

DRAFT

**Petition No. 1556
The Connecticut Light and Power Company d/b/a Eversource Energy
Gravel Pit Solar Transmission Interconnection Project
East Windsor**

**Staff Report
February 10, 2023**

Introduction

On March 1, 2021, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) to Gravel Pit Solar (GPS) for the construction, maintenance and operation of a 120 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility located generally to the east and west of the Amtrak and Connecticut Rail Line, south of Apothecaries Hall Road and north of the South Windsor town boundary in East Windsor, Connecticut, and associated electrical interconnection in Docket 492. In its final decision, the Council acknowledged that The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) would file a petition for a declaratory ruling for the electrical interconnection of the GPS generating facility with Eversource transmission facilities.

On May 21, 2021, the Council approved the first phase of GPS' Development and Management (D&M) Plan which included, but was not limited to, site clearing and grubbing and installation of erosion and sedimentation controls. On February 14, 2022, the Council approved the second phase of GPS' D&M Plan which included, but was not limited to, construction of the solar facility, Eversource Switchyard¹ and GPS Collector Substation. The D&M Plan did not include the necessary connection of Eversource Switchyard to the existing No. 1200 115-kilovolt (kV) transmission line (No. 1200 Line).

On December 22, 2022, the Council received a petition (Petition) from Eversource for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the proposed Gravel Pit Solar Transmission Interconnection Project (Project) consisting of the electrical interconnection between its existing No. 1200 Line within existing Eversource electric transmission line right-of-way (ROW) on Eversource-owned property and Eversource Switchyard on GPS property in the Town of East Windsor (Town).

The Project consists of replacement of certain electric transmission line structures within the ROW and installation of the transmission interconnection to Eversource Switchyard.

On December 22, 2022, in compliance with Regulations of Connecticut State Agencies (RCSA) §16-50j-40, Eversource provided notice of the proposed Project to the Town and abutting property owners. No comments from the Town or abutters were received.

On December 28, 2022, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the Town to contact the Council with any questions or comments by January 21, 2023. No comments were received.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition within 60 days of receipt. On February 2, 2023, 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 June 20, 2023, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

¹ Eversource Switchyard is being constructed by GPS and will be transferred to Eversource per Docket 492.

The purpose of the proposed Project is to comply with the terms and conditions of the April 19, 2021 Large Generator² Interconnection Agreement between GPS and Eversource and to interconnect the GPS solar facility to the Eversource transmission grid by sectionalizing the existing No. 1200 Line with a tap in and out of the Eversource Switchyard.

Municipal and Abutter Notice

During October and November 2022, Eversource consulted with representatives of the Town to brief them on the proposed Project. Eversource has also been in close contact with GPS regarding the Project. GPS currently owns all of the parcels abutting the Project area. During the construction phase of the Project, Eversource would maintain contact with GPS and the Town to inform them of construction activities and site restoration.

Existing Project Area

The existing Project area consists of existing Eversource ROW and GPS property located on land formerly used for sand and gravel mining. The ROW is 175 feet wide and extends east towards Barbour Hill Substation in South Windsor and west towards Warehouse Point in East Windsor. Eversource Switchyard is located on GPS property approximately 220 feet south of the ROW and near Structure No. 6168.

Proposed Project

The Project is being proposed to connect the 115-kV Eversource Switchyard to the 115-kV No. 1200 Line in the ROW. Eversource Switchyard is approximately 0.49-acres in size and is located approximately 250 feet south of the No. 1200 Line. The No. 1200 Line would loop in and out of Eversource Switchyard via an overhead connection, segmenting the No. 1200 Line. Two new weathering steel monopole structures (designated as 6168N and 6168S) would be installed to support the segmented No. 1200 Line and the two transmission line taps to the Eversource Switchyard. Eversource would redesignate the No. 1200 Line as follows: from proposed Structure No. 6168S to Barbour Hill Substation, the line segment will be referred to as the No. 1455 Line, and from proposed Structure No. 6168N to Windsor Locks Substation, the line segment will be referred to as the No. 1527 Line.

