Docket No. 483
The United Illuminating Company
Development and Management Plan
Pequonnock Substation Replacement
1 Kiefer Street, Bridgeport
Draft Staff Report
August 21, 2020

Introduction

On July 17, 2020, The United Illuminating Company (UI) submitted a Development and Management Plan (D&M Plan) for the approved replacement Pequonnock Substation. The D&M Plan was submitted consistent with the Council's Decision and Order (D&O) and Certificate of Environmental Compatibility and Public Need (Certificate) dated October 12, 2018.

The replacement substation will be located on two acres of a 3.7-acre property located at 1 Kiefer Street and to the south-southeast of the existing Pequonnock Substation. UI acquired the property from PSEG Power Connecticut, LLC (PSEG). The site is bordered to the east by PSEG's Bridgeport Harbor Station generating facility; to the north by Ferry Access Road and the Metro-North Railroad (MNRR) corridor; to the west by commercial/industrial uses; and to the south by Congentrix's Bridgeport Energy generating facility.

The replacement substation will consist of an irregular shaped compound approximately 1.8 acres in area and will contain the substation equipment, associated connections, gas-insulated substation (GIS) enclosure, and switchgear and control enclosure.

The existing Pequonnock Substation will be decommissioned after the replacement substation is placed into service.

The D&O requires the following information in the D&M Plan and is noted as follows:

a) **A final site plan showing the placement of all substation equipment, structures, and buildings within the substation perimeter based on a design flood elevation of 19 feet NAVD88, temporary and permanent tap structures, access, and fencing;**

UI has included the placement of all substation equipment, structures, and buildings within the substation perimeter as well as tap structures in the D&M Plan. Such equipment includes, but is not limited to, the following:

i. Two 30/40/50 MVA 115-kV/13.8-kV power transformers;
ii. Two double H-frame structures (approximately 45 and 55 feet in height) to support the 115-kV strain bus;
iii. Two 115-kV disconnect switches;
iv. One 90-foot tall communications pole;
v. One diesel backup generator;
vi. Two 13.8-kV/480 V station service transformers;
vii. Three support structures for underground 115-kV circuits;
viii. Two support structures for 13.8-kV cable bus and mobile substation interconnection;
ix. One 13.8-kV switchgear and control enclosure (approximately 75 feet long by 32 feet wide by 16 feet high);

x. One GIS enclosure (approximately 94 feet 6 inches long by 87 feet wide by 33 feet 4 inches high);
xi. Five GIS diameters with 15 115-kV breakers in a breaker-and-one-half configuration; and
xii. One underground station service duct bank.

Construction access to the site will be via Ferry Access Road, PSEG's existing access, Kiefer Street, and Singer Avenue. Anti-tracking pads will be utilized as necessary at construction access points to prevent off-site tracking of sediment.

Permanent access to the replacement substation will be from Ferry Access Road (the primary entrance gate), Singer Avenue, and off the existing PSEG access road.

UI included its fence design in the D&M Plan. UI would utilize a temporary nine-foot tall chain link fence to secure the site during construction. The permanent fence for this facility will be 14-foot tall chain link with one foot of barbed wire on top.

An engineered block retaining wall will be installed along the east and south sides of the substation. The retaining wall will vary in height from 4 feet 6 inches to 7 feet 6 inches above the lower grade. The 14-foot fence will be installed at the upper elevation of the retaining wall.

All critical facilities will have a design flood elevation of 19 feet (NAVD88). This is five feet above the 2013 Federal Emergency Management Agency base flood elevation (i.e. 100-year flood elevation) of 14 feet and consistent with Condition 1(a) of the Council's D&O dated October 12, 2018.

b) **An erosion and sediment control plan consistent with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Controls*;**

Under Section 6 and Appendix B of the D&M Plan, UI included its Erosion and Sedimentation Control Plan consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Controls*.

UI submitted a registration form for a stormwater permit and a project-specific Stormwater Pollution Control Plan to the Department of Energy and Environmental Protection (DEEP). UI received its stormwater permit for this project.

c) **A spill prevention, control and countermeasures plan;**

UI included its Spill Prevention and Countermeasures Plan (SPCP) under Appendix C of the D&M Plan. UI does not anticipate any on-site bulk storage of petroleum during construction. However, if a construction contractor elects to maintain large quantities of petroleum products at the staging area, the requirements of the SPCP would apply.

d) **Details of the transmission interconnections; and**

UI will redirect eight 115-kV transmission lines that presently feed the existing Pequonnock Subtation to the replacement substation. Five of the lines are overhead, and three are underground. The summary of the overhead transmission connection relocations is listed in the table below.

