Robinson+Cole

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Also admitted in Massachusetts

February 5, 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**
101 Pierce Road, Preston, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 131-foot level of the existing 155-foot tower at 41 Beckwith Road in Montville, Connecticut (the "Property"). The tower is owned by Crown Atlantic Company LLC ("Crown"). The Council approved Cellco's use of this tower in 2009. Cellco now intends to replace six (6) of its existing antennas with three (3) model JAHH-65B-R3B, 700/850 MHz antennas and three (3) model JAHH-65B-R3B, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install nine (9) new remote radio heads ("RRHs") behind its replacement antennas and two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

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 Preston First Selectman, Robert Congdon; Kathy Warzecha, Preston's Town Planner; Panus Farm LLC, 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 RRH's will remain at the 131-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:
Robert Congdon, First Selectman
Kathy Warzecha, Town Planner
Panus Farm LLC
Crown
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
	2 ° | 14.3	2 ° | 15.0	0 ° | 17.2	0 ° | 17.6	0 ° | 17.7	0 ° | 17.9
Gain by Beam Tilt, average, dBi	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

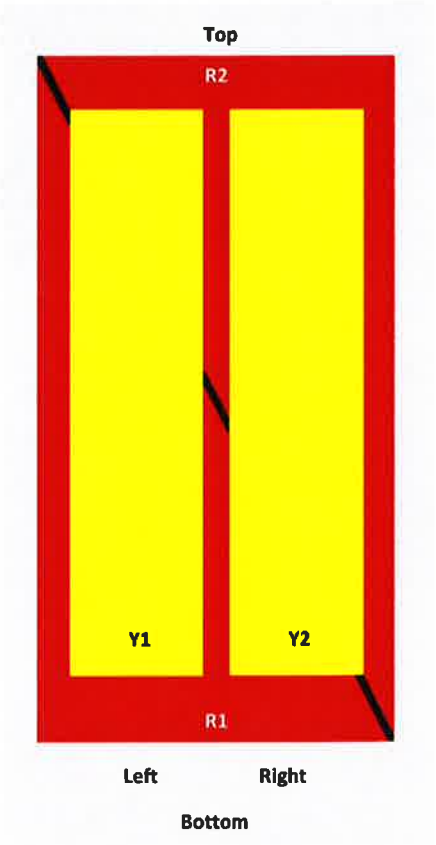
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

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

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

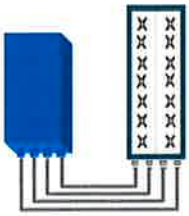
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

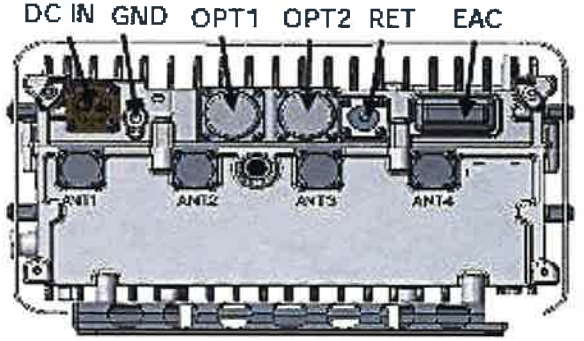
Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) Volume in L Weight in kg (lb) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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

ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

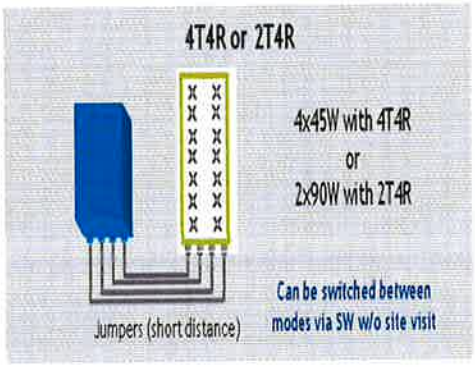
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports



BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall

TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme Receiver Sensivity (FRC A1-3)	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.) Volume in Liters Weight in kg (lb) (w/o mounting HW)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) 35.5 (with solar shield) 29.7 (without solar shield) 25.8kg (56.8lb) (with solar shield)
DC voltage range DC power consumption	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) UL50E Type 4 Enclosure 250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket:	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Mechanical Properties			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical Properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Optic Properties			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Environmental			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

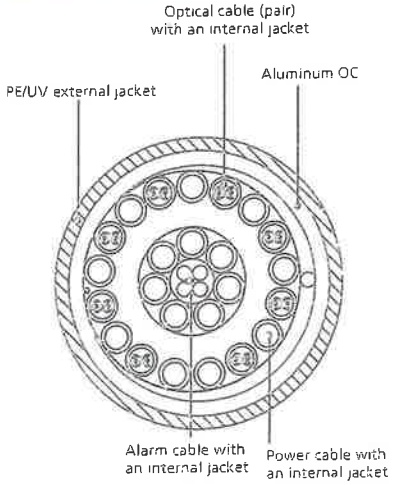


Figure 2: Construction Detail

- This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Preston City (Preston)								
Tower Height: 155'								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	2	565	144	880	0.0213	0.5867	0.36%	
*AT&T	2	875	144	1900	0.0330	1.0000	0.33%	
*AT&T	1	283	144	880	0.0053	0.5867	0.09%	
*AT&T	4	525	144	1900	0.0397	1.0000	0.40%	
*AT&T	1	1615	144	734	0.0305	0.4893	0.62%	
*Sprint	4	500	150	1962.5	0.0347	1.0000	0.35%	
Verizon PCS	**0**	**0**	**131**	**0.0000**	**1970**	**1.0000**	**0.00%**	
Verizon Cellular	**9**	**564**	**131**	**0.1064**	**876**	**0.5840**	**18.21%**	
Verizon Cellular	**1**	**3710**	**131**	**0.0777**	**869**	**0.5793**	**13.42%**	
Verizon AWS	**1**	**7771**	**131**	**0.1628**	**2145**	**1.0000**	**16.28%**	
Verizon 700	**1**	**2063**	**131**	**0.0432**	**746**	**0.4973**	**8.69%**	
								58.8%
* Source: Siting Council								

ATTACHMENT 3

Date: **October 19, 2017**

Marianne Dunst
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

BLACK & VEATCH
Building a world of difference.
Black & Veatch Corp.
6800 W 115th St. Suite 2292
Overland Park, KS 66211
(913) 458-8145

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	117759
	Carrier Site Name:	Preston City CT
Crown Castle Designation:	**Crown Castle BU Number:**	876366
	Crown Castle Site Name:	WAPPINGERS FALLS / PRESTON CIT
	Crown Castle JDE Job Number:	445869
	Crown Castle Work Order Number:	1426959
	Crown Castle Application Number:	395028 Rev. 10
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	194393
Site Data:	**101 Pierce Road, Preston, New London County, CT** **Latitude *41° 32' 17.46"*, Longitude *-71° 57' 6"*** **155 Foot - Monopole Tower**	

Dear Marianne Dunst,

Black & Veatch Corp. 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 1084957, in accordance with application 395028, revision 10.

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:

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 mph converted to a nominal 3-second gust wind speed of 105 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1.00 and Risk Category II was used in this analysis. Seismic forces have been evaluated based on Site Class D with spectral response factors S_s of 0.167g and S_1 of 0.060g.

We at *Black & Veatch Corp.* 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: Adichon Akkarapunyathorn / Chariya Wannaklut

Respectfully submitted by:

STATE OF CONNECTICUT
PING JIANG
30767
LICENSED
PROFESSIONAL ENGINEER

Oct 19, 2017

Ping Jiang, P.E.
Professional Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 155 ft Monopole tower mapped by Tower Engineering Professionals, Inc., in December of 2007. The original design standard and wind speed are unknown.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by PSG Engineering, Ltd., in June of 2008. Reinforcement consists of addition (12) base plate stiffeners. Refer to Post Modification Inspection Report by PSG Engineering, Ltd., in February of 2009. This modification has been considered effective in this analysis.

The tower was later modified per reinforcement drawings prepared by Black & Veatch Corp., in November of 2011. Reinforcement consisted of addition reinforcement plates at elevation 45'-70' and 84'-99', (3) anchor rods, and removal (3) base plate stiffeners. Refer to Modification Inspection Report by Sinnott Gering and Schmitt Towers, Inc. in March of 2016. Those modifications have been considered effective in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 105 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet. Seismic forces have been evaluated based on Site Class D with spectral response factors S_s of 0.167g and S_1 of 0.060g.

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
129.3	134.0	3	alcatel lucent	B66A RRH4X45-4R	2	1-5/8	1,2
		3	alcatel lucent	RRH2x60-700			
		3	nokia	B5 4T4R RRH4X40 AIRSCALE			
		1	raycap	RVZDC-6627-PF-48			
	131.0	6	commscope	JAHH-65B-R3B w/ Mount Pipe			
	129.3	1	connect-it wireless	VSK-M Monopole V-Stabilizer Kit [SM 502-3]			

Notes:
1) See Appendix B for proposed coax configuration
2) The addition of the proposed handrail kit will change the MCL from 128' to 129.25', and the mount from a TA 602-3 to a SM 502-3

Table 2 - Existing 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
155.0	157.0	6	decibel	DB980H90E-M w/ Mount Pipe	6	1-5/8	1
	155.0	1	cci tower mounts	Platform Mount [10' LP 712-1]			
142.0	142.0	1	cci tower mounts	Side Arm Mount [SO 102-3]	-	-	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	ericsson	RRUS 11			
140.0	144.0	6	powerwave technologies	LGP21401	12 3	1-1/4 3/8	1
		6	powerwave technologies	LGP21901			
		1	raycap	DC6-48-60-18-8F			
	140.0	1	cci tower mounts	Platform Mount [LP 303-1]			
		3	kmw communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
128.0	134.0	6	powerwave technologies	LGP21401	-	-	2
		6	powerwave technologies	LGP21901			
		1	raycap	DC6-48-60-18-8F			
	129.0	3	antel	BXA-185063/12CF w/ Mount Pipe			
		3	antel	BXA-70063/6CF w/ Mount Pipe			
		6	antel	LPA-80063/6CF w/ Mount Pipe	12	1-5/8	1,3
	128.0	1	cci tower mounts	T-Arm Mount [TA 602-3]			
74.0	74.0	1	cci tower mounts	Side Arm Mount [SO 701-1]	1	1/2	1
		1	lucent	KS24019-L112A			

Notes:
1) Existing Equipment
2) Equipment To Be Removed; Not Considered in This Analysis
3) The addition of the proposed handrail kit will change the MCL from 128' to 129.25', and the mount from a TA 602-3 to a SM 502-3

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Tower Engineering Professionals, Inc.	2194336	CCISITES
4-POST-MODIFICATION INSPECTION	PSG Engineering, Ltd.	2391519	CCISITES
4-POST-MODIFICATION INSPECTION	Sinnott Gering and Schmitt Towers, Inc.	6133027	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Tower Engineering Professionals, Inc. (Mapped)	2208798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Tower Engineering Professionals, Inc. (Mapped)	2174297	CCISITES
4-TOWER REINFORCEMENT	PSG Engineering, Ltd.	2271037	CCISITES

Document	Remarks	Reference	Source
DESIGN/DRAWINGS/DATA			
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Black & Veatch Corp.	5971889	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Black & Veatch Corp.	5965304	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.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures 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 the referenced drawings.
4) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. The existing/proposed loading on the structure is based on CAD level drawings and carrier applications provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.
5) The wind loading Exposure Category and Topographic Category for this site have been analyzed and determined by the tower owner. Black & Veatch does not assume any responsibility for its accuracy.