The Project 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 GPS solar facility and its position in the ISO-NE Generator Interconnection Queue is identified in the March 1, 2022 Eversource Ten-Year Forecast of Electric Loads and Resources. The Project is listed by ISO-NE as QP892/940/1030/1247 in the Generator Interconnection Queue.

Interconnection of Eversource Switchyard to the No. 1200 Line

The existing ROW contains the 115-kV No. 1100 Line on the north side of the ROW and the 115-kV No. 1200 Line on the south side of the ROW. Both lines are currently supported by double-circuit weathering steel H-frame structures.

Project work consists of the loop through interconnection of the No. 1200 Line with Eversource Switchyard. Specifically, the work includes the following:

- a) Modify existing Structure No. 6168 by removing one of the three H-frame poles and maintain the remaining H-frame structure to support the No. 1100 Line;

² ISO-NE considers a “large generator” to be greater than 20 MW in capacity.

- b) Install two new 75-foot tall weathering steel monopoles, Structure Nos. 6168N and 6168S, to support the segmented No. 1200 Line and the two transmission line taps to Eversource Switchyard;
- c) Install new 1272 kcmil aluminum conductor steel supported (ACSS) conductors to connect at the terminal structures within Eversource Switchyard; and
- d) Install two spans of fiber optic ground wire (OPGW) between the two structures and Eversource Switchyard.

Structure Nos. 6168 and 6170 were not replaced as part of Eversource's Nos. 1100/1200/1300 Line Structure Replacement Sub-petition 1293-EEWSW-01 that was approved by the Council on November 20, 2018. Construction related to the sub-petition was completed on April 1, 2019.

Cost

The costs associated with this interconnection Project would be borne by GPS. The original solar facility cost estimate of approximately \$125M was inclusive of substation, switchyard and interconnection costs.³

Project Construction and Work Procedures

Eversource would utilize the Project ROW for a staging/laydown area. It would be used for storage of construction materials, equipment, tools and supplies. Office trailers and storage containers may be located at the staging areas. Appropriate erosion and sedimentation (E&S) controls would be installed and maintained around the staging areas until completion of construction in accordance with Project permitting and Eversource's April 2022 Best Management Practices Manual for Massachusetts and Connecticut (BMPs).⁴

Eversource would utilize existing access off of Windsorville Road. One new permanent gravel access drive would be constructed between Structure Nos. 6168 and 6170 to serve the pull pad during construction and for future access.

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.

At existing Structure No. 6168, Eversource would enlarge an existing work pad to stage material for final on-site assembly of structures, structure modification, to pull conductors, and to provide a safe, level work base for construction equipment. A work pad would be installed adjacent to existing Structure No. 6170 to support machinery for pulling conductors. Work pads would be located in upland areas and would be composed of stone/gravel.

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.

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.

³ Docket 492, Transcript 1, p. 85 and Transcript 3, pp. 174-175

⁴ [2022 Eversource Best Management Practices MA, CT](#)

New conductors and OPGW would be installed after the structures are installed. The required equipment would include cable reels, pulling and tensioning rigs, and bucket trucks.

After the existing structure is modified and new structures/conductors/OPGW are installed and the lines are re-energized, ROW restoration activities would commence. Restoration work would include the removal of construction debris, signage, flagging, temporary fencing, and construction mats. 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 would be left in place to facilitate future transmission line maintenance. All proposed access and work pads are located in upland areas.

Project-related traffic would be expected to be temporary and highly localized in the vicinity of the Project access point. Due to the short duration 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

Due to recent sand and gravel mining conducted by the underlying property owner within the ROW, the Project area is largely void of vegetation except for some grasses and forbs. Thus, no trees would require removal to accommodate the Project.

