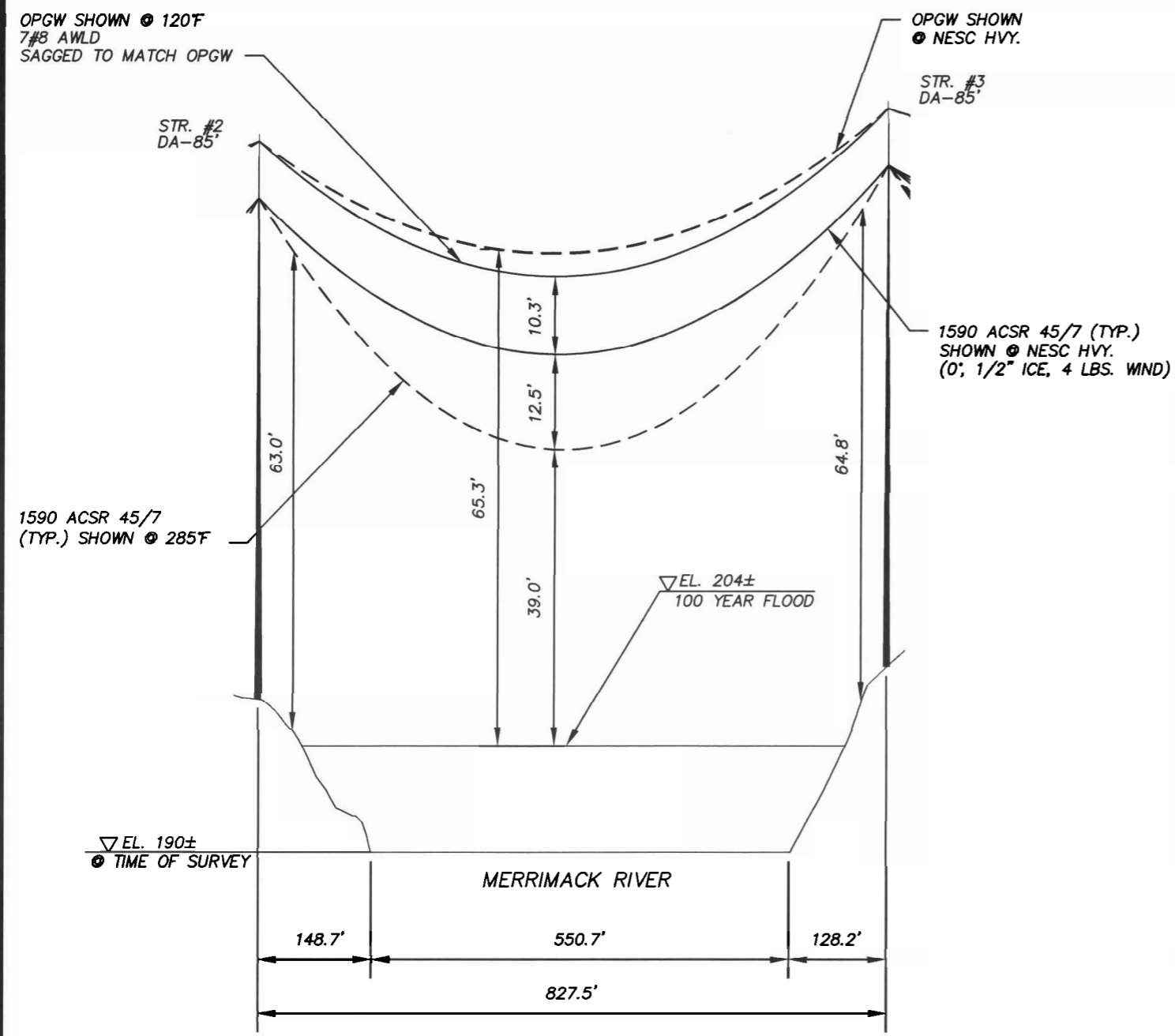


## APPENDIX A

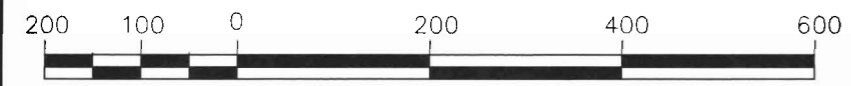
### **V-182 MERRIMACK RIVER BOW - CONCORD, NH**

