

DRAFT

Petition No. 1483
The Connecticut Light and Power Company d/b/a Eversource Energy
387, 3041, and 1050 Lines Upgrade Project
Middletown, Connecticut

Staff Report
May 6, 2022

Introduction

On January 31, 2022, the Connecticut Siting Council (Council) received a petition from The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the proposed 387, 3041, and 1050 Lines Upgrade Project within existing Eversource electric transmission line right-of-way (ROW) and on Eversource-owned property in the City of Middletown (Petition or Project). The Project consists of replacement of certain electric transmission line structures along the ROW between Dooley Substation to Scoville Rock Substation and Middletown Substation, and other improvements.

On January 28, 2022, in compliance with Regulations of Connecticut State Agencies (RCSA) §16-50j-40, Eversource provided notice of the proposed project to the City of Middletown (City), and abutting property owners. No comments from the City or abutters were received.

On February 3, 2022, the Council sent correspondence to the City stating that the Council has received the Petition and invited the City to contact the Council with any questions or comments by March 2, 2022. No comments were received.

The Council submitted interrogatories to Eversource on March 15, 2022. Eversource submitted responses to the interrogatories on March 29, 2022. An additional interrogatory was submitted to Eversource on April 22, 2022. Eversource submitted the response on April 26, 2022.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take an action on a petition for a declaratory ruling within 60 days of receipt. On March 24, 2022, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than July 30, 2022, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

The purpose of the proposed project is to improve system reliability by replacing certain electric transmission line structures along the 387/3041/1050 Lines and replacing the shield wire with fiber optical ground wire (OPGW) specific to the 1050 Line.

Municipal and Abutter Notice

During December 2021, Eversource consulted with representatives of the City to brief them on the proposed Project. Representatives from the City did not express concerns to Eversource regarding the proposed Project.

Also, in December 2021, Eversource initiated outreach to property owners along the project route. All abutting property owners were notified of the project and provided information on how to obtain additional information, as well as how to submit comments to the Council. One abutting property owner expressed concern about prior vegetation management practices. During the construction phase of the project, Eversource would maintain contact with property owners to inform them of construction activities and site restoration.

Existing Project Area

The existing project area includes approximately 9 miles of existing Eversource ROW that is oriented east-west and extends between Dooley Substation and Scoville Rock Substation, and a structure replacement at Middletown Substation. Three 345-kV electric transmission lines (387, 362, and 3041) and one 115-kV electric transmission line (1050) occupy the ROW between Dooley Substation and Chestnut Junction. The three 345-kV lines continue from Chestnut Junction to Scoville Rock Substation. The 1050 Line continues north from Chestnut Junction to Middletown Substation. The existing ROW varies in width from 350 feet to 500 feet and extends through residential, agricultural, recreational, and undeveloped upland and wetland areas.

Proposed Project

The Project is proposed to replace existing, degraded wood transmission structures and to replace structures that are not capable of supporting OPGW. Some of the structure replacements would require taller transmission line structures to meet National Electrical Safety Code (NESC) standards, including, but not limited to, conductor clearance requirements. The NESC is the authoritative code for ensuring the continued practical safeguarding of persons and utility facilities during the installation, operation and maintenance of electric power and communications utility systems, including substations, overhead lines and underground lines.

The project is identified in the March 1, 2022 Eversource Ten-Year Forecast of Electric Loads and Resources and in the March 2022 ISO-New England, Inc. (ISO-NE) Regional System Plan Asset Conditions List.

387 Line

The 387 Line is a 345-kV line that was constructed in 1967 on single circuit wood H-frame structures. Due to age-related degradation, work includes replacement of six single circuit wood H-frame structures (Structures: 19041, 19048, 19052, 19067, 19076 and 19077) with single circuit weathering steel H-frame structures.

3041 Line

The 3041 Line is a 345-kV line that was constructed in 1965 on single circuit wood H-frame structures. Due to age-related degradation, work includes replacement of:

- two single circuit wood H-frames structures (Structures 30021 and 30013) with single circuit weathering steel H-frame structures;
- one single circuit wood three pole structure (Structure 23000) with a single circuit weathering steel three pole structure; and,
- one single circuit laminated wood H-frame structure (Structure 23009) with a single circuit weathering steel H-frame structure.

