

NHPUC 12FEB15PM12:27

**STATE OF NEW HAMPSHIRE****Inter-Department Communication****DATE:** February 12, 2015**AT (OFFICE):** NHPUC**FROM:** Randy Knepper  
Director of Safety

ESK 2/12/15

**SUBJECT:** Review of PSNH Petition for License of proposed Circuit W144  
overhead crossing of the Great Cohas Brook, Manchester (west of  
South Mammoth Rd and north of Sheffield Rd)  
Docket No. DE 15-020**TO:** Debra Howland, Executive Director  
Tom Frantz, Director, Electric Division  
Les Stachow, Assistant Director, Electric Division  
Rorie Patterson, Staff Attorney

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

- Petition contents and history
- Applicable State Statute
- Review of existing crossing(s) already licensed by the PUC
- Review of land ownership of existing pole structures.
- Review of NESC code requirements as described in Puc 300 rules
- Review of public need and public impact, including applicability of other State regulations
- Conclusions and Recommendations

**1. Petition contents and history.**

- On January 13, 2015, Public Service Company of New Hampshire (PSNH) filed a petition to construct a proposed water crossing associated with the 115 kV circuit W144. The water crossing parallels in an easterly orientation an existing 115kV crossing (circuit I158) of the Great Cohas Brook in Manchester.
- Great Cohas Brook originates at the outlet of Lake Massabesic and runs southerly and westerly on the north side of Manchester Airport to the inlet of Pine Island Pond in Manchester. This crossing is for the segment that is west of South Mammoth Road and north of Sheffield Road.
- The W144 circuit will consist of three 1272 kcmil ACSS conductors (45 cables surrounding 7 configuration) horizontally spaced, and will be tensioned to

7,000 pounds. There will be a dual purpose communication/shield wire consisting of 24 fiber optic ground wire cable OPGW tensioned at 4,000 pounds which will be located above the phase wires. The OPGW cable serves as both a communication wire as well as a static wire to protect from lightning strikes. In addition, a 4000 pound tensioned 19#10 Alumoweld static wire will also be used for the portion of the W144 circuit that crosses Great Cohas Brook to increase the lightning protection of the H-frame structures. PSNH provided sufficient detail to show all required clearances from phase wires as well as the surface of the water will be maintained.

- Pole 74 on the northern bank of Great Cohas Brook will be a two pole steel RAX structure 75 feet in height. Pole 73 on the southern bank of the Great Cohas Brook will also consist of a two pole steel H Frame tangential structure but is 70 feet in height.
- The position, tensioning and type of static wire is 19#10 Alumoweld shielding wire and is consistent with the NESC heavy loading rule 250B.
- The water clearances are taken from the projected 10 year flood levels. Staff reviewed the flood zones of the May 2009 based on FEMA flood map #33011C0383D for the Great Cohas Brook in Manchester. The Great Cohas Brook is considered non-sailable, and PSNH had clearances that easily exceeded (22.3 feet<sup>1</sup> above 100 year flood level) the required 20.1 feet of clearance NESC 2012 used for the lower standard of 10 year flood levels. All elevations are based on NAVD88 datum.

## **2. New Hampshire statute referenced in petition.**

### **TITLE XXXIV PUBLIC UTILITIES**

#### **CHAPTER 371 PROCEEDINGS TO ACQUIRE PROPERTY OR RIGHTS**

##### **Rights in Public Waters and Lands**

**371:17 Petition.** – Whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a pipeline, cable, or conduit, or a line of poles or towers and wires and fixtures thereon, over, under or across any of the public waters of this state, or over, under or across any of the land owned by this state, it shall petition the commission for a license to construct and maintain the same. For the purposes of this section, "public waters" are defined to be all ponds of more than 10 acres, tidewater bodies, and such streams or

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<sup>1</sup> 22.3 feet was the lowest clearance of the sag of 528 ft span and does not occur over the Cohas Brook, so the actual clearance in the field will be larger than 22.3 feet.

portions thereof as the commission may prescribe. Every corporation and individual desiring to cross any public water or land for any purpose herein defined shall petition the commission for a license in the same manner prescribed for a public utility.

