

# STATE OF NEW HAMPSHIRE

## Intra Department Communication

**DATE:** September 8, 2021

**AT (OFFICE):** NH Dept. of Energy

**FROM:** Kenneth Walsh *KGW*  
Utility Analyst IV – Division of Enforcement

**SUBJECT:** Docket No. DE 21-085 Public Service New Hampshire d/b/a Eversource Energy  
Petition for License to Construct and Maintain Electric Lines Over and Across State Owned Land in Northumberland and Public Waters in Lancaster, New Hampshire  
Division of Enforcement, **Safety Bureau Recommendation**

**TO:** Christopher Ellms, Jr., Deputy Commissioner, Department of Energy  
Thomas Frantz, Director of Regulatory Division  
Richard Chagnon, Regulatory Division  
Lynn Fabrizio, Division of Enforcement  
Randall Knepper, Division of Enforcement  
Paul Kasper, Division of Enforcement

The Division of Enforcement's review of the above petition consisted of the following elements:

- Petition contents, replacement petition, and history;
- Applicable State Statute;
- Review of the existing crossing(s) previously licensed by the PUC;
- Review of land ownership of existing pole structures;
- Review of NESC code requirements as described in Puc 300;
- Review of public need and public impact, including applicability of other State regulations; and
- Conclusions and Recommendations.

### **1. Petition contents and history**

On April 28, 2021, Public Service New Hampshire d/b/a Eversource Energy (ES), filed a petition for a license pursuant to RSA 371:17 to construct, maintain and operate the Eversource D142 Line, which is a three phase 115kV transmission line, over State owned land in Northumberland and public waters in Lancaster.

On June 3, 2021, ES filed a replacement petition.

Neither the State owned land nor the public waters crossing was previously licensed for unknown reasons.

This proposed project is a full line rebuild and renumbering to include the replacement of (27) wood structures with weathered steel. Existing conductors will be replaced with (3) new conductors and existing shield wires will be replaced with (2) fiber optical ground wires (OPGW) with both being vertically attached above the conductors. ES provided Exhibit 21, which details the renumbering, structure move dimensions, and height changes.

Common to all these noted structures, existing conductors will be replaced with (3) new ACSS 1272 54/19 kcmil conductors. Two existing shield wires will be replaced with (2) 48 fiber optical ground wire (OPGW) with both being vertically attached above the conductors. The conductor cable clearance requirements were met using the National Electrical Safety Code (NESC) conditions at 392 deg F. for all crossings within this petition. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. Only 20.1 feet clearance is required by the NESC Table 232-1 for other areas traversed by vehicles, such as cultivated, grazing, forest, and orchard lands, industrial sites, commercial sites, etc. Only 18.6 feet clearance is required by the NESC Table 232-1 for water areas not suitable for sail boating. The Safety Bureau verified the computed sags with SAG 10 commercial software using inputs as stated in the petition.

The scope of this project begins in Northumberland where the D142 Line crosses from Structure #23 into Cape Horn State Forest then heading south ending at Structure #49, which is approximately 590 feet south from where the D142 Line crosses Paige Hill Road. In Lancaster, the D142 Line crosses Otter Brook approximately 570 feet south of North Road. The Israel River crossing is approximately 1,100 feet south of the Otter Brook crossing.

The land crossing spans 13,125.2 feet between Structures #23 and #49 with 12,683.3 feet spanning State owned land. See Attached Map #1.

The Otter Brook crossing spans 440.5 feet between Structures #91 and #92 with 71.7 feet spanning public waters. The Israel River crossing spans 516.5 feet between Structures #93 and #94 with 166.7 feet spanning public waters. See Attached Map #2.

