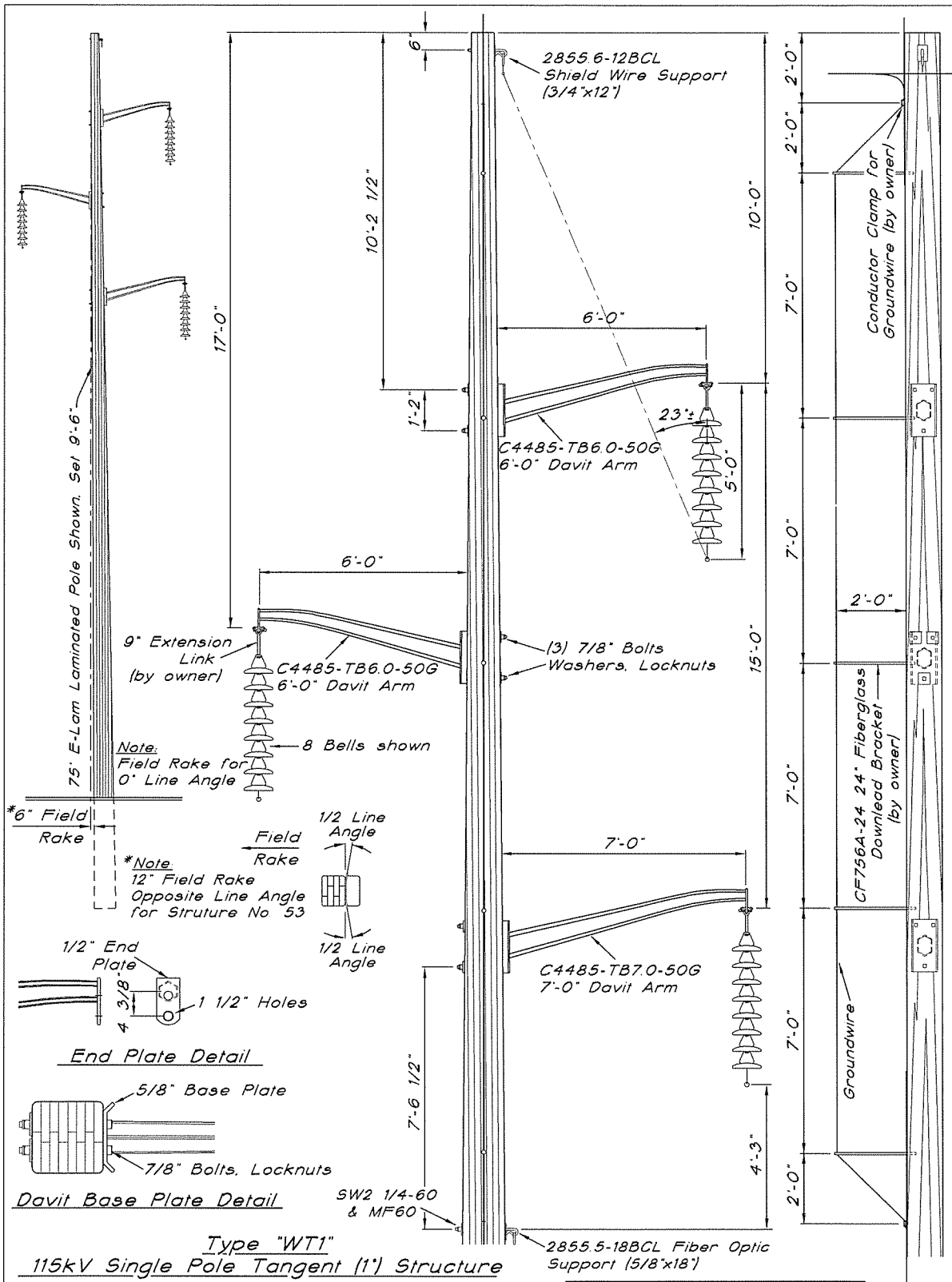


Table 1
 Crossing Licenses
 For Existing L-175 Line

| Town | Water Body | Structures | NHPUC Order Number | Current Petition Appendix |
|-------------------|--------------|------------|-------------------------|---------------------------|
| | | | | |
| Nottingham | | | | |
| | Bean River | 19 to 20 | Not Previously Licensed | A |
| | North River | 43 to 44 | Not Previously Licensed | B |
| | Little River | 67 to 68 | Not Previously Licensed | C |
| Barrington | | | | |
| | Oyster River | 90 to 91 | Not Previously Licensed | D |
| Lee | | | | |
| | Dube Brook | 113 to 114 | Not Previously Licensed | E |
| | Oyster River | 125 to 126 | Not Previously Licensed | F |



*6" Field Rake

*Note: 12" Field Rake Opposite Line Angle for Structure No 53

1/2" End Plate

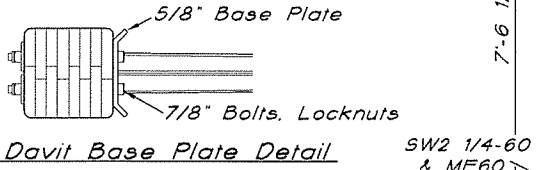
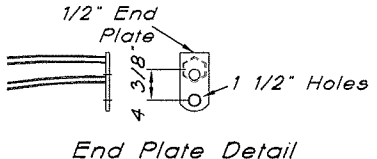
3/8" 4

1 1/2" Holes

1/2 Line Angle

Field Rake

1/2 Line Angle



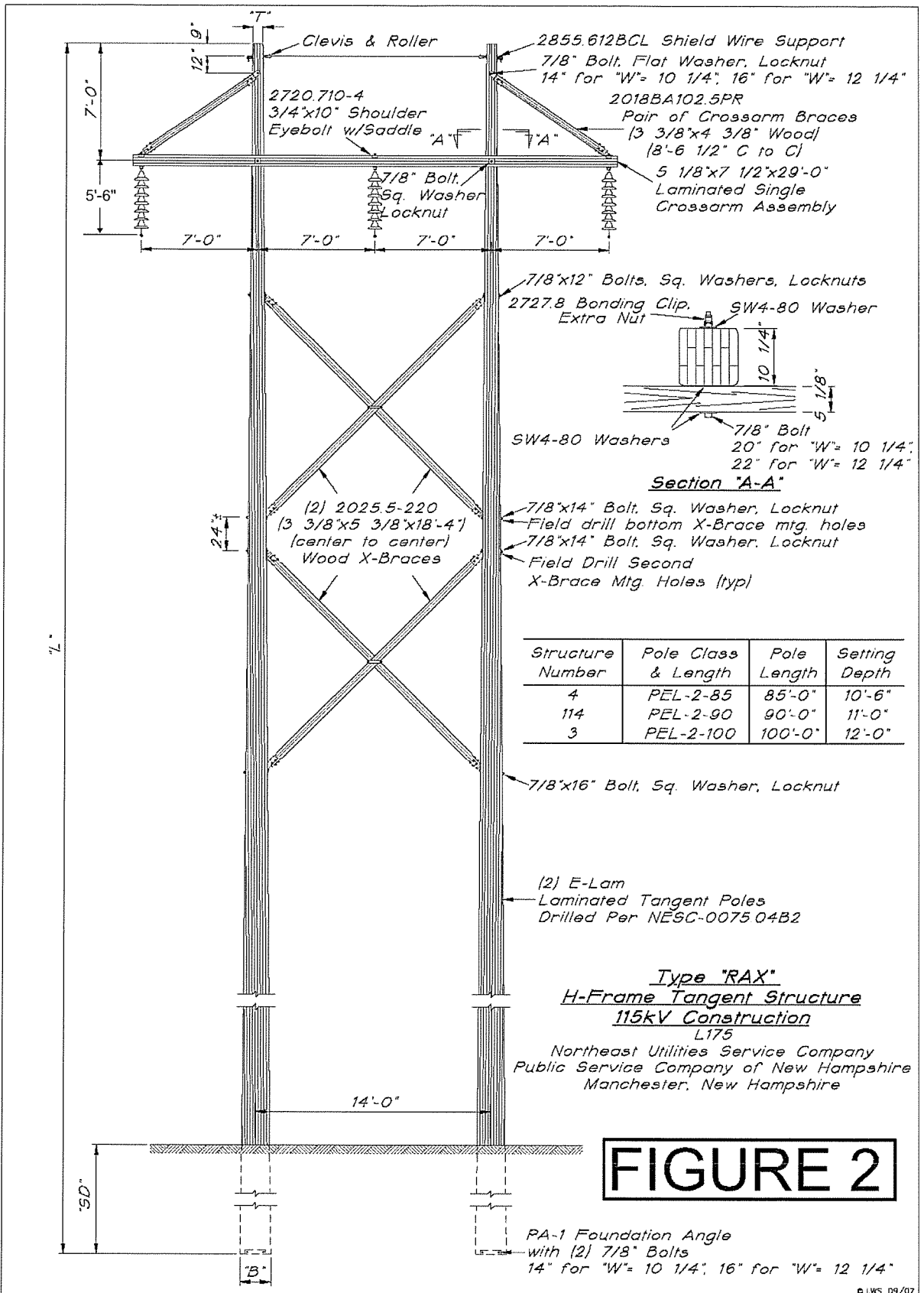
Type "WT1"
115kV Single Pole Tangent (1') Structure

