



**GREATER HARTFORD-CENTRAL CONNECTICUT  
RELIABILITY PROJECT**

**DEVELOPMENT & MANAGEMENT PLAN  
for  
MODIFICATIONS TO THE  
NEWINGTON AND SOUTHWEST HARTFORD  
SUBSTATIONS AND NEWINGTON TAP**

**(Town of Newington and City of Hartford, Hartford County, Connecticut)**

**VOLUME 1-SS/Tap**

**JULY 2018**

*Prepared by:*

The Connecticut Light and Power Company doing business as Eversource Energy

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**VOLUME 1-SS/Tap**

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## 1. INTRODUCTION

### 1.1 PROJECT OVERVIEW AND PURPOSE OF THE DEVELOPMENT AND MANAGEMENT (D&M) PLAN

To improve the reliability of the electric transmission system in the Greater Hartford and Central Connecticut area, The Connecticut Light and Power Company doing business as Eversource Energy (Eversource or the Company) will construct, operate, and maintain a new 115-kilovolt (kV) transmission line and make related improvements to two existing substations and an existing 115-kV line tap into one of the substations. The work will be located within Hartford County. These improvements, referred to collectively as the Greater Hartford-Central Connecticut Reliability Project (the Project; refer to Figure 1-1), will consist of the following:

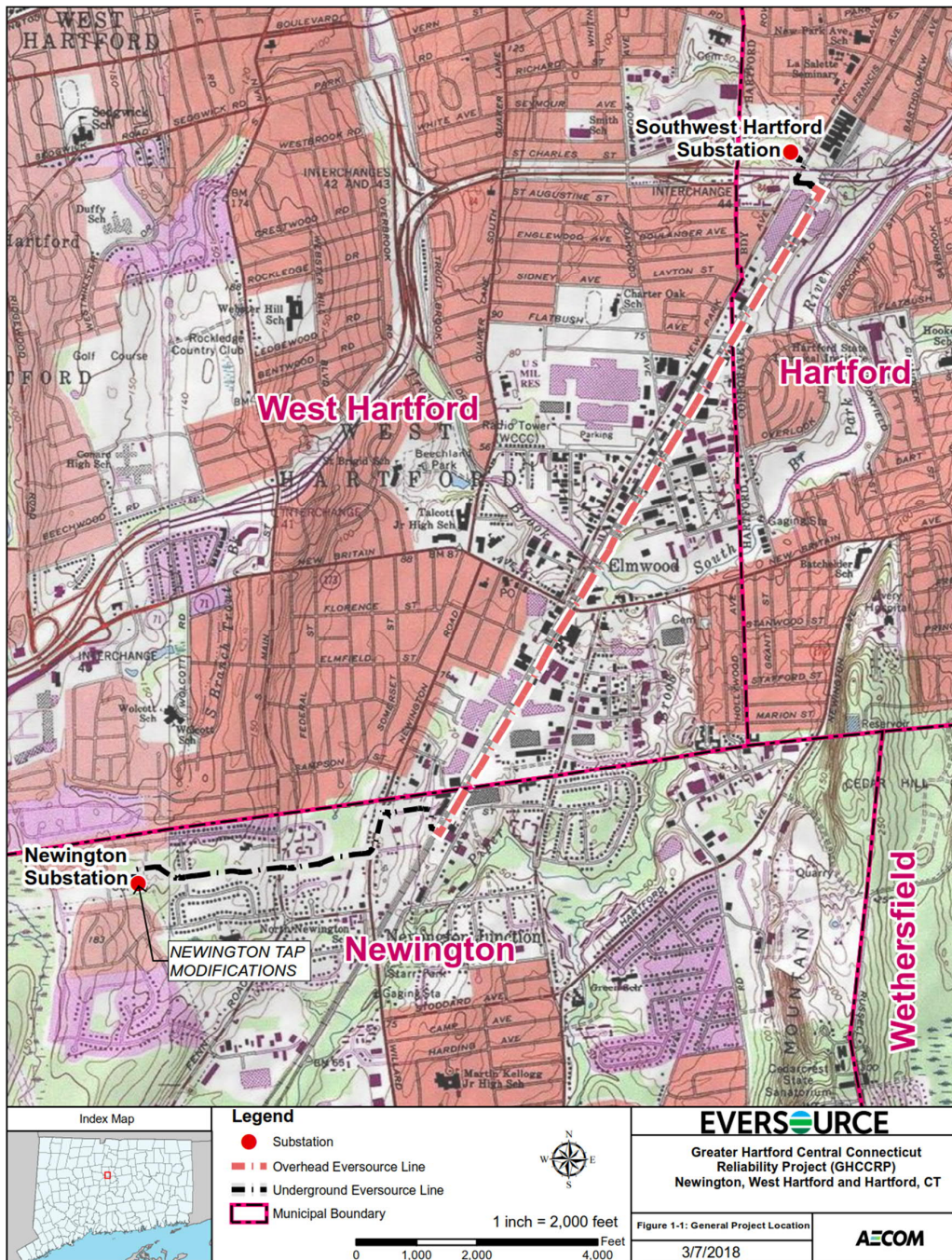
- A new approximately 3.7-mile 115-kV transmission line (designated by Eversource as the 1346 Line), consisting of both overhead and underground segments, which will extend between Eversource's existing Newington Substation in the Town of Newington, through the Town of West Hartford, to Eversource's existing Southwest Hartford Substation in the City of Hartford. The new transmission line will be aligned almost entirely along existing linear corridors, including an Eversource right-of-way (ROW), Amtrak Railroad ROW, and state and local road ROWs. Approximately 2.4 miles of the new transmission line will be in an overhead configuration, while approximately 1.3 miles (consisting of a 1.16-mile segment in the Town of Newington and a 0.17-mile segment in the City of Hartford) will be underground.
- Modifications to both Newington and Southwest Hartford substations, including the expansion of each substation's fenced area by approximately 0.3 acre, to connect the new 115-kV line to the transmission system.
- Reconfiguration and reconductoring of a short (0.01-mile) section of the existing overhead 115-kV 1783 Line that connects to a terminal structure at Newington Substation. This short 115-kV line segment is referred to as the Newington Tap.

On June 7, 2017, Eversource 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. 474). After a public comment meeting, evidentiary hearing, and technical reviews, the Council approved the Project on February 2, 2018. Condition No. 2 of the Council's Decision and Order approving the Project requires that Eversource prepare a Development and Management (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*).

Eversource elected to prepare three D&M Plans: 1) Newington and Southwest Hartford substations and Newington Tap modifications; 2) the 115-kV underground transmission line; and 3) the 115-kV overhead transmission line. This D&M Plan addresses all construction activities for the modifications at Newington and Southwest Hartford substations, as well as the modifications to Newington Tap. In

addition, Volume 2 includes the Project-wide approvals, plans and Best Management Practices for all three D&M Plans.

**Figure 1-1: GHCCRP: Project Location Map**





## **1.2 SUBSTATION/NEWINGTON TAP LOCATIONS AND GENERAL DESCRIPTION OF MODIFICATIONS**

### **1.2.1 Newington Substation and Newington Tap**

#### **Newington Substation**

Eversource's Newington Substation, which includes both a 115-kV transmission yard and a 23-kV distribution yard, is located at 185 Cherry Hill Drive in the northwestern portion of the Town of Newington (refer to the Appendix A maps). The substation currently occupies approximately 1.7 acres of Eversource's 11.4-acre property. The Eversource property is bordered by single-family residential properties on all sides, along Cherry Hill Drive to the north, Avery Road to the east, Barnard Drive to the southeast, Reservoir Road to the south, Thornton Drive to the southwest, and Quincy Lane to the west. The substation, which has been in operation for about 60 years, is accessed via Cherry Hill Drive.

Eversource ROWs, occupied by overhead transmission lines and overhead and underground distribution lines, extend from the substation to the north, south, east, and west. Specifically, two existing overhead 115-kV transmission lines presently connect to the substation: (1) the 1783 Line, which connects to the substation from the west; and (2) the 1785 Line, which connects to the substation from the south. These 115-kV lines are connected (tapped) to three distribution power transformers within the substation; the transformer connections to the 115-kV bus are separated by two circuit breakers. Existing distribution lines connect to the substation from the north, east, and west.

All the planned modifications to Newington Substation will be located on Eversource property. The new 115-kV transmission line will connect to Newington Substation in an underground configuration. The planned modifications to Newington Substation include the reconfiguration of the existing 115-kV yard into a ring bus with two new circuit breakers; construction of a new battery enclosure (with dimensions of approximately 36 feet long by 14 feet wide by 12 feet high) for new protection and control equipment (primarily direct current [DC] battery components); relocation of the existing 1783 Line terminal position; transition of the new underground 1346 Line to an above-grade rigid substation bus; and installation of a new steel deadend structure for the relocation of the 1783 Line within the substation.

To accommodate the modifications required to interconnect the new 115-kV transmission line, Eversource will extend the substation's existing fenced area by approximately 30 feet to the south and 35 feet to the west and will perform cutting, filling, and grading as necessary to create a level area for the installation of the new substation equipment. A cast-in-place concrete retaining wall will be installed along the south and west side perimeters of the expanded substation area. This retaining wall will minimize the size of the expansion area while achieving the elevations required for the new substation equipment. As a result of the planned modifications, the developed portion of the substation will increase by approximately 0.3 acre. Eversource will also extend the substation ground grid into the expansion area.

Section 3 provides further details regarding the planned modifications to Newington Substation. Appendix A includes maps and drawings depicting the planned substation modifications.

### **Newington Tap**

Eversource's existing 115-kV 1783 Line extends from Farmington Substation (located in the Town of Farmington) to the East New Britain Substation (located in the City of New Britain). In between these two termination points, the 1783 Line is aligned adjacent to Newington Substation. The 1783 Line connects to Newington Substation via the 0.01-mile overhead transmission line "tap"<sup>1</sup> (the Newington Tap) that extends from a transmission line structure on the 1783 Line ROW and connects to the substation from the west.

To provide space within Newington Substation to accommodate the new 1346 Line cable termination, the Newington Tap connection to the substation will be relocated to enter the substation from the south, and reconducted with larger conductors. These modifications will provide a more direct 1783 Line interconnection to the substation and will enable the tap line to avoid thermal overloads that might otherwise occur under certain contingencies, such as when Newington Substation would simultaneously supply both East New Britain and Farmington substations.

The modifications to Newington Tap, which will be performed on Eversource property or within Eversource's ROWs adjacent to Newington Substation, will include the removal of the two existing transmission line structures, conductors, and related equipment that comprise the existing tap. The new tap will consist of a single new monopole structure, new 115-kV conductor and related equipment. Guy wires also will be repositioned on two other existing structures within the 1783 Line ROW in the immediate vicinity of Newington Substation.

Section 3 provides technical details regarding the planned Newington Tap modifications. Appendix A includes maps and drawings of the Newington Tap modifications.

### **1.2.2 Southwest Hartford Substation**

Southwest Hartford Substation is located at 219 New Park Avenue, in a commercial area in the southwestern portion of the City of Hartford. The substation occupies approximately 2.1 acres of a 7.1-acre property owned by Eversource. The Eversource parcel is bordered by Interstate 84 (I-84) to the south, New Park Avenue to the east, Kane Street and a tributary to the South Park River (sometimes referred to as Kane Brook) to the north, and Prospect Avenue to the west. The access road to the substation connects to New Park Avenue.

