

# STATE OF NEW HAMPSHIRE

Inter-Department Communication

NHPUC 20APR'16AM10:41

DATE: April 20, 2016  
AT (OFFICE): NHPUC

FROM: Robert J. Wyatt *RJW*  
Assistant Director - Safety Division

SUBJECT: DE 16-015, Green Mountain Power Corporation Petition for a License to Construct and Maintain Electric Lines over and across the Sugar River in the City of Claremont, New Hampshire  
**Staff Recommendation**

TO: Debra Howland, Executive Director  
Randall Knepper, Director, Safety Division  
Tom Frantz, Director, Electric Division  
Les Stachow, Assistant Director, Electric Division  
David Shulock, Director, Legal Division

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

- Petition contents and history
- Applicable State statutes
- 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 6, 2016, Green Mountain Power Corporation (GMP) filed a petition to construct and maintain electric lines over and across the Sugar River in the city of Claremont, NH. In support of its petition GMP provides the following information related to the overall project:

- in order to meet the reasonable requirements of service to the public, GMP had previously constructed and currently operates and maintains 46 kV transmission lines designated as Line 102 and Line 92 (Petition at #1);
- these transmission line segments are an integral part of GMP's transmission system and the overall New England transmission grid (Petition at #1);
- this project will address thermal constraints identified in the Vermont Electric Power Company Long Range Transmission Plan (Petition at #6);

- the upgrades will allow for an increase in power transfer capabilities of the lines, necessary to meet the reasonable requirements of service to the public (Cover letter to Petition, page two; Petition at #3);
- there are three public water crossings over the Sugar River that are being reconstructed as part of this project (Petition at #7);
- structures will be replaced as necessary in order to meet clearance requirements of NESC 2012 [Grade B Construction], (Petition at #10);
- GMP provides additional details of the proposed construction plan in Appendix A
  - location map (Exhibit 1)
  - plan and profile drawings for Line 92 (Exhibit 2, p. 1 and 2)
  - crossing plan and profiles for Line 92, Structures 38-39 (Exhibit 2A)
  - crossing plan and profiles for Line 92, Structures 73-74 (Exhibit 2B)
  - plan and profile drawings for Line 102 (Exhibit 3)
  - crossing plan and profiles for Line 102, Structures 3-4 (Exhibit 2C)
  - structure details (Exhibits 3A, 3B and 3C);
- the proposed crossings have been designed and will be operated and maintained by GMP in accordance with the applicable requirements of the NESC (Petition at #17);
- GMP uses the 100-year flood water elevation levels at these public water crossing locations, obtained from FEMA flood insurance Study Maps 33019C0280E and 33019C0165E for Line 92 and 33019C0280E for Line 102 (Petition at #14 and #15);
- the NESC minimum clearance requirement for open supply conductors over 22kV phase to ground is 17 feet at locations not suitable for sail boating (Petition at #14; Table 232-1, note 18, NESC 2012, page 100);
- In addition to the conductors, GMP will allocate space on its structures for the future installation of ADSS fiber optic cable (Appendix A at #5) to these lines. The future cable is anticipated for GMP system communications and to facilitate the operation on its substations using Supervisory Control and Data Acquisition (SCADA) system technologies (re. GMP Information Response #1, dated 4/19/16). To allow for the 100-year flood elevations and the maximum sag at the crossing locations, which occur at the maximum conductor temperature, GMP has designed clearances to the water surfaces as follows:
  - Span 3 to 4 – the minimum clearance to the future ADSS cable will be 37.1 feet.
  - Span 38 to 39 – the minimum clearance to the future ADSS cable will be 39.9 feet.
  - Span 73 to 74 – the minimum clearance to the future ADSS cable will be 33.21 feet.
  - GMP states that in its design of all three water crossings for this project, its future installation of ADSS fiber optic cable will be in allocated space approximately two feet lower than the phase conductors. Design clearances above the water surface for all phase conductors and fiber optic cables at all crossings will be greater than NESC 2012 minimum clearance requirements.
- GMP owns permanent easements at each of the three crossing locations and construction of these crossings will be within the boundaries of the easements. Copies of the easements have been provided by GMP (re. GMP Information Response #3, dated 4/19/16);

- GMP asserts the license petitioned for may be exercised without substantially affecting the public in the public waters of the Sugar River. Minimum safe clearances above all water surfaces and affected shorelines will be maintained at all times. The use and enjoyment by the public will not be diminished in any material respect as a result of the overhead line crossings (Petition at #19).