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

4) ANALYSIS RESULTS

4.1) Wind Results

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
155 - 150	Pole	TP18.148x17x0.1875	Pole	6.1%	Pass
150 - 145	Pole	TP19.297x18.148x0.1875	Pole	10.3%	Pass
145 - 140	Pole	TP20.445x19.297x0.1875	Pole	14.5%	Pass
140 - 135	Pole	TP21.593x20.445x0.1875	Pole	23.8%	Pass
135 - 130	Pole	TP22.742x21.593x0.1875	Pole	31.5%	Pass
130 - 127.94	Pole	TP23.89x22.742x0.1875	Pole	39.4%	Pass
127.94 - 122.94	Pole	TP23.986x22.84x0.25	Pole	38.3%	Pass
122.94 - 117.94	Pole	TP25.132x23.986x0.25	Pole	46.0%	Pass
117.94 - 112.94	Pole	TP26.277x25.132x0.25	Pole	53.0%	Pass
112.94 - 107.94	Pole	TP27.423x26.277x0.25	Pole	59.2%	Pass

107.94 - 102.94	Pole	TP28.569x27.423x0.25	Pole	64.6%	Pass
102.94 - 97.94	Pole	TP29.715x28.569x0.25	Pole	69.4%	Pass
97.94 - 97.5	Pole	TP29.816x29.715x0.25	Pole	69.8%	Pass
97.5 - 97.25	Pole	TP29.873x29.816x0.25	Pole	70.1%	Pass
97.25 - 92.25	Pole	TP31.019x29.873x0.25	Pole	74.3%	Pass
92.25 - 88.05	Pole	TP32.91x31.019x0.25	Pole	77.6%	Pass
88.05 - 83	Pole	TP32.639x31.482x0.3125	Pole	62.6%	Pass
83 - 78	Pole	TP33.786x32.639x0.3125	Pole	64.8%	Pass
78 - 73	Pole	TP34.932x33.786x0.3125	Pole	66.9%	Pass
73 - 68	Pole	TP36.078x34.932x0.3125	Pole	68.7%	Pass
68 - 67.75	Pole + Reinf.	TP36.135x36.078x0.4875	Reinf. 1 Tension Rupture	67.8%	Pass
67.75 - 62.75	Pole + Reinf.	TP37.281x36.135x0.4875	Reinf. 1 Tension Rupture	69.6%	Pass
62.75 - 57.75	Pole + Reinf.	TP38.427x37.281x0.475	Reinf. 1 Tension Rupture	71.2%	Pass
57.75 - 52.75	Pole + Reinf.	TP39.573x38.427x0.475	Reinf. 1 Tension Rupture	72.7%	Pass
52.75 - 50.09	Pole + Reinf.	TP41.35x39.573x0.4688	Reinf. 1 Tension Rupture	73.5%	Pass
50.09 - 44	Pole	TP40.954x39.558x0.375	Pole	61.7%	Pass
44 - 39	Pole	TP42.1x40.954x0.375	Pole	62.5%	Pass
39 - 34	Pole	TP43.246x42.1x0.375	Pole	63.3%	Pass
34 - 29	Pole	TP44.393x43.246x0.375	Pole	64.1%	Pass
29 - 24	Pole	TP45.539x44.393x0.375	Pole	64.7%	Pass
24 - 19	Pole	TP46.685x45.539x0.375	Pole	65.4%	Pass
19 - 14	Pole	TP47.831x46.685x0.375	Pole	66.0%	Pass
14 - 9	Pole	TP48.977x47.831x0.375	Pole	66.6%	Pass
9 - 4	Pole	TP50.123x48.977x0.375	Pole	67.1%	Pass
4 - 0	Pole	TP51.04x50.123x0.375	Pole	67.6%	Pass
				Summary	
			Pole	77.6%	Pass
			Reinforcement	73.5%	Pass
			Overall	77.6%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	62.1	Pass
	Anchor Rod Brackets		81.5	Pass
	Base Plate		66.0	Pass
	Plate Stiffeners		54.6	Pass
	Pole Punching Shear		7.4	Pass
1	Base Foundation	0	45.4	Pass
	Base Foundation Soil Interaction		66.0	Pass

4.2) Seismic Results

Tower and foundation have been analyzed based on the seismic criteria outlined in section 2 of this report. Based on the analysis, seismic loading is not governing the tower and foundation stress. Wind loading is governing the tower and foundation stress.

Structure Rating (max from all components) =	81.5%

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

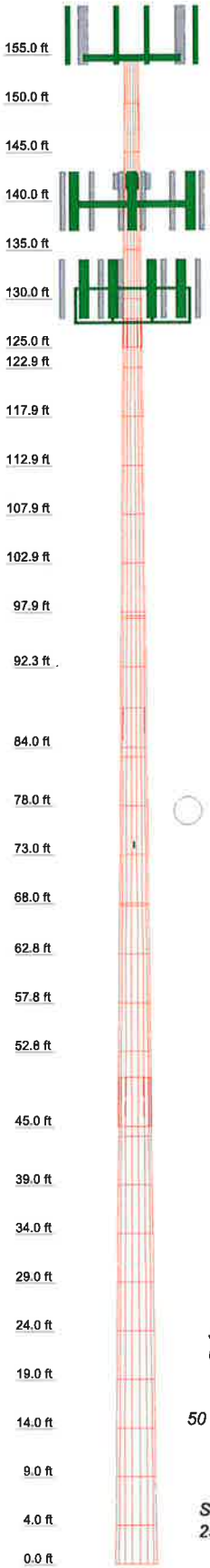
4.3) Recommendations

The tower, its base plate, anchor rods and foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.1875		17.0000	18.1483		0.2
2	5.00	18	0.1875		18.1483	19.2967		0.2
3	5.00	18	0.1875		19.2967	20.4450		0.2
4	5.00	18	0.1875		20.4450	21.5933		0.2
5	5.00	18	0.1875		21.5933	22.7417		0.2
6	5.00	18	0.1875	2.94	22.7417	23.8900		0.2
7	5.00	18	0.2500		23.8900	25.0383		0.3
8	5.00	18	0.2500		25.0383	26.1866		0.3
9	5.00	18	0.2500		26.1866	27.3350		0.3
10	5.00	18	0.2500		27.3350	28.4833		0.4
11	5.00	18	0.2500		28.4833	29.6316		0.4
12	5.00	18	0.2500		29.6316	30.7800		0.4
13	5.00	18	0.2500		30.7800	31.9283		0.4
14	5.00	18	0.2500		31.9283	33.0766		0.4
15	5.00	18	0.2500		33.0766	34.2250		0.4
16	8.25	18	0.2500	4.05	34.2250	36.1733		0.7
17	5.05	18	0.3125		36.1733	37.6316		0.5
18	5.00	18	0.3125		37.6316	39.0899		0.6
19	5.00	18	0.3125		39.0899	40.5482		0.6
20	5.00	18	0.3125		40.5482	42.0065		0.6
21	5.00	18	0.3125		42.0065	43.4648		0.6
22	5.00	18	0.4896		43.4648	45.5387		0.9
23	5.00	18	0.4750		45.5387	47.4274	A572-65	0.9
24	5.00	18	0.4750		47.4274	49.3161		1.0
25	6.75	18	0.4688	5.09	49.3161	51.3500		1.5
26	5.00	18	0.3750		51.3500	52.9389		1.0
27	5.00	18	0.3750		52.9389	54.4276		0.8
28	5.00	18	0.3750		54.4276	55.9163		0.9
29	5.00	18	0.3750		55.9163	57.4050		0.9
30	5.00	18	0.3750		57.4050	58.8937		0.9
31	5.00	18	0.3750		58.8937	60.3824		0.9
32	5.00	18	0.3750		60.3824	61.8711		0.9
33	5.00	18	0.3750		61.8711	63.3598		1.0
34	5.00	18	0.3750		63.3598	64.8485		1.0
35	4.00	18	0.3750		64.8485	66.0000		0.8



