

STATE OF NEW HAMPSHIRE
Intra-Department Communication

Date: July 18, 2024

At (Office): NH Dept. of Energy

From: Kenneth G. Walsh *KGW*
Utility Analyst IV – Enforcement Division

Subject: CRE 2024-006 **Eversource Energy**
Application for License to Construct and Maintain Electric Lines Over and Across
State-Owned Land and Public Waters in Campton, Thornton, Woodstock, Lincoln, Sugar
Hill, Bethlehem, and Dalton, New Hampshire

Staff Recommendation

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

CC: Thomas Frantz, Director of Regulatory Support Division
Paul Kasper, Director of Enforcement Division
Michael Soucy Administrator, Enforcement Division
Elizabeth Nixon, Director of Electric Regulatory Support Division

Review by the Enforcement Division of the above application consisted of the following elements:

- Application contents, revised application contents, and history.
- Applicable State statutes.
- Review of existing crossing(s) previously licensed by the State of New Hampshire, if any.
- Review of land ownership and 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. Application Contents and History

On June 28, 2024, Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource, ES), applied pursuant to RSA 371:17 for a license to construct and maintain the X178 Line, which is an existing three phase 115 kV line that crosses public waters in Campton, Thornton,

Woodstock, Lincoln, Sugar Hill, Bethlehem and Dalton and State-owned land in Woodstock, Bethlehem, and Dalton. The land crossings in Woodstock are owned by the New Hampshire Department of Transportation and the New Hampshire Department of Business and Economic Affairs. The land crossings in Bethlehem and Dalton are owned by the New Hampshire Department of Transportation.

On July 11, 2024, Eversource resubmitted this application due to errors and clarifications as identified and as required by Department of Energy (DOE) Enforcement staff.

Eversource is requesting that the DOE issue a license for the purpose of proposed structure replacements, reconductoring, and OPGW installation on the X178 Line.

This proposed project is to replace (22) existing wood structures with weathered steel structures. The (3) existing transmission conductors will be replaced with (3) new conductors per the cable schedule. The existing (2) pole-top shield wires will be replaced with OPGW communications wire per the cable schedule; however, the (2) existing pole-top shield wires between renumbered Structures #175 through #179 will be transferred to the new steel structures. Existing Structures #506 and #576, which are associated with the Ammonoosuc River and a state-owned land crossing in Exhibit 11 and the John's River crossing in Exhibit 12, respectively, will be permanently removed without replacement. With exception to Structures #15 and #16, all other replacement structures will be renumbered in accordance with the table below.

Common to all these noted structures, existing conductors consist of (3) ACSR 1272 54/19 kcmil conductors. The two OPGW wires (both 48F) will be vertically attached above the conductors.

The scope of this project begins at Structure #15 with the X178 115 kV Line traversing northward crossing the Mad River to Structure #16 in Campton and then crossing Eastman Brook between Structures #129 and #130 in Thornton. The X178 Line then continues northwest crossing State-owned land between Structures #175 past #177 and then crossing the Pemigewasset River in Woodstock between Structures #177 through to #179. The X178 Line then continues northwest crossing Moosilauke Brook between Structures #196 and #197 in Woodstock, then northwest crossing Bog Pond between Structures #251 and #252 in Lincoln and then northwest into Sugar Hill at which juncture the X178 line then traverses northeast crossing the Gale River between Structures #400 and #401 in Sugar Hill. Continuing northeast in Bethlehem, the X178 Line crosses Miller Pond between Structures #459 and #460 and then the Ammonoosuc River and State-owned land also between Structures #509 and #510 in Bethlehem. Continuing northeast into Dalton, the X178 Line then crosses the John's River between Structures # 578 and #579 and then crossing State-owned land between Structures #579 and #580 in Dalton.

The water crossing in Campton spans 665.1 feet between Structures #15 and #16 with 121.4 feet crossing the Mad River. See Enforcement Division Map 1.

The water crossing in Thornton spans 822.2 feet between Structures #129 and #130 with 54.9 feet crossing Eastman Brook. See Enforcement Division Map 2.

The land crossing in Woodstock spans 1,642.8 feet between Structures #175 and #178 with 1,001.9 feet crossing State-owned land. See Enforcement Division Map 3.

The water crossing in Woodstock spans 787.2 feet between Structures #177 and #178 with 275.6 feet crossing the Pemigewasset River. See Enforcement Division Map 3.

The water crossing in Woodstock spans 440.3 feet between Structures #178 and #179 with 60.7 feet crossing the Pemigewasset River. See Enforcement Division Map 3.

The water crossing in Woodstock spans 550.4 feet between Structures #196 and #197 with 46.6 feet spanning Moosilauke Brook. See Enforcement Division Map 4.

The water crossing in Lincoln spans 465.4 feet between Structures #251 and #252 with 132.4 feet spanning Bog Pond. See Enforcement Division Map 5.

The water crossing in Sugar Hill spans 921.8 feet between Structures #400 and #401 with 106.7 feet spanning the Gale River. See Enforcement Division Map 6.

The water crossing in Bethlehem spans 642.4 feet between Structures #459 and #460 with 521.2 feet spanning Miller Pond. See Enforcement Division Map 7.

The water crossing in Bethlehem spans 713.8 feet between Structures #509 and #510 with 107.9 feet spanning the Ammonoosuc River. See Enforcement Division Map 8.

The land crossing in Bethlehem spans 713.8 feet between Structures #509 and #510 with 97.8 feet crossing State-owned land. See Enforcement Division Map 8.

The water crossing in Dalton spans 965.2 feet between Structures #578 and #579 with 66.5 feet spanning the John's River. See Enforcement Division Map 9.

The land crossing in Dalton spans 208.2 feet between Structures #579 and #580 with 101.4 feet crossing State-owned land. See Enforcement Division Map 9.

