

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: August 13, 2010

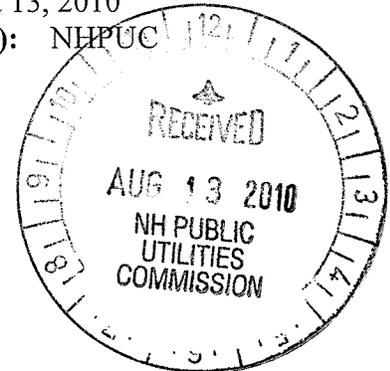
AT (OFFICE): NHPUC

FROM: Randy Knepper, Director, Safety *RSIC*

Kate Bailey, Director, Telecom *KMB*

SUBJECT: Staff Recommendation in Docket No. DT 10-010

TO: Commission
Executive Director



As follow-up to Staff's previous memos in this proceeding, Staff worked with BayRing, Comcast and Unitil to insure the existing Comcast attachment across the Merrimack River, in Concord, NH, becomes compliant with the National Electrical Safety Code (NESC) concurrently with the attachment proposed by BayRing in this docket. In order to satisfy all parties and bring its existing attachment into compliance, Comcast will raise its attachment on the north side of the Merrimack River on CECO pole 51 by approximately 6 feet. BayRing will overlash its attachment onto the Comcast facilities.

Unitil calculated the appropriate tensioning using the strand size, type, diameter and weight of each of the Comcast and BayRing cables and confirmed the proposed crossing would comply with the NESC. Staff notes Unitil's extraordinary assistance in this matter and points out that without Unitil's assistance, resolution of the issues raised would not have been achieved as expeditiously.

The following revisions are noted updates of Staff's previous memos and include details that are not included in the final, revised petition (see Attachments 1 and 2) but are necessary for a complete record.

1. FairPoint Communications was incorrectly identified in the first revised petition filed with the Commission on April 1, 2010, as attached to CE Pole 50 and CE Pole 51. The existing facility attached to the poles in question is an alarm cable operated by the City of Concord that transitions to under water from aerial at CE Pole 50, crosses the floor of the Merrimack River via conduit and transitions to aerial cable at CE Pole 51.
2. Comcast of Maine/New Hampshire, Inc. (Comcast) identified its existing aerial facilities as the following:
 - 96 F Fiber Optic (96 count) 0.56 inch diameter cable (weight 0.098#/ft)
 - 240F Fiber Optic (240 count) 0.76 inch diameter cable (weight 0.163#/ft)
 - 240 F Fiber Optic (240 count) 0.76inch diameter cable (weight 0.163#/ft)
 - Abandoned Coax Cable 0.75 inch diameter (weight 0.08#/ft)
 - 240 F Fiber Optic (240 count) 0.76 inch diameter cable(weight 0.163#/ft)

- 0.375 inch diameter galvanized steel stranded support wire (assumed high strength) (weight 0.273#/ft)
3. Comcast's facilities were originally installed between the years 1968 and 1972 by the former Telecable (cable franchise holder within the City of Concord).
 4. Comcast has agreed to petition the PUC for a license covering the same crossing of the Merrimack River in Concord once its facilities are physically moved; the Comcast license petition will reference many of the drawings and record within this petition.
 5. BayRing submitted Attachment 1 to Staff on July 29, 2010.
 6. BayRing submitted a revised Attachment 2 to Staff on August 9, 2010.
 7. Pole Loadings were recalculated assuming a conservative scenario in which the tensioning of the attached cables was transferred to the anchors and referenced guying. Staff found this to be adequate to satisfy potential concerns.
 8. Staff reviewed Attachment 2 for compliance with all NESC requirements, including loading, clearances and materials and found Attachment 2 sufficient in detail to provide sufficient safeguards of potential hazards for the public.

.Staff recommends this crossing be approved.

