

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: October 5, 2018

AT (OFFICE): NHPUC

FROM:

Randy Knepper
Director – Safety Division



SUBJECT:

Docket No. DE 18-081 Public Service New Hampshire d/b/a Eversource Energy
Petition for a License to Construct and Maintain Electric Lines Over and across lands owned by the State in Towns of Tilton and Belmont, and the City of Laconia, New Hampshire.

Staff Recommendation

TO:

Debra Howland, Executive Director
Thomas Frantz, Director, Electric Division
Leszek Stachow, Assistant Director, Electric Division
Lynn Fabrizio, Staff Attorney

CC:

Paul Kasper, Assistant Director, Safety Division

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

- Petition contents and history;
- Applicable State Statute;
- Review of the existing crossing(s) already 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 May 10, 2018, Public Service New Hampshire d/b/a Eversource Energy (ES), filed a petition pursuant to RSA 371:17 for a license to re-construct, maintain and operate the Eversource L176 transmission line (115 kV), in a double-circuited structure configuration with ES Line 398 which is a 34.5 kV distribution lines. This is a project to modify or rebuild a number of the structures on its existing L176 transmission line, which will affect seven (7) State of New Hampshire land locations. No conductors, shield wire or neutral wire will be replaced in the project. All wires shall be transferred from existing structures to new structures replaced at the same locations. These existing crossings have

not been previously licensed by the Commission, and will become licensed under this petition if the Commission grants approval.

ES requested licenses for 7 locations encompassing 14 licenses, each location requesting 2 licenses per location. This was submitted as 7 figures with eight exhibits. 4 of the figures or “locations” requested were located in Tilton. One location was partially in Tilton and Belmont as the town line was within the lands owned by the State. One location was in Belmont and Laconia.

The Safety Division began a review of the submission to examine whether RSA 371:17 was applicable to each location. This required researching the owner of lands requested by ES and whether any of those land locations were located within New Hampshire Department of Transportation Right of Ways that are part of the highway system of New Hampshire. PUC Table 1 reflects the conclusions that 3 of the locations (6 licenses requested) do not require licenses as they are with the highway system. These are shown in pink below.

Puc Table 1								
ES Request (Location)	ES Figure	ES exhibit	Agency/ Owner	State Land Location Description	Towns or Municipalities	Circuit #1 Request	Circuit #2 Request	Safety Division determination if License(s) Necessary
1	1	1	NH DOT	Route 93 West Side of Potential Exit 21	Tilton	L176 (115 kv)	398 (34.5 kv)	Licenses not necessary entirely with NH DOT Highway System ROW
2	2	2	NH DOT	Route 93 East Side of Potential Exit 21	Tilton	L176 (115 kv)	398 (34.5 kv)	Licenses not necessary entirely with NH DOT Highway System ROW
3	3	3	NH DOT	Parcel west of NH Route 132 but not within NH DOT ROW	Tilton	L176 (115 kv)	398 (34.5 kv)	Licenses are necessary entirely outside of NH DOT Highway System ROW
4	4	4	NH DOT (Bureau of Railroads)	Concord to Lincoln Line portion of NH Southern Rail System, near Wolf Road and Noyes Rd, Tilton	Tilton	L176 (115 kv)	398 (34.5 kv)	Licenses are necessary when part of State Railways
5	5	5	NH DES Water Resources and Dam Bureau	Near Lochmere Substation and Lochmer Hydro Generation includes lands that abut the Winnepesaukee River and Canal	Tilton Belmont	L176 (115 kv)	398 (34.5 kv)	Licenses are necessary when state land outside of NH Highway System
6	6	6 7	Community College System of New Hampshire CCSNH	Land north of and adjacent to Lakes Region Community College near Belmont Road (Route 106)	Belmont Laconia	L176 (115 kv)	398 (34.5 kv)	Licenses are necessary when state land outside of NH Highway System
7	7	8	NH DOT	Route 106 and Laconia By-Pass	Laconia	L176 (115 kv)	398 (34.5 kv)	Licenses not necessary entirely with NH DOT Highway System ROW

See a detailed NHPUC Safety Division map/schematic in Attachment 5 and 6 that depicts NH DOT highway property.

Of the crossings that do require licenses the Safety Division reviewed the submitted information within the petition for each. ES provided a location map, a project plan schematic and construction details of the structures as Exhibits 3,4,5,6, and 7 in its attachment to the petition.