(Line L175)
 Northeast Utilities Service Company
 Public Service Company of New Hampshire
 Manchester, New Hampshire

FIGURE 1

© LWS 7/09

| | | | | | | |
|----------------------------|----------|------|-----|--------------------------------|---------|----------------|
| | | | | Laminated Wood Systems, Inc. | | |
| | | | | E-LAM | | |
| | | | | P.O. BOX 386, SEWARD, NE 68434 | | 1-800-949-ELAM |
| NO. | REVISION | DATE | CK. | DRAWN | DATE | DWG. NO. |
| | | | | J Baack | 7-23-09 | NESC-0075.01A1 |
| ACAD DWG. FILE: NESC7501A1 | | | | | | |



e LWS D9/07

| | | | | | |
|----------------------------|----------|------|-----|---|----------------|
| | | | | Laminated Wood Systems, Inc. | |
| | | | | E-LAM [®] | |
| | | | | P.O. BOX 386, SEWARD, NE 68434 1-800-949-ELAM | |
| NO. | REVISION | DATE | CK. | DRAWN | DATE |
| ACAD DWG. FILE: NESC7504A2 | | | | J. Wilken | 10/13/09 |
| | | | | DWG. NO. | NESC-0075 04A2 |

APPENDIX A
L-175
BEAN RIVER
NOTTINGHAM, 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 “L175 LINE (115 KV), BETWEEN STRUCTURES 19 & 20, BEAN RIVER WATER CROSSING, NOTTINGHAM, NEW HAMPSHIRE” (Drawing No. 7649-600) marked as Exhibit 2.
3. Line L-175 will cross the Bean River on single-poles, 95’ (West) and 85’ (East), wood tangent structures with a span of 593’. A detail drawing of these structures has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7’ vertically and 12’ horizontally, while the middle and bottom phase wires are 8’ vertically and 13’ horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14’-6” above and 6’ laterally from the top phase wire. Minimum distances to ground for truck traffic of 20.1’ per the NESC have been met as 42.9’ of clearance is provided.
4. Flood water elevations for the Bean 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 269’. 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 (Table 232-1.7, Note 19), is approximately 52.1 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing (430’ x 5,280’)/43,560 sf/ac = 52.1 ac). As stated in paragraph 8 of the Petition, the minimum required 115 kV conductor clearances for water surface area between 20 and 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;
 - OPGW wire – Due to the fact that the OPGW wire is 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 15.3’ with a clearance to the water surface of 43.7’.

- -20 degrees F - The maximum conductor sag for this weather case will be 12.9' with a clearance to the water surface of 45.9'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 25' with a clearance to the water surface of 33.8'. 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 3.7' under temporary emergency conditions during a 100-yr storm event.
- Minimum phase to OPGW clearance – The weather case that would produce the minimum clearance between the phase wires and the OPGW wire 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 wire would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 9.8' vertically and 6.0' 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 57.3", or approximately 4.8' [29" + (120.8 kV-50 kV) x 0.4"].

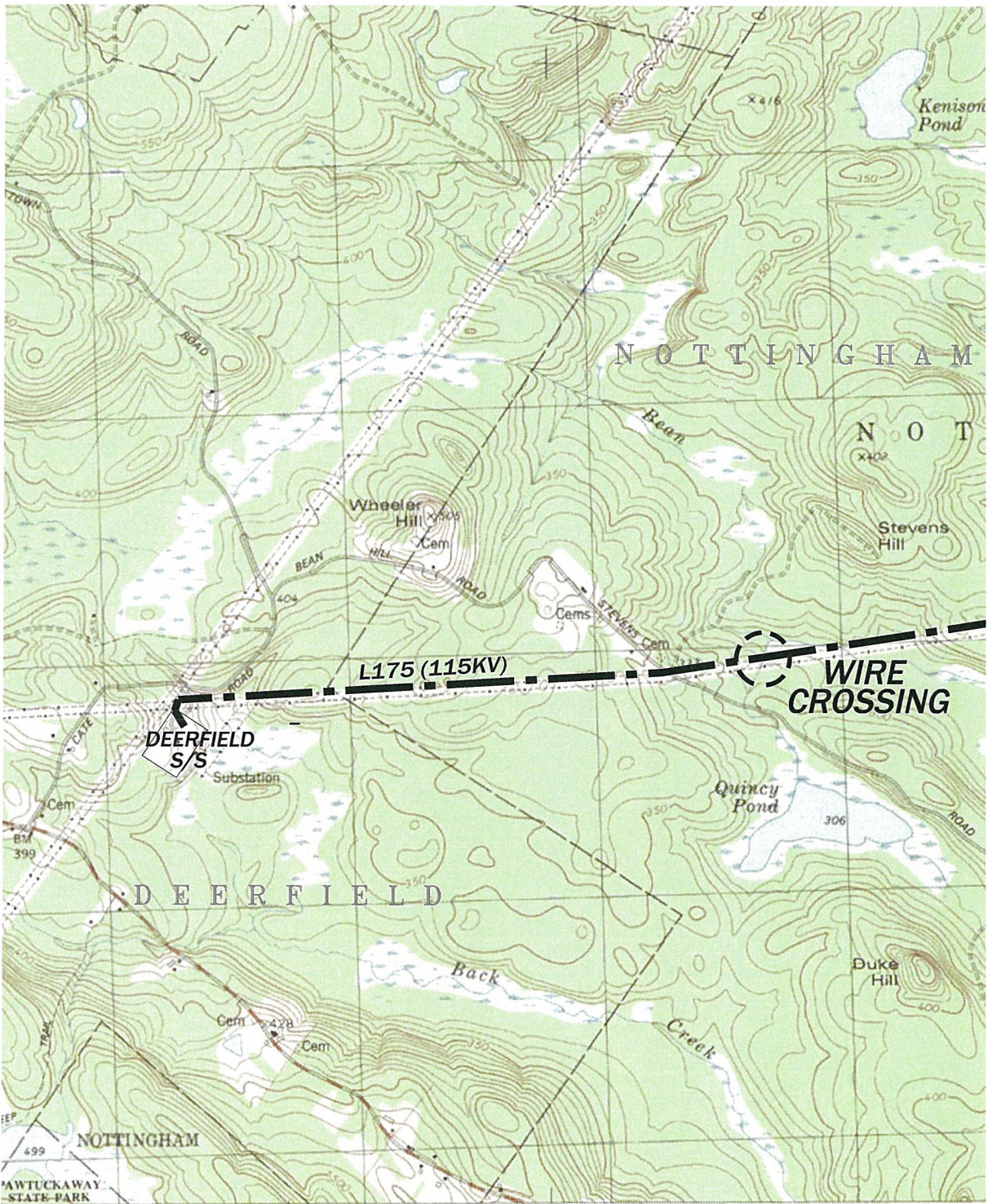
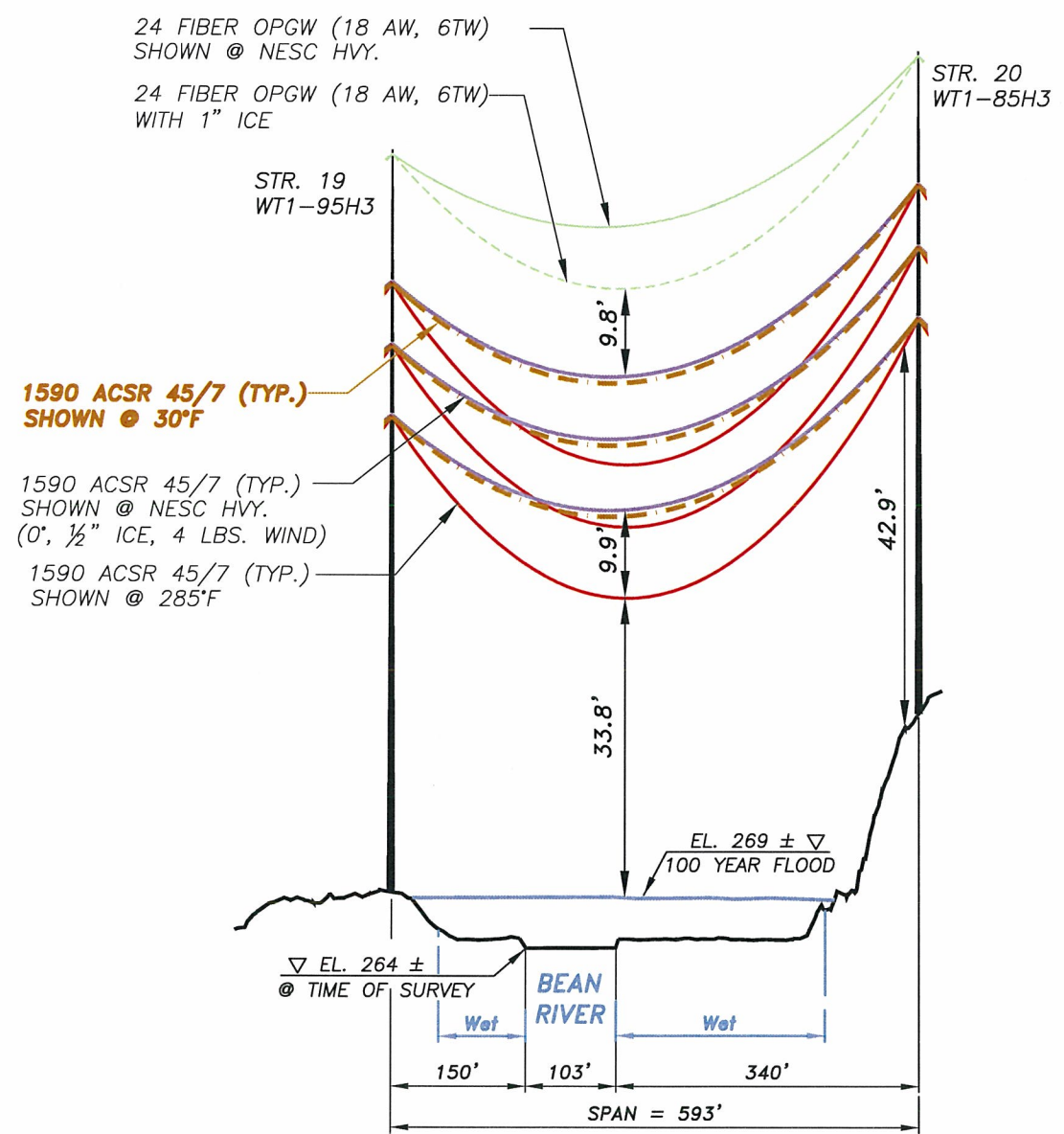