1050 Line

The 1050 Line is a 115-kV line that was constructed in 1953 on steel monopole structures. The existing shield wire on the 1050 Line is proposed to be replaced with an OPGW. Due to structural loading issues based on installing new OPGW and signs of degradation, work includes replacement of:

- two steel single-circuit monopole structures (Structures 6067 and 6059), with single circuit weathering steel monopole structures, and,
- one single-circuit steel lattice structure (Structure 6001) with a weathering steel single-circuit monopole structure inside Middletown Substation.

Cost

The total estimated cost of the project is approximately \$30.7 million. Pending a final determination from ISO-NE, the entire project cost is expected to be eligible for regionalization¹. Costs are expected to be allocated as follows:

Eversource Connecticut ratepayers ²	19.1% (\$5.9 million)
Other Connecticut ratepayers ³	5.9% (\$1.8 million)
<u>Other New England ratepayers⁴</u>	<u>75.0% (\$23.0 million)</u>
	100% (\$30.7 million)

Project Construction and Work Procedures

Eversource would utilize property at 49 Depaolo Drive in Southington (Line 3041) and at 2175 South Main Street in Middletown (Lines 387/1050) for staging/laydown areas. These areas are currently utilized as staging/laydown areas for general transmission system maintenance-related work. These locations would be used for storage of construction materials, equipment, tools and supplies. Office trailers and storage containers may also be located at the staging area. Appropriate erosion and sedimentation (E&S) controls would be installed and maintained until completion of construction in accordance with Project permitting and Eversource Best Management Practices (BMPs).

Eversource would utilize existing ROW access roads to the extent possible during construction. Construction access to the ROW would be from existing access roads extending from off-ROW areas or where the ROW intersects with a public road. Specific work areas within the ROW would be accessed via existing roads that extend along the ROW corridor for the Project. Some of the existing access roads may need to be graded, widened, and/or reinforced with additional material in order to accommodate the safe passage of construction vehicles and equipment. A minimum travel surface of 16 feet is required for construction vehicles although some road turning locations may be wider. Where access roads traverse streams and wetlands, existing bridges, culverts and shallow stone-lined fords would be used to avoid significant disturbance to underlying surfaces and soils. Construction matting would be utilized to install temporary access roads to protect sensitive areas (e.g. wetlands, lawn, meadow) to reach certain structure locations.

Eversource would obtain a Department of Transportation Encroachment Permit to exit/enter Route 9 and Route 154 in Middletown and a Railroad Right of Entry Permit from the New England Central Railroad for wire pulling over a railroad right-of-way adjacent to the Middletown Substation.

Construction areas would be isolated by establishing E&S controls in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource BMPs. Typical E&S control measures include, but are not limited to, straw blankets, hay bales, silt fencing, gravel anti-tracking pads, soil and slope protection, water bars, check dams, berms, swales, plunge pools, and sediment basins. A project-specific Stormwater Pollution Control Plan (SWPCP) would be developed for registration under a DEEP Stormwater Permit.

¹ These allocations are estimates based on 2021 actual loads.

² Electrical service customers of Eversource and located within Connecticut.

³ Electrical service customers located within Connecticut but outside of Eversource's service territory.

⁴ Electrical service customers located within New England but outside of Connecticut.

At each transmission line structure location, a work pad would be constructed to stage material for final on-site assembly and/or removal of structures, to pull OPGW and to provide a safe, level work base for construction equipment. Work pads for the project would typically be 100 feet by 100 feet but could be slightly larger depending on specific site conditions. For areas where machinery is needed for pulling OPGW through an angled structure, work pads of approximately 130 feet by 80 feet would be required. Most work pads would be composed of gravel, though some would consist of temporary matting to protect sensitive areas such as wetlands and agricultural areas.

The proposed structures would have either drilled (caisson) foundations or direct embed foundations. Foundation installation work would require the use of equipment such as drill rigs, pneumatic hammers, augers, dump trucks, concrete trucks, grapple trucks, and light duty trucks. If groundwater is encountered, pumping trucks or other equipment would be utilized. The water would then be discharged in accordance with local, state and federal requirements.

New structure sections, components and hardware would be delivered by flatbed truck to the structure locations for assembly by crane and bucket trucks. After assembly, the area around the direct embed foundations would be backfilled with processed gravel.