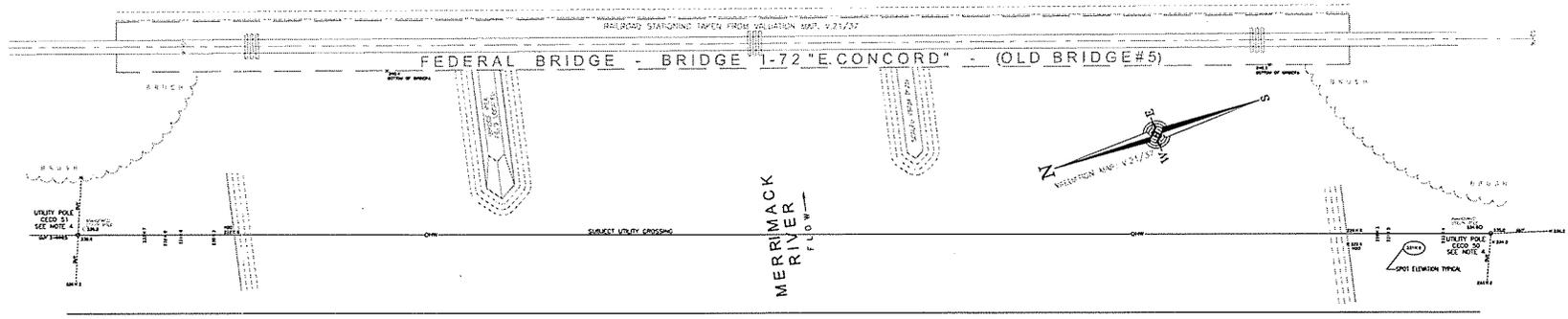
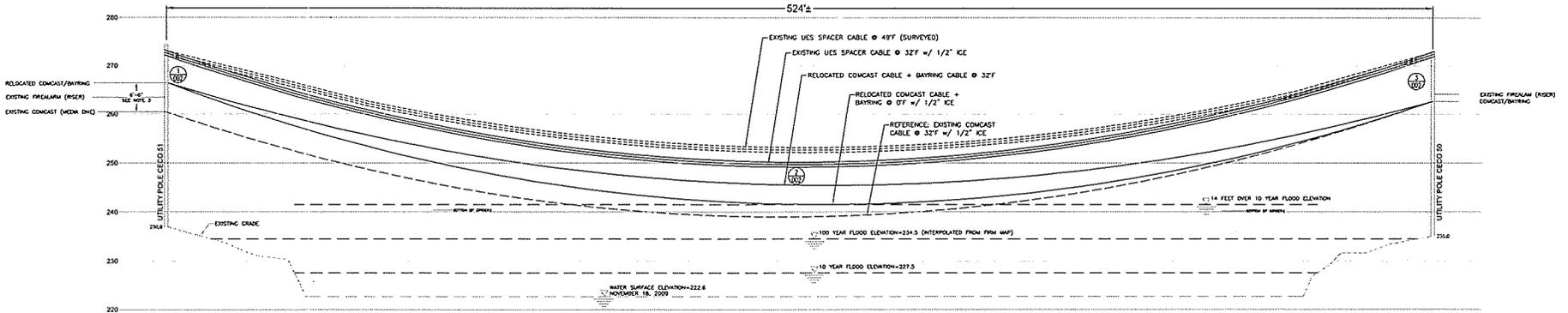
Attachments:

- Attachment 1 – BayRing Final, Revised Petition Drawings (August 9, 2010)
- Attachment 2 – BayRing Second, Revised Petition (July 29, 2010)

ATTACHMENT 1

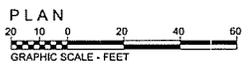
Final Revised Petition Drawings (August 9, 2010)

OVERHEAD UTILITIES LOCATED ON NOVEMBER 18, 2009
 AVERAGE TEMPERATURE = 49°F



NOTES:

1. This plan was prepared from actual ground survey for the purpose of installing a utility cable/cable(s) above the Merrimack River between Utility Pole CECO S1 & Utility Pole CECO 50 for the benefit of BoyRing Communications.
2. The BENCHMARK for this project was taken from the FIRW (Flood Insurance Rate Map) for the City of Concord, New Hampshire, Merrimack County, Community Panel Number: 330110 0020 B, Map Revised: August 23, 1999 (See Title Block for description).
3. Raise existing Concast cable assembly 6 feet above current attachment height on Pole CECO S1 only. Guy in accordance with Sag and Tension data on Sheet 2 of 2 (this drawing).
4. Poles 50 and 51 each require one (1) new electric deadend guy strand attached at 13" from top of pole to existing electric anchor with 25' lead. Communication deadend guy on pole 51 needs to be raised to new attachment height. Both poles require separate communication anchor having minimum 20' lead.



Sheet 1 of 2

CEG Consulting Engineers Group Inc.
 ENGINEERS & CONSULTANTS
 ONE CHARLESTOWN RD. HOPKINS, MASSACHUSETTS
 WWW.CEGCONSULTING.COM

Add Proposed Communication line profiles and data table 12/14/09 10/PF
 Add span data and details 03/17/10 10/PF
 Add new Boyring poles and cables 06/25/10 10/PF
 Revise scheme option 07/28/10 10/PF
 PUC comments 08/06/10 10/PF

PROJECT: 03-04-2010
 CORRECTED SAG OF ELECTRIC WIRES & REVISED LABELS IN PROFILE

EXISTING OVERHEAD RIVER CROSSING
 PLAN of LAND
 at
CONCORD, NH

Prepared For: BoyRing Communications
 300 Commerce Drive
 Portsmouth, NH 03801

SCALE: As Shown
 DATE: November 25, 2009

Prepared By: DEVISMAP ENGINEERING ASSOCIATES LLP
 176 LINDSEY AVENUE
 CONCORD, NH 03301
 TEL: 603-252-0568

This plan was prepared for the express use of BoyRing Communications and Downlap Engineering Associates LLP. Use of this plan by others without the written consent of BoyRing Communications is strictly prohibited.

Drawn By: S.F.J.
 Checked By: F.D.D., P.A.D. & S.F.J.
 Sheet: 1 of 1

ATTACHMENT I (1/2)

ATTACHMENT 2

Second Revised Petition (July 29, 2010)

BayRing

COMMUNICATIONS

July 29, 2010

Debra Howland, Executive Director
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

Re: Revised Petition of Freedom Ring d/b/a BayRing Communications to construct and maintain utility cable over and across the Public Waters of the Merrimack River between Utility Pole CECO 51 and Utility Pole CECO 50, Concord, New Hampshire.