Additional details provided in the petition, specific to GMP's Line 92 portion of the upgrade project are as follows:

- this line segment is approximately 2.35 miles in length (Petition at #1);
- it traverses between GMP's Highbridge Substation and its Lafayette Street Substation in Claremont (Petition at #5);
- the upgrade will involve the replacement of the existing 336 ACSR conductor with new 795 ACSR conductor that will increase the conductor capacity by approximately 69% (Petition at #5);
- the work on this segment will require the replacement of approximately 54 poles, with no pole height increase greater than five feet (Petition at #5);
- the existing crossings in this segment are at two locations over the Sugar River; the first crossing is between Structures 38 and 39; and the second is between Structures 73 and 74 of this circuit (Petition at #7);
- these overhead crossings, as presently constructed, have been in existence since at least 1965 (Petition at #2);
- Structures 38 and 39 are H-Frame Dead End Structure type (HFDE) construction, both of which will be replaced in kind (Petition at #9);
- Structure 38 will be increased in height by 5 feet, to 50 feet, in order to accommodate the increased sag into the substation; Structure 39 will be decreased in height by 10 feet, to a height of 40 feet (Petition at #9; Exhibit 2B);
- Structures 73 and 74, currently single pole crossarm type construction, will be replaced with single pole horizontal line post type construction (Petition at #10);
- Structure 73 will decrease in height by 10 feet, to 65 feet, and Structure 74 will be at the same height as it is now, 55 feet (Petition at #10);
- the modification of this crossing is limited to the poles, conductor and associated hardware (Petition at #11);
- the span of the crossing between Structures 38 and 39 is 408 feet and the span between Structures 73 and 74 is 270 feet (Petition at #10);
- none of the work will involve the development of a new line or route (Petition at #4);
- all work will take place in the existing lines corridor (Petition at #4).

See **Staff Attachment 1** for a map of the Line 92 segment showing the public water crossing between Structures 38 and 39, and **Staff Attachment 2** for a map of the Line 92 segment showing the public water crossing between Structures 73 and 74.

Additional details provided in the petition, specific to GMP's Line 102 portion of the upgrade project are as follows:

- this line segment is approximately 1.17 miles in length (Petition at #1);
- the line segment traverses between GMP's Lafayette Street Substation and its Maple Avenue Substation in Claremont (Petition at #1);
- the upgrade will involve the replacement of 2/0 Copper and 4/0 Aluminum Conductor Steel Reinforced (ACSR) conductor with new 477 ACSR that will increase the conductors capacity by approximately 100% and 55% respectively (Petition at #4);
- the existing water crossing on this line segment is at one location over the Sugar River, between Structures 3 and 4 (Petition at #7);
- the overhead crossing, as presently constructed, has been in existence since at least 1965 (Petition at #2);
- structures 3 and 4 are Single Pole Dead End Bell Structure (DE1) construction; both structures will be replaced in kind and will remain at the same height as the existing structures (Petition at #8);
- Structure 3 is at a height 65 feet and Structure 4 will be at a height of 45 feet (Exhibit 2C);
- the modification of this crossing is limited to the poles, conductor and associated hardware (Petition at #11);
- the span of the crossing between Structures 3 and 4 is 372 feet (Petition at #10);
- none of the work will involve the development of a new line or route (Petition at #4);
- all work will take place in the existing lines corridor (Petition at #4).

See **Staff Attachment 3** for a map of the Line 102 segment showing the public water crossing between Structures 3 and 4.

On March 24, 2016 Staff had a telephone conversation with Morris L Silver, Counsel for GMP and point of contact for this filing, to confirm the information within the petition was currently under review and to determine whether or not there were any new developments of significance related to the project.

Staff had a follow up conversation with Attorney Silver during the week of April 4, 2016 and requested that GMP provide additional information on three issues:

1. a clarification by GMP related to the references to ADSS fiber optic cables attached to the structures (Appendix A);
2. are there any requirements of GMP related to NH Department of Environmental Services (NHDES) for Wetlands Permits or Shoreline Protection Permits at any of the crossing locations;
3. documentation of property rights (copies of the easements) for each crossing location.