NHDOT Property Crossing, Parcel west of NH Route 132 but not within NH DOT ROW, Tax Map R-19, Lot 14A Tilton ES L17643702 (See Staff Attachment 1)

Licenses 1 & 2.

License 1 & 2 are specific to the (4) four structures in ES Exhibit #3. Structure # 69 is constructed with 2-70 ft. Poles (Type DCRA-2) and will not be replaced under this petition. It is located outside of the state land parcel. Structure # 70 will be constructed with a 90 ft. Monopole (Type DCST-1) that is embedded 15 feet and is located on the state property line. Structure # 71 will be constructed with a 100 ft. Monopole (Type DCST-2) that is embedded 16 feet and is located within state land. Structure #72 will be constructed with a 90 ft. Monopole (Type DCST-1), similar to Structure #70 but will be outside of the state land parcel. The span between Str # 69 and Str # 70 is 326.64 ft. and the span between Str # 70 and Str # 71 is 312 ft. The span between Str # 71 and Str # 72 is 466.13 ft. The overall distance across NH State land is approximately 516 ft.

The structures will have conductors for the L176 115 kV circuit consisting of 795 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phase on one side of the pole and a third phase on the other.

The structures will have conductors for the 398 34.5 kV circuit consisting of 477 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phases on one side of the pole and a third phase on the other. These 34.5 kV circuit will be on the lower portion of the pole and will govern the lowest clearance to the land.

The 34.5 kV conductors will be sagged using 212 degree F conditions at a maximum tension of 2,000 pounds. The neutral will be sagged also using 212 degree F conditions at a maximum tension of 2,000 pounds. In its petition, ES provides sufficient detail to show how all required clearances from neutral wires to the land surface shall be maintained at (32 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 18.5 ft. is required by the NESC Table 232-1

NH Bureau of Railroads Crossing, Concord to Lincoln Line portion of NH Southern Rail System, near Wolf Road and Noyes Rd, Tilton, Tax Map U04, Lot 73 , ES L17643600 (See Staff Attachment 2)

Licenses 3 & 4.

License 3 & 4 are specific to the (2) two structures in ES Exhibit # 4. Structure # 84 is constructed with 2 tangential steel poles one at 70 ft above ground and the other 75 feet above ground. This is an existing structure (Type DC-RA) that will not be replaced and is located outside of the railroad ROW. Structure # 83 will be constructed with an 85 ft. Monopole (Type DCST-2) embedded 15 ft and is located outside the railroad ROW . The distance between Str # 83 and Str # 84 is 357.04 ft. The overall distance across NH State land is approximately 118 ft.

The structures will have conductors for the L176 115 kV circuit consisting of 795 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phase on one side of the pole and a third phase on the other.

The structures will have conductors for the 398 34.5 kV circuit consisting of 477 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phases on one side of the pole and a third phase on the other. These 34.5 kV circuit will be on the lower portion of the pole and will govern the lowest clearance to the land.

The 34.5 KV conductors will be sagged using 212 degree F conditions at a maximum tension of 2,000 pounds. The neutral will be sagged also using 212 degree F conditions at a maximum tension of 2,000 pounds. In its petition, ES provides sufficient detail to show how all required clearances from neutral wires to the land surface shall be maintained at (31 feet). Only 18.5 ft. is required by the NESC Table 232-1. The clearance over the Railroad will be 50 feet. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition.

NHDES Water Resources Division Property Crossing, near Lochmere Substation and Lochmere Hydro Generation includes lands that abut the Winnepesaukee River and Canal, Tax Map R21, Lot 07, Lot 06, Lot 05, ES L17643900 and is in the towns Belmont and Tilton (See Staff Attachment 3)

Licenses 5 & 6.

Licenses 5 & 6 are specific to the (4) four structures in ES Exhibit #5. Structure # 91 will be constructed with a 95 ft. Monopole (Type DCST-1) that is embedded 16 feet and is not located within the DES state owned parcel. Structure # 92¹ will be constructed with a 110 ft Monopole (Type DCSDE-1) that is embedded 21 feet and is located within State owned land. Structure #93 will be constructed with a 80 ft high steel double pole that is located within State owned land. Structure # 94 will be constructed with a 75 ft. Monopole (Type DCST-1) that is embedded 14 feet. The span between Str # 91 and Str # 92 is 490.5 ft. and the span between Str # 92 and Str

¹ Structure # 92 and Structure 93 have been previously petitioned for licenses under DE 18-079 dated 04/30/2018 but only for the water crossing portion of the Winnepesaukee River

93 is 567.5 ft. The span between Str # 93 and Str # 94 is 241.3 ft. The overall distance across NH State land is approximately 812 ft.

