Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts

February 14, 2018

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
528 Wheelers Farm Road, Milford, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) antennas at the 114-foot level of the existing 120-foot tower at 528 Wheelers Farm Road in Milford, Connecticut (the "Property"). The tower is owned by Crown Castle ("Crown"). The Council approved Cellco's use of this tower in 2004 (Petition No. 656). Cellco now intends to remove nine (9) of its existing antennas and install six (6) new antennas (two (2) model JAHH-65B-R3B, 700/850 MHz antennas and four (4) model JAHH-45B-R3B, 1900/2100 MHz antennas), all at the same level on the tower. Cellco also intends to install three (3) new remote radio heads ("RRHs") behind its replacement antennas. Included in Attachment 1 are specifications for Cellco's replacement antennas and RRHs.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Milford Mayor, Benjamin G. Blake; David B. Sulkis, Milford's City Planner; The Village Foundation Inc., the owner of the Property; and Crown, the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed at the 114-foot level of the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included behind Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

A copy of the parcel map and owner information for the Property is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 5.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Benjamin G. Blake, Mayor
David B. Sulkis, City Planner
The Village Foundation Inc.
Crown Castle
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

JAHH-65B-R3B

8-port sector antenna, 2x 698–787, 2x 824–894 and 4x 1695–2360 MHz, 65° HPBW, 3x RET and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB (Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2 ° | 14.3	2 ° | 15.0	0 ° | 17.2	0 ° | 17.6	0 ° | 17.7	0 ° | 17.9
	8 ° | 14.3	8 ° | 14.9	5 ° | 17.6	5 ° | 18.2	5 ° | 18.3	5 ° | 18.7
	14 ° | 14.3	14 ° | 15.4	10 ° | 17.6	10 ° | 18.2	10 ° | 18.3	10 ° | 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

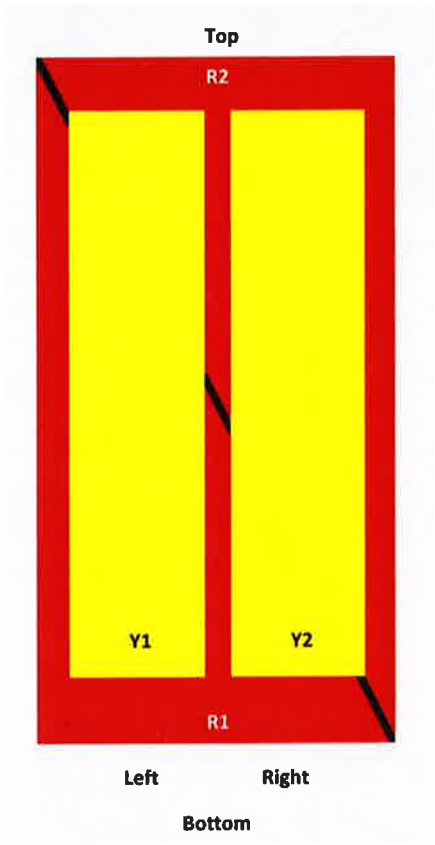
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Product Specifications

JAHH-65B-R3B

Array Layout

JAHH-65A-R3B JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female

Product Specifications

JAHH-65B-R3B

Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	746.0 N @ 150 km/h 167.7 lbf @ 150 km/h
Wind Loading, lateral	243.0 N @ 150 km/h 54.6 lbf @ 150 km/h
Wind Loading, rear	776.0 N @ 150 km/h 174.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1828.0 mm | 72.0 in
Width	350.0 mm | 13.8 in
Depth	208.0 mm | 8.2 in
Net Weight, without mounting kit	28.7 kg | 63.3 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Packed Dimensions

Length	1975.0 mm | 77.8 in
Width	456.0 mm | 18.0 in
Depth	357.0 mm | 14.1 in
Shipping Weight	42.0 kg | 92.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

JAHH-65B-R3B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Product Specifications

COMMSCOPE®

JAHH-45B-R3B

8-port sector antenna, 2x 698–798, 2x 824-894 and 4x 1695–2360 MHz, 45° HPBW, low bands each have a RET and the high bands share a RET. Two internal SBTs.

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band
- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput

Electrical Specifications

Frequency Band, MHz	698–798	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	16.5	17.2	19.4	20.2	20.5	21.1
Beamwidth, Horizontal, degrees	48	43	44	43	41	38
Beamwidth, Vertical, degrees	12.6	11.2	5.8	5.4	5.0	4.5
Beam Tilt, degrees	2–14	2–14	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	16	21	18	18	18	18
Front-to-Back Ratio at 180°, dB	32	36	37	37	38	41
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	28	28	28	28
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	200	200	300	300	300	250
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–798	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	16.3	17.0	19.1	19.9	20.2	20.9
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.3	±0.5	±0.4	±0.3	±0.4
Gain by Beam Tilt, average, dBi	2 ° | 16.3	2 ° | 17.1	0 ° | 19.1	0 ° | 19.8	0 ° | 20.1	0 ° | 20.7
	8 ° | 16.3	8 ° | 17.1	4 ° | 19.2	4 ° | 19.9	4 ° | 20.2	4 ° | 21.0
	14 ° | 16.1	14 ° | 16.7	8 ° | 19.0	8 ° | 19.8	8 ° | 20.1	8 ° | 20.7
Beamwidth, Horizontal Tolerance, degrees	±1.1	±2.4	±2	±2.7	±2.9	±1.5
Beamwidth, Vertical Tolerance, degrees	±0.7	±0.6	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	16	21	17	17	17	17
Front-to-Back Total Power at 180° ± 30°, dB	23	24	29	31	33	34
CPR at Boresight, dB	25	26	20	21	20	20
CPR at Sector, dB	16	18	14	15	15	16

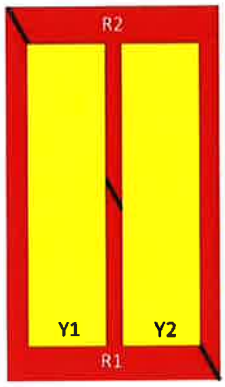
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA,

Product Specifications

JAHH-45B-R3B

download the whitepaper Time to Raise the Bar on BSAs.

Array Layout



Left Right
Bottom

(Sizes of colored boxes are not true depictions of array sizes)

Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

Port Configuration

General Specifications

Operating Frequency Band	1695 – 2360 MHz | 698 – 798 MHz | 824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage
Total Input Power, maximum	800 W @ 50 °C

Product Specifications

JAHH-45B-R3B

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	1038.0 N @ 150 km/h 233.4 lbf @ 150 km/h
Wind Loading, lateral	234.0 N @ 150 km/h 52.6 lbf @ 150 km/h
Wind Loading, rear	1091.0 N @ 150 km/h 245.3 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1829.0 mm | 72.0 in
Width	457.0 mm | 18.0 in
Depth	178.0 mm | 7.0 in
Net Weight, without mounting kit	41.5 kg | 91.5 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	8 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Packed Dimensions

Length	1970.0 mm | 77.6 in
Width	608.0 mm | 23.9 in
Depth	346.0 mm | 13.6 in
Shipping Weight	71.5 kg | 157.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

JAHH-45B-R3B

Included Products

BSAMNT-3 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

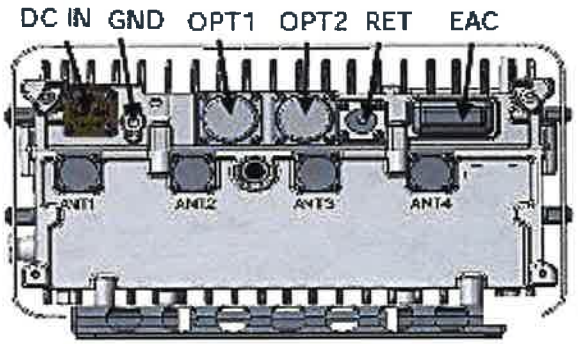
BSAMNT-M — Middle Downtilt Mounting Kit for Long Antennas for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

AHCA AirScale RRH 4T4R B5 160W

Supported Frequency bands	3GPP band 5
Frequencies	DL 869-894MHz, UL 824-849MHz
Number of TX/RX paths/pipes	4TX/4RX
Instantaneous Bandwidth IBW	25MHz (Full Band)
Occupied Bandwidth OBW	25MHz (Full Band)
Output Power	4T4R @ 40W / 2T4R @ 60W
RF Sharing	LTE, WCDMA, LTE + NB-IoT supported
256 QAM Back Off	No backoff at 40W and 0.8dB at 60W.
Supply Voltage / Voltage Range	DC-48V / -36V to -60V
Typical Power Consumption	365W [50% ETSI Busy Hour Load at 4TX @ 40W]
	529W [100% RF Load at 4 TX @ 40W]
	574W [100% RF Load at 4 TX @ 40W with SBT and AISG ON]
Antenna Ports	4 Ports, 4.3-10+
Optical Ports	2x CPRI 9.8 Gbps
ALD Control Interfaces	AISG3.0 from ANT1,2, 3, 4 and RET (Power supply ANT1 and ANT3)
Other Interfaces	External Alarm MDR-26 Serial connector (4 inputs, 1 Output) DC Circular Power Connector



Operational Temperature Range	-40°C to 55°C (with solar cover)
Dimensions (mm) Height x width x depth	337 x 295 x 165 (radio only) 13.3" x 11.7" x 6.5" 428 x 324 x 208 (with bracket and enclosure) 16.9" x 12.8" x 8.2"
Volume (liters)	16.5
Weight (kg)	16/ 35.3 lb – w/o bracket
Ingress protection class	IP65
Installation options	Pole or Wall, Vertical or Horizontal Book Mount
Surge protection	Class II 5kA

NOKIA

ATTACHMENT 2

	General	Power	Density					
Site Name: Milford NE								
Tower Height: 120'								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	1	500	97	700	0.0217	0.4667	0.47%	
*AT&T	1	500	97	1900	0.0217	1.0000	0.22%	
*AT&T	1	500	97	2300	0.0217	1.0000	0.22%	
*AT&T	2	500	97	880	0.0434	0.5867	0.74%	
*AT&T	2	500	97	1900	0.0434	1.0000	0.43%	
*AT&T	1	296	97	880	0.0129	0.5867	0.22%	
*XM Radio	2	312	112	2337	0.0200	1.0000	0.20%	
*Clearwire	2	153	120	2496	0.0085	1.0000	0.08%	
*Clearwire	1	211	117	11 GHz	0.0062	1.0000	0.06%	
*Sprint	1	438	120	850	0.0121	0.5667	0.21%	
*Sprint	2	438	120	850	0.0242	0.5667	0.43%	
*Sprint	5	622	120	1900	0.0861	1.0000	0.86%	
*Sprint	2	1556	120	1900	0.0861	1.0000	0.86%	
*Sprint	8	778	120	2500	0.1722	1.0000	1.72%	
*T-Mobile	2	2334	107	2100	0.1646	1.0000	1.65%	
*T-Mobile	2	2334	107	1900	0.1646	1.0000	1.65%	
*T-Mobile	2	830	107	2100	0.0585	1.0000	0.59%	
*T-Mobile	2	1167	107	1900	0.0823	1.0000	0.82%	
*T-Mobile	2	1167	107	1900	0.0823	1.0000	0.82%	
*T-Mobile	1	865	107	700	0.0305	0.4667	0.65%	
*Metricom	5	100	73	902	0.0401	0.6013	0.67%	
Verizon PCS	**1**	**5062**	**114**	**0.1401**	**1970**	**1.0000**	**14.01%**	
Verizon Cellular	**3**	**498**	**114**	**0.0413**	**869**	**0.5790**	**7.14%**	
Verizon Cellular	**1**	**3709**	**114**	**0.1026**	**880**	**0.5866**	**17.49%**	
Verizon AWS	**1**	**7770**	**114**	**0.2150**	**2145**	**1.0000**	**21.50%**	
Verizon 700	**1**	**2062**	**114**	**0.0571**	**746**	**0.4973**	**11.47%**	
								85.2%
* Source: Siting Council								

ATTACHMENT 3

Date: **August 24, 2017**

Marianne Dunst
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6580

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
crown@tepgroup.net

Subject: **Structural Analysis Report**

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	468756
	Carrier Site Name:	Milford NE CT
Crown Castle Designation:	**Crown Castle BU Number:**	876320
	Crown Castle Site Name:	528 Wheelers Farm RD
	Crown Castle JDE Job Number:	452574
	Crown Castle Work Order Number:	1446884
	Crown Castle Application Number:	400694 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	25570.129190
Site Data:	**528 Wheelers Farm Road, Milford, New Haven County, CT 06460**	
	Latitude *41° 14' 54.35"*, Longitude *-73° 4' 44.67"*	
	120 Foot - Monopole Tower	

Dear Marianne Dunst,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1072124, in accordance with application 400694, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code 2012 International Building Code) based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Crown Castle*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Travis L. Infante, E.I. / JDR

Respectfully submitted by:

William H. Martin, P.E., S.E.

8/24/17

STATE OF CONNECTICUT
WILLIAM H. MARTIN
0029484
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120-ft monopole tower designed by Paul J. Ford and Co. in February of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F-1996 for the appurtenances listed in Table 3. The tower has been modified multiple times in the past to accommodate additional loading. Shaft reinforcement designed by Semaan Engineering in February of 2004 was considered ineffective. TEP visited the site in April of 2013 to perform a post modification inspection. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a nominal 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75 inch ice thickness, and 60 mph under service loads with the following design criteria:

Type of Analysis: **Rigorous Structural Analysis**
Classification of Structure: **Class II**
Exposure Category: **Exposure C**
Topographic Category: **Category 1**
Earthquake Category: **Not Considered**
Earthquake effects may be ignored per this standard for site locations where Ss does not exceed 1.0. (New Haven County Max Ss = 0.32).

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
113.0	114.0	2	Commscope	JAHH-65B-R3B	-	-	-
		4	Commscope	JAHH-45B-R3B			
		3	Nokia	Airscale RRH 4T4R B5 160W			
	113.0	3	Commscope	BSAMNT-SBS-2-2			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
122.0	125.0	2	Andrew	VHLP2-11	-	-	1
	123.0	1	MTI Wireless	MT-485025			
		1	Andrew	PX2F-52			
	122.0	3	Argus Technologies	LLPX310R w/ Mount Pipe			
		3	Samsung Telecomm.	FDD_R6_RRH			
		1	Tower Mounts	Miscellaneous [NA 507-1]			
		1	Tower Mounts	Platform Mount [LP 712-1]			
	121.0	3	RFS Celwave	APXVTM14-ALU-I20 w/ Mount Pipe	-	-	2
		3	Alcatel Lucent	TD-RRH8x20-25			
		1	Alcatel Lucent	800MHZ RRH	4 6 1 3	1-1/4 5/16 1/8 7983A	1
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		2	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
	120.0	3	Alcatel Lucent	800 External Notch Filter			
		9	RFS Celwave	ACU-A20-N			
		1	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
		2	Alcatel Lucent	800MHZ RRH			
113.0	116.0	1	Trimble	ACUTIME 2000	-	-	1
	114.0	2	Andrew	DB846F65ZAXY w/ Mount Pipe			
		4	Antel	LPA-80063/4CF w/ Mount Pipe			
		2	RFS Celwave	DB-T1-6Z-8AB-0Z			
		3	Alcatel Lucent	RRH2x60-700			
		3	Alcatel Lucent	RRH2X60-1900			
		3	Alcatel Lucent	AWS-3 RRH4X45			
		3	Antel	BXA-171063/8CF w/ Mount Pipe	6	1-5/8	3
		2	RFS Celwave	FD9R6004/2C-3L			
		2	Commscope	SBNHH-1D65B w/ Mount Pipe			
		4	Commscope	SBNHH-1D45B w/ Mount Pipe			
	113.0	4	RFS Celwave	FD9R6004/2C-3L			
		1	Tower Mounts	Platform Mount [LP 305-1]	8	1-5/8	1
105.0	107.0	1	Ericsson	AIR 32 B2a/B66Aa w/ Mount Pipe	1	1-5/8	2
		2	Ericsson	AIR -32 B2A/B66AA w/ Mount Pipe			
		3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe	7	1-5/8	1
		1	Ericsson	KRY 112 144/1			
		3	Commscope	LNX-6515DS-VTM w/ Mount Pipe			
		3	Ericsson	RRUS 11 B12			
	105.0	2	Ericsson	KRY 112 144/1			
		1	Tower Mounts	Platform Mount [LP 1201-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
97.0	97.0	3	Ericsson	RRUS 11	1 2	3/8 3/4	1
		2	Raycap	DC6-48-60-18-8F			
		3	Ericsson	WCS RRUS-32-B30			
		3	Ericsson	TME-RRUS-32 B30			
		1	Tower Mounts	Side Arm Mount [SO 102-3]			
96.0	99.0	3	Quintel Technology	QS66512-2 w/ Mount Pipe	1 2 12	3/8 3/4 1-1/4	1
	97.0	3	Powerwave Technologies	7770.00 w/ Mount Pipe			
		3	CCI Antennas	OPA-65R-LCUU-H6 w/ Mount Pipe			
		1	Commscope	WCS-IMFQ-AMT			
	96.0	6	Powerwave Technologies	LGP2140X			
		1	Tower Mounts	Miscellaneous [NA 507-1]			
		1	Tower Mounts	Platform Mount [LP 712-1]			
82.0	82.0	-	-	-	12	7/8	4
75.0	76.0	1	Trimble	ACUTIME 2000	1	1/2	2
	75.0	1	Tower Mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing equipment
2) Reserved equipment
3) Existing equipment to be removed; not considered in this analysis
4) Abandoned equipment; considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120.0	120.0	12	Decibel	DB980 H90	-	-
100.0	100.0	12	Decibel	DB980 H90	-	-
90.0	90.0	12	Decibel	DB980 H90	-	-
80.0	80.0	1	Generic	GPS	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Supplemental Geotechnical Report	FDH, Inc.	1613534	CCISites
Tower Foundation Drawings	Paul J. Ford and Co.	1614583	CCISites
Tower Manufacturer Drawings	Paul J. Ford and Co.	1614557	CCISites
Tower Reinforcement Drawings	Semaan Engineering Solutions	1613579	CCISites
Post Modification Inspection	Semaan Engineering Solutions	3350209	CCISites
Tower Reinforcement Drawings	B&T Engineering	2460630	CCISites
Post Modification Inspection	B&T Engineering	2460628	CCISites
Tower Reinforcement Drawings	B&T Engineering	3349207	CCISites
Post Modification Inspection	B&T Engineering	3349204	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	3338935	CCISites
Post Modification Inspection	Tower Engineering Professionals	3753892	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	4961357	CCISites
Post Modification Inspection	SGS, Inc.	5760332	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	5873963	CCISites
Post Modification Inspection	FDH Velocitel	6112300	CCISites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

For analysis of monopole shaft reinforcements, the plates are modeled as linear appurtenances along the exterior of the pole. The loads calculated from tnxTower are then exported to a proprietary calculation sheet created by Tower Engineering Professionals, Inc. that analyzes each reinforcing element along each critical axis and presents percent capacities for each element and the pole shaft along each critical axis. The actual percent capacity of the tower structure including the reinforcing elements is reported in Table 5 - Section Capacity (Summary).

3.2) Assumptions

1) The tower and foundation were built in accordance with the manufacturer's specifications.
2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B – Base Level Drawing".
4) All tower components are in sufficient condition to carry their full design capacity.
5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not analyze antennas supporting mounts as part of this structural analysis report.
7) TEP assumed that the shaft reinforcement modifications by Semaan Engineering (Doc ID 1613579) are ineffective and therefore they were not considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	ΦP_{allow} (K)	% Capacity	Pass / Fail
L1	120.00-78.00	Pole	TP30.49×22.00×0.2500	1	Note 1	Note 1	58.3	Pass
L2	81.75-39.75	Pole	TP37.71×29.23×0.3125	2	Note 1	Note 1	79.0	Pass
L3	44.50-0.00	Pole	TP45.12×36.13×0.3750	3	Note 1	Note 1	74.7	Pass
M1	8.00-0.00	Mod (Ex)	(TS) 1.25×8.00 (65ksi)	1	Note 1	Note 1	73.2	Pass
M2	25.50-0.50	Mod (Ex)	(Aero) MP304	2	Note 1	Note 1	90.5	Pass
M3	37.00-2.50	Mod (Ex)	PL 1" x 5"	3	Note 1	Note 1	99.8	Pass
M4	72.08-32.08	Mod (Ex)	PL 1" x 5"	4	Note 1	Note 1	91.6	Pass
M5	15.50-0.50	Mod (Ex)	(Aero) MP303	5	Note 1	Note 1	86.5	Pass
M6	45.50-25.50	Mod (Ex)	(Aero) MP303	6	Note 1	Note 1	93.4	Pass
M7	72.00-52.00	Mod (Ex)	CCI-SFP-045100	7	Note 1	Note 1	78.1	Pass
M8	74.79-50.54	Mod (Ex)	CCI-SFP-045100	8	Note 1	Note 1	80.3	Pass
M9	72.00-52.00	Mod (Ex)	CCI-AFP-045100	9	Note 1	Note 1	78.1	Pass
M10	92.00-67.00	Mod (Ex)	CCI-AFP-060100	10	Note 1	Note 1	57.0	Pass
M11	92.08-72.08	Mod (Ex)	CCI-AFP-045100	11	Note 1	Note 1	56.6	Pass
M12	57.50-42.50	Mod (Ex)	CCI-SFP-045100	12	Note 1	Note 1	91.9	Pass
M13	57.25-42.25	Mod (Ex)	CCI-SFP-045100	13	Note 1	Note 1	91.9	Pass
M14	100.75-73.00	Mod (Ex)	PL 1.25" x 4"	14	Note 1	Note 1	66.5	Pass
M15b	100.75-74.00	Mod (Ex)	PL 1.25" x 4"	15	Note 1	Note 1	60.6	Pass
M16b	80.00-68.25	Mod (Ex)	PL 1.25" x 4"	16	Note 1	Note 1	64.4	Pass
M17	78.25-68.25	Mod (Ex)	PL 1.25" x 4"	17	Note 1	Note 1	59.9	Pass
							Summary	
						Pole (L2)	79.0	Pass
						Mod (M3)	99.8	Pass
						RATING =	**99.8**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Original Anchor Rods	-	67.0	Pass
1	Reinforcing Anchor Rods	-	43.0	Pass
1	Base Plate	-	87.2	Pass
1	Base Foundation Soil Interaction	-	64.7	Pass
1	Base Foundation Structural	-	56.9	Pass

Structure Rating (max from all components) =	99.8%

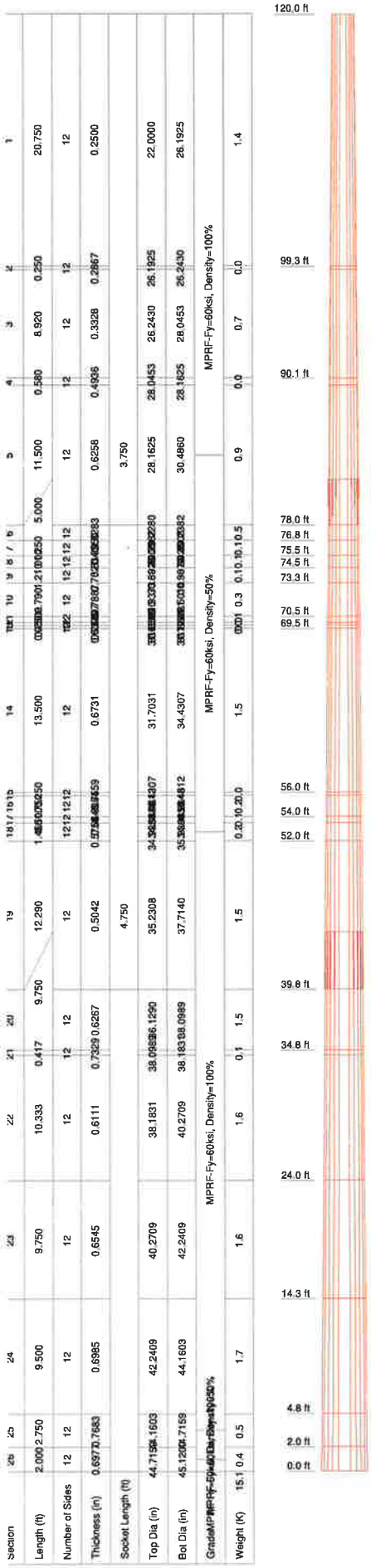
Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

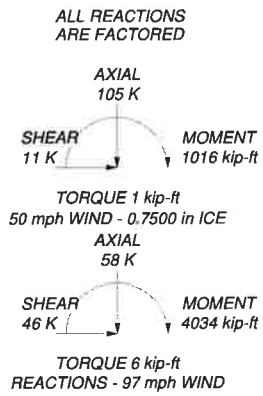
4.1) Recommendations

1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe	122	Pipe Mount [PM 602-3]	113
APXVSPP18-C-A20 w/ Mount Pipe	122	Platform Mount [LP 305-1]	113
APXVSPP18-C-A20 w/ Mount Pipe	122	(2) LPA-80063/4CF w/ Mount Pipe	113
LLPX310R w/ Mount Pipe	122	(2) DB846F65ZAXY w/ Mount Pipe	113
LLPX310R w/ Mount Pipe	122	(2) LPA-80063/4CF w/ Mount Pipe	113
LLPX310R w/ Mount Pipe	122	KRY 112 144/1	105
APXVTM14-ALU-I20 w/ Mount Pipe	122	KRY 112 144/1	105
APXVTM14-ALU-I20 w/ Mount Pipe	122	KRY 112 144/1	105
APXVTM14-ALU-I20 w/ Mount Pipe	122	LNX-6515DS-VTM w/ Mount Pipe	105
MT-485025	122	LNX-6515DS-VTM w/ Mount Pipe	105
800 EXTERNAL NOTCH FILTER	122	LNX-6515DS-VTM w/ Mount Pipe	105
800 EXTERNAL NOTCH FILTER	122	RRUS 11 B12	105
800 EXTERNAL NOTCH FILTER	122	RRUS 11 B12	105
(3) ACU-A20-N	122	RRUS 11 B12	105
(3) ACU-A20-N	122	AIR 32 B2a/B66Aa w/ Mount Pipe	105
(3) ACU-A20-N	122	AIR -32 B2A/B66AA w/ Mount Pipe	105
PCS 1900MHz 4x45W-65MHz	122	AIR -32 B2A/B66AA w/ Mount Pipe	105
PCS 1900MHz 4x45W-65MHz	122	Platform Mount [LP 1201-1]	105
PCS 1900MHz 4x45W-65MHz	122	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	105
800MHZ RRH	122	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	105
800MHZ RRH	122	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	105
800MHZ RRH	122	DC6-48-60-18-8F	97
TD-RRH8x20-25	122	DC6-48-60-18-8F	97
TD-RRH8x20-25	122	WCS RRUS-32-B30	97
TD-RRH8x20-25	122	(2) WCS RRUS-32-B30	97
FDD_R6_RRH	122	TME-RRUS-32 B30	97
FDD_R6_RRH	122	TME-RRUS-32 B30	97
FDD_R6_RRH	122	TME-RRUS-32 B30	97
2.4" Dia. x 5-ft Pipe	122	(2) 2.4" Dia. x 5-ft Pipe	97
(2) 2.4" Dia. x 5-ft Pipe	122	(2) 2.4" Dia. x 5-ft Pipe	97
2.4" Dia. x 5-ft Pipe	122	(2) 2.4" Dia. x 5-ft Pipe	97
Miscellaneous [NA 507-1]	122	Side Arm Mount [SO 102-3]	97
Platform Mount [LP 712-1]	122	RRUS 11	97
PX2F-52	122	RRUS 11	97
VHLP2-11	122	RRUS 11	97
VHLP2-11	122	OPA-65R-LCUU-H6 w/ Mount Pipe	96
Pipe 6" x 10'	120	OPA-65R-LCUU-H6 w/ Mount Pipe	96
(2) JAHH-65B-R3B	113	OPA-65R-LCUU-H6 w/ Mount Pipe	96
(2) JAHH-45B-R3B	113	QS66512-2 w/ Mount Pipe	96
(2) JAHH-45B-R3B	113	QS66512-2 w/ Mount Pipe	96
AIRSCALE RRH 4T4R B5 160W	113	QS66512-2 w/ Mount Pipe	96
AIRSCALE RRH 4T4R B5 160W	113	WCS-IMFQ-AMT	96
AIRSCALE RRH 4T4R B5 160W	113	(2) LGP2140X	96
ACUTIME 2000	113	(2) LGP2140X	96
DB-T1-6Z-8AB-0Z	113	(2) LGP2140X	96
DB-T1-6Z-8AB-0Z	113	2.4" Dia x 6-ft Pipe	96
RRH2x60-700	113	2.4" Dia x 6-ft Pipe	96
RRH2x60-700	113	2.4" Dia x 6-ft Pipe	96
RRH2x60-700	113	Miscellaneous [NA 507-1]	96
RRH2X60-1900	113	Platform Mount [LP 712-1]	96
RRH2X60-1900	113	7770.00 w/ Mount Pipe	96
RRH2X60-1900	113	7770.00 w/ Mount Pipe	96
AWS-3 RRH4X45	113	7770.00 w/ Mount Pipe	96
AWS-3 RRH4X45	113	Side Arm Mount [SO 701-1]	75
AWS-3 RRH4X45	113	ACUTIME 2000	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
MPRF-Fy=60ksi, Density=100%	60 ksi	75 ksi	MPRF-Fy=60ksi, Density=50%	60 ksi	75 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft

Tower Engineering Professionals

Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603-5263
Phone: (919) 661-6351
FAX: (919) 661-6350

Job:	*528 Wheelers Farm RD (BU 876320)*		
Project:	*TEP No. 25570.129190*		
Client:	Crown Castle	Drawn by: TLI	App'd:
Code:	TIA-222-G	Date: 08/24/17	Scale:
Path:	C:\Users\tlinford\Desktop\25570.129190 528 WHEELERS FARM RD\ptsTower\876320_LC7.eri		Dwg No.

