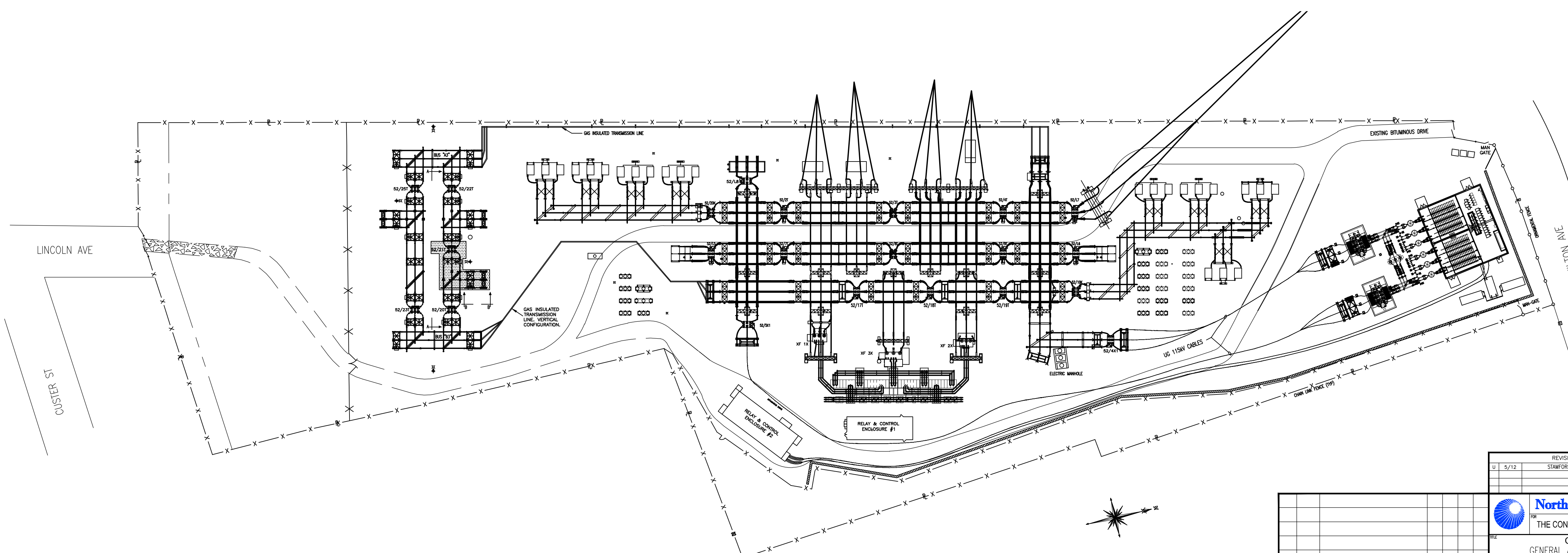
Section B–B

SCALE 1" = 10'-0"
0 10' 20'





Location Plan *Scale – 1"=800'*



LEGEND

—x—x—	FENCE
— - - —	PROPERTY LINE
(dotted)	2013 ADDITIONS
(hatched)	RETAINING WALL

REVISIONS DURING CONSTRUCTION					
U	5/12	STAMFORD RELIABILITY W.O. #403500GB	WAD	REM	EH

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP

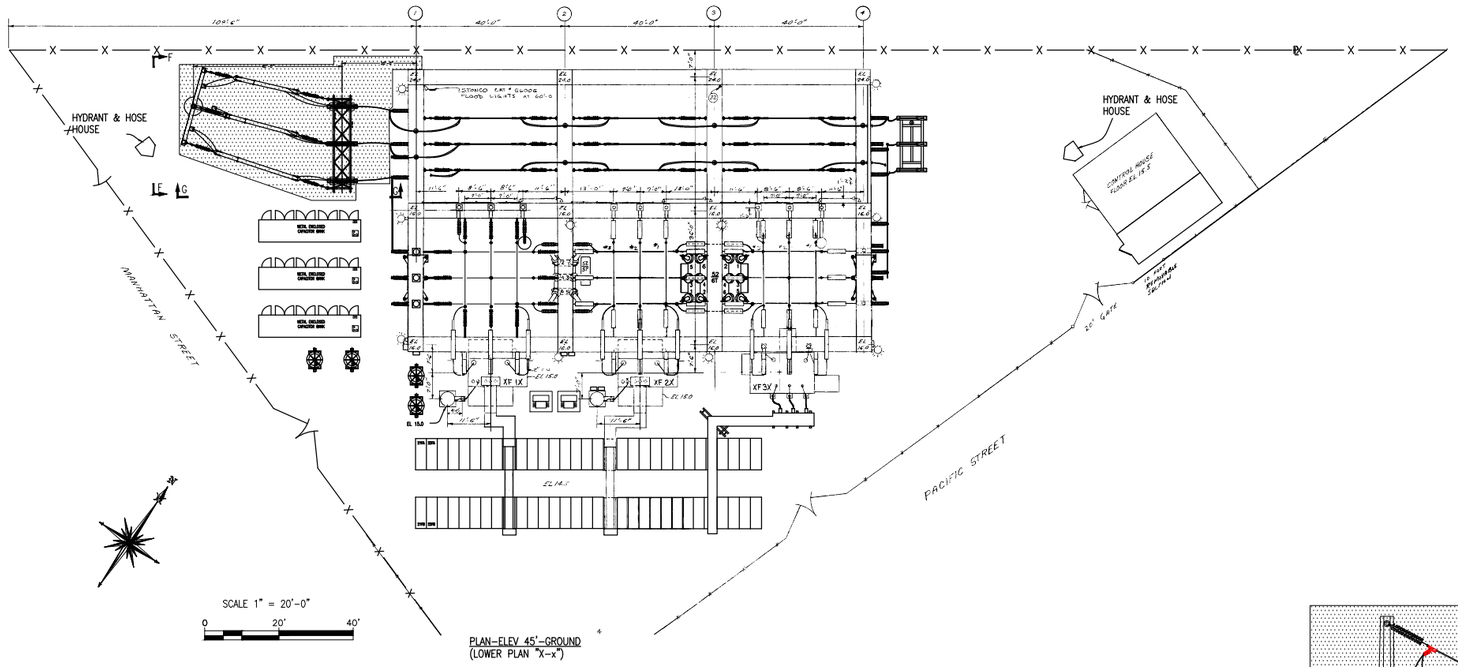
Northeast Utilities Service Co.