On the 1050 Line, the removal of the existing shield wire and installation of the new OPGW would occur after the structures are installed. The required equipment would include cable reels, pulling and tensioning rigs, and bucket trucks. The existing shield wire would be used as pulling lines, if possible. Helicopters may also be used to install the initial pulling lines for OPGW installation. Conductor dead-ending and splicing would be accomplished with pressed hardware. The existing structures would be removed after the new the OPGW is installed.

After the new structures/OPGW are installed and the existing structures removed, ROW restoration activities would commence. Restoration work would include the removal of construction debris, signage, flagging, temporary fencing, and construction mats and work pads that are designated for removal. Affected areas would be re-graded as practical and stabilized via revegetation or other measures before removing temporary E&S controls. ROW restoration would be performed in accordance with Eversource BMPs and in consultation with affected property owners.

Upon completion of the project, access roads and work pads located in uplands would be left in place to facilitate future transmission line maintenance. If a property owner requests their removal, Eversource would work with such property owner regarding mitigation options which could include adding topsoil and seeding or removing all or part of the gravel work pad depending on specific site conditions.

Project-related traffic would be expected to be temporary and highly localized in the vicinity of ROW access points along public roads and at the staging area. Due to the phasing of construction work, project-related traffic is not expected to significantly affect transportation patterns or levels of service on public roads. Traffic management procedures would be developed, if necessary.

Environmental Effects and Mitigation Measures

Work would occur within a maintained ROW and thus tree clearing is not expected for the proposed structure replacements. However, tree trimming, minor vegetation removal within the managed transmission line ROW corridor may be required to improve work site access and in areas where conductor clearances need to be improved to meet NESC and Eversource clearance standards.

Vegetation removal/tree trimming would be accomplished using mechanical methods. This would typically involve the use of flat-bed trucks, brush hogs or other types of mowing equipment, skidders, forwarders, bucket trucks for canopy trimming, and chippers. Vegetation removal activities would be performed in accordance with Eversource BMPs.

A total of 38 wetland areas and 12 watercourses/waterbodies occur along the ROW. No permanent or temporary impacts would occur to these resources from the Project structure replacement work. Construction activities within wetlands and over watercourses would be conducted in accordance with Eversource's BMPs.

Five vernal pools were identified within the Project area. Project work would occur within one vernal pool envelope (100 feet from the edge of the vernal pool) where an existing gravel road would be used to access one structure on the 3041 Line. No improvements to the existing access road would occur within the vernal pool envelope. Eversource would conduct work in this area in accordance with Eversource's BMPs.

The Project ROW extends across a 100-year Federal Emergency Management Agency-designated flood zone associated with Bible Rock Brook. No Project work is proposed within the flood zone area.

There are no DEEP-designated Aquifer Protection Areas within the Project ROW.

A portion of the Project is within a DEEP Natural Diversity Database (NDDB) area. Eversource is awaiting DEEP NDDB review and would implement DEEP recommended species-specific protection measures during construction.

A Phase 1A Cultural Resources Assessment (Phase 1A) of the Project area on file with the State Historic Preservation Office (SHPO) indicated that no State or Local Register of Historic Places properties are in the Project area and no historic properties eligible for the National Register of Historic Places (NRHP) are within 500 feet of the work areas. The Phase 1A indicated one archeological site that is eligible for listing on the NRHP is located immediately south of the proposed work pad associated with Structure 19076 and to the east of an existing access road. Eversource would implement SHPO-recommended protective measures during construction.

The Project ROW does not cross any local or state-designated scenic roads.

The Project area crosses three recreational resources, Dooley Pond – a state owned resource- and two Connecticut Forest and Park Association (CFPA) blue-blazed hiking trails - the Seven Falls Loop Trail and the Mattabassett Trail. Eversource would coordinate with CFPA to develop and implement measures to maintain public safety on and near the trails during Project construction. The Project would not affect Dooley Pond.

Some of the proposed replacement structures would be slightly taller than the existing structures. Specifically, six structures would increase in height by no more than 4.5 feet, five structures would have no change in height and the remaining two structures would decrease in height by up to 4.5 feet. Although some of the structures would increase in height, the structure design would remain consistent to adjacent structures and no significant alteration to ROW visibility is anticipated. Additionally, a lattice structure at the Middletown Substation would be replaced with a monopole structure, presenting a more streamlined structure appearance at this location. The replacement structures would be located as close as possible to the existing structure locations (between 10 and 20 feet).

