STATE OF NEW HAMPSHIRE

Intra-Department Communication

DATE: January 10, 2022
AT (OFFICE): NH Dept. of Energy

FROM: Paul Kasper, Division of Enforcement

SUBJECT: CR2021-025 Eversource Energy
Petition for License and License Amendments to Construct and Maintain Electric Lines Over and Across State Owned Land and Public Waters in NEW HAMPTON, BRISTOL, BRIDGEWATER, AND ASHLAND, NEW HAMPSHIRE

Division of Enforcement,

Safety Bureau Recommendation

TO: Jared Chicoine, Interim Commissioner, Department of Energy
Christopher Ellms, Jr., Deputy Commissioner, Department of Energy

CC: Thomas Frantz, Director of Regulatory Division

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

- Petition contents, replacement petition contents, and history.
- Applicable State statute.
- Review of the existing crossing(s) previously licensed by the PUC, if any;
- 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 December 21, 2021, Public Service New Hampshire d/b/a Eversource Energy (Eversource, or the Company) filed a petition for a license pursuant to RSA 371:17 to construct and maintain the Eversource E115 Line, which is an existing 115kV transmission line that crosses State land and public waters in New Hampton, Bristol, Bridgewater, and Ashland New Hampshire.

To meet the requirements for reasonable service to the public, Eversource had previously constructed and currently operates and maintains an overhead 115 kV electrical transmission line, designated as the Eversource E115 Line and E115 Tap, originally constructed in 1953 and 1964, respectively, over and across State owned land and public waters in New Hampton, Bristol, Bridgewater, and Ashland, New Hampshire. The subject crossings were not licensed when originally constructed, but two of the public water crossings, over the Pemigewasset River between new Strs. 3 and 4 , and over the Pemigewasset River between new Strs. 47 and 48 were licensed in Dockets DE 75-173 and DE 76-22, respectively (copies of those Dockets including Orders are included with this Petition filing), in conjunction with prior maintenance.

The proposed project for the E115 and E115 Tap encompasses a full line rebuild. All 14 structures at the State owned land crossing span will be replaced with weathering steel equivalents 2 having the design and specifications depicted and noted in the Structure Details of Exhibits 4 through 5, 8, and 10 through 13. The project also includes replacing all 12 structures at the six public waters crossing spans that are the subject of this petition with weathering steel equivalents having the design and specifications depicted and noted in the Structure Details of Exhibits 2, 3, 6, 7, 9, and 14. The replacement structures will be renumbered as detailed under the Structure Table enclosed herewith as Exhibit 15. The proposed project also encompasses reconductoring the three existing conductors with new specifications as detailed under the Cable Schedule on Exhibits 2 through 14 hereto. Additionally, both pole top mounted shield wires will be replaced with two OPGW communication cables having the specifications noted in the said Cable Schedules. All structure replacements will be located within 10 feet of the existing locations, with the exception of new Structures 3 and 119, which are being moved approximately 15 feet south, and 30 south, respectively, to avoid steep slopes for constructability and future maintenance. Changes in structure heights required to meet current safety and reliability clearance requirements for the replacement cables and new structure locations and also to address uplift considerations specific to the surrounding terrain are detailed under the enclosed Structure Table as Exhibit 15.and one existing ADSS wire will be unchanged and transferred to the replacement structures.

Common to New Structure Numbers 3, 4, 47-52, 92, 93, 111 - 112, 117-120, 130-137, existing conductors consist of (3) ACSS 1272 kcmil 54/19 conductors and (2) two existing 48 Fiber OPGW communications cables. Common to Structures #5 and #6 existing conductors consist of (3) ACSS 795 kcmil 26/7 conductors and (2) two existing 48 Fiber OPGW communications cables.

The conductor cable clearance requirements were met using the National Electrical Safety Code (NESC) based on the design conditions at 285 deg F. for all crossings within this petition. This scenario was the governing condition, which is 30.1 for 115 kV wires over water areas suitable for sail boating including lakes, ponds, reservoirs, tidal waters, rivers, streams, and canals with an obstructed surface area of over 20 to 200 acres, 18.6’ for water areas not suitable for sailboating or where sail boating is prohibited, 20.1’ for 115 kV wires over other areas traversed by vehicles such as cultivated, grazing, forest, and orchard lands, industrial sites, commercial sites, etc., and 28.1’ for 115 kV wires over track rails of railroads. The surface elevation for purposes of calculating clearances was based on the data stated in Note 3 of the Exhibits depicting the six public water crossing spans and Note 2 of the Exhibits depicting the

three State owned land crossing spans. The actual minimum height over public waters and State owned lands are depicted on the attached Exhibit 2 through 14 and summarized in the Table encompassing Exhibit 15 and exceeds the minimum requirements.

Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition.

The scope of this project and State owned land spans and public waters crossing spans site location descriptions are as follows:

Exhibit 2 – The E115 Line crosses the Pemigewasset River in the Towns of New Hampton and Bristol between existing Structures 122 and 123 (new structures 3 and 4), approximately 1,028 feet north of the Pemigewasset Substation, which is located off Old Bristol Road, which is located approximately 640 feet east from the intersection of Old Bristol Road and Public Service Road. The crossing extends north approximately 1,067 feet.

Exhibit 3- The E115 Line crosses the Pemigewasset River in the Towns of Bridgewater and Bristol between existing Structures 166 and 167 (new structures 47 and 48), approximately 375 feet east of where the E115 Line crosses River Road in Bridgewater, which is approximately 2,965 feet north from the intersection of Abel Road and River Road in Bridgewater. The crossing extends east approximately 284 feet.