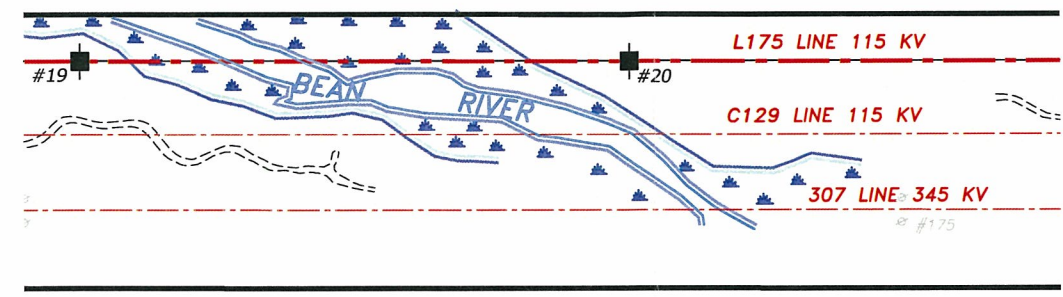
EXHIBIT 1

| | | | | | | | | |
|-----|----------|------|------|-----|----------|--|---|--|
| | | | | | | | | |
| | | | | | DRAWN | | Northeast Utilities | |
| | | | | | WNT | | Transmission Business | |
| | | | | | DESIGNED | | LOCATION PLAN L175 LINE (115 KV) BEAN RIVER WATER CROSSING NOTTINGHAM, NEW HAMPSHIRE | |
| | | | | | DSD | | | |
| | | | | | CHECKED | | | |
| | | | | | WNT | | | |
| | | | | | APPROVED | | SCALE | |
| | | | | | JRS | | DATE | |
| | | | | | | | SHEET | |
| | | | | | | | DRAWING NO. | |
| | | | | | 1"=2000' | | 10/28/09 | |
| | | | | | | | 2 of 2 | |
| | | | | | | | D-7649-600A | |
| NO. | REVISION | DATE | DRWN | CHK | APPR | | | |

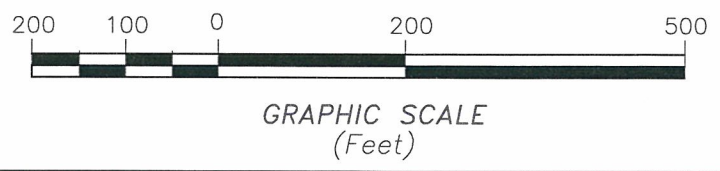
THIS PLAN IS FOR REFERENCE ONLY.
NO REPRESENTATION OR WARRANTY IS
MADE AS TO LOCATION OF BOUNDARIES
OR OTHER POINTS OF REFERENCE



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



PLAN VIEW
SCALE: 1"=200'



GRAPHIC SCALE
(Feet)

EXHIBIT 2

| | | | |
|------------------|------------------|--|---------------------------|
| | | Transmission Business | |
| DRAWN WNT | | L175 LINE (115 KV) BETWEEN STRUCTURES 19 & 20 BEAN RIVER WATER CROSSING NOTTINGHAM, NEW HAMPSHIRE | |
| DESIGNED DSD | | | |
| CHECKED WNT | | | |
| APPROVED JRS | | | |
| SCALE 1"=200' | DATE 10/17/09 | SHEET 1 OF 2 | DRAWING NO. D-7649-600 |

| NO. | REVISION | DATE | DRWN | CHK | APPR |
|-----|----------|------|------|-----|------|
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| | | | | | |
| | | | | | |