1. The location of this crossing is shown on the attached location map marked as Exhibit 1.
2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled "V-182 LINE – 115 KV, MERRIMACK RIVER WATER CROSSING, BOW-CONCORD, NEW HAMPSHIRE" (Drawing No. 7649-163) marked as Exhibit 2.
3. Line V-182 will cross the Merrimack River on 3-pole, 85', wood dead end structures with a span of 827.5'. A detail of these structures has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the phase wires have a 14' separation at the structure. The OPGW wire and the 7 No. 8 Alumoweld static wire is carried on these structures above the phase wires by support brackets 7.5' above and 7' laterally from the phase wires. A special design tension of 13,500 lbs NESC Heavy has been used for the phase conductors and 6,500 lbs NESC for the static and OPGW wires for this span. Land along the shoreline between the structures of this crossing and the river is not traversable by vehicles. However, minimum distances to ground for truck traffic of 20.1' per the NESC have been met as 63.0' of clearance is provided.
4. Flood water elevations for the Merrimack River were based on information contained in flood insurance rate maps provided by FEMA. The 100-year flood elevation for this portion of the River is approximately 204'. No information was available for the 10-year flood elevation for this portion of the River. However, it should be noted that the 100-year elevation, which these lines were designed to safely exceed, would be well above the 10-year flood elevation. The area of the crossing, as required by the NESC (Section 232), is approximately 181 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing (1,500' x 5,280')/43,560 sf/ac = 181 ac). As stated in paragraph 8 of the Petition, the minimum required 115 kV conductor clearances for water surface areas greater than 20-200 acres is 30.1'.
5. The sags and clearances to the water surface during a 100-year flood event for this crossing are as follows;
  - Shield wires – Due to the fact that the OPGW wire and the static wire are located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.
  - NESC Heavy Loading - The maximum conductor sag for this weather case will be 23.5' with a clearance to the water surface of 51.5'.

THIS PLAN IS FOR REFERENCE ONLY.  
NO REPRESENTATION OR WARRANTY IS  
MADE AS TO LOCATION OF BOUNDARIES  
OR OTHER POINTS OF REFERENCE

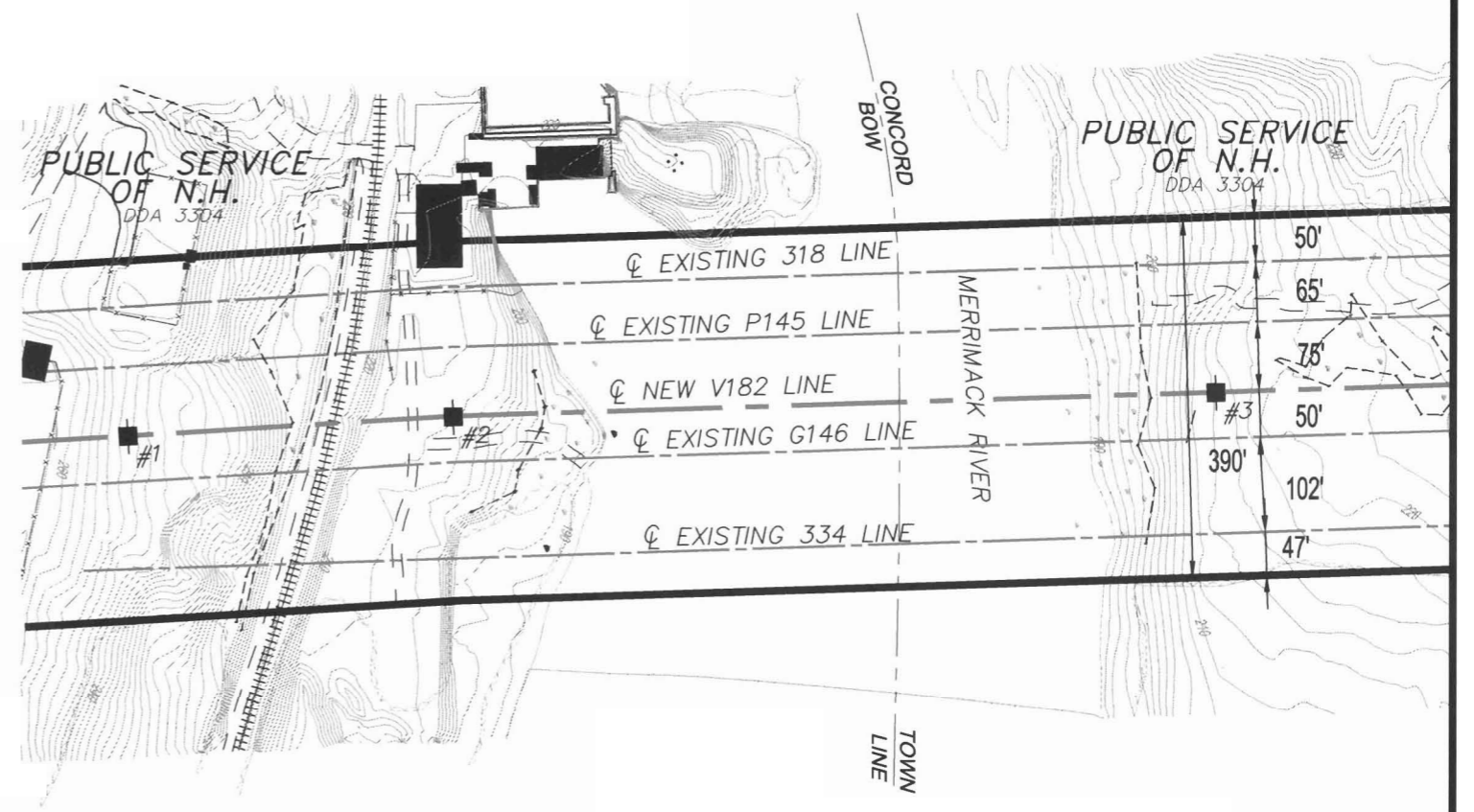
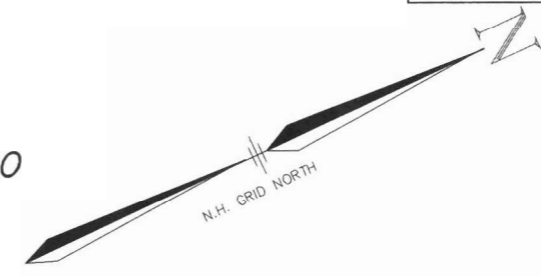