Dear Ms Howland:

Please find a final revised Petition of Freedom Ring Communications d/b/a/BayRing Communications to construct and maintain utility cable over and across the Public Waters of the Merrimack River between Utility Pole CECO 51 and Utility Pole CECO 50, Concord, New Hampshire.

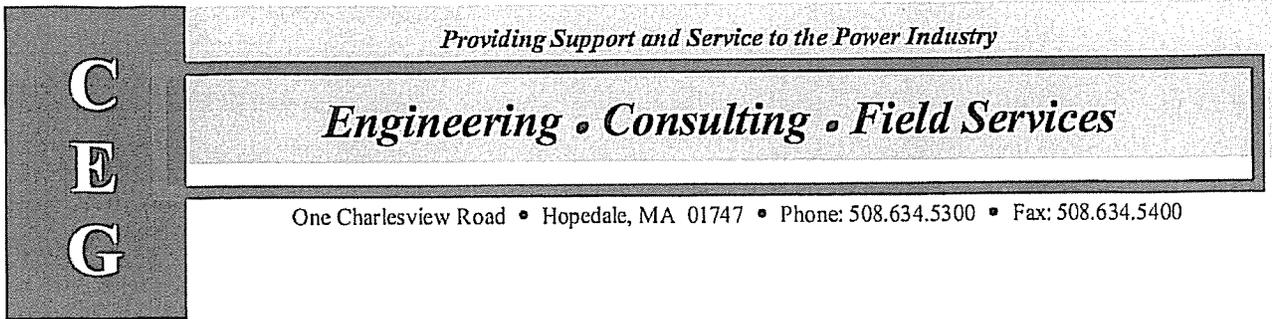
Thank you for your assistance in this matter, please do not hesitate to contact me with any questions or further requirements.

Respectfully Submitted,

Wendy C. Wilusz
Director of Operations
BayRing Communications

359 Corporate Drive, Portsmouth, NH 03801-6808

(603) 766-1000 – Fax (603) 766-1050



Donny Pellitier
Outside Plant Manager
Bayring Communication
359 Corporate Drive
Portsmouth NH, 03801-2888

July 29, 2010

Subject: Revised, Merrimack River Crossing with Comcast/Bayring Cable

Dear Mr. Pellitier,

Attached are the revised Merrimack River crossing drawings and pole loading calculations. This revision utilizes existing poles with BayRing lashing on the existing Comcast cable. The attachment height of the combined cable is being raised six feet on pole 51. The pole loading calculations were performed using Power Line Technology, Pole Foreman software version 3.4.10.

The revised crossing provides meets the clearances required by the National Electric Safety Code (NESC). Clearance at each of the structures and midspan clearances between the electric supply cables and communication meet or exceed the NESC requirements. Additionally, the combination Comcast/BayRing cable assembly maintains over 14 feet of clearance over the 10 year flood level under extreme loading conditions.