APPENDIX B

L-175 NORTH RIVER NOTTINGHAM, NH

1. The location of this crossing is shown on the attached location map marked as Exhibit 3.
2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled "L175 LINE (115 KV), BETWEEN STRUCTURES 43 & 44, NORTH RIVER WATER CROSSING, NOTTINGHAM, NEW HAMPSHIRE" (Drawing No. 7649-601) marked as Exhibit 4.
3. Line L-175 will cross the North River on single-pole, 95°, wood tangent structures with a span of 526'. A detail drawing of these structures has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7' vertically and 12' horizontally, while the middle and bottom phase wires are 8' vertically and 13' horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14'-6" above and 6' laterally from the top phase wire. Both structures are located in wetland areas not subject to truck traffic, however, 33.8' of clearance to the highest point in the wetland has been provided for any truck traffic operating during frozen or matted conditions. This clearance exceeds the 20.1' requirement of the NESC.
4. Flood water elevations for the North 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 240'. 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 portion of the river, at the location of this crossing, is not suitable for sail boating as defined by the NESC for the following reasons: Under normal flow conditions the channel depth of the river is approximately one foot deep. To the south, the river is impounded by a box culvert at Route 152 at an elevation of 240' to the top of the culvert. Under flood conditions no vessel would be able to pass through the culvert as it would be flowing full (elev. 240-ft). This culvert is located 211 ft to the West of the crossing. To the north and east of the crossing the river splits and is again culverted at Freeman Hall and Priest Roads. At Freeman Hall Road, located outside of the flood zone and a much higher elevation (299-ft) no sailboat would be able to reach the impoundment. As this is the beginning of the river, FEMA clearly states that this section would not flow outside of its banks and would have a depth of 1-ft during a 100 year flood. The clearance of a boat under flood conditions through the Priest Road culvert would be 4' (elev. 244-ft) and not suitable for a sail boat. These obstructions are located 1.10 miles and .5 miles respectively from the location of the crossing. In between these obstructions is a delineated wetland area. This area has no access roads or boat ramps to launch a sailboat. Natural wetland vegetation, including

grasses and shrubs greater than 4-ft tall, would prevent free navigation of the wetlands under flood conditions through this area. Due to the two obstructions and lack of access in between, PSNH has concluded that this area of the river is not suitable for sail boating. As stated in paragraph 8 of the Petition, the minimum required 115 kV conductor clearances for waters unsuitable for sail boating is 18.6'.

5. The sags and clearances to the water surface during a 100-year flood event for this crossing are as follows;

- OPGW wire – Due to the fact that the OPGW wire is 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 11.9' with a clearance to the water surface of 35.1'.
- -20 degrees F - The maximum conductor sag for this weather case will be 10' with a clearance to the water surface of 37'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 19.9' with a clearance to the water surface of 26.8'. 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 18.6' by 8.2' under temporary emergency conditions during a 100-yr storm event.
- Minimum phase to OPGW clearance – The weather case that would produce the minimum clearance between the phase wires and OPGW wire 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 would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 10.8' vertically and 6.0' horizontally from the OPGW 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 57.3", or approximately 4.8' [29" + (120.8 kV-50 kV) x 0.4"].

APPENDIX C

L-175 LITTLE RIVER NOTTINGHAM, NH

1. The location of this crossing is shown on the attached location map marked as Exhibit 5.
2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled "L175 LINE (115 KV), BETWEEN STRUCTURES 67 & 68, LITTLE RIVER WATER CROSSING, NOTTINGHAM, NEW HAMPSHIRE" (Drawing No. 7649-602) marked as Exhibit 6.
3. Line L-175 will cross the Little River on single-poles, 90', wood tangent structures with a span of 526'. A detail drawing of these structures has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7' vertically and 12' horizontally, while the middle and bottom phase wires are 8' vertically and 13' horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14'-6" above and 6' laterally from the top phase wire. One of the structures is located in wetland areas not subject to truck traffic, and the other is located outside the wetland boundary. A clearance of 30.4' to the highest point in the wetland has been provided for any truck traffic operating during frozen or matted conditions since this is the lowest clearance to ground that a truck may encounter. This clearance exceeds the 20.1' requirement of the NESC.
4. Flood water elevations for the Little 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 187'. 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 portion of the river at the location of this crossing is not suitable for sail boating as defined by the NESC for the following reasons: To the North of the crossing, the Little River enters a culvert under Route 4 with a top elevation of 197'. To the south of the crossing is a culvert at Kennard Road with an elevation of 178'. Under normal flow conditions the depth of the river is around one foot, and not capable of allowing a sailboat to traverse. During a flood event a sail boat would not be able to pass under either culvert as the FEMA map shows the flood waters passing over the road. In between these road crossings is delineated wetland where there is no access or boat ramps to launch a boat. Due to the two obstructions and lack of access in between, PSNH has concluded that this area of the river is not suitable for sail boating. As stated in paragraph 8 of the Petition, the minimum required 115kV conductor clearances for waters unsuitable for sail boating is 18.6'.

5. The sags and clearances to the water surface during a 100-year flood event for this crossing are as follows;

- OPGW wire – Due to the fact that the OPGW wire is 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 11.9' with a clearance to the water surface of 34.5'.
- -20 degrees F - The maximum conductor sag for this weather case will be 10' with a clearance to the water surface of 36.3'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 19.8' with a clearance to the water surface of 26.3'. 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 18.6' by 7.7' under temporary emergency conditions during a 100-yr storm event.
- Minimum phase to OPGW clearance – The weather case that would produce the minimum clearance between the phase wires and OPGW wire 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 would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 10.7' vertically and 6.0' horizontally from the OPGW 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 57.3", or approximately 4.8' [29" + (120.8 kV-50 kV) x 0.4"].