The Southwest Hartford Substation property was acquired for utility use in 1968. Two underground 115-kV transmission lines (the 1704 Line and the 1722 Line) and nine 23-kV distribution lines presently connect to the substation. The existing underground 115-kV lines are high-pressure fluid filled (HPFF) cables that extend out of the substation to the northeast.

To interconnect the new 1346 Line to Southwest Hartford Substation, Eversource will modify the 115-kV substation facilities, which will require the extension of the existing station's fenced area by

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<sup>1</sup> A "tap" is a short segment of conductor that connects a transmission line to a substation.

approximately 65 feet to the east and the relocation of the existing access road and gates. The substation expansion will be entirely on Eversource property.

In total, the developed portion of Southwest Hartford Substation will be expanded by approximately 0.3 acre. The planned modifications to the substation include the reconfiguration of the existing 115-kV yard into a ring bus, with two new 115-kV circuit breakers; removal of the oil pump house; installation of four new deadend structures (consisting of two 2-bay H-Frame deadend structures); and extension of the substation ground grid for the expanded substation footprint.

Section 3 provides technical details regarding the proposed Southwest Hartford Substation modifications. Appendix B includes maps and drawings that illustrate the substation modifications.

### 1.3 ORGANIZATION OF THE D&M PLAN

This D&M Plan consists of two volumes:

- **Volume 1-SS/Tap** includes specific information relevant to the Newington and Southwest Hartford substation modifications, as well as the modifications to Newington Tap. The main text of Volume 1-SS/Tap (Sections 1 through 7) includes information and procedures that are pertinent to work at the two substations and Newington Tap, including regulatory requirements, general Project construction procedures and special plans, overall construction schedule, public outreach, and a glossary of terms.

Table 1-1 summarizes each of the Council's D&M Plan requirements, pursuant to RCSA Sections 16-50j-60 through 16-50j-62; Table 1-2 identifies the requirements pertaining to the substation and Newington Tap modifications as contained in the Council's Decision and Order for the Project. For each D&M Plan requirement, Tables 1-1 and 1-2 either identify the location in this D&M Plan where the requirement is addressed or state why the requirement is not relevant to the substation and Tap modifications. Appendices A and B to Volume 1-SS/Tap include site-specific construction details regarding the modifications to each substation and Newington Tap, including maps, plans, and drawings. Appendix C includes plans and protocols relevant to the substation and Tap modifications.

- **Volume 2** includes approvals, plans, and best management practices (BMPs) pertinent to all Project construction activities, including not only the substation and Newington Tap modifications, but also the new 115-kV transmission line construction. In particular, Volume 2 includes:
  - Eversource's procedures for environmental compliance and notifications to the Council during the development of the Project, as required by the Council's regulations and Project-specific conditions (Attachments A.1 through A.3).
  - Wetlands and Watercourses Impact Summary Table for the Project (Attachment B).
  - Spill Prevention and Control Plan (Attachment C).
  - Snow Removal and De-Icing Procedures (Attachment D).

- Eversource’s *Best Management Practices Manual for Massachusetts and Connecticut (Construction and Maintenance Environmental Requirements), September 2016* (BMP Manual) (Attachment E).
- Post-Construction Electric & Magnetic Field Measurement Plan — Greater Hartford–Central Connecticut Reliability Project (Attachment F).

**Table 1-1**  
**D&M Plan Directory**  
**Greater Hartford-Central Connecticut Reliability Project: Substation and Newington Tap Modifications**  
(Compliance with RCSA Sections 16-50j-60, -61 and -62,  
as amended through September 7, 2012)

R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
<b>16-50j-60</b>	<b>Requirements for a D&amp;M Plan</b>	
(a)	<b>Purpose.</b> 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 applies to the modifications at Newington Substation, Southwest Hartford Substation, and Newington Tap.
(b)	<b>When required.</b> 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 includes all information applicable to the substation modifications and Newington Tap modifications.
(c)	<b>Procedure for preparation.</b> 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 Eversource.
(d)	<b>Timing of plan.</b> 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 addresses the Council's requirements for the construction of the substation and Newington Tap modifications.
<b>16-50j-61</b>	<b>Elements of D&amp;M Plan</b>	
(a)	<b>Key Map,</b> 1 inch=2,000 feet USGS topographic map	Volume 1-SS/Tap
(b)	<b>Plan Drawings,</b> 1 inch=100 feet or greater, and supporting documents, which shall contain the following information:	Volume 1-SS/Tap
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 1-SS/Tap
2.	Public roads and public land crossing or adjoining the site	Volume 1-SS/Tap

<b>R.C.S.A Section</b>	<b>Description</b>	<b>D&amp;M Plan (Section Reference, as Applicable)</b>
3.	Location of 50-foot contours along the site	Volume 1-SS/Tap
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 1-SS/Tap
5.	Probable points of access to the site, and the route and likely nature of accessways, including alternatives	Volume 1-SS/Tap
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	Volume 1-SS/Tap, Section 3.5.2, Appendices A-C
7.	<p>Identification of sensitive areas and conditions within and adjoining the site, including but not limited to:</p> <ul style="list-style-type: none"> <li>A. Wetland and watercourse areas regulated under CGS Chapter 440 and any locations where construction may create drainage problems</li> <li>B. Areas of high erosion potential</li> <li>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</li> <li>D. Location of known underground utilities or resources to be crossed (electric line, fuel line, drainage systems and natural or artificial public or private water resources)</li> <li>E. Residences or businesses within or adjoining the site that may be disrupted during construction</li> <li>F. Significant environmental, historic and ecological features (significantly large or old trees, buildings, monuments, stone walls or features of local interest)</li> </ul>	<p>Volume 1-SS/Tap, Appendices A-C</p> <p>N/A (None Present)</p> <p>Volume 1-SS/Tap, Section 5.3; Volume 1-SS/Tap, Appendix C</p> <p>Volume 1-SS/Tap, Appendices A and B</p> <p>Volume 1-SS/Tap</p> <p>Volume 1-SS/Tap</p>
(c)	<b>Supplemental Information</b>	
1.	Plans (if any) to salvage marketable timber, restore habitat and maintain snag trees within or adjoining the site	Volume 1-SS/Tap, Section 3.5.2
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:	

<b>R.C.S.A Section</b>	<b>Description</b>	<b>D&amp;M Plan (Section Reference, as Applicable)</b>
	<p>A. Construction techniques at wetland and watercourse crossings</p> <p>B. Sedimentation and erosion control and rehabilitation procedures, consistent with the CT Guidelines for Soil Erosion and Sediment Control, as updated and amended for areas of high erosion potential</p> <p>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 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 guideline, as amended</p> <p>D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features</p> <p>E. Plans for watercourse bank restoration in accordance with Chapter 440 of the C.G.S.</p> <p>F. Plans for the protection of historic and archaeological resources with review and comment from a state historic preservation officer of the CT Department of Economic and Community Development (DECD) or its successor agency</p>	<p>Volume 1-SS/Tap, Sections 3.4.4 and 5.2, Appendices A and C, Volume 2, Attachment E, BMPs</p> <p>Volume 1-SS/Tap, Sections 3 and 5.1, Appendix A; Volume 2, Attachment E, BMPs</p> <p>Volume 1-SS/Tap, Section 5.3; Volume 1-SS/Tap, Appendix C</p> <p>Volume 1-SS/Tap, Sections 3.4.4 and 5.4, Appendices A and C, Volume 2, Attachment E, BMPs</p> <p>N/A</p> <p>Volume 1-SS/Tap, Section 5.6</p>
<b>3.</b>	Plans for the method and type of vegetation clearing and maintenance to be used within or adjacent to the site	Volume 1-SS/Tap, Section 3.5.2 and appendices
<b>4.</b>	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
<b>5.</b>	Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site	Volume 1-SS/Tap, Section 5.3
<b>6.</b>	Locations of areas where blasting is anticipated	None Anticipated
<b>7.</b>	Rehabilitation plans, including but not limited to reseeding and topsoil restoration	Volume 1-SS/Tap, Section 3.4.7 and appendices; Volume 2, Attachment E, BMPs
<b>8.</b>	Contact information for the personnel of the contractor assigned to the project	To be provided after substation and Newington Tap contract award(s).

<b>R.C.S.A Section</b>	<b>Description</b>	<b>D&amp;M Plan (Section Reference, as Applicable)</b>
9.	Such site-specific information as the CSC may require	Refer to Table 1-2: List of requirements per Docket 474 Decision and Order and Opinion
(d)	<b>Notice</b> 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	Acknowledged
(e)	<b>Changes to the Plan</b> 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	As applicable; refer to Volume 2, Attachment A.2 (Eversource's Change Notice process)
<b>16-50j-62</b>	<b>Supplemental Reporting Requirements</b>	
(a)	<b>Site Testing and Staging Areas</b> 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 1-SS/Tap, Section 3.3; Appendices A and B identify staging areas for substation and Newington Tap work. The locations of contractor yards and material staging areas will be identified by the contractor and will be submitted to the Council for review and approval prior to use, pursuant to the Change Notice process described in Volume 2, Attachment A.2
(b)	<b>Notice</b>	
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:  A. Clearing and access work in each successive portion of the site, and B. Facility construction in that same portion	Acknowledged. Volume 2, Attachment A.2 summarizes notification procedures
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 2, Attachment A.2 includes Eversource's D&M Plan change process
	A. The location of wetland or watercourse crossing	



R.C.S.A Section	Description	D&M Plan (Section Reference, as Applicable)
	B. The location of an access way or structure in a regulated wetland or watercourse area	
	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 Section 16-50j-60 of the RCSA	
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.	Acknowledged
4.	The certificate holder, or facility owner or operator, shall provide the CSC with written notice of completion of construction and site rehabilitation.	Acknowledged
(c)	<b>Final Report</b> 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:	
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	Acknowledged (Volume 2, Attachment A)
4.	The location of areas where special planting and reseeded 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	

<b>R.C.S.A Section</b>	<b>Description</b>	<b>D&amp;M Plan (Section Reference, as Applicable)</b>
<b>(d)</b>	<b>Protective Order</b> 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.	Acknowledged

**Table 1-2  
D&M Plan Directory of Docket No. 474 Decision and Order Requirements  
Greater Hartford-Central Connecticut Reliability Project: Substations and Newington Tap Modifications<sup>2</sup>**

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
<b>Condition Number</b>	<b>Decision and Order</b>	
(1)	The Certificate Holder shall construct the proposed electric transmission line along the proposed route and perform related Project improvements, as proposed, subject to modifications during final site design and approval of the Development and Management (D&M) Plan for the Project.	Volumes 1-SS/Tap & 2
(2)	<p>The Certificate Holder shall prepare a D&amp;M Plan for this Project that shall be in compliance with Sections 16-50j-60 through 16-50j-62 of the RCSA. The D&amp;M Plan shall be served on the municipalities of Newington, West Hartford, and Hartford 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. The D&amp;M Plan shall include:</p> <p>a. Detailed site plans depicting final structure heights and showing the placement of the access roads, structure foundations, equipment and material staging areas for the overhead portion of the route;</p> <p>b. Detailed site plans depicting final transition structure heights and showing the placement of transition structures, duct banks and splice vaults for the underground portion of the route;</p> <p>c. Plans to address traffic impacts associated with underground construction;</p> <p>d. Plans for perennial stream crossing (e.g., open cut method) for underground cable;</p>	<p>Volumes 1-SS/Tap &amp; 2</p> <p>Refer to Volume 1-SS/Tap, Appendix A (for Newington Tap structures) and to the Overhead Transmission Line D&amp;M Plan</p> <p>Refer to Overhead Transmission Line D&amp;M Plan for transition structure details; Underground Transmission Line D&amp;M Plan for duct bank and splice vault details</p> <p>Refer to Underground Transmission Line D&amp;M Plan</p> <p>Refer to Underground Transmission Line D&amp;M Plan</p>

<sup>2</sup> Unless otherwise noted, references in this table are to this D&M Plan for the substations and Tap modifications. Information contained in Volume 2 includes Project-wide plans and protocols, applicable to all Project work.