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

Eversource X178 Line Structure Replacements - DOE Public Waterbody and State-owned Land 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)
15	15	65.5' steel 2 pole, T, CLH1	9	15-16	665.1	18.6	69.6	Y
16	16	83.5' steel 2 pole, TG, CLH3	27					
125	129	65.5' steel 2 pole, T, CLH1	13.5	129-130	822.2	18.6	108.8	Y
126	130	65.5' steel 3 pole, ADL, Custom Steel	18					
171	175	61.0' steel 1 pole, SDE, Custom Steel	8	175-176	522.8	20.1/28.1	66.2	Y
172	176	92.5' steel 3 pole, BP, Custom Steel	31.5					
173	177	79.0' steel 2 pole, T, CLH3	9	176-177	332.8	20.1	64.9	Y
174	178	79.0' steel 2 pole, T, CLH3	19	177-178	787.2	20.1/18.6	40.4/26.2	Y
175	179	83.5' steel 2 pole, T, CLH3	18	178-179	440.3	18.6	61	Y
192	196	65.5' steel 3 pole, ADL, Custom Steel	13.5	196-197	550.4	18.6	64.8	Y
193	197	56.5' steel 2 pole, T, CLH1	9					
247	251	70.0' steel 2 pole, T, CLH1	18	251-252	465.4	18.6	48.6	Y
248	252	66.2' steel 2 pole, T, Custom Steel	15.86					
396	400	79.0' steel 2 pole, TG, CLH3	22.5	400-401	921.8	18.6	109.2	Y
397	401	61.0' steel 3 pole, ADS, Custom Steel	13.5					
455	459	83.5' steel 2 pole, T, CLH3	22.5	459-460	642.4	18.6	46.4	Y
456	460	83.5' steel 2 pole, T, CLH3	27					
505	509	92.5' steel 2 pole, T, CLH3	38.86	509-510	713.8	18.6/28.1	56.5/57.3	Y
506	Permanent Removal							
507	510	79.0' steel 2 pole, T, CLH3	29.86	578-579	965.2	18.6	39.8	Y
575	578	60.0' steel 3 pole, ADS, Custom Steel	10					
576	Permanent Removal			579-580	208.2	28.1	46.9	y
577	579	74.5' steel 2 pole, T, CLH1	16.36					
578	580	70.0' steel 3 pole, ADS, Custom Steel	16.36					

2. New Hampshire statute referenced in application (modified by NH House Bill 1258, August 22, 2022)

RSA 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, modify a previously licensed installation, or license a previously constructed installation, it shall apply to the department of energy 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 department of energy may prescribe. Every corporation and individual desiring to cross any public water or land for any purpose herein defined shall apply to the department of energy for a license in the same manner prescribed for a public utility. The department of energy may condition any license issued under this paragraph in any manner necessary to assure that the license may be exercised without substantially affecting the public rights in public waters or state-owned lands. Using a non-adjudicative process, the department of energy may reject incomplete or improperly filed applications, and shall, also using non-adjudicative process, issue or deny the license within 90 days of receiving a complete application and all information subsequently requested of an applicant.

3. Review of existing license(s) and permissions previously granted by the State of New Hampshire, including additional permitting requirements, for the applicable public waters and State-owned land crossings in Campton, Thornton, Woodstock, Lincoln, Sugar Hill, Bethlehem, and Dalton, New Hampshire.

The X178 Line was originally built between Beebe River Substation in Campton and Whitefield Substation in Whitefield circa 1950. Sections were reconstructed in 1969 and 1985. Licensing history is complex with apparent inconsistencies. However, all State-owned land and public water crossings will be licensed because of this application. The most recent licenses issued include:

- Puc Order #18,757, DE 87-121 for the Pemigewasset River in Woodstock between original Structures #173 and 174; and
- Puc Order #12,219, DE 76-22 for Bog Pond in Lincoln between original Structures #247 and #248, and Miller Pond (aka Baker Brook Pond) in Bethlehem between original Structures #454 and 455.

Eversource states that the balance of the crossings was not licensed either owing to an oversight or that the line may have been built on land prior to State ownership.

Eversource states that for the current project, a New Hampshire Department of Environmental Services (NHDES) Standard Dredge and Fill Permit and a Shoreland Statutory Permit by notification will be required for temporary impacts associated with the structure replacements. The permit

applications have been submitted and permits will be obtained prior to commencement of construction within jurisdictional areas.

The U.S. Army Corps of Engineers (USACOE) does not regulate the subject portion of the Mad River, Eastman Brook, Pemigewasset River, Moosilauke Brook, Bog Pond, Gale River, Miler Pond, Ammonoosuc River, and the John's River as navigable waters. Therefore, no crossing permits are required from USACOE.

The following is listed under the NHDES category "Public Rivers and Streams" in the Official List of Public Waters (OLPW):

- In Campton, the Mad River from the juncture of Cascade Brook in Waterville Valley;
- In Thornton, Eastman Brook from the juncture of Johnson Brook;
- In Woodstock, the Pemigewasset River from the juncture of Harvard Brook in Lincoln;
- In Woodstock, Moosilauke Brook from the juncture of Jackman Brook and Walker Brook;
- In Sugar Hill, the Gale River from the juncture of North and South Branch Gale River in Bethlehem;
- In Bethlehem, the Ammonoosuc River from the White Mountain National Forest boundary near Lower Falls in Carroll to the confluence with the Connecticut River in Haverhill; and
- In Dalton, the John's River from the juncture of Carroll Stream in Whitefield.

The entire list of public waters can be found on the NHDES website by using the following web link:

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

4. Review of land ownership at proposed pole structures

Eversource attests that the proposed structure replacements and OPGW installation work will be accomplished within existing right-of-way easements, thereby mitigating impacts and concerns of property owners adjacent to the project locations. A list of abutters was provided by Eversource in addition to the application and exhibits.

5. Review of National Electrical Safety Code (NESC) requirements as described in N.H. Admin. R., Puc 306.01 (b)

The Enforcement Division reviewed the specifications related to the design and reconstruction of this crossing project as described in the application, attachments, and all supplemental support documents and corrections filed by ES and found them to be in conformance with N.H. Admin. Rule Puc 306 and applicable sections of the National Electrical Safety Code (NESC) C2-2012.

The conductor cable clearance requirements were met using the NESC based on the design conditions at 392⁰ F. for all crossings within this petition. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the application.

