

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: April 10, 2012

AT (OFFICE): NHPUC

FROM: Randy Knepper, Director, Safety & Security *RSK*

SUBJECT: Docket No. DE 11-237 Public Service Company of New Hampshire
Petition for a License to Construct and Maintain Electric Lines Over and
Across Ashuelot River in the City of Keene, New Hampshire

TO: Debra Howland, Executive Director
Tom Frantz, Director, Electric Division
Lynn Fabrizio, Staff Attorney

The Safety Division's review of the above petition consisted of the following elements:

- Petition contents and history
- Review of land ownership of existing pole structures.
- Review of public need and public impact, including applicability of State regulations
- Conclusions and Recommendations

1. **Petition contents and history.**

- On October 25, 2011, Public Service Company of New Hampshire (PSNH) filed a petition to construct and maintain electric lines over and across the Ashuelot River in the City of Keene. PSNH currently operates and maintains a temporary crossing approximately 250 feet north of the Court St bridge which was used while the Court St bridge was being reconstructed. Attachment 1 depicts an overview of the area surrounding the Asheulot River in Keene where the crossing will occur.



- The overhead electric line will be constructed of three-phase 12.47 kV distribution line, designated as the W14 circuit originating from the PSNH Emerald St Substation in Keene, New Hampshire. 1/0 ACSR conductor with 6/1/ stranding shall be used for all 3 phases and also for the neutral cable. Two new 45 foot treated wooden poles (class 2) will be installed in the street right of way for Court Street which is administered by the City of Keene
- PSNH has determined it is necessary to construct and maintain the three phase 12.47 kV distribution line, to serve the distribution load in the area in a reliable manner.
- The proposed new crossing for the W14 distribution line will occur between two new proposed locations consisting of single tangential wood structures with a span length of approximately 217 feet and a water crossing span of approximately 115 feet. The north western side of the Ashuelot river will be the location of the newly installed wooden pole designated pole number 192/103 while the south eastern side of the Ashuelot river will be the location of the pole designated as pole 192/104. The conductors and neutral will be sagged using NESC Heavy Loading conditions (0 degrees F, 4 pounds psf wind loading, ½" radial ice) at a maximum tensions of 2,0 00 pounds.
- Based on review, applicable 10-year flood water elevations for were determined to be at elevation 478.5 feet while the 100 year flood elevation was conservatively used for the clearance requirement of NESC of 25.5 ft based on a 100 year flood impacting approximately 70 acres.
- The maximum sags of the phase and neutral wires and minimum clearances for the proposed crossings were determined and designed using the above design criteria. The sag of the neutral wire using NESC heavy loading condition cleared the 10 year flood level by 34.1 feet which exceeds the required 25.5 feet. This provides a safety factor in excess of the NESC. The clearance required from the bridge itself was found to be 19.3 feet which exceeds the required value of 12 feet and provides a safety factor in excess of the NESC.
- According to the petition, the existing crossing over the Ashuelot River in the City of Keene has not been previously licensed by the Public Utilities Commission.
- The Ashuelot River is listed as a public river segment in the Department of Environmental Services (DES) official list of public waters in which RSA 371:17 is applicable *see*

2. Review of land ownership of existing pole structures.

PSNH states the new poles associated with the proposed crossing are to be located within the City of Keene right of way and will be licensed

3. Review of public need and public impact.

The Safety Division's review of the petition and attachments found them to be in conformance with the applicable sections of the NESC C2-2002. Staff has determined, after reviewing the petition and existing field conditions, that the Asheulot river crossing requires a license under RSA 371:17. Staff concludes that PSNH has demonstrated a public need for the proposed crossing and that approval of the petition for a license of the proposed crossing is consistent with the public interest.

4. Recommendations and Conclusions.

The Safety Division recommends approval of PSNH's petition for a license to construct and maintain electric lines over and across the Asheuelot River in the City of Keene, with the following conditions:

- a) The Commission should require that all future alterations to the crossing that may affect the public conform to the requirements of both the 2002 and 2007 editions of the NESC and be resubmitted to the Commission 60 days prior to the alteration.
- b) PSNH should be required to maintain and operate the crossings in conformance with the NESC or risk future revocation of the license.

Attachment 1

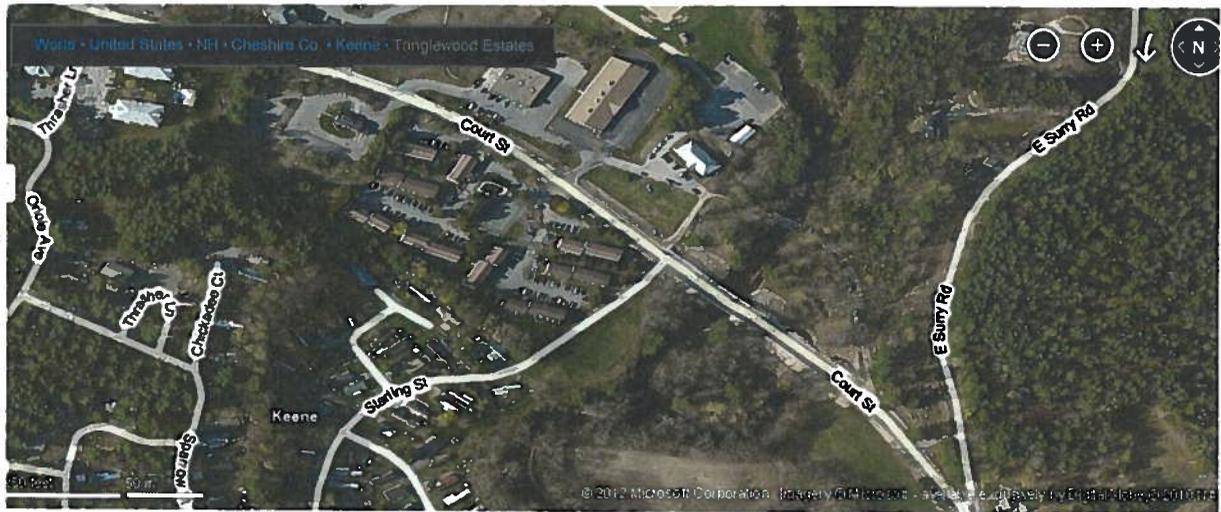


Figure 1 Court St, over the Ashuelot River near Tanglewood Estates and between Starling St and E Surry Rd in Keene, New Hampshire. Note the overhead river crossing is on the north side of Court St Bridge and the bridge has recently been reconstructed by the New Hampshire Dept of Transportation adjacent to where it is shown here.