APPENDIX A

Line T-198, Structures 29-30 over the South Branch of the Ashuelot River and State Acquired Railroad Property, Troy, NH

1. The location of this crossing is shown on the attached location map marked as Exhibit A1.

2. The design and proposed construction of these crossings are shown on the attached PSNH Transmission Drawings entitled "PROPOSED ADSS LINE, 115 kV. – LINE T-198, MILE 3, STR 29-30, SOUTH BRANCH ASHUELOT RIVER WATER CROSSING, TROY, NEW HAMPSHIRE" (Drawing No. D-7649-503) marked as Exhibit A2 and "LINE T-198 CROSSING B&M R.R." (Drawing No. A-8045-10) marked as Exhibit A3.

3. Line T-198 crosses the South Branch Ashuelot River and the State acquired railroad property on dead end 3-pole wood structures with a span of 1000 feet. The river width is 35.1 feet at time of survey. A detail of this structure has been provided with this Petition as FIGURE 3. Minimum distances to ground for truck traffic on Route 12 of 15.5 feet for the ADSS and 20.1 feet for 115kV open supply per the NESC have been met as 61.8 and 75.2 feet of clearance is provided respectively for the ADSS and the conductor wires. Minimum distances to the railroad track of 23.5 feet for the ADSS and 28.1 feet for 115kV open supply per the NESC have been met as 73.3 and 85.9 feet of clearance is provided respectively for the ADSS and the conductor wires.

4. Surface water elevations for the South Branch Ashuelot River were based on information contained in NH GRANIT, which references FEMA information. This crossing is located in FEMA Zone A where no base flood elevations or flood depths have been determined. The surface area of the crossing, as required by the NESC (Section 232, Note 19), is approximately 1.9 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing that includes the crossing based on FEMA digital maps and FEMA identified river boundaries. A GIS tool (ESRI ArcView) was used to calculate the surface area polygon. As stated in paragraph 6 of this petition, the minimum required clearances for 115 kV conductor and ADSS cable over water surface areas less than 20 acres is 22.1 and 17.5 feet respectively.

5. As stated in NESC Table 232-1 Note 18, the surface area shall be enclosed by its high water mark and clearances shall be based on the normal flood level. In this case, the final river elevation at this location during the

normal flood is 880.8 feet. As stated in paragraph 6 of this petition and paragraphs 3 and 4 of this Appendix, the minimum required clearances for 115 kV conductors and ADSS cable over water surface areas less than 20 acres is 22.1 and 17.5 feet, respectively. The minimum required clearances for 115 kV conductors and ADSS cable over railroad track is 28.1 and 23.5 feet, respectively. The sags and clearances to the water surface and railroad bed are as follows:

- Shield wires - Due to the fact that the static wires are located above the phase wires, its clearances to the water surface and railroad bed will always exceed the minimum required NESC distance.

- Conductors (phase wires) – The maximum conductor sag for the NESC Heavy Loading weather case is always less than the 285 deg F maximum operating temperature (phase wires) based on PSNH transmission standards. The 285 deg F condition produces the greatest sag in the phase wires and therefore the minimum clearance to the water surface and railroad track. This design will exceed the minimum clearance requirement over surface waters of 22.1 feet with a clearance of 112.3 feet under temporary emergency conditions. It will also exceed the minimum clearance requirement over a railroad track of 28.5 feet with a clearance of 85.9 feet under temporary emergency conditions.

- For ADSS cable - The maximum ADSS sag for a weather case of ½ inch radial ice at 32 deg F, no wind is the weather condition that produces the greatest sag exceeding the NESC Heavy weather condition, and therefore the minimum clearances to the water surface and railroad track. This design will exceed the minimum clearance to water surface requirement of 17.5 feet with a clearance of 98.8 feet. It will also exceed the minimum clearance to railroad track requirement of 23.5 feet with a clearance of 73.3 feet.