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	<p>e. Detailed site plans for equipment installation/modifications for the expanded areas at Newington Substation (including Newington Tap modifications) and Southwest Hartford Substation, including fencing details;</p> <p>f. Identification of areas for staging and equipment lay down, field office trailers, sanitary facilities, and parking;</p> <p>g. An erosion and sediment control plan, consistent with the <i>2002 Connecticut Guidelines for Soil Erosion and Sediment Control</i> as amended;</p> <p>h. A stormwater management plan consistent with the <i>2004 Connecticut Stormwater Quality Manual</i>;</p> <p>i. Identification of wetland and watercourse resources, related temporary construction impacts and methods to reduce such impacts;</p> <p>j. Details of ground disturbance;</p> <p>k. Vegetative clearing plan;</p> <p>l. Wetland restoration plan;</p> <p>m. Restoration plan of disturbed areas;</p> <p>n. A spill prevention and countermeasures plan;</p> <p>o. Invasive species control plan;</p> <p>p. A schedule of construction hours;</p>	<p>Volume 1-SS/Tap, Appendices A and B</p> <p>Volume 1-SS/Tap, Appendices A and B (Contractor yard locations, as applicable, to be submitted to the Council separately)</p> <p>Volume 1-SS/Tap, Section 5.1; Volume 1-SS/Tap, Appendix C, Detail Sheets 4 and 5; Volume 2, Attachment E</p> <p>Volume 1-SS/Tap, Section 3.4.4 (Stormwater Pollution Control Plan for Construction General Permit to be filed with Council after submission to CT DEEP)</p> <p>Volume 1-SS/Tap, Appendices A and B; Volume 2, Attachment B</p> <p>Volume 1-SS/Tap, Appendices A and B</p> <p>Volume 1-SS/Tap, Section 3.5.2</p> <p>Volume 1-SS/Tap, Appendix C, Detail Sheet 1</p> <p>Volume 1-SS/Tap, Appendix C Volume 2, Attachment C</p> <p>Volume 1-SS/Tap, Appendix C, Detail Sheet 1</p> <p>Volume 1-SS/Tap, Section 4</p>

Condition or Page Number	Description	D&M Plan (Section Reference, as Applicable)
	<p>q. A blasting plan, if necessary;</p> <p>r. Provisions for site specific measures to reduce impacts to State listed endangered, threatened, and special concern species; and</p> <p>s. An EMF Monitoring Plan</p>	<p>N/A</p> <p>Volume 1-SS/Tap, Section 5.3</p> <p>Volume 2, Attachment F</p>
(3)	<p>The Certificate Holder shall obtain necessary permits from the United States Army Corps of Engineers and the Connecticut Department of Energy and Environmental Protection and any other state or federal agency with concurrent jurisdiction prior to the commencement of construction, in areas where said permits are required.</p>	<p>Acknowledged</p>
(4)	<p>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.</p>	<p>Acknowledged</p>
(5)	<p>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 with information relevant to the overall condition, safety, reliability, and operation of the new transmission line.</p>	<p>Acknowledged</p>
(6)	<p>Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within five years of the effective date of the Decision and Order, or within five years after all appeals to this Decision and Order have been resolved. Authority to monitor or modify the schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as practicable.</p>	<p>Acknowledged</p>
(7)	<p>Any request for extension of the time allowed for construction as directed in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, the Towns of Newington and West Hartford, and the City of Hartford.</p>	<p>Acknowledged</p>
(8)	<p>This Certificate may be surrendered by the Certificate Holder upon written notification to the Council.</p>	<p>Acknowledged</p>
(9)	<p>The Certificate Holder shall comply with Sections 16-50j-60 through 16-50j-62 of the RCSA and submit quarterly construction progress reports. The Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.</p>	<p>Acknowledged</p>

<b>Condition or Page Number</b>	<b>Description</b>	<b>D&amp;M Plan (Section Reference, as Applicable)</b>
(10)	The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under CGS §16-50v.	Acknowledged
(11)	This Certificate may be transferred in accordance with CGS §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under CGS §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide to the Council a written agreement as to the entity responsible for any quarterly assessment charges under CGS §16-50v(b)2 that may be associated with this facility.	Acknowledged

## 2. REGULATORY APPROVALS AND CONSULTATIONS

### 2.1 REGULATORY APPROVALS AND REQUIREMENTS

This D&M Plan conforms to the specifications of Sections 16-50j-60 through 16-50j-62 of the RCSA (*Requirements for a D&M Plan, Elements of a D&M Plan, Reporting Requirements*); incorporates Eversource's commitments as contained in the record of the Council's Docket 474 regulatory process; and reflects adherence to the conditions of the Council's certificate for the Project and other relevant, previously received or anticipated regulatory approvals. Table 2-1 lists the permits relevant to the substation and Newington Tap portions of the Project.

### 2.2 CONSULTATIONS

During the planning of the Project, Eversource consulted with representatives of the municipalities within which the substations and Newington Tap are located (Newington and Hartford), as well as with representatives of various state and federal agencies, including the U.S. Army Corps of Engineers (USACE), New England District; U.S. Fish and Wildlife Service (USFWS); CT DEEP; State Historic Preservation Office (SHPO), and Connecticut Department of Transportation (CT DOT). During these consultations, Eversource provided information regarding the Project, including the D&M Plan process, the planned construction activities, and Eversource's outreach procedures and points-of-contact. In addition, Eversource notified and met with abutting property owners.

On June 8, 2018, Eversource submitted a draft of this D&M Plan to the chief elected officials of Newington and Hartford.<sup>3</sup> Subsequently, Eversource met with representatives of both municipalities to review the draft D&M Plan and to solicit comments, if any, on the Plan. The Town of Newington had no comments on the draft D&M Plan. City of Hartford representatives inquired about mitigation for vegetation removal at Southwest Hartford Substation<sup>4</sup>. Accordingly, during the Project construction, Eversource will coordinate with City of Hartford representatives regarding vegetation replacement, as appropriate, on the substation property. Any such vegetation replacement, which would be installed as part of the restoration phase of the Project, would comply with Eversource's requirements for the protection of the 115-kV line and substation facilities.

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<sup>3</sup> Eversource did not consult with the Town of West Hartford on this D&M Plan as no portions of the modifications to the Newington or Southwest Hartford substations or Newington Tap are located in West Hartford. Eversource will consult with the Town of West Hartford on the draft D&M Plan for the overhead segment of the Project.

<sup>4</sup> Eversource reviewed with the two municipalities both this draft D&M Plan and the draft D&M Plan for the Project's 115-kV underground cable. City of Hartford representatives also commented about vegetation removal on a private property along the underground cable segment (refer to D&M Plan Volume 1-UG for further information).

This D&M Plan, as submitted to the Council, is also being provided to both the Town of Newington and the City of Hartford. Additional information regarding Eversource's overall public outreach process is included in Section 6.

In addition, as specified in the D&M Plan requirements, RCSA Section 16-50j-61(c)(2)(F), Eversource consulted with representatives of the SHPO regarding the potential effects of the Project on archaeological or historic resources and the measures to mitigate such effects, as necessary. Eversource also submitted copies of the cultural resources Phase IB survey results and Addendum to the Cultural Resources Review to the Native American tribes<sup>5</sup>.

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<sup>5</sup> Mohegan, Mashantucket Pequot, and Wampanoag Tribal Historic Preservation Offices.



**Table 2-1  
Permits, Reviews, and Approvals Relevant to the Substation Modifications for the Project**

Agency	Certificate, Permit, Review, Approval or Confirmation	Activity Regulated
<b>FEDERAL</b>		
U.S. Army Corps of Engineers	Clean Water Act, Section 404, Pre-Construction Notice (PCN) per Connecticut General Permits	Work in wetlands/waters of the U.S.
U.S. Fish and Wildlife Service	Coordinates with U.S. Army Corps of Engineers (USACE) regarding endangered or threatened species	Activities that may affect federally-listed endangered or threatened species
<b>CONNECTICUT</b>		
Connecticut Siting Council	Certificate of Environmental Compatibility and Public Need (Docket 474, February 2, 2018)  D&M Plan approvals	General transmission line need, siting, construction, environmental compatibility, safety, and operation / maintenance and ROW management procedures
CT DEEP	Clean Water Act, Section 401 (part of USACE PCN process)	CT DEEP 401 WQC is required for the USACE Section 404 authorization
CT DEEP	General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Construction General Permit)	Stormwater management during construction
CT DEEP	Threatened, Endangered, and Special Concern Species	Activities that may affect state-listed endangered, threatened, or special concern species.
SHPO	Concurrence with determination that Project will have no adverse effect on cultural resources	No significant cultural resources were found in the areas to be affected by Project construction and operation. SHPO provided correspondence on 8/17/2017 and 6/25/2018 concurring that the Project will have no adverse effect on cultural resources.
CT DEEP Public Utilities Regulatory Authority	Approval pursuant to CGS Section 16-243	Method & Manner of Construction Approval to Energize Line

### 3. GENERAL CONSTRUCTION PROCEDURES

The Project modifications to Newington and Southwest Hartford substations and Newington Tap will involve sequential, phased construction. This section describes the modifications planned at the substations and Newington Tap (Section 3.1); the construction activities common to both substations and Newington Tap (Section 3.2 and 3.3); the construction activities for Newington and Southwest Hartford substation modifications (Section 3.4); and the construction work required for the Newington Tap modifications (Section 3.5). Detailed site-specific construction drawings and plans for the substations and Newington Tap are included in appendices to this volume.

Actual sequences and methods of construction for both the substation modifications and the Newington Tap modifications may vary based on the characteristics observed at each substation and the final engineering designs for each location.

#### 3.1 SUMMARY OF SUBSTATION AND NEWINGTON TAP MODIFICATIONS

##### 3.1.1 Newington Substation and Newington Tap

Construction of the Newington Substation modifications will be coordinated with the construction of the Newington Tap modification activities. Appendix A includes details regarding the planned modifications to Newington Substation and Newington Tap. These modifications are summarized as follows.

##### Newington Substation

To accommodate the modifications required to interconnect the new 115-kV transmission line to Newington Substation, the substation's fenced area will be extended by approximately 0.3 acre. Appendix A depicts the area to be cleared for the substation expansion, and the associated limits of disturbance, as well as the planned substation modifications.