ALL REACTIONS ARE FACTORED

AXIAL 62 K

SHEAR 6 K *MOMENT 742 kip-ft*

TORQUE 0 kip-ft

50 mph WIND - 0.7500 in ICE

AXIAL 36 K

SHEAR 25 K *MOMENT 2839 kip-ft*

TORQUE 2 kip-ft

REACTIONS - 105 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) DB980H90E-M w/ Mount Pipe	155	(2) LGP21901	140
(2) DB980H90E-M w/ Mount Pipe	155	DC6-48-60-18-8F	140
(2) DB980H90E-M w/ Mount Pipe	155	Platform Mount [LP 303-1]	140
Platform Mount [10' LP 712-1]	155	LPA-80063/6CF w/ Mount Pipe	129.25
Transition Ladder	155	LPA-80063/6CF w/ Mount Pipe	129.25
RRUS 11	142	(2) LPA-80063/6CF w/ Mount Pipe	129.25
RRUS 11	142	(2) LPA-80063/6CF w/ Mount Pipe	129.25
RRUS 11	142	JAHH-65B-R3B w/ Mount Pipe	129.25
Side Arm Mount [SO 102-3]	142	JAHH-65B-R3B w/ Mount Pipe	129.25
7770.00 w/ Mount Pipe	140	JAHH-65B-R3B w/ Mount Pipe	129.25
7770.00 w/ Mount Pipe	140	JAHH-65B-R3B w/ Mount Pipe	129.25
7770.00 w/ Mount Pipe	140	JAHH-65B-R3B w/ Mount Pipe	129.25
7770.00 w/ Mount Pipe	140	JAHH-65B-R3B w/ Mount Pipe	129.25
7770.00 w/ Mount Pipe	140	RRH2x60-700	129.25
7770.00 w/ Mount Pipe	140	RRH2x60-700	129.25
AM-X-CD-17-65-00T-RET w/ Mount Pipe	140	RRH2x60-700	129.25
		B66A RRH4X45-4R	129.25
AM-X-CD-17-65-00T-RET w/ Mount Pipe	140	(2) B66A RRH4X45-4R	129.25
		B5 4T4R RRH4X40 AIRSCALE	129.25
AM-X-CD-17-65-00T-RET w/ Mount Pipe	140	(2) B5 4T4R RRH4X40 AIRSCALE	129.25
		RVZDC-6627-PF-48	129.25
(2) LGP21401	140	VSK-M Monopole V-Stabilizer Kit [SM 502-3]	129.25
(2) LGP21401	140	KS24019-L112A	74
(2) LGP21401	140	Side Arm Mount [SO 701-1]	74
(2) LGP21901	140		
(2) LGP21901	140		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 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 0.00 ft

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Black & Veatch Corp.
6800 W 115th St. Suite 2292
Overland Park, KS 66211
Phone: (913) 458-8145
FAX: (913) 458-8136

Job:	***WAPPINGERS FALLS / PRESTON CIT (BU# 8763***		
Project:	***194393 (876366.1426959)***		
Client:	Crown Castle	Drawn by: Adichon Akkarapunyathorn	App'd:
Code:	TIA-222-G	Date: 10/19/17	Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

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

1) Tower is located in New London County, Connecticut.
2) Basic wind speed of 105 mph.
3) Structure Class II.
4) Exposure Category B.
5) Topographic Category 1.
6) Crest Height 0.00 ft.
7) Nominal ice thickness of 0.7500 in.
8) Ice thickness is considered to increase with height.
9) Ice density of 56 pcf.
10) A wind speed of 50 mph is used in combination with ice.
11) Temperature drop of 50 °F.
12) Deflections calculated using a wind speed of 60 mph.
13) A non-linear (P-delta) analysis was used.
14) Pressures are calculated at each section.
15) Stress ratio used in pole design is 1.
16) 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	155.00-150.00	5.00	0.00	18	17.0000	18.1483	0.1875	0.7500	A572-65 (65 ksi)
L2	150.00-145.00	5.00	0.00	18	18.1483	19.2967	0.1875	0.7500	A572-65 (65 ksi)
L3	145.00-140.00	5.00	0.00	18	19.2967	20.4450	0.1875	0.7500	A572-65 (65 ksi)
L4	140.00-135.00	5.00	0.00	18	20.4450	21.5933	0.1875	0.7500	A572-65 (65 ksi)
L5	135.00-130.00	5.00	0.00	18	21.5933	22.7417	0.1875	0.7500	A572-65 (65 ksi)
L6	130.00-125.00	5.00	2.94	18	22.7417	23.8900	0.1875	0.7500	A572-65

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
									(65 ksi)
L7	125.00-122.94	5.00	0.00	18	22.8398	23.9857	0.2500	1.0000	A572-65 (65 ksi)
L8	122.94-117.94	5.00	0.00	18	23.9857	25.1316	0.2500	1.0000	A572-65 (65 ksi)
L9	117.94-112.94	5.00	0.00	18	25.1316	26.2775	0.2500	1.0000	A572-65 (65 ksi)
L10	112.94-107.94	5.00	0.00	18	26.2775	27.4234	0.2500	1.0000	A572-65 (65 ksi)
L11	107.94-102.94	5.00	0.00	18	27.4234	28.5693	0.2500	1.0000	A572-65 (65 ksi)
L12	102.94-97.94	5.00	0.00	18	28.5693	29.7152	0.2500	1.0000	A572-65 (65 ksi)
L13	97.94-97.50	0.44	0.00	18	29.7152	29.8161	0.2500	1.0000	A572-65 (65 ksi)
L14	97.50-97.25	0.25	0.00	18	29.8161	29.8733	0.2500	1.0000	A572-65 (65 ksi)
L15	97.25-92.25	5.00	0.00	18	29.8733	31.0193	0.2500	1.0000	A572-65 (65 ksi)
L16	92.25-84.00	8.25	4.05	18	31.0193	32.9100	0.2500	1.0000	A572-65 (65 ksi)
L17	84.00-83.00	5.05	0.00	18	31.4818	32.6394	0.3125	1.2500	A572-65 (65 ksi)
L18	83.00-78.00	5.00	0.00	18	32.6394	33.7855	0.3125	1.2500	A572-65 (65 ksi)
L19	78.00-73.00	5.00	0.00	18	33.7855	34.9317	0.3125	1.2500	A572-65 (65 ksi)
L20	73.00-68.00	5.00	0.00	18	34.9317	36.0778	0.3125	1.2500	A572-65 (65 ksi)
L21	68.00-67.75	0.25	0.00	18	36.0778	36.1351	0.4875	1.9500	A572-65 (65 ksi)
L22	67.75-62.75	5.00	0.00	18	36.1351	37.2812	0.4875	1.9500	A572-65 (65 ksi)
L23	62.75-57.75	5.00	0.00	18	37.2812	38.4274	0.4750	1.9000	A572-65 (65 ksi)
L24	57.75-52.75	5.00	0.00	18	38.4274	39.5735	0.4750	1.9000	A572-65 (65 ksi)
L25	52.75-45.00	7.75	5.09	18	39.5735	41.3500	0.4688	1.8750	A572-65 (65 ksi)
L26	45.00-44.00	6.09	0.00	18	39.5582	40.9542	0.3750	1.5000	A572-65 (65 ksi)
L27	44.00-39.00	5.00	0.00	18	40.9542	42.1003	0.3750	1.5000	A572-65 (65 ksi)
L28	39.00-34.00	5.00	0.00	18	42.1003	43.2464	0.3750	1.5000	A572-65 (65 ksi)
L29	34.00-29.00	5.00	0.00	18	43.2464	44.3925	0.3750	1.5000	A572-65 (65 ksi)
L30	29.00-24.00	5.00	0.00	18	44.3925	45.5387	0.3750	1.5000	A572-65 (65 ksi)
L31	24.00-19.00	5.00	0.00	18	45.5387	46.6848	0.3750	1.5000	A572-65 (65 ksi)
L32	19.00-14.00	5.00	0.00	18	46.6848	47.8309	0.3750	1.5000	A572-65 (65 ksi)
L33	14.00-9.00	5.00	0.00	18	47.8309	48.9770	0.3750	1.5000	A572-65 (65 ksi)
L34	9.00-4.00	5.00	0.00	18	48.9770	50.1231	0.3750	1.5000	A572-65 (65 ksi)
L35	4.00-0.00	4.00		18	50.1231	51.0400	0.3750	1.5000	A572-65 (65 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	17.2623	10.0055	357.3078	5.9684	8.6360	41.3742	715.0858	5.0037	2.6620	14.197