Public Safety

There would be no permanent changes to existing ROW sounds levels after completion of the Project. Noise levels associated with construction would be temporary and typical of construction activities. Noise associated with construction activities is exempt from DEEP Noise Control Regulations.

Notice to the Federal Aviation Administration would not be required for any of the proposed replacement structures.

Electric fields (EF) are produced whenever voltage is applied to electrical conductors and equipment. Electric fields are typically measured in units of kilovolts/meter (kV/m). As the weight of scientific evidence indicates that exposure to electric fields, beyond levels traditionally established for safety, does not cause adverse health effects, and as safety concerns for electric fields are sufficiently addressed by adherence to the NESC, as amended, health concerns regarding Electric and Magnetic Fields (EMF) focus on MF rather than EF. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a guideline of 4.2 kV/m.

The Project route contains existing transmission lines that emit magnetic fields (MF). In the United States, no state or federal exposure standards for 60-Hertz MF based on demonstrated health effects have been established, nor are there any such standards established worldwide. However, the ICNIRP has established a level of 2,000 milliGauss (mG), based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public, and recognized in the Council's *Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut*.

Eversource reviewed electric and magnetic field (EMF) levels associated with the Project. The structure replacements and replacement of shield wires would only affect the height of conductor attachments and not alter the configuration of the conductors. EMF levels will change slightly at the base of the structures and any changes to EMF levels at ROW edges and beyond would be negligible.

All EF and MF values would be below the ICNIRP exposure guidelines of 4.2 kV/m and 2,000 mG, respectively.

Construction Schedule

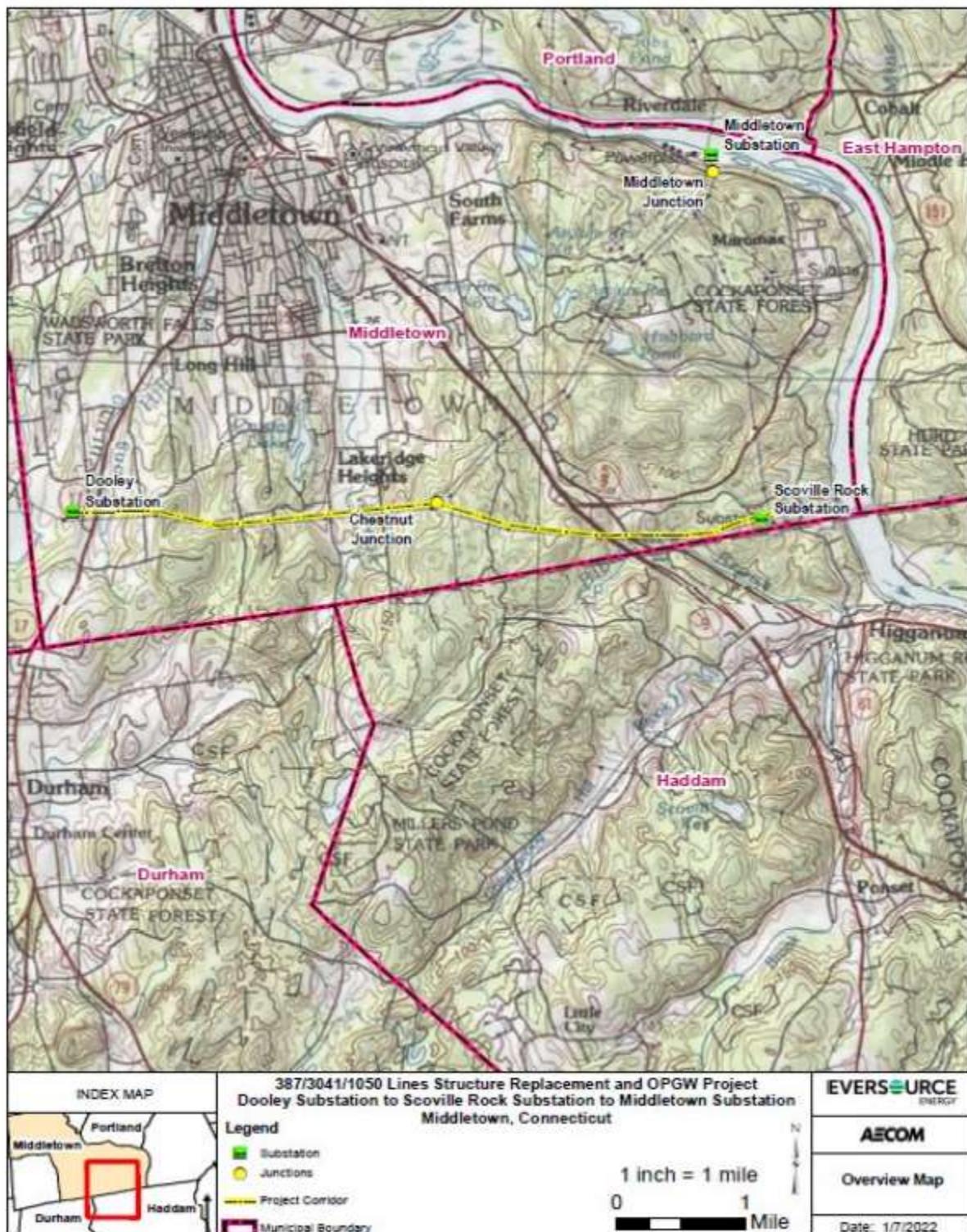
Construction is expected to begin in August 2022. Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday work hours or evening work (i.e. after 7:00 p.m.) may be necessary due to delays caused by unforeseen circumstances, inclement weather and/or outage constraints; in the event that this is necessary, Eversource would provide notice to the Council and the City.