Exhibit 4 – 5 - The E115 Line crosses two State-owned land parcelsin New Hampton between existing Structures 168 to 171 (new structures 49 to 52), which starts along the eastern edge of State Route 132 where the E115 Line crosses State Route 132, which is approximately 4,600 feet south from the intersection of Colony Lane and State Route 132. The crossing extends approximately 465 feet east where it ends along at the western edge of Interstate 93.

Exhibit 6 - The E115 Line crosses the Squam River in the Town of Ashland between existing Structures 211 and 212 (new structures 92 and 93), approximately 6,750 feet north of the where the E115 Line crosses NH State Route 132, where the line also crosses Interstate 93 approximately 1,500 feet north of where the line crosses NH State Route 132. The E115 Line crosses NH State Route 132 at the intersection of NH State Route 132 and Huckberry Road. The crossing extends north approximately 42 feet.

Exhibit 7 – The E115 Line crosses the Pemigewasset River in the Towns of Ashland and Bridgewater between existing Structures 229 and 230 (new structures 111 and 112), approximately 7,175 feet north of where the E115 Line crosses the end of Collins Street, which is approximately 1,200 feet west from where Collins Street crosses under Interstate 93. The crossing extends north approximately 316 feet.

Exhibit 8 – The E115 Line crosses State-owned land parcel in Bridgewater between existing Structures 235 to 236 (new structure 117 to 118), which starts approximately 220 feet northeast from where the E115 Line crosses State Route 3 (aka Daniel Webster Highway), which is approximately 375 feet south from the intersection of John Jenness Road and State Route 3 in Bridgewater. The crossing extends approximately 73 feet northeast where it ends approximately

55 feet from where the E115 Line crosses Siding Road, which is approximately 260 feet southeast from the intersection of Siding Road and State Route 3.

Exhibit 9 – – The E115 Line crosses the Pemigewasset River in the Towns of Bridgewater and Ashland between existing Structures 237 and 238 (new structures 119 and 120), approximately 400 feet northeast from where the E115 Line crosses Siding Road in Bridgewater, which is approximately 260 feet southeast from the intersection of Siding Road and State Route 25. The crossing extends northeast approximately 269 feet.

Exhibit 10 – 13 - The E115 Line crosses State-owned land in Ashland between existing Structures 239.10 to 245 (new structure 130 to 137), which starts approximately 4,220 feet northeast from where the E115 Line crosses North Ashland Road, where the line also crosses Interstate 93 approximately 810 feet northeast from where the line crosses North Ashland Road. The E115 Line crosses North Ashland Road approximately 2,400 feet north from the intersection of North Ashland Road and NH State Route 3. The crossing extends approximately 3,038 feet north where it ends approximately 5,200 feet south from where the E115 Line crosses NH State Route 175 in Holderness, which is approximately 950 feet southeast from the intersection of NH State Route 175 and North Ashland Road.

Exhibit 14 – The E115 Tap Line crosses the Squam River in the Town of Ashland between existing Structures 5 and 6 approximately 720 feet northeast from where the Line crosses the section of Collins Street that is the entrance to the Ashland Transfer Station, which is approximately 875 feet north from the intersection of the entrance to the Ashland Transfer Station and Collins Street. The crossing extends east approximately 47 feet, where it ends approximately 450 feet west from the Ashland Substation located off Collins Street, where the entrance to the Ashland Substation is approximately 450 feet northwest from intersection of NH State Route 132 and Collins Street.

The water crossing over the Pemigewasset River in New Hampton and Bristol spans 1,446.6 feet between Structures #3 and #4 with 1,077.6 feet spanning public waters. See Safety Map #1.

The water crossing over the Pemigewasset River in New Hampton and Bridgewater spans 616.6 feet between Structures #47 and #48 with 284.8 feet spanning public waters. See Safety Map #2.

The land crossing in New Hampton spans 1,021.5 feet between Structures #47 to #52 with 465.0 feet spanning State owned land. See Safety Map #2.

The water crossing over the Squam River in Ashland spans 737.3 feet between Structures #92 and #93 with 42.8 feet spanning public waters. See Safety Map #3.

The water crossing over the Pemigewasset River in Ashland and Bridgewater spans 571.6 feet between Structures #111 and #112 with 316.1 feet spanning public waters. See Safety Map #4.

The land crossing in Bridgewater spans 250.3 feet between Structures #117 and #118 with 73.0 feet spanning State owned land. See Safety Map #5.

The water crossing over the Pemigewasset River in Ashland and Bridgewater spans 715.9 feet between Structures #119 and #120 with 269.9 feet spanning public waters. See Safety Map #5.

The land crossing in Ashland spans 3,513.2 feet between Structures #130 and #137 with 3,038.6 feet spanning State owned land. See Safety Map #6.

The water crossing over the Squam River in Ashland spans 691.3 feet between Structures #5 and #6 with 47.4 feet spanning public waters. See Safety Map #7.