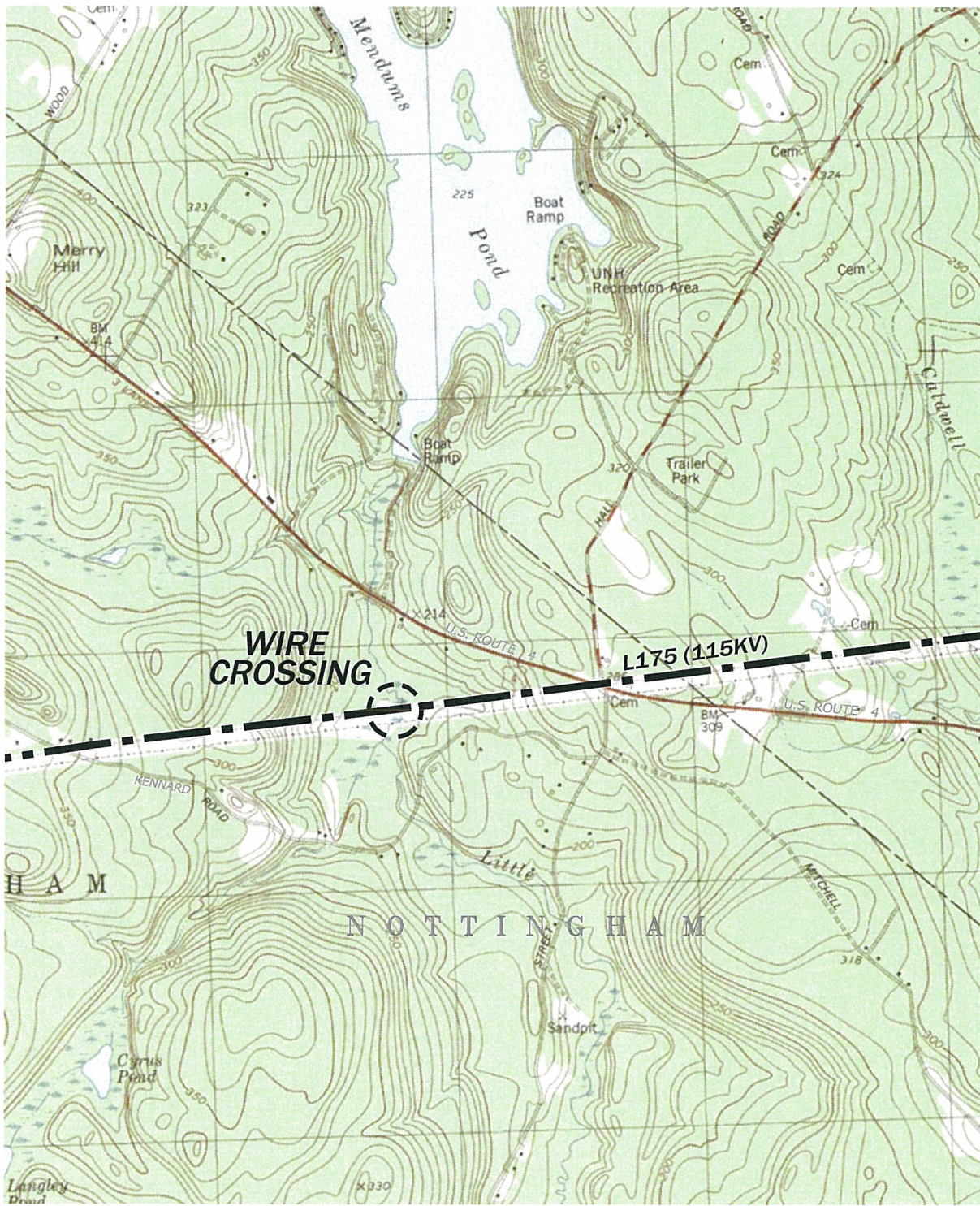
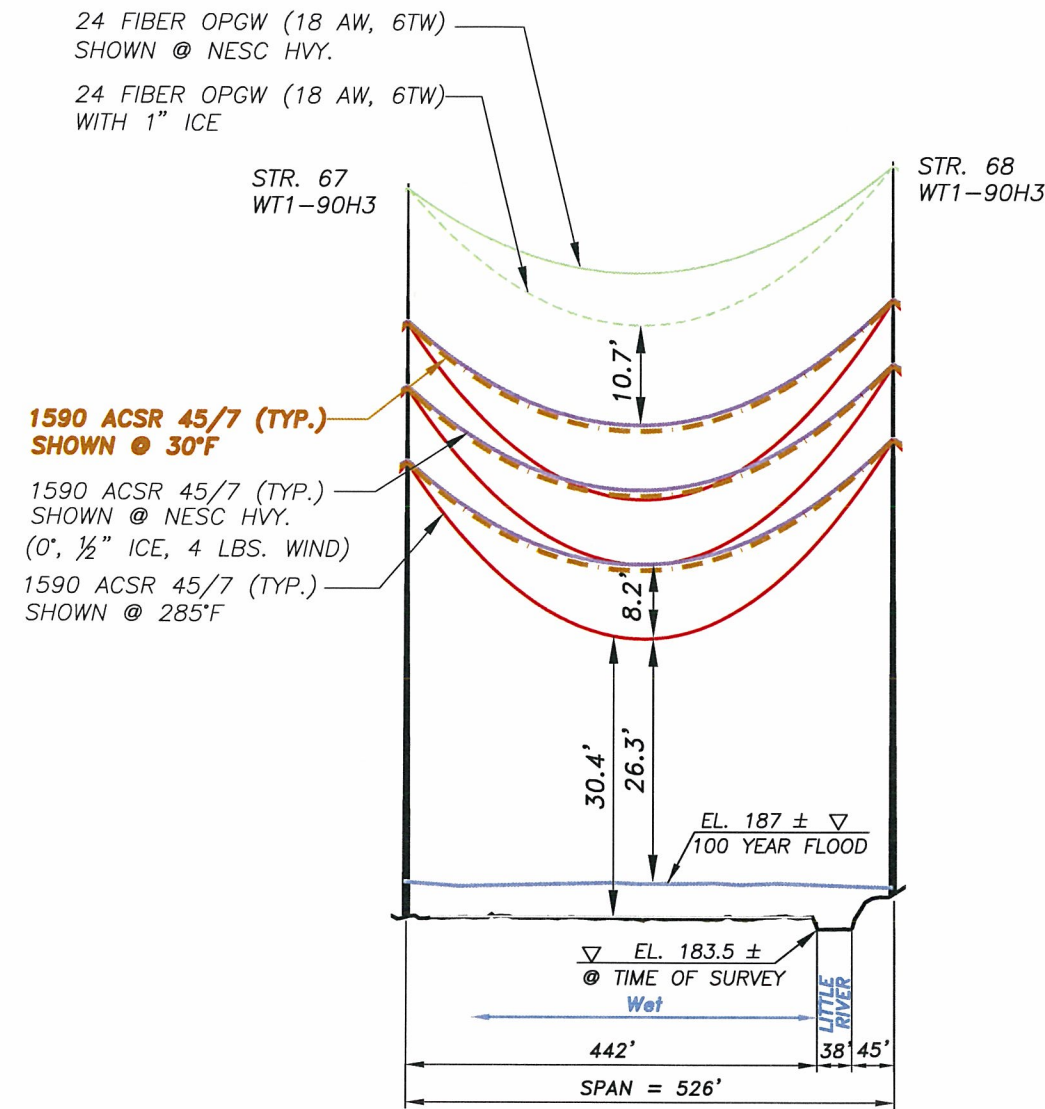


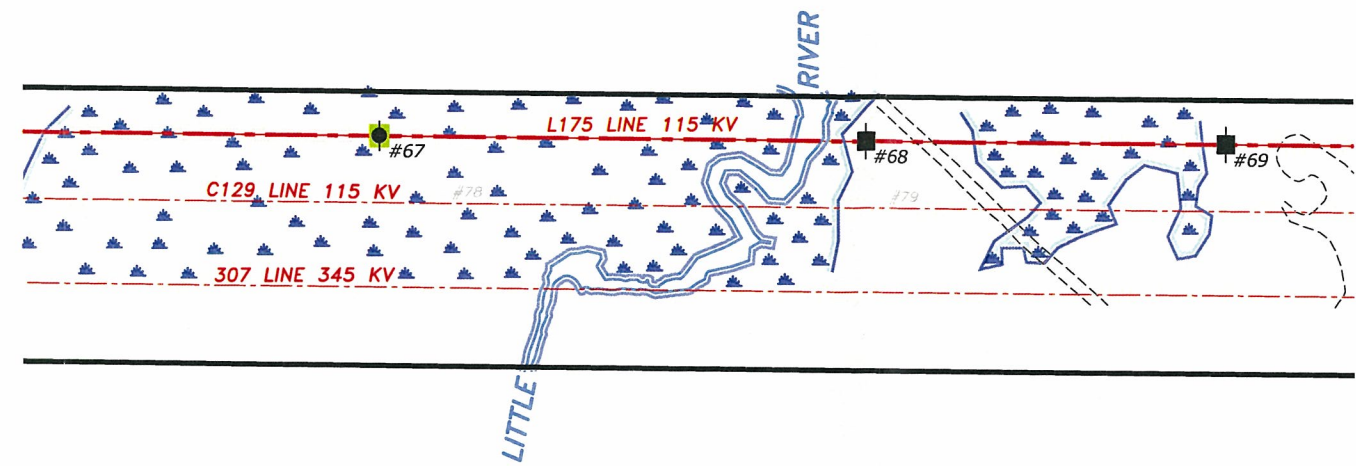
EXHIBIT 5

| | | | | | | | | | | | | | |
|-----|----------|--|--|------|------|-----|------|--|--|---|----------|--------|-------------|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | DRAWN | | | |
| | | | | | | | | | | WNT | | | |
| | | | | | | | | | | DESIGNED | | | |
| | | | | | | | | | | DSD | | | |
| | | | | | | | | | | CHECKED | | | |
| | | | | | | | | | | WNT | | | |
| | | | | | | | | | | APPROVED | | | |
| | | | | | | | | | | JRS | | | |
| | | | | | | | | | | Northeast Utilities Transmission Business | | | |
| | | | | | | | | | | LOCATION PLAN L175 LINE (115 KV) LITTLE RIVER WATER CROSSING NOTTINGHAM, NEW HAMPSHIRE | | | |
| | | | | | | | | | | SCALE | DATE | SHEET | DRAWING NO. |
| | | | | | | | | | | 1"=2000' | 10/28/09 | 2 OF 2 | D-7649-602A |
| NO. | REVISION | | | DATE | DRWN | CHK | APPR | | | | | | |

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.
20' VERT.