Conclusion

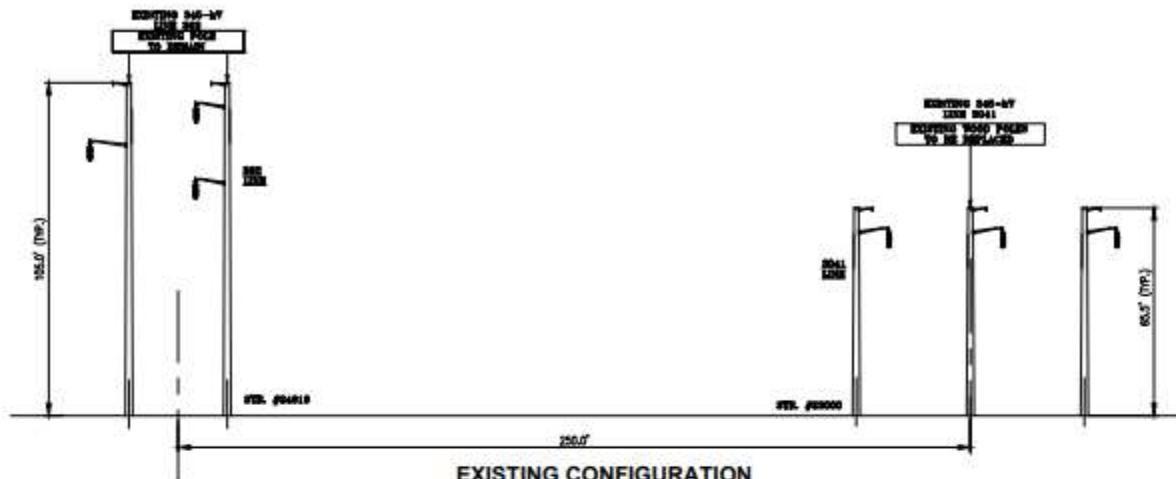
If approved, staff recommends the following condition:

- 1) Approval of any project changes be delegated to Council staff.