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	120.000-99.250	20.750	0.00	12	22.0000	26.1925	0.2500	1.0000	MPRF-Fy=60ksi, Density=100% (60 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	99.250-99.000	0.250	0.00	12	26.1925	26.2430	0.2867	1.1468	MPRF-Fy=60ksi, Density=100% (60 ksi)
L3	99.000-90.080	8.920	0.00	12	26.2430	28.0453	0.3328	1.3313	MPRF-Fy=60ksi, Density=100% (60 ksi)
L4	90.080-89.500	0.580	0.00	12	28.0453	28.1625	0.4936	1.9745	MPRF-Fy=60ksi, Density=100% (60 ksi)
L5	89.500-78.000	11.500	3.75	12	28.1625	30.4860	0.6258	2.5031	MPRF-Fy=60ksi, Density=50% (60 ksi)
L6	78.000-76.750	5.000	0.00	12	29.2280	30.2382	0.8283	3.3132	MPRF-Fy=60ksi, Density=50% (60 ksi)
L7	76.750-75.500	1.250	0.00	12	30.2382	30.4908	0.8950	3.5798	MPRF-Fy=60ksi, Density=50% (60 ksi)
L8	75.500-74.500	1.000	0.00	12	30.4908	30.6928	0.8340	3.3361	MPRF-Fy=60ksi, Density=50% (60 ksi)
L9	74.500-73.290	1.210	0.00	12	30.6928	30.9373	0.7527	3.0107	MPRF-Fy=60ksi, Density=50% (60 ksi)
L10	73.290-70.500	2.790	0.00	12	30.9373	31.5010	0.7887	3.1549	MPRF-Fy=60ksi, Density=50% (60 ksi)
L11	70.500-70.000	0.500	0.00	12	31.5010	31.6021	0.8107	3.2426	MPRF-Fy=60ksi, Density=50% (60 ksi)
L12	70.000-69.750	0.250	0.00	12	31.6021	31.6526	0.7489	2.9958	MPRF-Fy=60ksi, Density=50% (60 ksi)
L13	69.750-69.500	0.250	0.00	12	31.6526	31.7031	0.8325	3.3301	MPRF-Fy=60ksi, Density=50% (60 ksi)
L14	69.500-56.000	13.500	0.00	12	31.7031	34.4307	0.6731	2.6924	MPRF-Fy=60ksi, Density=50% (60 ksi)
L15	56.000-55.750	0.250	0.00	12	34.4307	34.4812	0.7559	3.0238	MPRF-Fy=60ksi, Density=50% (60 ksi)
L16	55.750-54.000	1.750	0.00	12	34.4812	34.8348	0.8084	3.2337	MPRF-Fy=60ksi, Density=50% (60 ksi)
L17	54.000-53.500	0.500	0.00	12	34.8348	34.9358	0.6646	2.6584	MPRF-Fy=60ksi, Density=50% (60 ksi)
L18	53.500-52.040	1.460	0.00	12	34.9358	35.2308	0.5754	2.3016	MPRF-Fy=60ksi, Density=100% (60 ksi)
L19	52.040-39.750	12.290	4.75	12	35.2308	37.7140	0.5042	2.0167	MPRF-Fy=60ksi, Density=100% (60 ksi)
L20	39.750-34.750	9.750	0.00	12	36.1290	38.0989	0.6267	2.5067	MPRF-Fy=60ksi,

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
									Density=100% (60 ksi)
L21	34.750-34.333	0.417	0.00	12	38.0989	38.1831	0.7329	2.9314	MPRF-Fy=60ksi, Density=100% (60 ksi)
L22	34.333-24.000	10.333	0.00	12	38.1831	40.2709	0.6111	2.4443	MPRF-Fy=60ksi, Density=100% (60 ksi)
L23	24.000-14.250	9.750	0.00	12	40.2709	42.2409	0.6545	2.6180	MPRF-Fy=60ksi, Density=100% (60 ksi)
L24	14.250-4.750	9.500	0.00	12	42.2409	44.1603	0.6985	2.7938	MPRF-Fy=60ksi, Density=100% (60 ksi)
L25	4.750-2.000	2.750	0.00	12	44.1603	44.7159	0.7683	3.0733	MPRF-Fy=60ksi, Density=50% (60 ksi)
L26	2.000-0.000	2.000		12	44.7159	45.1200	0.6977	2.7906	MPRF-Fy=60ksi, Density=100% (60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	27.1165	20.8837	1793.9763	9.2874	13.5677	132.2240	3635.0824	10.2783	6.3496	25.398
L2	27.1165	23.9151	2048.5785	9.2743	13.5677	150.9893	4150.9755	11.7703	6.2512	21.805
	27.1688	23.9618	2060.5851	9.2924	13.5939	151.5819	4175.3040	11.7933	6.2648	21.852
L3	27.1688	27.7685	2379.4624	9.2758	13.5939	175.0393	4821.4358	13.6668	6.1411	18.451
	29.0346	29.7000	2911.3346	9.9211	14.5274	200.4024	5899.1532	14.6175	6.6241	19.902
L4	29.0346	43.7915	4242.9835	9.8635	14.5274	292.0667	8597.4349	21.5529	6.1932	12.547
	29.1559	43.9778	4297.3549	9.9054	14.5882	294.5785	8707.6061	21.6445	6.2247	12.61
L5	29.1559	55.4866	5370.2834	9.8581	14.5882	368.1264	10881.6502	27.3088	5.8704	9.381
	31.5614	60.1686	6847.6548	10.6900	15.7917	433.6223	13875.2051	29.6132	6.4932	10.376
L6	31.0435	75.7450	7797.7156	10.1671	15.1401	515.0371	15800.2859	37.2794	5.6133	6.777
	31.3049	78.4394	8659.8117	10.5288	15.6634	552.8690	17547.1263	38.6055	5.8840	7.104
L7	31.3049	84.5604	9293.3105	10.5049	15.6634	593.3135	18830.7667	41.6181	5.7054	6.375
	31.5664	85.2882	9535.3467	10.5953	15.7942	603.7233	19321.1976	41.9763	5.7730	6.451
L8	31.5664	79.6445	8941.0744	10.6171	15.7942	566.0974	18117.0408	39.1986	5.9364	7.118
	31.7756	80.1871	9125.0647	10.6895	15.8989	573.9434	18489.8549	39.4657	5.9905	7.183
L9	31.7756	72.5643	8302.6634	10.7186	15.8989	522.2164	16823.4471	35.7140	6.2085	8.248
	32.0287	73.1569	8507.7163	10.8061	16.0255	530.8851	17238.9397	36.0056	6.2740	8.336
L10	32.0287	76.5690	8883.2698	10.7932	16.0255	554.3198	17999.9129	37.6849	6.1774	7.832
	32.6123	78.0007	9390.9383	10.9950	16.3175	575.5120	19028.5869	38.3896	6.3285	8.024
L11	32.6123	80.1119	9631.3506	10.9872	16.3175	590.2454	19515.7276	39.4286	6.2697	7.734
	32.7169	80.3756	9726.7751	11.0233	16.3699	594.1878	19709.0833	39.5584	6.2968	7.767
L12	32.7169	74.4054	9040.4128	11.0454	16.3699	552.2594	18318.3274	36.6201	6.4622	8.628
	32.7692	74.5272	9084.8870	11.0635	16.3960	554.0906	18408.4440	36.6800	6.4757	8.646
L13	32.7692	82.6200	10017.0074	11.0336	16.3960	610.9410	20297.1727	40.6631	6.2517	7.509
	32.8214	82.7555	10066.3398	11.0517	16.4222	612.9716	20397.1335	40.7297	6.2653	7.526

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L14	32.8214	67.2536	8265.4179	11.1087	16.4222	503.3077	16747.9776	33.1002	6.6925	9.943
	35.6453	73.1655	10642.3097	12.0852	17.8351	596.7054	21564.2046	36.0098	7.4235	11.029
L15	35.6453	81.9693	11864.4305	12.0556	17.8351	665.2287	24040.5528	40.3428	7.2015	9.526
	35.6976	82.0923	11917.9004	12.0737	17.8613	667.2478	24148.8973	40.4033	7.2150	9.544
L16	35.6976	87.6559	12686.0300	12.0549	17.8613	710.2531	25705.3362	43.1416	7.0744	8.751
	36.0637	88.5764	13089.8720	12.1814	18.0444	725.4242	26523.6295	43.5946	7.1691	8.868
L17	36.0637	73.1259	10898.1377	12.2329	18.0444	603.9611	22082.5816	35.9903	7.5546	11.367
	36.1682	73.3421	10995.0846	12.2691	18.0968	607.5717	22279.0222	36.0967	7.5816	11.408
L18	36.1682	63.6634	9593.8525	12.3010	18.0968	530.1418	19439.7462	31.3332	7.8207	13.592
	36.4736	64.2099	9843.0743	12.4066	18.2496	539.3592	19944.7371	31.6022	7.8998	13.729
L19	36.4736	56.3773	8677.9330	12.4321	18.2496	475.5143	17583.8450	27.7472	8.0907	16.047
	39.0444	60.4086	10675.7930	13.3211	19.5359	546.4718	21632.0509	29.7313	8.7562	17.367
L20	38.3971	71.6411	11525.5537	12.7098	18.7148	615.8516	23353.8964	35.2596	8.0031	12.77
	39.4429	75.6163	13552.5556	13.4151	19.7352	686.7182	27461.1519	37.2161	8.5310	13.613
L21	39.4429	88.1762	15714.2117	13.3771	19.7352	796.2510	31841.2532	43.3977	8.2465	11.253
	39.5301	88.3749	15820.6638	13.4072	19.7789	799.8775	32056.9541	43.4954	8.2690	11.283
L22	39.5301	73.9297	13320.9242	13.4508	19.7789	673.4931	26991.8040	36.3859	8.5954	14.066
	41.6915	78.0378	15667.2509	14.1982	20.8603	751.0545	31746.0979	38.4078	9.1549	14.982
L23	41.6915	83.4921	16725.5960	14.1827	20.8603	801.7893	33890.5920	41.0923	9.0385	13.81
	43.7310	87.6438	19346.7770	14.8879	21.8808	884.1910	39201.8153	43.1356	9.5665	14.616
L24	43.7310	93.4308	20580.6597	14.8722	21.8808	940.5823	41701.9962	45.9838	9.4487	13.528
	45.7181	97.7477	23567.2268	15.5593	22.8750	1030.2600	47753.5909	48.1085	9.9631	14.264
L25	45.7181	107.3520	25799.6996	15.5343	22.8750	1127.8543	52277.1860	52.8354	9.7758	12.724
	46.2933	108.7266	26803.5199	15.7332	23.1628	1157.1775	54311.1982	53.5119	9.9248	12.917
L26	46.2933	98.8849	24455.7841	15.7585	23.1628	1055.8197	49554.0489	48.6681	10.1141	14.497
	46.7117	99.7927	25135.5023	15.9032	23.3722	1075.4463	50931.3422	49.1149	10.2224	14.653

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 120.000-99.250				1	1	1			
L2 99.250-99.000				1	1	0.873239			
L3 99.000-90.080				1	1	0.753372			
L4 90.080-89.500				1	1	0.510929			
L5 89.500-78.000				1	1	0.809321			
L6 78.000-76.750				1	1	0.767798			
L7 76.750-75.500				1	1	0.712101			
L8 75.500-74.500				1	1	0.762472			
L9 74.500-73.290				1	1	0.842469			
L10 73.290-70.500				1	1	0.804698			
L11 70.500-70.000				1	1	0.78345			
L12 70.000-69.750				1	1	0.846293			
L13 69.750-69.500				1	1	0.763376			
L14 69.500-56.000				1	1	0.93846			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
L15 56.000-55.750				1	1	0.83765			
L16 55.750-54.000				1	1	0.784365			
L17 54.000-53.500				1	1	0.950061			
L18 53.500-52.040				1	1	0.547214			
L19 52.040-39.750				1	1	0.623096			
L20 39.750-34.750				1	1	0.602405			
L21 34.750-34.333				1	1	0.516587			
L22 34.333-24.000				1	1	0.617321			
L23 24.000-14.250				1	1	0.576801			
L24 14.250-4.750				1	1	0.54089			
L25 4.750-2.000				1	1	0.984886			
L26 2.000-0.000				1	1	0.541419			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			ft				in	in	plf
2.25" Flexible Conduit	C	Surface Ar (CaAa)	120.000 - 0.000	2	2	0.000 0.000	2.2500		0.34
LDF7-50A(1-5/8)	A	Surface Ar (CaAa)	113.000 - 0.000	8	4	-0.250 -0.250	1.9800		0.82
*									
LDF7-50A(1-5/8)	A	Surface Ar (CaAa)	105.000 - 0.000	8	8	0.500 0.500	1.9800		0.82
*									
Safety Line 3/8	C	Surface Ar (CaAa)	120.000 - 0.000	1	1	0.000 0.000	0.3750		0.22
Step Pegs (5/8" SR) 7-in. w/30" step	C	Surface Ar (CaAa)	120.000 - 0.000	1	1	0.000 0.000	0.3500		0.49
*									
C6x10.5	A	Surface Ar (CaAa)	56.000 - 0.000	1	1	0.500 0.500	2.0300		10.50
C6x10.5	A	Surface Ar (CaAa)	56.000 - 0.000	1	1	-0.250 -0.250	2.0300		10.50
C6x10.5	B	Surface Ar (CaAa)	56.000 - 0.000	1	1	0.250 0.250	2.0300		10.50
C6x10.5	C	Surface Ar (CaAa)	56.000 - 0.000	1	1	0.000 0.000	2.0300		10.50
PL 1x4.5	A	Surface Ar (CaAa)	72.000 - 56.000	1	1	0.500 0.500	1.0000		15.34
PL 1x4.5	B	Surface Ar (CaAa)	74.790 - 56.000	1	1	0.250 0.250	1.0000		15.34

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
PL 1x4.5	C	Surface Ar (CaAa)	72.000 - 56.000	1	1	0.000 0.000	1.0000		15.34
PL 1x4.5	A	Surface Ar (CaAa)	72.000 - 56.000	1	1	-0.250 -0.250	1.0000		15.34
PL 1x6	A	Surface Ar (CaAa)	92.000 - 72.000	1	1	0.500 0.500	1.0000		20.45
PL 1x6	C	Surface Ar (CaAa)	92.000 - 72.000	1	1	0.000 0.000	1.0000		20.45
*									
PL 1x4.5	A	Surface Ar (CaAa)	92.080 - 72.080	1	1	-0.250 -0.250	1.0000		15.34
PL 1x4.5	B	Surface Ar (CaAa)	92.080 - 72.080	1	1	0.250 0.250	1.0000		15.34
PL 1.25x4	A	Surface Ar (CaAa)	100.750 - 92.080	1	1	-0.250 -0.250	1.2500		17.04
PL 1.25x4	B	Surface Ar (CaAa)	100.750 - 92.080	1	1	0.250 0.250	1.2500		17.04
PL 1.25x4	C	Surface Ar (CaAa)	100.750 - 92.000	1	1	0.000 0.000	1.2500		17.04
*									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
*								
1266A(1/8)	C	No	CaAa (Out Of Face)	120.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.01 0.41 1.41
7983A(ELLIPTICAL)	C	No	CaAa (Out Of Face)	120.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.08 0.74 2.01
9207(5/16)	C	No	Inside Pole	120.000 - 0.000	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
HB114-1-0813U4-M5J(1 -1/4)	C	No	Inside Pole	120.000 - 0.000	4	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	1.20 1.20 1.20
*								
*								
FB-L98B-034-XXX(3/8)	C	No	Inside Pole	97.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	97.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.58 0.58 0.58
*								
LDF6-50A(1 1/4")	C	No	Inside Pole	96.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.66 0.66 0.66
FB-L98B-034-XXX(3/8)	C	No	Inside Pole	96.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	96.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.58 0.58 0.58
2" Flexible Conduit	C	No	Inside Pole	96.000 - 0.000	2	No Ice	0.000	0.34

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1/2" Ice	0.000	0.34
						1" Ice	0.000	0.34
*								
LDF5-50A(7/8)	C	No	Inside Pole	82.000 - 0.000	12	No Ice	0.000	0.33
						1/2" Ice	0.000	0.33
						1" Ice	0.000	0.33
*								
LDF4-50A(1/2)	C	No	Inside Pole	75.000 - 0.000	1	No Ice	0.000	0.15
						1/2" Ice	0.000	0.15
						1" Ice	0.000	0.15
*								
Aero MP3-04	A	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
Aero MP3-04	B	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
Aero MP3-04	C	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
Aero MP3-04	B	No	CaAa (Out Of Face)	25.500 - 0.000	1	No Ice	0.000	14.10
						1/2" Ice	0.000	15.30
						1" Ice	0.000	16.85
*								
Crown 1x5	A	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	B	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	37.000 - 2.500	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
*								
Crown 1x5	A	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	B	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
Crown 1x5	C	No	CaAa (Out Of Face)	72.080 - 32.080	1	No Ice	0.000	17.01
						1/2" Ice	0.000	35.11
						1" Ice	0.000	36.53
*								
Aero MP3-03	A	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	A	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	B	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	B	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	15.500 - 0.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
Aero MP3-03	C	No	CaAa (Out Of Face)	45.500 - 25.500	1	No Ice	0.000	9.90
						1/2" Ice	0.000	11.06
						1" Ice	0.000	12.57
*								
*								
PL 1x4.5	A	No	CaAa (Out Of Face)	56.000 - 52.000	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	B	No	CaAa (Out Of Face)	56.000 - 50.540	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	C	No	CaAa (Out Of Face)	56.000 - 52.000	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	A	No	CaAa (Out Of Face)	56.000 - 52.000	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
*								
PL 1x6	A	No	CaAa (Out Of Face)	72.000 - 67.000	1	No Ice	0.000	20.45
						1/2" Ice	0.000	21.40
						1" Ice	0.000	22.70
PL 1x6	C	No	CaAa (Out Of Face)	72.000 - 67.000	1	No Ice	0.000	20.45
						1/2" Ice	0.000	21.40
						1" Ice	0.000	22.70
*								
PL 1x4.5	A	No	CaAa (Out Of Face)	57.250 - 42.250	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	B	No	CaAa (Out Of Face)	57.500 - 42.500	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	C	No	CaAa (Out Of Face)	57.500 - 42.500	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
PL 1x4.5	C	No	CaAa (Out Of Face)	57.500 - 42.500	1	No Ice	0.000	15.34
						1/2" Ice	0.000	16.19
						1" Ice	0.000	17.39
*								
*								
PL 1.25x4	C	No	CaAa (Out Of Face)	78.250 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	C	No	CaAa (Out Of Face)	80.000 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	B	No	CaAa (Out Of Face)	80.000 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	A	No	CaAa (Out Of Face)	80.000 - 68.250	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
PL 1.25x4	A	No	CaAa (Out Of Face)	92.080 - 73.000	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	B	No	CaAa (Out Of Face)	92.080 - 74.000	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
PL 1.25x4	C	No	CaAa (Out Of Face)	92.000 - 74.000	1	No Ice	0.000	17.04
						1/2" Ice	0.000	17.96
						1" Ice	0.000	19.22
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.000-99.250	A	0.000	0.000	20.186	0.000	0.15
		B	0.000	0.000	0.188	0.000	0.03
		C	0.000	0.000	11.029	0.000	0.17
L2	99.250-99.000	A	0.000	0.000	0.625	0.000	0.01
		B	0.000	0.000	0.031	0.000	0.00
		C	0.000	0.000	0.162	0.000	0.01
L3	99.000-90.080	A	0.000	0.000	22.451	0.000	0.34
		B	0.000	0.000	1.065	0.000	0.18
		C	0.000	0.000	5.728	0.000	0.32
L4	90.080-89.500	A	0.000	0.000	1.494	0.000	0.04
		B	0.000	0.000	0.058	0.000	0.02
		C	0.000	0.000	0.361	0.000	0.03
L5	89.500-78.000	A	0.000	0.000	29.624	0.000	0.79
		B	0.000	0.000	1.150	0.000	0.41
		C	0.000	0.000	7.159	0.000	0.69
L6	78.000-76.750	A	0.000	0.000	3.220	0.000	0.10
		B	0.000	0.000	0.125	0.000	0.06
		C	0.000	0.000	0.778	0.000	0.12
L7	76.750-75.500	A	0.000	0.000	3.220	0.000	0.10
		B	0.000	0.000	0.125	0.000	0.06
		C	0.000	0.000	0.778	0.000	0.12
L8	75.500-74.500	A	0.000	0.000	2.576	0.000	0.08
		B	0.000	0.000	0.129	0.000	0.05
		C	0.000	0.000	0.623	0.000	0.09
L9	74.500-73.290	A	0.000	0.000	3.117	0.000	0.10
		B	0.000	0.000	0.242	0.000	0.07
		C	0.000	0.000	0.753	0.000	0.10
L10	73.290-70.500	A	0.000	0.000	7.179	0.000	0.24
		B	0.000	0.000	0.400	0.000	0.14
		C	0.000	0.000	1.737	0.000	0.29
L11	70.500-70.000	A	0.000	0.000	1.288	0.000	0.05
		B	0.000	0.000	0.050	0.000	0.02
		C	0.000	0.000	0.311	0.000	0.06
L12	70.000-69.750	A	0.000	0.000	0.644	0.000	0.02
		B	0.000	0.000	0.025	0.000	0.01
		C	0.000	0.000	0.156	0.000	0.03
L13	69.750-69.500	A	0.000	0.000	0.644	0.000	0.02
		B	0.000	0.000	0.025	0.000	0.01
		C	0.000	0.000	0.156	0.000	0.03
L14	69.500-56.000	A	0.000	0.000	34.776	0.000	0.91
		B	0.000	0.000	1.350	0.000	0.48
		C	0.000	0.000	8.404	0.000	1.10

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L15	56.000-55.750	A	0.000	0.000	0.696	0.000	0.02
		B	0.000	0.000	0.051	0.000	0.01
		C	0.000	0.000	0.181	0.000	0.03
L16	55.750-54.000	A	0.000	0.000	4.869	0.000	0.17
		B	0.000	0.000	0.355	0.000	0.10
		C	0.000	0.000	1.270	0.000	0.20
L17	54.000-53.500	A	0.000	0.000	1.391	0.000	0.05
		B	0.000	0.000	0.102	0.000	0.03
		C	0.000	0.000	0.363	0.000	0.06
L18	53.500-52.040	A	0.000	0.000	4.062	0.000	0.14
		B	0.000	0.000	0.296	0.000	0.08
		C	0.000	0.000	1.059	0.000	0.16
L19	52.040-39.750	A	0.000	0.000	34.191	0.000	0.84
		B	0.000	0.000	2.495	0.000	0.56
		C	0.000	0.000	8.916	0.000	1.22
L20	39.750-34.750	A	0.000	0.000	13.910	0.000	0.34
		B	0.000	0.000	1.015	0.000	0.23
		C	0.000	0.000	3.627	0.000	0.51
L21	34.750-34.333	A	0.000	0.000	1.159	0.000	0.03
		B	0.000	0.000	0.085	0.000	0.02
		C	0.000	0.000	0.302	0.000	0.05
L22	34.333-24.000	A	0.000	0.000	28.747	0.000	0.68
		B	0.000	0.000	2.098	0.000	0.45
		C	0.000	0.000	7.497	0.000	0.96
L23	24.000-14.250	A	0.000	0.000	27.124	0.000	0.65
		B	0.000	0.000	1.979	0.000	0.56
		C	0.000	0.000	7.074	0.000	0.81
L24	14.250-4.750	A	0.000	0.000	26.429	0.000	0.71
		B	0.000	0.000	1.929	0.000	0.62
		C	0.000	0.000	6.892	0.000	0.95
L25	4.750-2.000	A	0.000	0.000	7.651	0.000	0.20
		B	0.000	0.000	0.558	0.000	0.17
		C	0.000	0.000	1.995	0.000	0.26
L26	2.000-0.000	A	0.000	0.000	5.564	0.000	0.11
		B	0.000	0.000	0.406	0.000	0.09
		C	0.000	0.000	1.451	0.000	0.12

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.000-99.250	A	1.691	0.000	0.000	33.912	0.000	0.60
		B		0.000	0.000	0.672	0.000	0.03
		C		0.000	0.000	36.656	0.000	0.98
L2	99.250-99.000	A	1.674	0.000	0.000	1.063	0.000	0.02
		B		0.000	0.000	0.111	0.000	0.01
		C		0.000	0.000	0.543	0.000	0.02
L3	99.000-90.080	A	1.666	0.000	0.000	38.702	0.000	0.84
		B		0.000	0.000	3.946	0.000	0.24
		C		0.000	0.000	19.285	0.000	0.72
L4	90.080-89.500	A	1.658	0.000	0.000	2.704	0.000	0.07
		B		0.000	0.000	0.250	0.000	0.02
		C		0.000	0.000	1.244	0.000	0.06
L5	89.500-78.000	A	1.646	0.000	0.000	53.494	0.000	1.52
		B		0.000	0.000	4.936	0.000	0.53
		C		0.000	0.000	24.545	0.000	1.24
L6	78.000-76.750	A	1.633	0.000	0.000	5.815	0.000	0.19

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.537	0.000	0.08
		C		0.000	0.000	2.668	0.000	0.19
L7	76.750-75.500	A	1.631	0.000	0.000	5.797	0.000	0.19
		B		0.000	0.000	0.533	0.000	0.08
		C		0.000	0.000	2.651	0.000	0.19
L8	75.500-74.500	A	1.628	0.000	0.000	4.636	0.000	0.15
		B		0.000	0.000	0.549	0.000	0.07
		C		0.000	0.000	2.119	0.000	0.15
L9	74.500-73.290	A	1.626	0.000	0.000	5.606	0.000	0.18
		B		0.000	0.000	1.029	0.000	0.09
		C		0.000	0.000	2.562	0.000	0.16
L10	73.290-70.500	A	1.621	0.000	0.000	12.882	0.000	0.45
		B		0.000	0.000	1.697	0.000	0.20
		C		0.000	0.000	5.896	0.000	0.51
L11	70.500-70.000	A	1.618	0.000	0.000	2.313	0.000	0.09
		B		0.000	0.000	0.212	0.000	0.04
		C		0.000	0.000	1.055	0.000	0.11
L12	70.000-69.750	A	1.617	0.000	0.000	1.156	0.000	0.05
		B		0.000	0.000	0.106	0.000	0.02
		C		0.000	0.000	0.527	0.000	0.06
L13	69.750-69.500	A	1.616	0.000	0.000	1.156	0.000	0.05
		B		0.000	0.000	0.106	0.000	0.02
		C		0.000	0.000	0.527	0.000	0.06
L14	69.500-56.000	A	1.599	0.000	0.000	62.227	0.000	1.98
		B		0.000	0.000	5.668	0.000	0.86
		C		0.000	0.000	28.275	0.000	2.28
L15	56.000-55.750	A	1.581	0.000	0.000	1.200	0.000	0.05
		B		0.000	0.000	0.130	0.000	0.02
		C		0.000	0.000	0.545	0.000	0.05
L16	55.750-54.000	A	1.578	0.000	0.000	8.394	0.000	0.33
		B		0.000	0.000	0.908	0.000	0.17
		C		0.000	0.000	3.814	0.000	0.37
L17	54.000-53.500	A	1.575	0.000	0.000	2.397	0.000	0.09
		B		0.000	0.000	0.259	0.000	0.05
		C		0.000	0.000	1.088	0.000	0.10
L18	53.500-52.040	A	1.572	0.000	0.000	6.995	0.000	0.28
		B		0.000	0.000	0.755	0.000	0.14
		C		0.000	0.000	3.174	0.000	0.31
L19	52.040-39.750	A	1.550	0.000	0.000	58.636	0.000	1.88
		B		0.000	0.000	6.305	0.000	0.99
		C		0.000	0.000	26.492	0.000	2.39
L20	39.750-34.750	A	1.518	0.000	0.000	23.855	0.000	0.81
		B		0.000	0.000	2.565	0.000	0.44
		C		0.000	0.000	10.778	0.000	1.08
L21	34.750-34.333	A	1.507	0.000	0.000	1.972	0.000	0.08
		B		0.000	0.000	0.210	0.000	0.05
		C		0.000	0.000	0.883	0.000	0.11
L22	34.333-24.000	A	1.481	0.000	0.000	48.662	0.000	1.56
		B		0.000	0.000	5.159	0.000	0.84
		C		0.000	0.000	21.671	0.000	1.98
L23	24.000-14.250	A	1.420	0.000	0.000	45.377	0.000	1.41
		B		0.000	0.000	4.748	0.000	0.91
		C		0.000	0.000	19.939	0.000	1.63
L24	14.250-4.750	A	1.324	0.000	0.000	43.391	0.000	1.45
		B		0.000	0.000	4.444	0.000	0.99
		C		0.000	0.000	18.651	0.000	1.77
L25	4.750-2.000	A	1.194	0.000	0.000	12.239	0.000	0.38
		B		0.000	0.000	1.215	0.000	0.26
		C		0.000	0.000	5.096	0.000	0.45
L26	2.000-0.000	A	1.057	0.000	0.000	8.655	0.000	0.20
		B		0.000	0.000	0.829	0.000	0.12

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	3.473	0.000	0.18

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	120.000-99.250	-0.5253	0.0614	-0.4722	0.4698
L2	99.250-99.000	-0.5397	-0.5983	-0.4644	-0.0839
L3	99.000-90.080	-0.5479	-0.6260	-0.4719	-0.1165
L4	90.080-89.500	-0.5547	-0.6974	-0.4707	-0.2241
L5	89.500-78.000	-0.5654	-0.7126	-0.4847	-0.2328
L6	78.000-76.750	-0.5721	-0.7221	-0.4934	-0.2371
L7	76.750-75.500	-0.5742	-0.7251	-0.4966	-0.2413
L8	75.500-74.500	-0.5540	-0.7242	-0.4541	-0.2406
L9	74.500-73.290	-0.5027	-0.7183	-0.3496	-0.2364
L10	73.290-70.500	-0.5466	-0.7302	-0.4351	-0.2443
L11	70.500-70.000	-0.5839	-0.7389	-0.5098	-0.2502
L12	70.000-69.750	-0.5846	-0.7398	-0.5107	-0.2508
L13	69.750-69.500	-0.5850	-0.7404	-0.5112	-0.2512
L14	69.500-56.000	-0.5959	-0.7559	-0.5265	-0.2620
L15	56.000-55.750	-0.5691	-0.7233	-0.5239	-0.2642
L16	55.750-54.000	-0.5706	-0.7254	-0.5260	-0.2659
L17	54.000-53.500	-0.5723	-0.7278	-0.5283	-0.2677
L18	53.500-52.040	-0.5737	-0.7299	-0.5304	-0.2693
L19	52.040-39.750	-0.5837	-0.7440	-0.5446	-0.2810
L20	39.750-34.750	-0.5916	-0.7550	-0.5555	-0.2868
L21	34.750-34.333	-0.5953	-0.7603	-0.5618	-0.2989
L22	34.333-24.000	-0.6026	-0.7706	-0.5726	-0.3103
L23	24.000-14.250	-0.6158	-0.7891	-0.5928	-0.3351
L24	14.250-4.750	-0.6277	-0.8060	-0.6124	-0.3694
L25	4.750-2.000	-0.6351	-0.8163	-0.6261	-0.4108
L26	2.000-0.000	-0.6379	-0.8203	-0.6334	-0.4527

