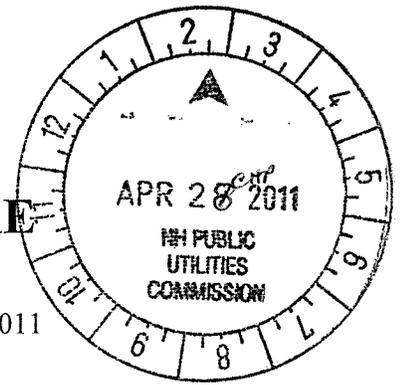


STATE OF NEW HAMPSHIRE

Inter-Department Communication



DATE: April 26, 2011
AT (OFFICE): NHPUC

FROM: Michael Ladam, Asst Director, Telecommunications Division *ML*

SUBJECT: Staff Recommendation in DT 10-280: Petition by Merrimack Telephone to Construct and Maintain Cables Across the North Branch River in the Town of Antrim, New Hampshire

TO: Commission
Executive Director

On October 19, 2010, Merrimack Telephone Company (Merrimack) filed a petition with the Commission under RSA 371:17 for a license to construct and maintain two copper communications lines with a messenger cable across the North Branch River in Antrim, New Hampshire. Merrimack states in its petition that the crossing is required to maintain service to existing customers while accommodating the replacement of the old North Branch Road bridge under state project No. 14944 and Federal Project Number X-A000(927). Merrimack further states that the proposed crossing will use the existing poles at the crossing location and have the same alignment as the existing electrical crossing.

Staff employed the Accion Group (Accion) to review Merrimack's petition. Accion's report of its analysis is attached. Accion determined that Merrimack's proposed attachment complies with all relevant standards of the 2007 edition of the National Electrical Safety Code (NESC) and recommended approval of Merrimack's petition. Accion further recommended that any approval include language requiring Merrimack to maintain conformance with the NESC and other applicable safety standards.

The Telecom Division recommends that a license be issued to Merrimack for the proposed crossing and that the Commission require that the crossing be installed and maintained in accordance with the NESC.

Please contact me if you have any questions or would like to discuss this matter.

**ACCION GROUP'S REVIEW OF THE MERRIMACK COUNTY TELEPHONE COMPANY
D/B/A/ TDS TELECOM
PETITION TO CROSS PUBLIC WATERS OF THE NORTH BRANCH RIVER
IN THE TOWN OF ANTRIM, NEW HAMPSHIRE**

April 15, 2011

REVIEW SUMMARY

On October 19, 2010, Merrimack County Telephone Company d/b/a TDS Telecom ("TDS") filed a petition with the Commission pursuant to RSA 371:17 for a license to construct and maintain two copper communication lines with a messenger cable across the North Branch River in Antrim, New Hampshire. TDS subsequently supplemented its filing on April 12, 2011 with additional information. The location of the crossing is on the easterly side of the Old North Branch Road Bridge and is approximately 0.1 miles north of the intersection of New Hampshire Routes 9 and 31. TDS states in its petition that new communication facilities are required to support service to existing customers and to facilitate construction of a new bridge across the North Branch River. The New Hampshire Department of Transportation ("NHDOT") designates this project as State Project #14944 (Federal Project #X-A000 (927)).¹

In support of its petition, TDS submitted related exhibits as follows:

- A location plan depicting the geographic location of the proposed crossing (Exhibit 1)
- A detailed plan view of the crossing location (Exhibit 2)
- A plan and profile drawing depicting the location and projected elevations of the proposed crossing (Exhibit 3)
- Pole construction details (Exhibit 4)
- Pole loading analysis reports for the poles at the crossing and sag calculations for the ambient and weather conditions analyzed (Exhibit 5)

TDS states that the new communications crossing will have the same alignment as the existing electrical crossing and will use the existing poles at the crossing location. TDS will add the new facilities to the existing poles. Additionally, TDS states that no New Hampshire Department of Environmental Services or NHDOT permits are necessary for the construction of this crossing.

As designed by TDS, the proposed crossing will consist of an existing single class two 45-foot wood pole structure on the northerly side of the river ("structure TDS 120") and an existing single class two 40-foot wood pole structure on the southerly side of the river ("structure TDS 121") with a span of 115 feet between the two structures. The new TDS cable will be pole mounted 52 inches below the Public Service Company of New Hampshire ("PSNH") neutral conductor.

¹ This is the same crossing location previously licensed to Public Service Company of New Hampshire in Docket DE 10-201.