**PROFILE**  
SCALE: 1"=200' HORIZ.  
1"=20' VERT.



GRAPHIC SCALE  
(Feet)

GARVINS FALLS HYDRO



**PLAN VIEW**

SCALE: 1"=200'

**EXHIBIT 2**



Transmission Business

**V182 LINE - 115 KV  
MERRIMACK RIVER WATER CROSSING  
BOW-CONCORD, NEW HAMPSHIRE**

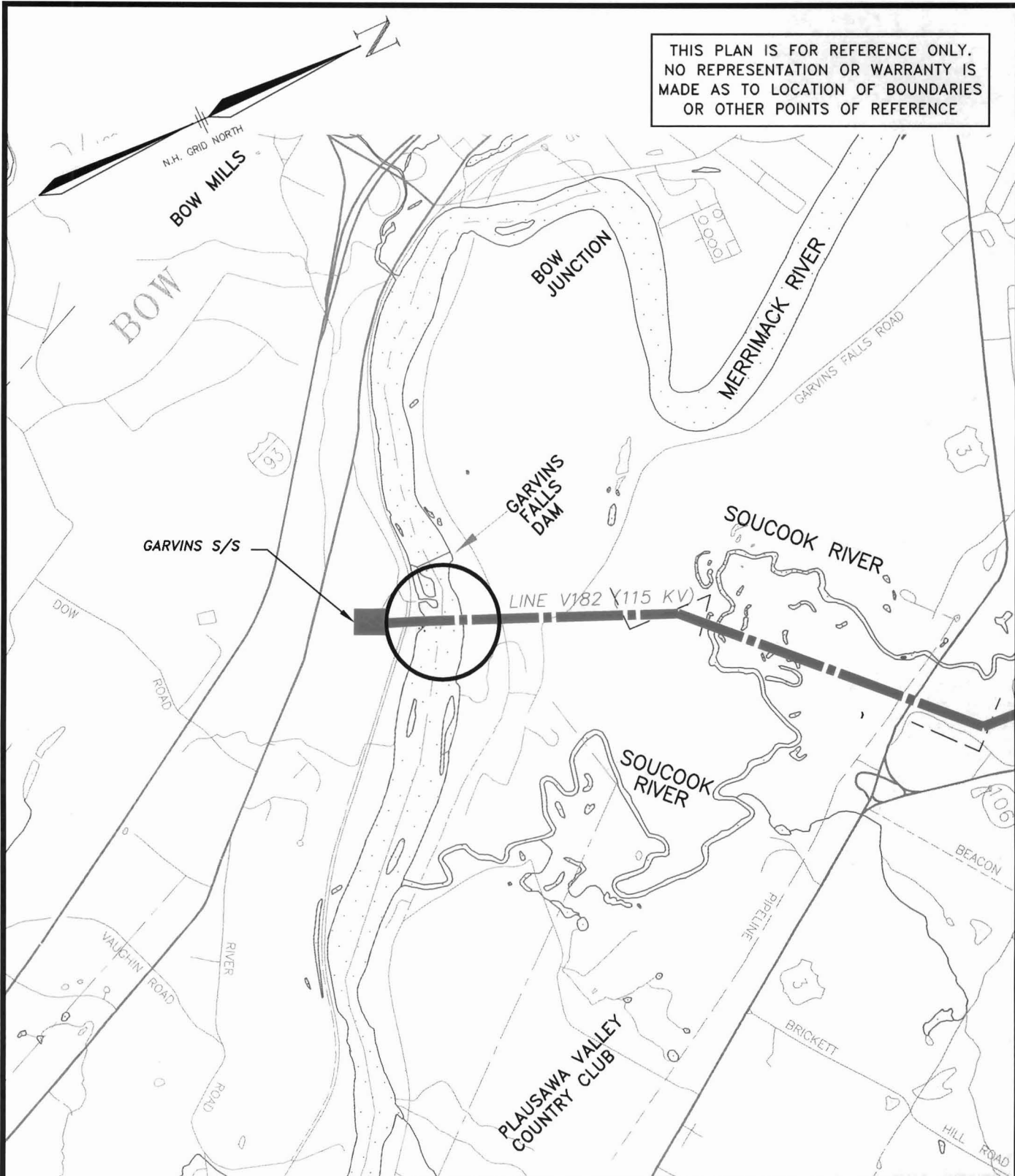
NO.	REVISION	DATE	DRWN	CHK	APPR
1	REVISED PER V182 RECONSTRUCTION	9/2007	JLO	JMD	

DRAWN JLO	SCALE 1"=200' DATE 08/08/07 SHEET 2 of 13 DRAWING NO. 7649-163
DESIGNED JMD	
CHECKED SKP	
APPROVED *	

-20 degrees F - The maximum conductor sag for this weather case will be 19.9' with a clearance to the water surface of 54.7'.

- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 35.3' with a clearance to the water surface of 39.0'. This condition produces the greatest sag in the phase wires and therefore the minimum clearance to the water surface. This design will exceed the minimum clearance requirement of 30.1' by 8.9' under temporary emergency conditions during a 100-yr storm event.
- Minimum phase to OPGW and static wire clearance – The weather case that would produce the minimum clearance between the phase wires and the shield wires would be a combination of winter weather factors. First, the phase wires would have to be at 30 deg. F just after an ice storm and would have just dropped their ice. The OPGW and the static wires would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 4.8' vertically and 7.0' horizontally from the shield wires to the closest phase wire. Based on Section 235.C.2.a.1 and Table 235-6 section 2.a of the NESC, the minimum clearance required is 57.4", or approximately 4'-10" [ $29'' + (121 \text{ kV} - 50 \text{ kV}) \times 0.4''$ ].

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 MADE AS TO LOCATION OF BOUNDARIES  
 OR OTHER POINTS OF REFERENCE



**EXHIBIT 1**

				DRAWN	Public Service of New Hampshire	Transmission Business	
				JLQ			
				DESIGNED	<b>V182 LINE - 115 KV</b> <b>MERRIMACK RIVER WATER CROSSING</b> <b>BOW-CONCORD, NEW HAMPSHIRE</b>		
				JMD			
				CHECKED			
				SKP			
				APPROVED	SCALE	DATE	
				*	AS NOTED	08/08/07	
				ISSUED FOR LICENSING	9/2007	JLQ	JMD
NO.	REVISION	DATE	DRWN	CHK	APPR	SHEET	DRAWING NO.
						1 OF 13	7649-163A