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
	18.4283	10.6889	435.6373	6.3761	9.2194	47.2525	871.8478	5.3455	2.8641	15.275
L2	18.4283	10.6889	435.6373	6.3761	9.2194	47.2525	871.8478	5.3455	2.8641	15.275
	19.5943	11.3723	524.6515	6.7838	9.8027	53.5211	1049.9933	5.6873	3.0662	16.353
L3	19.5943	11.3723	524.6515	6.7838	9.8027	53.5211	1049.9933	5.6873	3.0662	16.353
	20.7604	12.0557	625.0333	7.1914	10.3861	60.1800	1250.8891	6.0290	3.2683	17.431
L4	20.7604	12.0557	625.0333	7.1914	10.3861	60.1800	1250.8891	6.0290	3.2683	17.431
	21.9264	12.7391	737.4661	7.5991	10.9694	67.2293	1475.9025	6.3708	3.4704	18.509
L5	21.9264	12.7391	737.4661	7.5991	10.9694	67.2293	1475.9025	6.3708	3.4704	18.509
	23.0925	13.4225	862.6329	8.0067	11.5528	74.6689	1726.4009	6.7125	3.6725	19.587
L6	23.0925	13.4225	862.6329	8.0067	11.5528	74.6689	1726.4009	6.7125	3.6725	19.587
	24.2585	14.1060	1001.2168	8.4144	12.1361	82.4989	2003.7509	7.0543	3.8746	20.665
L7	23.8763	17.9250	1155.6342	8.0194	11.6026	99.6012	2312.7890	8.9642	3.5798	14.319
	24.3557	18.8343	1340.5708	8.4262	12.1847	110.0206	2682.9055	9.4189	3.7815	15.126
L8	24.3557	18.8343	1340.5708	8.4262	12.1847	110.0206	2682.9055	9.4189	3.7815	15.126
	25.5193	19.7435	1544.2545	8.8330	12.7668	120.9582	3090.5410	9.8736	3.9832	15.933
L9	25.5193	19.7435	1544.2545	8.8330	12.7668	120.9582	3090.5410	9.8736	3.9832	15.933
	26.6829	20.6528	1767.5902	9.2398	13.3490	132.4140	3537.5063	10.3284	4.1848	16.739
L10	26.6829	20.6528	1767.5902	9.2398	13.3490	132.4140	3537.5063	10.3284	4.1848	16.739
	27.8465	21.5621	2011.4835	9.6466	13.9311	144.3881	4025.6137	10.7831	4.3865	17.546
L11	27.8465	21.5621	2011.4835	9.6466	13.9311	144.3881	4025.6137	10.7831	4.3865	17.546
	29.0100	22.4714	2276.8391	10.0534	14.5132	156.8805	4556.6741	11.2378	4.5882	18.353
L12	29.0100	22.4714	2276.8391	10.0534	14.5132	156.8805	4556.6741	11.2378	4.5882	18.353
	30.1736	23.3806	2564.5621	10.4602	15.0953	169.8911	5132.4988	11.6925	4.7899	19.16
L13	30.1736	23.3806	2564.5621	10.4602	15.0953	169.8911	5132.4988	11.6925	4.7899	19.16
	30.2760	23.4607	2590.9825	10.4959	15.1466	171.0608	5185.3743	11.7326	4.8076	19.231
L14	30.2760	23.4607	2590.9825	10.4959	15.1466	171.0608	5185.3743	11.7326	4.8076	19.231
	30.3342	23.5061	2606.0749	10.5163	15.1757	171.7273	5215.5789	11.7553	4.8177	19.271
L15	30.3342	23.5061	2606.0749	10.5163	15.1757	171.7273	5215.5789	11.7553	4.8177	19.271
	31.4978	24.4154	2920.3528	10.9231	15.7578	185.3277	5844.5483	12.2100	5.0194	20.078
L16	31.4978	24.4154	2920.3528	10.9231	15.7578	185.3277	5844.5483	12.2100	5.0194	20.078
	33.4177	25.9157	3492.4719	11.5943	16.7183	208.9014	6989.5393	12.9603	5.3522	21.409
L17	32.9102	30.9161	3794.6892	11.0651	15.9928	237.2754	7594.3715	15.4610	4.9908	15.971
	33.1429	32.0643	4233.3765	11.4761	16.5808	255.3177	8472.3234	16.0352	5.1945	16.623
L18	33.1429	32.0643	4233.3765	11.4761	16.5808	255.3177	8472.3234	16.0352	5.1945	16.623
	34.3067	33.2011	4699.8048	11.8829	17.1631	273.8327	9405.7938	16.6037	5.3963	17.268
L19	34.3067	33.2011	4699.8048	11.8829	17.1631	273.8327	9405.7938	16.6037	5.3963	17.268
	35.4705	34.3379	5199.2932	12.2898	17.7453	292.9957	10405.4278	17.1722	5.5980	17.914
L20	35.4705	34.3379	5199.2932	12.2898	17.7453	292.9957	10405.4278	17.1722	5.5980	17.914
	36.6344	35.4747	5732.9745	12.6967	18.3275	312.8068	11473.4926	17.7407	5.7997	18.559
L21	36.6344	55.0698	8812.8005	12.6346	18.3275	480.8506	17637.1971	27.5401	5.4917	11.265
	36.6925	55.1584	8855.4391	12.6549	18.3566	482.4108	17722.5304	27.5845	5.5018	11.286
L22	36.6925	55.1584	8855.4391	12.6549	18.3566	482.4108	17722.5304	27.5845	5.5018	11.286
	37.8564	56.9319	9737.3480	13.0618	18.9389	514.1462	19487.5087	28.4713	5.7035	11.699
L23	37.8564	55.4909	9497.3455	13.0662	18.9389	501.4738	19007.1878	27.7507	5.7255	12.054
	39.0202	57.2189	10412.4897	13.4731	19.5211	533.3966	20838.6803	28.6149	5.9272	12.478
L24	39.0202	57.2189	10412.4897	13.4731	19.5211	533.3966	20838.6803	28.6149	5.9272	12.478
	40.1840	58.9469	11384.6112	13.8800	20.1033	566.3046	22784.2026	29.4790	6.1289	12.903
L25	40.1840	58.1805	11240.2023	13.8822	20.1033	559.1212	22495.1948	29.0958	6.1399	13.099
	41.9879	60.8236	12842.7537	14.5128	21.0058	611.3908	25702.4062	30.4176	6.4526	13.766
L26	41.3532	46.6379	9046.4178	13.9100	20.0956	450.1694	18104.7390	23.3234	6.3023	16.806
	41.5860	48.2994	10048.1531	14.4056	20.8047	482.9743	20109.5278	24.1543	6.5479	17.461
L27	41.5860	48.2994	10048.1531	14.4056	20.8047	482.9743	20109.5278	24.1543	6.5479	17.461
	42.7498	49.6636	10923.8218	14.8125	21.3870	510.7702	21862.0174	24.8365	6.7497	17.999

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
L28	42.7498	49.6636	10923.8218	14.8125	21.3870	510.7702	21862.0174	24.8365	6.7497	17.999
	43.9136	51.0277	11848.9422	15.2194	21.9692	539.3437	23713.4755	25.5187	6.9514	18.537
L29	43.9136	51.0277	11848.9422	15.2194	21.9692	539.3437	23713.4755	25.5187	6.9514	18.537
	45.0774	52.3919	12824.8727	15.6262	22.5514	568.6949	25666.6206	26.2009	7.1531	19.075
L30	45.0774	52.3919	12824.8727	15.6262	22.5514	568.6949	25666.6206	26.2009	7.1531	19.075
	46.2412	53.7560	13852.9715	16.0331	23.1336	598.8237	27724.1712	26.8831	7.3548	19.613
L31	46.2412	53.7560	13852.9715	16.0331	23.1336	598.8237	27724.1712	26.8831	7.3548	19.613
	47.4050	55.1202	14934.5972	16.4400	23.7159	629.7303	29888.8456	27.5653	7.5565	20.151
L32	47.4050	55.1202	14934.5972	16.4400	23.7159	629.7303	29888.8456	27.5653	7.5565	20.151
	48.5688	56.4844	16071.1079	16.8468	24.2981	661.4145	32163.3625	28.2475	7.7582	20.689
L33	48.5688	56.4844	16071.1079	16.8468	24.2981	661.4145	32163.3625	28.2475	7.7582	20.689
	49.7325	57.8485	17263.8620	17.2537	24.8803	693.8764	34550.4403	28.9298	7.9600	21.227
L34	49.7325	57.8485	17263.8620	17.2537	24.8803	693.8764	34550.4403	28.9298	7.9600	21.227
	50.8963	59.2127	18514.2191	17.6606	25.4625	727.1160	37052.7996	29.6120	8.1617	21.764
L35	50.8963	59.2127	18514.2191	17.6606	25.4625	727.1160	37052.7996	29.6120	8.1617	21.764
	51.8274	60.3040	19556.8895	17.9861	25.9283	754.2675	39139.5124	30.1577	8.3230	22.195

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 155.00-150.00				1	1	1			
L2 150.00-145.00				1	1	1			
L3 145.00-140.00				1	1	1			
L4 140.00-135.00				1	1	1			
L5 135.00-130.00				1	1	1			
L6 130.00-125.00				1	1	1			
L7 125.00-122.94				1	1	1			
L8 122.94-117.94				1	1	1			
L9 117.94-112.94				1	1	1			
L10 112.94-107.94				1	1	1			
L11 107.94-102.94				1	1	1			
L12 102.94-97.94				1	1	1			
L13 97.94-97.50				1	1	1			
L14 97.50-97.25				1	1	1			
L15 97.25-92.25				1	1	1			
L16 92.25-				1	1	1			

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
84.00									
L17 84.00-83.00				1	1	1			
L18 83.00-78.00				1	1	1			
L19 78.00-73.00				1	1	1			
L20 73.00-68.00				1	1	1			
L21 68.00-67.75				1	1	0.970517			
L22 67.75-62.75				1	1	0.960253			
L23 62.75-57.75				1	1	0.975304			
L24 57.75-52.75				1	1	0.966			
L25 52.75-45.00				1	1	0.973932			
L26 45.00-44.00				1	1	1			
L27 44.00-39.00				1	1	1			
L28 39.00-34.00				1	1	1			
L29 34.00-29.00				1	1	1			
L30 29.00-24.00				1	1	1			
L31 24.00-19.00				1	1	1			
L32 19.00-14.00				1	1	1			
L33 14.00-9.00				1	1	1			
L34 9.00-4.00				1	1	1			
L35 4.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	B	Surface Ar (CaAa)	155.00 - 10.00	1	1	0.490 0.500	0.3750		0.22
***									
CCI-SFP-060100	A	Surface Af (CaAa)	70.00 - 45.00	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-SFP-060100	B	Surface Af (CaAa)	70.00 - 45.00	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-SFP-060100	C	Surface Af (CaAa)	70.00 - 45.00	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-SFP-045100	A	Surface Af (CaAa)	99.00 - 84.00	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	B	Surface Af (CaAa)	99.00 - 84.00	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	Surface Af (CaAa)	99.00 - 84.00	1	1	0.000 0.000	4.5000	11.0000	0.00
****									

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
***								
LDF7-50A(1-5/8)	C	No	Inside Pole	155.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
LDF6-50A(1-1/4)	A	No	Inside Pole	140.00 - 2.00	12	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60
FB-L98B-002-75000(3/8)	A	No	Inside Pole	140.00 - 2.00	3	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
2" innerduct conduit	A	No	Inside Pole	140.00 - 2.00	1	No Ice	0.00	0.20
						1/2" Ice	0.00	0.20
						1" Ice	0.00	0.20
***								
AVA7-50(1-5/8)	B	No	Inside Pole	128.00 - 9.00	12	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70
HB158-1-08U8-S8J18(1-5/8)	B	No	Inside Pole	128.00 - 9.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
***								
LDF4-50A(1/2)	C	No	Inside Pole	74.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
****								

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	155.00-150.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L2	150.00-145.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	145.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L4	140.00-135.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L5	135.00-130.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L6	130.00-125.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.02
L7	125.00-122.94	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.077	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L8	122.94-117.94	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.02
L9	117.94-112.94	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.02
L10	112.94-107.94	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.02
L11	107.94-102.94	A	0.000	0.000	0.000	0.000	0.04

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
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.02
L12	102.94-97.94	A	0.000	0.000	0.795	0.000	0.04
		B	0.000	0.000	0.983	0.000	0.06
		C	0.000	0.000	0.795	0.000	0.02
L13	97.94-97.50	A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	0.346	0.000	0.00
		C	0.000	0.000	0.330	0.000	0.00
L14	97.50-97.25	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.197	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.00
L15	97.25-92.25	A	0.000	0.000	3.750	0.000	0.04
		B	0.000	0.000	3.938	0.000	0.06
		C	0.000	0.000	3.750	0.000	0.02
L16	92.25-84.00	A	0.000	0.000	6.188	0.000	0.06
		B	0.000	0.000	6.497	0.000	0.09
		C	0.000	0.000	6.188	0.000	0.04
L17	84.00-83.00	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.037	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L18	83.00-78.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.02
L19	78.00-73.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.02
L20	73.00-68.00	A	0.000	0.000	2.000	0.000	0.04
		B	0.000	0.000	2.188	0.000	0.06
		C	0.000	0.000	2.000	0.000	0.03
L21	68.00-67.75	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.259	0.000	0.00
		C	0.000	0.000	0.250	0.000	0.00
L22	67.75-62.75	A	0.000	0.000	5.000	0.000	0.04
		B	0.000	0.000	5.188	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.03
L23	62.75-57.75	A	0.000	0.000	5.000	0.000	0.04
		B	0.000	0.000	5.188	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.03
L24	57.75-52.75	A	0.000	0.000	5.000	0.000	0.04
		B	0.000	0.000	5.188	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.03
L25	52.75-45.00	A	0.000	0.000	7.750	0.000	0.06
		B	0.000	0.000	8.041	0.000	0.09
		C	0.000	0.000	7.750	0.000	0.04
L26	45.00-44.00	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.037	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L27	44.00-39.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L28	39.00-34.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L29	34.00-29.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L30	29.00-24.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L31	24.00-19.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L32	19.00-14.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L33	14.00-9.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.150	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L34	9.00-4.00	A	0.000	0.000	0.000	0.000	0.04