No wetlands or watercourses were identified within or proximate to the Project area. The nearest wetland/water resource is Ketch Brook and its associated wetlands, located approximately 950 feet from the Project area. Thus, the Project is not expected to result in direct or indirect impacts to wetlands or Ketch Brook.

No vernal pools were identified within or proximate to the Project area.

The Project area is not located within a 100-year or 500-year Federal Emergency Management Agency-designated flood zone.

There are no DEEP-designated Aquifer Protection Areas (APA) within the Project area. The nearest APA is located approximately 250 feet northwest of existing Structure No. 6169 and encompasses Structure No. 6170. Structure No. 6170 would not be modified, but a pull pad would be installed at this location. There are no public water supply wells within the Project area. To protect nearby water resources, Eversource would conduct work in accordance with its BMPs. Provisions are included for the proper storage, secondary containment, and handling of diesel fuel, motor oil, grease and other lubricants, to protect water quality.

The Project is not located within the DEEP Natural Diversity Database (NDDB) buffer area. NDDB buffer areas are located to the south and east and are associated with Ketch Brook. GPS has already installed isolation fencing to protect the wood turtle, a state-listed Species of Species Concern, known to occur within such buffer areas. Thus, wood turtles would not be expected to be encountered in the Project area. Notwithstanding, Eversource would implement its contractor awareness training to be protective of the wood turtle, and the Project would not impact the wood turtle or its habitat.

Eversource also consulted with the U.S. Fish & Wildlife Service's Information, Planning and Consultation (IPaC) service regarding federally-listed species that may be present within the project area. The IPaC report identified the northern long-eared bat (NLEB), a federally and state-listed Endangered Species occurring in Connecticut. There are no known NLEB maternity roost trees within 150 feet of the Project area, and the nearest NLEB hibernaculum is located approximately 33 miles away in the Town of Litchfield. Thus, no impacts to the NLEB are expected to result from the Project.

No previously identified archaeological sites or properties listed on the State or National Register of Historic Places were identified proximate to the site. A Phase IA Cultural Resources Assessment Survey Report (Phase 1A Report) dated May 2020 (and updated July 2020) was prepared for GPS' solar facility. The Phase 1A Report recommended that the areas of moderate sensitivity be subject to archaeological examination as part of a Phase IB cultural resources reconnaissance survey (Phase IB Survey).

A Phase IB Archaeological and Architectural Survey Report (Phase 1B Report) dated September 2020 was prepared and submitted to SHPO. By letter dated November 6, 2020, SHPO concurs with the Phase IB Report that no additional archaeological investigations of the Project area are warranted.

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

The Project area is not located proximate to any blue-blazed trails maintained by the Connecticut Forest and Parks Association. The nearest blue-blazed trail is the Shenipist Trail, located approximately 6.7 miles to the east.

The interconnection would require an increase in structure height to meet NESC requirements. Existing structures are approximately 65 feet above ground level. The replacement structures to facilitate the interconnection would be 75 feet above ground level.

Due to the increase in structure heights to comply with NESC clearance criteria, there would be indirect visual impacts to the surrounding area. The use of weathering steel replacement structures would resemble the appearance of existing wood structures within the ROW and match the surrounding wooded landscape.

Public Safety

There would be no permanent changes to existing ROW sound levels after completion of the Project. Noise associated with construction activities is exempt from DEEP Noise Control Regulations. Notwithstanding, any construction-related noise would be short-term and localized in the vicinity of work sites.

