

**The State of New Hampshire  
Before the  
Public Utilities Commission  
Docket No.**

**PETITION OF THE NEW HAMPSHIRE OPTICAL SYSTEMS INC. FOR LICENSE TO CONSTRUCT AND MAINTIAN FIBER OPTIC CABLES OVER AND ACROSS THE FOLLOWING NEW HAMPSHIRE WATERS:**

- **ASHUELOT RIVER IN GILSUM NH BETWEEN UTILITY POLE 29/139 AND POLE 29/140 (Ref. TID 80)**
- **ASHUELOT RIVER IN SULLIVAN NH NH BETWEEN UTILTIY POLE 29/160 AND POLE 29/159 (Ref. TID 81)**
- **ASHUELOT RIVER IN MARLOW NH BETWEEN UTILTIY POLE 3/8 AND POLE 3/7 (Ref. TID 83)**
- **DODGE BROOK IN LEMPSTER NH BETWEEN UTILTIY POLE 13/106 AND POLE 13/105 (Ref. TID 84)**
- **GILES BROOK IN LEMPSTER NH (2 TOTAL)**
  - **BETWEEN UTILITY POLE 13/7 AND POLE 13/7.5 (Ref. TID 85)**
  - **BETWEEN UTILITY POLE 13/5 AND POLE 13/4 (Ref. TID 86)**
- **SUGAR RIVER-SOUTH BRANCH IN GOSHEN NH BETWEEN UTILTIY POLE 27/177 AND POLE 27/176.5 (Ref. TID 87)**
- **SUGAR RIVER IN NEWPORT NH BETWEEN UTILTIY POLE 216A/4A AND POLE 34/1 (Ref. TID 88 )**
- **SUGAR RIVER IN SUNAPEE NH (2 TOTAL)**
  - **BETWEEN UTILITY POLE 30C/7 AND POLE 30C/8 (Ref. TID 90)**
  - **BETWEEN UTILITY POLE 4X/3 AND POLE 4X/2 (Ref. TID 91)**
- **MASCOMA RIVER IN ENFIELD NH (3 TOTAL) BETWEEN UTILITY POLE 31/2 AND POLE 31/1 (Ref. TID 95)**

TO THE PUBLIC UTILITIES COMMISSION:

New Hampshire Optical Systems Inc., a Competitive Local Exchange Carrier ("CLEC") in the State of New Hampshire, hereby petitions the Public Utilities Commission ("Commission"), pursuant to the RSA 371:17, for a license to construct and maintain fiber optic cables over and across the public waters of the aforementioned rivers at eleven locations in the towns or cities of Gilsum, Sullivan, Marlow, Lempster, Goshen, Newport, Sunapee, and Enfield.

New Hampshire Optical Systems, Inc. submits this petition in the interest of the public good as the fiber being placed over the river crossings is part of the Network New Hampshire Now (NNHN) Middle Mile Fiber network. The project will extend the availability of Internet access and broadband communications to areas of New Hampshire that heretofore had limited or no service. In adherence with the Federal Broadband Technology Opportunities Program (BTOP) grant, NHOS will build and maintain an open access, non-discriminatory network offering broadband providers the ability to economically expand their services areas, companies the opportunity to build private networks they own and control, and users more choice and affordability in their Internet access and communications products.

In support of its petition New Hampshire Optical Systems states as follows:

1. In order to meet reasonable requirements of service to the public, New Hampshire Optical Systems Inc. is proposing to construct a new fiber optic cable, to expand its fiber network, which is used for the purpose of providing telecommunications services to customers in New Hampshire.
2. Each of the applicable segments of the river crossings are listed as public lakes and ponds, public rivers and streams and tidal bodies in the NH DES "*Official List of Public Waters*" dated March 2011.
3. A separate engineering package is provided for each of the eleven crossings with location maps detailing where and how the new line will cross each body of water.
4. The design and proposed construction of each crossing is shown on the attached profile drawings. Based on the research and field inspection of the consulting engineer, it has been determined that the crossings are classified as waterways not suitable for sailboating per NESC, Table 232-1.
5. Each proposed crossing will be placed between two existing utility poles in the existing public right-of-way. The attached diagrams provide exact distances between poles and the height of each pole. Vertical distances are representative of attachment heights after the completion of all moves deemed necessary by the pole owner's during their make-ready assessments.
6. The New Hampshire Optical Systems Inc. attachment will be made up of two materials; strand (nominal diameter ¼ in. 7-strand steel EHS) and one non-self-supporting fiber optic cable. A 288 count Pureband (ZWP) single-mode fiber optic cable will be placed across the rivers in the towns or cities of Gilsum, Sullivan, Marlow, Lempster, Sunapee, and Enfield (TID 80, TID 81, TID 83, TID 84, TID 85, TID 86, TID 90, TID 91, TID 95). A 144 count Pureband (ZWP) single-mode fiber optic cable will be placed across the Sugar River in the towns or cities of Goshen and Newport (TID 87, TID 88). Sag and tension calculations were done per NESC articles 232.A1 and 251 and the results are included in the attachments. In all cases the calculations for Article 251 using the heavy load conditions (0° F, pounds 4.0 psf wind loading and ½" radial ice) were found to be the governing condition for both sag and tension. The maximum tension under heavy load conditions was shown not to exceed the 60% usable strand load of 3990 lbs.
7. Vertical clearances are calculated from the FEMA 10 year flood profile. The location of data referenced for the drawing is provided in the attachments. For most crossings a conservative flood elevation was calculated by adding the delta between the river bed and the 10 year flood elevation to the surveyed water level.
8. Where the crossing is within 10 feet horizontally of an existing bridge structure that may already have an impact on the use of the waterway, a simplified drawing is submitted with vertical distances measured to that structure. This process simplifies the preparation and review of the crossing without jeopardizing its intent to protect the safe usage of the waterway.

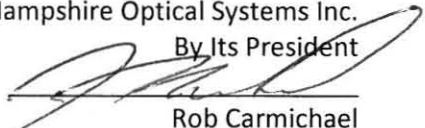
9. There are no NHDES or NHDOT permits necessary for the construction of each crossing.
10. The proposed crossings have been designed and will be constructed, maintained and operated by New Hampshire Optical Systems, its affiliates and contractors, in accordance with the NESC.
11. New Hampshire Optical Systems submits that the license petition for herein may be exercised without affecting the rights of the public in the public waters of each river. 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 each waterway will not be diminished in any material respect as a result of the overhead line crossing.

WHEREFORE, NEW HAMPSHIRE OPTICAL SYSTEMS respectfully requests that the Commission:

- A. Find that the license petitioned for herein may be exercised without affecting the public rights in the public waters which are the subject of this petition.
- B. Grant New Hampshire Optical Systems, Inc. a license to construct and maintain fiber optic cables over and across the public waters of each river as specified in this petition; and
- C. Issue an Order Nisi and orders for its publication.

Dated at Nashua the 10<sup>th</sup> day of January, 2012.

Respectfully submitted  
New Hampshire Optical Systems Inc.  
By Its President

  
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