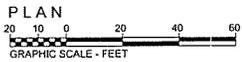
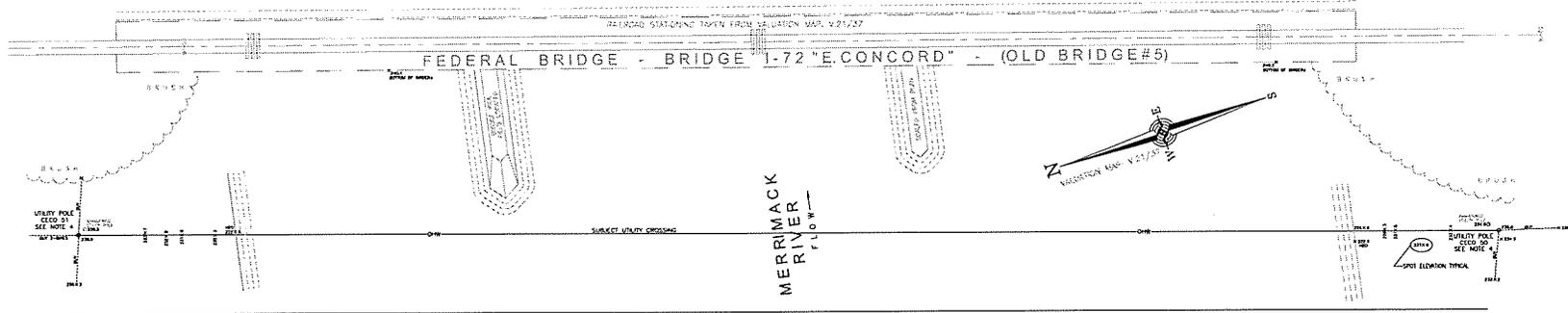
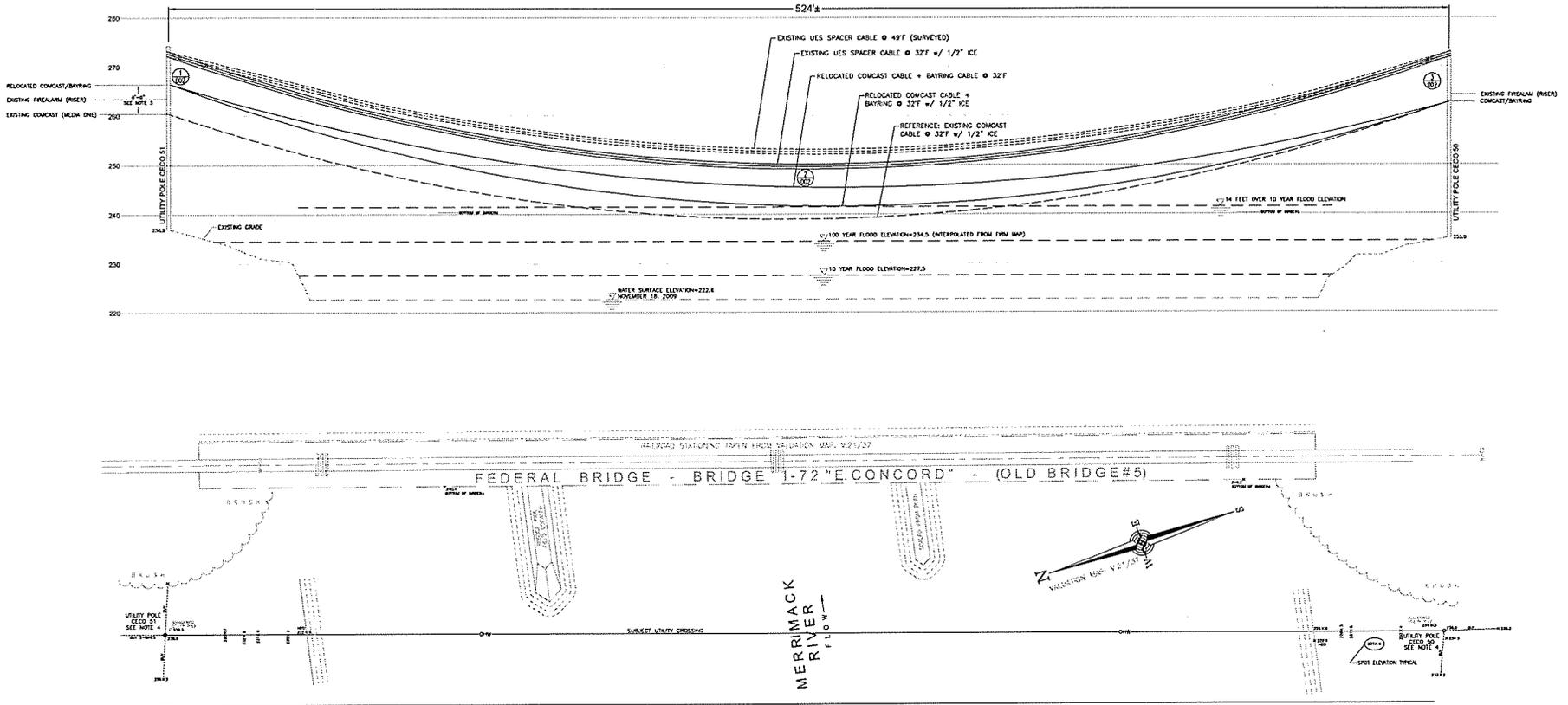
Pole loading models were created for both poles with only cable spanning the river (no back spans). The loading for both poles is within design limits. An additional electric deadend guy is required to support the river crossing for the modeled condition. Additionally, a separate communication anchor with a 20' lead is required for the modeled condition.

Should you have any questions, or require additional information, please do not hesitate to call me.

Sincerely,

Thomas O'Loughlin, PE
Principal Engineer

OVERHEAD UTILITIES LOCATED ON NOVEMBER 18, 2009
 AVERAGE TEMPERATURE = 49°F



NOTES:

1. This plan was prepared from actual ground survey for the purpose of installing a utility cable/conduit above the Merrimack River between Utility Pole CECO 51 & Utility Pole CECO 50 for the benefit of Bayring Communications.
2. The BENCHMARK for this project was taken from the FIRM (Flood Insurance Rate Map) for the City of Concord, New Hampshire, Merrimack County, Community Plan Number: 330110 0020 B, Map Revised: August 23, 1999 (See Title Block for description).
3. Raise existing Comcast cable assembly 6 feet above current attachment height on Pole CECO_51 only. Guy in accordance with Sag and Tension data on Sheet 2 of 2 (this drawing).
4. Poles 50 and 51 each require one (1) new electric deadend guy strand attached at 13" from top of pole to existing electric anchor with 25' lead. Communication deadend guy on pole 51 needs to be raised to new attachment height. Both poles require separate communication anchor having minimum 20' lead.

Sheet 1 of 2

Consulting Engineers Group Inc.
 ENGINEERS & CONSULTANTS
 ONE CHARLESTOWN RD. NORFOLK, MASSACHUSETTS
 www.CEG-CONSULTING.COM

Add Proposed Communication line profiles and data table 12/14/09 TO/PP
 Add span data and details 03/17/10 TO/PP
 Add new Bayring poles and cables 06/25/10 TO/PP
 Revise scheme option 07/26/10 TO/PP

REVISED 11-02-04-2010
 CORRECTED SIZE OF ELECTRIC WIRES & REVISED LABELS IN PROFILE.