PLAN VIEW
SCALE: 1"=200'

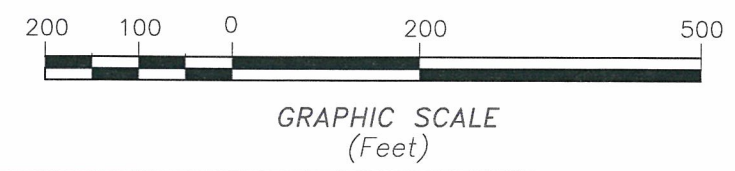



EXHIBIT 6

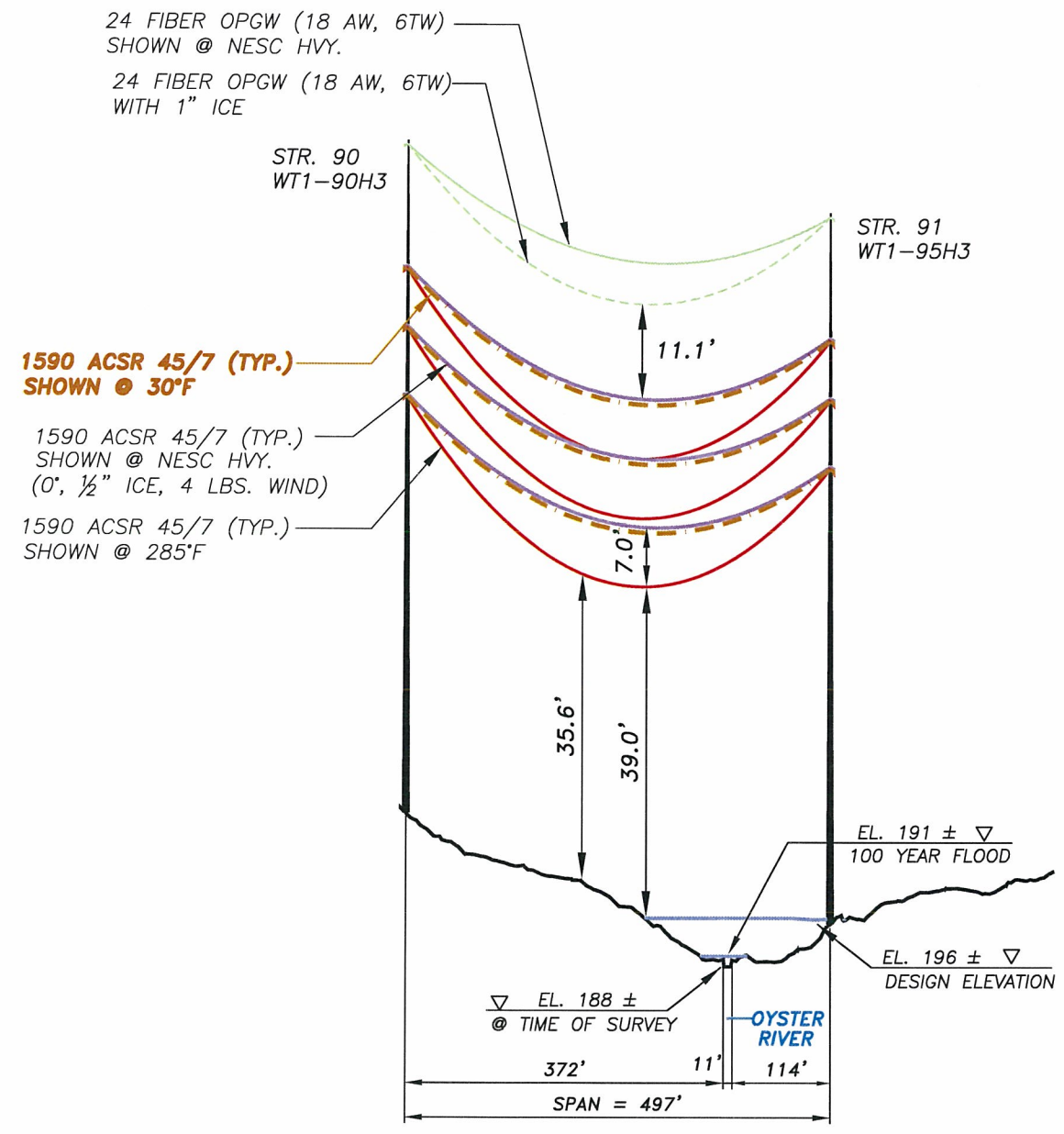
| | | | | | |
|--|--|------------------|-----------------|---------------------------|------|
|  Northeast Utilities | Transmission Business | | | | |
| | L175 LINE (115 KV) BETWEEN STRUCTURES 67 & 68 LITTLE RIVER WATER CROSSING NOTTINGHAM, NEW HAMPSHIRE | | | | |
| DRAWN WNT | SCALE 1"=200' | DATE 10/17/09 | SHEET 1 OF 2 | DRAWING NO. D-7649-602 | |
| DESIGNED DSD | | | | | |
| CHECKED WNT | | | | | |
| APPROVED JRS | | | | | |
| NO. | REVISION | DATE | DRWN | CHCK | APPR |

APPENDIX D
OYSTER RIVER
BARRINGTON, NH

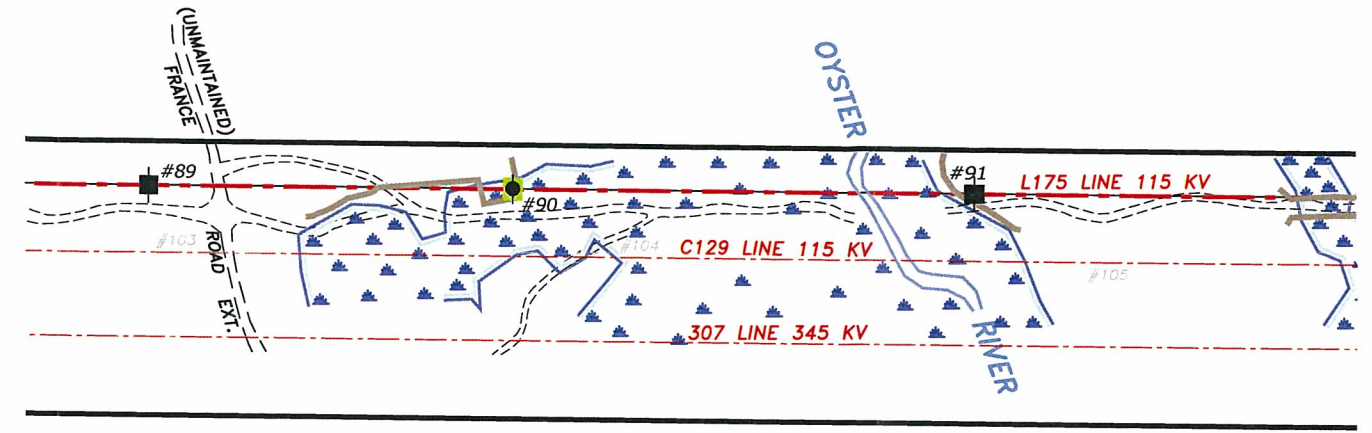
1. The location of this crossing is shown on the attached location map marked as Exhibit 7.
2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled "L175 LINE (115 KV), BETWEEN STRUCTURES 90 & 91, OYSTER RIVER WATER CROSSING, BARRINGTON, NEW HAMPSHIRE" (Drawing No. 7649-603) marked as Exhibit 8.
3. Line L-175 will cross the Oyster River on single-poles, 90' (West) and 95' (East), wood tangent structures with a span of 497'. A detail drawing of these structures has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7' vertically and 12' horizontally, while the middle and bottom phase wires are 8' vertically and 13' horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14'-6" above and 6' laterally from the top phase wire. Minimum distances to ground for truck traffic of 20.1' per the NESC have been met as 35.6' of clearance is provided.
4. Flood water elevations for the Oyster River were based on information contained in flood insurance rate maps provided by FEMA. According to FEMA this section of the river is not expected to leave its channel, an approximate elevation of 191' for the 100 year flood. Due to the uncertainty of this data, a 5' buffer was added to this elevation to make the design flood elevation for this portion of the river is 196'. This is a conservative assumption exceeding the recommended FEMA flood elevation. No information was available for the 10-year flood elevation for this portion of the River. However, it should be noted that the design elevation, would be well above the 10-year flood elevation. The area of the crossing, as required by the NESC (Table 232-1.7, Note 19), is approximately 26.7 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing (220' x 5,280')/43,560 sf/ac = 26.7 ac). As stated in paragraph 8 of the Petition, the minimum required 115 kV conductor clearances for water surface areas between 20 and 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;
 - OPGW wire – Due to the fact that the OPGW wire is 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 10.5' with a clearance to the water surface of 46.0'.

- -20 degrees F - The maximum conductor sag for this weather case will be 9.5' with a clearance to the water surface of 47'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 17.9' 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 design storm event.
- Minimum phase to OPGW clearance– The weather case that would produce the minimum clearance between the phase wires and the OPGW wire 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 wire would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 11.1' vertically and 6.0' 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 57.3", or approximately 4.8' [29" + (120.8 kV-50 kV) x 0.4"].

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.
20' VERT.