The structures will have conductors for the L176 115 kV circuit consisting of 795 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phases on one side of the pole and a third phase on the other.

The structures will have conductors for the 398 34.5 kV circuit consisting of 477 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phase on one side of the pole and a third phase on the other. These 34.5 kV circuit will be on the lower portion of the pole and will govern the lowest clearance to the land.

The 34.5 kV conductors will be sagged using 212 degree F conditions at a maximum tension of 2,000 pounds. The neutral will be sagged also using 212 degree F conditions at a maximum tension of 2,000 pounds. In its petition, ES provides sufficient detail to show how all required clearances from neutral wires to the land surface shall be maintained at (24 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 18.5 ft. is required by the NESC Table 232-1

State of New Hampshire Property Crossing, land north of and adjacent to Lakes Region Community College near Belmont Road (Route 106) Tax Map 490, Lot 303-5, ES L17643500 and ES L176435001 Laconia (See Staff Attachment 4)

Licenses 7 & 8.

Licenses 7 & 8 are specific to the (5) five structures in ES Exhibit #6 and #7. Structure # 148 will be constructed with a 90 ft. Monopole (Type DCST-1) that will be embedded 15 ft. and is located outside of the state parcel. Structure # 149 will be constructed with an 85 ft. Monopole (Type DCST-1) that will be embedded 15 ft and is located within the state owned parcel. Structure # 150 will be constructed with a 90 ft. Monopole (Type DCST-1) that will be embedded 15 ft and is located within the state owned parcel. Structure #151 will be constructed with an 85 ft. Monopole (Type DCST-2) that will be embedded 15 ft and is located within the state owned parcel. Structure # 152 will be constructed with a 90 ft. Monopole (Type DCST-2). that will be embedded 15 ft. and is located outside of the state parcel.

The span between Str # 148 and Str # 149 is 480 ft. and the span between Str # 149 and Str # 150 is 444 ft. The span between Str # 150 and Str # 151 is 389 ft, and the span between Str # 151 and Str # 152 is 423 ft.

The structures will have conductors for the L176 115 kV circuit consisting of 795 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2 phase on one side of the pole and a third phase on the other.

The structures will have conductors for the 398 34.5 kV circuit consisting of 477 kcmil ASCR cable with 26/7 stranding. These will be in a vertical orientation with 2

phases on one side of the pole and a third phase on the other. These 34.5 kV circuit will be on the lower portion of the pole and will govern the lowest clearance to the land.

The conductors will be sagged using 212 degree F conditions at a maximum tension of 2,000 pounds. The neutral will be sagged also using 212 degree F conditions at a maximum tension of 2,000 pounds. In its petition, ES provides sufficient detail to show how all required clearances from neutral wires to the land surface shall be maintained at (23 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 18.5 ft. is required by the NESC 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 (4) State of New Hampshire owned land crossing locations

This State of New Hampshire owned land crossing license application is part of the re-construction of the existing ES L176 transmission line (115kV) and 398 distribution line (34.5kV) for ES and had not been previously licensed by the Commission.

ES asserts in the petition that the proposed crossings will be exercised without substantially affecting the rights of the public in State of New Hampshire owned land crossings. Minimum safe line clearances above the land surface will be maintained at all times. The use and enjoyment of the land by the public will not be diminished in any material respect as a result of the overhead line crossing.

4. Review of land ownership of proposed pole structures

In its petition, ES specifies that the re-construction of these (4) land crossing are on the State of New Hampshire owned land in the Towns of Tilton, Belmont and the City of Laconia, New Hampshire

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

N.H. Code of Administrative Rules Puc 306 requires:

- (a) each utility shall construct, install, operate and maintain its plant, structures and equipment and lines, as follows:
 - (1) In accordance with good utility practice;
 - (2) After weighing all factors, including potential delay, cost and safety issues, in such a manner to best accommodate the public; and
 - (3) To prevent interference with other underground and above ground facilities, including facilities furnishing communications, gas, water, sewer or steam service.
- (b) For purposes of this section, “good utility practice” means in accordance with the standards established by:
 - (1) 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 2012 National Electrical Safety Code C2-2012.