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	5	2.25" Flexible Conduit	99.25 - 120.00	1.0000	1.0000
L1	10	LDF7-50A(1-5/8)	99.25 - 113.00	1.0000	1.0000
L1	14	LDF7-50A(1-5/8)	99.25 - 105.00	1.0000	1.0000
L1	29	Safety Line 3/8	99.25 - 120.00	1.0000	1.0000
L1	30	Step Pegs (5/8" SR) 7-in. w/30" step	99.25 - 120.00	1.0000	1.0000
L1	103	PL 1.25x4	99.25 - 100.75	1.0000	1.0000
L1	104	PL 1.25x4	99.25 - 100.75	1.0000	1.0000
L1	105	PL 1.25x4	99.25 - 100.75	1.0000	1.0000
L2	5	2.25" Flexible Conduit	99.00 - 99.25	1.0000	1.0000
L2	10	LDF7-50A(1-5/8)	99.00 - 99.25	1.0000	1.0000
L2	14	LDF7-50A(1-5/8)	99.00 - 99.25	1.0000	1.0000
L2	29	Safety Line 3/8	99.00 - 99.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	30	Step Pegs (5/8" SR) 7-in. w/30" step	99.00 - 99.25	1.0000	1.0000
L2	103	PL 1.25x4	99.00 - 99.25	1.0000	1.0000
L2	104	PL 1.25x4	99.00 - 99.25	1.0000	1.0000
L2	105	PL 1.25x4	99.00 - 99.25	1.0000	1.0000
L3	5	2.25" Flexible Conduit	90.08 - 99.00	1.0000	1.0000
L3	10	LDF7-50A(1-5/8)	90.08 - 99.00	1.0000	1.0000
L3	14	LDF7-50A(1-5/8)	90.08 - 99.00	1.0000	1.0000
L3	29	Safety Line 3/8	90.08 - 99.00	1.0000	1.0000
L3	30	Step Pegs (5/8" SR) 7-in. w/30" step	90.08 - 99.00	1.0000	1.0000
L3	77	PL 1x6	90.08 - 92.00	1.0000	1.0000
L3	78	PL 1x6	90.08 - 92.00	1.0000	1.0000
L3	80	PL 1x4.5	90.08 - 92.08	1.0000	1.0000
L3	81	PL 1x4.5	90.08 - 92.08	1.0000	1.0000
L3	103	PL 1.25x4	92.08 - 99.00	1.0000	1.0000
L3	104	PL 1.25x4	92.08 - 99.00	1.0000	1.0000
L3	105	PL 1.25x4	92.00 - 99.00	1.0000	1.0000
L4	5	2.25" Flexible Conduit	89.50 - 90.08	1.0000	1.0000
L4	10	LDF7-50A(1-5/8)	89.50 - 90.08	1.0000	1.0000
L4	14	LDF7-50A(1-5/8)	89.50 - 90.08	1.0000	1.0000
L4	29	Safety Line 3/8	89.50 - 90.08	1.0000	1.0000
L4	30	Step Pegs (5/8" SR) 7-in. w/30" step	89.50 - 90.08	1.0000	1.0000
L4	77	PL 1x6	89.50 - 90.08	1.0000	1.0000
L4	78	PL 1x6	89.50 - 90.08	1.0000	1.0000
L4	80	PL 1x4.5	89.50 - 90.08	1.0000	1.0000
L4	81	PL 1x4.5	89.50 - 90.08	1.0000	1.0000
L5	5	2.25" Flexible Conduit	78.00 - 89.50	1.0000	1.0000
L5	10	LDF7-50A(1-5/8)	78.00 - 89.50	1.0000	1.0000
L5	14	LDF7-50A(1-5/8)	78.00 - 89.50	1.0000	1.0000
L5	29	Safety Line 3/8	78.00 - 89.50	1.0000	1.0000
L5	30	Step Pegs (5/8" SR) 7-in. w/30" step	78.00 - 89.50	1.0000	1.0000
L5	77	PL 1x6	78.00 - 89.50	1.0000	1.0000
L5	78	PL 1x6	78.00 - 89.50	1.0000	1.0000
L5	80	PL 1x4.5	78.00 - 89.50	1.0000	1.0000
L5	81	PL 1x4.5	78.00 - 89.50	1.0000	1.0000
L7	5	2.25" Flexible Conduit	75.50 - 76.75	1.0000	1.0000
L7	10	LDF7-50A(1-5/8)	75.50 - 76.75	1.0000	1.0000
L7	14	LDF7-50A(1-5/8)	75.50 - 76.75	1.0000	1.0000
L7	29	Safety Line 3/8	75.50 - 76.75	1.0000	1.0000
L7	30	Step Pegs (5/8" SR) 7-in. w/30" step	75.50 - 76.75	1.0000	1.0000
L7	77	PL 1x6	75.50 - 76.75	1.0000	1.0000
L7	78	PL 1x6	75.50 - 76.75	1.0000	1.0000
L7	80	PL 1x4.5	75.50 - 76.75	1.0000	1.0000
L7	81	PL 1x4.5	75.50 - 76.75	1.0000	1.0000
L8	5	2.25" Flexible Conduit	74.50 - 75.50	1.0000	1.0000
L8	10	LDF7-50A(1-5/8)	74.50 - 75.50	1.0000	1.0000
L8	14	LDF7-50A(1-5/8)	74.50 - 75.50	1.0000	1.0000
L8	29	Safety Line 3/8	74.50 - 75.50	1.0000	1.0000
L8	30	Step Pegs (5/8" SR) 7-in. w/30" step	74.50 - 75.50	1.0000	1.0000
L8	69	PL 1x4.5	74.50 - 74.79	1.0000	1.0000
L8	77	PL 1x6	74.50 - 75.50	1.0000	1.0000
L8	78	PL 1x6	74.50 - 75.50	1.0000	1.0000
L8	80	PL 1x4.5	74.50 - 75.50	1.0000	1.0000
L8	81	PL 1x4.5	74.50 - 75.50	1.0000	1.0000
L9	5	2.25" Flexible Conduit	73.29 - 74.50	1.0000	1.0000
L9	10	LDF7-50A(1-5/8)	73.29 - 74.50	1.0000	1.0000
L9	14	LDF7-50A(1-5/8)	73.29 - 74.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L9	29	Safety Line 3/8	73.29 - 74.50	1.0000	1.0000
L9	30	Step Pegs (5/8" SR) 7-in. w/30" step	73.29 - 74.50	1.0000	1.0000
L9	69	PL 1x4.5	73.29 - 74.50	1.0000	1.0000
L9	77	PL 1x6	73.29 - 74.50	1.0000	1.0000
L9	78	PL 1x6	73.29 - 74.50	1.0000	1.0000
L9	80	PL 1x4.5	73.29 - 74.50	1.0000	1.0000
L9	81	PL 1x4.5	73.29 - 74.50	1.0000	1.0000
L10	5	2.25" Flexible Conduit	70.50 - 73.29	1.0000	1.0000
L10	10	LDF7-50A(1-5/8)	70.50 - 73.29	1.0000	1.0000
L10	14	LDF7-50A(1-5/8)	70.50 - 73.29	1.0000	1.0000
L10	29	Safety Line 3/8	70.50 - 73.29	1.0000	1.0000
L10	30	Step Pegs (5/8" SR) 7-in. w/30" step	70.50 - 73.29	1.0000	1.0000
L10	67	PL 1x4.5	70.50 - 72.00	1.0000	1.0000
L10	69	PL 1x4.5	70.50 - 73.29	1.0000	1.0000
L10	71	PL 1x4.5	70.50 - 72.00	1.0000	1.0000
L10	73	PL 1x4.5	70.50 - 72.00	1.0000	1.0000
L10	77	PL 1x6	72.00 - 73.29	1.0000	1.0000
L10	78	PL 1x6	72.00 - 73.29	1.0000	1.0000
L10	80	PL 1x4.5	72.08 - 73.29	1.0000	1.0000
L10	81	PL 1x4.5	72.08 - 73.29	1.0000	1.0000
L11	5	2.25" Flexible Conduit	70.00 - 70.50	1.0000	1.0000
L11	10	LDF7-50A(1-5/8)	70.00 - 70.50	1.0000	1.0000
L11	14	LDF7-50A(1-5/8)	70.00 - 70.50	1.0000	1.0000
L11	29	Safety Line 3/8	70.00 - 70.50	1.0000	1.0000
L11	30	Step Pegs (5/8" SR) 7-in. w/30" step	70.00 - 70.50	1.0000	1.0000
L11	67	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L11	69	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L11	71	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L11	73	PL 1x4.5	70.00 - 70.50	1.0000	1.0000
L12	5	2.25" Flexible Conduit	69.75 - 70.00	1.0000	1.0000
L12	10	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L12	14	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L12	29	Safety Line 3/8	69.75 - 70.00	1.0000	1.0000
L12	30	Step Pegs (5/8" SR) 7-in. w/30" step	69.75 - 70.00	1.0000	1.0000
L12	67	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L12	69	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L12	71	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L12	73	PL 1x4.5	69.75 - 70.00	1.0000	1.0000
L13	5	2.25" Flexible Conduit	69.50 - 69.75	1.0000	1.0000
L13	10	LDF7-50A(1-5/8)	69.50 - 69.75	1.0000	1.0000
L13	14	LDF7-50A(1-5/8)	69.50 - 69.75	1.0000	1.0000
L13	29	Safety Line 3/8	69.50 - 69.75	1.0000	1.0000
L13	30	Step Pegs (5/8" SR) 7-in. w/30" step	69.50 - 69.75	1.0000	1.0000
L13	67	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L13	69	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L13	71	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L13	73	PL 1x4.5	69.50 - 69.75	1.0000	1.0000
L14	5	2.25" Flexible Conduit	56.00 - 69.50	1.0000	1.0000
L14	10	LDF7-50A(1-5/8)	56.00 - 69.50	1.0000	1.0000
L14	14	LDF7-50A(1-5/8)	56.00 - 69.50	1.0000	1.0000
L14	29	Safety Line 3/8	56.00 - 69.50	1.0000	1.0000
L14	30	Step Pegs (5/8" SR) 7-in. w/30" step	56.00 - 69.50	1.0000	1.0000
L14	67	PL 1x4.5	56.00 - 69.50	1.0000	1.0000
L14	69	PL 1x4.5	56.00 - 69.50	1.0000	1.0000
L14	71	PL 1x4.5	56.00 - 69.50	1.0000	1.0000
L14	73	PL 1x4.5	56.00 - 69.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	5	2.25" Flexible Conduit	55.75 - 56.00	1.0000	1.0000
L15	10	LDF7-50A(1-5/8)	55.75 - 56.00	1.0000	1.0000
L15	14	LDF7-50A(1-5/8)	55.75 - 56.00	1.0000	1.0000
L15	29	Safety Line 3/8	55.75 - 56.00	1.0000	1.0000
L15	30	Step Pegs (5/8" SR) 7-in. w/30" step	55.75 - 56.00	1.0000	1.0000
L15	32	C6x10.5	55.75 - 56.00	1.0000	1.0000
L15	33	C6x10.5	55.75 - 56.00	1.0000	1.0000
L15	34	C6x10.5	55.75 - 56.00	1.0000	1.0000
L15	35	C6x10.5	55.75 - 56.00	1.0000	1.0000
L16	5	2.25" Flexible Conduit	54.00 - 55.75	1.0000	1.0000
L16	10	LDF7-50A(1-5/8)	54.00 - 55.75	1.0000	1.0000
L16	14	LDF7-50A(1-5/8)	54.00 - 55.75	1.0000	1.0000
L16	29	Safety Line 3/8	54.00 - 55.75	1.0000	1.0000
L16	30	Step Pegs (5/8" SR) 7-in. w/30" step	54.00 - 55.75	1.0000	1.0000
L16	32	C6x10.5	54.00 - 55.75	1.0000	1.0000
L16	33	C6x10.5	54.00 - 55.75	1.0000	1.0000
L16	34	C6x10.5	54.00 - 55.75	1.0000	1.0000
L16	35	C6x10.5	54.00 - 55.75	1.0000	1.0000
L17	5	2.25" Flexible Conduit	53.50 - 54.00	1.0000	1.0000
L17	10	LDF7-50A(1-5/8)	53.50 - 54.00	1.0000	1.0000
L17	14	LDF7-50A(1-5/8)	53.50 - 54.00	1.0000	1.0000
L17	29	Safety Line 3/8	53.50 - 54.00	1.0000	1.0000
L17	30	Step Pegs (5/8" SR) 7-in. w/30" step	53.50 - 54.00	1.0000	1.0000
L17	32	C6x10.5	53.50 - 54.00	1.0000	1.0000
L17	33	C6x10.5	53.50 - 54.00	1.0000	1.0000
L17	34	C6x10.5	53.50 - 54.00	1.0000	1.0000
L17	35	C6x10.5	53.50 - 54.00	1.0000	1.0000
L18	5	2.25" Flexible Conduit	52.04 - 53.50	1.0000	1.0000
L18	10	LDF7-50A(1-5/8)	52.04 - 53.50	1.0000	1.0000
L18	14	LDF7-50A(1-5/8)	52.04 - 53.50	1.0000	1.0000
L18	29	Safety Line 3/8	52.04 - 53.50	1.0000	1.0000
L18	30	Step Pegs (5/8" SR) 7-in. w/30" step	52.04 - 53.50	1.0000	1.0000
L18	32	C6x10.5	52.04 - 53.50	1.0000	1.0000
L18	33	C6x10.5	52.04 - 53.50	1.0000	1.0000
L18	34	C6x10.5	52.04 - 53.50	1.0000	1.0000
L18	35	C6x10.5	52.04 - 53.50	1.0000	1.0000
L19	5	2.25" Flexible Conduit	39.75 - 52.04	1.0000	1.0000
L19	10	LDF7-50A(1-5/8)	39.75 - 52.04	1.0000	1.0000
L19	14	LDF7-50A(1-5/8)	39.75 - 52.04	1.0000	1.0000
L19	29	Safety Line 3/8	39.75 - 52.04	1.0000	1.0000
L19	30	Step Pegs (5/8" SR) 7-in. w/30" step	39.75 - 52.04	1.0000	1.0000
L19	32	C6x10.5	39.75 - 52.04	1.0000	1.0000
L19	33	C6x10.5	39.75 - 52.04	1.0000	1.0000
L19	34	C6x10.5	39.75 - 52.04	1.0000	1.0000
L19	35	C6x10.5	39.75 - 52.04	1.0000	1.0000
L21	5	2.25" Flexible Conduit	34.33 - 34.75	1.0000	1.0000
L21	10	LDF7-50A(1-5/8)	34.33 - 34.75	1.0000	1.0000
L21	14	LDF7-50A(1-5/8)	34.33 - 34.75	1.0000	1.0000
L21	29	Safety Line 3/8	34.33 - 34.75	1.0000	1.0000
L21	30	Step Pegs (5/8" SR) 7-in. w/30" step	34.33 - 34.75	1.0000	1.0000
L21	32	C6x10.5	34.33 - 34.75	1.0000	1.0000
L21	33	C6x10.5	34.33 - 34.75	1.0000	1.0000
L21	34	C6x10.5	34.33 - 34.75	1.0000	1.0000
L21	35	C6x10.5	34.33 - 34.75	1.0000	1.0000
L22	5	2.25" Flexible Conduit	24.00 - 34.33	1.0000	1.0000
L22	10	LDF7-50A(1-5/8)	24.00 - 34.33	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	14	LDF7-50A(1-5/8)	24.00 - 34.33	1.0000	1.0000
L22	29	Safety Line 3/8	24.00 - 34.33	1.0000	1.0000
L22	30	Step Pegs (5/8" SR) 7-in. w/30" step	24.00 - 34.33	1.0000	1.0000
L22	32	C6x10.5	24.00 - 34.33	1.0000	1.0000
L22	33	C6x10.5	24.00 - 34.33	1.0000	1.0000
L22	34	C6x10.5	24.00 - 34.33	1.0000	1.0000
L22	35	C6x10.5	24.00 - 34.33	1.0000	1.0000
L23	5	2.25" Flexible Conduit	14.25 - 24.00	1.0000	1.0000
L23	10	LDF7-50A(1-5/8)	14.25 - 24.00	1.0000	1.0000
L23	14	LDF7-50A(1-5/8)	14.25 - 24.00	1.0000	1.0000
L23	29	Safety Line 3/8	14.25 - 24.00	1.0000	1.0000
L23	30	Step Pegs (5/8" SR) 7-in. w/30" step	14.25 - 24.00	1.0000	1.0000
L23	32	C6x10.5	14.25 - 24.00	1.0000	1.0000
L23	33	C6x10.5	14.25 - 24.00	1.0000	1.0000
L23	34	C6x10.5	14.25 - 24.00	1.0000	1.0000
L23	35	C6x10.5	14.25 - 24.00	1.0000	1.0000
L24	5	2.25" Flexible Conduit	4.75 - 14.25	1.0000	1.0000
L24	10	LDF7-50A(1-5/8)	4.75 - 14.25	1.0000	1.0000
L24	14	LDF7-50A(1-5/8)	4.75 - 14.25	1.0000	1.0000
L24	29	Safety Line 3/8	4.75 - 14.25	1.0000	1.0000
L24	30	Step Pegs (5/8" SR) 7-in. w/30" step	4.75 - 14.25	1.0000	1.0000
L24	32	C6x10.5	4.75 - 14.25	1.0000	1.0000
L24	33	C6x10.5	4.75 - 14.25	1.0000	1.0000
L24	34	C6x10.5	4.75 - 14.25	1.0000	1.0000
L24	35	C6x10.5	4.75 - 14.25	1.0000	1.0000
L25	5	2.25" Flexible Conduit	2.00 - 4.75	1.0000	1.0000
L25	10	LDF7-50A(1-5/8)	2.00 - 4.75	1.0000	1.0000
L25	14	LDF7-50A(1-5/8)	2.00 - 4.75	1.0000	1.0000
L25	29	Safety Line 3/8	2.00 - 4.75	1.0000	1.0000
L25	30	Step Pegs (5/8" SR) 7-in. w/30" step	2.00 - 4.75	1.0000	1.0000
L25	32	C6x10.5	2.00 - 4.75	1.0000	1.0000
L25	33	C6x10.5	2.00 - 4.75	1.0000	1.0000
L25	34	C6x10.5	2.00 - 4.75	1.0000	1.0000
L25	35	C6x10.5	2.00 - 4.75	1.0000	1.0000
L26	5	2.25" Flexible Conduit	0.00 - 2.00	1.0000	1.0000
L26	10	LDF7-50A(1-5/8)	0.00 - 2.00	1.0000	1.0000
L26	14	LDF7-50A(1-5/8)	0.00 - 2.00	1.0000	1.0000
L26	29	Safety Line 3/8	0.00 - 2.00	1.0000	1.0000
L26	30	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 2.00	1.0000	1.0000
L26	32	C6x10.5	0.00 - 2.00	1.0000	1.0000
L26	33	C6x10.5	0.00 - 2.00	1.0000	1.0000
L26	34	C6x10.5	0.00 - 2.00	1.0000	1.0000
L26	35	C6x10.5	0.00 - 2.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
Pipe 6" x 10'	C	From Leg	0.000 0.00 5.00	0.00	120.000	No Ice 1/2" Ice 1" Ice	3.376 6.050 6.665	3.376 6.050 6.665	0.19 0.23 0.28
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Leg	4.000 -2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Leg	4.000 -2.00 -1.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Leg	4.000 2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.08 0.15 0.23
LLPX310R w/ Mount Pipe	A	From Centroid-Leg	4.000 0.00 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.455 4.787 5.129	2.874 3.398 3.937	0.04 0.08 0.12
LLPX310R w/ Mount Pipe	B	From Centroid-Leg	4.000 0.00 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.455 4.787 5.129	2.874 3.398 3.937	0.04 0.08 0.12
LLPX310R w/ Mount Pipe	C	From Centroid-Leg	4.000 0.00 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.455 4.787 5.129	2.874 3.398 3.937	0.04 0.08 0.12
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Centroid-Leg	4.000 -6.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.08 0.13 0.19
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Centroid-Leg	4.000 -6.00 -1.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.08 0.13 0.19
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Centroid-Leg	4.000 6.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.08 0.13 0.19
MT-485025	C	From Centroid-Leg	4.000 -6.00 1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.075 2.269 2.471	0.236 0.333 0.451	0.01 0.01 0.03
800 EXTERNAL NOTCH FILTER	A	From Centroid-Leg	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	0.660 0.763 0.873	0.321 0.398 0.483	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	B	From Centroid-Leg	4.000 -2.00 -2.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	0.660 0.763 0.873	0.321 0.398 0.483	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	C	From Centroid-Leg	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	0.660 0.763 0.873	0.321 0.398 0.483	0.01 0.02 0.02
(3) ACU-A20-N	A	From Centroid-Leg	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.00 0.00 0.00
(3) ACU-A20-N	B	From Centroid-Leg	4.000 -2.00 -2.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.00 0.00 0.00
(3) ACU-A20-N	C	From Centroid-Leg	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.00 0.00 0.00
PCS 1900MHz 4x45W-65MHz	A	From Centroid-Leg	4.000 -2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.06 0.08 0.11
PCS 1900MHz	B	From	4.000	10.00	122.000	No Ice	2.322	2.238	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
4x45W-65MHz		Centroid-Le	-2.00			1/2" Ice	2.527	2.441	0.08
		g	-2.00			1" Ice	2.739	2.651	0.11
PCS 1900MHz	C	From	4.000	30.00	122.000	No Ice	2.322	2.238	0.06
4x45W-65MHz		Centroid-Le	-2.00			1/2" Ice	2.527	2.441	0.08
		g	-1.00			1" Ice	2.739	2.651	0.11
800MHZ RRH	A	From	4.000	30.00	122.000	No Ice	2.134	1.773	0.05
		Centroid-Le	-2.00			1/2" Ice	2.320	1.946	0.07
		g	-2.00			1" Ice	2.512	2.127	0.10
800MHZ RRH	B	From	4.000	10.00	122.000	No Ice	2.134	1.773	0.05
		Centroid-Le	-2.00			1/2" Ice	2.320	1.946	0.07
		g	-1.00			1" Ice	2.512	2.127	0.10
800MHZ RRH	C	From	4.000	30.00	122.000	No Ice	2.134	1.773	0.05
		Centroid-Le	-2.00			1/2" Ice	2.320	1.946	0.07
		g	-2.00			1" Ice	2.512	2.127	0.10
TD-RRH8x20-25	A	From	4.000	37.00	122.000	No Ice	4.045	1.535	0.07
		Centroid-Le	2.00			1/2" Ice	4.298	1.714	0.10
		g	-1.00			1" Ice	4.557	1.901	0.13
TD-RRH8x20-25	B	From	4.000	30.00	122.000	No Ice	4.045	1.535	0.07
		Centroid-Le	2.00			1/2" Ice	4.298	1.714	0.10
		g	-1.00			1" Ice	4.557	1.901	0.13
TD-RRH8x20-25	C	From	4.000	30.00	122.000	No Ice	4.045	1.535	0.07
		Centroid-Le	2.00			1/2" Ice	4.298	1.714	0.10
		g	-1.00			1" Ice	4.557	1.901	0.13
FDD_R6_RRH	A	From	4.000	25.00	122.000	No Ice	1.533	0.684	0.03
		Centroid-Le	0.00			1/2" Ice	1.690	0.800	0.04
		g	0.00			1" Ice	1.854	0.923	0.06
FDD_R6_RRH	B	From	4.000	10.00	122.000	No Ice	1.533	0.684	0.03
		Centroid-Le	0.00			1/2" Ice	1.690	0.800	0.04
		g	0.00			1" Ice	1.854	0.923	0.06
FDD_R6_RRH	C	From	4.000	30.00	122.000	No Ice	1.533	0.684	0.03
		Centroid-Le	0.00			1/2" Ice	1.690	0.800	0.04
		g	0.00			1" Ice	1.854	0.923	0.06
2.4" Dia. x 5-ft Pipe	A	From	4.000	0.00	122.000	No Ice	1.200	1.200	0.02
		Centroid-Le	6.00			1/2" Ice	1.502	1.502	0.03
		g	0.00			1" Ice	1.814	1.814	0.04
(2) 2.4" Dia. x 5-ft Pipe	B	From	4.000	0.00	122.000	No Ice	1.200	1.200	0.02
		Centroid-Le	4.00			1/2" Ice	1.502	1.502	0.03
		g	0.00			1" Ice	1.814	1.814	0.04
2.4" Dia. x 5-ft Pipe	C	From	4.000	0.00	122.000	No Ice	1.200	1.200	0.02
		Centroid-Le	6.00			1/2" Ice	1.502	1.502	0.03
		g	0.00			1" Ice	1.814	1.814	0.04
Miscellaneous [NA 507-1]	C	None		0.00	122.000	No Ice	4.800	4.800	0.25
						1/2" Ice	6.700	6.700	0.29
						1" Ice	8.600	8.600	0.34
Platform Mount [LP 712-1]	C	None		0.00	122.000	No Ice	24.530	24.530	1.34
						1/2" Ice	29.940	29.940	1.65
						1" Ice	35.350	35.350	1.96
**									
(2) DB846F65ZAXY w/ Mount Pipe	A	From	4.000	30.00	113.000	No Ice	7.271	7.821	0.05
		Centroid-Le	4.00			1/2" Ice	7.832	9.010	0.11
		g	1.00			1" Ice	8.348	9.912	0.19
(2) LPA-80063/4CF w/ Mount Pipe	B	From	4.000	10.00	113.000	No Ice	6.396	6.614	0.04
		Centroid-Le	4.00			1/2" Ice	6.799	7.250	0.10
		g	1.00			1" Ice	7.210	7.898	0.18
(2) LPA-80063/4CF w/ Mount Pipe	C	From	4.000	30.00	113.000	No Ice	6.396	6.614	0.04
		Centroid-Le	4.00			1/2" Ice	6.799	7.250	0.10
		g	1.00			1" Ice	7.210	7.898	0.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) JAHH-65B-R3B	A	From Centroid-Leg	4.000 -4.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	9.113 9.579 10.052	5.983 6.442 6.909	0.06 0.12 0.18
(2) JAHH-45B-R3B	B	From Centroid-Leg	4.000 -4.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	11.400 11.887 12.381	5.283 5.736 6.196	0.08 0.15 0.22
(2) JAHH-45B-R3B	C	From Centroid-Leg	4.000 -4.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	11.400 11.887 12.381	5.283 5.736 6.196	0.08 0.15 0.22
AIRSCALE RRH 4T4R B5 160W	A	From Centroid-Leg	4.000 2.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	1.286 1.428 1.577	0.720 0.834 0.955	0.04 0.05 0.06
AIRSCALE RRH 4T4R B5 160W	B	From Centroid-Leg	4.000 2.00 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	1.286 1.428 1.577	0.720 0.834 0.955	0.04 0.05 0.06
AIRSCALE RRH 4T4R B5 160W	C	From Centroid-Leg	4.000 2.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	1.286 1.428 1.577	0.720 0.834 0.955	0.04 0.05 0.06
ACUTIME 2000	A	From Centroid-Leg	4.000 6.00 3.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	0.255 0.320 0.393	0.255 0.320 0.393	0.00 0.00 0.01
DB-T1-6Z-8AB-0Z	A	From Centroid-Leg	4.000 6.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	4.800 5.070 5.348	2.000 2.193 2.393	0.04 0.08 0.12
DB-T1-6Z-8AB-0Z	B	From Centroid-Leg	4.000 -2.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	4.800 5.070 5.348	2.000 2.193 2.393	0.04 0.08 0.12
RRH2x60-700	A	From Centroid-Leg	4.000 6.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.06 0.08 0.11
RRH2x60-700	B	From Centroid-Leg	4.000 6.00 1.00	10.00	113.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.06 0.08 0.11
RRH2x60-700	C	From Centroid-Leg	4.000 6.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.06 0.08 0.11
RRH2X60-1900	A	From Centroid-Leg	4.000 -6.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	1.874 2.052 2.237	1.218 1.367 1.523	0.04 0.06 0.08
RRH2X60-1900	B	From Centroid-Leg	4.000 -6.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	1.874 2.052 2.237	1.218 1.367 1.523	0.04 0.06 0.08
RRH2X60-1900	C	From Centroid-Leg	4.000 -6.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	1.874 2.052 2.237	1.218 1.367 1.523	0.04 0.06 0.08
AWS-3 RRH4X45	A	From Centroid-Leg	4.000 -2.00 1.00	0.00	113.000	No Ice 1/2" Ice 1" Ice	3.112 3.345 3.595	3.624 3.878 4.139	0.08 0.11 0.15
AWS-3 RRH4X45	B	From Centroid-Leg	4.000 -2.00 1.00	-40.00	113.000	No Ice 1/2" Ice 1" Ice	3.112 3.345 3.595	3.624 3.878 4.139	0.08 0.11 0.15
AWS-3 RRH4X45	C	From Centroid-Leg	4.000 -2.00 1.00	30.00	113.000	No Ice 1/2" Ice 1" Ice	3.112 3.345 3.595	3.624 3.878 4.139	0.08 0.11 0.15
Pipe Mount [PM 602-3]	C	None		0.00	113.000	No Ice 1/2" Ice 1" Ice	7.680 9.500 11.320	7.680 9.500 11.320	0.28 0.35 0.43

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount [LP 305-1]	C	None		0.00	113.000	No Ice	18.010	18.010	1.12
						1/2" Ice	23.330	23.330	1.35
						1" Ice	28.650	28.650	1.58
**									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.11 0.17 0.23
KRY 112 144/1	A	From Centroid-Leg	4.000 0.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	0.352 0.428 0.512	0.162 0.219 0.285	0.01 0.01 0.02
KRY 112 144/1	B	From Centroid-Leg	4.000 0.00 0.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	0.352 0.428 0.512	0.162 0.219 0.285	0.01 0.01 0.02
KRY 112 144/1	C	From Centroid-Leg	4.000 0.00 0.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	0.352 0.428 0.512	0.162 0.219 0.285	0.01 0.01 0.02
LNX-6515DS-VTM w/ Mount Pipe	A	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.08 0.17 0.27
LNX-6515DS-VTM w/ Mount Pipe	B	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.08 0.17 0.27
LNX-6515DS-VTM w/ Mount Pipe	C	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.08 0.17 0.27
RRUS 11 B12	A	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11 B12	A	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11 B12	B	From Centroid-Leg	4.000 6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
AIR 32 B2a/B66Aa w/ Mount Pipe	A	From Centroid-Leg	4.000 -6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.747 7.202 7.648	6.070 6.867 7.583	0.15 0.21 0.28
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Centroid-Leg	4.000 -6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.747 7.202 7.648	6.070 6.867 7.583	0.15 0.21 0.28
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Centroid-Leg	4.000 -6.00 2.00	30.00	105.000	No Ice 1/2" Ice 1" Ice	6.747 7.202 7.648	6.070 6.867 7.583	0.15 0.21 0.28
Platform Mount [LP 1201-1]	C	None		0.00	105.000	No Ice	23.100	23.100	2.10
						1/2" Ice	26.800	26.800	2.50
						1" Ice	30.500	30.500	2.90
**									
RRUS 11	A	From Leg	2.000 -2.00 0.00	30.00	97.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.05 0.07 0.10
RRUS 11	B	From Leg	2.000	30.00	97.000	No Ice	2.791	1.192	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-2.00			1/2" Ice	2.998	1.340	0.07
			0.00			1" Ice	3.213	1.496	0.10
RRUS 11	C	From Leg	2.000	30.00	97.000	No Ice	2.791	1.192	0.05
			-2.00			1/2" Ice	2.998	1.340	0.07
			0.00			1" Ice	3.213	1.496	0.10
DC6-48-60-18-8F	A	From Leg	2.000	30.00	97.000	No Ice	0.917	0.917	0.02
			2.00			1/2" Ice	1.458	1.458	0.04
			0.00			1" Ice	1.643	1.643	0.06
DC6-48-60-18-8F	B	From Leg	2.000	30.00	97.000	No Ice	0.917	0.917	0.02
			2.00			1/2" Ice	1.458	1.458	0.04
			0.00			1" Ice	1.643	1.643	0.06
WCS RRUS-32-B30	A	From Leg	2.000	30.00	97.000	No Ice	3.314	2.424	0.08
			2.00			1/2" Ice	3.558	2.638	0.10
			0.00			1" Ice	3.809	2.860	0.14
(2) WCS RRUS-32-B30	C	From Leg	2.000	30.00	97.000	No Ice	3.314	2.424	0.08
			2.00			1/2" Ice	3.558	2.638	0.10
			0.00			1" Ice	3.809	2.860	0.14
TME-RRUS-32 B30	A	From Leg	2.000	30.00	97.000	No Ice	3.866	2.762	0.08
			2.00			1/2" Ice	4.151	3.021	0.10
			0.00			1" Ice	4.444	3.290	0.14
TME-RRUS-32 B30	B	From Leg	2.000	30.00	97.000	No Ice	3.866	2.762	0.08
			2.00			1/2" Ice	4.151	3.021	0.10
			0.00			1" Ice	4.444	3.290	0.14
TME-RRUS-32 B30	C	From Leg	2.000	30.00	97.000	No Ice	3.866	2.762	0.08
			2.00			1/2" Ice	4.151	3.021	0.10
			0.00			1" Ice	4.444	3.290	0.14
(2) 2.4" Dia. x 5-ft Pipe	A	From Leg	2.000	0.00	97.000	No Ice	1.200	1.200	0.02
			0.00			1/2" Ice	1.502	1.502	0.03
			0.00			1" Ice	1.814	1.814	0.04
(2) 2.4" Dia. x 5-ft Pipe	B	From Leg	2.000	0.00	97.000	No Ice	1.200	1.200	0.02
			0.00			1/2" Ice	1.502	1.502	0.03
			0.00			1" Ice	1.814	1.814	0.04
(2) 2.4" Dia. x 5-ft Pipe	C	From Leg	2.000	0.00	97.000	No Ice	1.200	1.200	0.02
			0.00			1/2" Ice	1.502	1.502	0.03
			0.00			1" Ice	1.814	1.814	0.04
Side Arm Mount [SO 102-3]	C	None		0.00	97.000	No Ice	3.000	3.000	0.08
						1/2" Ice	3.480	3.480	0.11
						1" Ice	3.960	3.960	0.14
**									
7770.00 w/ Mount Pipe	A	From Centroid-Leg	4.000 -6.00 1.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Centroid-Leg	4.000 -6.00 1.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.06 0.10 0.16
7770.00 w/ Mount Pipe	C	From Centroid-Leg	4.000 -6.00 1.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.06 0.10 0.16
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	7.179 8.362 9.259	0.10 0.18 0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	7.179 8.362 9.259	0.10 0.18 0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	9.895 10.470 11.010	7.179 8.362 9.259	0.10 0.18 0.26