The table provides the summary of this petition with all crossings to include structure numbers, types, spans, ES design criteria, and NESC compliance. The Safety Bureau noted a minor error in ES Petition Summary Table for the description of structure type for Structures #34, #35, and #36, which was corrected in the following table:

### **Division of Enforcement Summary Table**

**Eversource D142 Line Rebuild - PUC State Land and Waterbody Crossing Details**

<b>Structure</b>	<b>Type</b>	<b>Span (Pole to Pole)</b>	<b>Distance (feet)</b>	<b>Minimum NESC Table 232-1 Clearance (ft.)</b>	<b>ES Vertical Design Clearance (ft.)</b>	<b>Complies with NESC Table 232- 1 (Y/N)</b>
23	52.0' steel 2 pole, T, CLH1	23-24	371	20.1	26.1	Y
24	56.5' steel 2 pole, T, CLH1					
25	52.0' steel 2 pole, T, CLH1	24-25	416.5	20.1	27.1	Y
26	61.0' steel 2 pole, TG, CLH1	25-26	496.2	20.1	30.0	Y
27	56.5' steel 2 pole, T, CLH1	26-27	436.8	20.1	28.1	Y
28	56.5' steel 2 pole, T, CLH1	27-28	428.7	20.1	24.2	Y
29	56.5' steel 2 pole, T, CLH1	28-29	459.2	20.1	30.3	Y
30	61.0' steel 2 pole, T, CLH1	29-30	486.8	20.1	26.6	Y
31	61.0' steel 2 pole, T, CLH1	30-31	696.2	20.1	28.4	Y
32	56.5' steel 2 pole, T, CLH1	31-32	519.6	20.1	27.2	Y
33	61.0' steel 2 pole, T, CLH1	32-33	334	20.1	31.6	Y
34	70.0' steel 2 pole, T, CLH1	33-34	660.3	20.1	24.2	Y
35	70.0' steel 2 pole, T, CLH1	34-35	697.6	20.1	25.9	Y
36	70.0' steel 2 pole, T, CLH1	35-36	696.6	20.1	25.5	Y
37	56.5' steel 2 pole, T, CLH1	36-37	546.7	20.1	28.8	Y
38	56.5' steel 3 pole, ADS, CLH1	37-38	340.7	20.1	30.3	Y
39	56.5' steel 2 pole, T, CLH1	38-39	626.1	20.1	28.0	Y
40	52.0' steel 2 pole, T, CLH1	39-40	321.2	20.1	26.7	Y
41	61.0' steel 2 pole, T, CLH1	40-41	403.8	20.1	32.4	Y
42	61.0' steel 2 pole, T, CLH1	41-42	704	20.1	26.4	Y
43	52.0' steel 2 pole, T, CLH1	42-43	525.5	20.1	24.5	Y
44	61.0' steel 2 pole, T, CLH1	43-44	415.8	20.1	32.4	Y
45	61.0' steel 2 pole, T, CLH1	44-45	662.3	20.1	24.5	Y
46	52.0' steel 2 pole, T, CLH1	45-46	415.1	20.1	36.2	Y
47	56.5' steel 2 pole, TG, CLH1	46-47	492.8	20.1	26.9	Y
48	56.5' steel 2 pole, T, CLH1	47-48	417.3	20.1	31.7	Y
49	56.5' steel 2 pole, T, CLH1	48-49	554.4	20.1	25.3	Y
91	56.5' steel 2 pole, T, CLH1	91-92	440.5	18.6	21.2	Y
92	56.5' steel 2 pole, T, CLH1					

93	56.5' steel 2 pole, T, CLH1	93-94	516.5	18.6	21.4	Y
94	61.0' steel 2 pole, T, CLH1					

The water clearances to the projected 100-year flood elevations were confirmed by the Safety Bureau. The water clearances are taken from the projected 100 year flood levels. This is more conservative than the 10 year flood levels allowed by the NESC (note 18 to Table 232-1).

