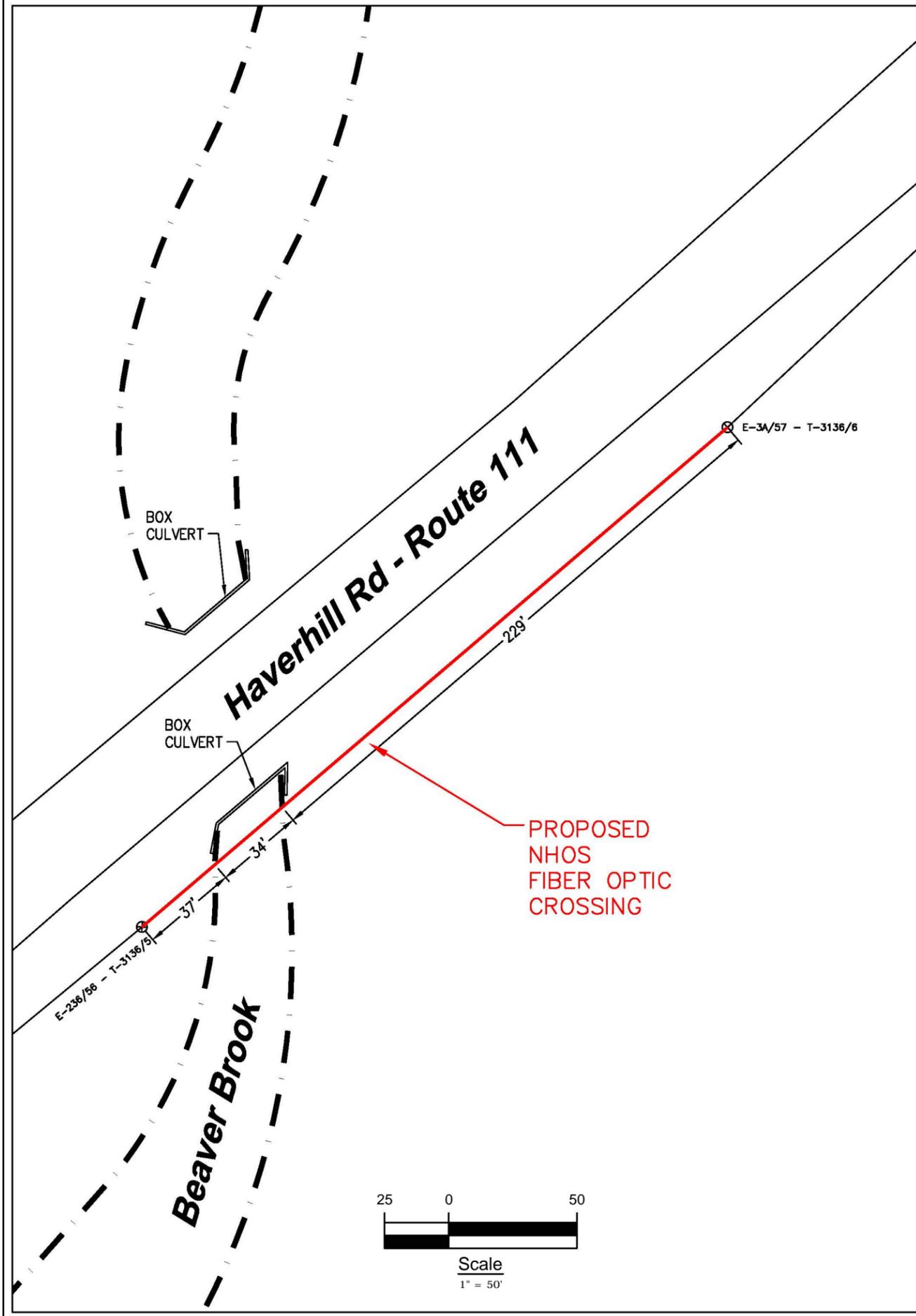




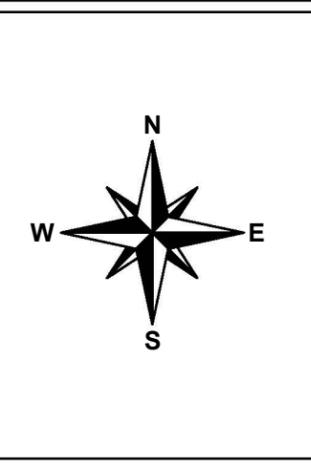
PROPOSED
NHOS
FIBER OPTIC
CROSSING



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CROSSING

NHOS
New Hampshire Optical Systems
New Hampshire Optical Systems, Inc.
99 Pine Hill Rd.
Nashua, NH 03063
(603-821-6467)

Proposed
River Crossing
Windham, NH



Project # TID-236 - Primary 18
Drawing # AC-HAM-RIV-1

Date: 2/19/13
Revision # 1

Proposed
River Crossing
(Beaver Brook)
Hudson/Windham, NH

Location:
Haverhill Rd., Windham, NH
Nearest cross street- Central St.