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
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L35	4.00-0.00	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

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	155.00-150.00	A	1.748	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.936	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.02
L2	150.00-145.00	A	1.742	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.930	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.02
L3	145.00-140.00	A	1.736	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.924	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.02
L4	140.00-135.00	A	1.730	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.918	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.02
L5	135.00-130.00	A	1.724	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.911	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.02
L6	130.00-125.00	A	1.717	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.905	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.02
L7	125.00-122.94	A	1.712	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	0.785	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.01
L8	122.94-117.94	A	1.707	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.895	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.02
L9	117.94-112.94	A	1.700	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.888	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.02
L10	112.94-107.94	A	1.693	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.880	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.02
L11	107.94-102.94	A	1.685	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.872	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.02
L12	102.94-97.94	A	1.677	0.000	0.000	1.140	0.000	0.05
		B		0.000	0.000	3.004	0.000	0.09
		C		0.000	0.000	1.140	0.000	0.04
L13	97.94-97.50	A	1.672	0.000	0.000	0.473	0.000	0.01
		B		0.000	0.000	0.636	0.000	0.01
		C		0.000	0.000	0.473	0.000	0.01
L14	97.50-97.25	A	1.671	0.000	0.000	0.269	0.000	0.00
		B		0.000	0.000	0.362	0.000	0.01
		C		0.000	0.000	0.269	0.000	0.00
L15	97.25-92.25	A	1.667	0.000	0.000	5.368	0.000	0.09
		B		0.000	0.000	7.222	0.000	0.13
		C		0.000	0.000	5.368	0.000	0.08
L16	92.25-84.00	A	1.655	0.000	0.000	8.841	0.000	0.15
		B		0.000	0.000	11.880	0.000	0.22
		C		0.000	0.000	8.841	0.000	0.13
L17	84.00-83.00	A	1.646	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.368	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.00
L18	83.00-78.00	A	1.640	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.827	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.02
L19	78.00-73.00	A	1.629	0.000	0.000	0.000	0.000	0.04

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	1.817	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.02
L20	73.00-68.00	A	1.618	0.000	0.000	2.647	0.000	0.06
		B		0.000	0.000	4.453	0.000	0.10
		C		0.000	0.000	2.647	0.000	0.05
L21	68.00-67.75	A	1.612	0.000	0.000	0.331	0.000	0.01
		B		0.000	0.000	0.421	0.000	0.01
		C		0.000	0.000	0.331	0.000	0.00
L22	67.75-62.75	A	1.606	0.000	0.000	6.606	0.000	0.10
		B		0.000	0.000	8.399	0.000	0.14
		C		0.000	0.000	6.606	0.000	0.09
L23	62.75-57.75	A	1.593	0.000	0.000	6.593	0.000	0.10
		B		0.000	0.000	8.374	0.000	0.14
		C		0.000	0.000	6.593	0.000	0.09
L24	57.75-52.75	A	1.579	0.000	0.000	6.579	0.000	0.10
		B		0.000	0.000	8.346	0.000	0.14
		C		0.000	0.000	6.579	0.000	0.09
L25	52.75-45.00	A	1.560	0.000	0.000	10.168	0.000	0.15
		B		0.000	0.000	12.877	0.000	0.21
		C		0.000	0.000	10.168	0.000	0.13
L26	45.00-44.00	A	1.546	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.349	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.01
L27	44.00-39.00	A	1.535	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.722	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L28	39.00-34.00	A	1.515	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.703	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L29	34.00-29.00	A	1.493	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.680	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L30	29.00-24.00	A	1.467	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.655	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L31	24.00-19.00	A	1.437	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.625	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L32	19.00-14.00	A	1.399	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.587	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L33	14.00-9.00	A	1.350	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	1.230	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.03
L34	9.00-4.00	A	1.275	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L35	4.00-0.00	A	1.133	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	155.00-150.00	0.0481	0.0271	0.3494	0.1969
L2	150.00-145.00	0.0481	0.0271	0.3551	0.2001
L3	145.00-140.00	0.0481	0.0271	0.3601	0.2029
L4	140.00-135.00	0.0481	0.0271	0.3646	0.2055
L5	135.00-130.00	0.0481	0.0271	0.3687	0.2077
L6	130.00-125.00	0.0481	0.0271	0.3722	0.2097
L7	125.00-122.94	0.0481	0.0271	0.3739	0.2107
L8	122.94-117.94	0.0481	0.0271	0.3753	0.2115
L9	117.94-112.94	0.0481	0.0271	0.3781	0.2130

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L10	112.94-107.94	0.0481	0.0271	0.3805	0.2144
L11	107.94-102.94	0.0481	0.0271	0.3825	0.2156
L12	102.94-97.94	0.0404	0.0228	0.3152	0.1776
L13	97.94-97.50	0.0256	0.0144	0.1910	0.1076
L14	97.50-97.25	0.0256	0.0144	0.1912	0.1077
L15	97.25-92.25	0.0259	0.0146	0.1931	0.1088
L16	92.25-84.00	0.0265	0.0149	0.1977	0.1114
L17	84.00-83.00	0.0482	0.0271	0.3887	0.2190
L18	83.00-78.00	0.0482	0.0271	0.3876	0.2184
L19	78.00-73.00	0.0482	0.0271	0.3880	0.2186
L20	73.00-68.00	0.0345	0.0195	0.2701	0.1522
L21	68.00-67.75	0.0245	0.0138	0.1869	0.1053
L22	67.75-62.75	0.0246	0.0139	0.1882	0.1060
L23	62.75-57.75	0.0250	0.0141	0.1905	0.1074
L24	57.75-52.75	0.0254	0.0143	0.1927	0.1086
L25	52.75-45.00	0.0258	0.0145	0.1950	0.1099
L26	45.00-44.00	0.0482	0.0271	0.3859	0.2174
L27	44.00-39.00	0.0482	0.0271	0.3820	0.2153
L28	39.00-34.00	0.0482	0.0272	0.3797	0.2140
L29	34.00-29.00	0.0482	0.0272	0.3768	0.2123
L30	29.00-24.00	0.0482	0.0272	0.3731	0.2102
L31	24.00-19.00	0.0482	0.0272	0.3683	0.2075
L32	19.00-14.00	0.0482	0.0272	0.3619	0.2039
L33	14.00-9.00	0.0385	0.0217	0.2854	0.1608
L34	9.00-4.00	0.0000	0.0000	0.0000	0.0000
L35	4.00-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	150.00 - 155.00	1.0000	1.0000
L2	1	Safety Line 3/8	145.00 - 150.00	1.0000	1.0000
L3	1	Safety Line 3/8	140.00 - 145.00	1.0000	1.0000
L4	1	Safety Line 3/8	135.00 - 140.00	1.0000	1.0000
L5	1	Safety Line 3/8	130.00 - 135.00	1.0000	1.0000
L6	1	Safety Line 3/8	125.00 - 130.00	1.0000	1.0000
L8	1	Safety Line 3/8	117.94 - 122.94	1.0000	1.0000
L9	1	Safety Line 3/8	112.94 - 117.94	1.0000	1.0000
L10	1	Safety Line 3/8	107.94 - 112.94	1.0000	1.0000
L11	1	Safety Line 3/8	102.94 - 107.94	1.0000	1.0000
L12	1	Safety Line 3/8	97.94 - 102.94	1.0000	1.0000
L12	17	CCI-SFP-045100	97.94 - 99.00	1.0000	1.0000
L12	18	CCI-SFP-045100	97.94 - 99.00	1.0000	1.0000
L12	19	CCI-SFP-045100	97.94 - 99.00	1.0000	1.0000
L13	1	Safety Line 3/8	97.50 - 97.94	1.0000	1.0000
L13	17	CCI-SFP-045100	97.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L13	18	CCI-SFP-045100	97.94 97.50 - 97.94	1.0000	1.0000
L13	19	CCI-SFP-045100	97.50 - 97.94	1.0000	1.0000
L14	1	Safety Line 3/8	97.25 - 97.50	1.0000	1.0000
L14	17	CCI-SFP-045100	97.25 - 97.50	1.0000	1.0000
L14	18	CCI-SFP-045100	97.25 - 97.50	1.0000	1.0000
L14	19	CCI-SFP-045100	97.25 - 97.50	1.0000	1.0000
L15	1	Safety Line 3/8	92.25 - 97.25	1.0000	1.0000
L15	17	CCI-SFP-045100	92.25 - 97.25	1.0000	1.0000
L15	18	CCI-SFP-045100	92.25 - 97.25	1.0000	1.0000
L15	19	CCI-SFP-045100	92.25 - 97.25	1.0000	1.0000
L16	1	Safety Line 3/8	84.00 - 92.25	1.0000	1.0000
L16	17	CCI-SFP-045100	84.00 - 92.25	1.0000	1.0000
L16	18	CCI-SFP-045100	84.00 - 92.25	1.0000	1.0000
L16	19	CCI-SFP-045100	84.00 - 92.25	1.0000	1.0000
L18	1	Safety Line 3/8	78.00 - 83.00	1.0000	1.0000
L19	1	Safety Line 3/8	73.00 - 78.00	1.0000	1.0000
L20	1	Safety Line 3/8	68.00 - 73.00	1.0000	1.0000
L20	14	CCI-SFP-060100	68.00 - 70.00	1.0000	1.0000
L20	15	CCI-SFP-060100	68.00 - 70.00	1.0000	1.0000
L20	16	CCI-SFP-060100	68.00 - 70.00	1.0000	1.0000
L21	1	Safety Line 3/8	67.75 - 68.00	1.0000	1.0000
L21	14	CCI-SFP-060100	67.75 - 68.00	1.0000	1.0000
L21	15	CCI-SFP-060100	67.75 - 68.00	1.0000	1.0000
L21	16	CCI-SFP-060100	67.75 - 68.00	1.0000	1.0000
L22	1	Safety Line 3/8	62.75 - 67.75	1.0000	1.0000
L22	14	CCI-SFP-060100	62.75 - 67.75	1.0000	1.0000
L22	15	CCI-SFP-060100	62.75 - 67.75	1.0000	1.0000
L22	16	CCI-SFP-060100	62.75 - 67.75	1.0000	1.0000
L23	1	Safety Line 3/8	57.75 - 62.75	1.0000	1.0000
L23	14	CCI-SFP-060100	57.75 - 62.75	1.0000	1.0000
L23	15	CCI-SFP-060100	57.75 - 62.75	1.0000	1.0000
L23	16	CCI-SFP-060100	57.75 - 62.75	1.0000	1.0000
L24	1	Safety Line 3/8	52.75 - 57.75	1.0000	1.0000
L24	14	CCI-SFP-060100	52.75 - 57.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	15	CCI-SFP-060100	52.75 - 57.75	1.0000	1.0000
L24	16	CCI-SFP-060100	52.75 - 57.75	1.0000	1.0000
L25	1	Safety Line 3/8	45.00 - 52.75	1.0000	1.0000
L25	14	CCI-SFP-060100	45.00 - 52.75	1.0000	1.0000
L25	15	CCI-SFP-060100	45.00 - 52.75	1.0000	1.0000
L25	16	CCI-SFP-060100	45.00 - 52.75	1.0000	1.0000
L27	1	Safety Line 3/8	39.00 - 44.00	1.0000	1.0000
L28	1	Safety Line 3/8	34.00 - 39.00	1.0000	1.0000
L29	1	Safety Line 3/8	29.00 - 34.00	1.0000	1.0000
L30	1	Safety Line 3/8	24.00 - 29.00	1.0000	1.0000
L31	1	Safety Line 3/8	19.00 - 24.00	1.0000	1.0000
L32	1	Safety Line 3/8	14.00 - 19.00	1.0000	1.0000
L33	1	Safety Line 3/8	10.00 - 14.00	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
(2) DB980H90E-M w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	4.04 4.50 4.95	3.62 4.48 5.22	0.03 0.07 0.11
(2) DB980H90E-M w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	4.04 4.50 4.95	3.62 4.48 5.22	0.03 0.07 0.11
(2) DB980H90E-M w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	4.04 4.50 4.95	3.62 4.48 5.22	0.03 0.07 0.11
Platform Mount [10' LP 712-1]	C	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice	20.43 24.94 29.45	20.43 24.94 29.45	1.11 1.37 1.63
Transition Ladder	C	From Leg	2.00 0.00 -2.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	6.00 8.00 10.00	6.00 8.00 10.00	0.16 0.24 0.32
***									
RRUS 11	A	From Face	1.00 0.00 0.00	25.0000	142.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
RRUS 11	B	From Face	1.00	15.0000	142.00	No Ice	2.78	1.19	0.05