Table 2-1: Summary of 115 kV Overhead Transmission Line Relocations: New Connections and Lines to be Removed

115-kV Line No. and Connection(s) to Other Substations	New Transmission Line Structures					Existing Structures to be Removed			
	ROW Length / Width	No. of New Structures		Structure Design / Foundation Type	Average Structure Height	Length of Line Segment	No. Structures to be Removed	Structure Type / Average Height	Property Ownership
		Within New Substation	Outside New Substation*						
8809A (Congress to Baird substations)	1750 feet	1	6 (MNR, PSEG)	DC Monopoles; Drilled pier foundations	110 feet	1150 feet	7	Steel Bonnet/ 66.5 feet	MNR, PSEG, UI
8909B (Congress to Baird substations)	1700 feet	1	5 (MNR, UI)	DC Monopoles; Drilled pier foundations	110 feet	1150 feet	5	Steel Bonnet/ 66.5 feet	MNR, PSEG, UI
1130 (Compo Substation)	400 feet	1	2 (UI, MNR, Bridgeport)	DC Monopoles; Drilled pier foundations	100 feet	700 feet	4	Steel Bonnet & Monopoles/ 75 feet	MNR, PSEG, UI
91001 (Ash Creek Substation)	325 feet	1	2 (UI, MNR)	DC Monopoles; Drilled pier foundations	90 feet	850 feet	5		MNR, PSEG, UI
BHS Unit 3	1,050 feet	1	4 (BHS)	Monopoles; Drilled pier foundations	100 feet		N/A		BHS
TOTAL		6	12				21		

The summary of the underground transmission connection relocations is listed in the table below.

Table 2-2: Summary of 115 kV Underground Transmission Line Relocations: New Connections and Lines to be Removed

115-kV Line No. and Connection(s) to Other Substations	Line Type	New Underground Cable Segments			Existing Cable Segments to be Removed	
		Segment Length	Property Ownership along ROW	New Splice Chamber	Length of Removal	Property Ownership
1955 (Singer Substation)	XLPE	300 feet	PSEG, UI	No	900 feet	PSEG, UI
1710 (Devon – Old Town substations)	HPGF (Nitrogen gas)	875 feet	PSEG, UI	Yes (for 1710 and 1697 lines - on UI property at existing Pequonnock Substation site)	100 feet	UI
1697 (Trumbull Substation)	HPGF (Nitrogen gas)	775 feet	PSEG, UI		50 feet	UI

e) **A decommissioning plan for the existing Pequonnock Substation with or without the removal of the foundations.**

UI included its decommissioning plan for the existing Pequonnock Substation under Section 5 and Appendix D of the D&M Plan. The primary steps involved with the decommissioning process are noted below as follows:

i. De-energize the substation;
ii. Decommission electrical components within the substation and remove sulfur hexafluoride gas from circuit breakers and dielectric fluid from transformers;
iii. Remove metal clad switchgear, panels, racking, steel structures, conductors, high voltage equipment, transformers, capacitor bank and circuit breakers;
iv. Dismantle and remove above-ground structures at the substation, including, but not limited to, the control enclosure;
v. Remove foundations generally to approximately six inches below grade; and
vi. Resurface the property with crushed stone.

Municipal and Other Public Consultations

Prior to submission of its D&M Plan, UI consulted with representatives of the City of Bridgeport (City). In addition, UI coordinated with adjacent property owners including PSEG and MNRR.

On or about July 17, 2020, copies of the D&M Plan were provided to the City. No comments have been received to date.

Construction Schedule

UI expects that construction of the replacement substation will commence with site preparation during September 2020, and construction will be completed by August 2024. Typical construction hours and days of the week would be Monday through Saturday, 7:00 a.m. to 7:00 p.m. However, non-standard work hours may be necessary due to outage-related time constraints. However, no noise-generating construction equipment would be operated outside of the standard work hours or the specified MNRR right-of-way (ROW) work hours (listed below) unless approved by the Council.

UI has specific work hours for transmission line work in the MNRR ROW. Any work requiring MNRR distribution outages will typically occur between 9:30 a.m. and 3:30 p.m. or between 10:00 p.m. and 4:00 a.m. Any work requiring high rail access would typically be performed between 10:00 p.m. and 4:00 a.m. Work requiring crossing of all railroad tracks will typically be performed between 10:00 p.m. and 5:00 a.m., Friday through Sunday.

Any noise related to construction will be exempt per DEEP noise regulations. Operation of the (completed) project is expected to meet the DEEP noise standards at the property boundaries.

Community Outreach During the Construction Process

UI will provide the City, in writing, with a minimum of one week advance notice of the beginning of construction activities at the project site. Similarly, UI will provide a minimum of one week written notice to abutting landowners prior to the commencement of construction. UI has provided project team contact information.

Notice to Council

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-61, UI will provide the Council with written notification at least two weeks prior to the commencement of construction.

Snow Removal and De-Icing Procedures

Snow and ice removal procedures will be conducted in accordance with DEEP's Best Management Practices for Disposal of Snow Accumulations from Roadways and Parking Lots. For example, DEEP does not recommend depositing snow into streams, wetlands and Long Island Sound due to the presence of dirt, salt, litter and other debris, which are routinely mixed in the accumulated snow. Accordingly, UI would only deposit snow accumulations in upland areas.

Reports

The following reports required under the Council's D&M Plan Regulations will be provided to the Council:

1. **Monthly Construction Progress Report**: As required by the RCSA § 16-50j-62(b)(3), this report shall identify changes and deviations to the approved D&M Plan.