The following modifications will be constructed to interconnect the new 115-kV line to Newington Substation:

- Perform cutting, filling, and grading adjacent to the south and west sides of the existing substation fence to expand the substation by approximately 0.3 acre. This work is required due to the terrain in the expansion area.
- Install a cast-in-place concrete retaining wall around the expanded substation area. The retaining wall will be approximately 490 feet long (approximately 295 feet along the south substation fence line and 144 feet along the western fence line), and will extend approximately 8 feet above ground level.
- Install a new section of fence around the perimeter of the expanded substation area. The new fence will be installed on top of the retaining wall and will connect to the existing fence at each

end of the retaining wall. The new fence will consist of 1.25-inch wire mesh and will be seven feet high, topped with one foot of three-strand barbed wire.

- Reconfigure the existing substation 115-kV yard into a ring bus, with two new 115-kV circuit breakers.
- Construct a new battery enclosure (approximately 36 feet long by 14 feet wide and 12 feet high,) for the new protection and control equipment, primarily DC battery components.
- Connect the proposed new 115-kV underground line (the 1346 Line) to the substation at the existing 1783 Line terminal position (to allow the installation of the new 1346 Line, the 1783 Line terminal will be relocated to the existing 2X bus position between the 1T and 2T breakers).
- Install three lightning arrestors (one per phase), three potential transformers (PTs) (one per phase), and one three-phase disconnect switch for the configuration for each line terminal position.
- Transition the new underground 1346 Line to a rigid substation bus, using one pothead per phase. The height of this terminal will be 16.5 feet above ground level, which is the approximate height of the existing bus.
- Install a new galvanized steel deadend structure within the substation to relocate the 1783 Line interconnection in the substation to the south. This structure will be approximately 65 feet high above ground level.
- Install drainage for the substation modifications.
- Extend the existing substation ground grid as required, to accommodate the expanded substation footprint.
- Existing yard lighting on the southwestern portion of the existing substation will be removed to facilitate construction of the substation expansion. Additional low-level lighting will be installed, as necessary, and at locations along the new fence line to provide low level lighting in accordance with the National Electric Safety Code (NESC) and Eversource design standards. Additional task lighting to illuminate specific equipment or control boxes will also be installed and would be turned on only when required.

### **Newington Tap Modifications**

The Newington Tap modifications will consist of the following:

- Replace existing Structure 16072 (a 67-foot-tall three-pole wood structure) with one new approximately 95-foot-tall steel galvanized monopole structure on a new concrete caisson foundation. Similar to the existing structure, new Structure 16072 will be situated on the existing 1783 Line ROW south of the substation.
- Install a new supporting 1,272,000-circular-mil (1272-kcmil) aluminum conductor with steel reinforced support (ACSR). The new line tap will connect from Structure 16072 to the substation from the south.
- Remove existing Structure 16074 (a 57-foot-tall single wood pole), conductors, and related equipment that comprise the current tap.

- Reposition the guying arrangement on two existing 1783 Line transmission structures (Structures 8001 and 16073). The repositioned guys will be located within the Eversource ROW as depicted on the map sheet in Volume 1-SS/Tap, Appendix A.

### **3.1.2 Southwest Hartford Substation**

To accommodate the modifications required to interconnect the new 115-kV 1346 Line to Southwest Hartford Substation, the substation's fenced area will be expanded by approximately 0.3 acre. Appendix B depicts the area to be cleared for the substation expansion, and associated limits of disturbance, as well as the planned substation modifications.

The following modifications will be constructed to interconnect the new 115-kV line to Southwest Hartford Substation:

- Reconfigure the existing substation 115-kV yard into a ring bus, with two new 115-kV circuit breakers.
- Add one line terminal position.
- Install, for both the 1704 and 1346 lines, one series reactor, circuit switcher, disconnect switch, arrester, PT, and pothead per phase.
- Install four new 65-foot-tall deadend structures (consisting of two 2-bay H-Frame deadend structures) with associated 10-foot-tall lightning rods to support the connection of new reactors.
- Extend the existing substation ground grid as required, to address the expanded substation footprint.
- Remove the existing oil pump house and relocate or remove existing HPFF interconnection piping and associated valve cabinet.
- Install a new fence section around the expanded substation area. The substation fence will be extended by approximately 65 feet to the east to enclose the expansion area. The new fence will consist of 1.25-inch wire mesh and will be seven feet high, topped with one foot of three-strand barbed wire.
- Additional low-level lighting will be installed as necessary at locations along the new fence line in the eastern expansion area to provide a minimum lighting level of 2 foot-candles, in accordance with NESC and Eversource design standards. Additional task lighting to illuminate specific equipment or control boxes will also be installed and would be turned on only when required.

## **3.2 CONSTRUCTION MANAGEMENT AND CONTACT INFORMATION**

Eversource expects to award several construction contracts for the substation and Newington Tap modifications. After contract award, but prior to the commencement of the contractors' on-site work for the Project, Eversource will provide the Council with contact information for each prime construction contractor, consisting of the name of the firm, name of primary contact, corporate address, telephone number, and e-mail.

The construction of the substation and Newington Tap modifications will be overseen by personnel from Eversource's Project Management Team, who will directly monitor construction activities, including adherence to safety, engineering, and regulatory requirements.

## **3.3 CONSTRUCTION FIELD OFFICES, CONTRACTOR YARDS, AND STAGING AREAS**

To support the construction of the modifications to the substations and Newington Tap, temporary contractor yards, construction field offices (consisting of trailers or other facilities for contractor and Eversource personnel), and staging areas (including equipment and material staging sites, temporary storage areas, and laydown areas) will be required. These areas are expected to be located on Eversource's property at the Newington and Southwest Hartford substations, within the existing (developed) substation fence line and in adjacent uplands (refer to Appendices A and B for the locations of proposed staging areas identified to date).

Staging and support areas for these modifications will be temporary and be used only during the Project work. After completion of the Project modification activities at Newington and Southwest Hartford substations and at Newington Tap, these sites will be restored and stabilized in accordance with Eversource's BMP Manual (Volume 2, Attachment E).

The construction contractors for the substation and Newington Tap work will be responsible for establishing the field offices, yards, and staging areas on Eversource properties. If a contractor identifies a need for staging areas or field offices in addition to the locations identified on the Project maps in Volume 1-SS/Tap, Appendices A and B, Eversource will submit the proposed locations of these construction support areas to the Council staff for review and approval prior to use, in accordance with the D&M Plan Change Notice Approval Process described in Volume 2, Attachment A.2.

## **3.4 CONSTRUCTION PROCEDURES: SUBSTATIONS**

### **3.4.1 General Construction Sequence**

Eversource will construct the Newington and Southwest Hartford substation modifications in several stages, some overlapping in time. The typical sequence of construction activities for the substation modifications is listed below. The actual sequence of activities will vary for each substation, based on the site-specific modifications, as discussed in greater detail in Sections 3.4.2 to 3.4.7 and depicted on the maps and drawings in Appendices A and B.

- Survey and stake vegetation clearing boundaries and limits of disturbance for Project substation modification activities.
- Mark the boundaries of previously delineated wetland areas.
- Identify and mark areas to be avoided or otherwise protected (e.g., sensitive environmental resource areas).
- Prepare material staging sites (e.g., storage, staging and laydown areas) to support the construction effort.
- Establish construction field office area(s), typically including space for office trailers, equipment storage and maintenance, sanitary facilities, and parking. These areas will be within the developed substation sites or on surrounding Eversource property.
- Perform vegetation removal and/or clearing and site preparation (grading or filling).
- Install erosion and sedimentation (E&S) controls.
- Construct new or improve existing access roads.
- Construct foundations and erect/assemble new equipment and the battery enclosure at Newington Substation.
- Install grounding systems.
- Install control cable and test all new equipment
- Remove temporary access roads and construction debris and restore disturbed sites.
- Maintain temporary E&S controls until sites are re-stabilized (e.g., paved, re-graveled, or revegetated).

Details regarding the modifications at each substation are provided in Appendices A and B.

### **3.4.2 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 (refer to the plans for the modifications to each substation in Appendices A and B). Site preparation may include the following activities or BMPs:

- a. Deploy temporary construction storage containers, and related equipment and materials to the substations or associated staging areas and set up temporary services required to support construction (e.g., portable toilets).
- b. Establish designated parking areas for construction workers.
- c. Erect “construction zone” warning signs on the public roads that intersect with substation access roads.
- d. Install temporary fencing around work sites as needed.
- e. Install and maintain, as necessary, temporary soil E&S controls (e.g., silt fence, straw bales, wattles) near areas of planned pavement/soil disturbance that are in proximity to water resources (located outside the substation fence lines). Such controls will be maintained and replaced, as

necessary, throughout the period of construction. The primary objective of these controls will be to minimize the potential for erosion and sediment migration away from construction activities and into water resources.

- f. Clear vegetation, grade, and otherwise prepare the substation expansion areas and any other work areas and equipment staging locations located outside the substation fence lines.

No blasting will be required for the substation modifications. In general, site preparation work typically will involve the use of construction equipment such as backhoes, excavators, trucks (various sizes), compressors, and flatbed trailers.

### **Newington Substation**

At Newington Substation, site preparation work will include cutting, filling and grading as necessary within the 0.3-acre expansion area adjacent to the southern and western portions of the existing substation fence. The access for the substation construction activities will be via Eversource's existing access road off of Cherry Hill Drive and will extend around the northwestern side of the existing substation fence to provide direct construction access to the substation expansion area. This extended portion of the access road will be primarily constructed of timber matting around the western and southern side of the substation fence.

The 0.3-acre substation expansion will be entirely contained within upland areas. The cast-in-place concrete retaining wall, which will be installed as the part of the site preparation work, will serve as the boundary of the expansion area. Within this area, imported fill will be used to create a suitable sub-base for the substation modifications. The expansion area will be graded to meet the elevation of the existing substation (refer to the maps and drawings in Appendix A). In addition, a new drainage system will be installed along the proposed retaining wall and will collect runoff for the yard expansion. The existing drainage system is to remain in place. The new drainage will not be tied to the existing drainage system and will flow into the existing scour hole, which will be expanded to accommodate increased flow due to the expansion.

Temporary construction work areas will be required adjacent to the substation expansion area, which will impact wetland N-1. Wetland N-1 is a scrub-shrub wetland located south and west of Newington Substation, within the 1783/1785 Line ROW. The temporary work areas will consist of timber mats (refer to the aerial map sheet in Appendix A), which will be removed after construction is complete.

### **Southwest Hartford Substation**

The 0.3-acre expansion area at Southwest Hartford Substation is generally flat and consists of a lawn area with six trees. As a result, only limited tree and vegetation removal and grading will be required.

Access to the substation will be via the existing access road from New Park Avenue. No additional access or expanded access will be required.

### 3.4.3 Vegetation Removal

Vegetation removal, consisting of tree/shrub clearing and mowing, will be required on Eversource's Newington and Southwest Hartford substation properties. Vegetation removal will be performed in the locations as summarized below and are illustrated on the map sheets in Appendices A and B:

- **Newington Substation.** The existing vegetation within the upland 0.3 acre expansion area, which consists of shrubs and herbaceous species, will be cleared. In addition, an area of trees will be cut and shrub vegetation will be mowed as needed in adjacent areas, within the limits of disturbance, to support construction activities.
- **Southwest Hartford Substation.** As with Newington Substation, Southwest Hartford Substation will be expanded by approximately 0.3 acre. The existing vegetation within the upland expansion area consists of lawn and six trees, which will be removed.