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
			0.00 0.00			1/2" Ice 1" Ice	2.99 3.21	1.33 1.49	0.07 0.10
RRUS 11	C	From Face	1.00 0.00 0.00	25.0000	142.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
Side Arm Mount [SO 102-3]	C	None		0.0000	142.00	No Ice 1/2" Ice 1" Ice	3.00 3.48 3.96	3.00 3.48 3.96	0.08 0.11 0.14
***									
7770.00 w/ Mount Pipe	A	From Face	4.00 -6.00 0.00	25.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	A	From Face	4.00 0.00 0.00	25.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Face	4.00 -6.00 0.00	15.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Face	4.00 0.00 0.00	15.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	C	From Face	4.00 0.00 0.00	25.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	C	From Face	4.00 6.00 0.00	25.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Face	4.00 6.00 0.00	25.0000	140.00	No Ice 1/2" Ice 1" Ice	11.55 12.27 13.00	8.94 10.45 11.99	0.09 0.18 0.27
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Face	4.00 6.00 0.00	15.0000	140.00	No Ice 1/2" Ice 1" Ice	11.55 12.27 13.00	8.94 10.45 11.99	0.09 0.18 0.27
AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Face	4.00 -6.00 0.00	25.0000	140.00	No Ice 1/2" Ice 1" Ice	11.55 12.27 13.00	8.94 10.45 11.99	0.09 0.18 0.27
(2) LGP21401	A	From Face	4.00 0.00 4.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.35 0.44 0.54	0.01 0.02 0.03
(2) LGP21401	B	From Face	4.00 0.00 4.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.35 0.44 0.54	0.01 0.02 0.03
(2) LGP21401	C	From Face	4.00 0.00 4.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.35 0.44 0.54	0.01 0.02 0.03
(2) LGP21901	A	From Face	4.00 0.00 4.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.23 0.29 0.36	0.16 0.21 0.28	0.01 0.01 0.01
(2) LGP21901	B	From Face	4.00	0.0000	140.00	No Ice	0.23	0.16	0.01

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
			0.00					1/2" Ice	0.29	0.21	0.01
			4.00					1" Ice	0.36	0.28	0.01
(2) LGP21901	C	From Face	4.00		0.0000	140.00		No Ice	0.23	0.16	0.01
			0.00					1/2" Ice	0.29	0.21	0.01
			4.00					1" Ice	0.36	0.28	0.01
DC6-48-60-18-8F	B	From Face	1.00		0.0000	140.00		No Ice	0.92	0.92	0.02
			0.00					1/2" Ice	1.46	1.46	0.04
			4.00					1" Ice	1.64	1.64	0.06
Platform Mount [LP 303-1]	C	None			0.0000	140.00		No Ice	14.66	14.66	1.25
								1/2" Ice	18.87	18.87	1.48
								1" Ice	23.08	23.08	1.71
***											
LPA-80063/6CF w/ Mount Pipe	A	From Face	4.00		-60.0000	129.25		No Ice	9.83	10.22	0.05
			-6.00					1/2" Ice	10.40	11.38	0.14
			1.75					1" Ice	10.93	12.27	0.25
LPA-80063/6CF w/ Mount Pipe	A	From Face	4.00		0.0000	129.25		No Ice	9.83	10.22	0.05
			6.00					1/2" Ice	10.40	11.38	0.14
			1.75					1" Ice	10.93	12.27	0.25
(2) LPA-80063/6CF w/ Mount Pipe	B	From Face	4.00		-20.0000	129.25		No Ice	9.83	10.22	0.05
			0.00					1/2" Ice	10.40	11.38	0.14
			1.75					1" Ice	10.93	12.27	0.25
(2) LPA-80063/6CF w/ Mount Pipe	C	From Face	4.00		-10.0000	129.25		No Ice	9.83	10.22	0.05
			0.00					1/2" Ice	10.40	11.38	0.14
			1.75					1" Ice	10.93	12.27	0.25
JAHH-65B-R3B w/ Mount Pipe	A	From Face	4.00		40.0000	129.25		No Ice	9.35	7.65	0.09
			-2.00					1/2" Ice	9.92	8.83	0.16
			1.75					1" Ice	10.46	9.73	0.25
JAHH-65B-R3B w/ Mount Pipe	A	From Face	4.00		40.0000	129.25		No Ice	9.35	7.65	0.09
			2.00					1/2" Ice	9.92	8.83	0.16
			1.75					1" Ice	10.46	9.73	0.25
JAHH-65B-R3B w/ Mount Pipe	B	From Face	4.00		20.0000	129.25		No Ice	9.35	7.65	0.09
			-2.00					1/2" Ice	9.92	8.83	0.16
			1.75					1" Ice	10.46	9.73	0.25
JAHH-65B-R3B w/ Mount Pipe	B	From Face	4.00		20.0000	129.25		No Ice	9.35	7.65	0.09
			2.00					1/2" Ice	9.92	8.83	0.16
			1.75					1" Ice	10.46	9.73	0.25
JAHH-65B-R3B w/ Mount Pipe	C	From Face	4.00		20.0000	129.25		No Ice	9.35	7.65	0.09
			-2.00					1/2" Ice	9.92	8.83	0.16
			1.75					1" Ice	10.46	9.73	0.25
JAHH-65B-R3B w/ Mount Pipe	C	From Face	4.00		20.0000	129.25		No Ice	9.35	7.65	0.09
			2.00					1/2" Ice	9.92	8.83	0.16
			1.75					1" Ice	10.46	9.73	0.25
RRH2x60-700	A	From Face	4.00		0.0000	129.25		No Ice	3.50	1.82	0.06
			0.00					1/2" Ice	3.76	2.05	0.08
			4.75					1" Ice	4.03	2.29	0.11
RRH2x60-700	B	From Face	4.00		0.0000	129.25		No Ice	3.50	1.82	0.06
			0.00					1/2" Ice	3.76	2.05	0.08
			4.75					1" Ice	4.03	2.29	0.11
RRH2x60-700	C	From Face	4.00		0.0000	129.25		No Ice	3.50	1.82	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
			0.00			1/2" Ice	3.76	2.05	0.08
			4.75			1" Ice	4.03	2.29	0.11
B66A RRH4X45-4R	A	From Face	4.00	0.0000	129.25	No Ice	2.54	1.61	0.06
			0.00			1/2" Ice	2.75	1.79	0.08
			4.75			1" Ice	2.97	1.98	0.10
(2) B66A RRH4X45-4R	B	From Face	4.00	0.0000	129.25	No Ice	2.54	1.61	0.06
			0.00			1/2" Ice	2.75	1.79	0.08
			4.75			1" Ice	2.97	1.98	0.10
B5 4T4R RRH4X40 AIRSCALE	A	From Face	4.00	0.0000	129.25	No Ice	1.32	0.75	0.05
			0.00			1/2" Ice	1.47	0.86	0.06
			4.75			1" Ice	1.62	0.98	0.07
(2) B5 4T4R RRH4X40 AIRSCALE	C	From Face	4.00	0.0000	129.25	No Ice	1.32	0.75	0.05
			0.00			1/2" Ice	1.47	0.86	0.06
			4.75			1" Ice	1.62	0.98	0.07
RVZDC-6627-PF-48	A	From Face	4.00	0.0000	129.25	No Ice	3.79	2.51	0.03
			0.00			1/2" Ice	4.04	2.73	0.06
			4.75			1" Ice	4.30	2.95	0.10
VSK-M Monopole V-Stabilizer Kit [SM 502-3]	C	None		0.0000	129.25	No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
***									
KS24019-L112A	C	From Face	3.00	-15.0000	74.00	No Ice	0.14	0.14	0.01
			0.00			1/2" Ice	0.20	0.20	0.01
			0.00			1" Ice	0.26	0.26	0.01
Side Arm Mount [SO 701-1]	C	From Face	0.00	0.0000	74.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
****									