As referenced earlier in this memorandum, on April 19, 2016, GMP, through its attorney, filed responses to the three Staff Information requests.

Staff notes the absence of Wetlands Permits or Shoreline Protection Permits in the Petition. In its response to Staff Information Request #2, GMP explained that it has engaged the environmental consulting firm Normandeau Associates to research this issue with the

company and the NHDES, to determine if the work is exempt from the permitting requirements, and if not, to obtain the required permits. Staff understands the wetlands and shoreline protection permitting processes to be beyond Commission jurisdiction, and therefore, outside the scope of this review.

## 2. New Hampshire statute referenced in petition.

### TITLE XXXIV: CHAPTER 371 PROCEEDINGS TO ACQUIRE PROPERTY OR RIGHTS

#### Rights in Public Waters and Lands

**371:17 Licenses for New Poles.** – *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 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. 2013, 82:1, eff. June 19, 2013.

In the Petition, GMP states “in order to meet the reasonable requirements of service to the public, GMP had previously constructed and currently operates and maintains 46 kV transmission lines designated as Line 102 and Line 92” (Petition at #1). In support of the upgrades GMP states “In order to continue to meet the reasonable requirements of service to the public, GMP has determined that it is necessary to upgrade these lines’ conductors to increase the power transfer capabilities of the lines” (Petition at #3).

**371:20 Hearing; Order.** – *The commission shall hear all parties interested; and, in case it shall find that the license petitioned for, subject to such modifications and conditions, if any, and for such period as the commission may determine, may be exercised without substantially affecting the public rights in said waters or lands, it shall render judgment granting such license. Provided, however, that such license may be granted without hearing when all interested parties are in agreement and in cases involving filings made under RSA 371:17-a and RSA 371:17-b. The executive director of the commission may issue licenses under RSA 371:17-a and RSA 371:17-b.*

**Source.** 1921, 82:1. PL 244:10. RL 294:18. 1951, 203:48 par. 20. RSA 371:20. 1967, 21:1, eff. May 7, 1967. 2013, 82:5, eff. June 19, 2013.

In its petition, GMP states “the license petitioned for may be exercised without substantially affecting the rights of the public in the public waters of the Sugar River. Minimum safe line clearances above all water surfaces and affected shorelines will be maintained at all times. The use and enjoyment by the public will not be diminished in any material respect as a result of the overhead line crossings” (Petition at #19).

**3. Review of existing license(s) and permissions previously granted by the PUC for these locations of the Sugar River**

Staff was not able to find the licenses and permissions previously granted by the Commission. GMP asserts the existing crossings were licensed by the NHPUC in approximately 1965.

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

In its Petition, GMP asserts all three crossings are located in and will be reconstructed in existing right of ways that GMP owns permanent easements for its transmission lines and associated facilities. GMP has provided copies of the three easements related to property rights at the water crossing locations. Staff reviewed the documents related to the river crossings and easements and was able to determine the Right of Ways and depiction of property traversed as accurate.

**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...*

In its petition, GMP asserts that the 2012 National Electrical Safety Code C2-2012 was used in its designs for this project (Petition at #17).

The Safety Division reviewed the 19 supporting statements and information provided in the petition, in Appendix A, in Exhibits 1, 2, 2A, 2B, 2C, 3, 3A, 3B and 3C and in the follow up information responses. Staff found the design specifics provided to be in conformance with the applicable sections of the NESC code C2-2012. GMP provided sufficient detail to verify that no potential safety hazards will result from the reconstruction of the river crossings associated with this project.

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

GMP states the crossing rebuilds are necessary as part of the overall project and that the size and design of the new structures is based on the requirements of NESC 2012 [Grade B construction]. In its Petition, GMP asserts the project will address thermal constraints on these transmission line segments, as identified in the Vermont Electric Power Company Long Range Transmission Plan. Additionally, the circuit upgrades will allow for an increase in power transfer capabilities of the lines, necessary to meet the reasonable requirements of service to the public.