All vegetation removal/clearing activities will be performed in accordance with Eversource specifications, the requirements of this D&M Plan, and all other relevant regulatory approvals, including permits from the USACE and CT DEEP.

Vegetation clearing at the substations will typically be accomplished using mechanical methods, although manual methods also may be employed. At Newington Substation, to provide access and a stable work base for clearing crews working near the substation expansion area in wetland N-1, timber mats or equivalent will be used. Such timber mats will be deployed in accordance with Eversource's BMP Manual and relevant USACE and CT DEEP regulatory requirements. For additional information regarding vegetation removal requirements in and near water resources, refer to the *Wetlands and Waterbodies Impact Avoidance and Minimization Measures* included on Appendix C, Detail Sheet 1.

Temporary E&S controls may be installed before or after vegetation removal, depending on site-specific conditions at the time of construction. The Project clearing contractor will be responsible for properly disposing of any vegetative materials cut on Eversource property.

### 3.4.4 Erosion and Sedimentation Controls, Stormwater Management and Water Resource Protection

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

- a. Temporary erosion control measures consistent with the *2002 Connecticut Guidelines for Erosion and Sediment Control* (Connecticut Guidelines) will be installed as necessary to protect nearby water resources, and will be inspected on a routine basis, in accordance with regulatory requirements (refer to Volume 2, Attachment E).
- b. Dewatering waters will not be discharged within 25 feet of a wetland or watercourse, unless a fractionization tank ("frac tank") or similar engineering controls for sediment containment is employed.
- c. Dewatering waters may be discharged on-site into an appropriate sediment control basin or into a dewatering bag; 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.
- d. Residual silt/sediment collected at the bottom of the frac tanks will be disposed off-site at an appropriately designated disposal facility.
  - e. Catch basin inlet protection will be installed as needed to prevent disturbed soils and construction debris from entering storm water systems.
  - f. Equipment will not be refueled within 25 feet of any wetland or watercourse, unless appropriate containment procedures are in place.
  - g. Petroleum products will not be stored, mixed, or loaded within 25 feet of a wetland or watercourse.
  - h. In case of an on-site reportable spill, the construction contractor will adhere to the Spill Prevention and Control Plan (refer to Volume 2, Attachment C).

In addition to these BMPs, all construction activities will comply with Eversource's BMP Manual (refer to Volume 2, Attachment E), which are consistent with the Connecticut Guidelines, as well as to the water resource protection protocols and erosion/sedimentation control details included in Appendix C. Additional information related to sediment and erosion controls at the substation sites is provided in Appendix A (Newington Substation) and Appendix B (Southwest Hartford Substation), as well as in Section 5.2.

Pursuant to CGS Section 22a-430b, construction activities, such as the Project, must comply with the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities* (Construction General Permit; available online at: [www.ct.gov/Deep/cwp/view.asp?a=2721&q=558612&DEEPNav\\_GID=1654](http://www.ct.gov/Deep/cwp/view.asp?a=2721&q=558612&DEEPNav_GID=1654)). In accordance with the requirements of this Construction General Permit, Eversource submitted a Registration Form to CT DEEP and prepared a *Stormwater Pollution Control Plan*<sup>6</sup> (SWPCP) specific to the Project work. The SWPCP addresses stormwater management during the construction of the Project. The SWPCP was prepared in accordance with sound engineering practices, and is consistent with the Connecticut Guidelines, Eversource's BMP Manual, and the *2004 Connecticut Stormwater Quality Manual*. Eversource will provide the Council with a copy of the SWPCP after CT DEEP authorizes the Construction General Permit registration.

Pursuant to the SWPCP, Eversource's construction contractor will deploy temporary soil erosion and sedimentation controls where necessary around construction work areas. Such E&S controls may include silt fence, straw/hay bales, wattles, diversion swales, and anti-tracking pads, among other measures. In addition, as required by the Construction General Permit, during construction (until site stabilization is achieved), Eversource will perform inspections to verify the effectiveness of the measures identified in the SWPCP and, if necessary, to recommend modifications to the erosion and sedimentation controls. In accordance with the General Permit, the following types of inspections will be performed:

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<sup>6</sup> In compliance with Docket No. 474 Decision & Order Condition 2.h., the SWPCP developed for the Project will serve as the Stormwater Management Plan.

- Initial inspection by a Qualified Environmental Professional, as defined by the General Permit.
- Weekly inspections during construction
- Monthly turbidity monitoring at dedicated discharge points
- Inspections (within) 24-hour period of rain events
- Once construction is complete and sites affected by construction are deemed to be restored and stabilized, sites will be inspected once a month for three months to verify stabilization.

#### **3.4.5 Foundation and Equipment Installation**

The process for installing structure and equipment foundations within each substation will generally involve excavating, concrete form work, steel reinforcement, and concrete placement. No blasting is expected to be required for this work.

Excavated material will either be reused within the substation expansion area, spread within upland portions of Eversource's substation property, or disposed of off-site in accordance with regulatory requirements. Any excess material from excavations spread and graded out onto upland areas on Eversource property must comply with all regulatory requirements. All other excess material from excavations not reused onsite will ultimately be hauled off-site for disposal. Temporary spoil stockpiles will be protected with appropriate E&S controls as required. If groundwater is encountered during the foundation work, the water will be pumped from the excavated area and discharged in accordance with the measures identified in Section 3.4.4 and Eversource's BMP Manual included in Volume 2, Attachment E.

After the foundations are installed, construction activities will shift to the erection of structures and installation of equipment as specified for each station modification. Such structures and equipment include a battery enclosure, steel structures, bus and insulators, circuit breakers, switches, PTs, lightning masts, wave traps, cable trench, ground grid, surge arresters, conduits and cables. In addition, new relay panels, communications equipment, and cable trays will be installed within existing control enclosures, where required.

#### **3.4.6 Testing and Interconnection**

Substation equipment and associated control cable will be installed, as necessary, to connect the new 115-kV transmission line at Newington Substation and at Southwest Hartford Substation. All substation equipment and the new 115-kV line will be tested and commissioned prior to putting into service.

#### **3.4.7 Cleanup and Restoration**

The final steps of the construction process at each substation will be the collection and removal of all remaining construction debris, stabilization/restoration of disturbed areas, completion of site security measures, and demobilization of temporary office trailers, equipment and materials from the sites.

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.

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

Temporary E&S controls will be left in place and maintained until final stabilization is achieved. Flagging denoting environmentally sensitive resource protection areas will remain in place as needed, typically until the completion of stabilization / restoration activities.

Restoration typically will be deemed successful, based on the stabilization measures as defined in accordance with Project-specific permit and certificate requirements.

#### **3.4.8 Site Security**

The existing site security measures (e.g., fencing, low-level lighting) at Newington and Southwest Hartford substations will be maintained during Project construction. Additional low-level lighting will be installed as necessary at locations along the new section of the fence line to provide a minimum lighting level in accordance with NESC and Eversource design standards. Additional task lighting that illuminates specific equipment or control boxes will also be installed and would be turned on only when required.

### **3.5 CONSTRUCTION PROCEDURES: NEWINGTON TAP MODIFICATIONS**

The modifications to Newington Tap will entail work within the Newington Substation yard and within the existing 1783 and 1785 transmission line ROWs, which are located immediately adjacent to the south and west sides of the substation on. This work will include the installation of one new transmission structure, the removal of two existing structures, and repositioning of the guy wires and anchors on existing 1783 Line structures. The Newington Tap modifications are illustrated in Appendix A.

#### **3.5.1 General Construction Activities and Sequence**

As part of the Project, the 1783 Line entry to the substation will be relocated from its current position on the west side of Newington Substation to a new position on the south side of the substation. To accomplish this modification, certain structures on the existing 1783 Line will be removed or modified. The planned structure modifications include repositioning guy wires and anchors, as well as replacing cross arms and cable support hardware. Specifically, the Newington Tap will be modified as follows:

- Replace existing Structure 16072, a wood three-pole structure located south of the substation with a new galvanized steel monopole structure in generally the same location. The new Structure 16072 will be approximately 30 feet taller than the existing structure; the taller structure is required to maintain clearances to the line taps needed to connect to the new line position within Newington Substation.

- Remove existing Structure 16074, a single guyed wood structure that serves to connect the existing Tap to the substation. This structure will not be replaced.
- Guy wires and anchors at remaining 1783 Line Structures 16073 and 8001 will be repositioned to accommodate the new 1783 Line alignment.

Standard overhead transmission line construction procedures, as generally summarized below, will be used to perform these activities<sup>7</sup>:

- Survey and stake the relocated structure locations and mark/flag the boundaries of the previously delineated wetlands (wetlands N-1 and N-1A) and intermittent stream (stream IS-1), refer to Appendix A.
- Clear vegetation from work sites as depicted on the Newington Tap maps in Appendix A. Some clearing along the modified Tap ROW will not extend to the edge of the ROW (i.e., from Structure 16072 to the west). Section 3.5.2 provides further details regarding vegetation removal procedures.
- Install E&S controls, as required, in accordance with the Company's BMP Manual (Volume 2, Appendix E).
- Install temporary access to work sites and prepare work pads. Access to Structure 8001 will be from Quincy Lane. Access to structures 16072, 16073 and 16074 will be from Cherry Hill Drive to the existing access on the west side of the Newington Substation fence, and then via temporary timber matting (refer to the aerial map sheet in Appendix A). Work pad installation will involve the installation of a stable base (consisting of the temporary placement of timber mats, or equivalent) to support foundation drilling and other structure installation or structure removal equipment. As shown on the drawings included in Appendix A, Exhibit A.1 for the Newington Tap modifications, temporary disturbance from installation of timber mats in wetland N-1A will be 0.14 acre (5,916 square feet). Within wetland N-1, temporary disturbance from the installation of timber mats will be 0.37 acre (16,190 square feet).
- Construct the new foundation, install new Structure 16702, shield wires, optical ground wire (OPGW), and conductors.
- Reposition guy wires on Structures 16073 and 8001.
- Remove existing Structures 16072 and 16074.
- Remove construction debris and restore disturbed sites in accordance with Eversource standards. Affected wetlands will be restored in accordance with wetland restoration procedures specified in Eversource's BMP Manual and with USACE and CT DEEP requirements.

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<sup>7</sup> Construction staging and support for the Newington Tap work is expected to be co-located within the same areas identified for the Newington Substation modifications (refer to Appendix A). The sequence in which some standard construction activities (e.g., installation of E&S controls) may vary, depending on conditions at the time of construction.

- Maintain temporary E&S controls until vegetation is re-established or disturbed areas are otherwise stabilized, after which all temporary E&S controls will be removed from Eversource property and ROW and disposed of properly.

### 3.5.2 Vegetation Removal and Management

The construction of the Newington Tap modifications will require vegetation removal within Eversource's 1783/1785 ROW and on Eversource property, including within wetland N-1 and wetland N-1A. An intermittent tributary to Piper Brook (identified as stream IS-1) traverses the 1783/1785 ROW; however, only limited tree clearing will be required adjacent to this small stream to maintain conductor clearance requirements (compatible low-growing species will be allowed to remain) and no construction access across the stream will be permitted.