PLAN VIEW
SCALE: 1"=200'

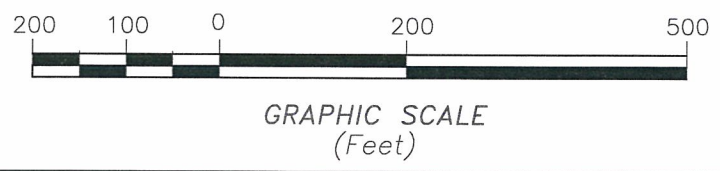


EXHIBIT 8

| | | | | | |
|-----------------|--|--|------------------|-----------------|---------------------------|
| | | Transmission Business | | | |
| DRAWN WNT | | L175 LINE (115 KV) BETWEEN STRUCTURES 90 & 91 OYSTER RIVER WATER CROSSING BARRINGTON, NEW HAMPSHIRE | | | |
| DESIGNED DSD | | | | | |
| CHECKED WNT | | | | | |
| APPROVED JRS | | SCALE 1"=200' | DATE 10/17/09 | SHEET 1 OF 2 | DRAWING NO. D-7649-603 |

| NO. | REVISION | DATE | DRWN | CHK | APPR |
|-----|----------|------|------|-----|------|
| | | | | | |
| | | | | | |
| | | | | | |
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APPENDIX E
DUBE BROOK
LEE, NH

1. The location of this crossing is shown on the attached location map marked as Exhibit 9.

2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled "L175 LINE (115 KV), BETWEEN STRUCTURES 113 & 114, DUBE BROOK WATER CROSSING, LEE, NEW HAMPSHIRE" (Drawing No. 7649-604) marked as Exhibit 10.

3. Line L-175 will cross Dube Brook on one single-pole 80' Type WT1, (West) and one 90' Type RAX two pole (East), wood tangent structures with a span of 683'. A detail of these structures have been provided with the Petition as FIGURE 1 and FIGURE 2, respectively. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7' vertically and 12' horizontally, while the middle and bottom phase wires are 8' vertically and 13' horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14'-6" above and 6' laterally from the top phase wire. As shown on FIGURE 2, the three phase wires are oriented in a horizontal arrangement have an approximate separation of 14' horizontally. One OPGW wire is carried on one pole of the structure above the phase wires by a support bracket approximately 11'-9" above and 7' laterally from the phase wires. One 19#10 Alumoweld static wire is carried on the other pole of the structure above the phase wires by a support bracket approximately 11'-9" above and 7' laterally from the phase wires. Minimum distances to ground for truck traffic of 20.1' per the NESC have been met as 36.3' of clearance is provided.

4. Flood water elevations for the Dube Brook were based on information contained in flood insurance rate maps provided by FEMA. According to FEMA this section of the river is not expected to leave its channel, an approximate elevation of 100' for the 100 year flood. Due to the uncertainty of this data, a 5' buffer was added to this elevation to make the design flood elevation for this portion of the river 105'. This is a conservative assumption exceeding the recommended FEMA flood elevation. No information was available for the 10-year flood elevation for this portion of the brook. However, it should be noted that the design elevation, would be well above the 10-year flood elevation. The area of the crossing, as required by the NESC (Table 232-1.7, Note 19), is approximately 37.6 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing (310' x 5,280')/43,560 sf/ac = 37.6 ac). As stated in paragraph 8 of the Petition, the minimum required 115 kV conductor clearances for water surface areas between 20 and 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 21' with a clearance to the water surface of 51.7'.
- -20 degrees F - The maximum conductor sag for this weather case will be 17.9' with a clearance to the water surface of 55.9'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 34.2' with a clearance to the water surface of 39.9'. 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 9.8' under temporary emergency conditions during a 100-yr design storm event.
- Minimum phase to OPGW and static wire clearance – The OPGW will always have less clearance to the phase wires due to the higher sag of the OPGW compared to the 19#10 Alumoweld. For this reason calculations between the static and phase wires used the clearance to the OPGW. 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 19#10 Alumoweld 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 7.5' vertically and 7' 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 57.3", or approximately 4.8' [29" + (120.8 kV-50 kV) x 0.4"].

APPENDIX F
L-175
OYSTER RIVER
LEE, NH

1. The location of this crossing is shown on the attached location map marked as Exhibit 11.
2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled “L175 LINE (115 KV), BETWEEN STRUCTURES 125 & 126, OYSTER RIVER WATER CROSSING, LEE, NEW HAMPSHIRE” (Drawing No. 7649-605) marked as Exhibit 12.
3. Line L-175 will cross the Oyster River on single-poles, 90’ (West) and 100’ (East), wood tangent structures with a span of 624’. A detail drawing of these structures has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7’ vertically and 12’ horizontally, while the middle and bottom phase wires are 8’ vertically and 13’ horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14’-6” above and 6’ laterally from the top phase wire. Minimum distances to ground for truck traffic of 20.1’ per the NESC have been met as 30.1’ of clearance is provided.
4. Flood water elevations for the Oyster 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 79’. 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 (Table 232-1.7, Note 19), is approximately 18.2 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing (150’ x 5,280’)/43,560 sf/ac = 18.2 ac). As stated in paragraph 8 of the Petition, the minimum required 115 kV conductor clearances for water surface areas less than 20 acres is 22.1’.
5. The sags and clearances to the water surface during a 100-year flood event for this crossing are as follows;
 - OPGW wire – Due to the fact that the OPGW wire and the static wire is 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 17.1’ with a clearance to the water surface of 49.5’.

- -20 degrees F - The maximum conductor sag for this weather case will be 14.3' with a clearance to the water surface of 52'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 29' with a clearance to the water surface of 38.9'. 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 22.1' by 16.8' under temporary emergency conditions during a 100-yr storm event.
- Minimum phase to OPGW clearance – The weather case that would produce the minimum clearance between the phase wires and the OPGW wire 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 wire would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 9' vertically and 6.0' 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 57.3", or approximately 4.8' [29" + (120.8 kV-50 kV) x 0.4"].