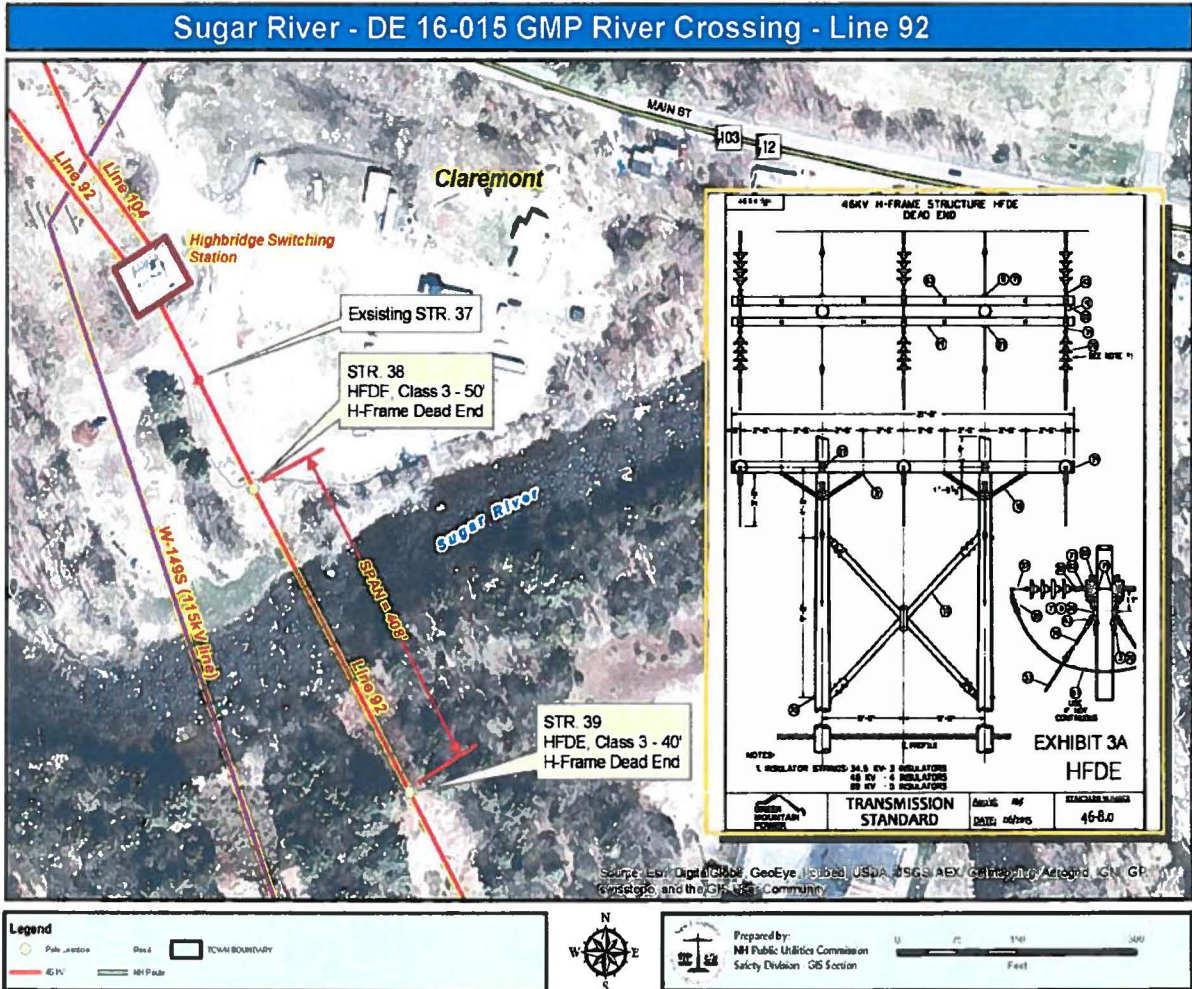
GMP states the rights granted by the license sought in this petition can be exercised without affecting the rights of the public to use the waters of the Sugar River and that minimum safe line clearances above all water surfaces and affected shorelines will be maintained at all times. GMP also states the use and enjoyment by the public will not be diminished in any material respect as a result of the overhead line crossings (Petition at #19.).