The following table provides the summary of this petition with all crossings to include structure numbers, types, spans, ES design criteria, and NESC compliance:

Dept. of Energy Safety Bureau Summary Table

EXHIBIT 15 - Eversource E115 Line and E115 Tap Line Rebuild - DOE State Land and Waterbody Crossing Details								
Existing Structure #	New Structure #	Structure Type	Height Change (feet)	Span (Pole to Pole)	Span Distance (feet)	Minimum NESC Table 232-1 Clearance (ft.)	ES Vertical Design Clearance (ft.)	Complies with NESC Table 232-1 (Y/N)
122	3	106' steel 2 pole, T, CLH3	10	3-4	1,446.60	30.1	50.2	Y
123	4	106" steel 2 pole, T, CLH3	20					
166	47	61.0' steel 3 pole, BP, CLH1	10	47-48	616.6	30.1	44.8	Y
167	48	61.0' steel 2 pole, TG, CLH1	0					
168	49	61.0' steel single pole, SDE, ENG. Steel	5	49-50	290.3	20.1	43.5	Y
169	50	70.0' steel 2 pole, TG, CLH1	25					
170	51	70.0' steel 2 pole, T, CLH1	15	50-51	381.7	20.1	44.2	Y
171	52	79.0' steel 2 pole, T, CLH3	15	51-52	349.5	20.1	53.7	Y
211	92	52.0' steel 2 pole, T, CLH1	0	92-93	737.3	18.6	43.9	Y
212	93	56.5' steel 2 pole, T, CLH1	10					
229	111	56.5' steel 2 pole, T, CLH1	15	111-112	571.6	18.6	19.5	Y
230	112	61.0' steel 2 pole, T, CLH1	20					
235	117	70.0' steel 2 pole, T, CLH1	15	117-118	250.3	28.1	44.5	Y
236	118	61.0' steel 2 pole, TG, CLH1	10					
237	119	61.0' steel 3 pole, ADS, CLH3	15	119-120	715.9	18.6	51.5	Y
238	120	71.0' steel single pole, SDE, ENG. Steel	10					
239-10	130	61.0' steel 3 pole, F-1, CLH1	10	130-131	459.2	20.1	34.1	Y
239-11	131	61.0' steel 2 pole, T, CLH1	15					
239-12	132	56.5' steel 3 pole, DA, Class 17DA01AT	10	131-132	448.8	20.1	30.3	Y
241	133	52.0' steel 2 pole, T, CLH1	10	132-133	499.3	20.1	28.9	Y
242	134	52.0' steel 2 pole, T, CLH1	10	133-134	457.6	20.1	27.2	Y
243	135	52.0' steel 2 pole, T, CLH1	15	134-135	560.2	20.1	28.9	Y
244	136	61.0' steel 2 pole, T, CLH1	15	135-136	578.4	20.1	26.5	Y
245	137	61.0' steel 2 pole, T, CLH1	20	136-137	509.7	20.1	28.7	Y
5	5	56.6' steel 3 pole, ADL-1, CLH1	5	5-6	691.3	18.6	63.2	Y
6	6	52.0' steel 3 pole, ADL-1, CLH1	0					

2. New Hampshire statute referenced in petition (as modified by N.H. House Bill 2 on June 3, 2021)

371:17 Licenses for New Poles (2021, 91:260, eff. July 1, 2021)

3. Review of existing license(s) and permissions previously granted by the PUC for these locations of the State-owned land and public waters in New Hampton, Bristol, Bridgewater, and Ashland

Segments of the E115 Line have been previously licensed as noted with several after-the-fact licenses

In New Hampton, Bristol, and Bridgewater, the Pemigewasset River, From the outlet of Profile Lake in Franconia Notch State Park to the southern boundary of Franconia State Park and from the northernmost Thornton town line to the confluence with the Merrimack River in Franklin and in Ashland, the Squam River, Outflow of Little Squam Lake “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

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

The U.S. Army Corps of Engineers (ACOE) does not regulate the Pemigewasset River and Squam River as navigable waters. As a result, a crossing permit from the ACOE is not required.

Review of land ownership of proposed pole structures

In its petition, Eversource specifies that the previously replaced and unlicensed structures to be replaced pursuant to this petition cross State-owned land and public waters in New Hampton, Bristol, Bridgewater, and Ashland, New Hampshire.

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

The Safety Bureau reviewed the specifications related to the design and re-construction of this crossing project as described in the petition, attachments, and all supplemental support documents and corrections filed by the Company and found them to be in conformance with N.H. Admin. Rule Puc 306 and applicable sections of NESC C2-2012.

5. Review of public need and public impact

The E115 transmission line is an integral part of Eversource's existing electric transmission system in New Hampshire. The crossing locations identified in the petition are in New Hampton, Bristol, Bridgewater, and Ashland. The Company asserts in its petition that the existing crossings will be exercised without substantially affecting public rights in the identified State land and public waters located in New Hampton, Bristol, Bridgewater, and Ashland.

The Safety Bureau verified that minimum safe line clearances above the land and public waters will be maintained at all times and determined that public use and enjoyment of the State-owned land and public waters will not be diminished in any material respect as a result of the proposed overhead line crossings.

Safety Bureau Recommendation:

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

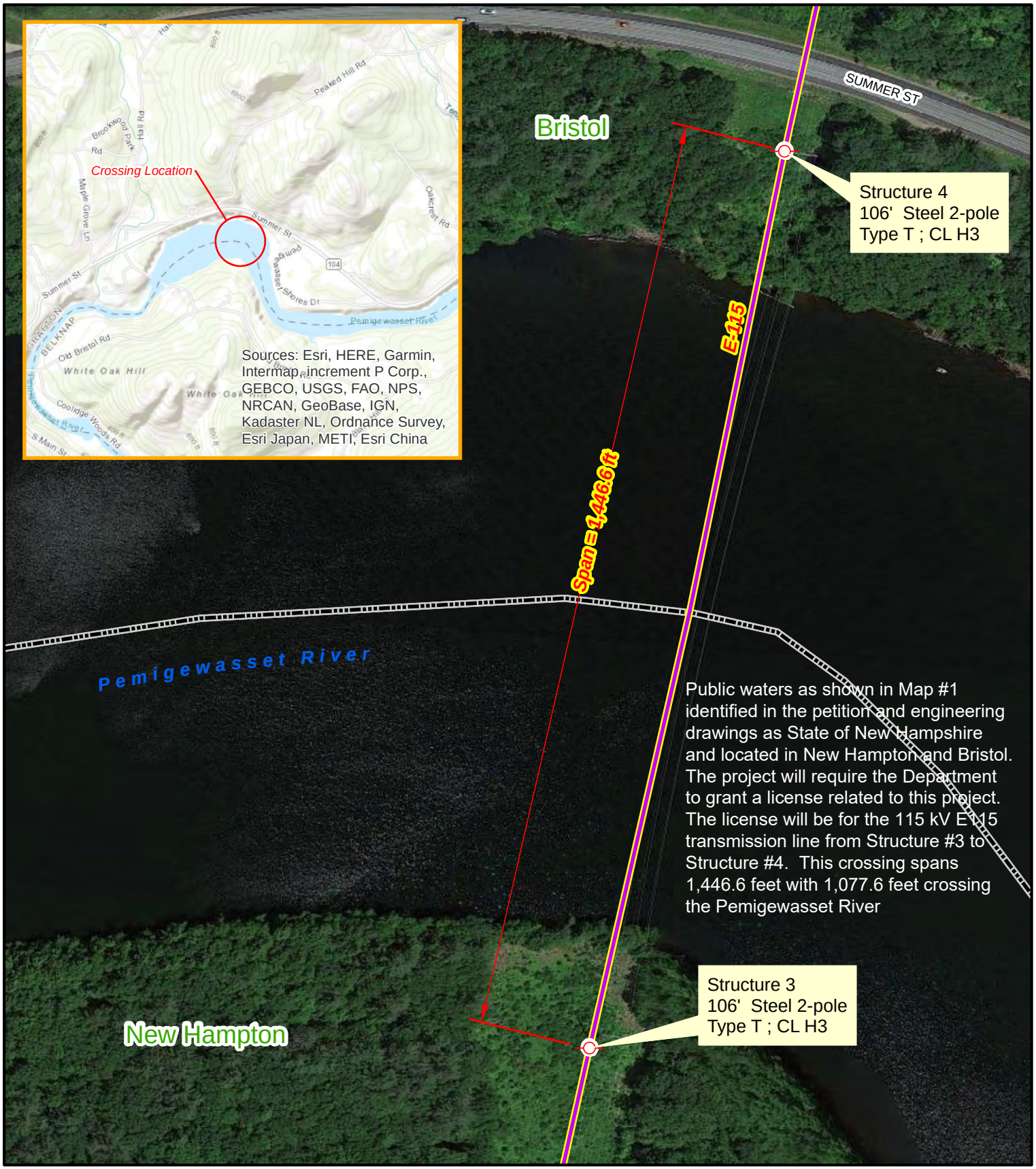
1) Find that the license Eversource requests in this docket may be exercised without substantially affecting the public rights in State owned land and public waters; and

2) Grant Eversource a license to construct, install, operate, and maintain electric lines and communication cables pursuant to RSA 371:17 and Puc 306.01, over and across State owned land and public waters in New

Hampton, Bristol, Bridgewater, and Ashland., New Hampshire as specified in the petition.

Attachments

Pemigewasset River - CR 2021-025 Eversource Crossing - Map 1



Utility Structure

115 kV Line

N

W E

S

Prepared by:
NH Department of Energy ; Enforcement Division
Safety Bureau

0 50 100 200 300 400

Feet

Pemigewasset River and State Land (NHDOT) - CR 2021-025 Eversource Crossing-Map 2

State owned land and Public waters as shown in Map #2 identified in the petition and engineering drawings as State of New Hampshire and located in New Hampton and Bridgewater. The project will require the Department to grant a license related to this project. The license will be for the 115 kV E115 transmission line from Structure #47 to Structure #52. This crossing spans 1,021.5 feet with 465.0 feet crossing State owned land and spans the Pemigewasset River.
from Structure#47 to #48. The crossing spans 616.6 feet with 284.8 feet crossing the Pemigewasset River.

Span = 290.3 ft
Span = 381.7 ft
Span = 349.5 ft
Span = 616.6 ft
E-115

State of New Hampshire
State Police Firing Range (NHDOT Owner)
Map R16 - Lot 1

INTERSTATE 93

Structure 47
61' steel 3-pole
Type BP ; CL H1

Structure 48
56' steel single pole
Type SDE ; Custom Eng.

Structure 49
61' steel single pole
Type SDE ; Custom Eng.

Structure 50
70' steel 2-pole
Type TG ; CL H1

Structure 51
70' steel 2-pole
Type T ; CL H1

Structure 52
79' steel 2-pole
Type T ; CL H3

State Land Crossed = 465 ft

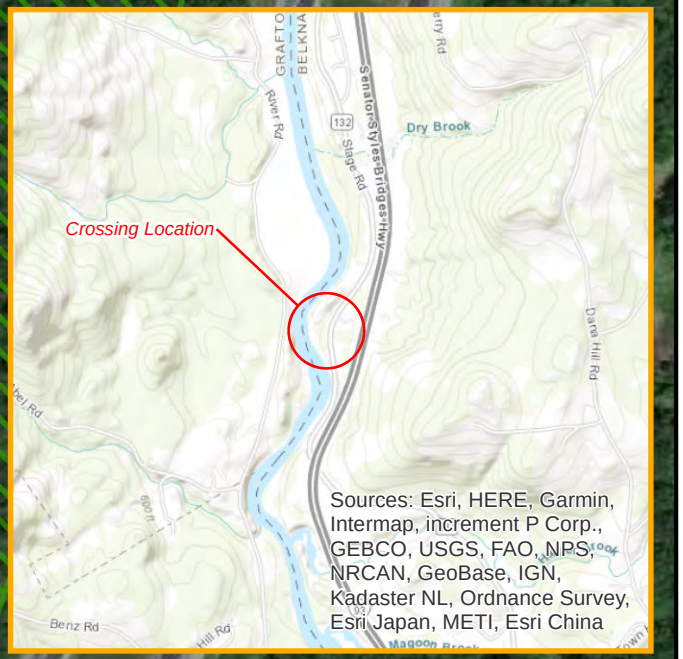
State of New Hampshire - DOT
Map R16 - Lot 1A