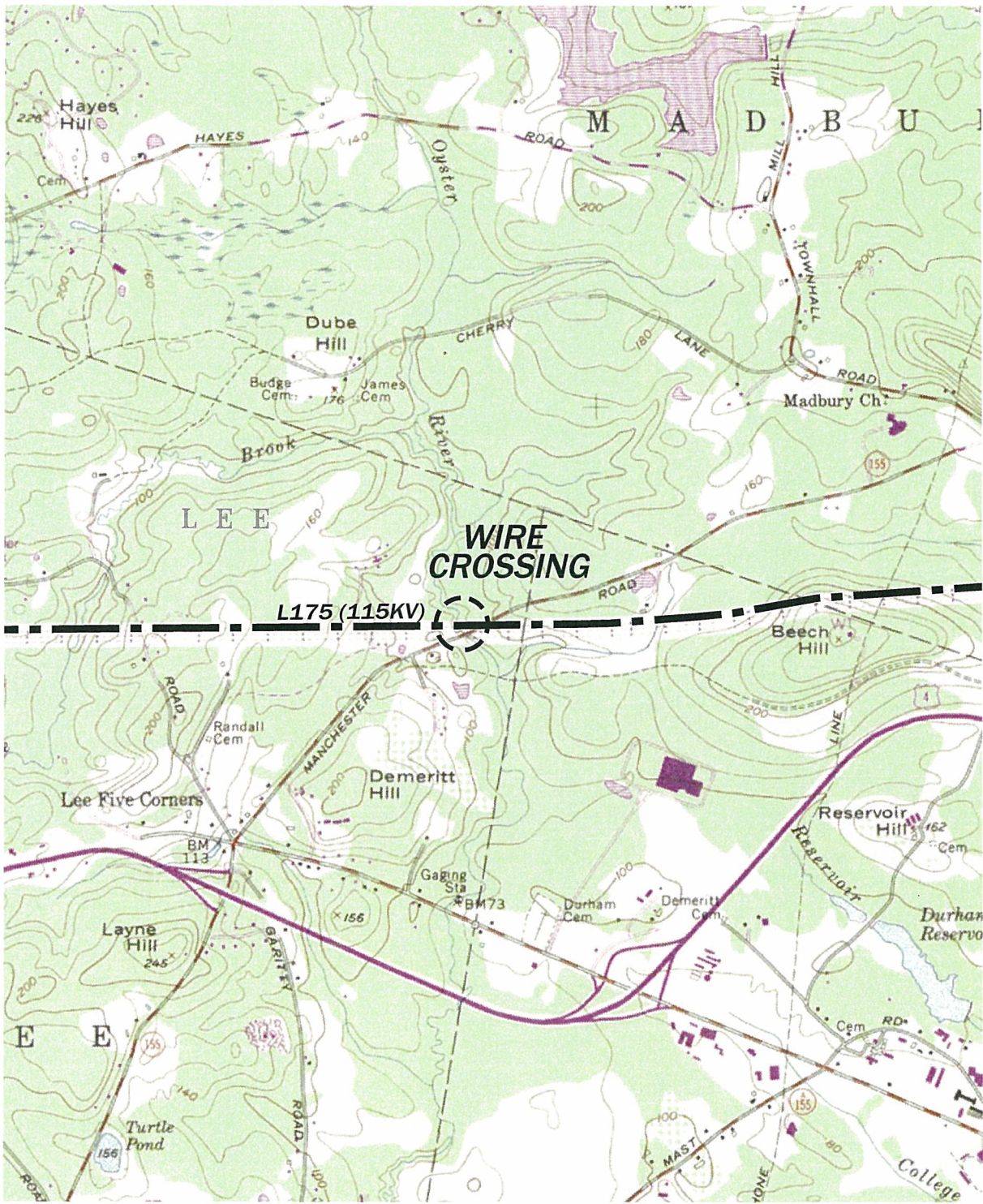


EXHIBIT 11

| | | | | | | | |
|-----|----------|------|------|----------|------|--|--|
| | | | | | | | |
| | | | | DRAWN | | Northeast Utilities | |
| | | | | WNT | | Transmission Business | |
| | | | | DESIGNED | | LOCATION PLAN L175 LINE (115 KV) OYSTER RIVER WATER CROSSING LEE, NEW HAMPSHIRE | |
| | | | | DSD | | | |
| | | | | CHECKED | | | |
| | | | | WNT | | | |
| | | | | APPROVED | | SCALE | |
| | | | | JRS | | DATE | |
| | | | | | | SHEET | |
| | | | | | | DRAWING NO. | |
| | | | | | | D-7649-605A | |
| NO. | REVISION | DATE | DRWN | CHEK | APPR | | |

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

24 FIBER OPGW (18 AW, 6TW)
SHOWN @ NESC HVY.

24 FIBER OPGW (18 AW, 6TW)
WITH 1" ICE

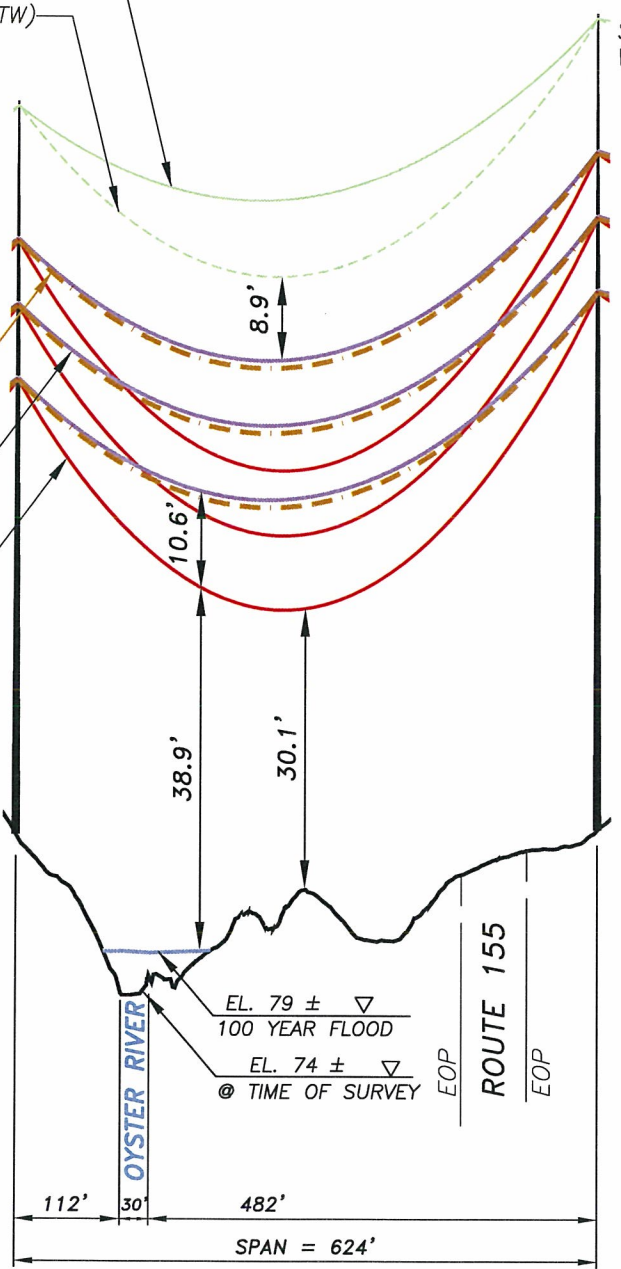
STR. 125
WT1-90H3

STR. 126
WT1-100H3

1590 ACSR 45/7 (TYP.)
SHOWN @ 30°F

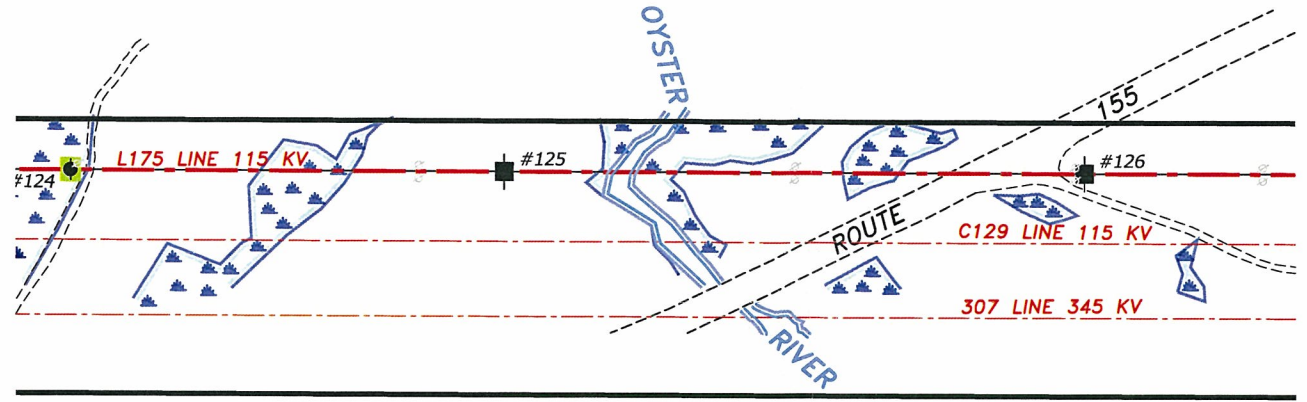
1590 ACSR 45/7 (TYP.)
SHOWN @ NESC HVY.
(0", 1/2" ICE, 4 LBS. WIND)

1590 ACSR 45/7 (TYP.)
SHOWN @ 285°F



PROFILE

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



PLAN VIEW

SCALE: 1"=200'

EXHIBIT 12

 **Northeast Utilities** Transmission Business

| | |
|----------|-----|
| DRAWN | WNT |
| DESIGNED | DSD |
| CHECKED | WNT |
| APPROVED | JRS |

| | | | |
|---|------------------|-----------------|---------------------------|
| L175 LINE (115 KV) BETWEEN STRUCTURES 125 & 126 OYSTER RIVER WATER CROSSING LEE, NEW HAMPSHIRE | | | |
| SCALE 1"=200' | DATE 10/17/09 | SHEET 1 OF 2 | DRAWING NO. D-7649-605 |



GRAPHIC SCALE
(Feet)

| NO. | REVISION | DATE | DRWN | CHK | APPR |
|-----|----------|------|------|-----|------|
| | | | | | |
| | | | | | |
| | | | | | |
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