EXISTING OVERHEAD RIVER CROSSING
 PLAN of LAND
 of
CONCORD, NH

Prepared For: Bayring Communications
 300 Concord Drive
 Concord, NH 03301-6214

SCALE: As Shown
 DATE: November 29, 2009

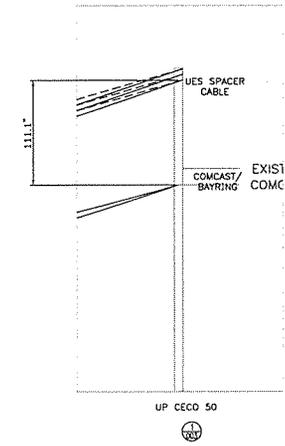
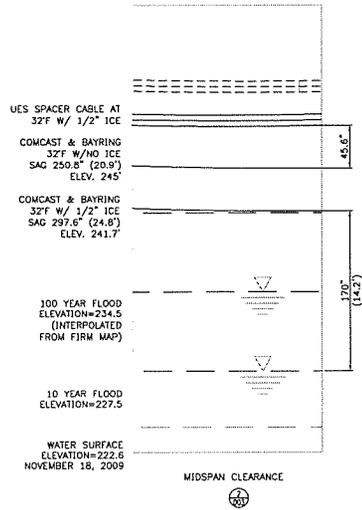
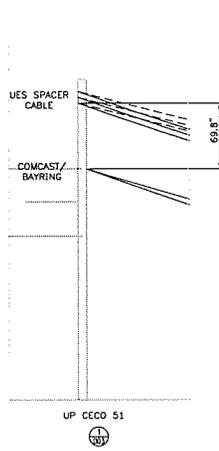
Prepared By: DENNIS P. ENGINEERING ASSOCIATES LLP
 178 LINCOLN AVENUE
 SAUGUS, MA 01906
 TEL # 781/533-8966

Benchmark: BENCH# 25 on Utility Pole CECO No. 49 on South Side of Merrimack River approximately 100 feet upstream of Boston and Maine Bridge. (Elevation 224.84 ft MVD)

This plan was prepared for the express use of Bayring Communications and Dennis P. Engineering Associates LLP. Use of this plan by others without the written consent of Bayring Communications is strictly prohibited.

Checked By: S.F.B.
 Drawn By: S.F.B.
 Final By: F.B.D., P.A.D., & S.F.B.
 Sheet: 2 of 2

(3/8)



PROFILE DETAILS
Scale: 1" = 10' HORIZ
1" = 5' VERT

BAYRING CABLE SAG CHART
ALUMINUM COMPANY OF AMERICA SAG AND TENSION DATA

Bayring Communication
Merrimack River Crossing

Conductor Nominal Diameter 1/8" 7 Strand Steel ZNS
Area = .0792 Sq. In. Dia = .369 In. Wt = .273 LB/F. STS = 13409 LB
Data from Chart No. 1-1293
English Units

Span = 324.0 Feet WESC Heavy Lead Snow
Creep is NOT a Factor

Temp °F	Ice in	Wind lb/ft²	E lb/ft²	Weight lb/ft	Sag ft	Final		Initial	
						Tension K/W	Sag ft	Tension K/W	Sag ft
0	.50	4.00	.126	18.51	2284	1853	18.53	2284	1853
32	.50	.00	.00	18.07	1844	1802	17.99	1852	1822
70	.00	.00	.00	15.93	684	2044	15.22	518	2044
90	.00	.00	.00	15.93	589	2149	15.62	603	2203
100	.00	.00	.00	16.07	569	2075	16.20	582	2122
49	.00	.00	.00	16.91	557	2031	16.55	569	2076
60	.00	.00	.00	17.01	550	2007	16.74	562	2053
90	.00	.00	.00	17.67	533	1945	17.31	545	1986
120	.00	.00	.00	18.23	516	1889	17.84	528	1927
167	.00	.00	.00	19.01	494	1809	18.63	504	1843
212	.00	.00	.00	19.73	478	1741	19.60	484	1772

Above: Initial Data Prior to Cable Installation

Below: 1 Non-Supporting Cable(s) Added. Dia = 2.300 In. Wt = .791lb/F. .000lb/F

0	.50	4.00	.30	3.984	23.43	5893	1447	23.43	5893	1447
32	.50	.00	.00	3.161	22.94	5046	1438	22.63	5068	1408
70	.00	.00	.00	1.044	18.27	2012	1802	17.84	2040	1937
90	.00	.00	.00	1.044	18.58	1979	1850	18.23	2029	1894
100	.00	.00	.00	1.044	19.04	1931	1895	18.62	1975	1847
49	.00	.00	.00	1.044	19.33	1903	1779	18.90	1948	1819
60	.00	.00	.00	1.044	19.50	1877	1765	19.07	1929	1803
90	.00	.00	.00	1.044	19.95	1845	1724	19.52	1885	1762
120	.00	.00	.00	1.044	20.38	1804	1687	19.96	1844	1723
167	.00	.00	.00	1.044	21.07	1748	1633	20.64	1784	1644
212	.00	.00	.00	1.044	21.70	1690	1585	21.28	1721	1614