Safety Division Staff reviewed the specifications related to the design and re-construction of this crossing project as provided in the petition, the attachments, and all supplemental support documents, and found them to be in conformance with the applicable sections of NESC code 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 re-construct and maintain a three-phase 115 kV transmission line, designated as the L176 transmission line and a three-phase 34.5 kV line designated as the 398 distribution line in the Towns of Tilton and Belmont and the City of Laconia, New Hampshire. The L176 transmission line and the 398 distribution line are an integral part of ES’s electric transmission and distribution systems in these areas.

ES asserts in the petition that the proposed license for this crossing may be exercised without substantially affecting the rights of the public in the State lands in Tilton, Belmont, and Laconia which are the subject of this petition. Minimum safe line clearances above the land surfaces will be maintained at all times. The use and enjoyment by the public of these lands will not be diminished in any material respect as a result of the modification and replacement of the existing overhead line crossings.

This project does require use and occupancy agreements be in place prior to construction of this crossing from the New Hampshire Department of Transportation. NHDOT crossing permits are required for the crossings of Interstate 93, NH Route 132 (shown on Figure 3 and Exhibit 3).

A NHDES Standard Wetlands Permit application was submitted on August 10, 2017 and approved by NHDES on October 24, 2017 for NHDES Water Resources Division Property Crossing Tax Map R21, Lot 07, Tilton (see NHDES File # 2017-02402).

Safety Division Staff 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 State lands because minimum safe line clearances above the land surface will be maintained at all times.

Staff Recommendation:

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

- 1) Find that the license ES requests in this docket may be exercised without substantially affecting the public rights in State lands which are the subject of the petition;
- 2) Grant ES a license to construct, operate and maintain electric lines, including neutral over and across the State lands in the Towns of Tilton, Belmont and the City of Laconia New Hampshire, as specified in the petition; and
- 3) Issue an Order Nisi and orders for its publication.