2. **Final Report**: As required by RCSA § 16-50j-62(c), UI shall provide this report to the Council no later than 180 days after completion of all site construction and rehabilitation. The report shall identify:

    a) All agreements with abutters or property owners regarding special maintenance precautions;
    b) Significant D&M Plan changes that were necessary because of property rights of underlying and adjoining owners or for other reasons;
    c) The location of any construction materials left in place;
    d) The location of areas where special plantings and reseeding have been performed; and
    e) The actual construction cost of the facility.

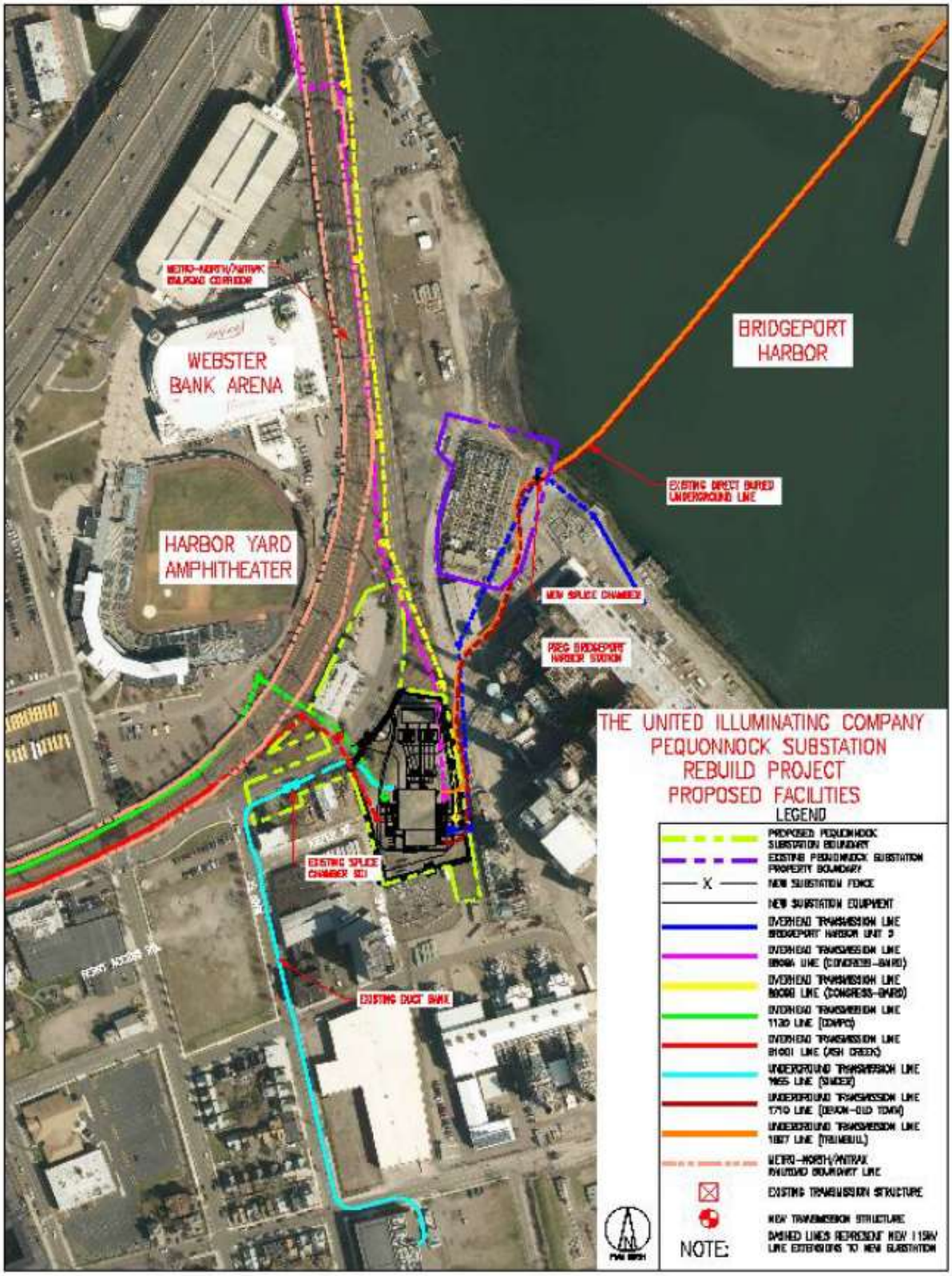
Recommendations

The D&M Plan complies with requirements of RCSA § 16-50j-60 to 16-50j-62 and is consistent with the Council's D&O dated October 12, 2018.

If approved, staff recommends the following conditions:

1. Submit the final staging area drawings prior to commencement of construction;
2. Submit the final backup generator specifications and any associated engine fluid containment plans prior to commencement of construction; and
3. Submit the final decommissioning schedule for the existing Pequonnock Substation prior to commencement of construction.

Aerial View of Existing and Replacement Substations and New Transmission Connections



Replacement Substation Site Plan