ES will maintain and operate the clearances of the crossings at a height no less than what is required by the 2012 NESC, Table 232-1 which is: 18.6 feet for 115 kV conductor over water areas not suitable for sail boating or where sail boating is prohibited in respect to the public water crossings depicted in Exhibits 2, 3, and 5 through 12; 28.1 feet for 115 kV conductor over top of track rail in respect to the State-owned land crossings depicted in Exhibits 4 and 11; 22.1 feet for 115 kV conductor over water areas suitable for sail boating including lakes, ponds, reservoirs, tidal waters, rivers, streams, and canals with an unobstructed surface area of less than 20 acres in respect to the public water crossing depicted in Exhibit 10; and 20.1 feet for 115 kV wires over other areas traversed by vehicles such as cultivated, grazing, forest, and orchard lands, industrial sites, commercial sites, etc. in respect to the State-owned lands as depicted in Exhibits 4 and 5. The actual design height over the public waters and State-owned land on the submitted drawings exceeds the minimum requirements.

6. Review of public need and impact

The X178 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 Campton, Thornton, Woodstock, Lincoln, Sugar Hill, Bethlehem, and Dalton, New Hampshire.

RSA 371:17 requires the Department of Energy to review applications for licenses to construct, maintain, or modify installations that exist or are proposed to exist, over, under, or across public waters or State-owned land. This review is to provide for safety of the public and the preservation of perpetual access and use of public waters and State-owned land in New Hampshire.

Eversource declares that the license, if granted, may be exercised without substantially affecting the use or enjoyment of public waters or State-owned land, that safe clearances will always be maintained, and precautions undertaken to ensure the safety of recreational users. The Enforcement Division's review of design specifications verified that minimum safe clearances above water and land will be maintained during and after construction; and therefore, determines that public use and enjoyment of said water and land will not be diminished in any respect because of the proposed project.

7. Enforcement Division Recommendations

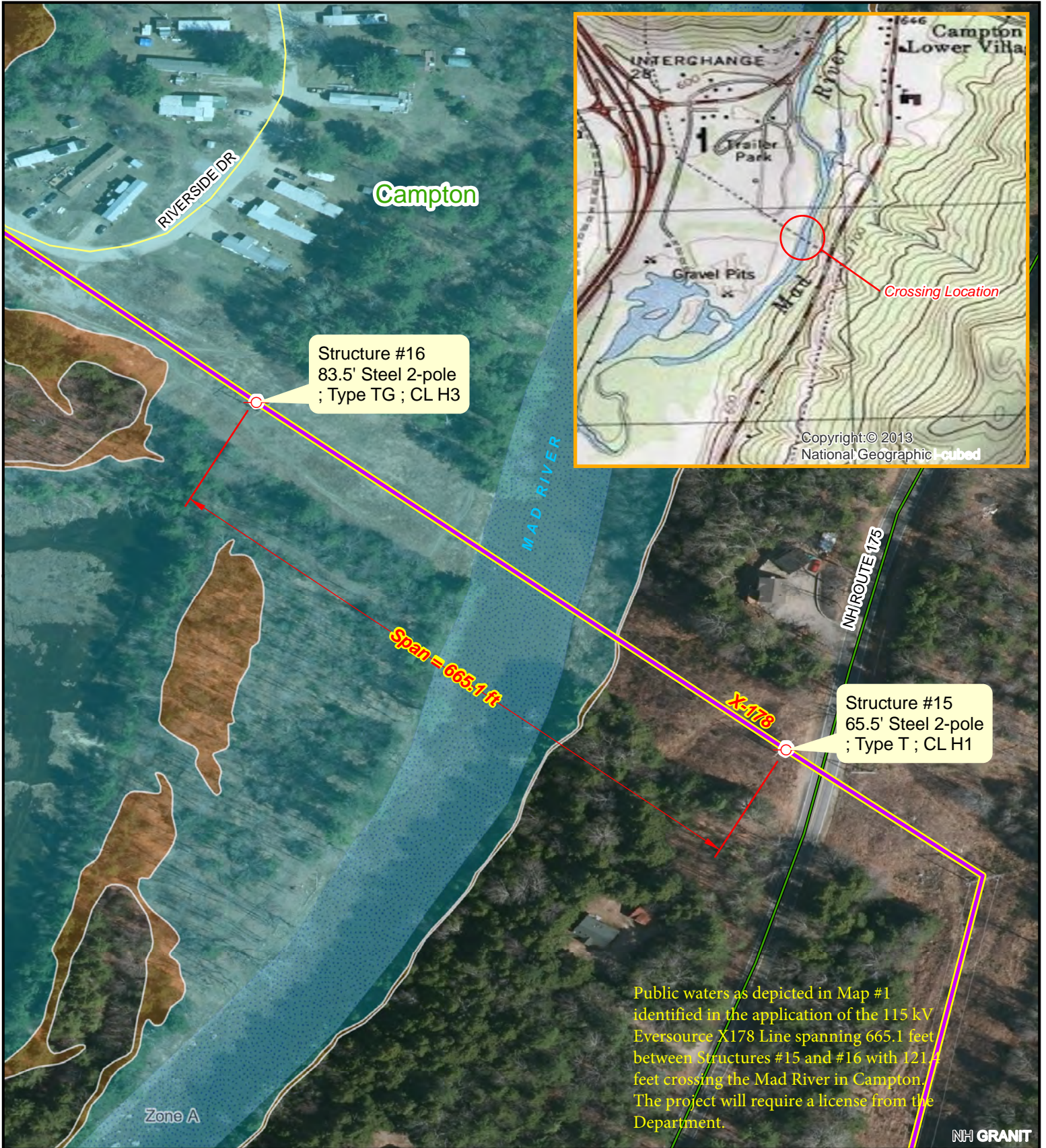
Based on the results of its review of the application, resubmission, attachments, and all other supporting documents, the Enforcement Division recommends that the Department:

1. Find that the license that Eversource requests in the application may be exercised without substantially affecting public rights on public waters and State-owned land; and

2. Grant Eversource a license to construct and maintain electric lines pursuant to RSA 371:17 and N.H. Admin. R., Puc 306.01, over and across public waters in Campton, Thornton, Woodstock, Lincoln, Sugar Hill, Bethlehem and Dalton, and State-owned land in Woodstock, Bethlehem, and Dalton, New Hampshire as specified in the application.