New Hampton

Bridgewater

Pemigewasset River

NH RT 132



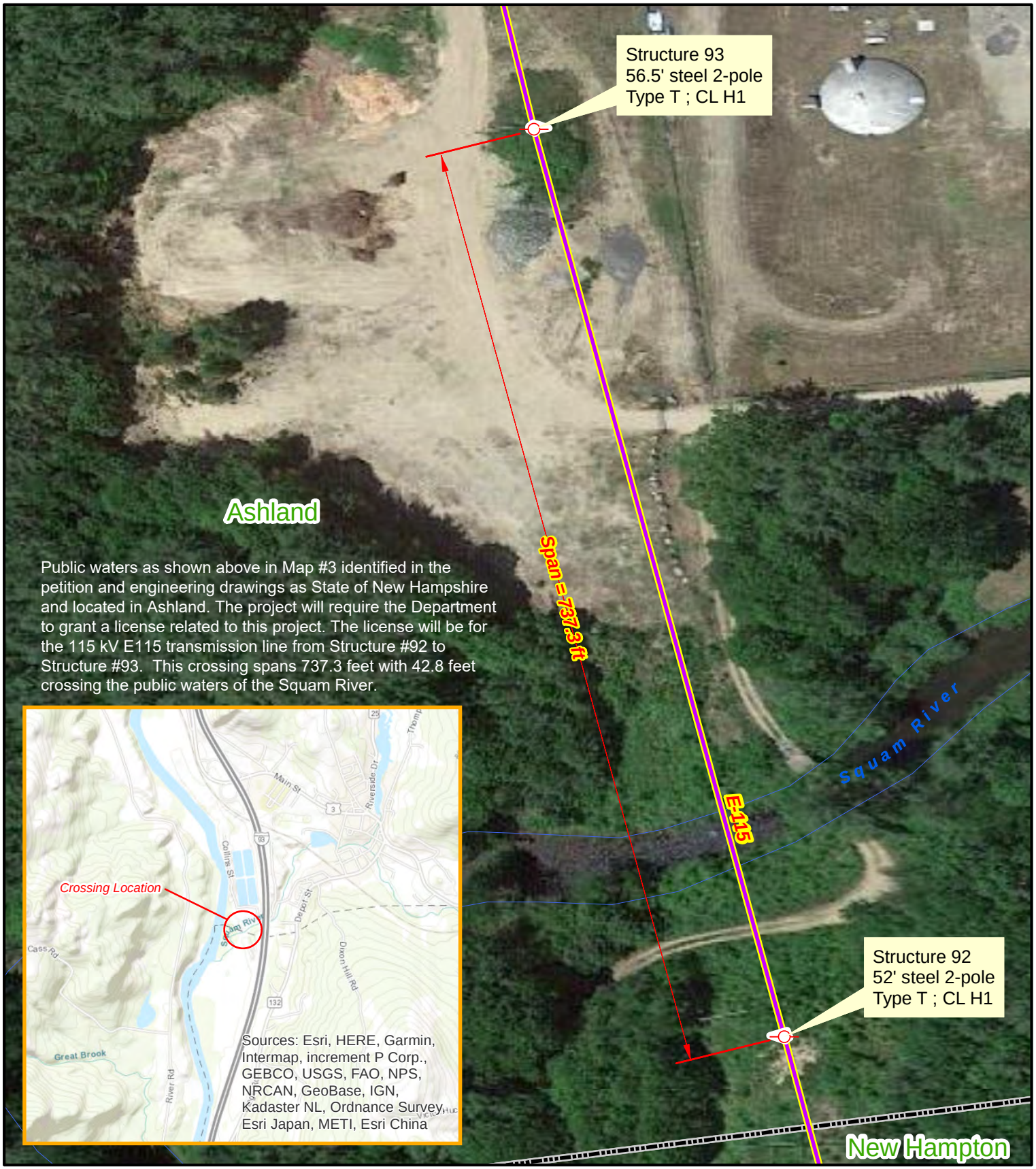
Utility Structure
115 kV Lines
State Land Parcel

N
W
E
S

Prepared by:
NH Department of Energy
Enforcement Division
Safety Bureau

0 50 100 200 300 400
Feet

Squam River - CR 2021-025 Eversource Crossing - Map 3



Public waters as shown above in Map #3 identified in the petition and engineering drawings as State of New Hampshire and located in Ashland. The project will require the Department to grant a license related to this project. The license will be for the 115 kV E115 transmission line from Structure #92 to Structure #93. This crossing spans 737.3 feet with 42.8 feet crossing the public waters of the Squam River.