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
QS66512-2 w/ Mount Pipe	A	From Centroid-Leg	4.000 6.00 3.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	8.371 8.931 9.457	8.463 9.657 10.548	0.14 0.21 0.30
QS66512-2 w/ Mount Pipe	B	From Centroid-Leg	4.000 6.00 3.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	8.371 8.931 9.457	8.463 9.657 10.548	0.14 0.21 0.30
QS66512-2 w/ Mount Pipe	C	From Centroid-Leg	4.000 6.00 3.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	8.371 8.931 9.457	8.463 9.657 10.548	0.14 0.21 0.30
WCS-IMFQ-AMT	C	From Centroid-Leg	4.000 -2.00 1.00	30.00	96.000	No Ice 1/2" Ice 1" Ice	0.989 1.114 1.246	0.644 0.748 0.860	0.03 0.04 0.05
(2) LGP2140X	A	From Centroid-Leg	4.000 -6.00 0.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	1.080 1.214 1.355	0.358 0.454 0.556	0.01 0.02 0.03
(2) LGP2140X	B	From Centroid-Leg	4.000 -6.00 0.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	1.080 1.214 1.355	0.358 0.454 0.556	0.01 0.02 0.03
(2) LGP2140X	C	From Centroid-Leg	4.000 -6.00 0.00	23.00	96.000	No Ice 1/2" Ice 1" Ice	1.080 1.214 1.355	0.358 0.454 0.556	0.01 0.02 0.03
2.4" Dia x 6-ft Pipe	A	From Centroid-Leg	4.000 2.00 0.00	0.00	96.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
2.4" Dia x 6-ft Pipe	B	From Centroid-Leg	4.000 2.00 0.00	0.00	96.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
2.4" Dia x 6-ft Pipe	C	From Centroid-Leg	4.000 2.00 0.00	0.00	96.000	No Ice 1/2" Ice 1" Ice	1.428 1.927 2.296	1.428 1.927 2.296	0.02 0.03 0.05
Miscellaneous [NA 507-1]	C	None		0.00	96.000	No Ice 1/2" Ice 1" Ice	4.800 6.700 8.600	4.800 6.700 8.600	0.25 0.29 0.34
Platform Mount [LP 712-1]	C	None		0.00	96.000	No Ice 1/2" Ice 1" Ice	24.530 29.940 35.350	24.530 29.940 35.350	1.34 1.65 1.96
* ACUTIME 2000	A	From Leg	3.000 0.00 1.00	0.00	75.000	No Ice 1/2" Ice 1" Ice	0.255 0.320 0.393	0.255 0.320 0.393	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.500 0.00 0.00	0.00	75.000	No Ice 1/2" Ice 1" Ice	0.850 1.140 1.430	1.670 2.340 3.010	0.07 0.08 0.09

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft^2	Weight K

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	K
PX2F-52	A	Paraboloid w/Radome	From Leg	4.000 0.00 1.00	25.00		122.000	2.092	No Ice 1/2" Ice 1" Ice	3.440 3.720 3.990	0.02 0.04 0.06
VHLP2-11	A	Paraboloid w/Shroud (HP)	From Leg	4.000 0.00 3.00	37.00		122.000	2.000	No Ice 1/2" Ice 1" Ice	3.720 4.010 4.300	0.03 0.05 0.07
VHLP2-11	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0.00 3.00	10.00		122.000	2.000	No Ice 1/2" Ice 1" Ice	3.720 4.010 4.300	0.03 0.05 0.07

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service

Comb. No.	Description
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 99.25	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-30.12	-1.35	4.74
			Max. Mx	20	-11.63	321.40	-2.06
			Max. My	2	-11.83	-1.70	301.88
			Max. Vy	20	-21.47	321.40	-2.06
			Max. Vx	14	20.21	1.67	-300.55
			Max. Torque	18			-6.22
L2	99.25 - 99	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.20	-1.33	4.74
			Max. Mx	20	-11.68	326.78	-2.12
			Max. My	2	-11.88	-1.73	306.92
			Max. Vy	20	-21.52	326.78	-2.12
			Max. Vx	14	20.25	1.72	-305.61
			Max. Torque	18			-3.77
L3	99 - 90.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.02	0.14	5.06
			Max. Mx	20	-17.27	570.70	-4.02
			Max. My	2	-17.50	-2.30	537.86
			Max. Vy	20	-29.54	570.70	-4.02
			Max. Vx	14	28.18	4.02	-536.93
			Max. Torque	18			-4.26
L4	90.08 - 89.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.28	0.18	5.07
			Max. Mx	20	-17.45	587.86	-4.15
			Max. My	2	-17.67	-2.37	554.20
			Max. Vy	20	-29.64	587.86	-4.15
			Max. Vx	14	28.28	4.15	-553.30
			Max. Torque	18			-4.16
L5	89.5 - 78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.98	0.69	5.19
			Max. Mx	20	-19.74	823.56	-5.85
			Max. My	2	-19.97	-3.31	777.56
			Max. Vy	20	-31.17	823.56	-5.85
			Max. Vx	14	29.48	5.77	-777.02
			Max. Torque	18			-4.16
L6	78 - 76.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.22	1.05	5.25
			Max. Mx	20	-21.78	982.18	-6.97
			Max. My	2	-22.02	-3.88	926.78
			Max. Vy	20	-32.25	982.18	-6.97
			Max. Vx	14	30.33	6.85	-926.51
			Max. Torque	18			-4.16
L7	76.75 - 75.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.96	1.17	5.25
			Max. Mx	20	-22.28	1022.68	-7.26

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-22.53	-4.01	964.73
			Max. Vy	20	-32.50	1022.68	-7.26
			Max. Vx	14	30.53	7.14	-964.55
			Max. Torque	18			-4.16
L8	75.5 - 74.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.71	1.26	5.67
			Max. Mx	20	-22.76	1055.36	-7.29
			Max. My	2	-23.01	-4.11	995.53
			Max. Vy	20	-32.80	1055.36	-7.29
			Max. Vx	14	30.75	7.37	-994.98
			Max. Torque	18			-4.39
L9	74.5 - 73.29	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.42	1.34	5.70
			Max. Mx	20	-23.24	1095.21	-7.55
			Max. My	2	-23.49	-4.26	1032.82
			Max. Vy	20	-33.05	1095.21	-7.55
			Max. Vx	14	31.00	7.62	-1032.32
			Max. Torque	18			-4.39
L10	73.29 - 70.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.26	1.69	5.69
			Max. Mx	20	-24.41	1188.34	-8.19
			Max. My	2	-24.66	-4.49	1119.74
			Max. Vy	20	-33.62	1188.34	-8.19
			Max. Vx	14	31.45	8.32	-1119.42
			Max. Torque	18			-4.39
L11	70.5 - 70	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.63	1.78	5.68
			Max. Mx	20	-24.65	1205.21	-8.31
			Max. My	2	-24.90	-4.51	1135.45
			Max. Vy	20	-33.72	1205.21	-8.31
			Max. Vx	14	31.53	8.46	-1135.16
			Max. Torque	18			-4.39
L12	70 - 69.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.81	1.82	5.68
			Max. Mx	20	-24.77	1213.67	-8.37
			Max. My	2	-25.02	-4.52	1143.32
			Max. Vy	20	-33.77	1213.67	-8.37
			Max. Vx	14	31.57	8.53	-1143.05
			Max. Torque	18			-4.39
L13	69.75 - 69.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.00	1.87	5.68
			Max. Mx	20	-24.89	1222.14	-8.43
			Max. My	2	-25.14	-4.54	1151.20
			Max. Vy	20	-33.82	1222.14	-8.43
			Max. Vx	14	31.61	8.60	-1150.95
			Max. Torque	18			-4.39
L14	69.5 - 56	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.37	3.67	5.49
			Max. Mx	20	-29.90	1697.09	-11.60
			Max. My	14	-30.14	11.92	-1591.86
			Max. Vy	20	-36.48	1697.09	-11.60
			Max. Vx	14	33.72	11.92	-1591.86
			Max. Torque	20			-4.50
L15	56 - 55.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.56	3.71	5.49
			Max. Mx	20	-30.03	1706.22	-11.66
			Max. My	14	-30.27	11.98	-1600.29
			Max. Vy	20	-36.52	1706.22	-11.66
			Max. Vx	14	33.77	11.98	-1600.29
			Max. Torque	20			-4.51
L16	55.75 - 54	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-64.89	3.98	5.49
			Max. Mx	20	-30.85	1770.57	-12.04
			Max. My	14	-31.08	12.43	-1659.68
			Max. Vy	20	-36.91	1770.57	-12.04
			Max. Vx	14	34.14	12.43	-1659.68
			Max. Torque	20			-4.54
L17	54 - 53.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.27	4.06	5.49
			Max. Mx	20	-31.10	1789.07	-12.16
			Max. My	14	-31.34	12.56	-1676.77
			Max. Vy	20	-37.00	1789.07	-12.16
			Max. Vx	14	34.23	12.56	-1676.77
			Max. Torque	20			-4.56
L18	53.5 - 52.04	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.39	4.28	5.49
			Max. Mx	20	-31.80	1843.39	-12.48
			Max. My	14	-32.03	12.94	-1726.94
			Max. Vy	20	-37.32	1843.39	-12.48
			Max. Vx	14	34.54	12.94	-1726.94
			Max. Torque	20			-4.59
L19	52.04 - 39.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.60	5.49	5.21
			Max. Mx	20	-35.08	2130.47	-14.38
			Max. My	14	-35.27	14.90	-1992.64
			Max. Vy	20	-38.75	2130.47	-14.38
			Max. Vx	14	35.94	14.90	-1992.64
			Max. Torque	20			-4.75
L20	39.75 - 34.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.94	7.14	4.79
			Max. Mx	20	-40.28	2518.70	-16.84
			Max. My	14	-40.45	17.47	-2352.79
			Max. Vy	20	-40.72	2518.70	-16.84
			Max. Vx	14	37.86	17.47	-2352.79
			Max. Torque	20			-4.97
L21	34.75 - 34.3333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.30	7.22	4.76
			Max. Mx	20	-40.51	2535.71	-16.95
			Max. My	14	-40.67	17.58	-2368.59
			Max. Vy	20	-40.78	2535.71	-16.95
			Max. Vx	14	37.92	17.58	-2368.59
			Max. Torque	20			-4.97
L22	34.3333 - 24	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.86	8.83	4.31
			Max. Mx	20	-45.33	2966.96	-19.53
			Max. My	14	-45.46	20.21	-2767.64
			Max. Vy	20	-42.60	2966.96	-19.53
			Max. Vx	14	39.30	20.21	-2767.64
			Max. Torque	20			-5.20
L23	24 - 14.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.92	9.82	3.90
			Max. Mx	20	-50.06	3389.85	-21.96
			Max. My	14	-50.13	22.30	-3156.58
			Max. Vy	20	-44.15	3389.85	-21.96
			Max. Vx	14	40.48	22.30	-3156.58
			Max. Torque	20			-5.40
L24	14.25 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.29	10.98	3.38
			Max. Mx	20	-55.15	3816.33	-24.42
			Max. My	14	-55.17	24.47	-3546.52
			Max. Vy	20	-45.60	3816.33	-24.42

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	41.59	24.47	-3546.52
			Max. Torque	20			-5.60
L25	4.75 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.29	11.28	3.25
			Max. Mx	20	-56.58	3942.22	-25.12
			Max. My	14	-56.60	25.08	-3661.38
			Max. Vy	20	-45.93	3942.22	-25.12
			Max. Vx	14	41.93	25.08	-3661.38
			Max. Torque	20			-5.59
L26	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.42	11.36	3.23
			Max. Mx	20	-57.49	4034.26	-25.59
			Max. My	14	-57.50	25.46	-3745.44
			Max. Vy	20	-46.15	4034.26	-25.59
			Max. Vx	14	42.16	25.46	-3745.44
			Max. Torque	20			-5.59

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	105.42	10.83	-0.04
	Max. H_x	20	57.51	46.13	-0.22
	Max. H_z	2	57.51	-0.13	42.07
	Max. M_x	2	3738.75	-0.13	42.07
	Max. M_z	8	4013.17	-46.03	0.17
	Max. Torsion	8	5.35	-46.03	0.17
	Min. Vert	13	43.13	-19.36	-32.89
	Min. H_x	8	57.51	-46.03	0.17
	Min. H_z	14	57.51	0.19	-42.14
	Min. M_x	14	-3745.44	0.19	-42.14
	Min. M_z	20	-4034.26	46.13	-0.22
	Min. Torsion	20	-5.59	46.13	-0.22

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	47.93	0.00	0.00	-0.44	3.19	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	57.51	0.13	-42.07	-3738.75	-10.42	-2.71
0.9 Dead+1.6 Wind 0 deg - No Ice	43.13	0.13	-42.07	-3707.68	-11.30	-2.69
1.2 Dead+1.6 Wind 30 deg - No Ice	57.51	19.72	-33.03	-3053.82	-1835.04	-3.44
0.9 Dead+1.6 Wind 30 deg - No Ice	43.13	19.72	-33.03	-3027.98	-1820.52	-3.41
1.2 Dead+1.6 Wind 60 deg - No Ice	57.51	33.99	-19.14	-1771.48	-3163.12	-3.92
0.9 Dead+1.6 Wind 60 deg - No Ice	43.13	33.99	-19.14	-1756.42	-3137.40	-3.88

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.6 Wind 90 deg - No Ice	57.51	46.03	-0.17	-20.21	-4013.17	-5.35
0.9 Dead+1.6 Wind 90 deg - No Ice	43.13	46.03	-0.17	-19.87	-3981.18	-5.32
1.2 Dead+1.6 Wind 120 deg - No Ice	57.51	33.79	18.84	1735.47	-3139.69	-1.99
0.9 Dead+1.6 Wind 120 deg - No Ice	43.13	33.79	18.84	1721.05	-3114.17	-1.98
1.2 Dead+1.6 Wind 150 deg - No Ice	57.51	19.36	32.89	3037.89	-1793.61	0.37
0.9 Dead+1.6 Wind 150 deg - No Ice	43.13	19.36	32.89	3012.51	-1779.47	0.36
1.2 Dead+1.6 Wind 180 deg - No Ice	57.51	-0.19	42.14	3745.44	25.46	2.87
0.9 Dead+1.6 Wind 180 deg - No Ice	43.13	-0.19	42.14	3714.63	24.26	2.84
1.2 Dead+1.6 Wind 210 deg - No Ice	57.51	-19.76	33.11	3063.49	1847.68	3.60
0.9 Dead+1.6 Wind 210 deg - No Ice	43.13	-19.76	33.11	3037.87	1831.11	3.57
1.2 Dead+1.6 Wind 240 deg - No Ice	57.51	-34.09	19.19	1775.69	3183.44	4.37
0.9 Dead+1.6 Wind 240 deg - No Ice	43.13	-34.09	19.19	1760.90	3155.60	4.34
1.2 Dead+1.6 Wind 270 deg - No Ice	57.51	-46.13	0.22	25.59	4034.26	5.59
0.9 Dead+1.6 Wind 270 deg - No Ice	43.13	-46.13	0.22	25.51	4000.14	5.57
1.2 Dead+1.6 Wind 300 deg - No Ice	57.51	-33.83	-18.84	-1737.43	3152.81	2.05
0.9 Dead+1.6 Wind 300 deg - No Ice	43.13	-33.83	-18.84	-1722.67	3125.24	2.04
1.2 Dead+1.6 Wind 330 deg - No Ice	57.51	-19.42	-32.86	-3034.61	1808.91	-0.13
0.9 Dead+1.6 Wind 330 deg - No Ice	43.13	-19.42	-32.86	-3008.93	1792.69	-0.12
1.2 Dead+1.0 Ice+1.0 Temp	105.42	-0.00	-0.00	-3.23	11.36	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	105.42	0.02	-9.95	-933.35	9.34	-0.52
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	105.42	4.57	-7.73	-760.73	-438.61	-0.79
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	105.42	7.89	-4.48	-441.82	-765.14	-0.99
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	105.42	10.80	-0.03	-6.61	-989.64	-1.13
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	105.42	7.86	4.43	429.30	-760.95	-0.62
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	105.42	4.51	7.71	751.90	-431.19	-0.06
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	105.42	-0.03	9.97	928.54	15.26	0.55
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	105.42	-4.58	7.75	756.56	462.69	0.83
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	105.42	-7.91	4.48	436.45	790.92	1.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	105.42	-10.83	0.04	1.50	1015.60	1.18
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	105.42	-7.87	-4.43	-436.02	785.13	0.63
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	105.42	-4.52	-7.70	-757.47	455.85	0.11

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 0 deg - Service	47.93	0.03	-9.00	-796.64	0.21	-0.48
Dead+Wind 30 deg - Service	47.93	4.22	-7.07	-650.69	-388.35	-0.74
Dead+Wind 60 deg - Service	47.93	7.27	-4.10	-377.63	-671.19	-0.84
Dead+Wind 90 deg - Service	47.93	9.85	-0.04	-4.67	-852.43	-0.75
Dead+Wind 120 deg - Service	47.93	7.23	4.03	369.22	-666.19	-0.43
Dead+Wind 150 deg - Service	47.93	4.14	7.04	646.56	-379.52	0.08
Dead+Wind 180 deg - Service	47.93	-0.04	9.02	797.34	7.85	0.51
Dead+Wind 210 deg - Service	47.93	-4.23	7.08	652.02	395.89	0.77
Dead+Wind 240 deg - Service	47.93	-7.29	4.10	377.79	680.38	0.93
Dead+Wind 270 deg - Service	47.93	-9.87	0.05	5.08	861.78	0.80
Dead+Wind 300 deg - Service	47.93	-7.24	-4.03	-370.37	673.83	0.44
Dead+Wind 330 deg - Service	47.93	-4.16	-7.03	-646.59	387.63	-0.03

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-47.93	0.00	0.00	47.93	0.00	0.000%
2	0.13	-57.51	-42.07	-0.13	57.51	42.07	0.000%
3	0.13	-43.13	-42.07	-0.13	43.13	42.07	0.000%
4	19.72	-57.51	-33.03	-19.72	57.51	33.03	0.000%
5	19.72	-43.13	-33.03	-19.72	43.13	33.03	0.000%
6	33.99	-57.51	-19.14	-33.99	57.51	19.14	0.000%
7	33.99	-43.13	-19.14	-33.99	43.13	19.14	0.000%
8	46.03	-57.51	-0.17	-46.03	57.51	0.17	0.000%
9	46.03	-43.13	-0.17	-46.03	43.13	0.17	0.000%
10	33.79	-57.51	18.84	-33.79	57.51	-18.84	0.000%
11	33.79	-43.13	18.84	-33.79	43.13	-18.84	0.000%
12	19.36	-57.51	32.89	-19.36	57.51	-32.89	0.000%
13	19.36	-43.13	32.89	-19.36	43.13	-32.89	0.000%
14	-0.19	-57.51	42.14	0.19	57.51	-42.14	0.000%
15	-0.19	-43.13	42.14	0.19	43.13	-42.14	0.000%
16	-19.76	-57.51	33.11	19.76	57.51	-33.11	0.000%
17	-19.76	-43.13	33.11	19.76	43.13	-33.11	0.000%
18	-34.09	-57.51	19.19	34.09	57.51	-19.19	0.000%
19	-34.09	-43.13	19.19	34.09	43.13	-19.19	0.000%
20	-46.13	-57.51	0.22	46.13	57.51	-0.22	0.000%
21	-46.13	-43.13	0.22	46.13	43.13	-0.22	0.000%
22	-33.83	-57.51	-18.84	33.83	57.51	18.84	0.000%
23	-33.83	-43.13	-18.84	33.83	43.13	18.84	0.000%
24	-19.42	-57.51	-32.86	19.42	57.51	32.86	0.000%
25	-19.42	-43.13	-32.86	19.42	43.13	32.86	0.000%
26	0.00	-105.42	0.00	0.00	105.42	0.00	0.000%
27	0.02	-105.42	-9.95	-0.02	105.42	9.95	0.000%
28	4.57	-105.42	-7.73	-4.57	105.42	7.73	0.000%
29	7.89	-105.42	-4.48	-7.89	105.42	4.48	0.000%
30	10.80	-105.42	-0.03	-10.80	105.42	0.03	0.000%
31	7.86	-105.42	4.43	-7.86	105.42	-4.43	0.000%
32	4.51	-105.42	7.71	-4.51	105.42	-7.71	0.000%
33	-0.03	-105.42	9.97	0.03	105.42	-9.97	0.000%
34	-4.58	-105.42	7.75	4.58	105.42	-7.75	0.000%
35	-7.91	-105.42	4.48	7.91	105.42	-4.48	0.000%
36	-10.83	-105.42	0.04	10.83	105.42	-0.04	0.000%
37	-7.87	-105.42	-4.43	7.87	105.42	4.43	0.000%
38	-4.52	-105.42	-7.70	4.52	105.42	7.70	0.000%
39	0.03	-47.93	-9.00	-0.03	47.93	9.00	0.000%
40	4.22	-47.93	-7.07	-4.22	47.93	7.07	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
41	7.27	-47.93	-4.10	-7.27	47.93	4.10	0.000%
42	9.85	-47.93	-0.04	-9.85	47.93	0.04	0.000%
43	7.23	-47.93	4.03	-7.23	47.93	-4.03	0.000%
44	4.14	-47.93	7.04	-4.14	47.93	-7.04	0.000%
45	-0.04	-47.93	9.02	0.04	47.93	-9.02	0.000%
46	-4.23	-47.93	7.08	4.23	47.93	-7.08	0.000%
47	-7.29	-47.93	4.10	7.29	47.93	-4.10	0.000%
48	-9.87	-47.93	0.05	9.87	47.93	-0.05	0.000%
49	-7.24	-47.93	-4.03	7.24	47.93	4.03	0.000%
50	-4.16	-47.93	-7.03	4.16	47.93	7.03	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00029391
3	Yes	5	0.00000001	0.00013252
4	Yes	6	0.00000001	0.00015332
5	Yes	6	0.00000001	0.00004921
6	Yes	6	0.00000001	0.00017352
7	Yes	6	0.00000001	0.00005606
8	Yes	5	0.00000001	0.00065004
9	Yes	5	0.00000001	0.00029162
10	Yes	6	0.00000001	0.00015197
11	Yes	6	0.00000001	0.00004891
12	Yes	6	0.00000001	0.00015522
13	Yes	6	0.00000001	0.00005029
14	Yes	5	0.00000001	0.00042539
15	Yes	5	0.00000001	0.00019237
16	Yes	6	0.00000001	0.00017176
17	Yes	6	0.00000001	0.00005558
18	Yes	6	0.00000001	0.00015250
19	Yes	6	0.00000001	0.00004858
20	Yes	5	0.00000001	0.00052709
21	Yes	5	0.00000001	0.00023693
22	Yes	6	0.00000001	0.00016458
23	Yes	6	0.00000001	0.00005320
24	Yes	6	0.00000001	0.00015800
25	Yes	6	0.00000001	0.00005110
26	Yes	4	0.00000001	0.00046223
27	Yes	6	0.00000001	0.00021966
28	Yes	6	0.00000001	0.00024739
29	Yes	6	0.00000001	0.00025250
30	Yes	6	0.00000001	0.00023087
31	Yes	6	0.00000001	0.00024162
32	Yes	6	0.00000001	0.00024010
33	Yes	6	0.00000001	0.00021521
34	Yes	6	0.00000001	0.00025043
35	Yes	6	0.00000001	0.00025043
36	Yes	6	0.00000001	0.00023606
37	Yes	6	0.00000001	0.00025428
38	Yes	6	0.00000001	0.00025054
39	Yes	4	0.00000001	0.00050715
40	Yes	5	0.00000001	0.00005104
41	Yes	5	0.00000001	0.00007093

42	Yes	4	0.00000001	0.00078038
43	Yes	5	0.00000001	0.00004946
44	Yes	5	0.00000001	0.00005219
45	Yes	4	0.00000001	0.00056251
46	Yes	5	0.00000001	0.00006821
47	Yes	5	0.00000001	0.00005086
48	Yes	4	0.00000001	0.00078607
49	Yes	5	0.00000001	0.00006229
50	Yes	5	0.00000001	0.00005509

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 99.25 (1)	TP26.1925x22x0.25	20.750	0.000	0.0	20.8837	-11.63	1355.01	0.009
L2	99.25 - 99 (2)	TP26.243x26.1925x0.2867	0.250	0.000	0.0	23.9618	-11.68	1628.71	0.007
L3	99 - 90.08 (3)	TP28.0453x26.243x0.3328	8.920	0.000	0.0	29.7000	-17.27	2020.79	0.009
L4	90.08 - 89.5 (4)	TP28.1625x28.0453x0.4936	0.580	0.000	0.0	43.9778	-17.45	2992.25	0.006
L5	89.5 - 78 (5)	TP30.486x28.1625x0.6258	11.500	0.000	0.0	58.6419	-19.74	3989.99	0.005
L6	78 - 76.75 (6)	TP30.2382x29.228x0.8283	5.000	0.000	0.0	78.4394	-21.78	5337.01	0.004
L7	76.75 - 75.5 (7)	TP30.4908x30.2382x0.895	1.250	0.000	0.0	85.2882	-22.28	5803.01	0.004
L8	75.5 - 74.5 (8)	TP30.6928x30.4908x0.834	1.000	0.000	0.0	80.1871	-22.76	5455.93	0.004
L9	74.5 - 73.29 (9)	TP30.9373x30.6928x0.7527	1.210	0.000	0.0	73.1569	-23.24	4977.59	0.005
L10	73.29 - 70.5 (10)	TP31.501x30.9373x0.7887	2.790	0.000	0.0	78.0007	-24.41	5307.17	0.005
L11	70.5 - 70 (11)	TP31.6021x31.501x0.8107	0.500	0.000	0.0	80.3756	-24.65	5468.75	0.005
L12	70 - 69.75 (12)	TP31.6526x31.6021x0.7489	0.250	0.000	0.0	74.5272	-24.77	5070.83	0.005
L13	69.75 - 69.5 (13)	TP31.7031x31.6526x0.8325	0.250	0.000	0.0	82.7555	-24.89	5630.68	0.004
L14	69.5 - 56 (14)	TP34.4307x31.7031x0.6731	13.500	0.000	0.0	73.1655	-29.90	4978.18	0.006
L15	56 - 55.75 (15)	TP34.4812x34.4307x0.7559	0.250	0.000	0.0	82.0923	-30.03	5585.56	0.005
L16	55.75 - 54 (16)	TP34.8348x34.4812x0.8084	1.750	0.000	0.0	88.5764	-30.85	6026.74	0.005
L17	54 - 53.5 (17)	TP34.9358x34.8348x0.6646	0.500	0.000	0.0	73.3421	-31.10	4990.19	0.006
L18	53.5 - 52.04 (18)	TP35.2308x34.9358x0.5754	1.460	0.000	0.0	64.2099	-31.80	4368.84	0.007
L19	52.04 - 39.75 (19)	TP37.714x35.2308x0.5042	12.290	0.000	0.0	58.8506	-35.08	4004.19	0.009
L20	39.75 - 34.75 (20)	TP38.0989x36.129x0.6267	9.750	0.000	0.0	75.6163	-40.28	5144.94	0.008
L21	34.75 - 34.3333 (21)	TP38.1831x38.0989x0.7329	0.417	0.000	0.0	88.3749	-40.51	6013.03	0.007
L22	34.3333 - 24 (22)	TP40.2709x38.1831x0.6111	10.333	0.000	0.0	78.0378	-45.33	5309.69	0.009
L23	24 - 14.25 (23)	TP42.2409x40.2709x0.6545	9.750	0.000	0.0	87.6438	-50.06	5963.28	0.008
L24	14.25 - 4.75 (24)	TP44.1603x42.2409x0.6985	9.500	0.000	0.0	97.7477	-55.15	6650.75	0.008
L25	4.75 - 2 (25)	TP44.7159x44.1603x0.7683	2.750	0.000	0.0	108.7270	-56.59	7397.76	0.008
L26	2 - 0 (26)	TP45.12x44.7159x0.6977	2.000	0.000	0.0	99.7927	-57.49	6789.89	0.008

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	120 - 99.25 (1)	TP26.1925x22x0.25	321.41	714.93	0.450	0.00	714.93	0.000
L2	99.25 - 99 (2)	TP26.243x26.1925x0.2867	326.79	858.60	0.381	0.00	858.60	0.000
L3	99 - 90.08 (3)	TP28.0453x26.243x0.3328	570.71	1136.28	0.502	0.00	1136.28	0.000
L4	90.08 - 89.5 (4)	TP28.1625x28.0453x0.4936	587.88	1670.26	0.352	0.00	1670.26	0.000
L5	89.5 - 78 (5)	TP30.486x28.1625x0.6258	823.58	2334.20	0.353	0.00	2334.20	0.000
L6	78 - 76.75 (6)	TP30.2382x29.228x0.8283	982.20	3134.77	0.313	0.00	3134.77	0.000
L7	76.75 - 75.5 (7)	TP30.4908x30.2382x0.895	1022.71	3423.11	0.299	0.00	3423.11	0.000
L8	75.5 - 74.5 (8)	TP30.6928x30.4908x0.834	1055.39	3254.26	0.324	0.00	3254.26	0.000
L9	74.5 - 73.29 (9)	TP30.9373x30.6928x0.7527	1095.23	3010.12	0.364	0.00	3010.12	0.000
L10	73.29 - 70.5 (10)	TP31.501x30.9373x0.7887	1188.37	3263.15	0.364	0.00	3263.15	0.000
L11	70.5 - 70 (11)	TP31.6021x31.501x0.8107	1205.24	3369.04	0.358	0.00	3369.04	0.000
L12	70 - 69.75 (12)	TP31.6526x31.6021x0.7489	1213.70	3141.69	0.386	0.00	3141.69	0.000
L13	69.75 - 69.5 (13)	TP31.7031x31.6526x0.8325	1222.17	3475.55	0.352	0.00	3475.55	0.000
L14	69.5 - 56 (14)	TP34.4307x31.7031x0.6731	1697.13	3383.32	0.502	0.00	3383.32	0.000
L15	56 - 55.75 (15)	TP34.4812x34.4307x0.7559	1706.27	3783.29	0.451	0.00	3783.29	0.000
L16	55.75 - 54 (16)	TP34.8348x34.4812x0.8084	1770.61	4113.16	0.430	0.00	4113.16	0.000
L17	54 - 53.5 (17)	TP34.9358x34.8348x0.6646	1789.11	3444.93	0.519	0.00	3444.93	0.000
L18	53.5 - 52.04 (18)	TP35.2308x34.9358x0.5754	1843.43	3058.17	0.603	0.00	3058.17	0.000
L19	52.04 - 39.75 (19)	TP37.714x35.2308x0.5042	2130.52	2939.68	0.725	0.00	2939.68	0.000
L20	39.75 - 34.75 (20)	TP38.0989x36.129x0.6267	2518.76	3893.69	0.647	0.00	3893.69	0.000
L21	34.75 - 34.3333 (21)	TP38.1831x38.0989x0.7329	2535.77	4535.31	0.559	0.00	4535.31	0.000
L22	34.3333 - 24 (22)	TP40.2709x38.1831x0.6111	2967.03	4258.48	0.697	0.00	4258.48	0.000
L23	24 - 14.25 (23)	TP42.2409x40.2709x0.6545	3389.93	5013.37	0.676	0.00	5013.37	0.000
L24	14.25 - 4.75 (24)	TP44.1603x42.2409x0.6985	3816.41	5841.57	0.653	0.00	5841.57	0.000
L25	4.75 - 2 (25)	TP44.7159x44.1603x0.7683	3942.30	6561.20	0.601	0.00	6561.20	0.000
L26	2 - 0 (26)	TP45.12x44.7159x0.6977	4034.34	6097.78	0.662	0.00	6097.78	0.000