- Minimum phase to ADSS clearance – The conditions that would produce the minimum clearance between the phase wires and ADSS cable would be at the maximum operating temperature of 285 deg F for the phase wires and 90 deg F for ADSS. Based on NESC Section 235 and Table 235-5(1)b for communication conductors and cables located in the supply space the vertical clearance between the communication cable and 115kV of the same utility at the structure is 40 inches (3.3 feet) and its Note 10 which states there is no clearance specified between fiber optic supply cables meeting Rule 230F1b and supply cables and conductors. Since no vertical clearance is specified, this case meets the minimum clearance vertically of 40 inches (3.3 feet) at the structure and at mid span.

- Minimum phase to overhead ground wire (static wire) clearance – Based on NESC 235E.1, the weather case that would produce the minimum clearance between the phase wires and the static wires would be a combination of winter weather factors. The phase conductor condition is 30 deg F and the static wire condition is ½" radial ice at 30 deg F based on Table 230-1 for Zone 1. Under these conditions the vertical clearance based on NESC Table 235-6(2)a for span wires when parallel to a line is calculated to be 4.8 feet (29"+(115kV x1.05 – 50kV) x 0.4"). In this case, the minimum NESC clearance of 4.8 feet between the static wire and the phase conductor is met through horizontal separation alone.

- Minimum clearance between ADSS and wires carried on different supporting structures (i.e. ADSS to distribution power lines) – The NESC condition of ½" ice, no wind at 32 deg F provides the minimum NESC clearance between the ADSS cable and wires carried by other structures. Based on Section 233 and Table 233-1, the NESC minimum clearance between ADSS which meets Rule 230E1 and open supply conductors, 750V to 22kV, is 2 feet. This clearance requirement is met in the case described by this Appendix.

- Minimum clearance between phase and wires carried on different supporting structures (i.e. phase to distribution power lines) – The maximum operating condition of 285 deg F produces the greatest sag in the phase wires and the minimum clearance between the phase wire and wires carried by other structures. Based on Section 233 and Table 233-1.4, the NESC minimum clearance between an open supply conductor of 115kV and open supply conductors 750V to 22kV is 2 feet plus the clearance calculated by Rule 233.C.2, where voltages exceed 22kV. NESC Rule 233.C.2a states that an additional clearance of 1.6 feet or [(((115 kV x 1.05/√3)-22kV) x .4in)/12] is needed for 115 kV, which brings the total required minimum clearance to 3.6 feet. This clearance requirement is met in the case described by this Appendix.