Most of the vegetation to be removed for the Tap modifications will be within portions of the ROW that Eversource presently manages in low-growing species. However, approximately 0.21 acre of tree removal, along with selective pruning, will be performed along the southern portion of the ROW to maintain required clearances between vegetation and the conductors (refer to Appendix A).

All vegetation clearing activities will be performed in accordance with Eversource specifications<sup>8</sup>, the requirements of this D&M Plan, and all other relevant regulatory approvals, including permits from the USACE and CT DEEP, as well as pursuant to property owner agreements.

Vegetation clearing will typically be accomplished using mechanical methods, although manual methods (e.g., a climbing crew with chain saws) also may be employed. Vegetation removal activities are expected to involve equipment such as flatbed trucks, brush hogs or other types of mowing equipment, skidders, forwarders, bucket trucks for canopy trimming, feller bunchers for mechanical tree cutting, wood chippers, log trucks, and chip vans.

To provide access and a stable work base for clearing crews for vegetation removal in wetlands N-1A and N-1, timber mats or equivalent will be used. Such timber mats will be deployed in accordance with Eversource's BMP Manual and relevant USACE and CT DEEP regulatory requirements. In addition, Eversource will require the vegetation clearing contractor to use low-impact clearing means and methods to the extent practical. Low-impact clearing incorporates approaches, techniques, and equipment to minimize site disturbance and to protect wetlands and soils. Accordingly, the following low-impact clearing methods will be used, as appropriate, for the vegetation removal at Newington Tap:

- Consider soil and weather conditions when scheduling vegetation removal activities.
- Align clearing access routes in uplands to the maximum extent practical.

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<sup>8</sup> Eversource Energy, 2017, *Specification for Rights-of-Way Vegetation Management, Section III, Technical Requirements*.

- Fell trees directionally (parallel to and within the ROW, but a minimum of 15 feet away from the transmission lines) to minimize impacts to residual vegetation, where practical, and to avoid impacts to the transmission lines.
- Adhere to BMPs, as described in the *Best Management Practices for Water Quality while Harvesting Forest Products*, 2007 Connecticut Field Guide (also referenced in the Eversource BMP Manual, Volume 2, Attachment E) ([http://www.ct.gov/deep/cwp/view.asp?a=2697&q=379248&deepNav\\_GID=1631](http://www.ct.gov/deep/cwp/view.asp?a=2697&q=379248&deepNav_GID=1631))
- Use clearing methods appropriate to site-specific features (e.g., terrain, environmental resources and land uses) to minimize impacts to the extent practicable.
- Cut trees close to the ground (generally so that stumps are 3 inches or less above the ground surface), leaving stumps and root systems intact, where practical, to provide additional soil stability (except where leaving the stumps in place will present a safety concern for construction or interfere with substation expansion).
- Do not stockpile any cut timber or brush in wetlands N-1A or N-1 or stream IS-1.

The timber mats (or equivalent) used for temporary support during clearing activities in wetlands N-1A and N-1 will be removed after the completion of vegetation removal/clearing work<sup>9</sup>. For additional information regarding vegetation removal requirements in and near water resources, refer to the *Wetlands and Waterbodies Impact Avoidance and Minimization Measures* included on Appendix C, Detail Sheet 1.

Temporary E&S controls may be installed before or after vegetation removal, depending on site-specific conditions at the time of construction. Thereafter, appropriate E&S controls will be inspected and maintained throughout construction. Typical E&S controls are provided on the Detail Sheets in Appendix C; further details regarding E&S control measures are contained in the Eversource BMP Manual (Volume 2, Attachment E).

#### **Timber and Brush Disposition**

Timber and firewood resources along the 1783/1785 Line easement belong to the property owners across whose parcels the ROW is aligned. Eversource will coordinate with these property owners, and the disposition of timber and brush cut within the ROW on such properties will be in accordance with Eversource's property owner agreements, consistent with any applicable siting and regulatory approvals.

All wood and vegetative materials that are not requested by a property owner or chipped for use as mulch on the ROW or on Eversource property will be removed from Project construction areas. Eversource's clearing contractor will be responsible for properly disposing of such vegetative materials. Further, no timber or brush will be stockpiled or left as chips in wetlands or watercourses.

#### **Danger and Hazard Trees**

As defined in Eversource's standards, a danger tree is a tree that, due to its location and height, could cause a flashover or damage to the structures or conductors, or violate the conductor zones, if it were to

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<sup>9</sup> The temporary timber mat work pads to be used during the primary Newington Tap construction activities will be deployed as part of the installation of access roads and work pads.

fall toward the overhead transmission line. A hazard tree is a danger tree that exhibits some type of defect or damage (e.g., weakness, broken limbs, decay, infestation, etc.) that increases the risk of it falling into the transmission line.

During and after the reconfiguration of the 1783 Line, on- and off-ROW danger and hazard trees that threaten the transmission line will be identified. Such trees will be removed or pruned as necessary. Prior to the removal of any off-ROW danger or hazard trees, Eversource will inform and seek permission from the affected property owner.

### **Vegetation Management**

The objective of Eversource's well-established vegetation management program<sup>10</sup> is to maintain safe access to its transmission facilities and promote the growth of vegetative communities along its ROWs that are compatible with transmission line operation and in accordance with federal and state best management practices. The vegetation along the reconfigured Newington Tap ROW will be managed in accordance with these standards.

### **3.5.3 Access Roads and Work Pads**

The Volume 1-SS/Tap maps illustrate the planned locations of access roads and work pads for the Newington Tap modifications.

#### **Access Roads**

The public road network and existing access roads will provide the principal means for transporting equipment and material to the ROW to perform the Newington Tap modifications. Access to structures 16072, 16073, and 16074 will be from Cherry Hill Drive to the existing access on the west side of the Newington Substation fence, and then via temporary timber matting placed within and around wetland N-1 to provide access to the Tap structures (refer to the aerial map sheet in Appendix A).

To access Structure 8001, a new access road will be constructed, extending east from Quincy Lane. This access road will be located within the managed portion of the 1783/1785 ROW (refer to the aerial map sheet in Appendix A).

To support the construction equipment required to install the Newington Tap modifications, all access roads must be sufficiently wide, with a stable base and grades that typically must be 10% or less. Typically, access roads will have a 16-foot-wide travel way, with associated road shoulders of approximately 2 feet on either side. However, access road widths will vary depending on site-specific conditions (principally slope and presence of wetlands) and on factors such as the amount of grading (cutting and filling) required. At the intersection with Quincy Lane, the width of the access road will increase to accommodate equipment turning radii.

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<sup>10</sup> Eversource Energy, 2017, *Specification for Rights-of-Way Vegetation Management, Section III, Technical Requirements*.

The access road to Structure 8001, located in an upland area south of wetland N-1A, will be constructed of processed rock/gravel. At the intersection with Quincy Lane, an anti-tracking stone pad will be installed to minimize tracking of dirt from the access road onto the public road as a result of construction vehicle movements. Eversource will require the construction contractor to use BMPs as warranted by site-specific conditions to maintain access road stability and minimize the potential for erosion and sedimentation. Near wetland N-1A, E&S controls will be installed as necessary.

During construction, Eversource's contractor will install signs as needed specifying "construction work zone/entrance ahead" (or equivalent) along Quincy Lane near the intersection of the access road and Structure 8001 and on Eversource property abutting Cherry Hill Drive. Signs will be installed at the access road entrances specifying that the roads are for construction purposes and are restricted from public use.

In the vicinity of the access points to construction sites from Quincy Lane and Cherry Hill Drive, Eversource's contractor will periodically sweep the public roads, if necessary, to remove dirt tracked by construction vehicles.

#### **Work Pads**

Work pads will be required at each of the transmission line structures affected by the Newington Tap modifications. A work pad is required to stage structure components for final on-site assembly and to provide a safe, level base for the construction equipment used to erect the new Structure 16072, remove the old Structure 16072, reconfigure the Tap conductors/OPGW, and modify guy wires on structures 16073 and 8001. The locations and layout of the work pads required for the Newington Tap modifications are depicted on the aerial map sheet in Appendix A.

All work pads used for the Newington Tap modifications will consist of timber mats or equivalent. Multiple layers of mats may be installed, as required based on site-specific conditions at the time of construction.

Upon completion of the Newington Tap modifications, all timber mat work pads will be removed and the affected wetland areas will be restored. Dependent upon the construction schedule for the Newington Substation expansion, some timber mat work pads adjacent to the substation facility may be required to remain in place until completion of the substation expansion construction activities.



## 4. CONSTRUCTION SCHEDULE AND WORK HOURS

### 4.1 CONSTRUCTION SCHEDULE

Line and equipment outages will be required for the modifications to each substation, as well as for the modifications to the Newington Tap. As currently planned, the substation modifications are scheduled for construction between the third quarter of 2018 and December 2019. The modifications to Newington Tap are scheduled for 1<sup>st</sup> to 2<sup>nd</sup> quarter of 2019.

Outages must be coordinated with and approved by the Connecticut Valley Electric Exchange (CONVEX).

As currently, planned, the general schedule for the construction of the modifications is as follows:

General Construction Dates*	Substation and Newington Tap Modification Construction Activity
Quarter 3, 2018 (Newington Substation and Newington Tap) Quarter 4, 2018 (Southwest Hartford Substation)	Construction contracts awarded; establish material laydown yards and field offices; begin receiving materials. Contractor mobilization, commence vegetation clearing and site grading.
Quarter 3, 2018 – Quarter 4, 2019	Perform construction (foundations, equipment installation, clean-up and restoration, etc.), as summarized in Section 3.
Quarter 4, 2019	Testing, energization, substation site clean-up and restoration. Final substation revegetation and verification of final stabilization pursuant to regulatory requirements will likely extend into 2020)

\* Construction schedule is dependent on the issuance of applicable permits from the USACE/CT DEEP, which are required for portions of the work at Newington Substation and at Newington Tap that will involve temporary activities in wetlands. The schedule for the modifications may change in accordance with receipt of these approvals, as well as on approved outage schedules.

### 4.2 WORK HOURS

Construction work hours will typically be between 7:00 AM and 7:00 PM, six days per week (Monday through Saturday). During these hours, construction will generate noise, which will vary depending on the type of activity performed.

**Typical Construction Work Window: Monday-Saturday 7:00 AM-7:00 PM**

*Construction workers may arrive for work and leave work outside of these times. Eversource compliance monitors may be on the Project site outside of these work hours to comply with regulatory requirements, such as SWPCP inspections.*

However, certain activities, such as those that must be performed during CONVEX-approved outages, will involve work during non-typical hours, in some cases on a continuous basis (24 hours) and/or on Sundays. The performance of these activities during non-typical work hours can be critical for completing the required tasks within the allowed outage durations and returning equipment to service as expeditiously as possible. In addition, during winter, snow plowing and de-icing activities (which will be performed pursuant to the plan included in Volume 2, Attachment D) will typically commence, when necessary, prior to 7 AM to ensure a safe environment for construction personnel prior to the start of the work day.

At both Newington and Southwest Hartford substations, all construction activities performed during extended work hours will be confined to the substation sites. Similarly, any Newington Tap work performed during extended work hours would be confined to Eversource property or adjacent ROWs.