**Source.** 1921, 82:1. PL 244:8. RL 294:16. 1951, 203:48 par. 17. 1953, 52:1, eff. March 30, 1953.

**3. Review of existing license(s) and permissions previously granted by the PUC for this location of the Great Cohas Brook in Manchester and ownership of lands.**

The adjacent I-158 crossing of the Great Cohas Brook in Manchester was researched but any existing license issued by the PUC could not be found.

This portion of the Great Cohas Brook in Manchester is considered a public river or stream and listed on the DES official list of public rivers and streams. See

<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/olpw.pdf>

This portion of the Great Cohas Brook is not considered navigable per the US Army Corp of Engineers. All vertical clearances easily exceed the minimum requirement for non-sailing applications (20.1 ft) of the Great Cohas Brook.

**4. Review of land ownership of proposed pole structures.**

The crossing of the Great Cohas Brook is located within a 265 ft right of way and within limits of an easement on non PSNH-owned land on both sides of the brook. The orientation of the proposed support structures is approximately 145 ft westerly from the eastern edge of the 265 ft right of way.

**5. Review of NESC code requirements as described in Puc 300.**

N.H. Code of Administrative Rules PART Puc 306 requires

(a) each utility shall construct, install, operate and maintain its plant, structures and equipment and lines, as follows:

- (1) In accordance with good utility practice;
- (2) After weighing all factors, including potential delay, cost and safety issues, in such a manner to best accommodate the public; and
- (3) To prevent interference with other underground and above ground facilities, including facilities furnishing communications, gas, water, sewer or steam service.

(b) For purposes of this section, “good utility practice” means in accordance with the standards established by:

(1) The National Electrical Safety Code C2-2012...

PSNH in its petition states that the 2012 National Electrical Safety Code C2-2012 was used for compliance.

A New Hampshire DES wetlands and non-site specific permit is also required for 6.2 mile corridor. Permit 2014-01757 (Standard Dredge and Fill) was issued by DES on October 27, 2014 for the temporary construction impact associated with adding the new structures and is considered a major impact project.

The new water crossing structure 73 will be set within the protected shoreland of the Great Cohas Brook as defined by RSA 483-B. The new water crossing structure 74 will not be within the protected shoreland of the Great Cohas Brook.

PSNH did not indicate that an alteration of terrain permit was needed.

The Safety Division reviewed the fifteen supporting statements contained in the petition, the four statements of Appendix A, and Exhibits 1 and 2, finding them to be in conformance with the applicable sections of the NESC code C2-2012. It was noted by Staff that research of Cohas Brook could not find the adjacent I-158 circuit being licensed.

#### **6. Review of public need and public impact.**

This transmission line crossing of W144 is an integral part of the PSNH transmission system. The addition of the W144 circuit will improve the reliability of the Manchester area by adding a second circuit that will feed the Huse Rd Substation.

PSNH states “Minimum safe line clearances above all water surfaces and affected shorelines will be maintained at all times. The use and enjoyment by the public of Great Cohas Brook will not be diminished in any material respect as a result of the overhead line and cable crossings.”