Attachments:

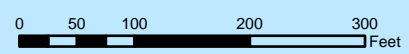
Mad River - CRE 2024-006 Eversource Crossing - Map 1



	Utility Structure		Regulatory Floodway
	115 kV Line		1% Annual Chance Flood Hazard
			0.2% Annual Chance Flood Hazard

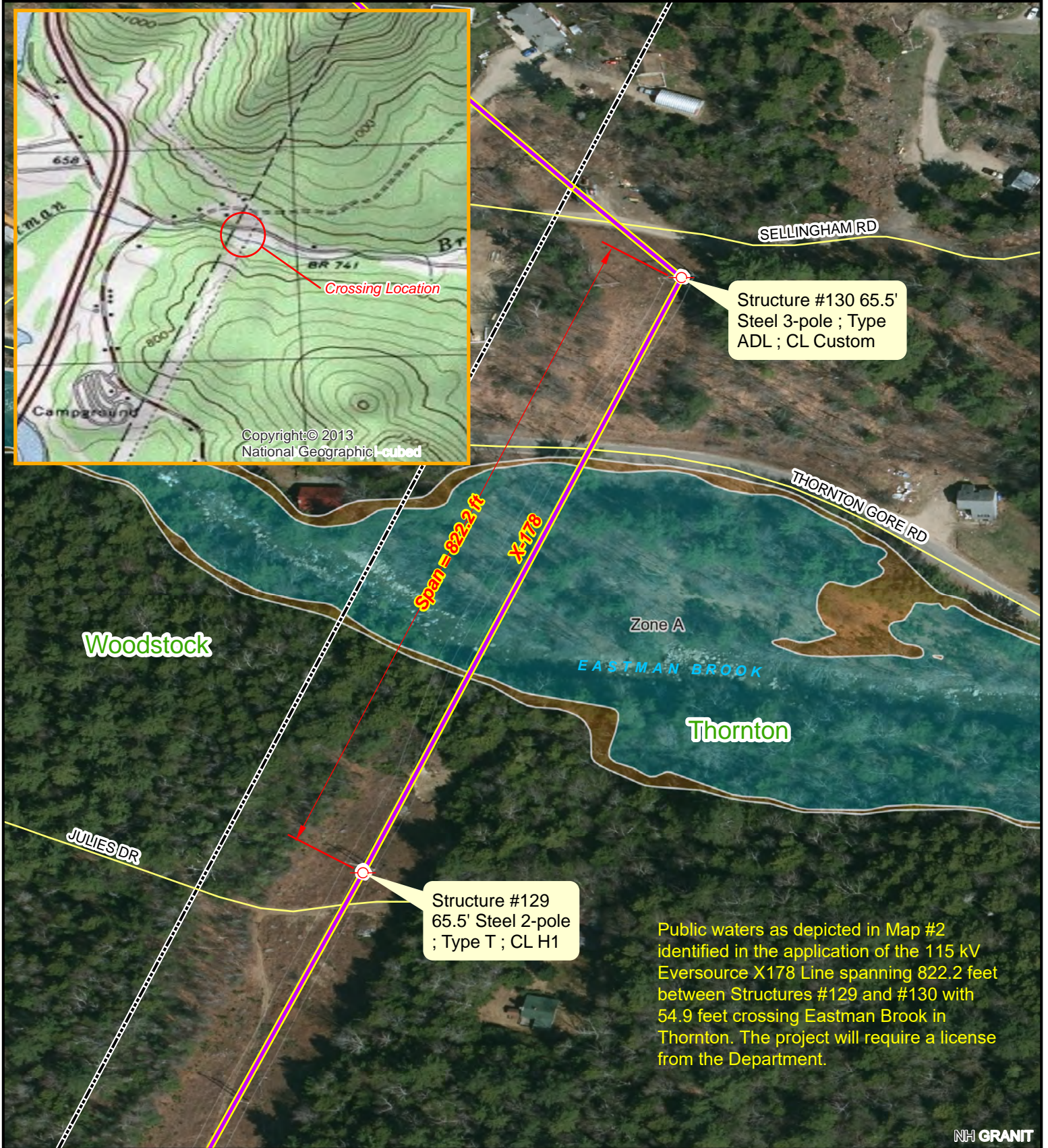


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Eastman Brook - CRE 2024-006 Eversource Crossing - Map 2



Public waters as depicted in Map #2 identified in the application of the 115 kV Eversource X178 Line spanning 822.2 feet between Structures #129 and #130 with 54.9 feet crossing Eastman Brook in Thornton. The project will require a license from the Department.

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	Utility Structure		Regulatory Floodway
	115 kV Line		1% Annual Chance Flood Hazard
			0.2% Annual Chance Flood Hazard



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State Land (NHDOT & NHDBEA) & Pemigewasset River - CRE 2024-006 Eversource Crossing - Map 3

State-owned land as depicted in Map #3 identified in the application of the 115 kV Eversource X178 Line spanning 1642.8 feet between Structures #175 and #178 with 1001.9 feet crossing State-owned land in Woodstock. The project will require a license from the Department.