* Design Condition

Sheet 2 of 2

Consulting Engineers Group Inc.
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ONE CHARLESIVER RD. HOPEDALE, MASSACHUSETTS
www.CEGCconsulting.com

Add Proposed Communication line profiles and data table 12/14/09 10/PP
Add span data and details 03/17/10 10/PP
Add new Bayring poles and cables 02/25/10 10/PP
Revise scheme option 07/28/10 10/PP

EXISTING OVERHEAD RIVER CROSSING
PLAN of LAND
CONCORD, NH

Prepared For: Bayring Communications
318 Corporate Drive
Parsippany, NJ 07054-6000

DATE: November 23, 2009

Prepared By: DENISMAP ENGINEERING ASSOCIATES LLP
175 INDEPENDENCE AVENUE
SARASOTA, FL 34236
TEL # 7741231-0555

Reviewed By: F.O.O., P.A.B. & S.F.D.
Sheet: 1 of 1

This plan was prepared for the express use of Bayring Communications and Denismap Engineering Associates LLP. Use of this plan by others without the written consent of Bayring Communications is strictly prohibited.

Reference: 80-03-PR-30 Utility Pole No. 49 on South Side of Merrimack River approximately 100 feet upstream of Bertha and USGS Waterline Elevation 234.86(2009)
Checked By: F.O.O. & P.A.B.
Drawn By: S.F.D.
Designed By:
Field By: F.O.O., P.A.B. & S.F.D.
Sheet: 1 of 1

(4/5)

PoleForeman - Pole Loading Analysis Report



License: Consulting Engineers Group

POLE LOADING DATA

Pole: 45/2

Pole Loading

Horizontal: 33% (250B)
Vertical: 58% (250B)

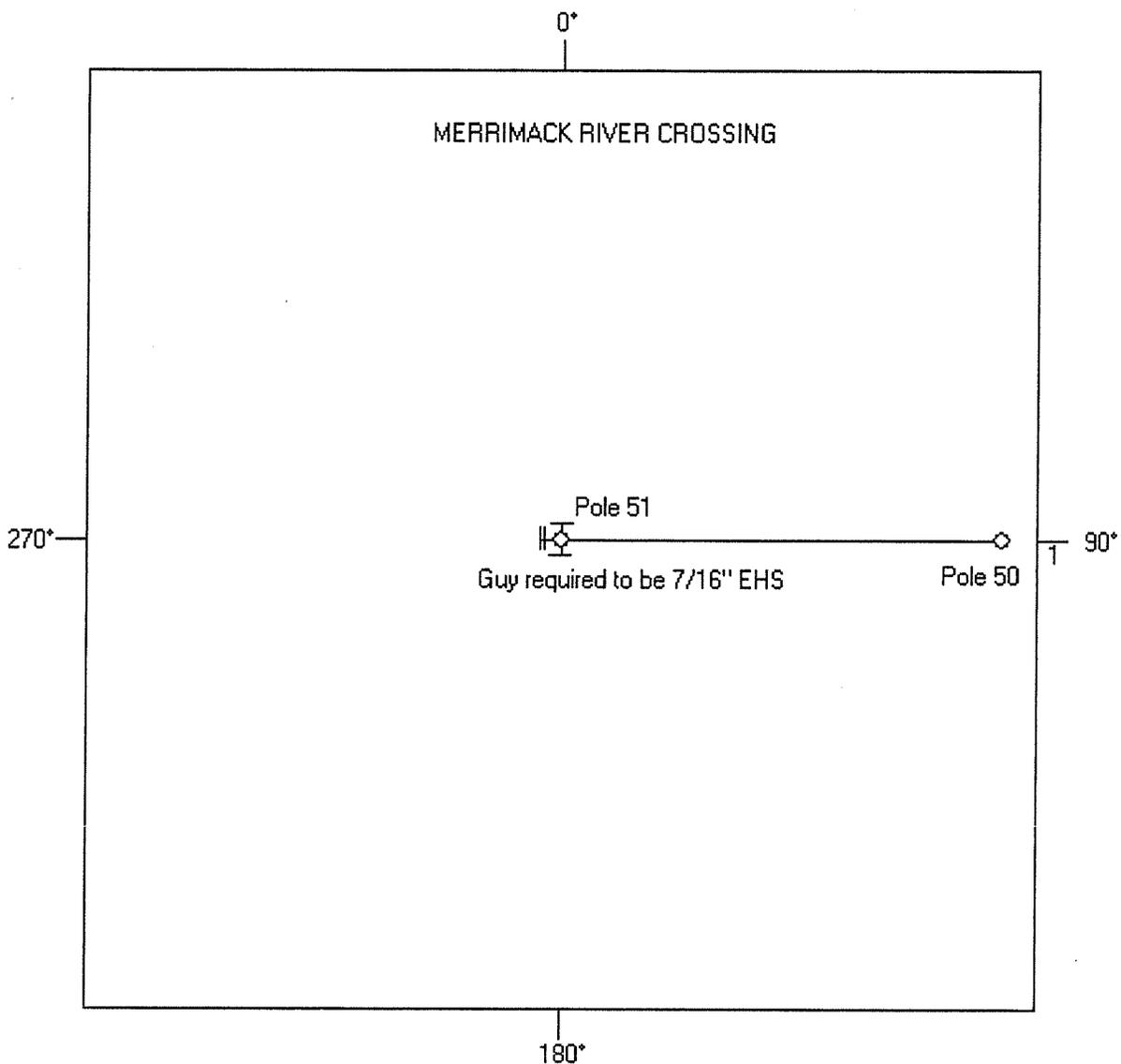
NESC Edition: 2007
Loading District: Heavy
Construction: Grade B