#### **Conclusions and Staff Recommendation:**

Based on the results of its review of the Petition, Appendix A, the Exhibits and the information responses filed by GMP to this docket and as summarized above, Staff recommends that the Commission:

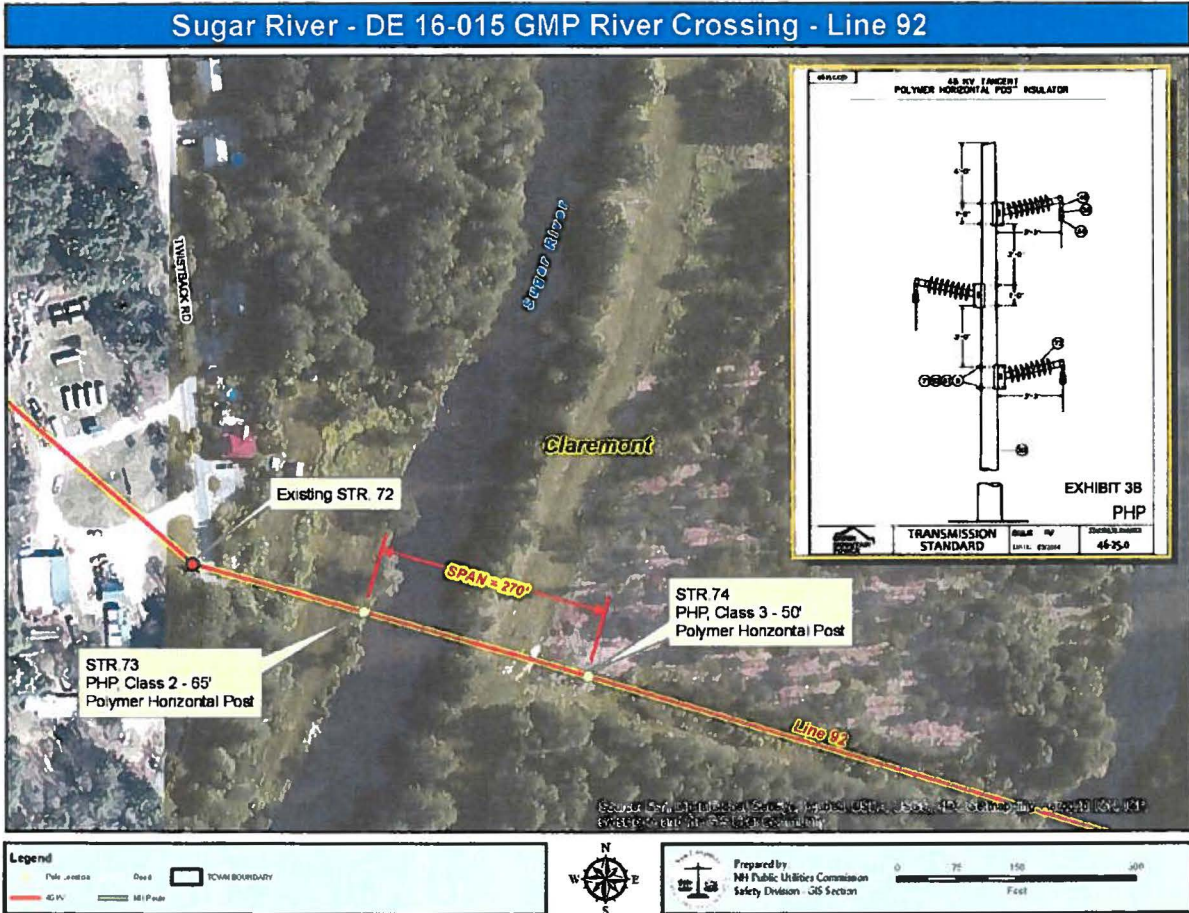
- 1) require that all future alterations to these public water crossings, including the addition of ADSS fiber optic cable, conform to the requirements of the NESC 2012 and that detailed plans of these alterations be resubmitted to the Commission no less than 60 days prior to any alterations;
- 2) that GMP be required to construct, operate and maintain these crossings in conformance with the NESC or risk future revocation of the license;
- 3) find that the license petitioned for by GMP may be exercised without substantially affecting the public rights in the public waters which are the subject of the petition;
- 4) grant GMP a license to construct, operate and maintain electric lines over and across the public waters of the Sugar River in Claremont, New Hampshire, as specified in the petition; and
- 5) issue an Order Nisi and orders for its publication.