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

Comb. No.	Description
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
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	155 - 150	Pole	Max Tension	26	0.00	0.00	0.00
			Max. Compression	26	-4.36	1.09	-0.65
			Max. Mx	20	-1.60	17.04	-0.21
			Max. My	14	-1.60	0.35	-16.85
			Max. Vy	20	-3.10	17.04	-0.21
			Max. Vx	14	3.10	0.35	-16.85
			Max. Torque	24			0.92
L2	150 - 145	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.86	1.07	-0.66
			Max. Mx	20	-1.82	33.27	-0.22
			Max. My	14	-1.82	0.34	-33.08
			Max. Vy	20	-3.40	33.27	-0.22
			Max. Vx	14	3.40	0.34	-33.08
			Max. Torque	24			0.92
L3	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6.02	1.04	-0.67
			Max. Mx	20	-2.29	51.87	-0.24
			Max. My	14	-2.29	0.36	-51.70
			Max. Vy	20	-4.13	51.87	-0.24
			Max. Vx	14	4.14	0.36	-51.70
			Max. Torque	24			0.93
L4	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-12.39	-1.43	-0.60
			Max. Mx	8	-4.53	-92.83	0.13
			Max. My	14	-4.53	0.48	-93.25
			Max. Vy	20	-8.23	92.79	-0.43
			Max. Vx	14	8.26	0.48	-93.25
			Max. Torque	16			2.22

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-13.01	-1.46	-0.61
			Max. Mx	8	-4.87	-134.79	0.38
			Max. My	14	-4.86	0.72	-135.39
			Max. Vy	20	-8.56	134.74	-0.69
			Max. Vx	14	8.60	0.72	-135.39
			Max. Torque	16			2.22
L6	130 - 125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.62	-0.96	0.11
			Max. Mx	20	-7.85	173.97	-0.61
			Max. My	14	-7.84	0.79	-174.32
			Max. Vy	20	-16.04	173.97	-0.61
			Max. Vx	14	16.09	0.79	-174.32
			Max. Torque	16			2.22
L7	125 - 122.94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.74	-1.00	0.10
			Max. Mx	20	-8.53	255.11	-0.86
			Max. My	14	-8.52	1.02	-255.73
			Max. Vy	20	-16.41	255.11	-0.86
			Max. Vx	14	16.46	1.02	-255.73
			Max. Torque	2			-1.51
L8	122.94 - 117.94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.57	-1.04	0.08
			Max. Mx	20	-9.11	338.01	-1.11
			Max. My	14	-9.10	1.24	-338.89
			Max. Vy	20	-16.76	338.01	-1.11
			Max. Vx	14	16.81	1.24	-338.89
			Max. Torque	2			-1.51
L9	117.94 - 112.94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.44	-1.08	0.07
			Max. Mx	20	-9.72	422.64	-1.36
			Max. My	14	-9.71	1.47	-423.78
			Max. Vy	20	-17.11	422.64	-1.36
			Max. Vx	14	17.16	1.47	-423.78
			Max. Torque	2			-1.51
L10	112.94 - 107.94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.33	-1.11	0.06
			Max. Mx	20	-10.36	509.00	-1.60
			Max. My	14	-10.35	1.70	-510.41
			Max. Vy	20	-17.45	509.00	-1.60
			Max. Vx	14	17.51	1.70	-510.41
			Max. Torque	2			-1.51
L11	107.94 - 102.94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.25	-1.15	0.04
			Max. Mx	20	-11.02	597.11	-1.85
			Max. My	14	-11.01	1.93	-598.78
			Max. Vy	20	-17.81	597.11	-1.85
			Max. Vx	14	17.86	1.93	-598.78
			Max. Torque	2			-1.51
L12	102.94 - 97.94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.24	-1.17	0.03
			Max. Mx	20	-11.72	686.98	-2.09
			Max. My	14	-11.71	2.17	-688.91
			Max. Vy	20	-18.16	686.98	-2.09
			Max. Vx	14	18.21	2.17	-688.91
			Max. Torque	2			-1.51
L13	97.94 - 97.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.34	-1.18	0.03
			Max. Mx	20	-11.79	694.97	-2.12
			Max. My	14	-11.78	2.19	-696.93
			Max. Vy	20	-18.18	694.97	-2.12
			Max. Vx	14	18.24	2.19	-696.93
			Max. Torque	2			-1.50
L14	97.5 - 97.25	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	-29.39	-1.18	0.03
			Max. Mx	20	-11.82	699.52	-2.13
			Max. My	14	-11.82	2.20	-701.49
			Max. Vy	20	-18.20	699.52	-2.13
			Max. Vx	14	18.25	2.20	-701.49
			Max. Torque	2			-1.50
L15	97.25 - 92.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.54	-1.20	0.01
			Max. Mx	20	-12.54	791.38	-2.37
			Max. My	14	-12.53	2.43	-793.61
			Max. Vy	20	-18.56	791.38	-2.37
			Max. Vx	14	18.61	2.43	-793.61
			Max. Torque	2			-1.50
L16	92.25 - 84	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.53	-1.22	0.00
			Max. Mx	20	-13.16	869.90	-2.58
			Max. My	14	-13.15	2.63	-872.36
			Max. Vy	20	-18.85	869.90	-2.58
			Max. Vx	14	18.90	2.63	-872.36
			Max. Torque	2			-1.50
L17	84 - 83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.53	-1.25	-0.01
			Max. Mx	20	-14.42	966.20	-2.82
			Max. My	14	-14.41	2.86	-968.92
			Max. Vy	20	-19.29	966.20	-2.82
			Max. Vx	14	19.34	2.86	-968.92
			Max. Torque	2			-1.50
L18	83 - 78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.72	-1.28	-0.03
			Max. Mx	20	-15.31	1063.52	-3.07
			Max. My	14	-15.30	3.10	-1066.50
			Max. Vy	20	-19.66	1063.52	-3.07
			Max. Vx	14	19.71	3.10	-1066.50
			Max. Torque	2			-1.50
L19	78 - 73	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.07	-1.30	-0.29
			Max. Mx	20	-16.30	1162.75	-3.44
			Max. My	14	-16.30	3.33	-1166.10
			Max. Vy	20	-20.11	1162.75	-3.44
			Max. Vx	14	20.12	3.33	-1166.10
			Max. Torque	16			1.57
L20	73 - 68	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.39	-1.33	-0.31
			Max. Mx	20	-17.25	1264.14	-3.69
			Max. My	14	-17.25	3.57	-1267.58
			Max. Vy	20	-20.47	1264.14	-3.69
			Max. Vx	14	20.49	3.57	-1267.58
			Max. Torque	16			1.57
L21	68 - 67.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.48	-1.33	-0.31
			Max. Mx	20	-17.32	1269.26	-3.70
			Max. My	14	-17.32	3.58	-1272.70
			Max. Vy	20	-20.48	1269.26	-3.70
			Max. Vx	14	20.50	3.58	-1272.70
			Max. Torque	16			1.56
L22	67.75 - 62.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.31	-1.36	-0.32
			Max. Mx	20	-18.61	1372.70	-3.94
			Max. My	14	-18.61	3.81	-1376.23
			Max. Vy	20	-20.90	1372.70	-3.94
			Max. Vx	14	20.92	3.81	-1376.23
			Max. Torque	16			1.56
L23	62.75 - 57.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.17	-1.39	-0.34
			Max. Mx	20	-19.93	1478.19	-4.18
			Max. My	14	-19.93	4.05	-1481.81

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-21.31	1478.19	-4.18
			Max. Vx	14	21.33	4.05	-1481.81
			Max. Torque	16			1.56
L24	57.75 - 52.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.06	-1.42	-0.36
			Max. Mx	20	-21.27	1585.71	-4.42
			Max. My	14	-21.27	4.28	-1589.41
			Max. Vy	20	-21.71	1585.71	-4.42
			Max. Vx	14	21.73	4.28	-1589.41
			Max. Torque	16			1.56
L25	52.75 - 45	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.07	-1.43	-0.37
			Max. Mx	20	-22.00	1643.73	-4.55
			Max. My	14	-22.00	4.41	-1647.47
			Max. Vy	20	-21.93	1643.73	-4.55
			Max. Vx	14	21.94	4.41	-1647.47
			Max. Torque	16			1.56
L26	45 - 44	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.75	-1.47	-0.39
			Max. Mx	20	-24.61	1778.90	-4.84
			Max. My	14	-24.61	4.69	-1782.76
			Max. Vy	20	-22.47	1778.90	-4.84
			Max. Vx	14	22.49	4.69	-1782.76
			Max. Torque	16			1.56
L27	44 - 39	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.32	-1.50	-0.40
			Max. Mx	20	-25.84	1892.05	-5.08
			Max. My	14	-25.84	4.93	-1895.99
			Max. Vy	20	-22.81	1892.05	-5.08
			Max. Vx	14	22.83	4.93	-1895.99
			Max. Torque	16			1.56
L28	39 - 34	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.92	-1.53	-0.42
			Max. Mx	20	-27.10	2006.88	-5.32
			Max. My	14	-27.09	5.16	-2010.90
			Max. Vy	20	-23.14	2006.88	-5.32
			Max. Vx	14	23.16	5.16	-2010.90
			Max. Torque	16			1.56
L29	34 - 29	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.56	-1.56	-0.44
			Max. Mx	20	-28.38	2123.33	-5.56
			Max. My	14	-28.38	5.40	-2127.43
			Max. Vy	20	-23.46	2123.33	-5.56
			Max. Vx	14	23.48	5.40	-2127.43
			Max. Torque	16			1.56
L30	29 - 24	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.22	-1.58	-0.45
			Max. Mx	20	-29.70	2241.36	-5.80
			Max. My	14	-29.69	5.63	-2245.55
			Max. Vy	20	-23.78	2241.36	-5.80
			Max. Vx	14	23.79	5.63	-2245.55
			Max. Torque	16			1.56
L31	24 - 19	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.91	-1.61	-0.47
			Max. Mx	20	-31.04	2360.97	-6.03
			Max. My	14	-31.04	5.86	-2365.25
			Max. Vy	20	-24.10	2360.97	-6.03
			Max. Vx	14	24.11	5.86	-2365.25
			Max. Torque	16			1.56
L32	19 - 14	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.63	-1.64	-0.48
			Max. Mx	20	-32.41	2482.19	-6.26
			Max. My	14	-32.41	6.09	-2486.55
			Max. Vy	20	-24.42	2482.19	-6.26
			Max. Vx	14	24.43	6.09	-2486.55
			Max. Torque	16			1.56
L33	14 - 9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.37	-1.66	-0.50