Structure #179
83.5' Steel 2-pole
; Type T ; CL H3

Structure #178
79' Steel 2-pole
; Type T ; CL H3

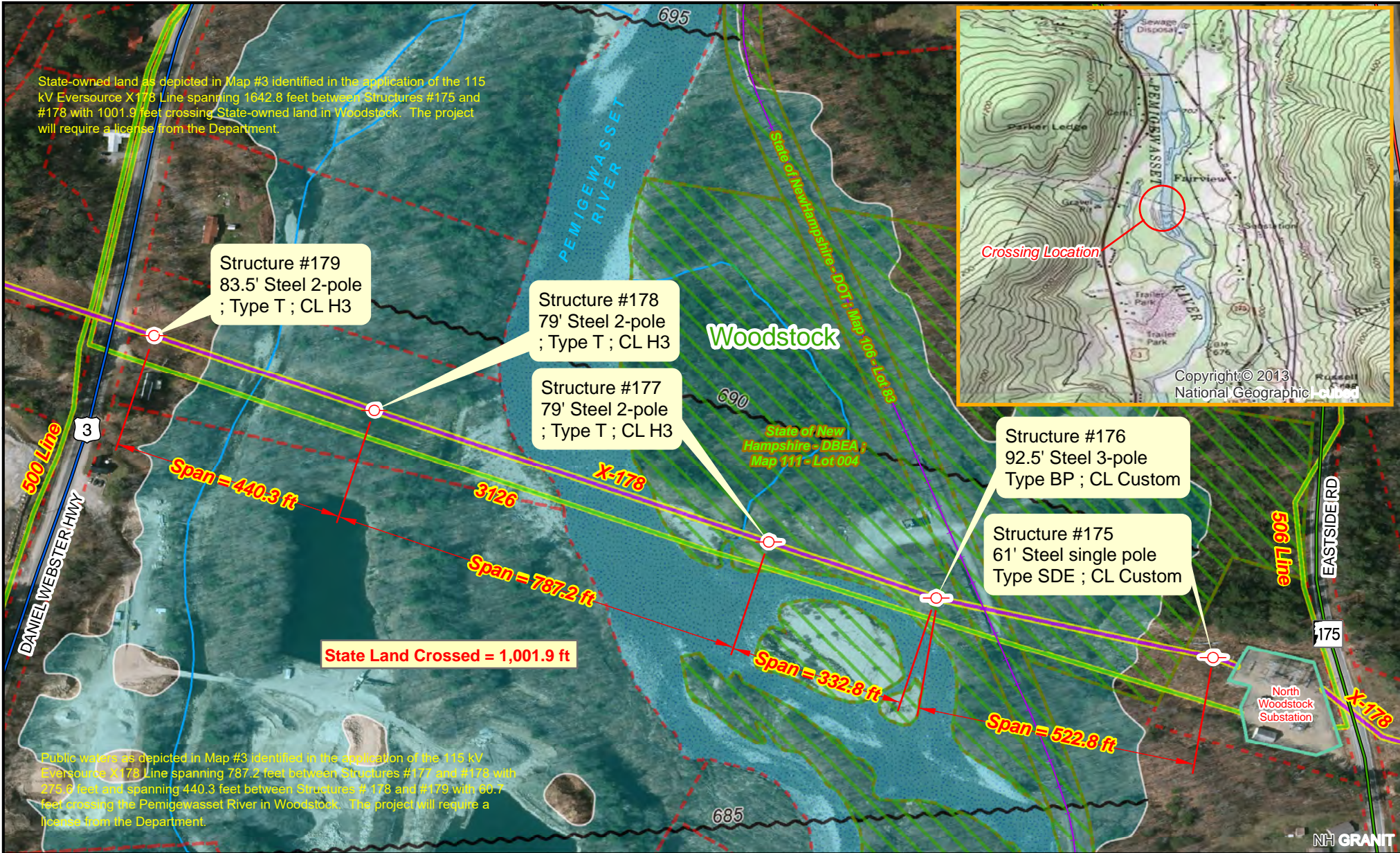
Structure #177
79' Steel 2-pole
; Type T ; CL H3

Structure #176
92.5' Steel 3-pole
Type BP ; CL Custom

Structure #175
61' Steel single pole
Type SDE ; CL Custom

State Land Crossed = 1,001.9 ft

Public waters as depicted in Map #3 identified in the application of the 115 kV Eversource X178 Line spanning 787.2 feet between Structures #177 and #178 with 275.8 feet and spanning 440.3 feet between Structures #178 and #179 with 66.7 feet crossing the Pemigewasset River in Woodstock. The project will require a license from the Department.



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

Flood Hazard Zones	
	Regulatory Floodway
	1% Annual Chance Flood Hazard
	0.2% Annual Chance Flood Hazard
	Base Flood Elevations



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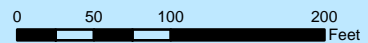
Moosilauke Brook (Lost River) - CRE 2024-006 Eversource Crossing Map 4



	Utility Structure	Flood Hazard Zones
	115 kV Line	Regulatory Floodway
		1% Annual Chance Flood Hazard
		0.2% Annual Chance Flood Hazard