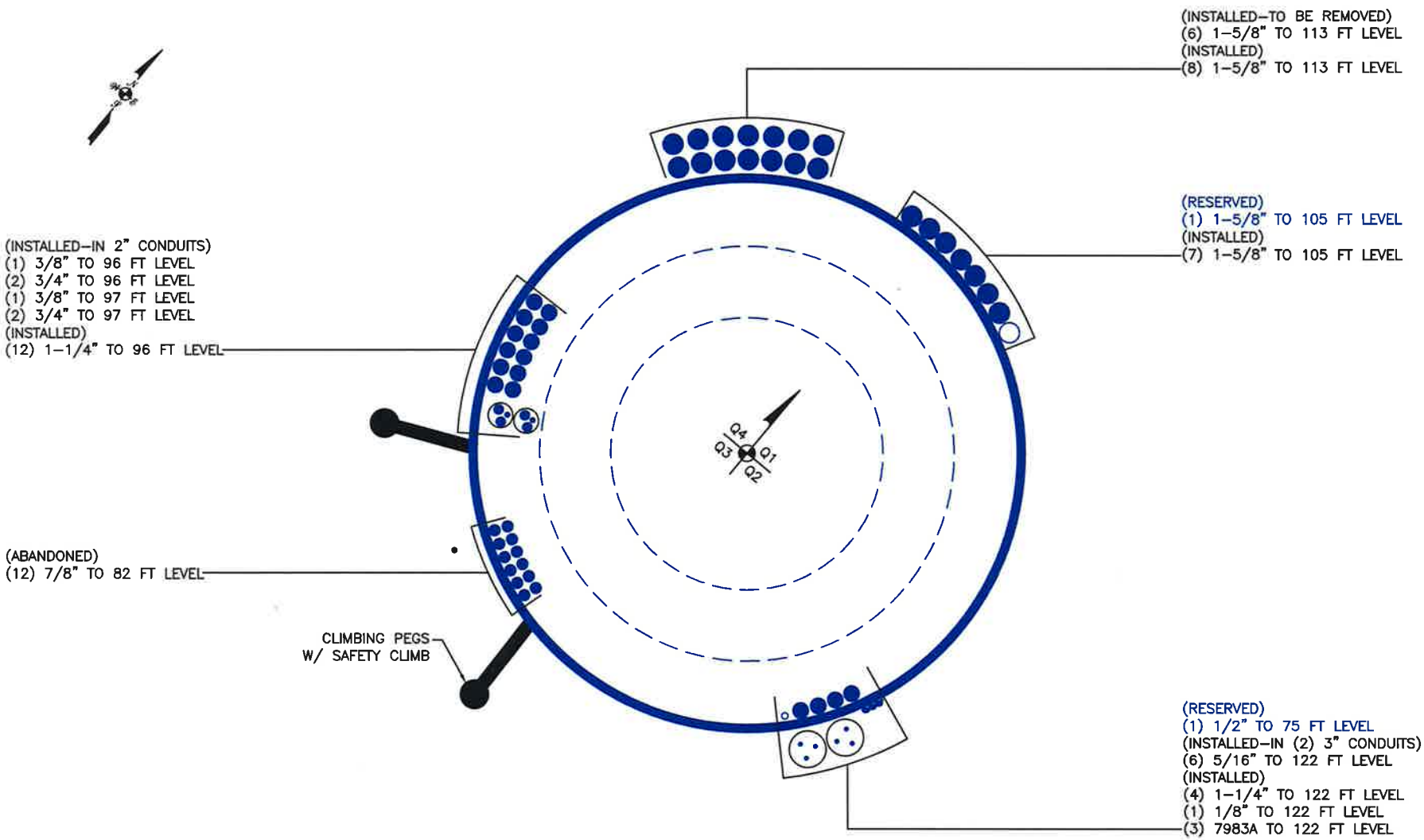
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 99.25 (1)	TP26.1925x22x0.25	21.48	677.51	0.032	3.29	1449.66	0.002
L2	99.25 - 99 (2)	TP26.243x26.1925x0.2867	21.52	814.36	0.026	3.30	1740.97	0.002
L3	99 - 90.08 (3)	TP28.0453x26.243x0.3328	29.54	1010.40	0.029	3.62	2304.03	0.002
L4	90.08 - 89.5 (4)	TP28.1625x28.0453x0.4936	29.64	1496.12	0.020	3.63	3386.77	0.001
L5	89.5 - 78 (5)	TP30.486x28.1625x0.6258	31.18	1995.00	0.016	3.76	4733.03	0.001
L6	78 - 76.75 (6)	TP30.2382x29.228x0.8283	32.25	2668.51	0.012	3.85	6356.32	0.001
L7	76.75 - 75.5 (7)	TP30.4908x30.2382x0.895	32.50	2901.51	0.011	3.88	6941.00	0.001
L8	75.5 - 74.5 (8)	TP30.6928x30.4908x0.834	32.80	2727.97	0.012	4.16	6598.62	0.001
L9	74.5 - 73.29 (9)	TP30.9373x30.6928x0.7527	33.05	2488.80	0.013	4.18	6103.58	0.001
L10	73.29 - 70.5 (10)	TP31.501x30.9373x0.7887	33.63	2653.58	0.013	4.23	6616.66	0.001
L11	70.5 - 70 (11)	TP31.6021x31.501x0.8107	33.72	2734.38	0.012	4.24	6831.37	0.001
L12	70 - 69.75 (12)	TP31.6526x31.6021x0.7489	33.77	2535.41	0.013	4.25	6370.37	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L13	69.75 - 69.5 (13)	TP31.7031x31.6526x0.8325	33.82	2815.34	0.012	4.25	7047.32	0.001
L14	69.5 - 56 (14)	TP34.4307x31.7031x0.6731	36.48	2489.09	0.015	4.50	6860.32	0.001
L15	56 - 55.75 (15)	TP34.4812x34.4307x0.7559	36.52	2792.78	0.013	4.51	7671.34	0.001
L16	55.75 - 54 (16)	TP34.8348x34.4812x0.8084	36.91	3013.37	0.012	4.54	8340.17	0.001
L17	54 - 53.5 (17)	TP34.9358x34.8348x0.6646	37.00	2495.10	0.015	4.56	6985.25	0.001
L18	53.5 - 52.04 (18)	TP35.2308x34.9358x0.5754	37.32	2184.42	0.017	4.59	6201.01	0.001
L19	52.04 - 39.75 (19)	TP37.714x35.2308x0.5042	38.75	2002.10	0.019	4.75	5960.76	0.001
L20	39.75 - 34.75 (20)	TP38.0989x36.129x0.6267	40.72	2572.47	0.016	4.97	7895.19	0.001
L21	34.75 - 34.3333 (21)	TP38.1831x38.0989x0.7329	40.78	3006.51	0.014	4.97	9196.17	0.001
L22	34.3333 - 24 (22)	TP40.2709x38.1831x0.6111	42.60	2654.85	0.016	5.20	8634.83	0.001
L23	24 - 14.25 (23)	TP42.2409x40.2709x0.6545	44.15	2981.64	0.015	5.40	10165.50	0.001
L24	14.25 - 4.75 (24)	TP44.1603x42.2409x0.6985	45.60	3325.38	0.014	5.60	11844.92	0.000
L25	4.75 - 2 (25)	TP44.7159x44.1603x0.7683	45.93	3698.88	0.012	5.59	13304.08	0.000
L26	2 - 0 (26)	TP45.12x44.7159x0.6977	46.15	3394.95	0.014	5.59	12364.42	0.000

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876320 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Pole (L2)	79.0%	Pass
Mod (M3)	99.8%	Pass

528 Wheelers Farm RD (BU 876320)
TEP #: 25570.129190
Analysis: TLI 8/24/2017
Check: JDR 8/24/2017

Monopole Reinforcement_v1.8.11 - TIA-222-G

Mod #	Modification Type	Termination Length (ft)	Bot. Elevation (ft)	Top Elevation (ft)	Termination Length (ft)	Modification Location (° or Flat/Point #)	Location (F/P)	Lateral Offset (in)
1	(TS) 1.25×8.00 (65ksi)	0.00	0.00	8.00	3.25	3 5 9 11	Flats	0.00
2	(Aero) MP304		0.50	25.50		3 5 9 11	Flats	0.00
3	PL 1" x 5"		2.50	37.00		2 6 8 12	Flats	-2.50
4	PL 1" x 5"		32.08	72.08	2.33	2 6 8 12	Flats	2.50
5	(Aero) MP303	-0.50	0.50	15.50		2 6 8 12	Flats	2.50
6	(Aero) MP303	-1.50	25.50	45.50		3 5 9 11	Flats	0.00
7	CCI-SFP-045100		52.00	72.00		11	Flats	-2.00
8	CCI-SFP-045100		50.54	74.79		3	Flats	0.00
9	CCI-AFP-045100		52.00	72.00		5 9	Flats	0.00
10	CCI-AFP-060100		67.00	92.00		1 10	Flats	0.00
11	CCI-AFP-045100	-2.08	72.08	92.08		5 9	Flats	0.00
12	CCI-SFP-045100		42.50	57.50		2 6 8	Flats	-3.00
13	CCI-SFP-045100		42.25	57.25		12	Flats	-3.00
14	PL 1.25" x 4"		73.00	100.75		2	Flats	0.00
15a	PL 1.25" x 4"		74.00	100.75		6	Flats	2.00
15b	PL 1.25" x 4"		74.00	100.75	1.75	12	Flats	-2.00
16a	PL 1.25" x 4"		68.25	80.00		4 7	Flats	0.00
16b	PL 1.25" x 4"	1.75	68.25	80.00		11	Flats	2.00
17	PL 1.25" x 4"		68.25	78.25		8	Flats	-3.00

MODIFICATION PROPERTIES

#	Modification	Default Termination (ft)	Stitch (in)	k	Drill Hole (in)	Bolt/Weld Capacity (k)	A_G (in²)	F_Y (ksi)	F_U (ksi)
1	(TS) 1.25×8.00 (65ksi)	4.00	0.75	0.80	Weld	Weld	9.06	65.0	80.0
2	(Aero) MP304	1.50	18.00	0.80	1.2188	36.0	4.13	65.0	80.0
3	PL 1" x 5"	2.25	18.00	0.80	1.2500	36.0	5.00	65.0	80.0
5	(Aero) MP303	1.25	18.00	0.80	1.2188	36.0	2.92	65.0	80.0
7	CCI-SFP-045100	1.50	20.00	0.80	1.1875	36.0	4.50	65.0	80.0
9	CCI-AFP-045100	2.00	20.00	0.80	1.1875	36.0	4.50	65.0	80.0
10	CCI-AFP-060100	2.50	16.00	0.80	1.1875	36.0	6.00	65.0	80.0
14	PL 1.25" x 4"	1.50	27.00	0.80	1.3125	36.0	5.00	65.0	80.0

Tower Engineering Professionals, Inc.
326 Tryon Road | Raleigh, NC 27603-3530 | Office: (919) 661-6351 | Fax: (919) 661-6350 | www.tepgroup.net

Pole (L2)	79.0%	Pass
Mod (M3)	99.8%	Pass

528 Wheelers Farm RD (BU 876320)
TEP #: 25570.129190
Analysis: TLI 8/24/2017
Check: JDR 8/24/2017

Monopole Reinforcement_v1.8.11 - TIA-222-G - Capacities

Section No.	Elevation (ft)	Type	Size	Critical Element	Pu (k)	φPn (k)	% Capacity	Pass/Fail
L1	120.00-78.00	Pole	TP30.49x22.00x0.2500	1	Note 1	Note 1	58.3	Pass
L2	81.75-39.75	Pole	TP37.71x29.23x0.3125	2	Note 1	Note 1	79.0	Pass
L3	44.50-0.00	Pole	TP45.12x36.13x0.3750	3	Note 1	Note 1	74.7	Pass
M1	8.00-0.00	Mod (Ex)	(TS) 1.25x8.00 (65ksi)	1	Note 1	Note 1	73.2	Pass
M2	25.50-0.50	Mod (Ex)	(Aero) MP304	2	Note 1	Note 1	90.5	Pass
M3	37.00-2.50	Mod (Ex)	PL 1" x 5"	3	Note 1	Note 1	99.8	Pass
M4	72.08-32.08	Mod (Ex)	PL 1" x 5"	4	Note 1	Note 1	91.6	Pass
M5	15.50-0.50	Mod (Ex)	(Aero) MP303	5	Note 1	Note 1	86.5	Pass
M6	45.50-25.50	Mod (Ex)	(Aero) MP303	6	Note 1	Note 1	93.4	Pass
M7	72.00-52.00	Mod (Ex)	CCI-SFP-045100	7	Note 1	Note 1	78.1	Pass
M8	74.79-50.54	Mod (Ex)	CCI-SFP-045100	8	Note 1	Note 1	80.3	Pass
M9	72.00-52.00	Mod (Ex)	CCI-AFP-045100	9	Note 1	Note 1	78.1	Pass
M10	92.00-67.00	Mod (Ex)	CCI-AFP-060100	10	Note 1	Note 1	57.0	Pass
M11	92.08-72.08	Mod (Ex)	CCI-AFP-045100	11	Note 1	Note 1	56.6	Pass
M12	57.50-42.50	Mod (Ex)	CCI-SFP-045100	12	Note 1	Note 1	91.9	Pass
M13	57.25-42.25	Mod (Ex)	CCI-SFP-045100	13	Note 1	Note 1	91.9	Pass
M14	100.75-73.00	Mod (Ex)	PL 1.25" x 4"	14	Note 1	Note 1	66.5	Pass
M15b	100.75-74.00	Mod (Ex)	PL 1.25" x 4"	15	Note 1	Note 1	60.6	Pass
M16b	80.00-68.25	Mod (Ex)	PL 1.25" x 4"	16	Note 1	Note 1	64.4	Pass
M17	78.25-68.25	Mod (Ex)	PL 1.25" x 4"	17	Note 1	Note 1	59.9	Pass

	Summary	
Pole (L2)	79.0	Pass
Mod (M3)	99.8	Pass
RATING =	**99.8**	**Pass**

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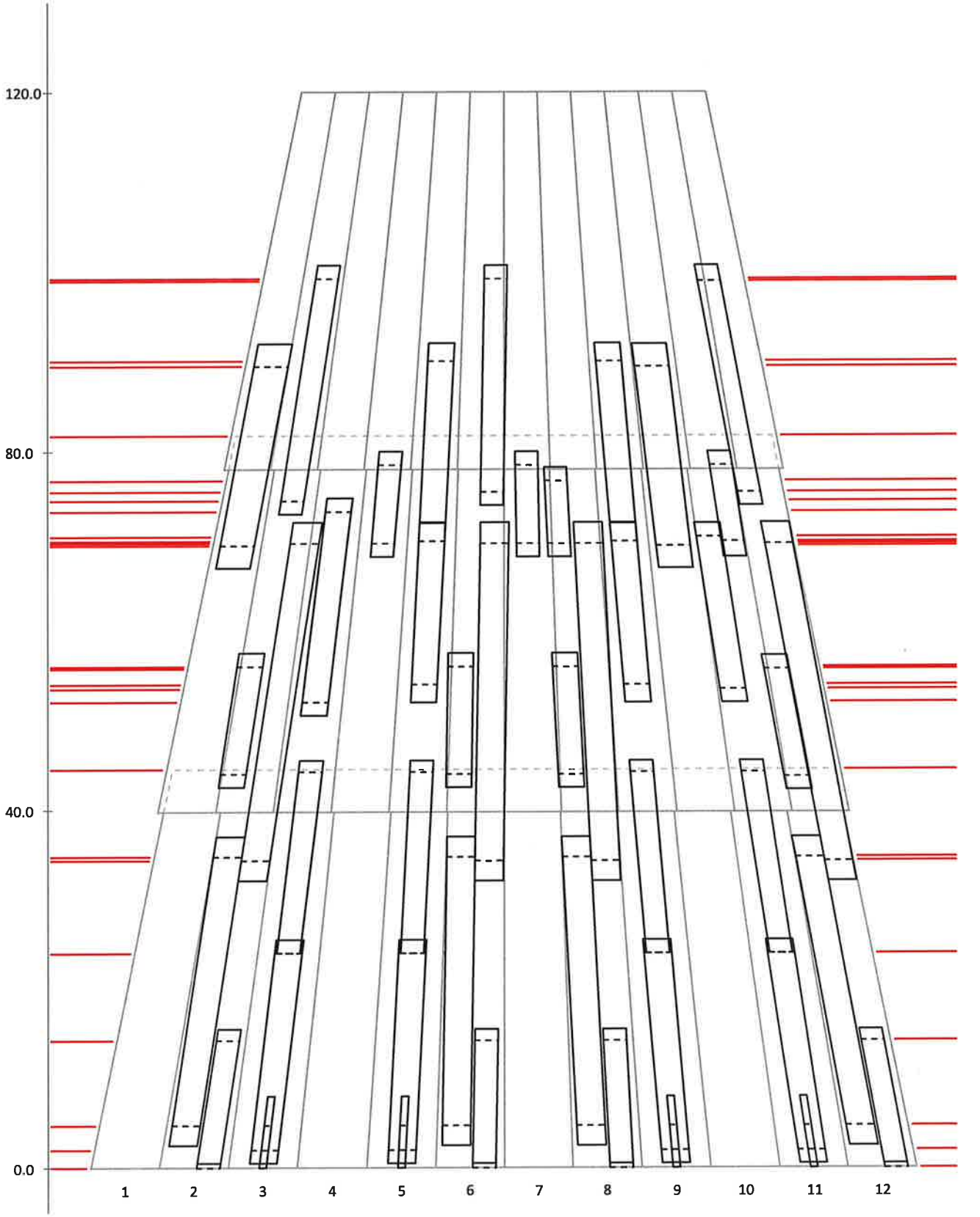
Reinforcement Layout



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Elevation: 0.00-ft

Loads	
Axial:	57.5 k
Moment:	4,034.3 k·ft
Shear:	46.2 k
Torsion:	5.6 k·ft

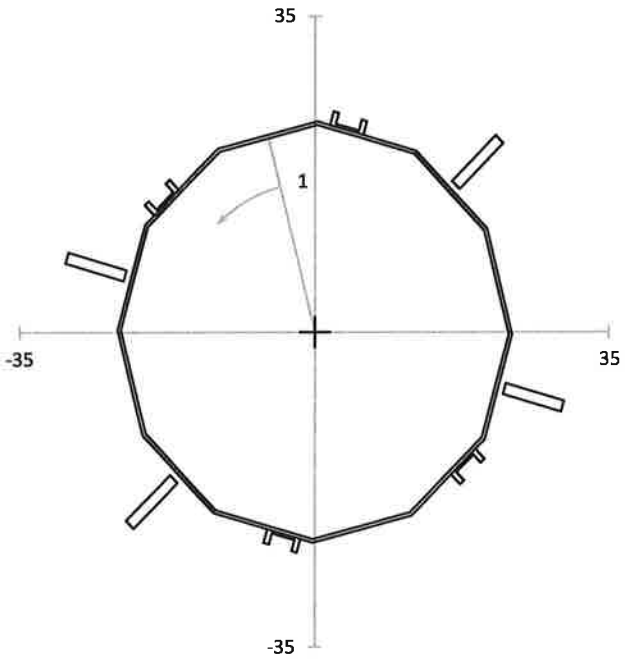
Equivalent Loads to Pole	
Axial:	30.5 k
Moment:	2,201.8 k·ft
Shear:	24.5 k
Torsion:	5.6 k·ft

Shear Flow	
Controlling Mod:	5
q:	0.121 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	297.84 in
Stitch:	18.00 in
Capacity:	6.0%

Pole Info	
OD:	45.12 in
t:	0.3750 in
Pole A_G:	54.03 in^2
Pole I_G:	13,807.2 in^4

Controlling	
Angle:	345.65°
I_{CONT}:	25,607.6 in^4
A_G:	101.96 in^2

Minimum	
Angle:	178.10°
I_{MIN}:	25,135.5 in^4
t_{EFF}:	0.6977 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
170.80	23.25	25299.4	0.564	44.495	0.453	0.056	61.256	61.256	30.628	61.256	73.6%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
1	1	41.25	25.51	29892.3	0.564	41.308	0.453	58.485	58.485	29.250	71.6%
1	2	138.85	25.49	29204.7	0.564	42.255	0.453	58.485	58.485	29.250	73.2%
1	3	221.25	25.51	29892.3	0.564	41.308	0.453	58.485	58.485	29.250	71.6%
1	4	318.85	25.49	29204.7	0.564	42.255	0.453	58.485	58.485	29.250	73.2%
5	1	20.90	22.46	26663.1	0.564	40.786	0.453	53.615	49.540	29.250	81.2%
5	2	165.65	22.97	25607.6	0.564	43.418	0.453	53.615	49.540	29.250	86.5%
5	3	200.90	22.46	26663.1	0.564	40.786	0.453	53.615	49.540	29.250	81.2%
5	4	345.65	22.97	25607.6	0.564	43.418	0.453	53.615	49.540	29.250	86.5%

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Elevation: 2.00-ft

Loads	
Axial:	56.6 k
Moment:	3,942.3 k·ft
Shear:	45.9 k
Torsion:	5.6 k·ft

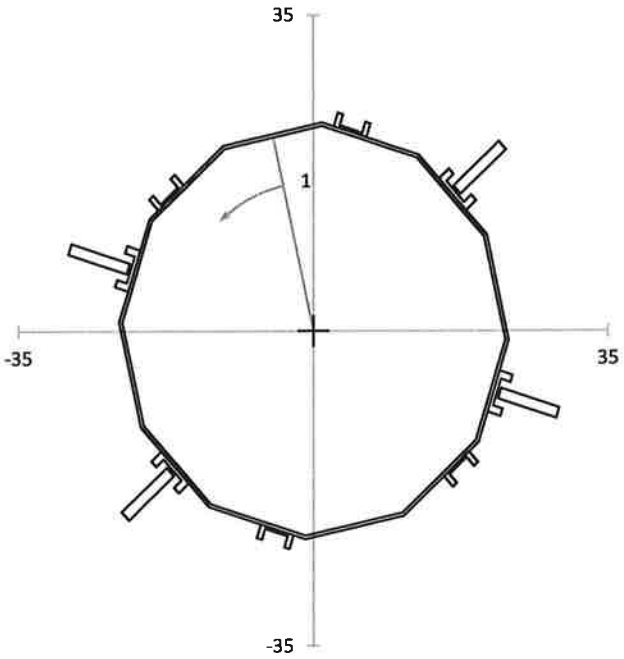
Equivalent Loads to Pole	
Axial:	25.7 k
Moment:	1,962.1 k·ft
Shear:	20.8 k
Torsion:	5.6 k·ft

Shear Flow	
Controlling Mod:	2
q:	0.126 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	284.70 in
Stitch:	18.00 in
Capacity:	6.3%

Pole Info	
OD:	44.72 in
t:	0.3750 in
Pole A_G:	53.54 in^2
Pole I_G:	13,436.5 in^4

Controlling	
Angle:	347.50°
I_G:	27,341.5 in^4
A_G:	117.99 in^2

Minimum	
Angle:	178.65°
I_{MIN}:	26,803.5 in^4
t_{EFF}:	0.7683 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
172.00	22.99	26996.7	0.480	40.287	0.389	0.057	61.507	61.507	30.754	61.507	66.3%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
1	1	36.65	24.54	32241.3	0.480	36.013	0.389	58.485	58.485	29.250	62.4%
1	2	143.20	24.57	31635.0	0.480	36.744	0.389	58.485	58.485	29.250	63.7%
1	3	216.65	24.54	32241.3	0.480	36.013	0.389	58.485	58.485	29.250	62.4%
1	4	323.20	24.57	31635.0	0.480	36.744	0.389	58.485	58.485	29.250	63.7%
2	1	36.65	21.09	32241.3	0.480	30.941	0.389	53.494	49.881	29.250	61.1%
2	2	143.20	21.11	31635.0	0.480	31.569	0.389	53.494	49.881	29.250	62.3%
2	3	216.65	21.09	32241.3	0.480	30.941	0.389	53.494	49.881	29.250	61.1%
2	4	323.20	21.11	31635.0	0.480	31.569	0.389	53.494	49.881	29.250	62.3%
5	1	18.40	21.98	28440.7	0.480	36.555	0.389	53.615	49.540	29.250	72.8%
5	2	167.50	22.64	27341.5	0.480	39.169	0.389	53.615	49.540	29.250	78.1%
5	3	198.40	21.98	28440.7	0.480	36.555	0.389	53.615	49.540	29.250	72.8%
5	4	347.50	22.64	27341.5	0.480	39.169	0.389	53.615	49.540	29.250	78.1%

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Elevation: 4.75-ft

Loads	
Axial:	55.1 k
Moment:	3,816.4 k·ft
Shear:	45.6 k
Torsion:	5.6 k·ft

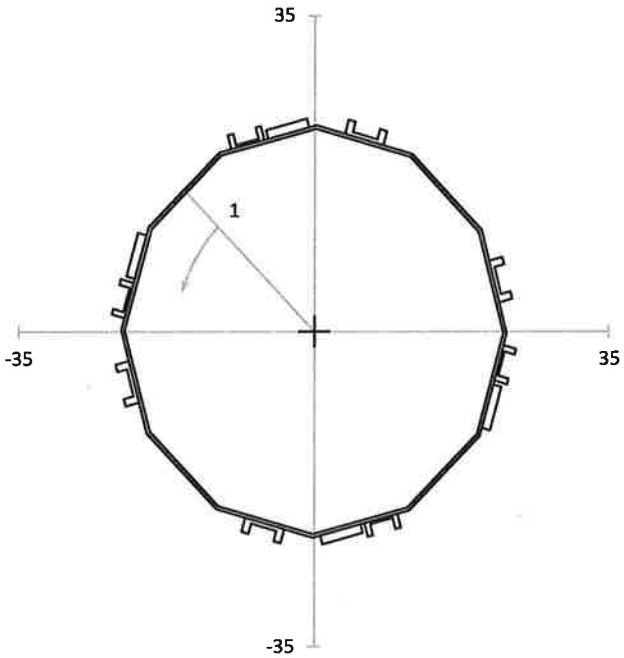
Equivalent Loads to Pole	
Axial:	28.8 k
Moment:	2,087.5 k·ft
Shear:	23.9 k
Torsion:	5.6 k·ft

Shear Flow	
Controlling Mod:	3
q:	0.199 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	180.56 in
Stitch:	18.00 in
Capacity:	10.0%

Pole Info	
OD:	44.16 in
t:	0.3750 in
Pole A_G:	52.87 in^2
Pole I_G:	12,937.7 in^4

Controlling	
Angle:	315.45°
I_G:	25,713.8 in^4
A_G:	101.07 in^2

Minimum	
Angle:	86.45°
I_{MIN}:	23,567.2 in^4
t_{EFF}:	0.6985 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
77.75	22.85	23653.2	0.546	44.239	0.451	0.059	61.853	61.853	30.926	61.853	72.4%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
2	1	65.90	22.57	24031.0	0.546	43.013	0.451	53.494	49.881	29.250	85.2%
2	2	112.95	22.52	24317.9	0.546	42.408	0.451	53.494	49.881	29.250	83.9%
2	3	245.90	22.57	24031.0	0.546	43.013	0.451	53.494	49.881	29.250	85.2%
2	4	292.95	22.52	24317.9	0.546	42.408	0.451	53.494	49.881	29.250	83.9%
3	1	31.40	22.51	26097.7	0.546	39.505	0.451	46.178	44.250	29.250	88.1%
3	2	135.45	22.48	25713.8	0.546	40.045	0.451	46.178	44.250	29.250	89.3%
3	3	211.40	22.51	26097.7	0.546	39.505	0.451	46.178	44.250	29.250	88.1%
3	4	315.45	22.48	25713.8	0.546	40.045	0.451	46.178	44.250	29.250	89.3%
5	1	44.75	22.56	25233.8	0.546	40.943	0.451	53.615	49.540	29.250	81.6%
5	2	149.80	22.66	26577.3	0.546	39.049	0.451	53.615	49.540	29.250	77.7%
5	3	224.75	22.56	25233.8	0.546	40.943	0.451	53.615	49.540	29.250	81.6%
5	4	329.80	22.66	26577.3	0.546	39.049	0.451	53.615	49.540	29.250	77.7%

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Elevation: 14.25-ft

Loads	
Axial:	50.1 k
Moment:	3,389.9 k·ft
Shear:	44.2 k
Torsion:	5.4 k·ft

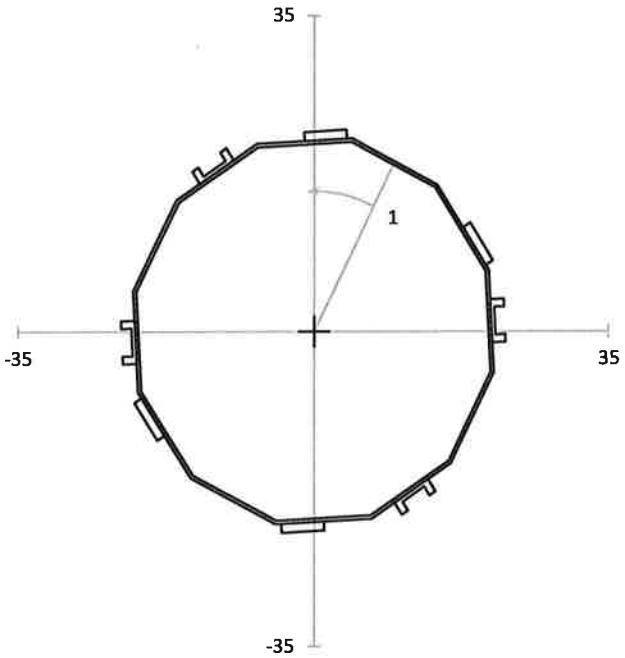
Equivalent Loads to Pole	
Axial:	29.1 k
Moment:	1,976.2 k·ft
Shear:	25.6 k
Torsion:	5.4 k·ft

Shear Flow	
Controlling Mod:	3
q:	0.243 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	148.39 in
Stitch:	18.00 in
Capacity:	12.1%

Pole Info	
OD:	42.24 in
t:	0.3750 in
Pole A_G:	50.55 in^2
Pole I_G:	11,309.8 in^4

Controlling	
Angle:	26.90°
I_G:	19,768.8 in^4
A_G:	87.07 in^2

Minimum	
Angle:	241.70°
I_{MIN}:	19,346.8 in^4
t_{EFF}:	0.6545 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
73.45	21.87	19400.4	0.575	45.863	0.507	0.062	63.047	63.047	31.524	63.047	73.7%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
2	1	60.20	21.73	19347.7	0.575	45.689	0.507	53.494	49.881	29.250	90.5%
2	2	116.55	21.69	20212.4	0.575	43.655	0.507	53.494	49.881	29.250	86.4%
2	3	240.20	21.73	19347.7	0.575	45.689	0.507	53.494	49.881	29.250	90.5%
2	4	296.55	21.69	20212.4	0.575	43.655	0.507	53.494	49.881	29.250	86.4%
3	1	26.90	21.72	19768.8	0.575	44.702	0.507	46.178	44.250	29.250	99.8%
3	2	142.25	21.76	20607.0	0.575	42.955	0.507	46.178	44.250	29.250	95.8%
3	3	206.90	21.72	19768.8	0.575	44.702	0.507	46.178	44.250	29.250	99.8%
3	4	322.25	21.76	20607.0	0.575	42.955	0.507	46.178	44.250	29.250	95.8%

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Elevation: 24.00-ft

Loads	
Axial:	45.4 k
Moment:	2,967.0 k·ft
Shear:	42.6 k
Torsion:	5.2 k·ft

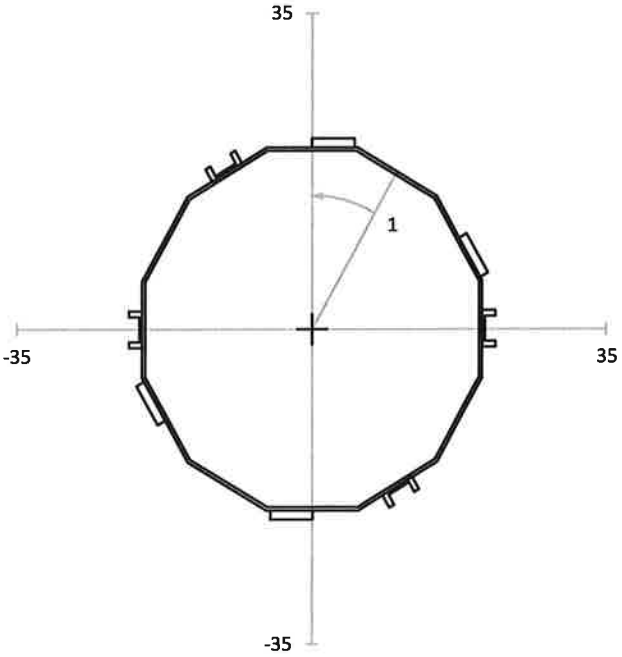
Equivalent Loads to Pole	
Axial:	27.4 k
Moment:	1,853.4 k·ft
Shear:	25.7 k
Torsion:	5.2 k·ft

Shear Flow	
Controlling Mod:	3
q:	0.264 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	136.32 in
Stitch:	18.00 in
Capacity:	13.2%

Pole Info	
OD:	40.27 in
t:	0.3750 in
Pole A_G:	48.17 in^2
Pole I_G:	9,787.2 in^4

Controlling	
Angle:	29.85°
I_G:	16,630.7 in^4
A_G:	79.85 in^2

Minimum	
Angle:	74.20°
I_{MIN}:	15,667.3 in^4
t_{EFF}:	0.6111 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
74.85	20.86	15667.5	0.568	47.405	0.533	0.066	64.273	64.273	32.136	64.273	74.7%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
3	1	29.85	20.64	16630.7	0.568	44.192	0.533	46.178	44.250	29.250	98.6%
3	2	137.90	20.70	17250.7	0.568	42.726	0.533	46.178	44.250	29.250	95.3%
3	3	209.85	20.64	16630.7	0.568	44.192	0.533	46.178	44.250	29.250	98.6%
3	4	317.90	20.70	17250.7	0.568	42.726	0.533	46.178	44.250	29.250	95.3%
6	1	62.80	20.70	15744.4	0.568	46.812	0.533	53.615	49.540	29.250	93.4%
6	2	113.30	20.58	16450.6	0.568	44.550	0.533	53.615	49.540	29.250	88.8%
6	3	242.80	20.70	15744.4	0.568	46.812	0.533	53.615	49.540	29.250	93.4%
6	4	293.30	20.58	16450.6	0.568	44.550	0.533	53.615	49.540	29.250	88.8%