Utility Structure

115 kV Line

N

W E

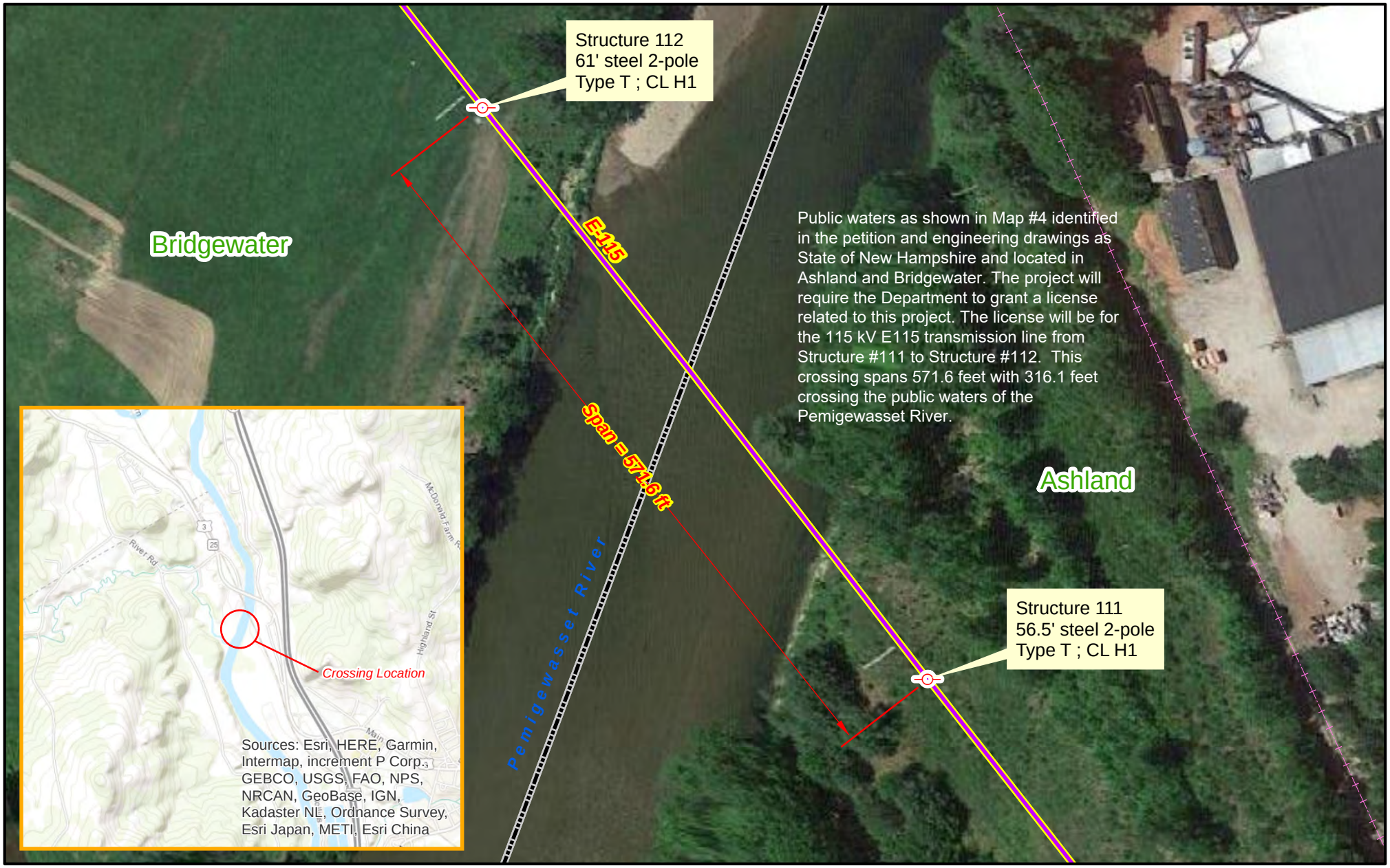
S

Prepared by:
NH Department of Energy ; Enforcement Division
Safety Bureau

0 25 50 100 150 200

Feet

Pemigewasset River - CR 2021-025 Eversource Crossing - Map 4



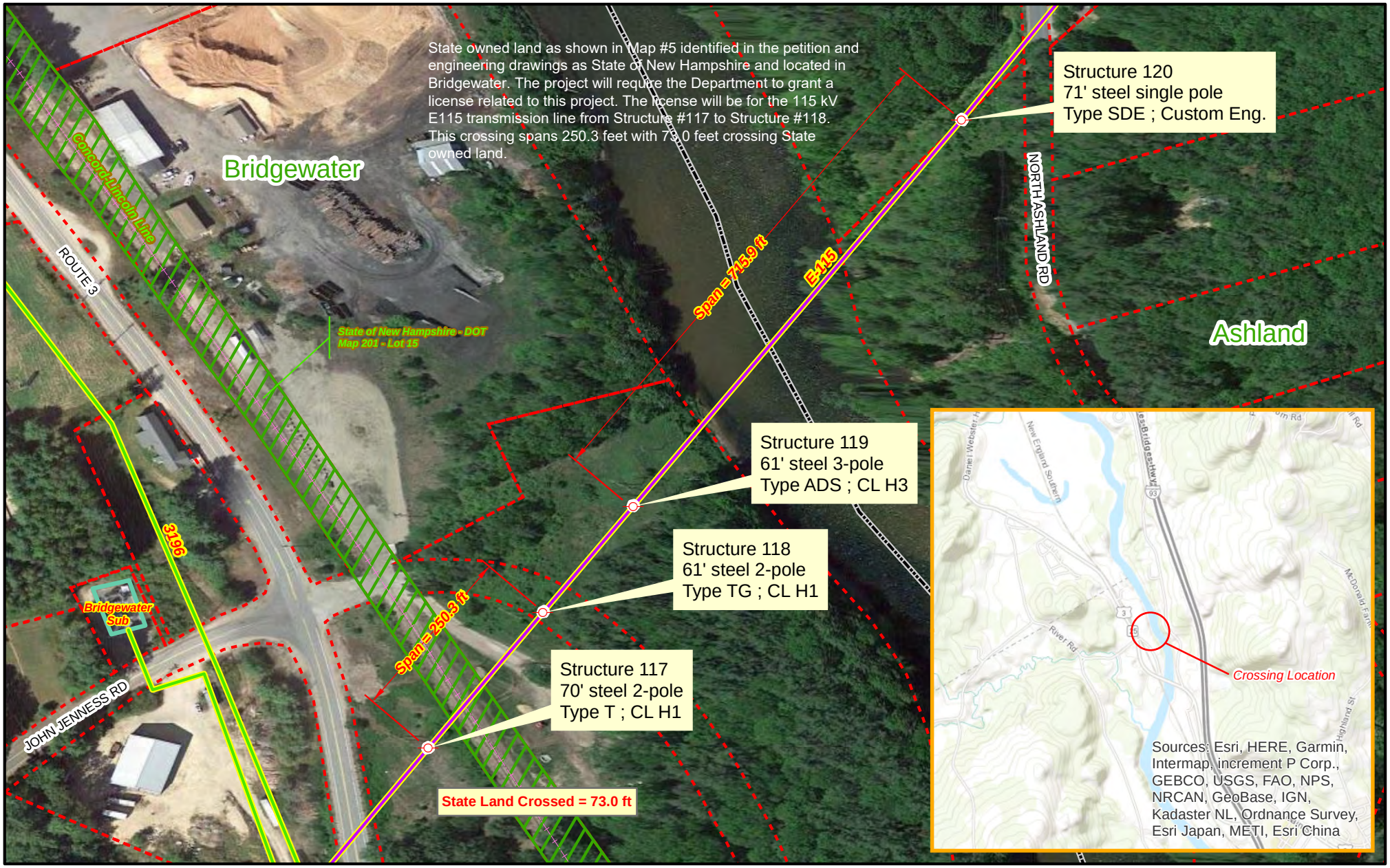
Utility Structure
Railroad