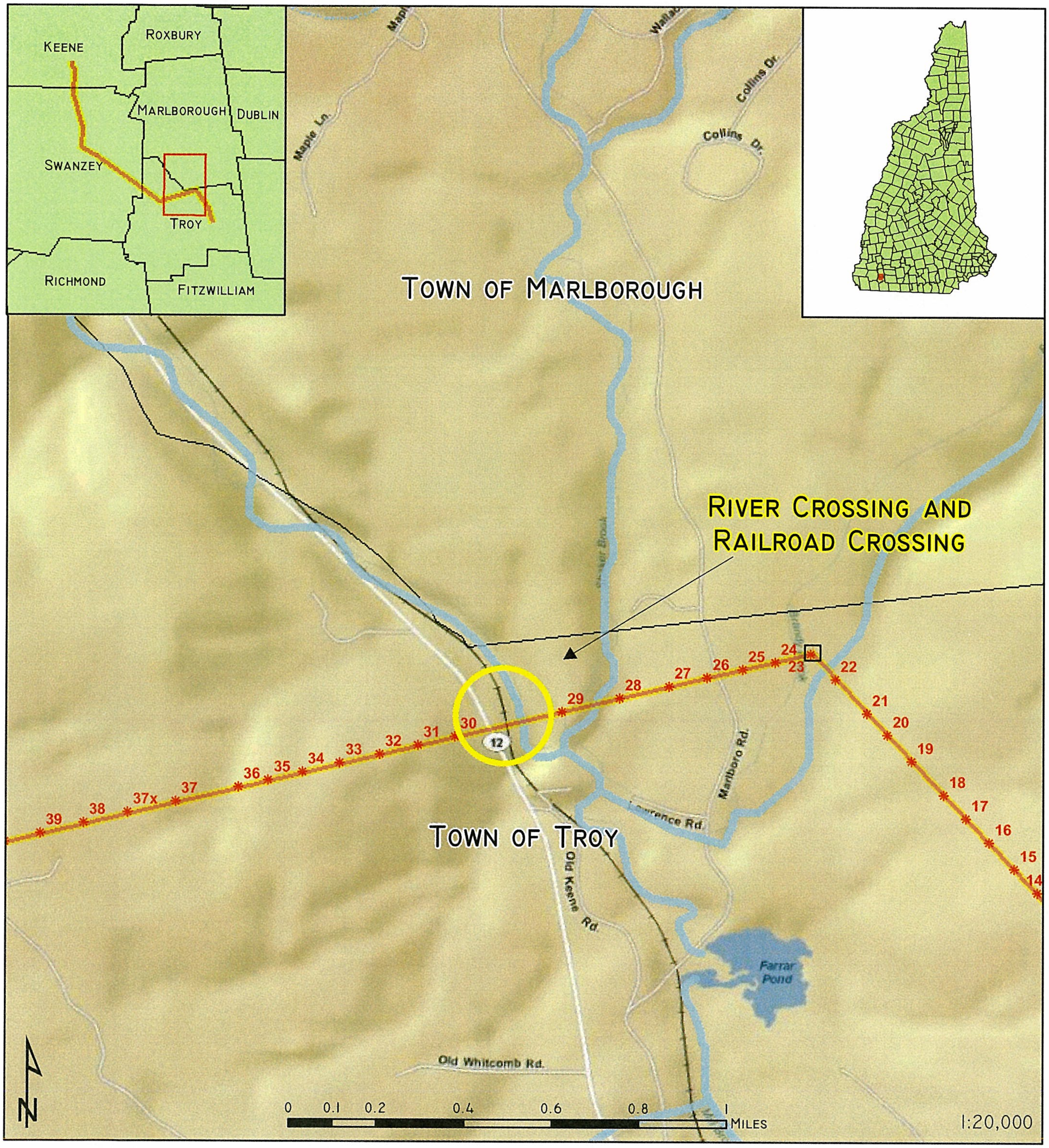


Exhibit A1

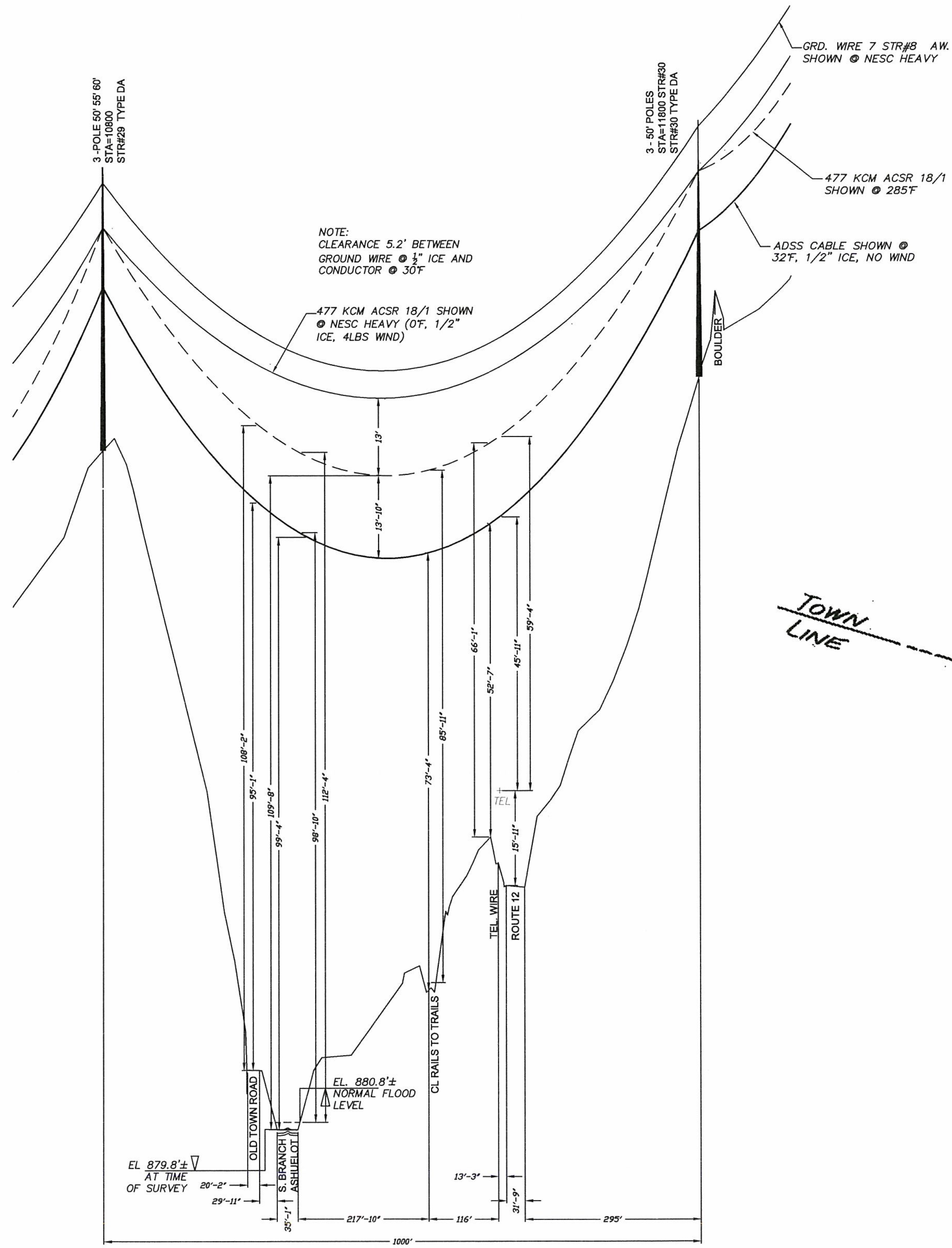
Public Service of New Hampshire
The Northeast Utilities System