FOR THE CONNECTICUT LIGHT AND POWER COMPANY

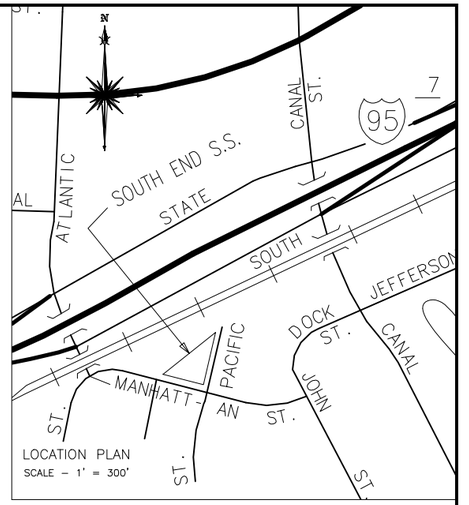
TITLE
GLENBROOK 1K
GENERAL ARRANGEMENT – CSC PLAN
CONNECTICUT SITING COUNCIL
STAMFORD, CT

BY KPKR	CHKD REM	APP LEG	APP ALG
DATE 2/2003	DATE 2/2003	DATE 2/2003	DATE 2/2003
H-SCALE	SIZE E	FIELD BOOK & PAGES	
V-SCALE	V.S.	R.E. DWG	
R.E. PROJ. NUMBER		NUSCO 23505-92001	

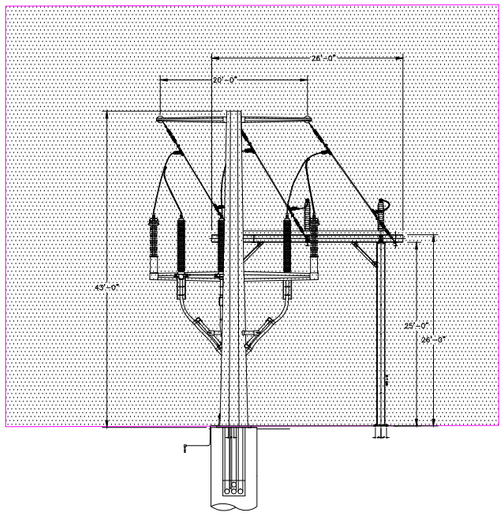
NU VER: 02/2012



PLAN–ELEV 45'–GROUND
(LOWER PLAN "X–x")