LOCUS MAP
(Not to Scale)



Spanmaster® Release 3.1 Sag / Tension Computations
09/01/11 Waveguide

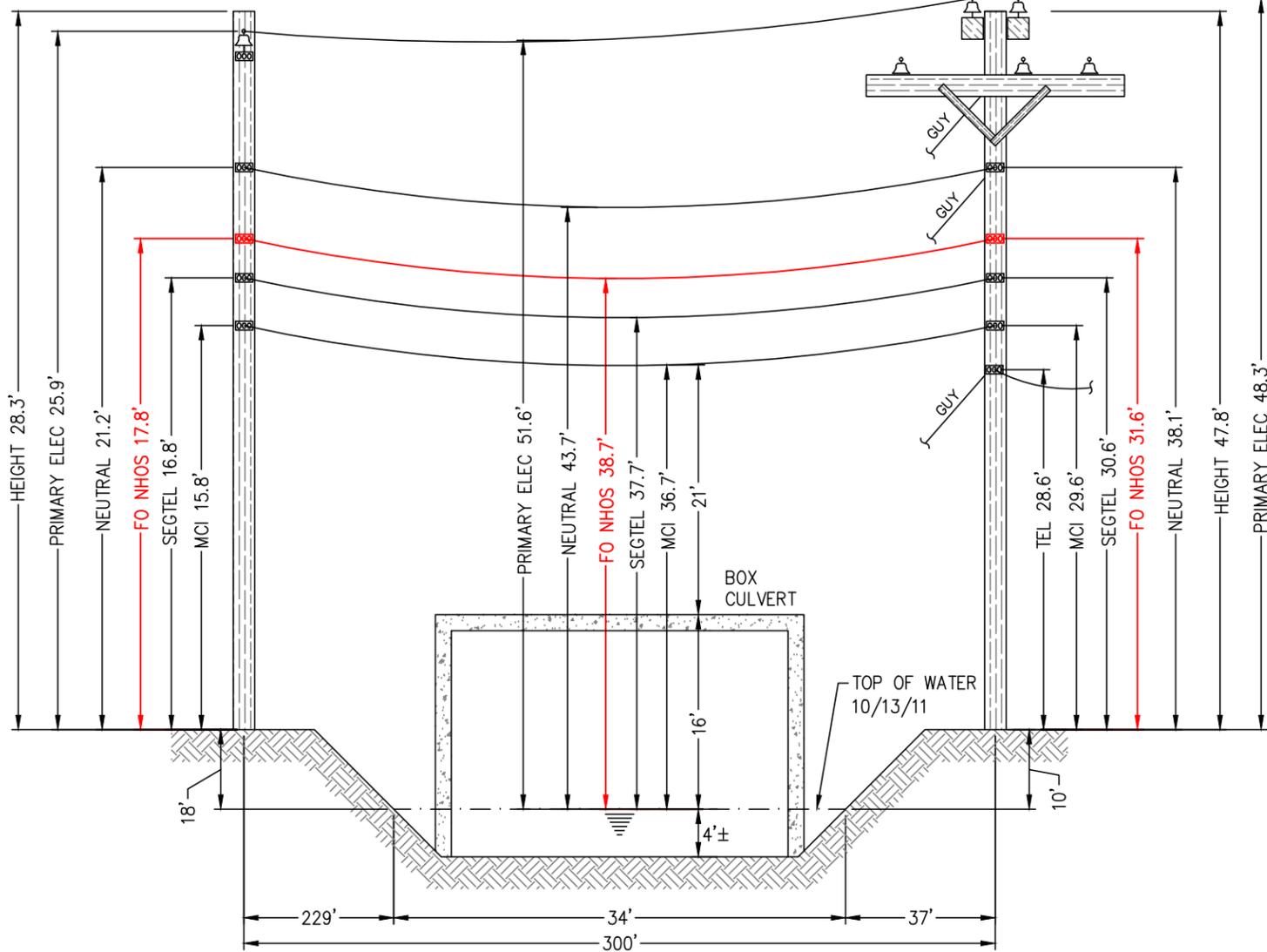
Waveguide
River and Rail Crossings

Selected Cables	X-SECT AREA (sq.in)	EFF MODULUS (psi)	NOMINAL DIAM (in)	EFF.EXP. COEFF. (1/F)	CABLE WEIGHT (lb/ft)	E*A LOAD BEARING CAPACITY (lbs)	MAX. RATED LOAD (lbs)
1/4"6.6mEHS	0.0352	2.60E+07	0.250	5.60E-06	0.1210	914940	6650
ORF-O-288-LN Bundle	0.5782	2.70E+05	0.858	1.13E-05	0.1960	155982	651
			1.108		0.3170		