VANDERWEIL

115 kV Line - T-198
Monadnock S/S to Emerald Street S/S

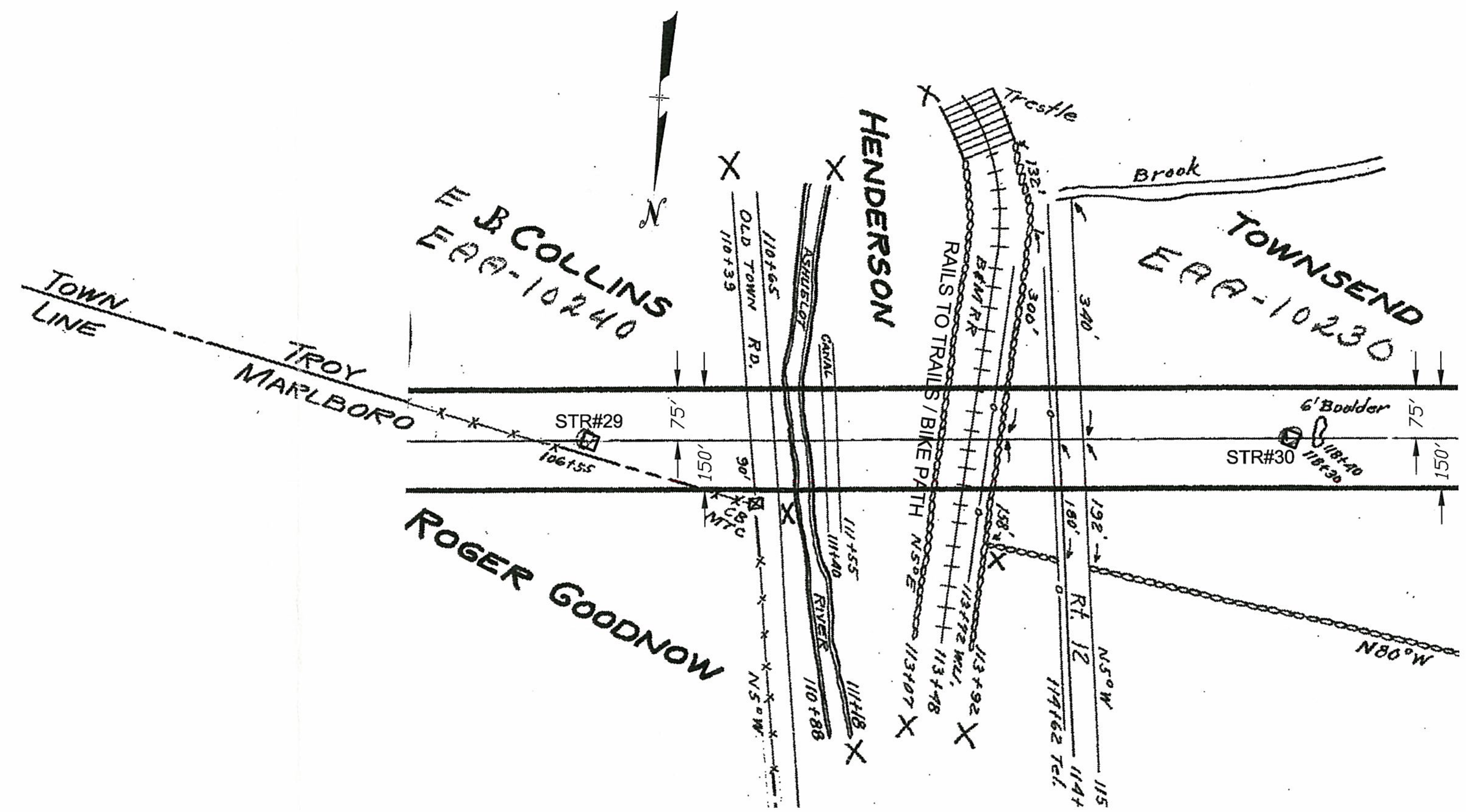
Locus Map - Structures 29-30
Troy, NH

Substations
Structures
T-198 Circuit



PROFILE

SCALE: 1"=200'
VERTICAL 1"=20'



PLAN VIEW

SCALE: 1"=200'