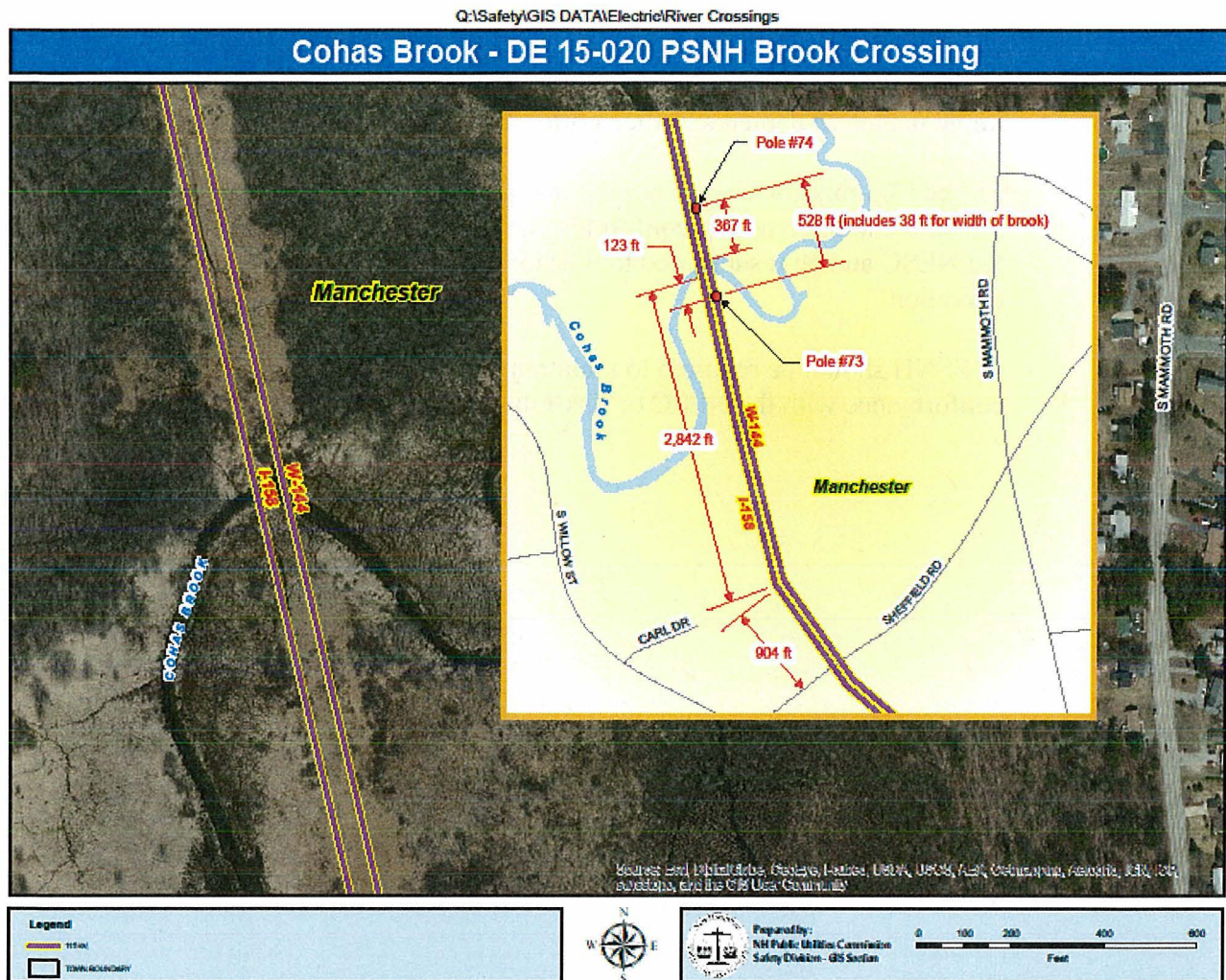
The Safety Division concludes the impact to the public will be *de minimis* and not measurable. The proposed crossing does not appear to substantially affect the rights of the public in the public water of the Great Cohas Brook. Minimum safe line clearances above the water surface and affected shorelines will be maintained at all times. The use and enjoyment by the public of the Great Cohas Brook will not be diminished in any material respect as a result of the overhead line crossings.

**7. Recommendations and Conclusions.**

- 1) The Safety Division recommends issuing of licensure for this crossing.
- 2) The Safety Division recommends full approval of PSNH's petition to the Commission with the condition that the reconstruction of the line be implemented as depicted in the petition documents.
- 3) The Commission should require that all future alterations that may impact the public to the crossing conform to the requirements of the 2012 edition of the NESC and be resubmitted to the Commission 60 days prior to the alteration.
- 4) PSNH should be required to maintain and operate the crossings in conformance with the NESC or risk future revocation of the license.



# Appendix A



**Figure 1:** 115kV W144 transmission line in Manchester looking north with all the structures and spans over Great Cohas Brook shown. Note the ROW is approximately 265 ft in width at this location

**SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED**

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**Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.**

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Docket #: 15-020-1      Printed: February 12, 2015

**FILING INSTRUCTIONS:**

- a) Pursuant to N.H. Admin Rule Puc 203.02 (a), with the exception of Discovery, file 7 copies, as well as an electronic copy, of all documents including cover letter with:**

DEBRA A HOWLAND  
EXECUTIVE DIRECTOR  
NHPUC  
21 S. FRUIT ST, SUITE 10  
CONCORD NH 03301-2429

- b) Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.**
- c) Serve a written copy on each person on the service list not able to receive electronic mail.**