## 5. SPECIAL CONSTRUCTION PROTOCOLS AND PROCEDURES

*Plans and procedures included in this section and in the appendices to this volume and in Volume 2 (as referenced in this section) apply to the construction work at both of the substations and at Newington Tap.*

This section provides resource-specific protocols and procedures applicable to the substation modification construction; additional details are provided for each substation and for Newington Tap in Appendices A-C. Volume 2 includes standard BMPs, as well as plans and guidance applicable to Project-wide construction activities (e.g., *Spill Prevention and Control Plan*; *Snow Removal and De-Icing Plan*).

Neither of the substation modifications or the modifications to Newington Tap will require work in or near vernal pools, aquifer protection areas, active farmlands, or known culturally-sensitive areas. Similarly, neither blasting nor implosive connections are expected to be required for the substation/Newington Tap work. As a result, no special construction procedures pertaining to these topics are included in this D&M Plan.

### 5.1 EROSION AND SEDIMENTATION CONTROL PLAN

Eversource will install E&S control measures during substation/Tap modification work to avoid or minimize the potential for surface water runoff, erosion, and sedimentation to occur outside of work limits. These measures will comply with Eversource's BMP Manual, which incorporates, and is consistent with the Connecticut Guidelines (refer to Volume 2, Attachment E, pp. 1-5 for a list of the guidance documents used in preparing Eversource's BMP Manual).

Pursuant to CGS Section 22a-430b, construction activities, such as the Project, must comply with the CT DEEP's Construction General Permit. Pursuant to the requirements of this Construction General Permit, Eversource submitted a Registration Form to CT DEEP and prepared a SWPCP<sup>11</sup> specific to the Project. See Section 3.4.4 above for further information on the Construction General Permit and SWPCP requirements.

Permanent stabilization will consist of the application of gravel or pavement (for areas within the substation fence lines), or seeding to re-establish vegetative cover on disturbed soils that will not otherwise be paved or graveled (i.e., for the ROW areas affected by the Newington Tap modifications). After final stabilization is achieved, all temporary E&S controls will be removed and disposed of properly.

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<sup>11</sup> In compliance with Docket No. 474 Decision & Order Condition 2.h., the SWPCP developed for the Project will serve as the Stormwater Management Plan.

## 5.2 WATER RESOURCES

The procedures that will be implemented to avoid or minimize impacts to water resources during the Newington Substation/Tap and Southwest Hartford Substation modifications are described below.

### 5.2.1 Newington Substation and Newington Tap

The modifications to Newington Substation and Newington Tap will require temporary work in two wetlands (Wetlands N-1 and N-1A). In addition, the Newington Tap modifications will require construction activities near, but not within, an un-named intermittent tributary to Piper Brook (Stream IS-1). The maps in Appendix A illustrate the locations of planned construction activities in relation to these water resources.

Overall, the construction of the Newington Substation and Newington Tap modifications will temporarily affect approximately 0.51 acre of wetlands (0.37 acre in Wetland N-1 and 0.14 acre in Wetland N-1A). These temporary impacts will result from the use of timber mats for construction support in wetlands. Secondary impacts from tree clearing within forested portions of Wetland N-1 and N-1A will also be required and will affect a total of approximately 0.01 acre of forested wetland. This area will be permanently converted to emergent or scrub-shrub wetland through vegetation management and maintenance activities to maintain adequate line clearance from trees and other vegetation potentially affecting electric transmission reliability. Total permitted disturbances to wetlands and watercourses authorized for the Project by the USACE and the CT DEEP are detailed in Volume 2, Attachment B.

The modifications to Newington Substation and Newington Tap will require work in or near wetlands to:

- Perform site preparation work and install the Newington Substation retaining wall;
- Install new Structure 16072;
- Remove existing Structure 16072 and reposition guy wires on Structure 16073, both located adjacent to Wetland N-1;
- Remove existing Structure 16074 located at the Wetland N-1 boundary; and
- Reposition guy wires on existing Structure 8001 located in Wetland N-1A.

For Project activities in wetlands, Eversource will install temporary work pads, consisting of timber mats or equivalent, to provide access to work sites and to stage construction equipment and materials as necessary.

Timber matting in Wetland N-1 used to construct the Newington Tap modifications will also be utilized for access and equipment/material staging during construction of the Newington Substation expansion retaining wall.

All construction activities in wetlands will be performed in accordance with the Council's requirements, the conditions of USACE and CT DEEP regulatory approvals, and Eversource BMP Manual. In addition,

Eversource will require construction contractors to follow the Project's *Wetlands and Waterbodies Avoidance and Minimization Protocols (Protocols)*. These Protocols are included on Detail Sheet 2 in Appendix C.

#### **Wetland Invasive Species Control**

During construction, Eversource will require its construction contractors to implement the wetland invasive species control BMPs included in Appendix C, Detail Sheet 1 and in the Eversource BMP Manual (Volume 2, Attachment E). These measures are designed to prevent the further spread of invasive species as a result of transmission line construction, and constitute the Project's invasive species control plan.

#### **Wetland Restoration Plan**

Eversource's plan for restoring the wetland areas affected by Newington Substation and Tap construction is provided in Appendix C, Detail Sheet 1 and in the Eversource BMP Manual (Volume 2, Attachment E).

#### **5.2.2 Southwest Hartford Substation**

The planned modifications to Southwest Hartford Substation will not involve any work in wetlands or watercourses. The tributary to the South Branch of the Park River, which borders the substation to the north, will not be directly affected by construction activities, all of which will be in uplands, outside of Federal Emergency Management Agency (FEMA) designated 100-year floodplain limits. Erosion and sedimentation controls will be installed around work areas at the substation to avoid or minimize the potential for runoff into the tributary.

### **5.3 PROTECTION MEASURES FOR STATE-LISTED SPECIES**

In correspondence dated August 1, 2017, the CT DEEP Natural Diversity Database (NDDDB) identified two state-listed species of special concern as potentially occurring in the vicinity of Newington Substation and Newington Tap<sup>12</sup> and listed best management practices to be implemented during Project construction to protect the species. On February 9, 2018, Eversource received CT DEEP's License #201709099-PCN for the USACE Connecticut General Permit Pre-Construction Notification (PCN) Approval for the Project. Conditions of the CT DEEP license required Eversource to perform a pre-construction survey of the Project area to determine if the two species are present, and, if so, to prepare a best management plan to protect the species.

Accordingly, in the spring of 2018, Eversource performed the pre-construction survey of potential species habitat in the Project area. This survey confirmed the presence of one state-listed species of special concern.

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<sup>12</sup> This NDDDB correspondence was submitted to the Council by CT DEEP on August 18, 2017, as that agency's overall comments on the Project. No state-listed species were identified near Southwest Hartford Substation. To protect the species, this D&M Plan does not include any details regarding the species names or habitats.

Prior to the commencement of construction in the identified species' habitat (as determined by the survey), Eversource will submit a best management plan to the CT DEEP that will identify the measures to be implemented during construction to avoid or minimize potential adverse effects to the species. General species management/protection measures are included in Appendix C, Detail Sheet 3. The Project contractors will be required to adhere to the detailed species protection measures as identified in the best management plan approved by CT DEEP.

To protect the listed species, information regarding the name and habitat of the species is not provided in this D&M Plan.

## **5.4 CULTURAL RESOURCES**

The SHPO has determined that no adverse effects to any cultural resources will result from the substation or Newington Tap modifications. It is also unlikely that cultural materials will be discovered during construction. However, Eversource will brief Project construction contractor managers regarding the procedures to be followed should unanticipated potential cultural materials be discovered during construction. Specifically, construction personnel will be instructed to stop the task that resulted in the potential discovery and immediately inform Eversource. Construction work at the potential cultural resource discovery site will not resume until authorized by Eversource, after review and approval by a professional archaeologist retained by Eversource.

## **5.5 AIR QUALITY PROTECTION (MINIMIZATION OF DUST AND VEHICLE IDLING PROTOCOL)**

### **5.5.1 Dust Suppression and Anti-Tracking Pads**

To minimize short-term adverse effects to air quality during construction, access roads and staging areas will be graveled<sup>13</sup> and may be watered, as necessary, to suppress fugitive dust emissions. Additionally, crushed stone aprons will be installed at all gravel or dirt access road entrances to public roadways, with the objective of minimizing tracking of soil onto the roadway. Paved roads at the intersection with Project access roads (e.g., at Quincy Avenue and Cherry Hill Road in Newington, New Park Avenue in Hartford) will be periodically swept, as necessary to remove excess dirt tracked onto the pavement from work areas.

Active work areas will also be watered, as necessary, to suppress fugitive dust emissions.

### **5.5.2 Construction Equipment: Idling vs. Warm-up during Cold Weather**

Vehicle emissions will be limited by requiring contractors to properly maintain construction equipment and vehicles, and by minimizing the idling time of equipment and vehicles, including diesel construction equipment in accordance with regulatory standards. Idling requirements are as follows:

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<sup>13</sup> Except where timber mats are used (e.g., in wetlands).

- Unnecessary construction equipment and vehicle idling expends fuel, increases costs, and causes air pollution. For the Project, pursuant to Connecticut requirements (RCSA 22a-174-18), the allowable idling time for vehicles of all kinds, including diesel construction equipment, is 3 minutes.
- However, under winter work conditions (when the ambient temperature is below 20 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 time limit. However, most diesel engines take 3 minutes or less to warm up (contractors should consult the engine manufacturer’s recommendations).
  - Construction equipment may have to idle for longer periods to operate defrosting or heating equipment to ensure the safety or health of the driver.

*Note:* “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 actively operating, at a work site.

## 5.6 SOILS AND MATERIALS HANDLING AND DISPOSITION

Eversource’s construction contractors will be responsible for the proper handling and disposal of all excess soils, groundwater, recyclable materials, and other wastes generated during the construction process. These waste products will be handled and disposed of in accordance with regulatory requirements (depending on the type of material) and Eversource’s BMP procedures.

Excess soil will be reused on-site or be spread in upland locations, away from water resources, and residential or commercial land uses.

The contractors also will be responsible for reporting and properly handling and disposing of any contaminated soils and groundwater, if encountered or generated<sup>14</sup> during construction activities. If polluted or contaminated soil or groundwater is encountered, it must be reported to Eversource and handled in accordance with the applicable regulatory requirements. If encountered, contaminated soils will be stockpiled on and covered by polyethylene sheeting. Sheeting used to cover the stockpile will be weighted to prevent the wind migration of contaminated dust. The materials will be tested to determine appropriate handling and disposition. Potentially contaminated groundwater, if encountered, will be addressed on a case-by-case basis and may involve pumping to a frac tank prior to off-site disposal or the use of other measures.

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<sup>14</sup> Soil or groundwater contamination caused by construction activities (e.g., a spill) will be addressed pursuant to the procedures defined in the *Spill Prevention and Control Plan* (refer to Volume 2, Attachment C).

## **5.7 LIGHTING AND NOISE MITIGATION**

Construction at both substations and the Newington Tap modifications will result in localized and short-term increases in ambient noise levels in the vicinity of work sites. Construction-related noise will result from the operation of equipment and vehicles, including vegetation removal equipment, jackhammers, drilling rigs, and cranes. Because noise attenuates with distance, the effects of construction-generated noise will depend on the noise source location in relation to noise receptors.