Elevation: 34.33-ft

Loads	
Axial:	40.5 k
Moment:	2,535.6 k·ft
Shear:	40.8 k
Torsion:	5.0 k·ft

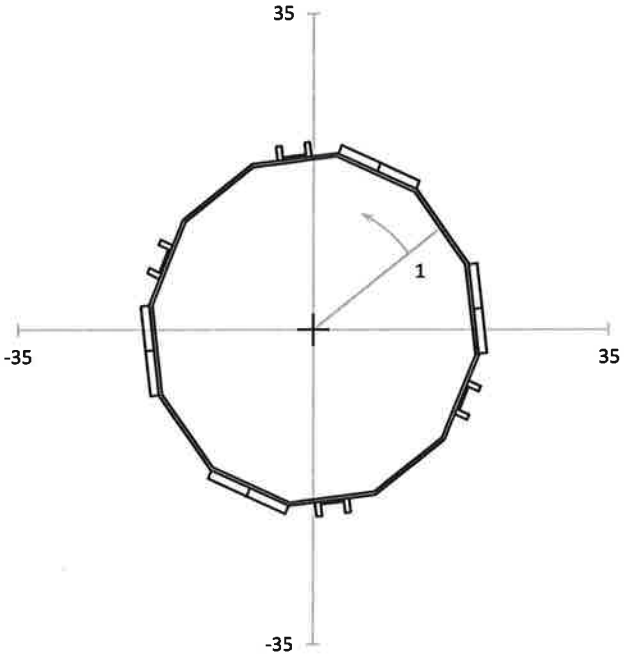
Pole Info	
OD:	38.18 in
t:	0.3750 in
Pole A_G:	45.65 in^2
Pole I_G:	8,329.7 in^4

Equivalent Loads to Pole	
Axial:	19.0 k
Moment:	1,324.0 k·ft
Shear:	19.1 k
Torsion:	5.0 k·ft

Controlling	
Angle:	53.20°
I_G:	17,708.5 in^4
A_G:	97.33 in^2

Shear Flow	
Controlling Mod:	4
q:	0.219 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	164.72 in
Stitch:	18.00 in
Capacity:	10.9%

Minimum	
Angle:	90.00°
I_{MIN}:	15,820.7 in^4
t_{EFF}:	0.7329 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
279.10	19.67	15952.3	0.416	37.527	0.419	0.070	65.572	65.572	32.786	65.572	57.9%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
3	1	37.65	19.08	19118.8	0.416	30.373	0.419	46.178	44.250	29.250	67.7%
3	2	126.80	18.99	17708.5	0.416	32.633	0.419	46.178	44.250	29.250	72.8%
3	3	217.65	19.08	19118.8	0.416	30.373	0.419	46.178	44.250	29.250	67.7%
3	4	306.80	18.99	17708.5	0.416	32.633	0.419	46.178	44.250	29.250	72.8%
4	1	53.20	18.99	17708.5	0.416	32.633	0.419	46.178	44.250	29.250	72.8%
4	2	142.35	19.08	19118.8	0.416	30.373	0.419	46.178	44.250	29.250	67.7%
4	3	233.20	18.99	17708.5	0.416	32.633	0.419	46.178	44.250	29.250	72.8%
4	4	322.35	19.08	19118.8	0.416	30.373	0.419	46.178	44.250	29.250	67.7%
6	1	71.15	19.31	16369.9	0.416	35.893	0.419	53.615	49.540	29.250	71.6%
6	2	108.85	19.31	16369.9	0.416	35.893	0.419	53.615	49.540	29.250	71.6%
6	3	251.15	19.31	16369.9	0.416	35.893	0.419	53.615	49.540	29.250	71.6%
6	4	288.85	19.31	16369.9	0.416	35.893	0.419	53.615	49.540	29.250	71.6%

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Elevation: 34.75-ft

Loads	
Axial:	40.3 k
Moment:	2,518.8 k·ft
Shear:	40.7 k
Torsion:	5.0 k·ft

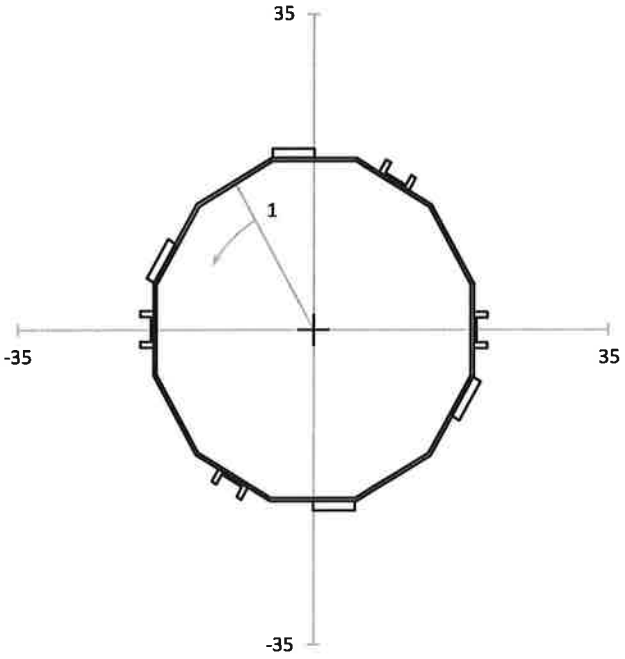
Pole Info	
OD:	38.10 in
t:	0.3750 in
Pole A_G:	45.55 in^2
Pole I_G:	8,274.2 in^4

Equivalent Loads to Pole	
Axial:	23.8 k
Moment:	1,537.7 k·ft
Shear:	24.0 k
Torsion:	5.0 k·ft

Controlling	
Angle:	330.20°
I_G:	14,404.8 in^4
A_G:	77.23 in^2

Shear Flow	
Controlling Mod:	4
q:	0.276 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	130.24 in
Stitch:	18.00 in
Capacity:	13.8%

Minimum	
Angle:	106.55°
I_{MIN}:	13,552.5 in^4
t_{EFF}:	0.6267 in



Pole Segment: L3, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
285.35	19.73	13553.3	0.522	44.010	0.527	0.070	65.624	65.624	32.812	65.624	67.9%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	42.70	19.62	14994.4	0.522	39.551	0.527	46.178	44.250	29.250	88.2%
4	2	150.20	19.56	14404.8	0.522	41.038	0.527	46.178	44.250	29.250	91.6%
4	3	222.70	19.62	14994.4	0.522	39.551	0.527	46.178	44.250	29.250	88.2%
4	4	330.20	19.56	14404.8	0.522	41.038	0.527	46.178	44.250	29.250	91.6%
6	1	67.00	19.49	14278.2	0.522	41.264	0.527	53.615	49.540	29.250	82.3%
6	2	117.25	19.62	13614.1	0.522	43.552	0.527	53.615	49.540	29.250	86.9%
6	3	247.00	19.49	14278.2	0.522	41.264	0.527	53.615	49.540	29.250	82.3%
6	4	297.25	19.62	13614.1	0.522	43.552	0.527	53.615	49.540	29.250	86.9%

Elevation: 44.50-ft

Loads	
Axial:	35.1 k
Moment:	2,130.5 k·ft
Shear:	38.7 k
Torsion:	4.8 k·ft

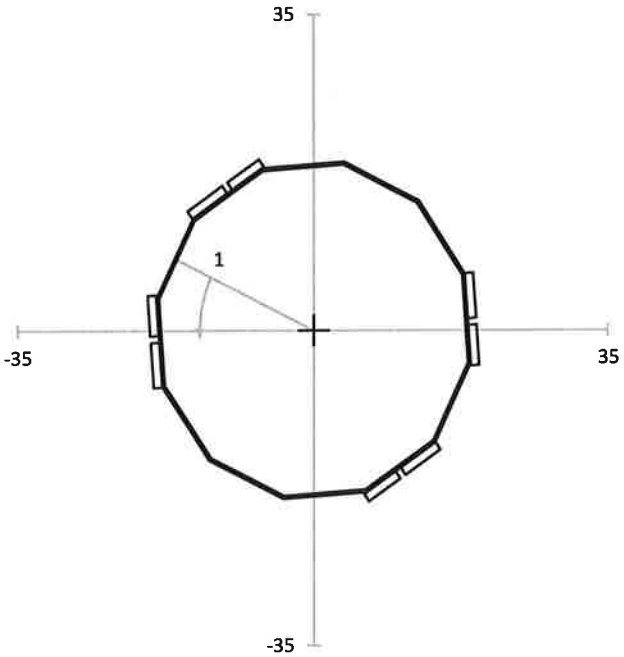
Equivalent Loads to Pole	
Axial:	17.2 k
Moment:	1,330.6 k·ft
Shear:	19.0 k
Torsion:	4.8 k·ft

Shear Flow	
Controlling Mod:	13
q:	0.271 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	133.07 in
Stitch:	20.00 in
Capacity:	15.0%

Pole Info	
OD:	36.75 in
t:	0.3125 in
Pole A_G:	36.67 in^2
Pole I_G:	6,215.7 in^4

Controlling	
Angle:	295.90°
I_G:	11,158.6 in^4
A_G:	74.67 in^2

Minimum	
Angle:	89.65°
I_{MIN}:	9,870.9 in^4
t_{EFF}:	0.5042 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
83.30	18.84	9952.1	0.470	48.397	0.519	0.086	61.887	61.887	30.944	61.887	79.0%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	62.85	17.21	11213.2	0.470	39.250	0.519	46.178	44.250	29.250	87.7%
4	2	130.30	16.93	12666.3	0.470	34.171	0.519	46.178	44.250	29.250	76.2%
4	3	242.85	17.21	11213.2	0.470	39.250	0.519	46.178	44.250	29.250	87.7%
4	4	310.30	16.93	12666.3	0.470	34.171	0.519	46.178	44.250	29.250	76.2%
12	1	48.10	17.01	12773.9	0.470	34.047	0.519	43.686	43.333	29.250	79.0%
12	2	115.90	17.31	11158.6	0.470	39.668	0.519	43.686	43.333	29.250	91.9%
12	3	228.10	17.01	12773.9	0.470	34.047	0.519	43.686	43.333	29.250	79.0%
13	1	295.90	17.31	11158.6	0.470	39.668	0.519	43.686	43.333	29.250	91.9%

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Elevation: 52.04-ft

Loads	
Axial:	31.8 k
Moment:	1,843.4 k·ft
Shear:	37.3 k
Torsion:	4.6 k·ft

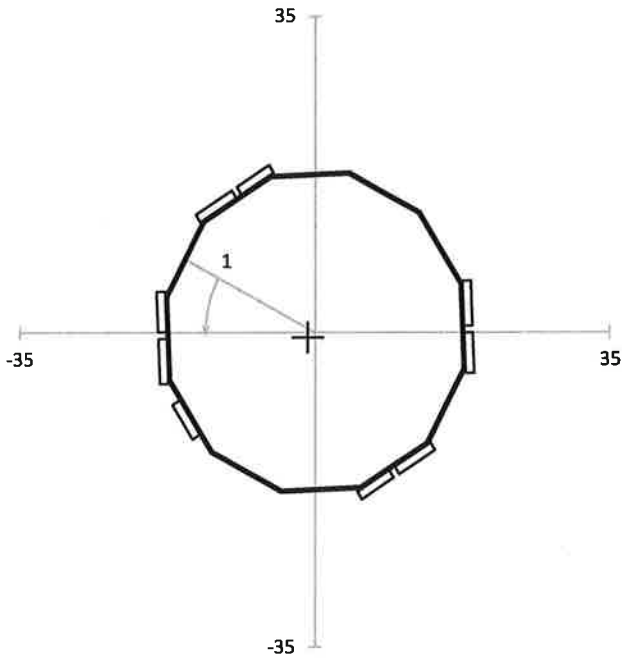
Equivalent Loads to Pole	
Axial:	14.4 k
Moment:	1,024.1 k·ft
Shear:	16.9 k
Torsion:	4.6 k·ft

Shear Flow	
Controlling Mod:	13
q:	0.277 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	130.00 in
Stitch:	20.00 in
Capacity:	15.4%

Pole Info	
OD:	35.23 in
t:	0.3125 in
Pole A_G:	35.14 in^2
Pole I_G:	5,468.3 in^4

Controlling	
Angle:	297.75°
I_G:	10,600.7 in^4
A_G:	77.64 in^2

Minimum	
Angle:	95.95°
I_{MIN}:	9,843.1 in^4
t_{EFF}:	0.5754 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
99.15	18.97	9860.4	0.410	42.555	0.481	0.091	63.025	63.025	31.512	63.025	68.2%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	60.45	15.83	11689.6	0.410	29.963	0.481	46.178	44.250	29.250	66.8%
4	2	137.10	16.87	12219.1	0.410	30.533	0.481	46.178	44.250	29.250	68.1%
4	3	242.65	17.65	11493.5	0.410	33.971	0.481	46.178	44.250	29.250	75.9%
4	4	310.75	16.62	11630.8	0.410	31.619	0.481	46.178	44.250	29.250	70.6%
8	1	77.55	16.27	10387.9	0.410	34.649	0.481	43.686	43.333	29.250	80.3%
12	1	38.20	16.53	13762.2	0.410	26.566	0.481	43.686	43.333	29.250	61.8%
12	2	122.15	16.93	10913.5	0.410	34.313	0.481	43.686	43.333	29.250	79.5%
12	3	224.70	17.77	13175.3	0.410	29.842	0.481	43.686	43.333	29.250	69.3%
13	1	297.75	17.48	10600.7	0.410	36.481	0.481	43.686	43.333	29.250	84.5%

Elevation: 53.50-ft

Loads	
Axial:	31.1 k
Moment:	1,789.1 k·ft
Shear:	37.0 k
Torsion:	4.6 k·ft

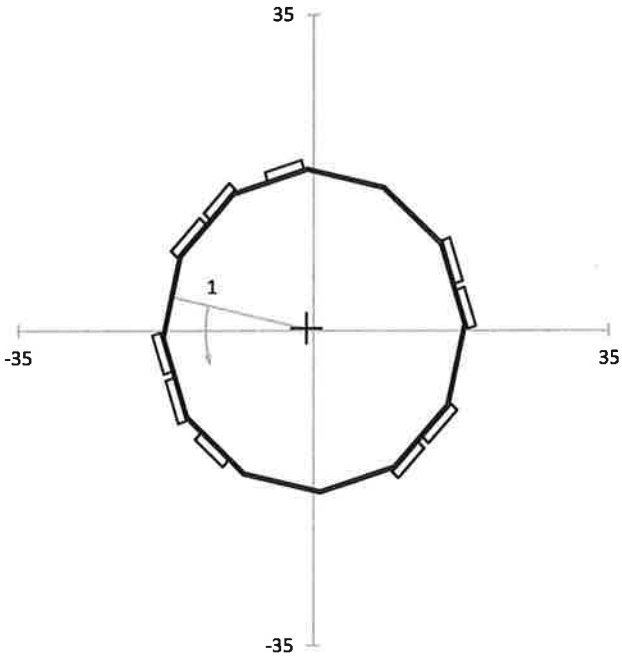
Equivalent Loads to Pole	
Axial:	13.3 k
Moment:	862.6 k·ft
Shear:	15.7 k
Torsion:	4.6 k·ft

Shear Flow	
Controlling Mod:	7
q:	0.261 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	138.14 in
Stitch:	20.00 in
Capacity:	14.5%

Pole Info	
OD:	34.94 in
t:	0.3125 in
Pole A_G:	34.84 in^2
Pole I_G:	5,330.9 in^4

Controlling	
Angle:	282.55°
I_G:	11,168.9 in^4
A_G:	81.84 in^2

Minimum	
Angle:	90.80°
I_{MIN}:	10,995.1 in^4
t_{EFF}:	0.6646 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
280.50	18.26	11114.2	0.380	35.269	0.452	0.092	63.245	63.245	31.622	63.245	56.4%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	57.25	16.68	12269.2	0.380	29.191	0.452	46.178	44.250	29.250	65.1%
4	2	142.00	18.18	13533.0	0.380	28.845	0.452	46.178	44.250	29.250	64.4%
4	3	233.90	17.92	12499.1	0.380	30.784	0.452	46.178	44.250	29.250	68.7%
4	4	319.80	16.52	13375.3	0.380	26.523	0.452	46.178	44.250	29.250	59.1%
7	1	282.55	17.49	11168.9	0.380	33.626	0.452	43.686	43.333	29.250	77.9%
8	1	74.05	17.24	11341.1	0.380	32.632	0.452	43.686	43.333	29.250	75.6%
12	1	38.20	16.69	13629.0	0.380	26.289	0.452	43.686	43.333	29.250	61.1%
12	2	124.65	18.08	12292.2	0.380	31.569	0.452	43.686	43.333	29.250	73.2%
12	3	215.10	18.33	13843.5	0.380	28.426	0.452	43.686	43.333	29.250	66.0%
13	1	301.85	16.74	12107.4	0.380	29.684	0.452	43.686	43.333	29.250	68.8%

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Elevation: 54.00-ft

Loads	
Axial:	30.8 k
Moment:	1,770.6 k·ft
Shear:	36.9 k
Torsion:	4.5 k·ft

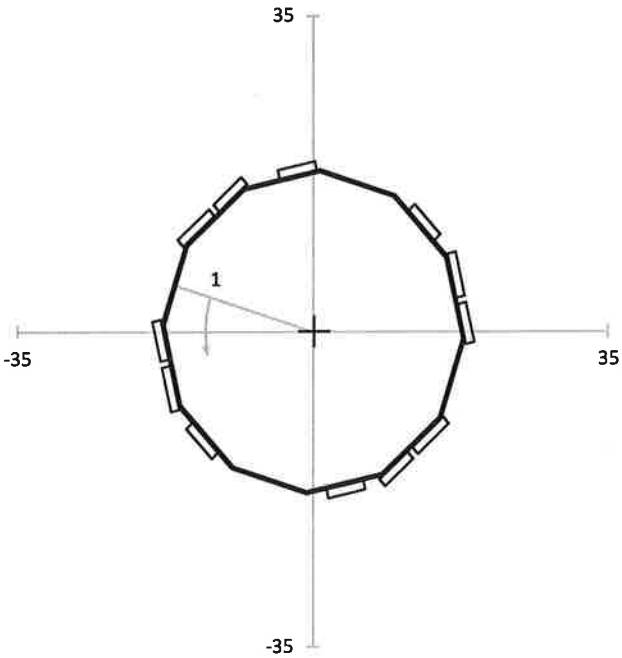
Equivalent Loads to Pole	
Axial:	11.8 k
Moment:	710.6 k·ft
Shear:	14.1 k
Torsion:	4.5 k·ft

Shear Flow	
Controlling Mod:	7
q:	0.223 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	161.15 in
Stitch:	20.00 in
Capacity:	12.4%

Pole Info
OD: 34.83 in
t: 0.3125 in
Pole A_G: 34.74 in^2
Pole I_G: 5,284.4 in^4

Controlling
Angle: 287.50°
I_G: 13,311.9 in^4
A_G: 90.74 in^2

Minimum
Angle: 91.10°
I_{MIN}: 13,089.9 in^4
t_{EFF}: 0.8084 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
280.70	18.03	13167.5	0.340	29.088	0.407	0.092	63.320	63.320	31.660	63.320	46.5%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	48.80	17.86	14347.1	0.340	26.451	0.407	46.178	44.250	29.250	59.0%
4	2	148.15	17.78	15047.1	0.340	25.107	0.407	46.178	44.250	29.250	56.0%
4	3	228.90	17.67	14342.2	0.340	26.173	0.407	46.178	44.250	29.250	58.4%
4	4	328.75	17.91	15073.5	0.340	25.240	0.407	46.178	44.250	29.250	56.3%
7	1	287.50	17.90	13311.9	0.340	28.577	0.407	43.686	43.333	29.250	66.2%
8	1	68.20	17.81	13509.7	0.340	28.014	0.407	43.686	43.333	29.250	64.9%
9	1	111.85	17.75	13439.3	0.340	28.063	0.407	43.686	43.333	29.250	65.0%
9	2	248.45	17.65	13501.1	0.340	27.769	0.407	43.686	43.333	29.250	64.4%
12	1	29.15	18.06	15252.7	0.340	25.157	0.407	43.686	43.333	29.250	58.4%
12	2	129.40	17.81	14158.1	0.340	26.729	0.407	43.686	43.333	29.250	62.0%
12	3	209.00	17.87	15258.7	0.340	24.880	0.407	43.686	43.333	29.250	57.8%
13	1	309.95	17.88	14184.1	0.340	26.779	0.407	43.686	43.333	29.250	62.1%

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Elevation: 55.75-ft

Loads	
Axial:	30.0 k
Moment:	1,706.3 k·ft
Shear:	36.5 k
Torsion:	4.5 k·ft

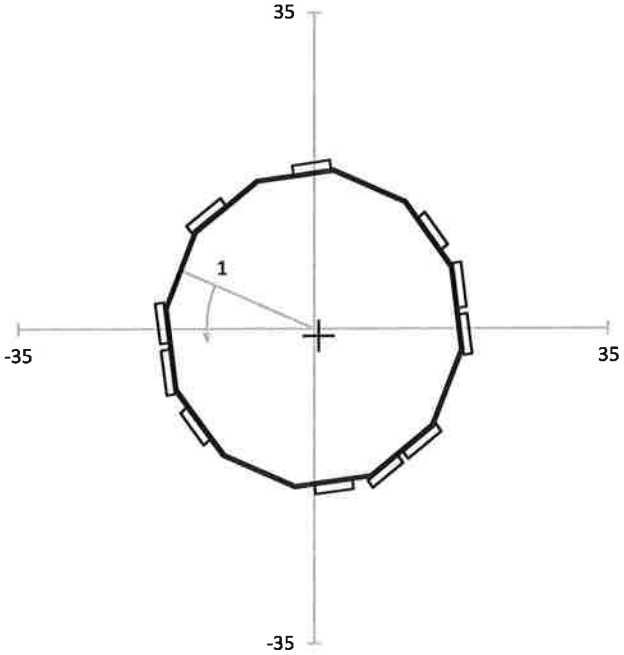
Equivalent Loads to Pole	
Axial:	12.0 k
Moment:	736.8 k·ft
Shear:	14.6 k
Torsion:	4.5 k·ft

Shear Flow	
Controlling Mod:	7
q:	0.257 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	140.16 in
Stitch:	20.00 in
Capacity:	14.3%

Pole Info	
OD:	34.48 in
t:	0.3125 in
Pole A_G:	34.38 in^2
Pole I_G:	5,123.6 in^4

Controlling	
Angle:	292.45°
I_G:	11,945.9 in^4
A_G:	85.88 in^2

Minimum	
Angle:	106.80°
I_{MIN}:	11,917.9 in^4
t_{EFF}:	0.7559 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
106.95	18.61	11917.9	0.350	31.979	0.425	0.093	63.584	63.584	31.792	63.584	50.9%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	44.65	17.99	14185.8	0.350	25.969	0.425	46.178	44.250	29.250	57.9%
4	2	146.45	16.57	13098.4	0.350	25.898	0.425	46.178	44.250	29.250	57.8%
4	3	232.25	17.30	13843.2	0.350	25.588	0.425	46.178	44.250	29.250	57.1%
4	4	325.20	18.45	13036.5	0.350	28.983	0.425	46.178	44.250	29.250	64.7%
7	1	292.45	18.67	11945.9	0.350	31.998	0.425	43.686	43.333	29.250	74.1%
8	1	69.00	17.30	13008.0	0.350	27.236	0.425	43.686	43.333	29.250	63.2%
9	1	114.75	16.83	11973.2	0.350	28.774	0.425	43.686	43.333	29.250	66.7%
9	2	254.75	17.47	12735.2	0.350	28.088	0.425	43.686	43.333	29.250	65.1%
12	1	18.65	18.58	14815.4	0.350	25.682	0.425	43.686	43.333	29.250	59.6%
12	2	130.35	16.77	12380.5	0.350	27.733	0.425	43.686	43.333	29.250	64.3%
12	3	206.90	17.40	14729.4	0.350	24.182	0.425	43.686	43.333	29.250	56.2%

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Elevation: 56.00-ft

Loads	
Axial:	29.9 k
Moment:	1,697.1 k·ft
Shear:	36.5 k
Torsion:	4.5 k·ft

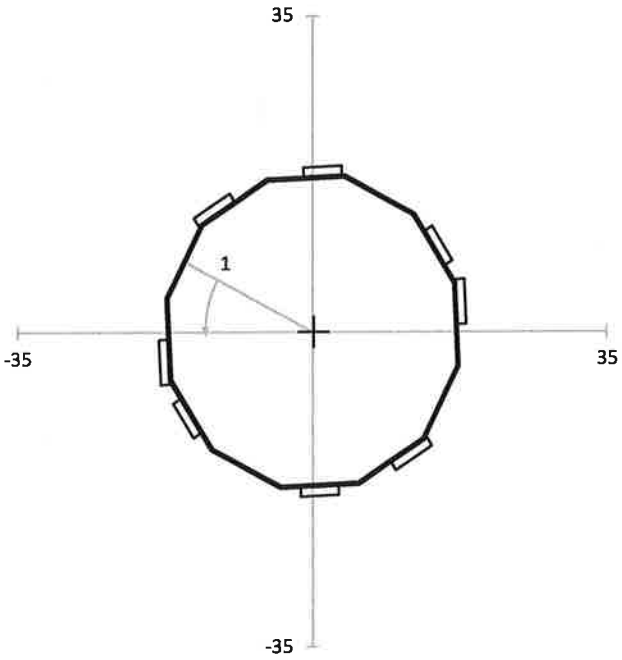
Equivalent Loads to Pole	
Axial:	14.2 k
Moment:	813.5 k·ft
Shear:	17.3 k
Torsion:	4.5 k·ft

Shear Flow	
Controlling Mod:	4
q:	0.304 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	118.39 in
Stitch:	18.00 in
Capacity:	15.2%

Pole Info	
OD:	34.43 in
t:	0.3125 in
Pole A_G:	34.33 in^2
Pole I_G:	5,101.0 in^4

Controlling	
Angle:	297.30°
I_G:	10,746.8 in^4
A_G:	72.33 in^2

Minimum	
Angle:	135.60°
I_{MIN}:	10,642.3 in^4
t_{EFF}:	0.6731 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
135.40	17.87	10642.3	0.413	34.192	0.504	0.093	63.622	63.622	31.811	63.622	54.4%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	36.30	18.01	11674.7	0.413	31.411	0.504	46.178	44.250	29.250	70.1%
4	2	154.30	17.78	10751.4	0.413	33.685	0.504	46.178	44.250	29.250	75.2%
4	3	216.45	17.76	11675.6	0.413	30.979	0.504	46.178	44.250	29.250	69.1%
4	4	334.85	17.93	10757.6	0.413	33.952	0.504	46.178	44.250	29.250	75.8%
7	1	297.30	17.78	10746.8	0.413	33.701	0.504	43.686	43.333	29.250	78.1%
8	1	62.75	17.80	11610.1	0.413	31.223	0.504	43.686	43.333	29.250	72.4%
9	1	122.15	17.70	10699.6	0.413	33.687	0.504	43.686	43.333	29.250	78.1%
9	2	243.20	17.58	11605.4	0.413	30.856	0.504	43.686	43.333	29.250	71.6%

Elevation: 69.50-ft

Loads	
Axial:	24.9 k
Moment:	1,222.2 k·ft
Shear:	33.8 k
Torsion:	4.3 k·ft

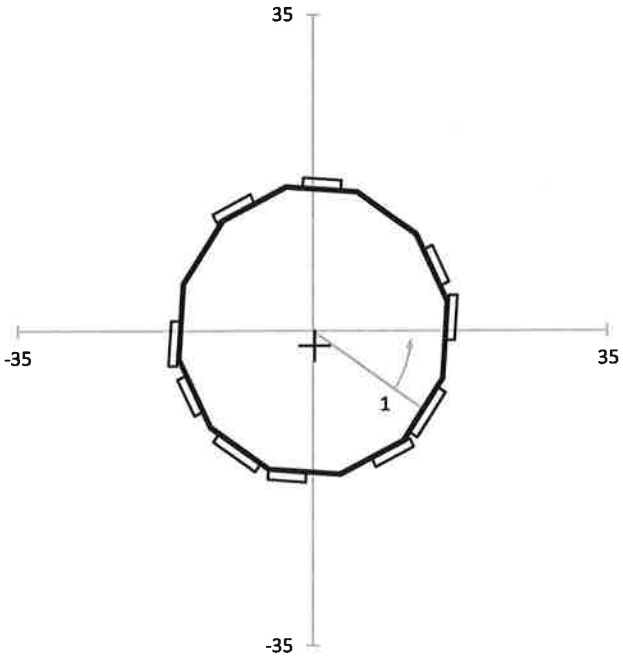
Equivalent Loads to Pole	
Axial:	9.6 k
Moment:	487.0 k·ft
Shear:	13.1 k
Torsion:	4.3 k·ft

Shear Flow	
Controlling Mod:	9
q:	0.270 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	133.09 in
Stitch:	20.00 in
Capacity:	15.0%

Pole Info	
OD:	31.70 in
t:	0.3125 in
Pole A_G:	31.59 in^2
Pole I_G:	3,972.7 in^4

Controlling	
Angle:	123.75°
I_G:	10,115.7 in^4
A_G:	81.59 in^2

Minimum	
Angle:	135.40°
I_{MIN}:	10,066.3 in^4
t_{EFF}:	0.8325 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
134.80	18.09	10066.5	0.305	26.362	0.415	0.104	65.658	65.658	32.829	65.658	40.6%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
4	1	44.25	16.55	11273.5	0.305	21.528	0.415	46.178	44.250	29.250	48.0%
4	2	152.45	18.01	10170.0	0.305	25.967	0.415	46.178	44.250	29.250	58.0%
4	3	209.70	16.68	11185.4	0.305	21.866	0.415	46.178	44.250	29.250	48.7%
4	4	337.00	15.02	10229.8	0.305	21.539	0.415	46.178	44.250	29.250	48.0%
7	1	295.35	14.85	10208.5	0.305	21.333	0.415	43.686	43.333	29.250	49.6%
8	1	70.10	16.90	11063.3	0.305	22.409	0.415	43.686	43.333	29.250	52.0%
9	1	123.75	17.98	10115.7	0.305	26.064	0.415	43.686	43.333	29.250	60.4%
9	2	236.60	15.88	11228.5	0.305	20.744	0.415	43.686	43.333	29.250	48.2%
10	1	358.25	15.20	10624.6	0.305	20.981	0.415	48.528	47.500	29.250	43.9%
10	2	272.25	15.04	10631.5	0.305	20.746	0.415	48.528	47.500	29.250	43.4%

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Elevation: 69.75-ft

Loads	
Axial:	24.8 k
Moment:	1,213.7 k·ft
Shear:	33.8 k
Torsion:	4.2 k·ft

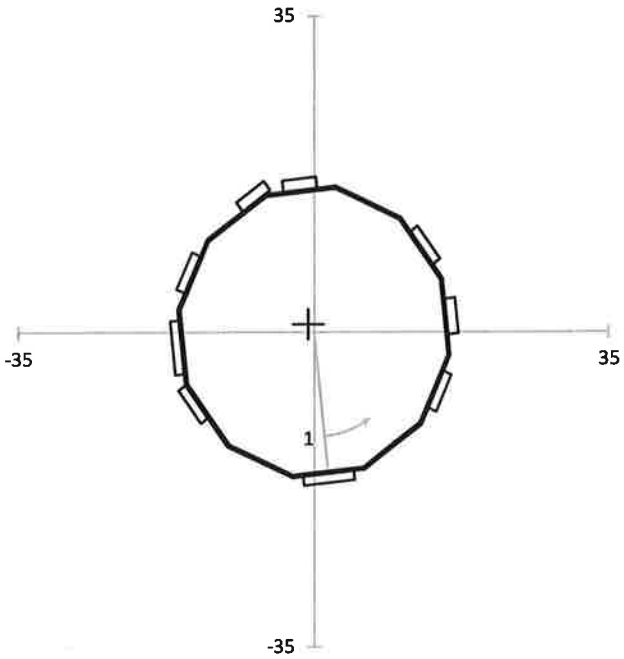
Equivalent Loads to Pole	
Axial:	10.2 k
Moment:	531.6 k·ft
Shear:	13.9 k
Torsion:	4.2 k·ft

Shear Flow	
Controlling Mod:	17
q:	0.287 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	125.60 in
Stitch:	27.00 in
Capacity:	21.5%