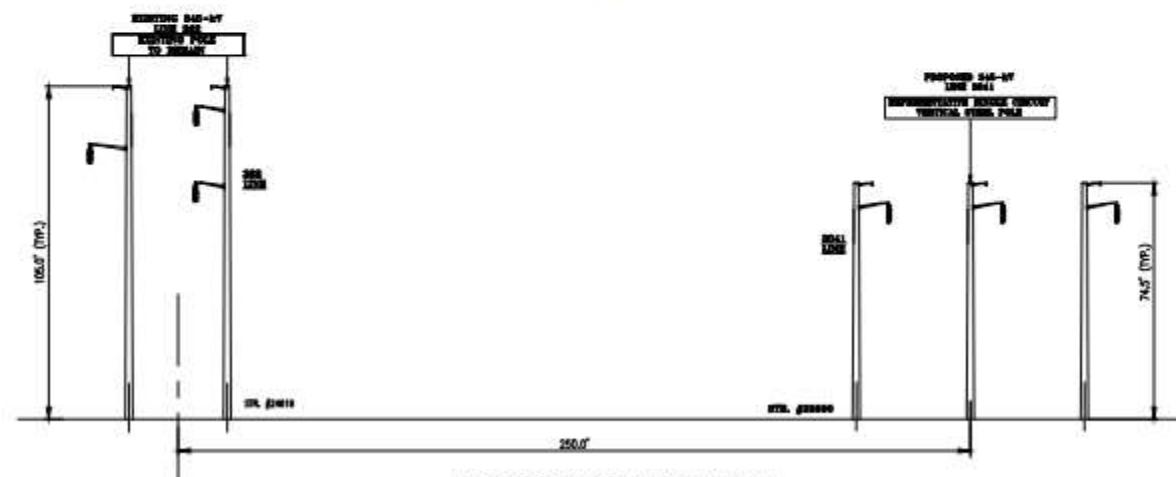
Project Location



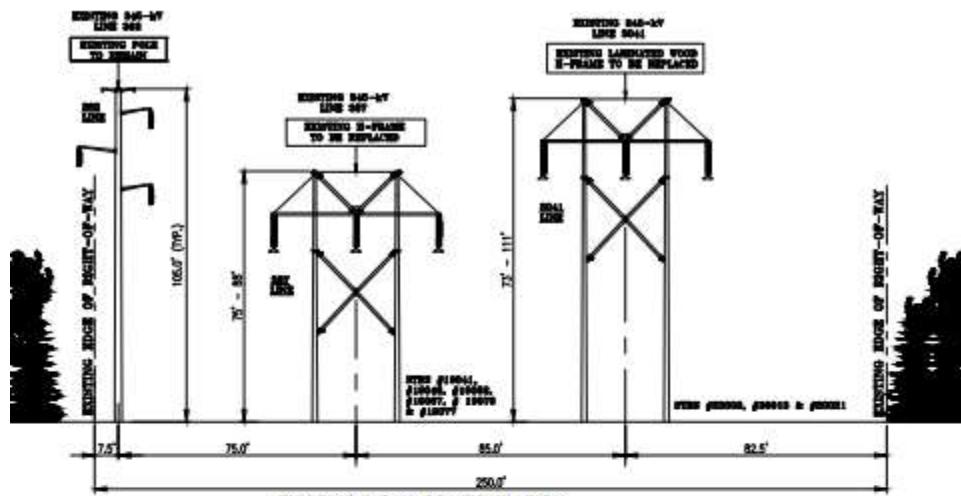
Project ROW Profiles



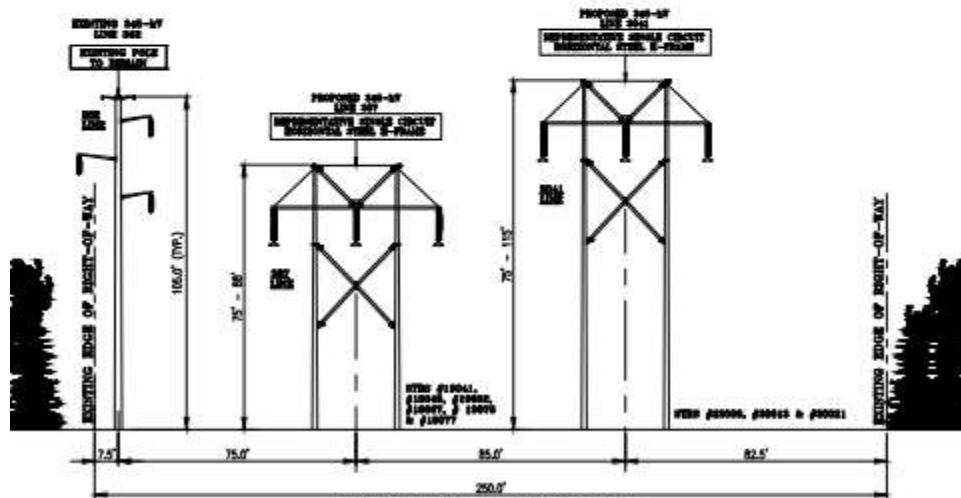
EXISTING CONFIGURATION
SINGLE CIRCUIT THREE POLE DESIGN
LOOKING WEST FROM SCOVILLE ROCK SUBSTATION TO CHESTNUT JUNCTION
IN THE CITY OF MIDDLETON, CT
STR. #23000