Temporary noise impacts associated with construction will be minimized because the noise from construction will be relatively short-term and limited primarily to daylight hours (i.e., between 7 AM and 7 PM: refer to Section 4.2) when human sensitivity to sound is lower. In addition, Eversource will require its contractors to properly maintain and muffle equipment and vehicles to minimize noise emissions.

The substation and Newington Tap modification work will be performed principally during daylight hours. As a result, temporary lighting is not expected to be required on a routine basis. If needed to accomplish specific tasks that cannot otherwise be suspended at nightfall, construction lighting will be focused on the targeted work areas and will have only a short-term and localized effect.

At the Newington Substation, existing yard lighting in the southerly and westerly expansion area will be removed to facilitate expansion and new additional yard lighting will be installed as necessary at locations along the new fence line in accordance with NESC and Eversource design standards. Similarly, at the Southwest Hartford Substation, new yard lighting will be installed in the easterly expansion area fence line to provide minimum lighting levels in accordance with NESC and Eversource standards. Additional task lighting that illuminates specific equipment or control boxes will also be installed and would be turned on only when required.

## **5.8 SITE ACCESS, TRAFFIC CONTROL, AND CONSTRUCTION SIGNS**

Access to both substations during construction will be via the public road network and the existing substation access roads (refer to the maps in Appendices A and B). Access for the work at Newington Substation will utilize the existing access from Cherry Hill Drive. Access for the work at Southwest Hartford Substation will utilize the existing access road from New Park Avenue. Access for the Newington Tap construction will be via the Newington Substation access road, as well as from Quincy Avenue (refer to the maps in Appendix A).

To minimize the potential for traffic issues during construction, Eversource's construction contractor(s) will implement access and traffic control measures, working with representatives of the affected municipalities as necessary, including (but not limited to) procedures for safe ingress and egress to the substation sites and to the Newington Tap work areas for construction equipment and other vehicles and for informing the public of construction work zones. For example, along the public roads that intersect with the substation access roads, signs will be erected to indicate the presence of construction work zones and flaggers or police personnel will be used to direct traffic, as needed.



The construction contractors will be responsible for posting and maintaining construction warning signs, in accordance with state and local requirements, along the public roads (i.e., Cherry Hill Drive, Quincy Lane, New Park Avenue) that provide primary access to the substation and Newington Tap work areas. Signs will be consistent with the federal *Manual of Uniform Traffic Control Devices* ([MUTCD], 2009 edition, as revised May 2012, or the latest version)<sup>15</sup>.

## **5.9 CONSTRUCTION EQUIPMENT/VEHICLE WASHING AND CLEANING**

Concrete truck wash-out and vehicle washing will be allowed where practical within the staging areas identified on the substation sites. All wash-out and washing areas will include measures to control and contain wash-water and to collect the cement wash-off for off-site disposal. Erosion and sedimentation controls deployed at wash-out areas will conform to the relevant provisions of the Connecticut Guidelines, Eversource's BMP Manual, and the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities*.

## **5.10 WINTER WORK, SITE STABILIZATION, AND SITE MONITORING PROTOCOL**

If required, snow removal and the use of de-icing procedures at construction sites will be implemented in accordance with the *Snow Removal and De-Icing Plan* included in Volume 2, Attachment D. If, after the substation and Newington Tap modifications are completed, some site clean-up or restoration work is completed too late in the season to initiate or complete permanent stabilization of disturbed areas (e.g., temporary staging areas that may require reseeding), temporary E&S controls will be left in place and augmented if necessary. These measures will be periodically inspected and maintained until permanent site stabilization can be completed, likely during the following spring. All E&S control practices and over-winter monitoring will be in accordance with Eversource's BMP Manual and the CT DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities*.

## **5.11 ELECTRIC AND MAGNETIC FIELD MONITORING**

Pursuant to Condition 2 of the Council's Decision and Order, Eversource has prepared a post-construction electric and magnetic field (EMF) monitoring plan for the Project. This plan is included in Volume 2, Attachment F.

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<sup>15</sup> Connecticut has adopted the federal MUTCDs.

## **6. PUBLIC REVIEW AND OUTREACH**

### **6.1 PROJECT PLANNING AND D&M PLAN**

As part of the overall Project planning process, including the development of the Application to the Council and this D&M Plan, Eversource consulted with officials of the three municipalities traversed by the Project and provided opportunities for municipal representatives, other agencies (e.g., CT DEEP), and the public to comment on the Project. Prior to the submission of this D&M Plan to the Council, Eversource also provided draft copies of the plan to representatives of the Town of Newington and the City of Hartford for review and comment.

Along with the provision of the draft D&M Plan, Eversource extended an invitation to meet with municipal officials to review the Plan. Accordingly, Eversource met with municipal officials from the Town of Newington on June 29, 2018, and with representatives from the City of Hartford on June 21, 2018.

During these meetings with municipal officials, Eversource provided information regarding the general construction process for the substation and Newington Tap modifications, addressing topics such as construction sequence; vegetation clearing; the size and locations of work areas; proposed locations of access roads and work pads; Tap structure design; planned work hours; and expected schedule for construction in each municipality. As noted in Section 2.2, during these meetings, the Town of Newington had no comments regarding the planned modifications to Newington Substation and Tap, whereas the City of Hartford commented only regarding vegetation removal at Southwest Hartford Substation.

In conjunction with the submission of the D&M Plan to the Council, Eversource will post the filed D&M Plan on the Project website. This website is accessible from the Eversource homepage ([www.eversource.com](http://www.eversource.com)). From this homepage, Project information can be accessed by clicking the “About” tab, then the “Projects and Infrastructure” tab, then select “Connecticut Transmission Projects” to view a list of the Company’s ongoing and proposed projects, including this Project. Included on the website is an e-mail address ([transmissioninfo@eversource.com](mailto:transmissioninfo@eversource.com)) and a telephone number (800-793-2202) to contact Eversource for more Project information or to provide comments about the Project.

### **6.2 PUBLIC OUTREACH DURING CONSTRUCTION**

Throughout the Project planning and the Council’s siting processes, Eversource conducted extensive community outreach, including direct coordination with abutting property and business owners, business groups and homeowner organizations, and municipal officials, as well as two public open houses during the Municipal Consultation phase of the siting process. Eversource will continue its outreach efforts

through the Project's construction and will notify affected stakeholders of upcoming construction activities.

Eversource's Project information and email address are currently available, via the website noted in Section 8.1, and the website will continue to be maintained as the primary means for residents, businesses, and other stakeholders to contact Project representatives throughout Project construction. As referenced in Section 8.1, the public can also access the Project website, which provides an overview of the Project, a map of the Project facilities, and Eversource contact information.

In addition, Eversource representatives will be available to brief residents and businesses affected by Project construction activities and other interested stakeholders regarding the construction process, key construction stages, and expected construction timeline. Project representatives will also contact adjacent and nearby residents and businesses to notify them of upcoming construction activities and will be available throughout the construction process to address any specific questions or concerns.

## 7. GLOSSARY OF TERMS

TERM / ACRONYM	DEFINITION
<b>Access Road:</b>	A road that provides access into and out of the stations, staging areas, or ROW.
<b>BMP:</b>	Best Management Practice
<b>Certificate:</b>	Certificate of Environmental Compatibility and Public Need (from the Connecticut Siting Council)
<b>CGS:</b>	Connecticut General Statutes
<b>Conductor:</b>	A metallic wire, busbar, rod, tube or cable that serves as a path for electric current flow.
<b>Conduit</b>	Pipes, usually PVC plastic, typically encased in concrete, for housing underground power and control cables.
<b>CONVEX</b>	Connecticut Valley Electric Exchange
<b>Council or CSC:</b>	Connecticut Siting Council
<b>Counterpoise</b>	Part of grounding system.
<b>CT DEEP:</b>	Connecticut Department of Energy and Environmental Protection
<b>D&amp;M Plan:</b>	Development and Management Plan (required by the Connecticut Siting Council)
<b>Deadend Structure:</b>	A line structure that is designed to have the capacity to hold the lateral strain of the conductor in one direction.
<b>DECD:</b>	Connecticut Department of Economic and Community Development
<b>D&amp;O</b>	Decision and Order (Council approval of the Project)
<b>Docket 474:</b>	Council Docket number for the application proceeding concerning the Project.
<b>Double Bay Structure</b>	A substation structure that is designed to have the capacity to hold the strain of two different line positions.
<b>Distribution</b>	Line system. The facilities that transport electrical energy from the transmission system to the customer.
<b>Electric Transmission:</b>	The facilities (69 kV+) that transport electrical energy from generating plants to distribution substations.
<b>EMF:</b>	Electric and magnetic fields.
<b>FEMA:</b>	Federal Emergency Management Agency
<b>Frac Tank:</b>	Fractionization tank, used to temporarily hold water pumped from Project excavations or otherwise used during Project construction activities
<b>GHCCRP:</b>	Greater Hartford-Central Connecticut Reliability Project
<b>Grounding System:</b>	Consists of ground rings, placed around transmission line poles and counterpoise as required.
<b>H-Frame Structure:</b>	A wood or steel structure constructed of two upright poles with a horizontal

TERM / ACRONYM	DEFINITION
	cross-arm and bracings.
<b>Idling:</b>	The period when mobile construction equipment is not in motion or is not otherwise actively performing its designated function.
<b>kV:</b>	Kilovolt, equals 1,000 volts
<b>Line:</b>	A series of overhead transmission structures that support one or more circuits; or in the case of underground construction, a duct bank housing one or more cable circuits.
<b>Magnetic Field</b>	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.
<b>MUTCD:</b>	Manual of Uniform Traffic Control Devices
<b>NDDB:</b>	CT DEEP Natural Diversity Data Base
<b>OPGW:</b>	Optical groundwire (a shield wire containing optical glass fibers for communication purposes)
<b>Phases</b>	Transmission (and some distribution) AC circuits are comprised of three phases that have a voltage differential between them.
<b>Project:</b>	Greater Hartford-Central Connecticut Reliability Project
<b>RCSA:</b>	Regulations of Connecticut State Agencies
<b>ROW:</b>	Right-of-Way
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>Shield Wire</b>	Electric cable located to prevent lightning from striking transmission circuit conductors.
<b>SHPO:</b>	State Historic Preservation Office (Connecticut)
<b>Stormwater Pollution Control Plan:</b>	A sediment and erosion control plan that also describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act.
<b>Substation:</b>	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.
<b>Terminal Structure:</b>	Structure typically within a substation that ends a section of transmission line.
<b>Transmission Line:</b>	Any line operating at 69,000 or more volts.
<b>USACE:</b>	United States Army Corps of Engineers
<b>USFWS:</b>	United States Fish and Wildlife Service

TERM / ACRONYM	DEFINITION
<b>USGS:</b>	United States Geological Survey (U.S. Department of the Interior).
<b>Vegetation Clearing:</b>	Removal of forest vegetation. Within the vegetation clearing limits for construction, other types of vegetation (e.g., shrubland) also will be removed as needed for transmission line construction.
<b>Watercourse:</b>	Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private.
<b>Wetland:</b>	Is an area of land consisting of soil that is saturated with moisture, such as a swamp, marsh, or bog. CT DEEP and the USACE have formal definitions of state and federal jurisdictional wetlands, respectively.
<b>XS:</b>	Cross section (drawing)

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