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 an existing transmission line that emits 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 EMF levels associated with the Project. Pre- and post-construction EMF levels (based on average annual loads for MF) are presented in the table below:

Gravel Pit Solar Interconnect (Average Loads)	North ROW Edge	Max in ROW	South ROW Edge
Magnetic Field (mG)	2.11	14.18	2.09
Electric Fields (kV/m)	0.02	0.88	0.02

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

Construction Schedule

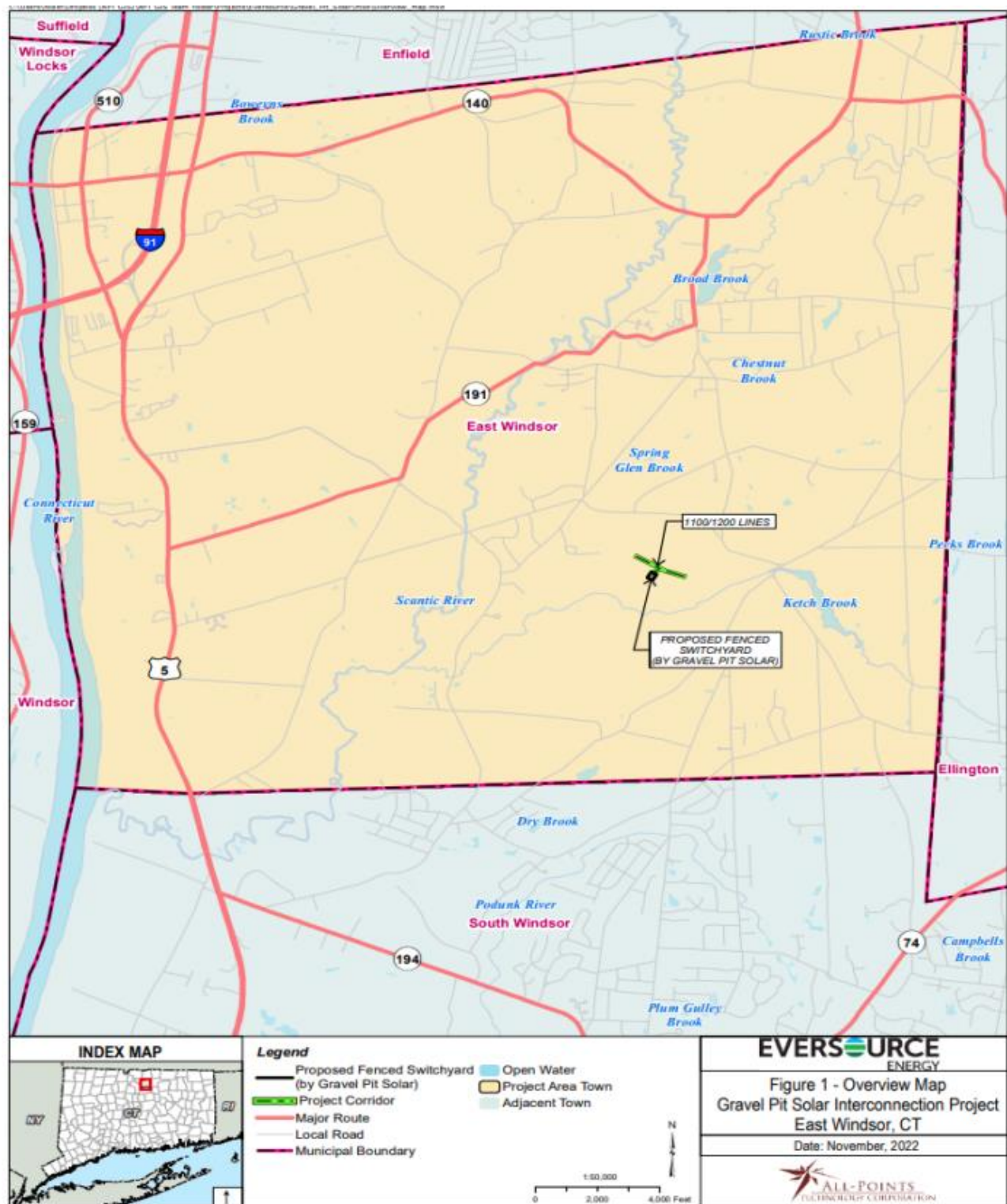
Construction is expected to begin in 2023. Construction work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday work hours or evening work (i.e. after 7:00 p.m.) may be necessary due to unforeseen circumstances, delays caused by inclement weather and/or outage constraints.