Rule 250B Loading: Wind (psf): 4 Ice (in): 0.5

POLES

Pole #	Length (ft)	Depth (ft)	Elevation (ft)
0	45	6.5	0
1	45	6.5	-1

POLE LINE TOPOLOGY



PoleForeman - Pole Loading Analysis Report

License: Consulting Engineers Group

GUY STRAND DATA							
Anchor	Strand	Attach	Length	Direction	Tension	Strength	Loading
1	7/16" EHS	13"	25'	270°	11,219	18,720	60%
1	7/16" EHS	13"	25'	270°	11,219	18,720	60%
2	7/16" EHS	13"	19'	180°	4,106	18,720	22%
3	7/16" EHS	13"	19'	0°	4,865	18,720	26%
4	7/16" EHS	95"	20'	270°	15,113	18,720	81%

ANCHOR DATA						
Anchor	Rod	Anchor	Soil	Tension	Rod Strength	Anchor Strength
1	3/4" Rod	10" Single Heli	Class - 3	22,438	23,000	24,000
2	3/4" Rod	10" Single Heli	Class - 3	4,106	23,000	24,000
3	3/4" Rod	10" Single Heli	Class - 3	4,865	23,000	24,000
4	1" Rod	12" Single Heli	Class - 3	15,113	36,000	30,500

INSULATORS				
Insulator	Attach	Loading	Angle	
ASC 3Ø Spacer	13"		0°	

ARM / BRACKET DATA				
Arm/Bracket	Attach	Vert Loading	Horz Loading	
ASC DE Bracket	13"			
ASC 24" Tang Bracket	13"	13%		

SPANS							
Span: 1	Span Length (ft): 524	Direction: 90°					
Circuit: 1							
Primary	Ruling Span (ft)	Offset (in)	Attach A (in)	Attach B (in)	Tension		
4/0 AAC 15KV ASC	25	28	23	23	500		
4/0 AAC 15KV ASC	25	24	31	31	500		
4/0 AAC 15KV ASC	25	20	23	23	500		
Neutral							
7 # 8 AW	500	24	15	15	4883		
Joint Use							
Joint Use Cable	Ruling Span (ft)	Diameter (in)	Weight (lbs/ft)	Attach A (in)	Attach B (in)	Tension (lbs)	Description
User Defined	0	2.30	1.06	95	95	5900	

FILE NOTES
<p>Loading for Pole 51 acceptable as is,</p> <p>Pole modeled by adding one new guy to existing anchor at attachment height of 13" to existing anchor.</p> <p>A separate communication anchor is required with a minimum lead to height ratio of 2:3 (20') for Communication cable guying</p> <p>Guy #2 to West side of pole modeled as 7/16" guy, actual guys in field need to be confirmed and replaced if required.</p> <p>Software did not have 3/0 AAC cable, therefore to be conservative 4/0 AAC modeled.</p>

PoleForeman - Pole Loading Analysis Report



License: Consulting Engineers Group

POLE LOADING DATA

Pole: 45/2

Pole Loading

Horizontal: 88% (250B)
Vertical: 56% (250B)