Staff Attachments

Staff Attachment 1

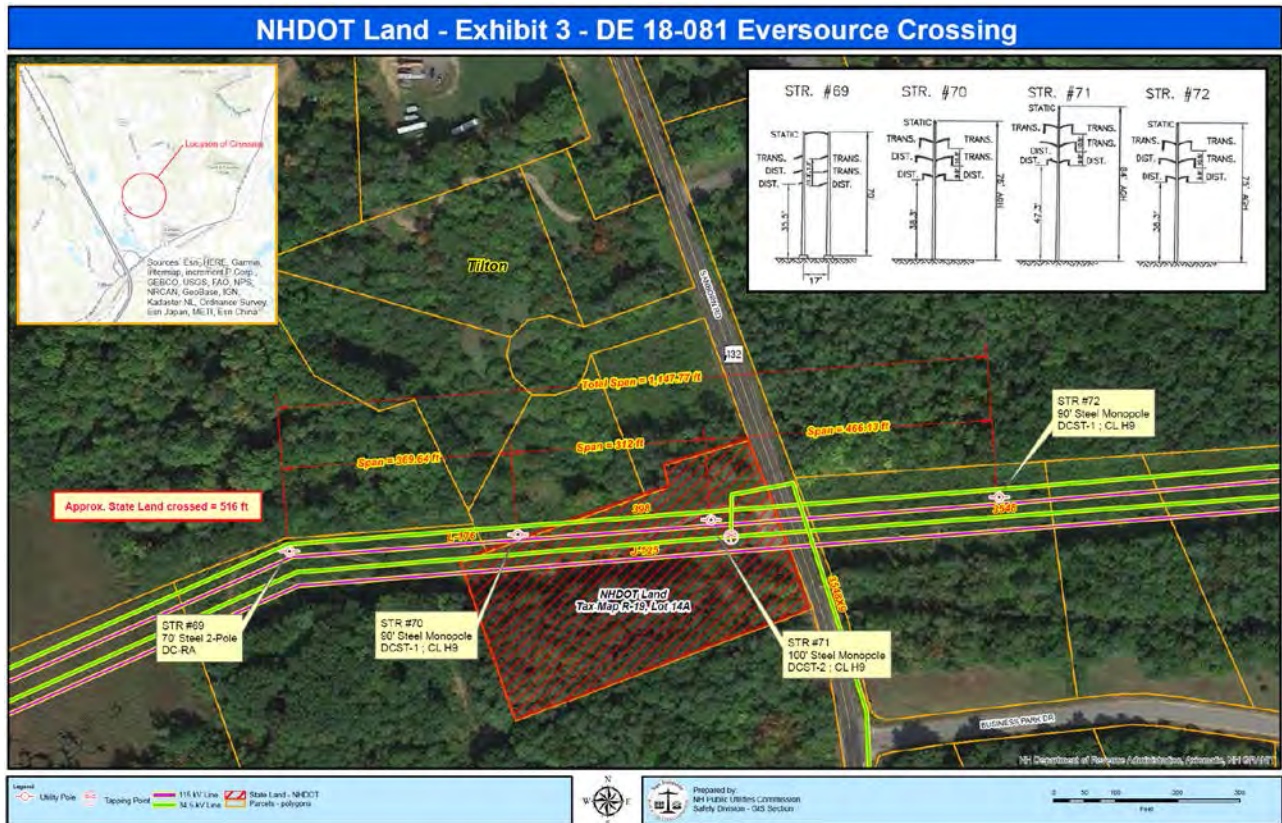


Figure 1:
Public Land is State owned. This parcel is identified in the petition and engineering drawings as NH Dept. Of Transportation, Tax Map R-19, Lot 14A, in Tilton. This parcel is located east and west of Sanborn Road. The project will require the Commission to grant two public land crossing licenses related to this parcel. The license will be for the 115 kV L-176 Transmission Line for approximately 516 feet. The second license will be for the 34.5 kV 398 Distribution Line for approximately 516 feet.

Staff Attachment 2

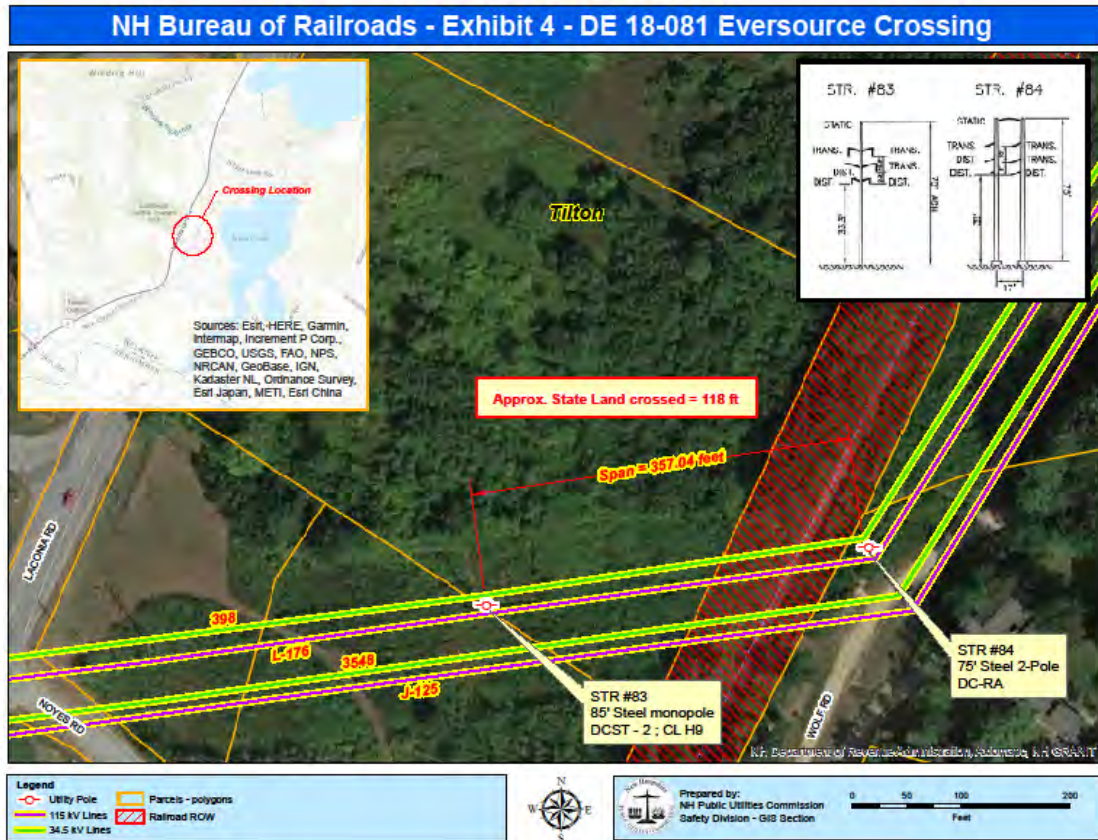


Figure 2:

Public Land is State owned. This parcel is identified in the petition and engineering drawings as NH Bureau of Railroads, Tax Map U04, Lot 73, in Tilton. This parcel is located east and west of Sanborn Road. The project will require the Commission to grant two public land crossing licenses related to this parcel. The license will be for the 115 kV L-176 Transmission Line for approximately 118 feet. The second license will be for the 34.5 kV 398 Distribution Line for approximately 118 feet.