**2. New Hampshire statute referenced in petition**

**371:17 Licenses for New Poles.** – Whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a pipeline, cable, or conduit, or a line of poles or towers and wires and fixtures thereon, over, under or across any of the public waters of this state, or over, under or across any of the land owned by this state, it shall petition the commission for a license to construct and maintain the same. For the purposes of this section, "public waters" are defined to be all ponds of more than 10 acres, tidewater bodies, and such streams or portions thereof as the commission may prescribe. Every corporation and individual desiring to cross any public water or land for any purpose herein defined shall petition the commission for a license in the same manner prescribed for a public utility.

**Source.** 1921, 82:1. PL 244:8. RL 294:16. 1951, 203:48 par.17. 1953, 52:1, eff. March 30, 1953. 2013, 82:1, eff. June 19, 2013.

**3. Review of existing license(s) and permissions previously granted by the PUC for these locations of the State owned land in Northumberland and the public waters of Otter Brook and the Israel River in Lancaster.**

The State owned land crossing spans in Northumberland and the public water crossing spans in Lancaster were not previously licensed.

In Lancaster, Otter Brook from the juncture of Caleb Brook and Burnside Brook and Israel River, from the juncture of South Branch Israel River in Jefferson are listed under the category “Public Rivers and Streams” in the Official List of Public Waters (OLPW). The entire list of public waters can be accessed through the following web link:

<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/olpw.pdf>

ES asserts environmental impacts from this project will require permits from the NH Department of Environmental Services and that ES will obtain these before commencing work.

The U.S. Army Corps of Engineers (ACOE) does not regulate the subject portions of Otter Brook and the Israel River in Lancaster as federal-designated navigable waters. Therefore, no crossing permit is required from USACOE.

#### **4. Review of land ownership of proposed pole structures**

In its petition, ES specifies that the replacement of the structures and static wires with OPGW is over state owned land in Northumberland and over public waters in Lancaster, New Hampshire.

#### **5. Review of NESC code requirements as described in Puc 300**

Under N.H. Code Admin. Rules Puc 306, each utility is required to construct, install, operate and maintain its plant, structures and equipment and lines, as follows:

In accordance with good utility practice;

After weighing all factors, including potential delay, cost and safety issues, in such a manner to best accommodate the public; and

To prevent interference with other underground and above ground facilities, including facilities furnishing communications, gas, water, sewer or steam service.

For purposes of that section, “good utility practice” means in accordance with the standards established by the “National Electrical Safety Code C2-2012.”

ES states that the current crossings have been designed and will be re-constructed, maintained, and operated in accordance with the NESC C2-2012.

The Safety Bureau reviewed the specifications related to the design and re-construction of this crossing project as described in the petition, the attachments, and all supplemental support documents, and found them to be in conformance with the applicable sections of NESC C2-2012 and Puc 300.

#### **6. Review of public need and public impact**

In order to meet the reasonable requirements of electric service to the public, ES proposes to replace existing wood structures with steel structures, replace existing conductors with new conductors, replace static wires with communications fiber optic cables, and maintain a three-phase 115 kV transmission line designated as the D142 Line over and across state owned land in Northumberland and public waters in Lancaster, New Hampshire. This transmission line is an integral part of ES’s electric transmission system in this area.

ES asserts in the petition that the existing crossings will be exercised without substantially affecting the rights of the public in the State owned land in Northumberland and in the subject public waters in Lancaster. Minimum safe line clearances above the land and river surfaces and

affected shorelines will be maintained at all times. The use and enjoyment of the State owned land and rivers by the public will not be diminished in any material respect as a result of the overhead line crossings.

The Safety Bureau concludes the impact to the public will be de minimis and not measurable. The crossings do not appear to affect the rights of the public in the public waters and state owned land because minimum safe line clearances above the water and land surfaces will be maintained at all times.