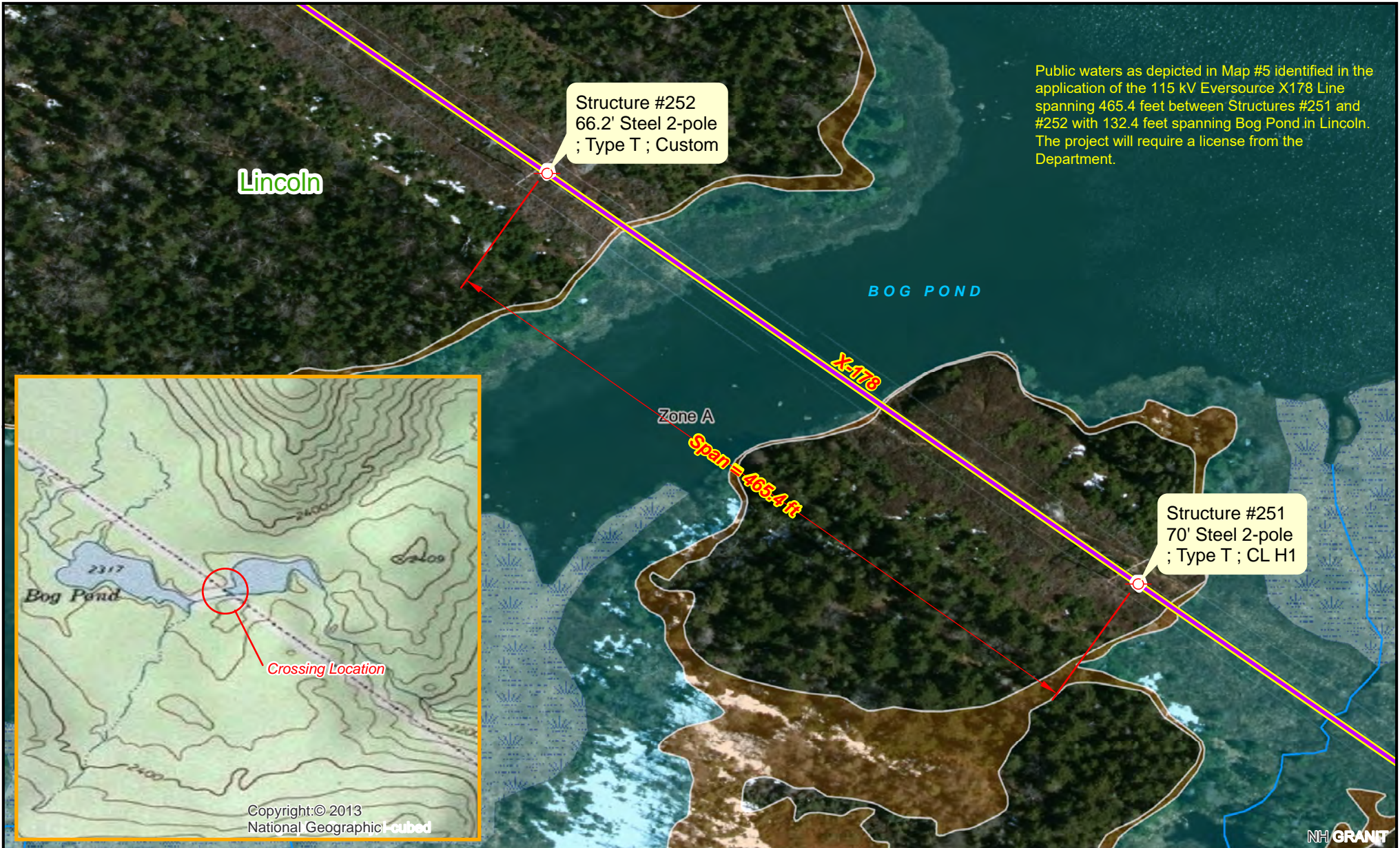



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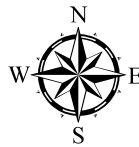




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Bog Pond - CRE 2024-006 Eversource Crossing - Map 5

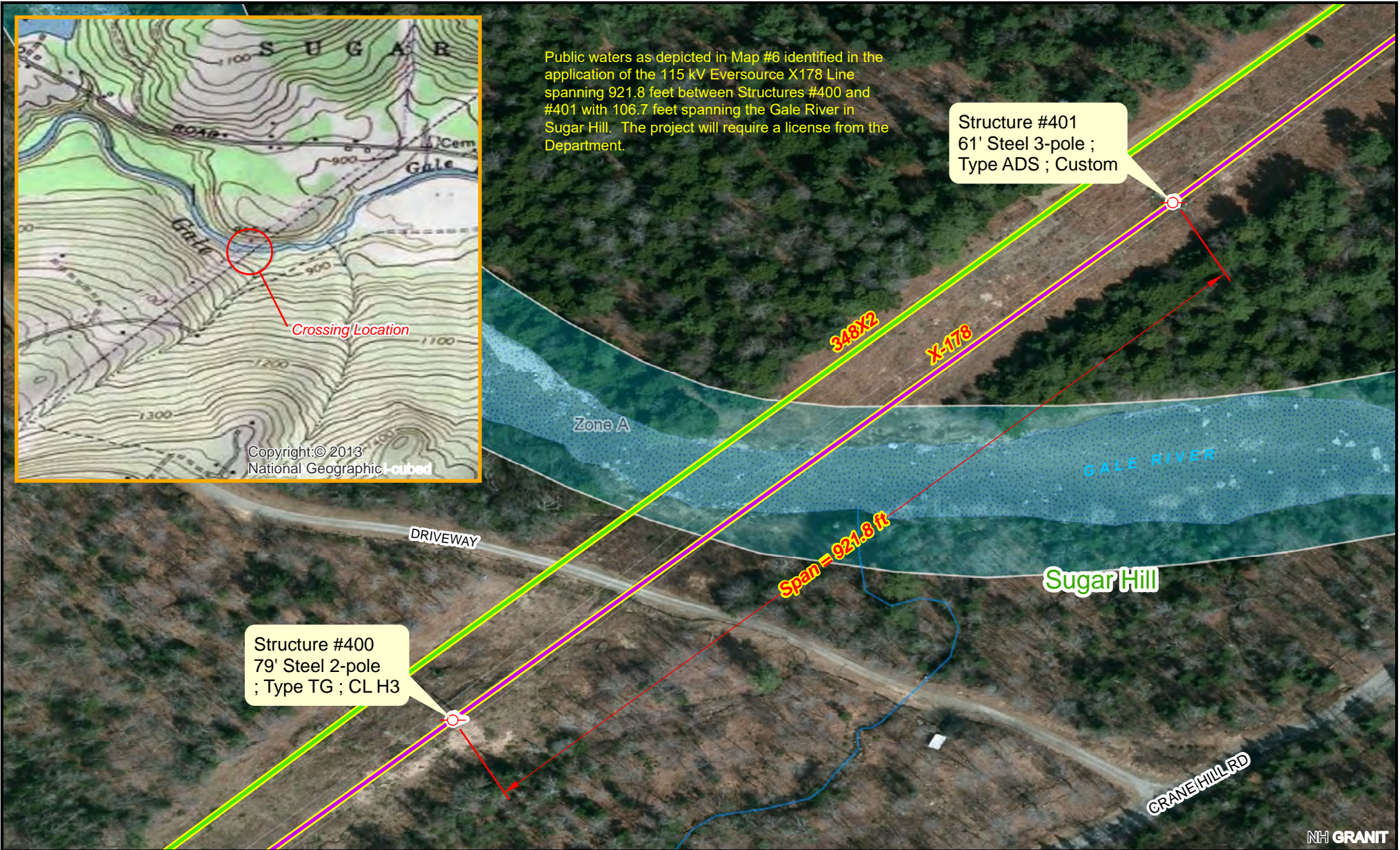


 Utility Structure	Flood Hazard Zones
 115 kV Line	 Regulatory Floodway
	 1% Annual Chance Flood Hazard
	 0.2% Annual Chance Flood Hazard

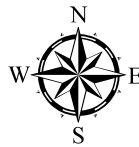


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Gale River - CRE 2024-006 Eversource Crossing - Map 6



