



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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May 24, 2019

Kathleen M. Shanley  
Manager- Transmission Siting  
Eversource Energy  
P.O. Box 270  
Hartford, CT 06141-0270

RE: **DOCKET NO. 461A** - Eversource Energy Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 115-kilovolt (kV) bulk substation located at 290 Railroad Avenue, Greenwich, Connecticut, and two 115-kV underground transmission circuits extending approximately 2.3 miles between the proposed substation and the existing Cos Cob Substation, Greenwich, Connecticut, and related substation improvements. Indian Harbor Crossing Development and Management Plan.

Dear Ms. Shanley:

At a public meeting of the Connecticut Siting Council (Council) held on May 23, 2019, the Council considered and approved the Partial Development and Management (D&M) Plan (Volume II Part 2) submitted for this project on May 3, 2019 with the condition that Eversource Energy submit a final design detail for the utility/pedestrian bridge including information demonstrating that the final bridge design would not be affected by a 100-year flood.

This approval applies only to the partial D&M Plan submitted on May 3, 2019 and additional information received May 17, 2019. This partial D&M Plan pertains to the installation of the 115-kV transmission line across Indian Harbor in Bruce Park. Requests for any changes to the partial D&M Plan shall be approved by Council staff in accordance RCSA §16-50j-62(b). Furthermore, the Certificate Holder is responsible for reporting requirements pursuant to Regulations of Connecticut State Agencies Section 16-50j-62.

Please be advised that changes and deviations from this plan are enforceable under the provisions of the Connecticut General Statutes § 16-50u. Enclosed is a copy of the staff report on this partial D&M Plan, dated May 23, 2019.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman  
Executive Director

MAB/RDM/laf

Enclosure: Staff Report, dated May 23, 2019

c: Parties and Intervenors



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Affirmative Action / Equal Opportunity Employer



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**Docket No. 461A**

**Eversource Energy**

**GSLP - Partial Development and Management Plan**

**Volume 2, Part 2**

**Indian Harbor Crossing**

**Staff Report**

**May 23, 2019**

**Introduction**

On May 3, 2019, Eversource Energy (Eversource) submitted a partial Development and Management (D&M) Plan for the 115-kV transmission line crossing of Indian Harbor in Bruce Park which is part of the Greenwich Substation and Line Project (GSLP) that was approved by the Council on November 14, 2017.

The Council's Decision and Order (D&O) Condition 2 specified, in relevant part, "The Certificate Holder shall construct the proposed underground electric transmission line along the proposed route using...a trench/cofferdam crossing of Indian Harbor...subject to modifications during final site design and approval of the D&M Plan for the Project. The Council's D&O Condition 3f specified "Details for the Indian Harbor crossing including related temporary and permanent construction impacts and methods to reduce such impacts." This partial D&M Plan (Volume 2, Part 2) conforms to these conditions. The underground 115-kV transmission line portion of the D&M Plan pertaining to the route of the transmission line, excluding the Indian Harbor section, was approved by the Council on January 17, 2019 (Volume 2, Part 1).

According to the Council's D&O Condition 3, Eversource is to submit two D&M Plans for the GSLP, one specific to the new Greenwich Substation and other substation improvements (Volume 1), and one specific to the new underground 115-kV transmission line (Volume 2). Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-60, a partial or full D&M Plan shall be prepared for any proposed energy facility for which the Council issued a Certificate of Environmental Compatibility and Public Need. The submitted, partial D&M Plan (Volume 2, Part 2) only pertains to the installation of the 115-kV transmission line across Indian Harbor.

On May 3, 2019, Eversource served the Volume 2, Part 2 D&M Plan on the Town and all parties and intervenors listed on the service list. No comments were received.

Eversource submitted an additional site plan on May 17, 2019.

### **Indian Harbor Crossing Background**

The Council's November 14, 2017 Decision approved the installation of two underground 115-kV transmission line circuits to be located within Indian Harbor north of the existing Davis Avenue bridge in Bruce Park. Construction through the harbor would require cofferdams to facilitate excavation of harbor sediments and the installation of the transmission line duct bank, buried within harbor sediments. The trench/cofferdam method was based on preliminary information that indicated the depth of water within the proposed trench location was three to four feet deep and that the existing ledge within and adjacent to this waterbody could be managed without extensive blasting or re-routing.

Subsequent to the Council's Decision, additional field work indicated the water depth in the trench area approached 11 feet. Based on best engineering practices, the initial cofferdam design is most effective in about five to six feet of water, therefore, the initial construction design was not feasible. Steel piling cofferdams were then considered but would require more disturbance to the harbor and adjacent areas due to the amount of bedrock, and an increase in cost.

Due to these challenges and pursuant to Condition 2 of the Council's D&O, Eversource investigated the feasibility of relocating the trench crossing approximately 80 feet farther north of the original location, and farther away from the construction area for the Town's planned Davis Avenue Bridge replacement. To reduce disturbance to the harbor bottom and to eliminate sharp bends of the underground transmission line, cofferdam work areas would be established to allow for a conduit pipe to be floated and then sunk to the harbor bottom, leaving it uncovered. Eversource discussed the feasibility of the proposed revised harbor bottom trench route with the US Army Corps of Engineers (USACE) and the Town. The USACE indicated the pipe would have to be substantially covered by benthic material to protect it from a future dredging project. The Town was concerned about its proximity to existing Town facilities; including the wastewater pump station and underground sewer main on the west side of Indian Harbor. Additionally, there would be increased environmental impact as well as increased cost. Due to these factors, this option is not favored by Eversource or the Town.