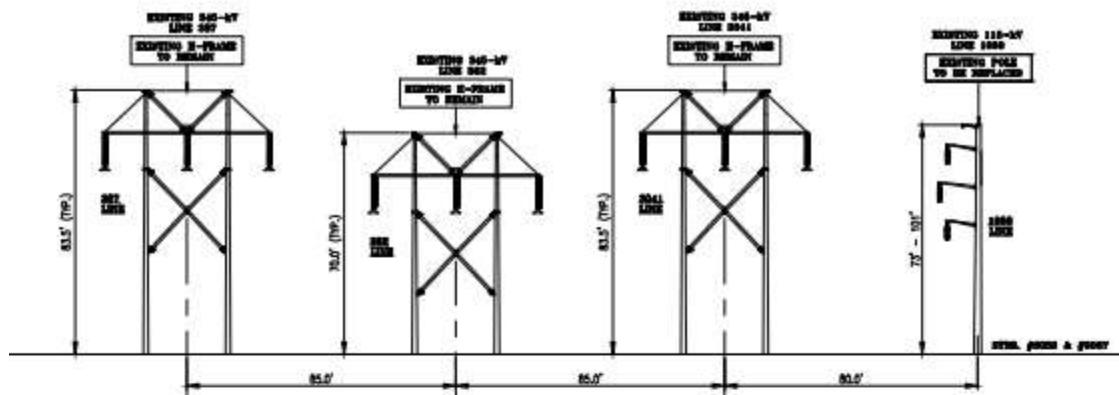
PROPOSED CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT THREE POLE DESIGN
LOOKING WEST FROM SCOVILLE ROCK SUBSTATION TO CHESTNUT JUNCTION
IN THE CITY OF MIDDLETON, CT
STR. #23000



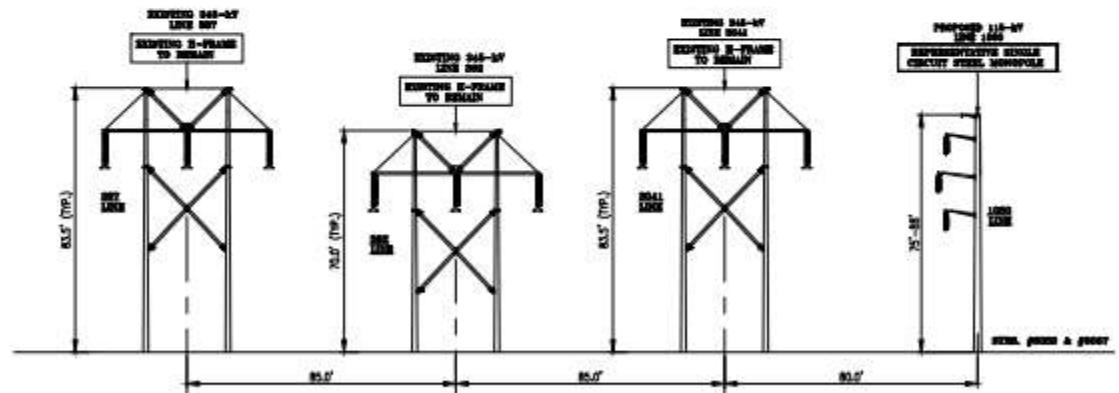
SINGLE CIRCUIT STEEL H-FRAME DESIGN
LOOKING WEST FROM SCOVILLE ROCK SUBSTATION TO CHESTNUT JUNCTION
IN THE CITY OF MIDDLETON, CT
STRS. #19041, #19048, #19052, #19067, #19076 & #19077 FOR LINE 387
STRS. #23009, #30013 & #30021 FOR LINE 3041