Staff Attachment 3

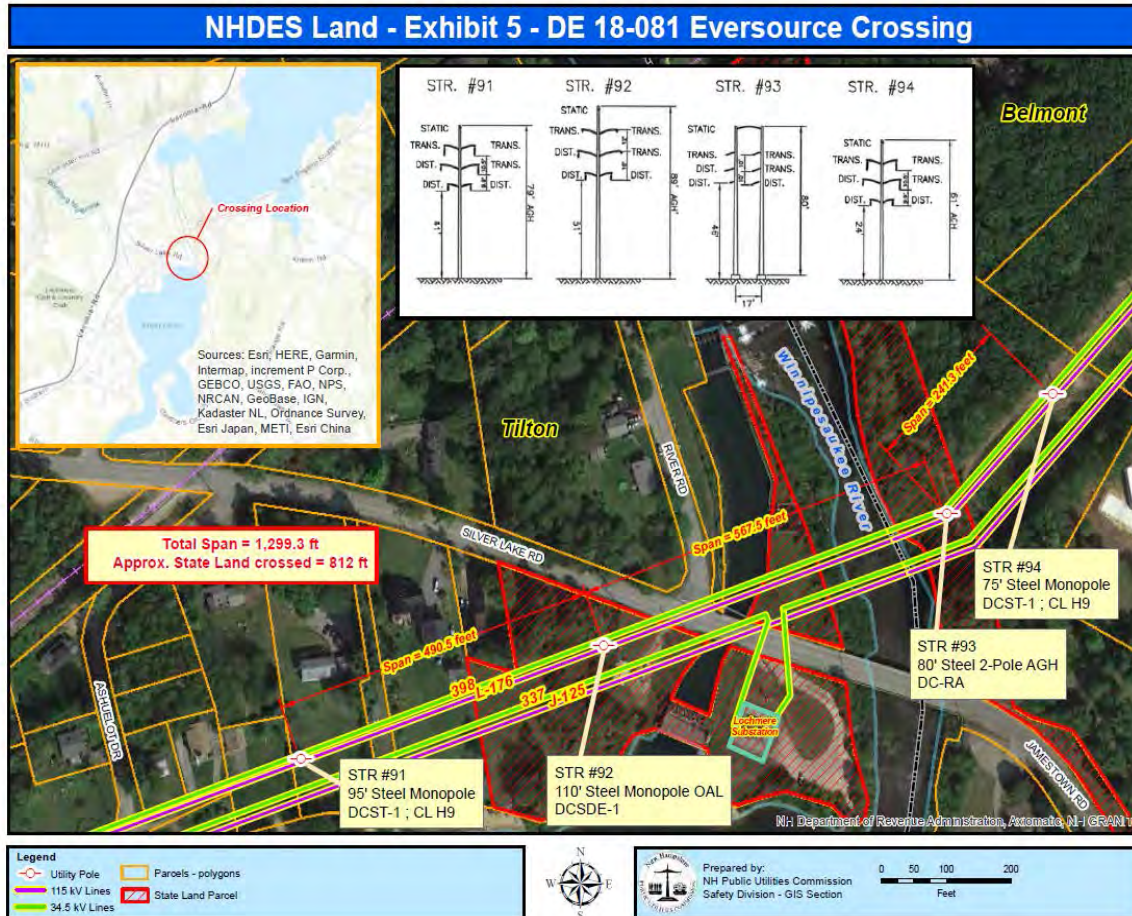


Figure 3:
Public Land is State owned. This parcel is identified in the petition and engineering drawings as NH DES Water Resources Division, Tax Map R21, Lots 5, 6 & 7, in Tilton and Belmont. This parcel is located east and west of Sanborn Road. The project will require the Commission to grant two public land crossing licenses related to this parcel. The license will be for the 115 kV L-176 Transmission Lines for approximately 812 feet. The second license will be for the 34.5 kV 398 Distribution Line for approximately 812 feet.