115 kV Lines

N
W E
S

Prepared by:
NH Department of Energy
Enforcement Division
Safety Bureau

0 25 50 100 150 200
Feet

Pemigewasset River & State Land(NHDOT) - CR 2021-025 Eversource Crossing - Map 5



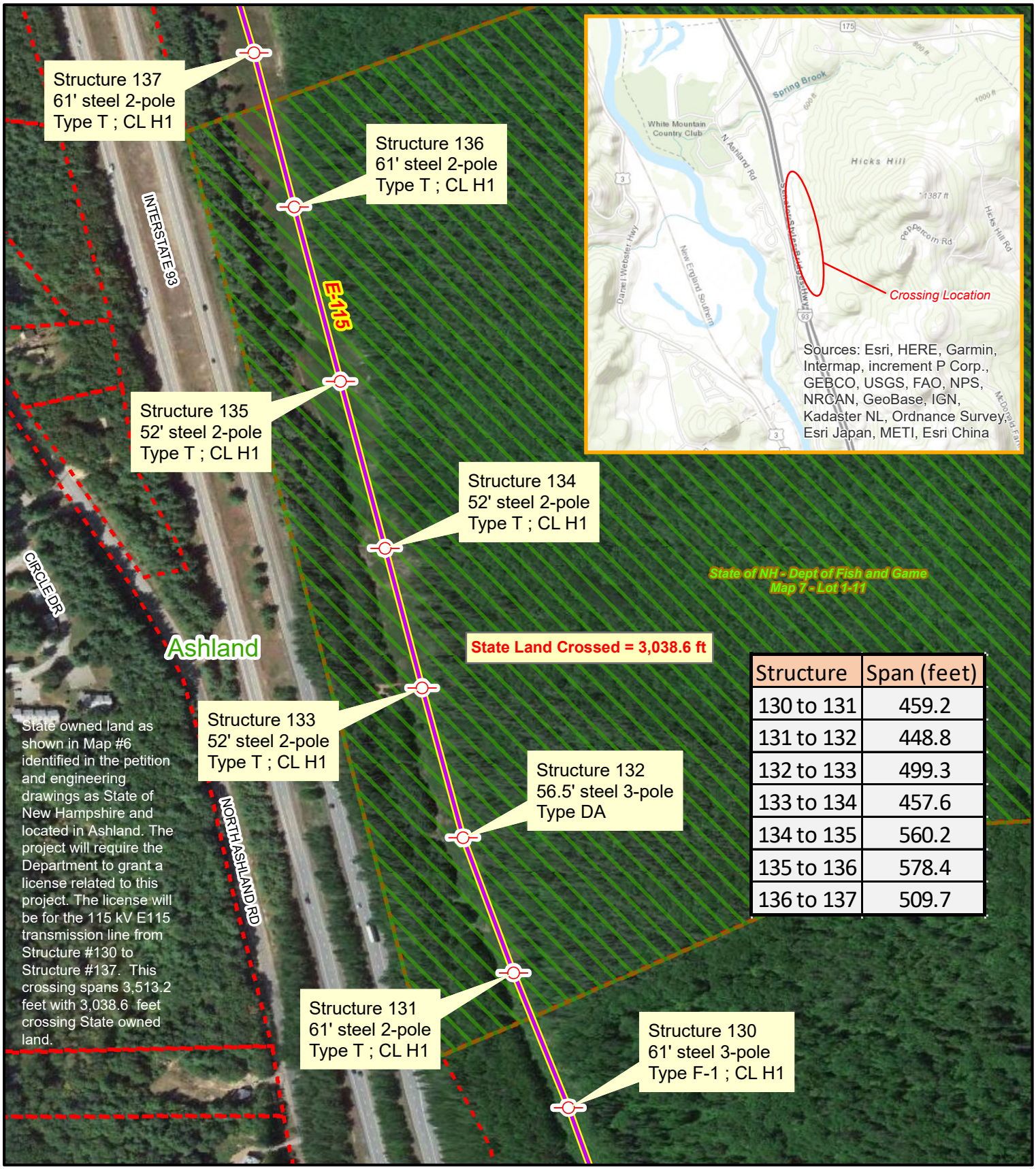
Utility Structure
115 kV Lines
34.5 kV Lines
State Land Parcel
Town Parcel