NESC Edition: 2007

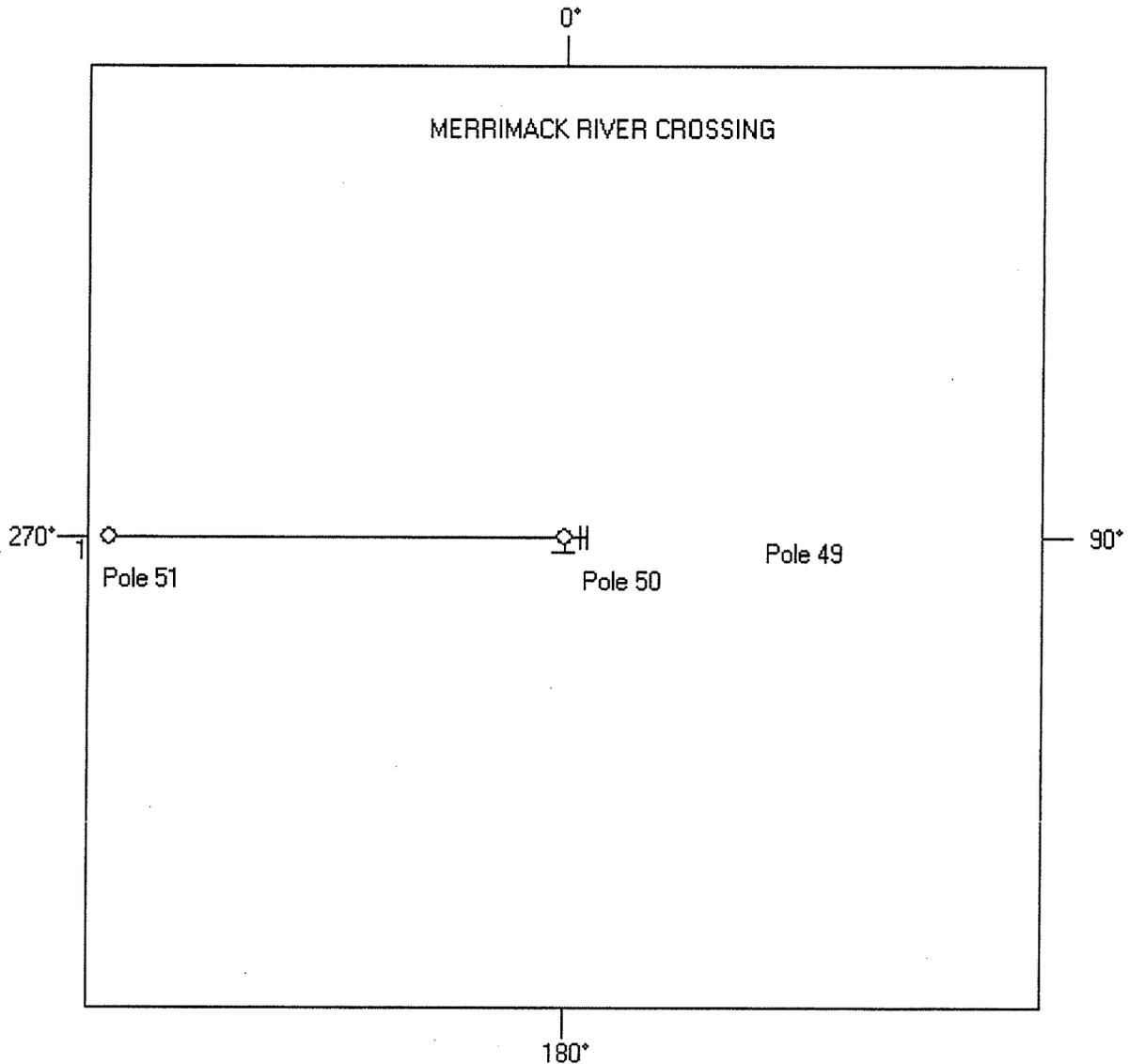
Loading District: Heavy
Construction: Grade B

Rule 250B Loading: Wind (psf): 4 Ice (in): 0.5

POLES

Pole #	Length (ft)	Depth (ft)	Elevation (ft)
0	45	6.5	0
1	45	6.5	-1

POLE LINE TOPOLOGY



PoleForeman - Pole Loading Analysis Report

License: Consulting Engineers Group

GUY STRAND DATA							
Anchor	Strand	Attach	Length	Direction	Tension	Strength	Loading
1	7/16" EHS	13"	25'	90°	14,633	18,720	78%
1	7/16" EHS	13"	25'	90°	14,633	18,720	78%
2	3/8" EHS	20"	18'	180°	4,835	13,860	35%
3	7/16" EHS	123"	19'	90°	15,970	18,720	85%

ANCHOR DATA						
Anchor	Rod	Anchor	Soil	Tension	Rod Strength	Anchor Strength
1	1" Rod	12" Single Heli	Class - 3	29,266	36,000	30,500
2	1" Rod	10" Single Heli	Class - 3	4,835	36,000	24,000
3	1" Rod	12" Single Heli	Class - 3	15,970	36,000	30,500

INSULATORS				
Insulator	Attach	Loading	Angle	
ASC 3Ø Spacer	13"		0°	

ARM / BRACKET DATA				
Arm/Bracket	Attach	Vert Loading	Horz Loading	
ASC 24" Tang Bracket	13"	67%		
Spool Rack	13"			

SPANS							
Span: 1	Span Length (ft): 524	Direction: 270°					
Circuit: 1							
Primary	Ruling Span (ft)	Offset (in)	Attach A (in)	Attach B (in)	Tension		
4/0 AAC 15KV ASC	35	28	23	23	500		
4/0 AAC 15KV ASC	35	24	32	32	500		
4/0 AAC 15KV ASC	35	20	23	23	500		
Neutral							
7 # 8 AW	500	24	15	15	7500		
Joint Use							
Joint Use Cable	Ruling Span (ft)	Diameter (in)	Weight (lbs/ft)	Attach A (in)	Attach B (in)	Tension (lbs)	Description
User Defined	0	2.30	1.06	123	123	5900	

FILE NOTES
<p>Loading for Pole 50 acceptable as is.</p> <p>Pole modeled by adding one new guy to at attachment height of 13" from top of pole to existing anchor. Requires one (1) new guys strand.</p> <p>A separate communication anchor is required with a minimum lead to height ratio of 2:3 (19') for Communication cable guying</p> <p>Software did not have 3/0 AAC cable, therefore to be conservative 4/0 AAC modeled.</p>