# Staff Attachment 1

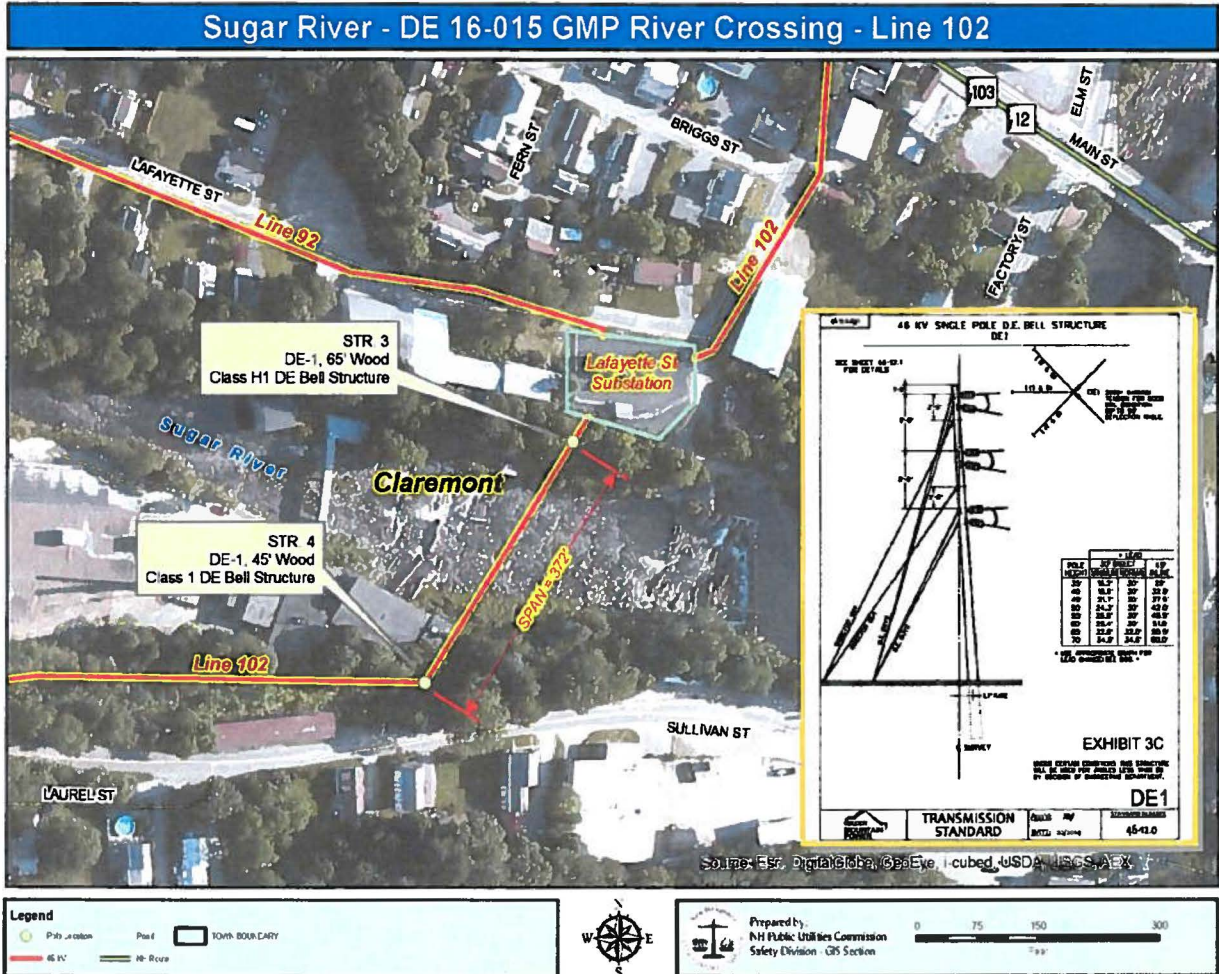




# Staff Attachment 2



# Staff Attachment 3



**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 #: 16-015-1      Printed: April 20, 2016

**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.**