The proposed crossing will consist of two cable materials. An extra high strength steel 5/16 inch messenger cable will support a 100 pair and a 200 pair non-supporting copper cables. The messenger and copper cables will be tensioned to a maximum of 3,503 pounds, and sagged to National Electrical Safety Code ("NESC"), American National Standards Institute ("ANSI") C2-2007 Heavy Load Conditions (0 degrees Fahrenheit, 4 pounds per square foot wind loading, and ½ inch radial ice.

TDS obtained conductor information from PSNH for input into its pole loading analyses. The TDS pole loading analyses show that, as designed by TDS, the proposed crossing will meet NESC Grade B construction standards under NESC Heavy Load conditions.

TDS determined that the 100-year flood level at this location of the North Branch River is 880 feet using the elevations contained in the Federal Emergency Management Agency Flood Insurance Rate Map of Hillsborough County, Panel 128 of 701, Map Number 33011C0128D, and with an effective date of September 25, 2009. The elevations in that study are based on the National Geodetic Vertical Datum of 1929. TDS stated that it used the 100-year flood level at this location rather than the required 10-year flood level for conservatism.

TDS assumed that this area of the North Branch River was suitable for sail boating for clearance requirements, even though the proposed crossing is adjacent to the new bridge crossing the river. TDS determined that the surface area of the water body was 65+/- acres according to the application of Note 19 of NESC 232-1. NESC Table 232-1.7b requires a water surface clearance of 25.5 feet² for water bodies between 20 and 200 acres for insulated communications conductors that meet Rule 230E1. TDS also assumed that the land under the proposed crossing was suitable for truck traffic. NESC Table 232-1.2 requires that the clearance to the land surface that is subject to truck traffic be 15.5 feet for insulated communications conductors that meet Rule 230E1.

TDS investigated a multitude of weather and loading conditions for its design. The conditions investigated included ANSI C2-2007 Heavy Load conditions and 120 degrees Fahrenheit. TDS used these design conditions to determine the minimum clearance of the copper cables to the water and land surfaces. TDS used a combination of conditions of the PSNH neutral conductor at NESC Heavy Load conditions and the TDS cables at 30 degrees Fahrenheit with no ice to determine minimum clearances between the TDS copper cables and the PSNH neutral conductor.

As designed by TDS, the maximum sag of the copper cables would occur when the copper cables are at NESC Heavy Load conditions. At this condition, TDS calculates that at minimum clearance, the copper cables would remain 31.4 feet above the 100-year flood level of 880 feet and 22.1 feet above the land or road. As designed, all clearances exceed NESC requirements.

The NESC requires that the TDS copper cables located in the communication space be separated by 40 inches from the electric company neutral conductor at the pole according to NESC Table 238-1.2. TDS exceeds this requirement with a separation of 52 inches.

² The NESC expresses water clearances in terms of distances above the 10-year flood level.

The NESC requires that the TDS copper cables have a minimum separation of 30 inches from the electric utility company neutral at any point according to NESC Rule 235.C.2.b. TDS determined that the minimum clearance occurs when the TDS copper cables are at 30 degrees Fahrenheit without ice and the PSNH neutral conductor is at NESC Heavy Load conditions. Under those conditions, the minimum separation is 42.6 inches. TDS states that TDS and PSNH are the only entities on the structures and that no other clearance requirements have been identified.

TDS states that the use and enjoyment of these waters by the public will not be diminished in any material respect as a result of the proposed crossing with copper communication cables. TDS further attests that the construction of the crossing will be built in accordance with the requirements of the NESC, ANSI C2-2007 for Grade B construction and that the crossing will be maintained and operated in accordance with the NESC.

CONCLUSIONS AND RECOMMENDATIONS

Accion Group, Inc. ("Accion Group" or "Accion") reviewed TDS' revised petition, along with the associated technical information filed by TDS in support of its revised petition. Accion also reviewed the PSNH companion crossing in Docket DE 10-201. Accion found that TDS provided sufficient information and data to justify construction of new communications cables across public waters at this location and that the information supplied by TDS was consistent with that supplied by PSNH in the previous docket.

Furthermore, Accion found that TDS has assured the Commission that the new overhead facilities will be properly constructed in accordance with the requirements of the NESC, ANSI C2-2007 and operated and maintained in accordance with the NESC.

Accion concludes that if the proposed facilities are constructed, operated, and maintained as proposed in its filing, TDS will provide safe and reliable service to the public based on sound engineering standards and that construction will be in accordance with the 2007 edition of the National Electrical Safety Code.

- Accion recommends that Staff recommend approval of TDS' petition to the Commission.

Accion further recommends that the Staff recommend that the Commission include the following additional conditions in its order:

- Require that all future reconstruction to this approved crossing shall conform to the requirements of the National Electrical Safety Code and all other applicable safety standards in existence at that time
- Require that TDS maintains and operates this crossing in conformance with the National Electrical Safety Code