Staff Attachment 4

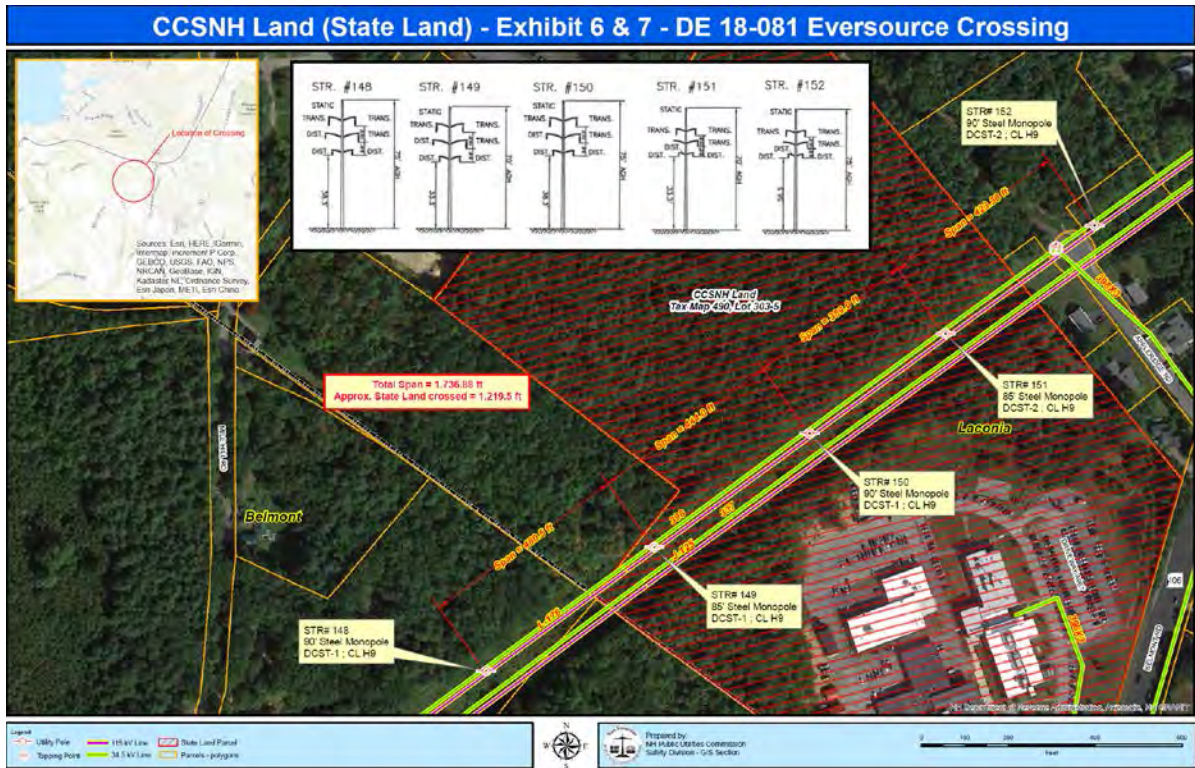


Figure 4:

Public Land is State owned. This parcel is identified in the petition and engineering drawings as State of New Hampshire, Tax Map 490, Lot 303-5, in Laconia. This parcel is located east and west of Sanborn Road. The project will require the Commission to grant two public land crossing licenses related to this parcel. The license will be for the 115 kV L-176 Transmission Line for approximately 1,219.5 feet. The second license will be for the 34.5 kV 398 Distribution Line for approximately 1,219.5 feet.

Staff Attachment 5



Figure 5: **Public Land** is State owned by NHDOT and considered part of the highway system. This requires no licensing from the NH PUC for the first two locations of ES petition.

Staff Attachment 6



Figure 6:
Public Land is State owned by NHDOT and considered part of the highway system. This requires no licensing from the NH PUC for the last location of ES petition.

SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED

Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.

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Docket #: 18-081-1 Printed: October 08, 2018

FILING INSTRUCTIONS:

- a) Pursuant to N.H. Admin Rule Puc 203.02 (a), with the exception of Discovery, file 7 copies, as well as an electronic copy, of all documents including cover letter with:**

DEBRA A HOWLAND
EXECUTIVE DIRECTOR
NHPUC
21 S. FRUIT ST, SUITE 10
CONCORD NH 03301-2429

- b) Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.**
- c) Serve a written copy on each person on the service list not able to receive electronic mail.**