N
W E
S

Prepared by:
NH Department of Energy
Enforcement Division
Safety Bureau

0 50 100 200 300
Feet

State Land(NH Fish & Game) - CR 2021-025 Eversource Crossing - Map 6



State owned land as shown in Map #6 identified in the petition and engineering drawings as State of New Hampshire and located in Ashland. The project will require the Department to grant a license related to this project. The license will be for the 115 kV E115 transmission line from Structure #130 to Structure #137. This crossing spans 3,513.2 feet with 3,038.6 feet crossing State owned land.

Structure	Span (feet)
130 to 131	459.2
131 to 132	448.8
132 to 133	499.3
133 to 134	457.6
134 to 135	560.2
135 to 136	578.4
136 to 137	509.7

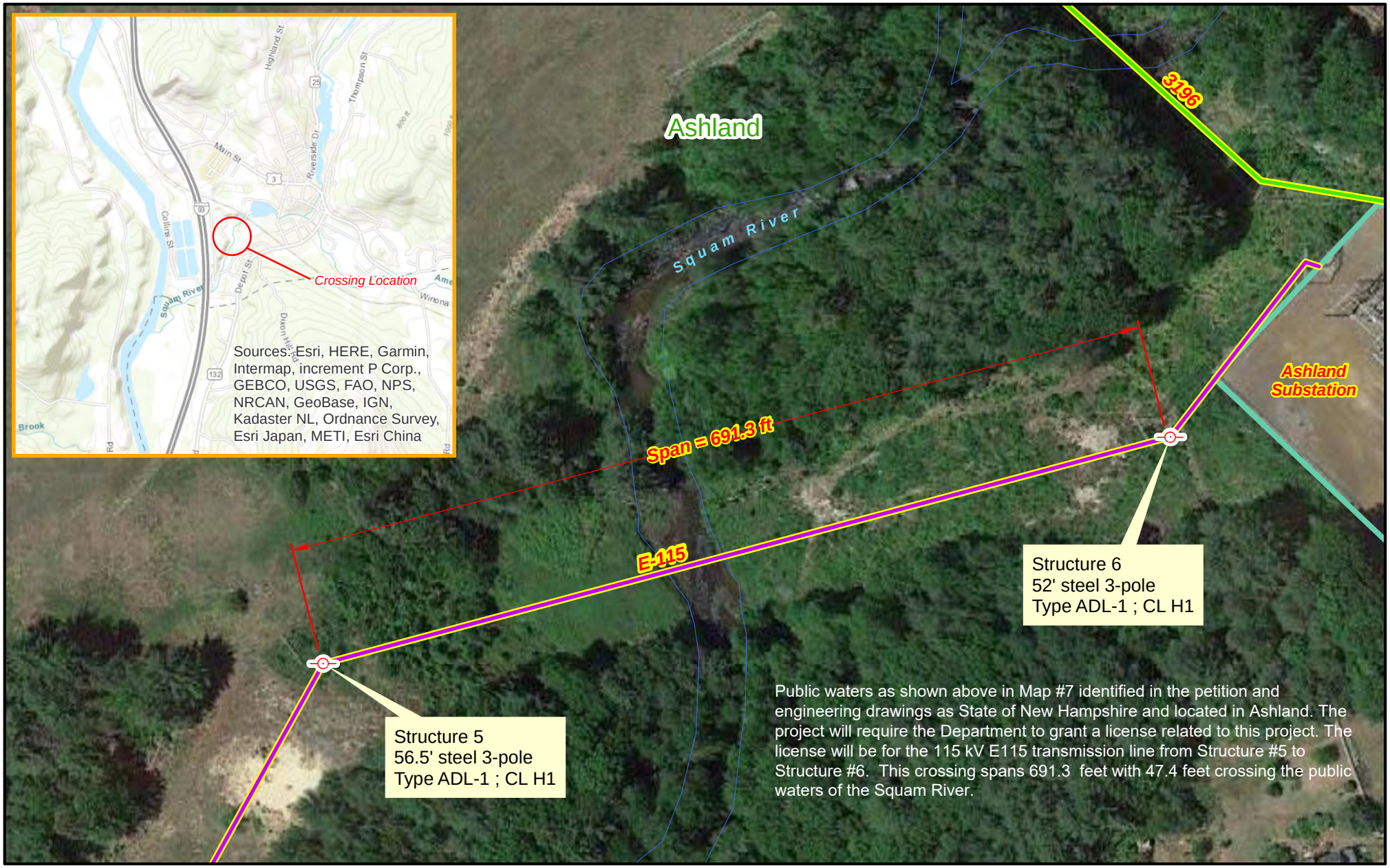
Utility Structure
115 kV Line
State Land Parcel
Town Parcel

N
W E
S

Prepared by:
NH Department of Energy ; Enforcement Division
Safety Bureau

0 100 200 400 600 800
Feet

Squam River - CR 2021-025 Eversource Crossing - Map 7



Utility Structure
115 kV Lines
34.5 kV Lines

N
W E
S

Prepared by:
NH Department of Energy
Enforcement Division
Safety Bureau

0 25 50 100 150 200
Feet