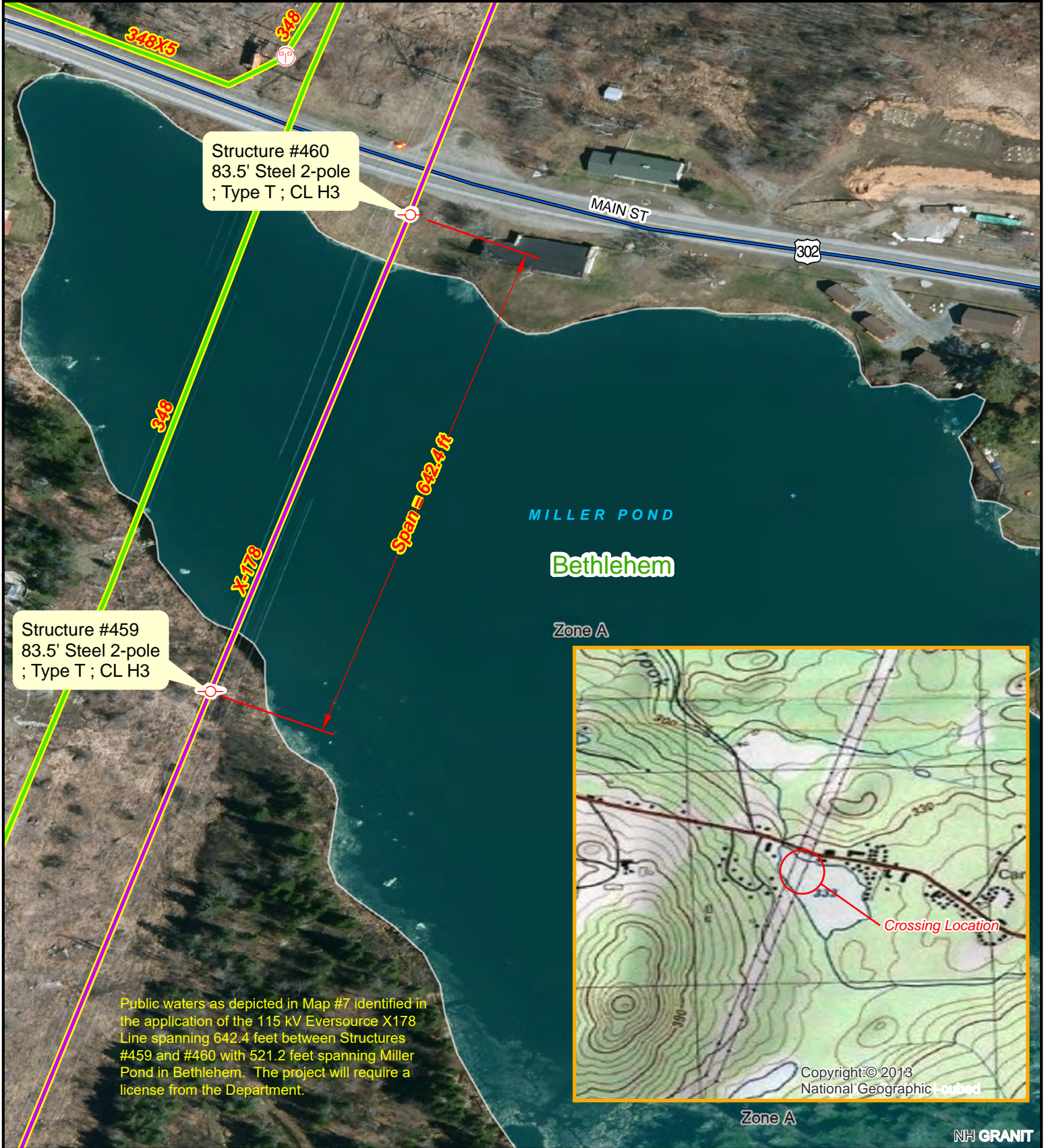
	Utility Structure		Flood Hazard Zones
	115 kV Line		Regulatory Floodway
	34.5 kV Line		1% Annual Chance Flood Hazard
			0.2% Annual Chance Flood Hazard



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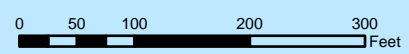
Miller Pond - CRE 2024-006 Eversource Crossing - Map 7



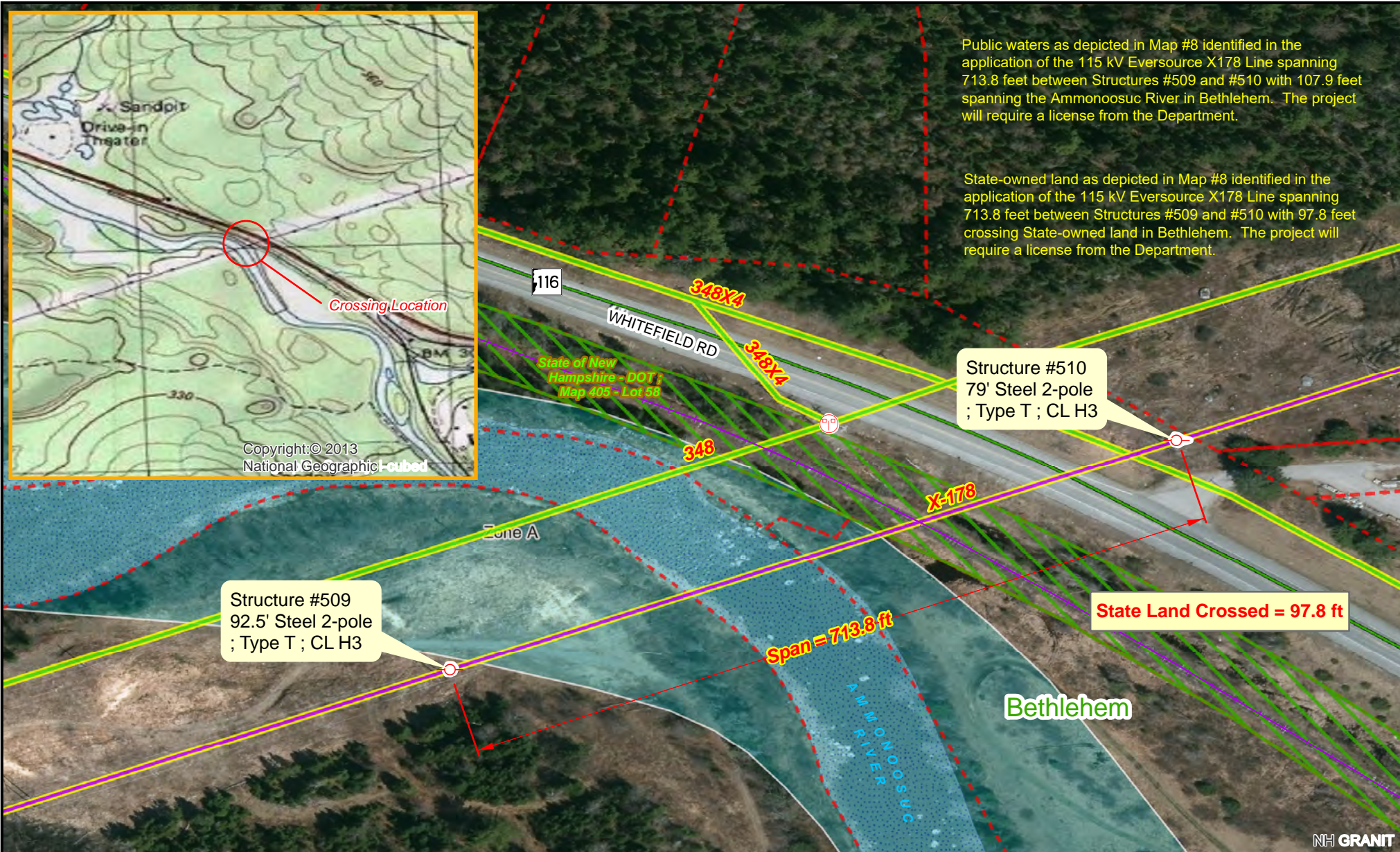
	Utility Structure	Flood Hazard Zones
	115 kV Line	Regulatory Floodway
	34.5 kV Line	1% Annual Chance Flood Hazard
		0.2% Annual Chance Flood Hazard