Pole Info
OD: 31.65 in
t: 0.3125 in
Pole A_G: 31.54 in²
Pole I_G: 3,953.6 in⁴

Controlling
Angle: 173.90°
I_G: 9,134.4 in⁴
A_G: 76.54 in²

Minimum
Angle: 164.50°
I_{MIN}: 9,084.9 in⁴
t_{EFF}: 0.7489 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
166.85	17.14	9088.0	0.324	27.476	0.441	0.104	65.696	65.696	32.848	65.696	42.3%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
7	1	307.25	16.00	9762.8	0.324	23.870	0.441	43.686	43.333	29.250	55.4%
8	1	51.20	17.21	10646.7	0.324	23.538	0.441	43.686	43.333	29.250	54.6%
9	1	126.50	16.18	9786.3	0.324	24.078	0.441	43.686	43.333	29.250	55.9%
9	2	235.85	15.24	10747.0	0.324	20.655	0.441	43.686	43.333	29.250	48.0%
10	1	357.15	17.20	9173.8	0.324	27.305	0.441	48.528	47.500	29.250	57.0%
10	2	281.45	15.57	10555.6	0.324	21.478	0.441	48.528	47.500	29.250	44.9%
16a	1	92.75	17.02	10754.4	0.324	23.048	0.441	41.614	39.375	29.250	57.7%
16a	2	173.90	15.51	9134.4	0.324	24.722	0.441	41.614	39.375	29.250	62.0%
17	1	189.95	15.46	9427.0	0.324	23.888	0.441	41.614	39.375	29.250	59.9%

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Elevation: 70.00-ft

Loads	
Axial:	24.7 k
Moment:	1,205.2 k·ft
Shear:	33.7 k
Torsion:	4.2 k·ft

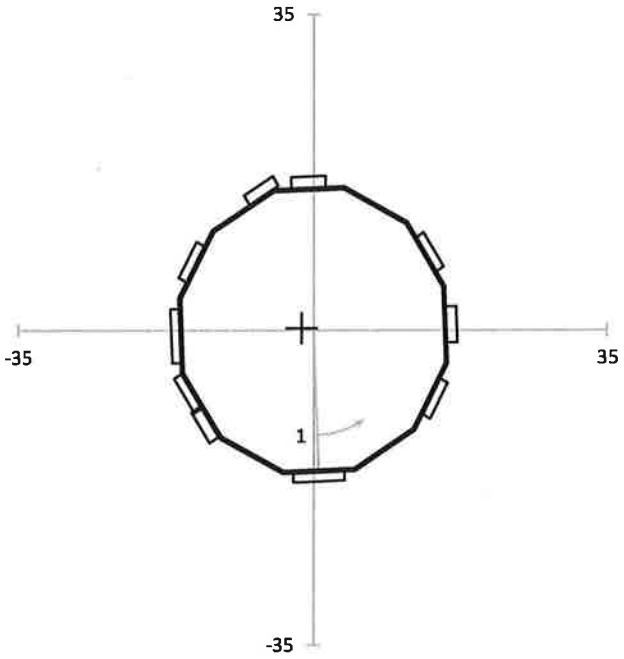
Pole Info	
OD:	31.60 in
t:	0.3125 in
Pole A_G:	31.49 in^2
Pole I_G:	3,934.5 in^4

Equivalent Loads to Pole	
Axial:	9.5 k
Moment:	484.9 k·ft
Shear:	13.0 k
Torsion:	4.2 k·ft

Controlling	
Angle:	177.75°
I_G:	9,757.6 in^4
A_G:	81.49 in^2

Shear Flow	
Controlling Mod:	17
q:	0.280 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	128.52 in
Stitch:	27.00 in
Capacity:	21.0%

Minimum	
Angle:	5.25°
I_{MIN}:	9,726.8 in^4
t_{EFF}:	0.8107 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
15.60	16.99	9784.6	0.303	25.121	0.414	0.105	65.734	65.734	32.867	65.734	38.7%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
7	1	303.65	15.12	11119.1	0.303	19.661	0.414	43.686	43.333	29.250	45.7%
8	1	52.00	17.41	10680.4	0.303	23.572	0.414	43.686	43.333	29.250	54.7%
10	1	4.95	16.62	9726.8	0.303	24.710	0.414	48.528	47.500	29.250	51.6%
10	2	269.05	14.89	11504.3	0.303	18.721	0.414	48.528	47.500	29.250	39.2%
11	1	124.90	17.25	11085.8	0.303	22.499	0.414	43.686	43.333	29.250	52.2%
11	2	228.55	14.75	10572.1	0.303	20.183	0.414	43.686	43.333	29.250	46.9%
16a	1	86.45	17.81	11483.1	0.303	22.433	0.414	41.614	39.375	29.250	56.2%
16a	2	177.75	16.21	9757.6	0.303	24.028	0.414	41.614	39.375	29.250	60.3%
16b	1	320.40	15.40	10622.0	0.303	20.965	0.414	41.614	39.375	29.250	52.5%
17	1	192.55	16.01	9755.7	0.303	23.739	0.414	41.614	39.375	29.250	59.5%

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Elevation: 70.50-ft

Loads	
Axial:	24.4 k
Moment:	1,188.4 k·ft
Shear:	33.6 k
Torsion:	4.2 k·ft

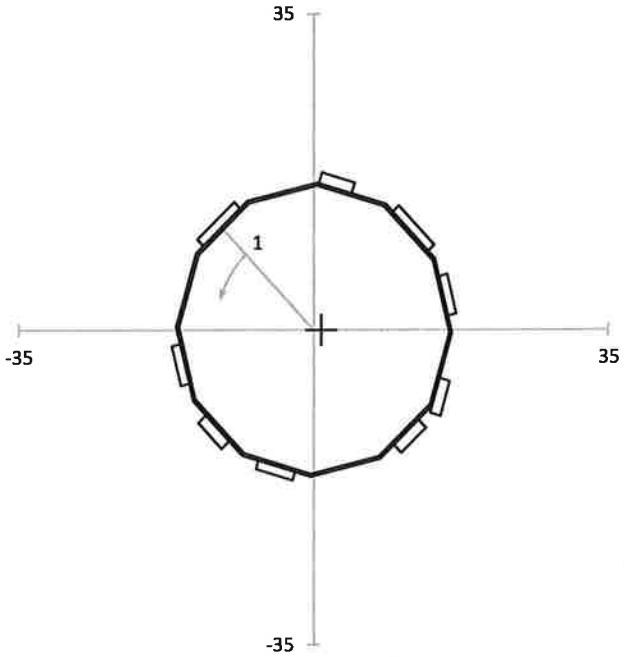
Equivalent Loads to Pole	
Axial:	10.0 k
Moment:	494.7 k·ft
Shear:	13.7 k
Torsion:	4.2 k·ft

Shear Flow	
Controlling Mod:	18
q:	0.283 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	127.21 in
Stitch:	27.00 in
Capacity:	21.2%

Pole Info	
OD:	31.50 in
t:	0.3125 in
Pole A_G:	31.38 in^2
Pole I_G:	3,896.5 in^4

Controlling	
Angle:	316.25°
I_G:	9,703.4 in^4
A_G:	76.88 in^2

Minimum	
Angle:	166.90°
I_{MIN}:	9,390.9 in^4
t_{EFF}:	0.7887 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
167.40	16.80	9391.0	0.318	25.517	0.437	0.105	65.809	65.809	32.905	65.809	39.3%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
8	1	54.45	17.04	10419.3	0.318	23.320	0.437	43.686	43.333	29.250	54.1%
10	1	359.05	16.89	9444.4	0.318	25.496	0.437	48.528	47.500	29.250	53.2%
10	2	276.55	15.62	10458.2	0.318	21.301	0.437	48.528	47.500	29.250	44.6%
11	1	123.90	16.35	9950.4	0.318	23.432	0.437	43.686	43.333	29.250	54.4%
11	2	236.70	15.37	10451.3	0.318	20.967	0.437	43.686	43.333	29.250	48.7%
16a	1	90.90	16.96	10523.9	0.318	22.986	0.437	41.614	39.375	29.250	57.6%
16a	2	175.60	15.73	9418.6	0.318	23.814	0.437	41.614	39.375	29.250	59.7%
16b	1	316.25	16.33	9703.4	0.318	24.004	0.437	41.614	39.375	29.250	60.2%
17	1	192.75	15.76	9620.1	0.318	23.369	0.437	41.614	39.375	29.250	58.6%

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Elevation: 73.29-ft

Loads	
Axial:	23.3 k
Moment:	1,095.2 k·ft
Shear:	33.0 k
Torsion:	4.2 k·ft

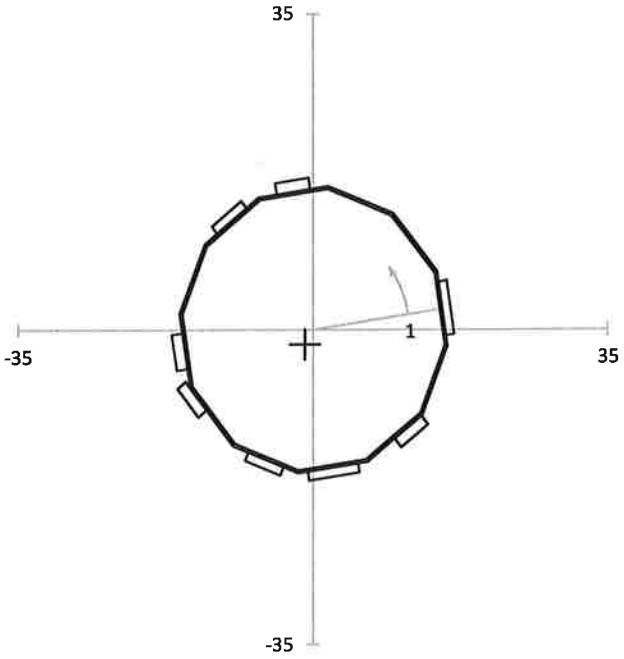
Equivalent Loads to Pole	
Axial:	10.0 k
Moment:	478.0 k·ft
Shear:	14.2 k
Torsion:	4.2 k·ft

Shear Flow	
Controlling Mod:	17
q:	0.323 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	111.53 in
Stitch:	27.00 in
Capacity:	24.2%

Pole Info	
OD:	30.94 in
t:	0.3125 in
Pole A_G:	30.82 in^2
Pole I_G:	3,689.0 in^4

Controlling	
Angle:	81.30°
I_G:	8,987.6 in^4
A_G:	71.82 in^2

Minimum	
Angle:	29.85°
I_{MIN}:	8,507.7 in^4
t_{EFF}:	0.7527 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
223.35	17.90	8550.5	0.324	27.518	0.460	0.108	66.230	66.230	33.115	66.230	42.1%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	8.50	17.18	8611.7	0.324	26.222	0.460	48.528	47.500	29.250	54.7%
10	2	270.45	14.48	9103.2	0.324	20.911	0.460	48.528	47.500	29.250	43.8%
11	1	112.75	16.76	9280.3	0.324	23.738	0.460	43.686	43.333	29.250	55.1%
11	2	236.95	14.05	8670.5	0.324	21.297	0.460	43.686	43.333	29.250	49.5%
16a	1	81.30	17.56	8987.6	0.324	25.684	0.460	41.614	39.375	29.250	64.4%
16a	2	178.85	14.94	8715.8	0.324	22.528	0.460	41.614	39.375	29.250	56.4%
16b	1	316.40	15.83	9228.6	0.324	22.542	0.460	41.614	39.375	29.250	56.5%
17	1	197.65	14.78	8542.8	0.324	22.746	0.460	41.614	39.375	29.250	57.0%

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Elevation: 74.50-ft

Loads	
Axial:	22.8 k
Moment:	1,055.4 k·ft
Shear:	32.8 k
Torsion:	4.2 k·ft

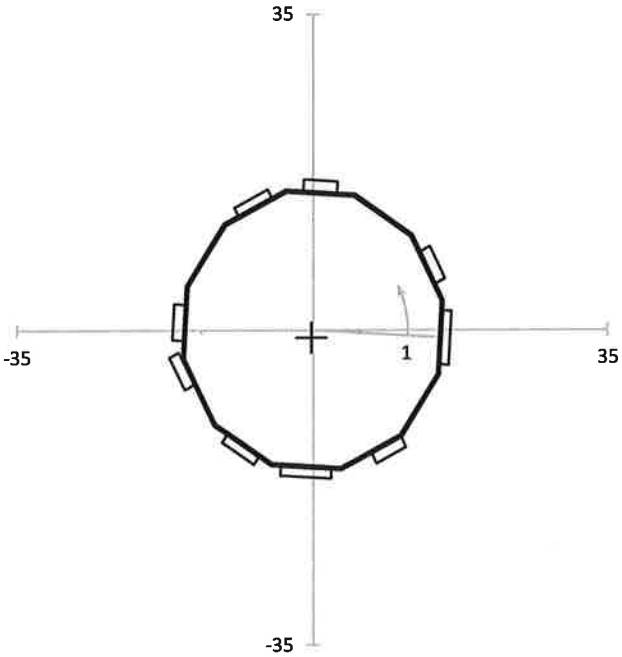
Equivalent Loads to Pole	
Axial:	9.1 k
Moment:	413.5 k·ft
Shear:	13.1 k
Torsion:	4.2 k·ft

Shear Flow	
Controlling Mod:	17
q:	0.296 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	121.75 in
Stitch:	27.00 in
Capacity:	22.2%

Pole Info	
OD:	30.69 in
t:	0.3125 in
Pole A_G:	30.57 in^2
Pole I_G:	3,601.4 in^4

Controlling	
Angle:	93.15°
I_G:	9,315.8 in^4
A_G:	76.57 in^2

Minimum	
Angle:	304.70°
I_{MIN}:	9,125.1 in^4
t_{EFF}:	0.8340 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
106.20	16.67	9195.1	0.298	22.965	0.428	0.109	66.413	66.413	33.206	66.413	35.0%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	359.15	16.03	9586.7	0.298	21.174	0.428	48.528	47.500	29.250	44.3%
10	2	274.50	14.95	9301.3	0.298	20.354	0.428	48.528	47.500	29.250	42.6%
11	1	118.80	16.51	9132.4	0.298	22.894	0.428	43.686	43.333	29.250	53.1%
11	2	242.40	14.97	9671.4	0.298	19.608	0.428	43.686	43.333	29.250	45.6%
14	1	31.85	16.59	9820.5	0.298	21.391	0.428	41.614	39.375	29.250	53.6%
16a	1	93.15	16.80	9315.8	0.298	22.842	0.428	41.614	39.375	29.250	57.3%
16a	2	172.70	15.76	9510.3	0.298	20.984	0.428	41.614	39.375	29.250	52.6%
16b	1	309.00	15.54	9129.0	0.298	21.555	0.428	41.614	39.375	29.250	54.0%
17	1	193.90	15.78	9734.4	0.298	20.528	0.428	41.614	39.375	29.250	51.4%

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Elevation: 75.50-ft

Loads	
Axial:	22.3 k
Moment:	1,022.7 k·ft
Shear:	32.5 k
Torsion:	3.9 k·ft

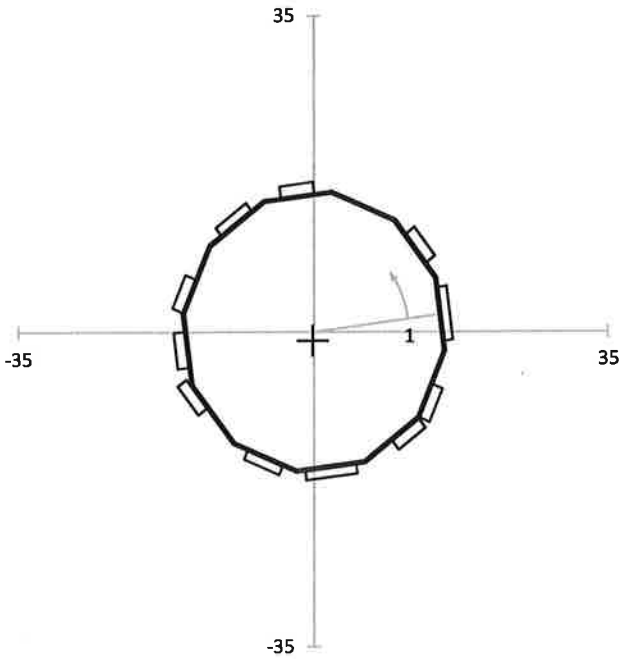
Equivalent Loads to Pole	
Axial:	7.8 k
Moment:	378.2 k·ft
Shear:	11.4 k
Torsion:	3.9 k·ft

Shear Flow	
Controlling Mod:	17
q:	0.281 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	128.21 in
Stitch:	27.00 in
Capacity:	21.1%

Pole Info	
OD:	30.49 in
t:	0.3125 in
Pole A_G:	30.37 in^2
Pole I_G:	3,530.0 in^4

Controlling	
Angle:	82.60°
I_G:	9,683.3 in^4
A_G:	86.37 in^2

Minimum	
Angle:	247.35°
I_{MIN}:	9,535.3 in^4
t_{EFF}:	0.8950 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
252.55	16.78	9553.0	0.258	21.563	0.376	0.103	66.563	66.563	33.282	66.563	32.8%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	14.05	15.79	10905.8	0.258	17.766	0.376	48.528	47.500	29.250	37.2%
10	2	264.15	14.68	9713.9	0.258	18.541	0.376	48.528	47.500	29.250	38.8%
11	1	106.10	16.13	10371.7	0.258	19.086	0.376	43.686	43.333	29.250	44.3%
11	2	241.65	14.75	9556.2	0.258	18.948	0.376	43.686	43.333	29.250	44.0%
14	1	41.85	16.39	9930.1	0.258	20.255	0.376	41.614	39.375	29.250	50.8%
15a	1	151.50	16.12	11646.3	0.258	16.990	0.376	41.614	39.375	29.250	42.5%
15b	1	320.35	15.59	11486.4	0.258	16.655	0.376	41.614	39.375	29.250	41.7%
16a	1	82.60	16.73	9683.3	0.258	21.204	0.376	41.614	39.375	29.250	53.2%
16a	2	185.45	15.42	11194.4	0.258	16.905	0.376	41.614	39.375	29.250	42.3%
16b	1	299.40	15.15	10862.3	0.258	17.118	0.376	41.614	39.375	29.250	42.8%
17	1	207.70	15.28	10403.1	0.258	18.020	0.376	41.614	39.375	29.250	45.1%

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Elevation: 76.75-ft

Loads	
Axial:	21.8 k
Moment:	982.2 k-ft
Shear:	32.2 k
Torsion:	3.9 k-ft

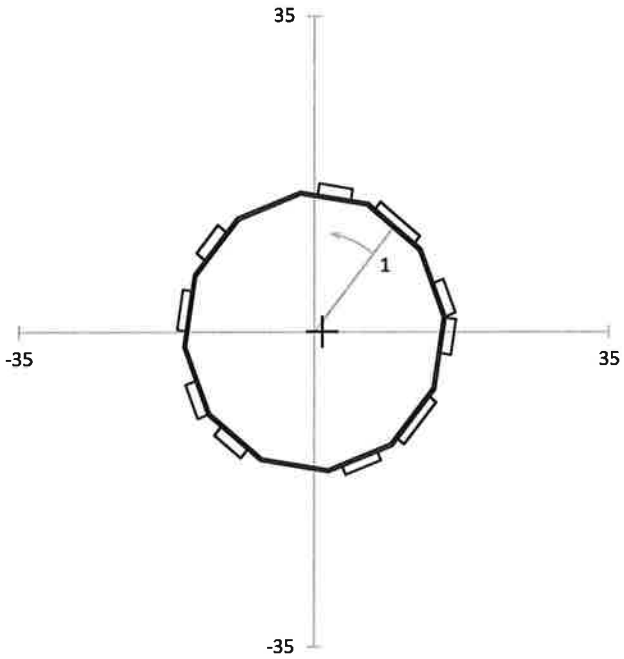
Pole Info	
OD:	30.24 in
t:	0.3125 in
Pole A_G:	30.11 in^2
Pole I_G:	3,442.1 in^4

Equivalent Loads to Pole	
Axial:	8.1 k
Moment:	391.7 k-ft
Shear:	12.0 k
Torsion:	3.9 k-ft

Controlling	
Angle:	38.95°
I_G:	8,746.6 in^4
A_G:	81.11 in^2

Shear Flow	
Controlling Mod:	14
q:	0.286 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	126.06 in
Stitch:	27.00 in
Capacity:	21.4%

Minimum	
Angle:	50.40°
I_{MIN}:	8,659.8 in^4
t_{EFF}:	0.8283 in



Pole Segment: L2, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
49.05	15.74	8661.0	0.269	21.414	0.397	0.104	66.752	66.752	33.376	66.752	32.5%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	15.15	14.65	9395.1	0.269	18.381	0.397	48.528	47.500	29.250	38.4%
10	2	256.65	14.67	9092.9	0.269	19.014	0.397	48.528	47.500	29.250	39.8%
11	1	110.10	16.25	10308.1	0.269	18.583	0.397	43.686	43.333	29.250	43.2%
11	2	234.55	15.35	8671.5	0.269	20.862	0.397	43.686	43.333	29.250	48.4%
14	1	38.95	15.50	8746.6	0.269	20.886	0.397	41.614	39.375	29.250	52.4%
15a	1	164.95	16.51	10487.7	0.269	18.558	0.397	41.614	39.375	29.250	46.5%
15b	1	325.50	14.94	10852.3	0.269	16.230	0.397	41.614	39.375	29.250	40.6%
16a	1	80.45	16.10	9214.8	0.269	20.599	0.397	41.614	39.375	29.250	51.6%
16a	2	190.40	15.98	9572.1	0.269	19.674	0.397	41.614	39.375	29.250	49.3%
16b	1	298.80	14.79	10571.0	0.269	16.491	0.397	41.614	39.375	29.250	41.2%

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Elevation: 81.75-ft

Loads	
Axial:	19.7 k
Moment:	823.6 k-ft
Shear:	31.2 k
Torsion:	3.8 k-ft

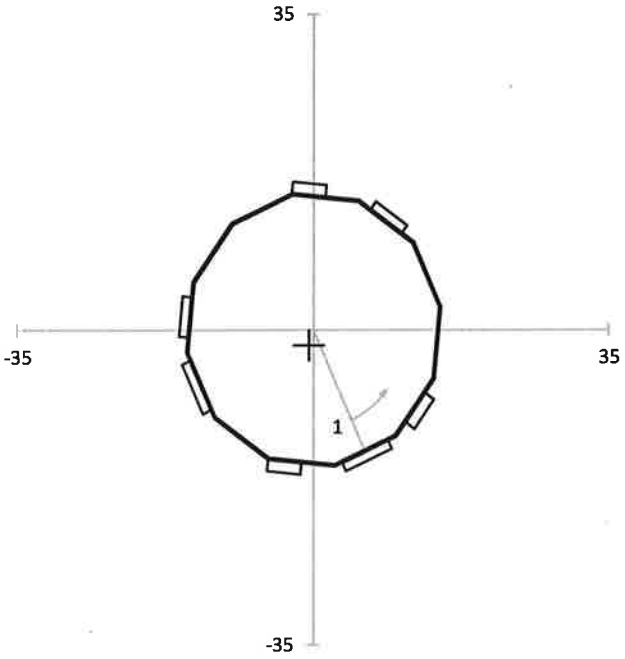
Pole Info	
OD:	29.73 in
t:	0.2500 in
Pole A_G:	23.73 in^2
Pole I_G:	2,632.0 in^4

Equivalent Loads to Pole	
Axial:	7.8 k
Moment:	345.1 k-ft
Shear:	12.4 k
Torsion:	3.8 k-ft

Controlling	
Angle:	155.50°
I_G:	7,404.0 in^4
A_G:	59.73 in^2

Shear Flow	
Controlling Mod:	15
q:	0.365 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	98.72 in
Stitch:	27.00 in
Capacity:	27.4%

Minimum	
Angle:	65.25°
I_{MIN}:	6,339.5 in^4
t_{EFF}:	0.6258 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
256.90	16.24	6382.8	0.330	25.147	0.522	0.130	61.584	61.584	30.792	61.584	41.4%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
10	1	13.20	13.92	7001.7	0.330	19.652	0.522	48.528	47.500	29.250	41.2%
10	2	259.95	14.20	6407.9	0.330	21.894	0.522	48.528	47.500	29.250	45.8%
11	1	113.20	16.87	6926.2	0.330	24.077	0.522	43.686	43.333	29.250	55.9%
11	2	236.30	15.09	6365.4	0.330	23.430	0.522	43.686	43.333	29.250	54.4%
14	1	43.05	14.92	6491.7	0.330	22.711	0.522	41.614	39.375	29.250	56.9%
15a	1	155.50	17.32	7404.0	0.330	23.121	0.522	41.614	39.375	29.250	57.9%
15b	1	318.60	13.79	7316.5	0.330	18.626	0.522	41.614	39.375	29.250	46.5%

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Elevation: 89.50-ft

Loads	
Axial:	17.5 k
Moment:	587.9 k·ft
Shear:	29.6 k
Torsion:	3.6 k·ft

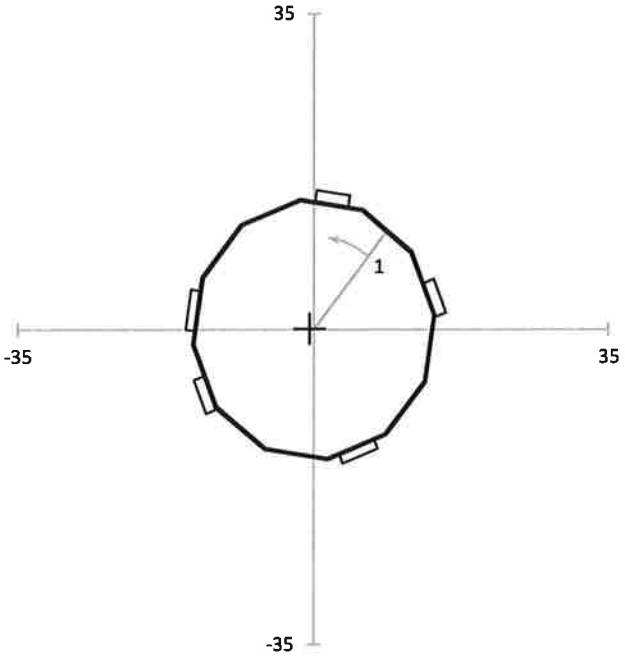
Pole Info	
OD:	28.16 in
t:	0.2500 in
Pole A_G:	22.47 in²
Pole I_G:	2,234.5 in⁴

Equivalent Loads to Pole	
Axial:	8.4 k
Moment:	304.0 k·ft
Shear:	14.3 k
Torsion:	3.6 k·ft

Controlling	
Angle:	38.55°
I_G:	4,486.9 in⁴
A_G:	46.47 in²

Shear Flow	
Controlling Mod:	14
q:	0.478 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	75.27 in
Stitch:	27.00 in
Capacity:	35.9%

Minimum	
Angle:	243.10°
I_{MIN}:	4,297.4 in⁴
t_{EFF}:	0.4936 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
251.95	14.89	4323.4	0.376	24.289	0.638	0.140	63.045	63.045	31.523	63.045	39.2%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
11	1	107.15	13.74	4828.6	0.376	20.075	0.638	43.686	43.333	29.250	46.9%
11	2	242.15	14.82	4297.7	0.376	24.328	0.638	43.686	43.333	29.250	56.6%
14	1	38.55	14.48	4486.9	0.376	22.771	0.638	41.614	39.375	29.250	56.9%
15a	1	162.80	14.41	5364.7	0.376	18.955	0.638	41.614	39.375	29.250	47.2%
15b	1	314.40	15.18	5283.1	0.376	20.271	0.638	41.614	39.375	29.250	50.6%

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Elevation: 90.08-ft

Loads	
Axial:	17.3 k
Moment:	570.7 k·ft
Shear:	29.5 k
Torsion:	3.6 k·ft

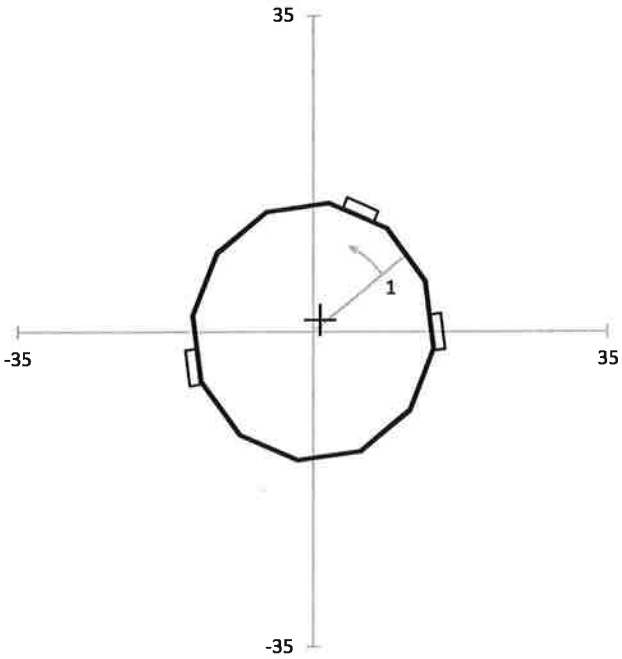
Pole Info	
OD:	28.05 in
t:	0.2500 in
Pole A_G:	22.38 in^2
Pole I_G:	2,206.5 in^4

Equivalent Loads to Pole	
Axial:	10.4 k
Moment:	441.3 k·ft
Shear:	17.7 k
Torsion:	3.6 k·ft

Controlling	
Angle:	52.35°
I_G:	3,154.6 in^4
A_G:	37.38 in^2

Shear Flow	
Controlling Mod:	14
q:	0.574 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	62.72 in
Stitch:	27.00 in
Capacity:	43.0%

Minimum	
Angle:	74.00°
I_{MIN}:	2,911.3 in^4
t_{EFF}:	0.3328 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
72.40	15.44	2912.8	0.463	36.296	0.790	0.141	63.155	63.155	31.577	63.155	58.3%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
14	1	52.35	12.27	3154.6	0.463	26.627	0.790	41.614	39.375	29.250	66.5%
15a	1	153.75	15.80	4638.8	0.463	23.328	0.790	41.614	39.375	29.250	58.1%
15b	1	291.25	12.64	3564.4	0.463	24.283	0.790	41.614	39.375	29.250	60.6%

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Elevation: 99.00-ft

Loads	
Axial:	11.7 k
Moment:	326.8 k·ft
Shear:	21.5 k
Torsion:	3.3 k·ft

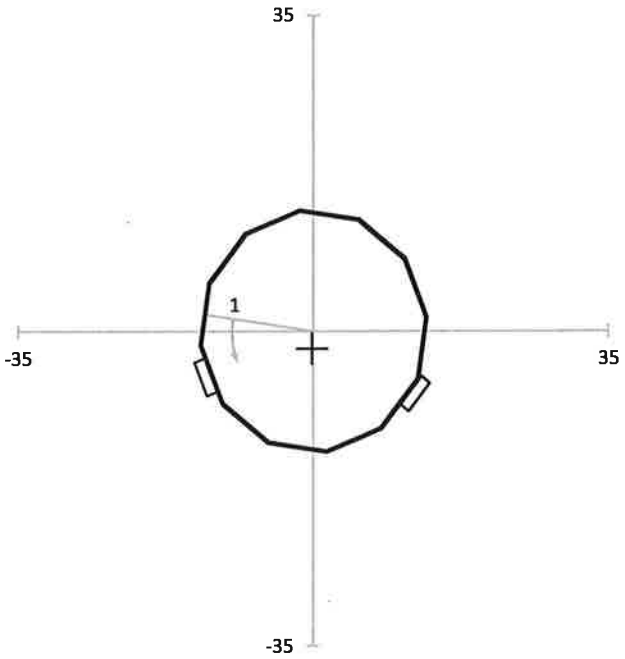
Pole Info	
OD:	26.24 in
t:	0.2500 in
Pole A_G:	20.92 in^2
Pole I_G:	1,804.5 in^4

Equivalent Loads to Pole	
Axial:	7.9 k
Moment:	285.2 k·ft
Shear:	14.6 k
Torsion:	3.3 k·ft

Controlling	
Angle:	278.25°
I_G:	2,068.1 in^4
A_G:	30.92 in^2

Shear Flow	
Controlling Mod:	15
q:	0.465 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	77.41 in
Stitch:	27.00 in
Capacity:	34.9%