**The Safety Bureau Recommendation:**

Based on the results of its review of the petition, its attachments, and all other supporting documents filed to this docket, the Safety Bureau recommends that the Department:

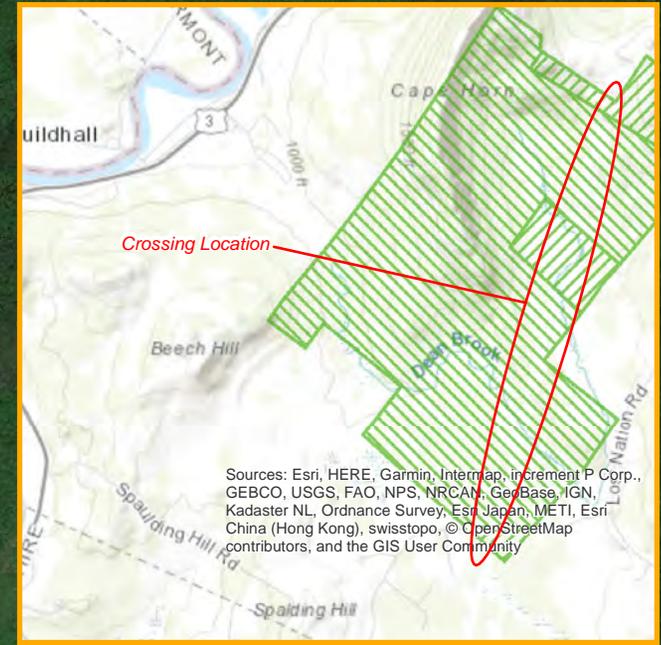
- 1) Find that the license ES requests in this docket may be exercised without substantially affecting the public rights in State owned land and the public waters, which are the subject of the petition;
- 2) Grant ES a license to construct, operate and maintain electric lines and communication cables over and across the State owned land in Northumberland and the public waters of Otter Brook and the Israel River in Lancaster, New Hampshire, as specified in the petition;
- 3) Issue an Order Nisi and orders for its publication.

Attachment

# State Land (Dept of Natural and Cultural Resources) - DE 21-085 Eversource Crossing - Map 1



Structures	Span (in feet)
23 to 24	371.00
24 to 25	416.50
25 to 26	496.20
26 to 27	436.80
27 to 28	428.70
28 to 29	459.20
29 to 30	486.80
30 to 31	696.20
31 to 32	519.60
32 to 33	334.00
33 to 34	660.30
34 to 35	697.60
35 to 36	696.60
36 to 37	546.70
37 to 38	340.70
38 to 39	626.10
39 to 40	321.20
40 to 41	403.80
41 to 42	704.00
42 to 43	525.50
43 to 44	415.80
44 to 45	662.30
45 to 46	415.10
46 to 47	492.80
47 to 48	417.30
48 to 49	554.40
<b>Total Span</b>	<b>13,125.20</b>



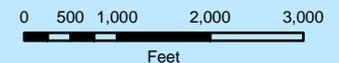
**State Land Crossed = 12,683.3 feet**

State owned Land as shown above identified in the petition and engineering drawings as State of New Hampshire and located in Northumberland. The project will require the Department to grant a license **Start** to this project. The license will be for the 115 kV D142 transmission line from Structure #23 south to Structure #49. These crossings span 13,125.2 feet with 12,683.3 feet crossing state land.

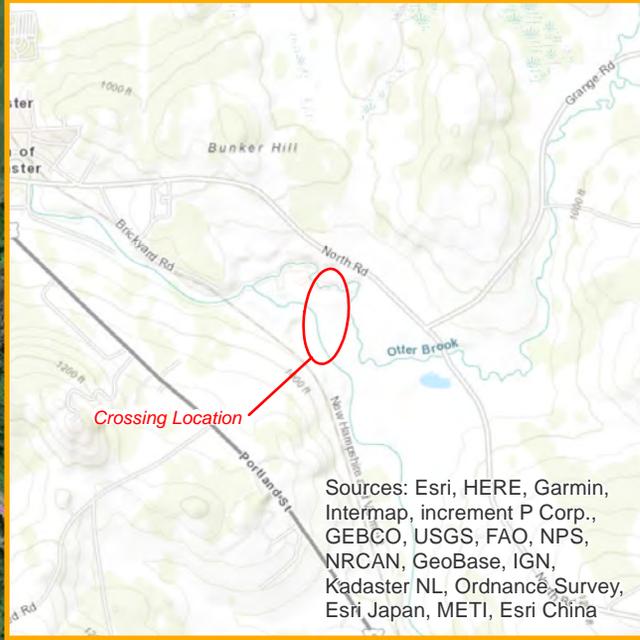
Utility Structure
 State Parcel  
 115 kV Lines