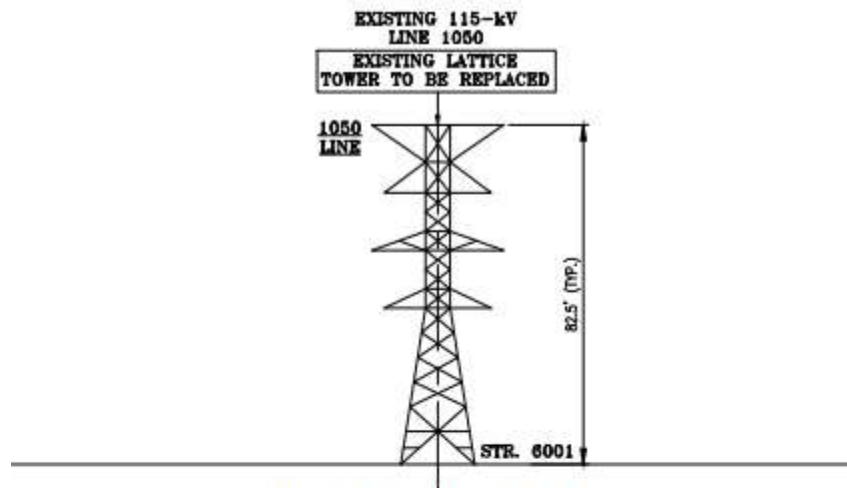
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL H-FRAME DESIGN
LOOKING WEST FROM SCOVILLE ROCK SUBSTATION TO CHESTNUT JUNCTION
IN THE CITY OF MIDDLETON, CT
STRS. #19041, #19048, #19052, #19067, #19076 & #19077 FOR LINE 387
STRS. #23009, #30013 & #30021 FOR LINE 3041



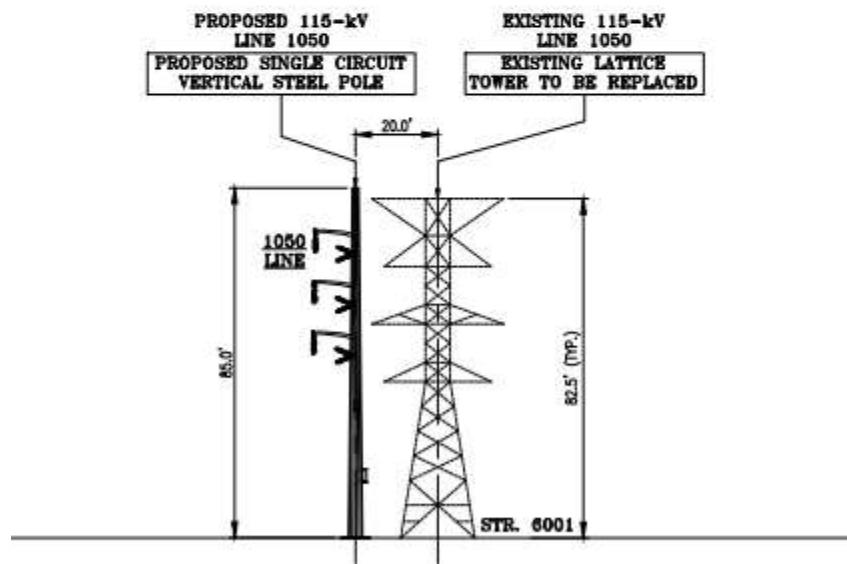
EXISTING CONFIGURATION
SINGLE CIRCUIT STEEL MONOPOLE DESIGN
LOOKING FROM CHESTNUT JUNCTION TO HANS BROOK JUNCTION
IN THE CITY OF MIDDLETON, CT
STRS. #6059 & #6067



PROPOSED CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL MONOPOLE DESIGN
LOOKING FROM CHESTNUT JUNCTION TO HANS BROOK JUNCTION
IN THE CITY OF MIDDLETON, CT
STRS. #6059 & #6067



EXISTING CONFIGURATION
DOUBLE CIRCUIT LATTICE TOWER
MIDDLETOWN SUBSTATION LOOKING EAST
IN THE CITY OF MIDDLETOWN, CT



PROPOSED CONFIGURATION
SINGLE CIRCUIT STEEL POLE VERTICAL DESIGN
MIDDLETOWN SUBSTATION LOOKING EAST
IN THE CITY OF MIDDLETOWN, CT