Conclusion

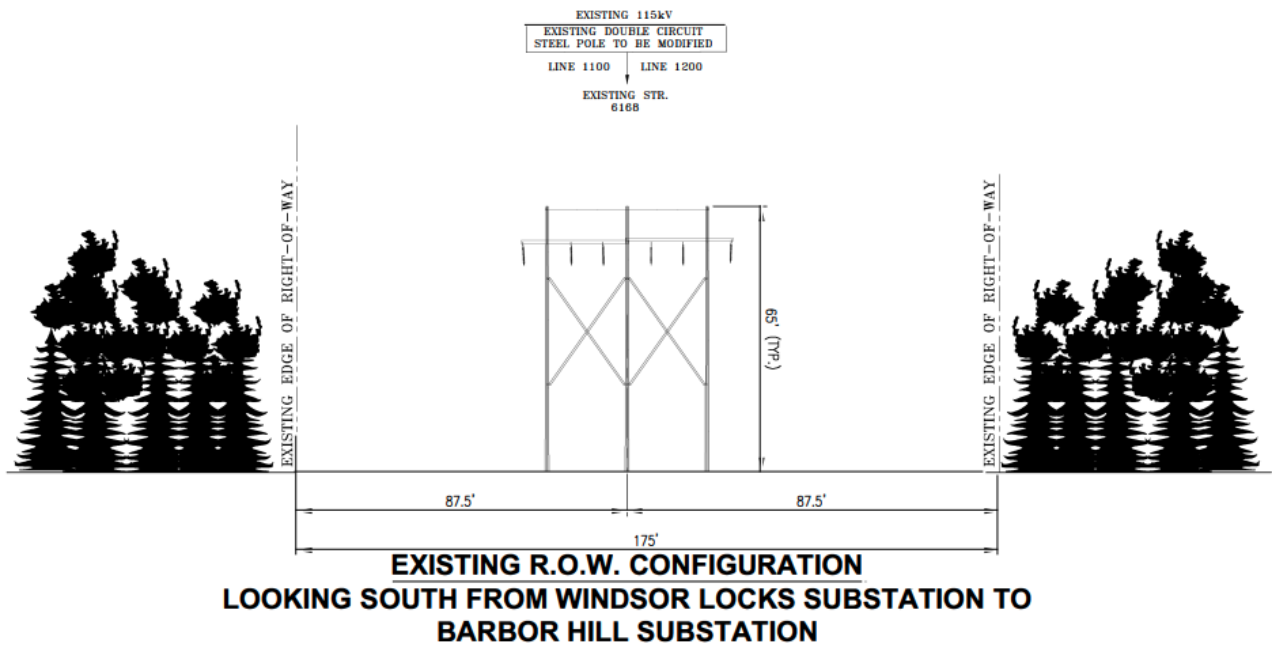
If approved, staff recommends the following conditions:

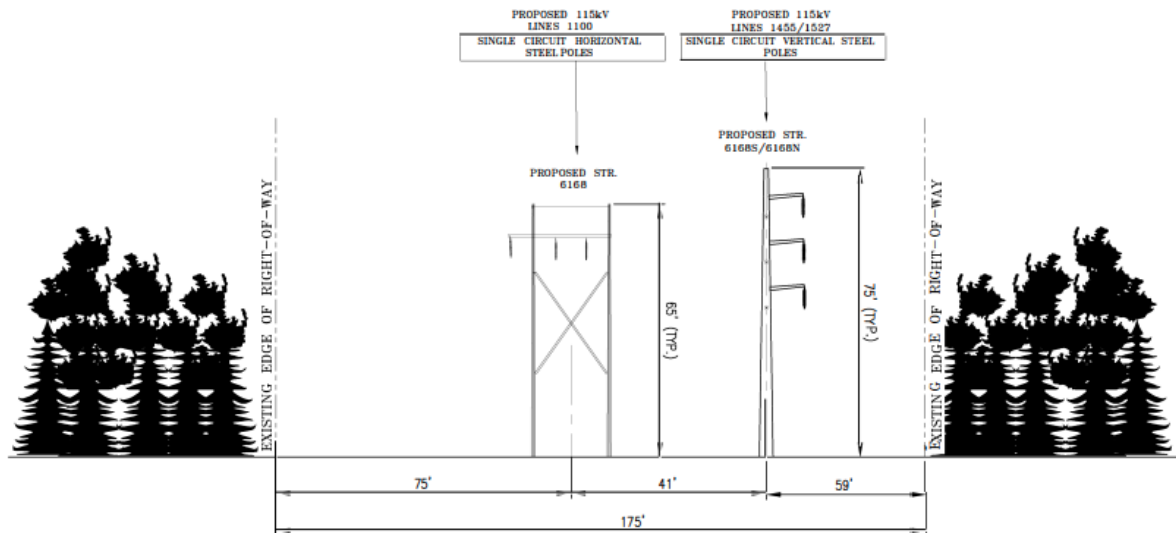
- 1) Approval of any Project changes be delegated to Council staff; and
- 2) Incorporation of pollinator habitat in the restoration of disturbed areas consistent with CGS §16-50hh, where feasible.

Project Location

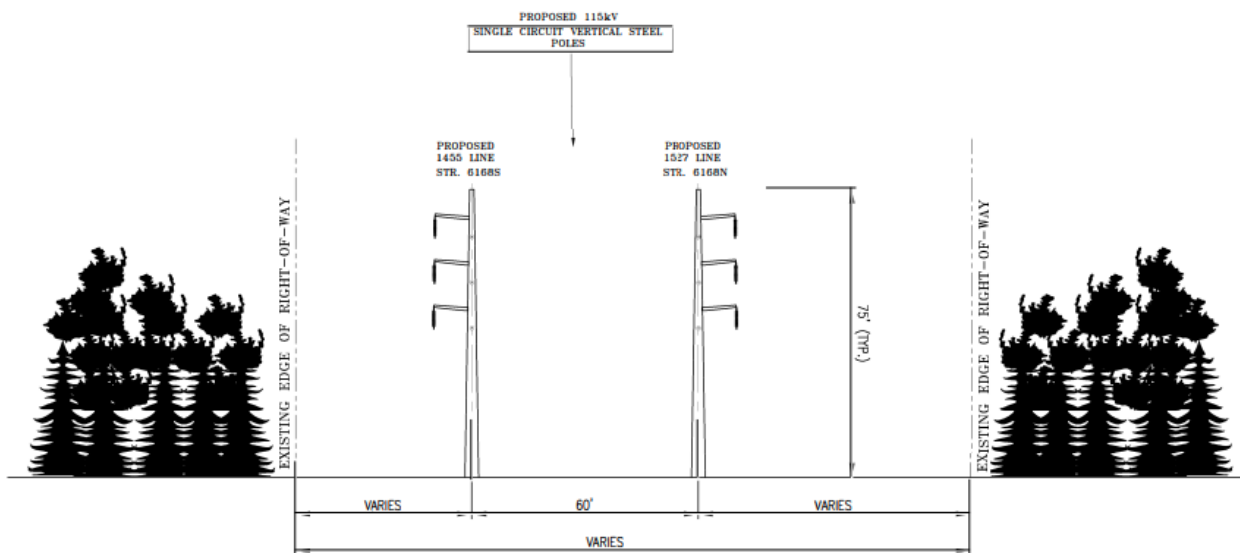


Project ROW Profiles





**PROPOSED R.O.W. CONFIGURATION
LOOKING SOUTH FROM WINDSOR LOCKS SUBSTATION TO
BARBOR HILL SUBSTATION**



**PROPOSED R.O.W. CONFIGURATION
LOOKING WEST TO GRAVEL PIT SOLAR SUBSTATION**