After evaluating the difficulties of installing the transmission line using a trench crossing, and pursuant to Condition 2 of the Council's D&O, Eversource and the Town held discussions to develop a transmission line crossing of Indian Harbor using a utility/pedestrian bridge that would reduce the environmental and recreational impact to the Indian Harbor area, as well as advance the construction schedule. The Town offered to waive Eversource's need to obtain a temporary construction easement in Bruce Park and allow the establishment of nearby work areas necessary for the Project, thus avoiding the need to use separate laydown areas not proximate to the harbor. Further, during initial discussions, the Town started a preliminary bridge design and initiated pre-application discussions with applicable permitting agencies.

### **Utility/Pedestrian Bridge**

The proposed utility/pedestrian bridge would be installed approximately 30 feet north of the existing Davis Avenue bridge. It would be designed to support the 115-kV transmission lines, a permanent 6-inch to 8-inch diameter water main, and a temporary 4-inch diameter gas main. The water and gas mains are currently located within the Davis Avenue bridge structure and would need to be relocated during the Town's planned Davis Avenue bridge replacement project.

The design of the utility/pedestrian bridge is being finalized but it would have a span of  $\pm 188.0$  feet and a width of  $\pm 12.0$  feet. A 9-foot wide, 6-inch deep concrete slab would be established for the pedestrian walkway on the bridge. Below the slab, on the underside of the bridge, two steel 18" diameter conduits supported by steel rods would be installed to house the 115-kV transmission lines. The water main would be installed adjacent to the conduits on the underside of the bridge. The exterior, south side of the bridge frame would be designed to support the temporary gas main.

The bridge deck is within the 100-year flood zone. Although the bridge design is in a preliminary stage, final bridge/abutment details would account for the 100-year flood zone.

Once constructed, the utility/pedestrian bridge will be owned and maintained by the Town. Eversource will be responsible solely for its transmission facilities and will be allowed unrestricted access for maintenance and service of the transmission lines in accordance with an agreement developed between the Town and Eversource. Eversource would not be responsible for the installation of the water main and temporary gas main.

### **Project Construction**

The prefabricated utility/pedestrian bridge would be assembled within work areas established on Davis Avenue and installed using cranes to avoid any disturbance to surface water or harbor sediments. No trenching or sediment dredging is necessary to construct the bridge.

A temporary earth retaining system (TERS) would be used for the construction of the bridge foundations using steel pilings to isolate and shore up the work area. A portion of the TERS for the east bridge abutment would be within the Department of Energy and Environmental Protection designated Coastal Jurisdiction Limit. Soil/bedrock will be excavated to the proper depth and concrete bridge foundations/abutments installed, then the area backfilled. The steel pilings would be cut to one-foot below grade after the concrete bridge foundations/abutments are in place. Site blasting is not anticipated.

Erosion and sediment controls would be established in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended*. During construction, if stormwater or groundwater accumulates in trenching or bridge abutment excavations, it would be discharged into a dewatering basin prior to being directed towards Indian Harbor via overland flow.

The underground transmission line duct bank (D&M Plan Volume 2, Part 1) would be extended through grass park areas and across Davis Avenue and Bruce Park Drive to the bridge abutments on either side of the harbor. Construction of the duct bank would follow procedures established within the Council's previously approved D&M Plan Volume 2, Part 1.

Eversource would be responsible for post-construction restoration of the immediate areas surrounding the bridge construction zone (within 5 feet of the bridge abutments) and the trench and laydown areas within Bruce Park to pre-construction conditions. The Town would be responsible for restoration of areas beyond those managed by Eversource.

Construction of the Indian Harbor crossing and associated underground duct bank is anticipated to commence in the third quarter of 2019, finishing in the fourth quarter of 2019. A Traffic Management Plan for the construction of the utility/pedestrian bridge has been developed in collaboration with the Town that divides the Project into four segments with traffic control and specific work hours for each segment. Bridge construction would also cause temporary disruptions to pedestrian traffic near the construction area.

Magnetic fields near the transmission line as it crosses Indian Harbor beneath the pedestrian bridge are calculated to be 1.7 milliGauss (mG), well below the 2,000 mG exposure guideline published by the International Council on Non-Ionizing Radiation Protection. Due to this low level, Eversource does not plan on conducting post-construction magnetic field monitoring at the bridge crossing.

### **Cost**

The estimated Eversource cost of the utility/pedestrian bridge crossing is \$1.44 million.

Eversource will be responsible for the costs associated with the installation of the bridge abutments, bridge structure and attachment of two 18-inch steel conduits which will house the two transmission lines. The Town will manage the permitting and design of the utility/pedestrian bridge including structural and hydraulic analyses as well as field investigations including survey and geotechnical information required to complete the design. In addition, the Town will be responsible for work beyond the bridge abutments including grading of the approaches, installation of sidewalks and restoration of off-pavement work areas.

A cost summary of the harbor crossing options is presented in the table below:

<b>Crossing Method</b>	<b>Estimated Cost to Eversource</b>	<b>Status</b>
Cofferdam per Council's D&O	\$1.1 million	Initial design based on 3 to 4 feet of water; not feasible
Cofferdam with shallow 36-inch steel casing on harbor bottom	\$1.1 million	USACE indicated casing should be buried within harbor sediment; not feasible
Cofferdam with deeper 36-inch steel casing	\$1.31 million	Feasible, but not favored by the Town or Eversource
Utility/pedestrian Bridge	\$1.44 million	Preferred by Town, avoids impact to harbor, less environmental impact

The Volume 2, Part 2 D&M Plan complies with requirements of RCSA § 16-50j-60 to 16-50j-62 and is consistent with the Council's D&O issued on November 14, 2017. If approved, staff suggests including the following condition:

1. Submit final design detail for the utility/pedestrian bridge including information demonstrating that the final design would not be affected by a 100-year flood.