Prepared by:  
NH Public Utilities Commission  
Safety Division - GIS Section

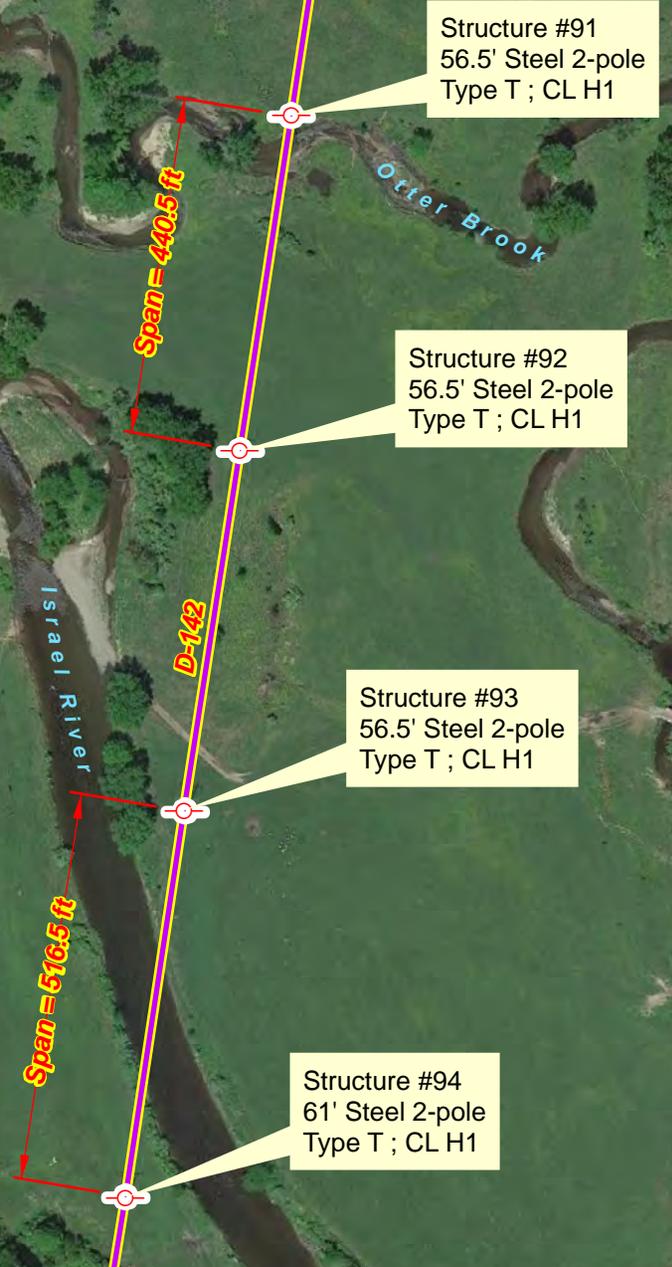


# Otter Brook & Israel River - DE 21-085 Eversource Crossing



Public Water as shown above identified in the petition and engineering drawings as State of New Hampshire and located in Lancaster. The project will require the Department to grant a license related to this project. The license will be for the 115 kV D142 transmission line crossing Otter Brook from Structure #91 south to Structure #92 spanning 440.5 feet with 71.7 feet crossing public waters and crossing the Israel River from Structure #93 south to Structure #94 spanning 516.5 feet with 166.7 feet crossing public waters.

Lancaster



 Utility Structure  
 115 kV Lines



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 Feet

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