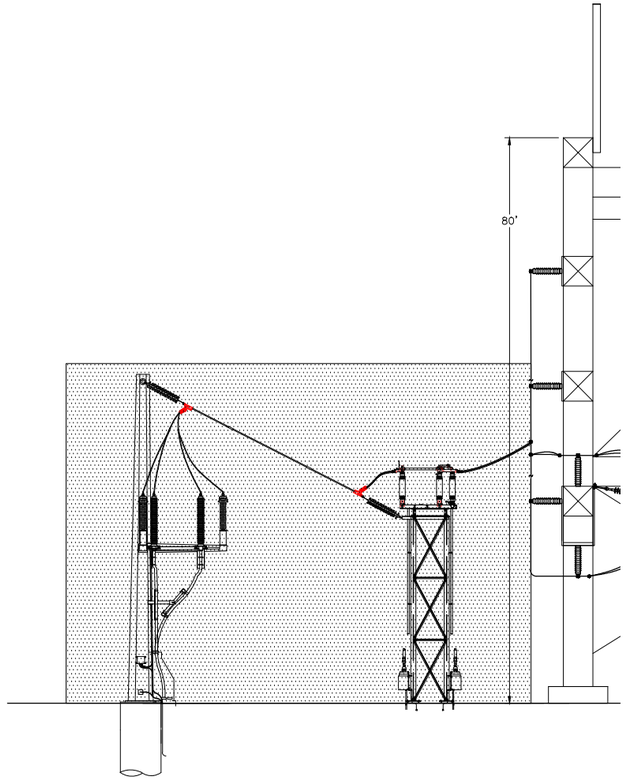


LOCATION PLAN
SCALE – 1' = 300'



SECTION F–F

SCALE 1" = 10'-0"
0
10'
20'



SECTION G–G

SCALE 1" = 10'-0"
0
5'
10'

LEGEND

- FENCE
- PROPERTY LINE
- 2012 ADDITIONS

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP

REVISIONS DURING CONSTRUCTION

Northeast Utilities Service Co.

FOR THE CONNECTICUT LIGHT AND POWER COMPANY

TITLE

SOUTH END 1G
PLAN & SECTIONS
CONNECTICUT SITING COUNCIL
STAMFORD, CT

BY	WSP	CHKD	REM	APP	REM	APP	PTM
DATE	7/84	DATE	7/84	DATE	7/84	DATE	7/84
H–SCALE	AS NOTED	SIZE	D	FIELD BOOK & PAGES			
V–SCALE	AS NOTED	V.S.		R.E. DWG			
R.E. PROJ. NUMBER				NUSCO		23504-92001	

7/16/2013 4:18 PM – dewilwa – S:\Model\Work\23504–SOUTH END 1G\23504–92001.DWG – 2012 ADDITION

Exhibit 4: Sediment and Erosion Control Figures

SOUTH END SUBSTATION

Garden St

Manhattan St

Pacific St

1

2

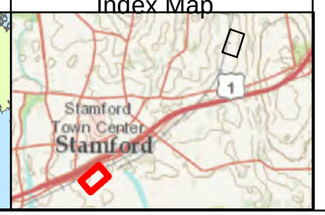
3

4

4

Map Location

Index Map



Underground Alignment

1 PERIMETER EROSION CONTROLS ON DOWNSLOPE ALONG CONSTRUCTION AREA & AROUND SPOIL PILE (AS APPROPRIATE)

2 INSTALL INLET PROTECTION (AS APPROPRIATE)

3 INSTALL CONSTRUCTION ENTRANCE PAD (AS APPROPRIATE)

4 STREETS WILL BE PERIODICALLY SWEPT TO KEEP FREE OF SEDIMENT.

1 inch = 30 feet

0 50 100 Feet

N

Stamford Reliability Cable Project
Preferred Route with Canal Street Option (Updated)

Sediment and Erosion Control Figures

Map 1 of 2

Connecticut Light & Power
A Northeast Utilities Company

AECOM

Date: October 7, 2013

Path: Y:\Projects\NorthEast_Utilities\Stamford_Reliability_Cable_Project\MXD\ES_Mapping\ES_Mapping_Stations.mxd

POTENTIAL CEMENT TRUCK WASH-OUT AREA

GLENBROOK SUBSTATION

1

2

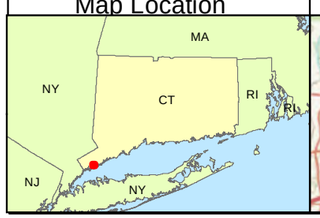
3

4

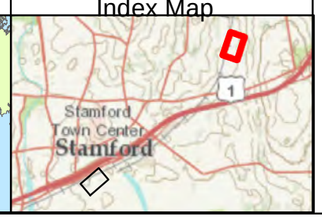
Lincoln Ave

Custer St

Map Location



Index Map



Underground Alignment

1 PERIMETER EROSION CONTROLS ON DOWNSLOPE ALONG CONSTRUCTION AREA & AROUND SPOIL PILE (AS APPROPRIATE)

2 INSTALL INLET PROTECTION (AS APPROPRIATE)

3 INSTALL CONSTRUCTION ENTRANCE PAD (AS APPROPRIATE)

4 STREETS WILL BE PERIODICALLY SWEPT TO KEEP FREE OF SEDIMENT.

1 inch = 45 feet

0 50 100 Feet

N

Stamford Reliability Cable Project
Preferred Route with Canal Street Option (Updated)

Sediment and Erosion Control Figures

Map 2 of 2

Connecticut Light & Power
A Northeast Utilities Company

AECOM

Date: October 7, 2013

Path: Y:\Projects\NorthEast_Utilities\Stamford_Reliability_Cable_Project\MXD\ES_Mapping\ES_Mapping_Stations.mxd