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State Land (NHDOT) & Ammonoosuc River - CRE 2024-006 Eversource Crossing - Map 8



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

Flood Hazard Zones	
	Regulatory Floodway
	1% Annual Chance Flood Hazard
	0.2% Annual Chance Flood Hazard



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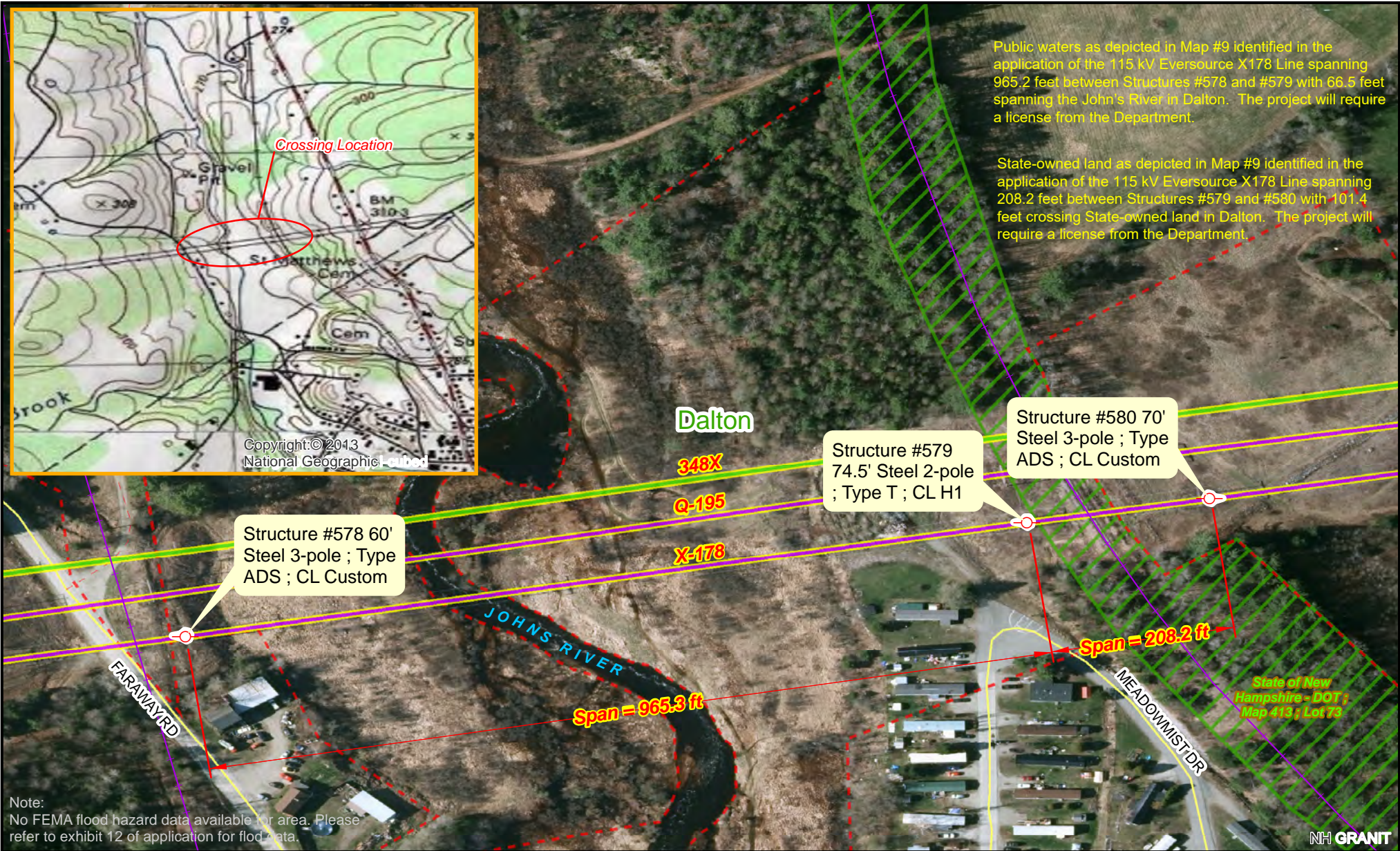
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State Land (NHDOT) & Johns River - CRE 2024-006 Eversource Crossing - Map 9



Public waters as depicted in Map #9 identified in the application of the 115 kV Eversource X178 Line spanning 965.2 feet between Structures #578 and #579 with 66.5 feet spanning the John's River in Dalton. The project will require a license from the Department.

State-owned land as depicted in Map #9 identified in the application of the 115 kV Eversource X178 Line spanning 208.2 feet between Structures #579 and #580 with 101.4 feet crossing State-owned land in Dalton. The project will require a license from the Department.

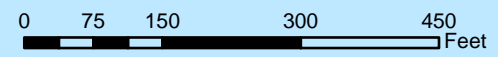


Note:
No FEMA flood hazard data available for area. Please refer to exhibit 12 of application for flood data.

	Utility Structure		State Land Parcel
	115 kV Line		Town Parcel
	34.5 kV Line		
Flood Hazard Zones			
	Regulatory Floodway		1% Annual Chance Flood Hazard
			0.2% Annual Chance Flood Hazard



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