EXHIBIT A2

COMMUNICATIONS	ADSS 24 FIBER
CONDUCTOR	477 KCM ACSR 18/1
GROUND WIRE	7 STR#8 ALUMOWELD

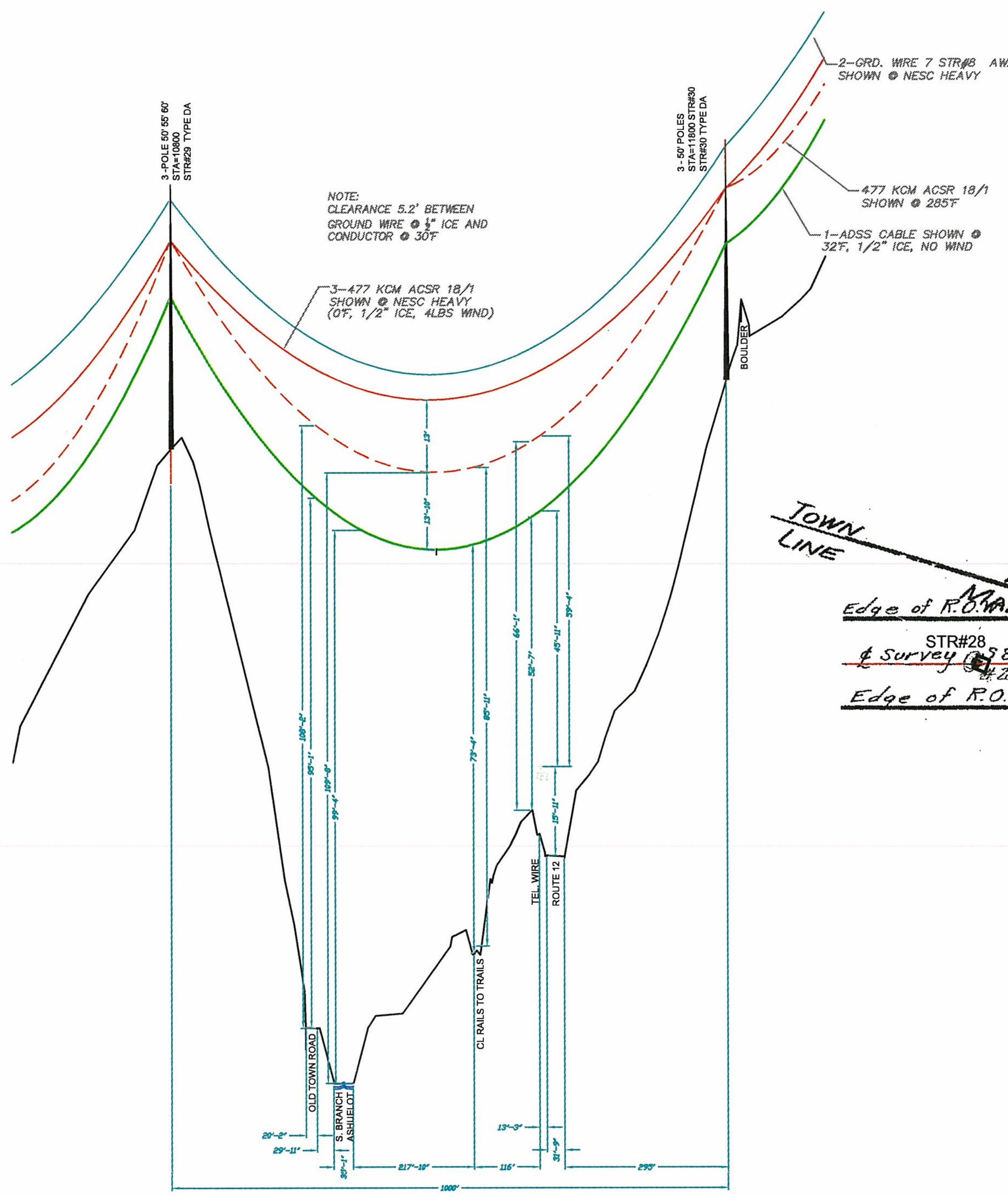
General Engineering Division

NO.	REVISION	DATE	DRWN	CHKD	APPR
0	ISSUED FOR LICENSING	6/17/08	JPR	AD	GAO

DRAWN: JPR
DESIGNED:
CHECKED: AD
APPROVED: GAO

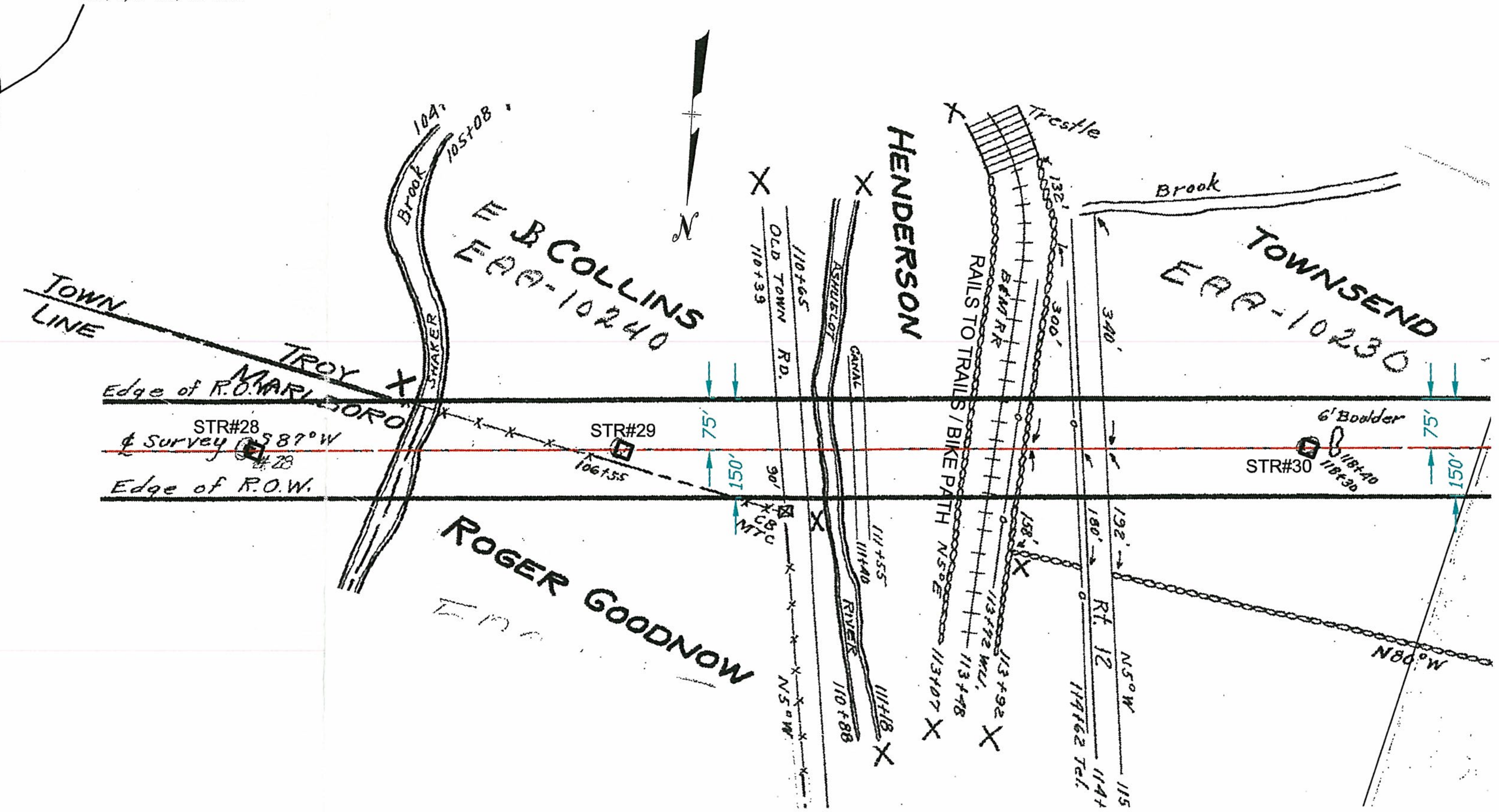
PROPOSED ADSS LINE
115 KV.-LINE T-198, MILE 3, STR 29-30
SOUTH BRANCH ASHUELOT RIVER WATER CROSSING
TROY, NEW HAMPSHIRE

SCALE	DATE	SHEET	DRAWING NO.
AS NOTED	7/1/08	1 OF 1	D-7649-503



PROFILE

SCALE: 1"=200'
VERTICAL 1"=20'



PLAN VIEW

SCALE: 1"=200'

EXHIBIT A3

V39NH/24	B & M VALUATION MAP

General Engineering Division

NO.	REVISION	DATE	DRWN	CHKD	APPR
1	LAND ADDED	6/14/63	CAC		HW
2	NO. WIRES ADDED	7/12/63			HW
3	ADDED 1-ADSS FIBER OPTIC CABLE	8/17/06	JPR	AD	GAO

DRAWN
DESIGNED
CHECKED
APPROVED

LINE T-198 CROSSING B & M R.R.
1605' No. OF MP.B83
TROY, NH

SCALE	DATE	SHEET	DRAWING NO.
AS NOTED	4/62	1 OF 1	A-8045-10 REV 3