NESC RESULTS

Loading Condition	Temp. (F)	Ice Load (lb/ft)	Ice Thick (in)	Wind Constant (lb/ft)	Horz Wind Load (lb/sq ft)	Result Load + Const (lb/ft)	Sag (ft)	Tension (lb)	% Len Chg From Input Conditions	Sag @ 150 ft	Horz Sag Comp (ft)	Vert Sag Comp (ft)	Vector Angle (Deg)
Rule 251 - Heavy	0.0	1.000	.50	.3	4.0	1.793	7.32	2749	0.13	7.34	3.44	6.45	28.1
232A1	120.0	0.000	.00	.0	0.0	0.317	3.50	1018	0.01	3.50	0.00	3.50	0.0

Span Length = 300.00 ft	Temp (F)	Midspan Sag (ft)	Tension (lb)	% Length Change	Clearance
Span Sag = 3.00 ft (36.0 in)	-40.0	2.18	1,632	-0.01	N/A
Span Tension = 1,189 lb	-30.0	2.24	1,589	-0.01	N/A
Max Load = 6,650 lb	-20.0	2.30	1,545	-0.01	N/A
Usable load (60%) = 3,990 lb	-10.0	2.37	1,503	-0.01	N/A
Catenary Length = 300.080 ft	.0	2.43	1,461	-0.01	N/A
Stress Free Length @ Installed Temperature = 299.691 ft	10.0	2.51	1,419	-0.01	N/A
	20.0	2.58	1,378	-0.01	N/A
Unloaded Strand	30.0	2.66	1,338	-0.01	N/A
Sag = 1.37 ft (16.4 in) 0.46 %	40.0	2.74	1,299	0.00	N/A
Tension = 995 lb	50.0	2.82	1,261	0.00	N/A
	60.0	2.91	1,223	0.00	N/A
	70.0	3.00	1,186	0.00	N/A
	80.0	3.09	1,151	0.00	N/A
	90.0	3.19	1,116	0.00	N/A
	100.0	3.29	1,082	0.01	N/A
	110.0	3.39	1,050	0.01	N/A
	120.0	3.50	1,018	0.01	N/A
	130.0	3.60	988	0.01	N/A
	140.0	3.71	959	0.01	N/A



E-3A/57 - T-3136/6
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)
(Incorrectly labeled in make ready notes as E-3A/57 - T-NT)
Windham, NH

E-236/56 - T-3136/5
(Existing joint owned utility pole (PSNH/Fairpoint) in existing Right-of-Way)
(Incorrectly labeled in make ready notes as E-236/56 - T-3136/6)
Hudson, NH



E-3A/57 - T-3136/6

Construction Notes:

NHOS proposes to install a 1/4 inch metal supporting strand between the existing utility poles shown above that will traverse the river. The strand will be installed at the proposed height (see above). The supporting strand will be secured to each pole using double dead end attachments to prevent any sag in the wire and maintain proper clearances. NHOS will lash a one inch diameter fiber optic cable (PVC jacket) to the strand using a dual lash method to provide security of the fiber over the right of way. The fiber will be tagged with twenty four hour contact information at each pole clamp. NHOS will employ the proper safety personnel during the crossing installation. The proposed install will meet all proper clearances from other Utilities. (see above). Additional pole guys will be added per NESC Rule 264 and as directed by pole owners.



E-236/56 - T-3136/5



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**Proposed River Crossing
Windham, NH**

Notes:

- The heights of structures shown hereon are based on field measurements taken with a Nikon 362 total station during a site survey on 10/18/11.
- The horizontal distance between the nearest box culvert and the existing overhead wires is approximately 10'.
- Because of the close horizontal proximity to the existing box culvert, the simplified drawing is submitted with vertical distances measured to the structure. This process simplifies the preparation and review of the crossing without jeopardizing its intent to protect the safe usage of the waterway
- The smallest vertical distance from the top of existing box culvert to the lowest existing overhead wires is 21'.
- The vertical distance between the top of water and top of box culvert is approximately 16'.
- Vertical distances are representative of attachment heights after utility make ready moves are completed.
- This river is unsuitable for sail boating at the location shown hereon.

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Location:
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