Minimum	
Angle:	93.85°
I_{MIN}:	2,060.6 in^4
t_{EFF}:	0.2867 in



Pole Segment: L1, F_y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
278.25	15.45	2068.1	0.378	29.286	0.696	0.147	64.837	64.837	32.418	64.837	45.8%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (in)	I (in^4)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
14	1	47.50	11.79	2738.7	0.378	16.878	0.696	41.614	39.375	29.250	42.0%
15a	1	140.75	11.89	2750.4	0.378	16.955	0.696	41.614	39.375	29.250	42.2%

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Elevation: 99.25-ft

Loads	
Axial:	11.6 k
Moment:	321.4 k·ft
Shear:	21.5 k
Torsion:	3.3 k·ft

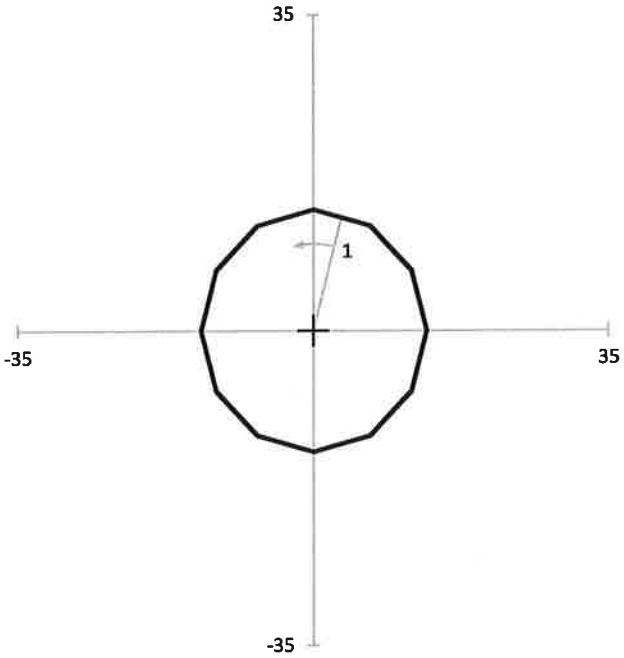
Equivalent Loads to Pole	
Axial:	11.6 k
Moment:	321.4 k·ft
Shear:	21.5 k
Torsion:	3.3 k·ft

Shear Flow N/A

Pole Info	
OD:	26.19 in
t:	0.2500 in
Pole A_G:	20.88 in²
Pole I_G:	1,794.0 in⁴

Controlling	
Angle:	15.00°
I_G:	1,794.0 in⁴
A_G:	20.88 in²

Minimum	
Angle:	0.00°
I_{MIN}:	1,794.0 in⁴
t_{EFF}:	0.2500 in



Pole Segment: L1, F_Y = 60 ksi

POLE CAPACITY

Angle (°)	Y_{CONT} (in)	I (in⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
15.00	13.57	1794.0	0.557	29.170	1.028	0.148	64.884	64.884	32.442	64.884	45.9%

MODIFICATION CAPACITIES

Mod Number	#	Angle (°)	$\bar{Y}_{CONT}$ (In)	I (In⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity

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TOWER ENGINEERING PROFESSIONALS

Capacity: 67.0% **PASS**

528 Wheelers Farm RD (BU 876320)

TEP #: 25570.129190

Analysis: TLI 8/24/2017

Check: JDR 8/24/2017

Custom Anchor Rod Capacity Check_v1.0.1

Factored Tower Base Reactions

	LC1	LC2	
Moment:	4,034.0	1,016.0	kip-ft
Axial (Download):	58.0	105.0	kip
Shear:	46.0	11.0	kip
Axial (Uplift):			kip

Load Centroid

X:	0.00	in
Y:	0.00	in

Code Revision
- (●) TIA-222-G
- ( ) TIA-222-F

Pole/Base Plate Geometry

Pole Shape:	12	
Pole OD:	45.120	in
Pole Thickness:	0.375	in
Plate Shape:	Square	
Plate Width:	57.00	in
Plate Thickness:	3.25	in
Clip:	6.00	in

Anchor Size	A_{NET} (in^2)	F_Y (ksi)	F_U (ksi)	Config.	T/C	Qty.	Bolt Circle (in)	Spacing (in)	l_{ar} (in)	Bolt One Angle (Round) or Locations (Custom) (°)
2-1/4"	3.248	75.0	100.0	Quad	T/C	16	58.000	6.00	1.000	
R71 150ksi 1-3/8"	1.580	100.0	150.0	Custom	T/C	8	58.000		1.000	8 82 98 172 188 262 278 352

Bolt Group	A_{NET} (in^2)	Y_{CONT} (in)	T_U (k)	C_U (k)	M_U (k-ft)	V_U (k)	ϕR_{NT} (k)	ϕR_{NM} (k-ft)	ϕR_{NV} (k)	Orientation (°)	Capacity (%)
1	**3.248**	**-28.996**	**161.41**	**166.27**	**0.27**	**3.95**	**259.81**	**7.88**	**134.19**	**140.0**	**67.0%**
2	1.580	-28.996	77.59	79.95	0.06	0.92	189.60	3.57	97.07	171.0	43.0%

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876320*
Site Name: *528 Wheelers Farm RD*
App #: *400694 Rev. 0*

Anchor Rod Data		
Eta Factor, η	0.55	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	57	in
Thick:	3.25	in
Grade:	50	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	45.12	in
Thick:	0.375	in
Grade:	60	ksi
# of Sides:	12	"0" IF Round

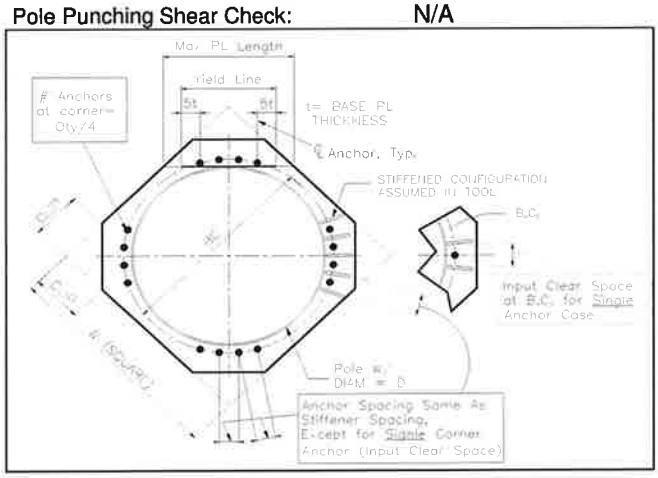
Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	3214.55	ft-kips
Factored Axial, Pu:	0	kips
Factored Shear, Vu:	0	kips

Anchor Rod Results
TIA G --> Max Rod (Cu+ Vu/η): 166.3 Kips

Base Plate Results Flexural Check
Base Plate Stress: 39.2 ksi
PL Design Bending Strength, Φ*Fy: 45.0 ksi
Base Plate Stress Ratio: 87.2% **Pass**

PL Ref. Data
Yield Line (in): 35.49
Max PL Length: 35.49

N/A - Unstiffened
Stiffener Results
Horizontal Weld : N/A
Vertical Weld: N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2: N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2: N/A
Plate Comp. (AISC Bracket): N/A
Pole Results
Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

		PASS	PASS
	Results Summary:	LC1	LC2
	Soil Interaction:	64.7%	16.2%
Drilled Caisson Tool - Input	Foundation Structural:	56.9%	14.1%

528 Wheelers Farm RD (BU 876320)			
TEP #:	25570.129190		
Analysis:	TLI	8/24/2017	
Check:	JDR	8/24/2017	

Code Revisions: TIA-222-G ACI 318-11

Tower Type: Monopole

	LC1	LC2	
Moment:	4,034.00	1,016.00	kip-ft
Axial (download):	58.00	105.00	kip
Shear:	46.00	11.00	kip
Axial (uplift):			kip

Shaft Information

Diameter:	7.00	ft
Projection:	0.50	ft
Caisson Length:	19.50	ft
f'c:	3.000	ksi
Max εc:	0.003	in/in

Cage 1 Reinforcement

Tie Bar Size:	5	*(fy = 40.0 ksi)*
Clear Cover to Tie:	4.00	*in (Cage Ø = 73.34in)*
Tie Bar Spacing:	18.00	in
Vertical Bar Size:	11	
Vertical Bar Quantity:	32	*(ρ =0.901%)*
fy:	60.0	ksi
E:	29,000	ksi

Design Parameters

Soil Layer	Soil Type	Depth (ft) from	Depth (ft) to	Eff. Unit Weight (pcf)	Cohesion (psf)	Friction Angle ϕ (°)	All. Skin Friction (psf) Download	All. Skin Friction (psf) Uplift
1	Clay	0.00	2.00	100.0	0			
2	Clay	2.00	3.50	135.0	0			
3	Sand	3.50	7.00	135.0		42.0		
4	Sand	7.00	13.50	72.6		42.0		
5	Clay	13.50	22.00	77.6	8000			

Notes: 1) Neglect lateral soil strength to a depth of:

i) **1/2 Pier Ø = 7.00ft / 2 = 3.50ft**

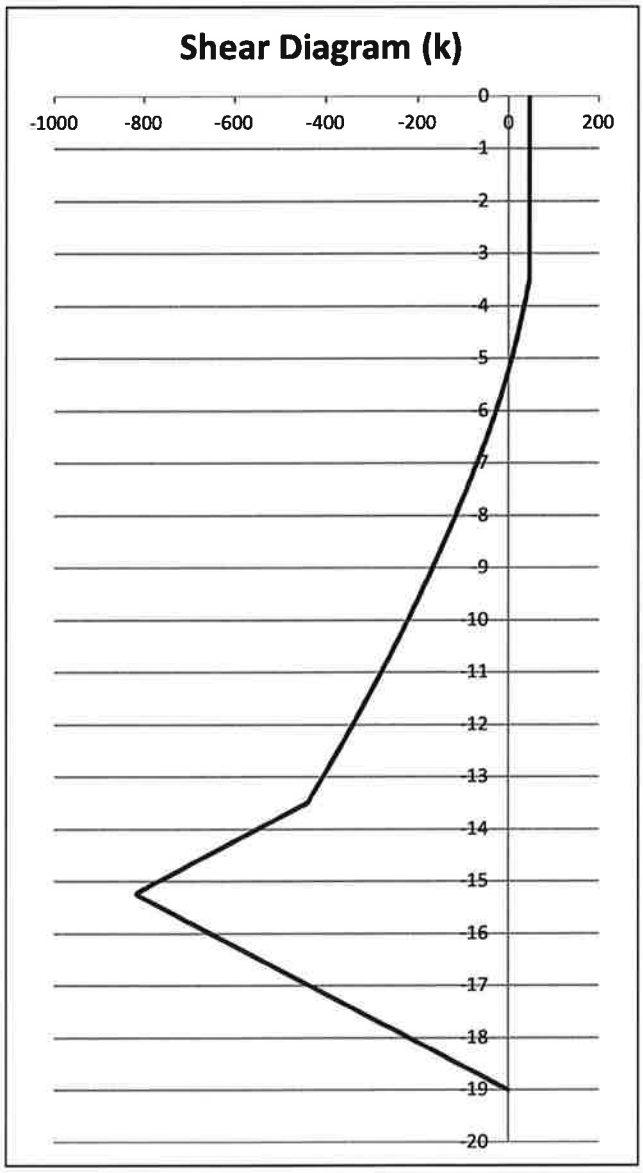
ii) ~~Frost Depth = 40.0in / (12in/ft) = 3.33ft~~

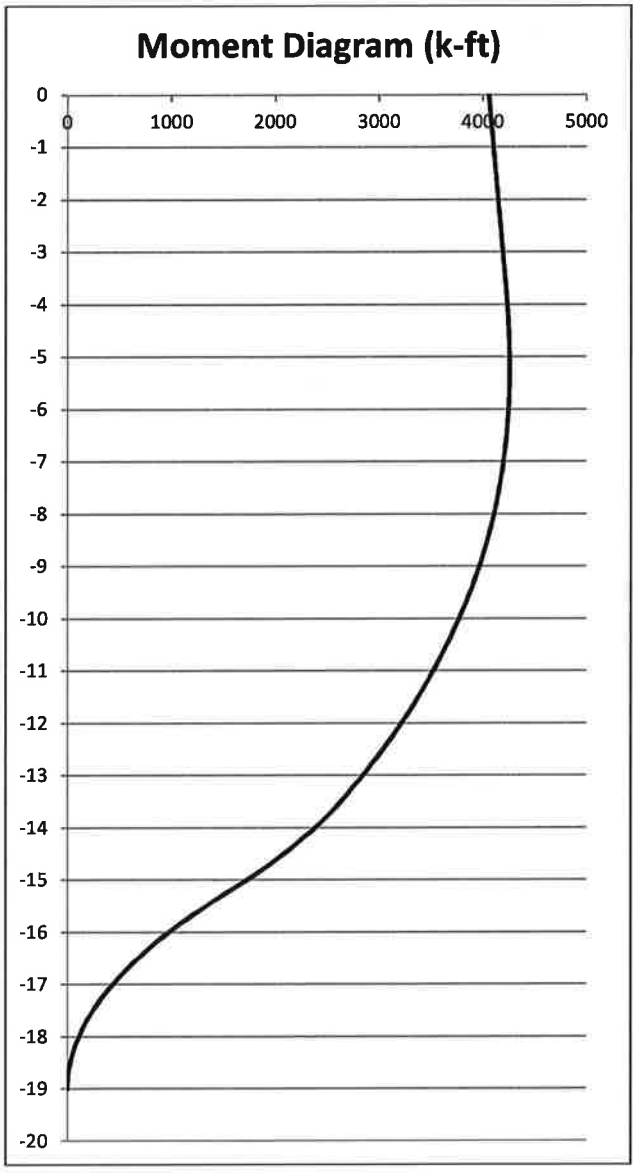
iii) ~~Geotech Recommendation = none~~

2) Groundwater = 7.00ft

528 Wheelers Farm RD (BU 876320)
TEP #: 25570.129190
Analysis: TLI 8/24/2017
Check: JDR 8/24/2017

Soil Interaction: LC1

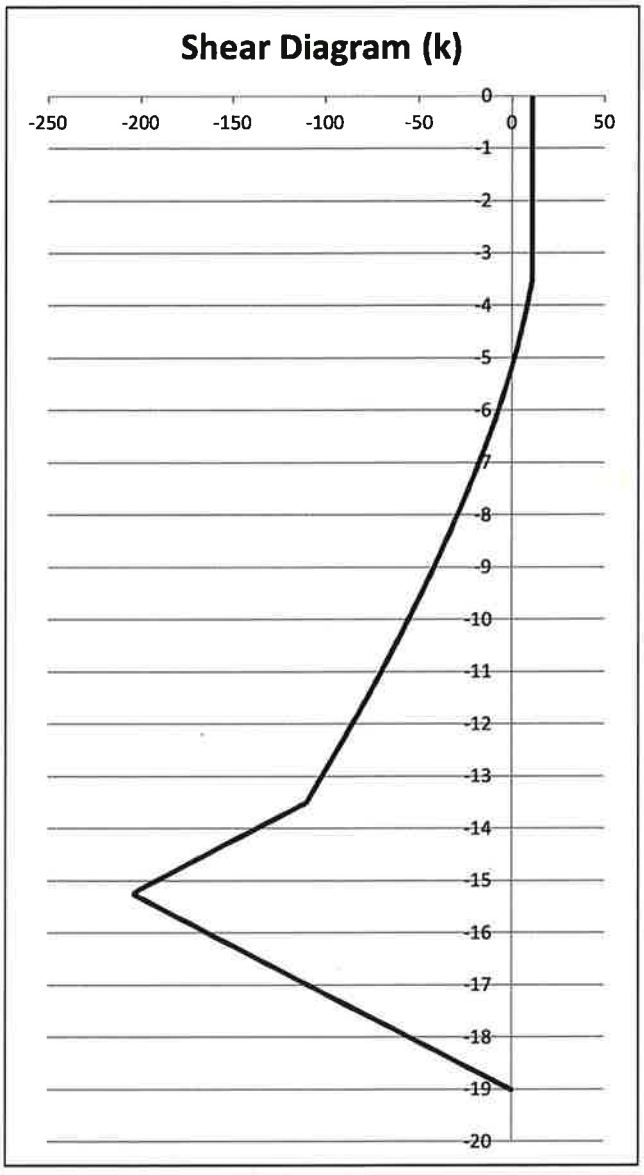


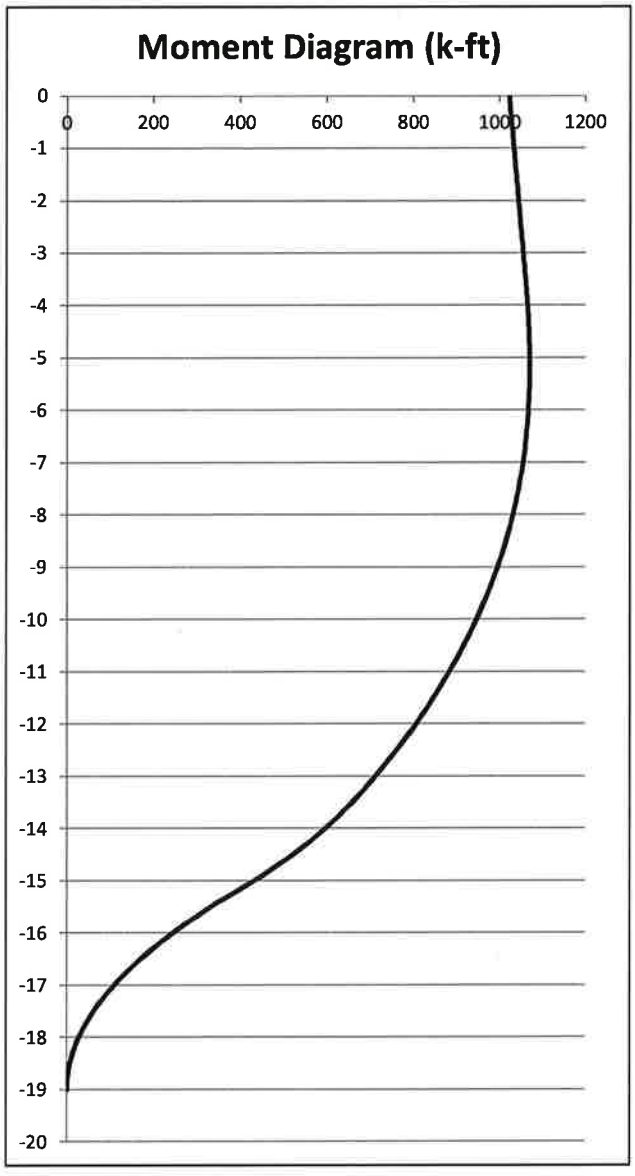


Max Unfactored Moment: 4260.6 kip-ft
@ 5.22 ft below grade
Additional Factor of Safety: 2.06
Capacity = 64.7% **PASS**

528 Wheelers Farm RD (BU 876320)
TEP #: 25570.129190
Analysis: TLI 8/24/2017
Check: JDR 8/24/2017

Soil Interaction: LC2

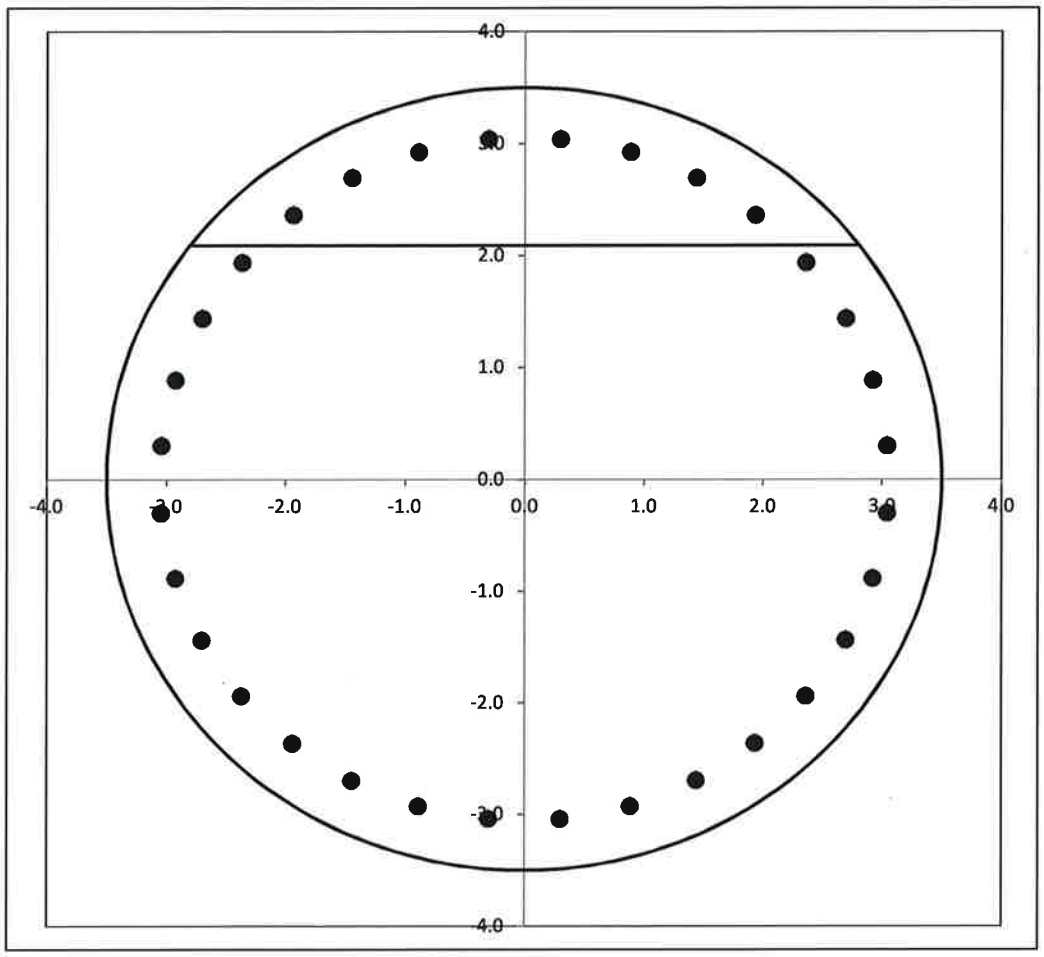




Max Unfactored Moment: 1069.8 kip-ft
@ 5.16 ft below grade
Additional Factor of Safety: 8.24
Capacity = 16.2% PASS

528 Wheelers Farm RD (BU 876320)
TEP #: 25570.129190
Analysis: TLI 8/24/2017
Check: JDR 8/24/2017

Reinforcement Capacity

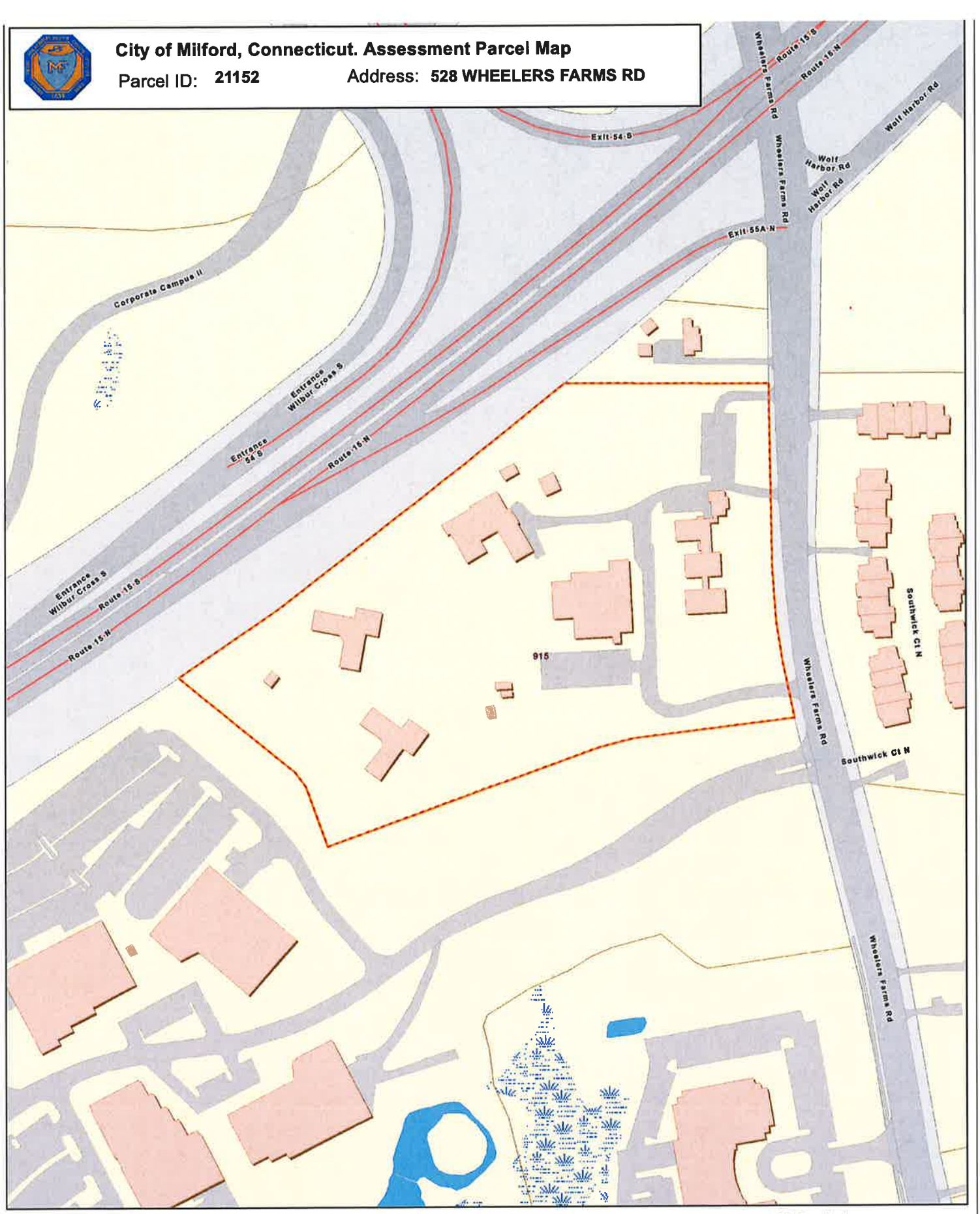


	LC1	LC2	
Vu =	818.2	204.7	kip
Vc =	610.2	612.8	kip
fy,tie = 40.0 *Vs =	3991.4	3991.4	kip
ϕVn =	2993.5	2993.5	kip
Capacity =	27.3%	6.8%	
	PASS	PASS	

Shear Friction Reinforcement:
*No. vertical bars = 32
*Area of bars = 47.5

	LC1	LC2	
Mu =	4260.6	1069.8	kip-ft
ϕMn =	7492.6	7597.3	kip-ft
Capacity =	56.9%	14.1%	
	PASS	PASS	

ATTACHMENT 4



Disclaimer: This map is for informational purposes only All information is subject to verification by any user. The City of Milford and its mapping contractors assume no legal responsibility for the information contained herein.

Map Produced: March 2015

City of Milford, CT

Property Listing Report

Map Block Lot	104 915 13	Account	019893

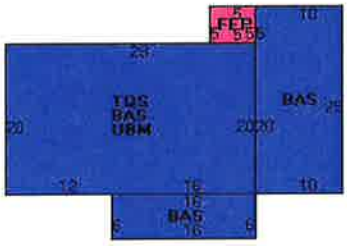
Property Information

Property Location	528 WHEELERS FARMS RD
Owner	VILLAGE FOUNDATION INC THE
Co-Owner	06-00
Mailing Address	528 WHEELERS FARM RD MILFORD CT 06461
Land Use	904R PVT SCHOOL MDL-01
Land Class	E
Zoning Code	DO25
Census Tract	

Neighborhood	GG
Acreage	11.34
Utilities	All Public,Public Sewer
Lot Setting/Desc	
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1900
Stories	2
Building Style	Conventional
Building Use	Residential
Building Condition	Average
Floors	Carpet
Total Rooms	

Bedrooms	0 Bedrooms
Full Bathrooms	0
Half Bathrooms	1
Bath Style	Updated
Kitchen Style	n/a
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp

Exterior Walls	Vinyl Siding
Interior Walls	Drywall/Sheet
Heating Type	Hot Water
Heating Fuel	Gas
AC Type	XF Per Sq Ft
Gross Bldg Area	2051
Total Living Area	1410

Report Created On 2/12/2018

City of Milford, CT

Property Listing Report | **Map Block Lot** 104 915 13 | **Account** 019893

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	3235090	2264560
Extras	0	0
Improvements		
Outbuildings	35690	24980
Land	461440	323010
Total	3732220	2612550

Outbuilding and Extra Items

Type	Description
SHED FRAME	96 S.F.
OPN PRCH/SCRNHSE	120 S.F.
PAVING-ASPHALT	19000 S.F.
SHED FRAME	448 S.F.
SHED FRAME	216 S.F.
SHED FRAME	192 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	906	906
Porch, Enclosed, Finished	25	0
Three Quarter Story	560	504
Basement, Unfinished	560	0
Total Area	2051	1410

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
VILLAGE FOUNDATION INC THE	00259/0563	5/15/1942	0

Report Created On 2/12/2018

City of Milford, CT

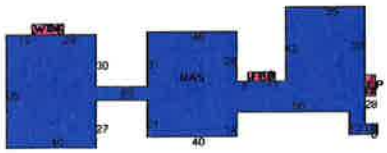
Property Listing Report

Map Block Lot 104 915 13

Account 019893

Photo

Sketch



Primary Construction Details

Year Built	1983
Stories	1
Building Style	School/College
Building Use	Commercial
Building Condition	AVERAGE
Floors	Carpet
Total Rooms	
Bedrooms	
Bathrooms	2
Bath Style	n/a
Half Bath	

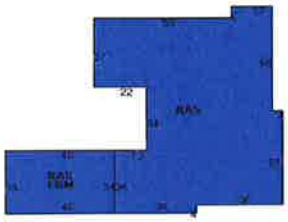
Kitchen Style	n/a
Roof Style	Flat
Roof Cover	Tar & Gravel
Exterior Walls	Concr/Cinder
Interior Walls	Drywall/Sheet
Heating Type	Forced Air-Duc
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	7807	7807
Porch,	120	0
Deck, Wood	84	0
Total Area		

Photo

Sketch



Primary Construction Details

Year Built	1957
Stories	1
Building Style	School/College
Building Use	Commercial
Building Condition	AVERAGE
Floors	Carpet
Total Rooms	
Bedrooms	
Bathrooms	2
Bath Style	n/a
Half Bath	

Kitchen Style	n/a
Roof Style	Flat
Roof Cover	Tar & Gravel
Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	Forced Air-Duc
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	
Total Living Area	

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Porch, Open,	72	0
Base,	1564	0
First Floor	9417	9417
Total Area		

Report Created On 2/12/2018

City of Milford, CT

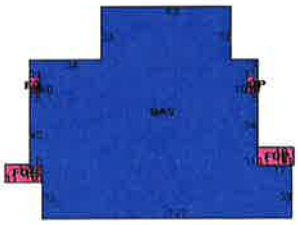
Property Listing Report

Map Block Lot: 104 915 13

Account: 019893

Photo

Sketch



Primary Construction Details

Year Built	1989
Stories	1
Building Style	Auditorium
Building Use	Commercial
Building Condition	AVERAGE
Floors	Vinyl/Asphalt
Total Rooms	
Bedrooms	
Bathrooms	2
Bath Style	n/a
Half Bath	

Kitchen Style	n/a
Roof Style	Flat
Roof Cover	Tar & Gravel
Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	Hydro-Air
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	13232	13232
Porch, Open,	490	0
Total Area		

Report Created On 2/12/2018

ATTACHMENT 5

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

TOTAL NO. of Pieces Listed by Sender

TOTAL NO. of Pieces Received at Post Office™

3

Postmaster, per *(name of receiving employee)*

OLD STATE HOUSE STATION 06103
FEB 14 2018
USPS

Affix Stamp Here
Postmark with Date of Receipt.

neopost
02/14/2018
US POSTAGE $002.38⁰

ZIP 06103
041L12203360

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Benjamin G. Blake, Mayor City of Milford 110 River Street Milford, CT 06460				
2.	David B. Sulkis, City Planner City of Milford 70 West River Street Milford, CT 06460				
3.	The Village Foundation Inc. 528 Wheelers Farm Road Milford, CT 06460				
4.					
5.					
6.					