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-33.81	2605.03	-6.50
			Max. My	14	-33.81	6.32	-2609.47
			Max. Vy	20	-24.74	2605.03	-6.50
			Max. Vx	14	24.76	6.32	-2609.47
			Max. Torque	16			1.56
L34	9 - 4	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.01	-1.66	-0.50
			Max. Mx	20	-35.15	2729.50	-6.72
			Max. My	14	-35.15	6.55	-2734.02
			Max. Vy	20	-25.07	2729.50	-6.72
			Max. Vx	14	25.09	6.55	-2734.02
			Max. Torque	16			1.56
L35	4 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.30	-1.66	-0.50
			Max. Mx	20	-36.21	2830.27	-6.91
			Max. My	14	-36.21	6.74	-2834.84
			Max. Vy	20	-25.34	2830.27	-6.91
			Max. Vx	14	25.35	6.74	-2834.84
			Max. Torque	16			1.56

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	62.30	-0.00	-0.00
	Max. H_x	20	36.22	25.32	-0.05
	Max. H_z	2	36.22	-0.05	25.34
	Max. M_x	2	2834.36	-0.05	25.34
	Max. M_z	8	2830.19	-25.32	0.05
	Max. Torsion	16	1.56	12.70	-21.97
	Min. Vert	17	27.17	12.70	-21.97
	Min. H_x	8	36.22	-25.32	0.05
	Min. H_z	14	36.22	0.05	-25.34
	Min. M_x	14	-2834.84	0.05	-25.34
	Min. M_z	20	-2830.27	25.32	-0.05
	Min. Torsion	4	-1.56	-12.70	21.97

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	30.18	0.00	0.00	0.19	0.03	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	36.22	0.05	-25.34	-2834.36	-6.61	1.49
0.9 Dead+1.6 Wind 0 deg - No Ice	27.17	0.05	-25.34	-2802.82	-6.54	1.49
1.2 Dead+1.6 Wind 30 deg - No Ice	36.22	12.70	-21.97	-2457.93	-1420.81	1.56
0.9 Dead+1.6 Wind 30 deg - No Ice	27.17	12.70	-21.97	-2430.58	-1404.98	1.55
1.2 Dead+1.6 Wind 60 deg - No Ice	36.22	21.95	-12.71	-1422.85	-2454.30	1.21
0.9 Dead+1.6 Wind 60 deg - No Ice	27.17	21.95	-12.71	-1407.04	-2426.97	1.20
1.2 Dead+1.6 Wind 90 deg - No Ice	36.22	25.32	-0.05	-6.44	-2830.19	0.53
0.9 Dead+1.6 Wind 90 deg - No Ice	27.17	25.32	-0.05	-6.42	-2798.66	0.52
1.2 Dead+1.6 Wind 120 deg	36.22	21.91	12.63	1411.79	-2447.69	-0.28

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 120 deg - No Ice	27.17	21.91	12.63	1396.00	-2420.43	-0.29
1.2 Dead+1.6 Wind 150 deg - No Ice	36.22	12.62	21.92	2451.78	-1409.28	-1.02
0.9 Dead+1.6 Wind 150 deg - No Ice	27.17	12.62	21.92	2424.39	-1393.60	-1.03
1.2 Dead+1.6 Wind 180 deg - No Ice	36.22	-0.05	25.34	2834.84	6.74	-1.49
0.9 Dead+1.6 Wind 180 deg - No Ice	27.17	-0.05	25.34	2803.18	6.64	-1.49
1.2 Dead+1.6 Wind 210 deg - No Ice	36.22	-12.70	21.97	2458.38	1420.93	-1.56
0.9 Dead+1.6 Wind 210 deg - No Ice	27.17	-12.70	21.97	2430.91	1405.07	-1.55
1.2 Dead+1.6 Wind 240 deg - No Ice	36.22	-21.95	12.71	1423.30	2454.40	-1.21
0.9 Dead+1.6 Wind 240 deg - No Ice	27.17	-21.95	12.71	1407.37	2427.04	-1.20
1.2 Dead+1.6 Wind 270 deg - No Ice	36.22	-25.32	0.05	6.91	2830.27	-0.53
0.9 Dead+1.6 Wind 270 deg - No Ice	27.17	-25.32	0.05	6.76	2798.72	-0.52
1.2 Dead+1.6 Wind 300 deg - No Ice	36.22	-21.91	-12.63	-1411.30	2447.78	0.29
0.9 Dead+1.6 Wind 300 deg - No Ice	27.17	-21.91	-12.63	-1395.63	2420.49	0.29
1.2 Dead+1.6 Wind 330 deg - No Ice	36.22	-12.62	-21.92	-2451.28	1409.40	1.03
0.9 Dead+1.6 Wind 330 deg - No Ice	27.17	-12.62	-21.92	-2424.02	1393.68	1.03
1.2 Dead+1.0 Ice+1.0 Temp	62.30	0.00	0.00	0.50	-1.66	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	62.30	-0.01	-6.43	-735.92	-0.95	0.22
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	62.30	3.23	-5.57	-636.83	-370.99	0.26
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	62.30	5.59	-3.21	-366.95	-642.11	0.23
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	62.30	6.46	0.01	1.39	-741.66	0.14
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	62.30	5.60	3.22	369.50	-642.97	0.02
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	62.30	3.24	5.57	638.74	-372.48	-0.11
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	62.30	0.01	6.43	736.98	-2.67	-0.21
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	62.30	-3.23	5.57	637.88	367.38	-0.26
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	62.30	-5.59	3.21	368.01	638.49	-0.23
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	62.30	-6.46	-0.01	-0.33	738.04	-0.14
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	62.30	-5.60	-3.22	-368.44	639.35	-0.02
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	62.30	-3.24	-5.57	-637.68	368.86	0.11
Dead+Wind 0 deg - Service	30.18	0.01	-4.63	-514.59	-1.18	0.28
Dead+Wind 30 deg - Service	30.18	2.32	-4.01	-446.23	-258.01	0.29
Dead+Wind 60 deg - Service	30.18	4.01	-2.32	-258.24	-445.70	0.22
Dead+Wind 90 deg - Service	30.18	4.62	-0.01	-1.01	-513.95	0.10
Dead+Wind 120 deg - Service	30.18	4.00	2.31	256.54	-444.49	-0.05
Dead+Wind 150 deg - Service	30.18	2.30	4.00	445.41	-255.91	-0.19
Dead+Wind 180 deg - Service	30.18	-0.01	4.63	514.98	1.25	-0.28
Dead+Wind 210 deg - Service	30.18	-2.32	4.01	446.62	258.08	-0.29
Dead+Wind 240 deg -	30.18	-4.01	2.32	258.64	445.77	-0.22

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
Service Dead+Wind 270 deg - Service	30.18	-4.62	0.01	1.41	514.02	-0.10
Dead+Wind 300 deg - Service	30.18	-4.00	-2.31	-256.15	444.56	0.05
Dead+Wind 330 deg - Service	30.18	-2.30	-4.00	-445.01	255.98	0.19

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	-30.18	0.00	0.00	30.18	0.00	0.000%
2	0.05	-36.22	-25.34	-0.05	36.22	25.34	0.000%
3	0.05	-27.17	-25.34	-0.05	27.17	25.34	0.000%
4	12.70	-36.22	-21.97	-12.70	36.22	21.97	0.000%
5	12.70	-27.17	-21.97	-12.70	27.17	21.97	0.000%
6	21.95	-36.22	-12.71	-21.95	36.22	12.71	0.000%
7	21.95	-27.17	-12.71	-21.95	27.17	12.71	0.000%
8	25.32	-36.22	-0.05	-25.32	36.22	0.05	0.000%
9	25.32	-27.17	-0.05	-25.32	27.17	0.05	0.000%
10	21.91	-36.22	12.63	-21.91	36.22	-12.63	0.000%
11	21.91	-27.17	12.63	-21.91	27.17	-12.63	0.000%
12	12.62	-36.22	21.92	-12.62	36.22	-21.92	0.000%
13	12.62	-27.17	21.92	-12.62	27.17	-21.92	0.000%
14	-0.05	-36.22	25.34	0.05	36.22	-25.34	0.000%
15	-0.05	-27.17	25.34	0.05	27.17	-25.34	0.000%
16	-12.70	-36.22	21.97	12.70	36.22	-21.97	0.000%
17	-12.70	-27.17	21.97	12.70	27.17	-21.97	0.000%
18	-21.95	-36.22	12.71	21.95	36.22	-12.71	0.000%
19	-21.95	-27.17	12.71	21.95	27.17	-12.71	0.000%
20	-25.32	-36.22	0.05	25.32	36.22	-0.05	0.000%
21	-25.32	-27.17	0.05	25.32	27.17	-0.05	0.000%
22	-21.91	-36.22	-12.63	21.91	36.22	12.63	0.000%
23	-21.91	-27.17	-12.63	21.91	27.17	12.63	0.000%
24	-12.62	-36.22	-21.92	12.62	36.22	21.92	0.000%
25	-12.62	-27.17	-21.92	12.62	27.17	21.92	0.000%
26	0.00	-62.30	0.00	-0.00	62.30	-0.00	0.000%
27	-0.01	-62.30	-6.43	0.01	62.30	6.43	0.000%
28	3.23	-62.30	-5.57	-3.23	62.30	5.57	0.000%
29	5.59	-62.30	-3.21	-5.59	62.30	3.21	0.000%
30	6.46	-62.30	0.01	-6.46	62.30	-0.01	0.000%
31	5.60	-62.30	3.22	-5.60	62.30	-3.22	0.000%
32	3.24	-62.30	5.57	-3.24	62.30	-5.57	0.000%
33	0.01	-62.30	6.43	-0.01	62.30	-6.43	0.000%
34	-3.23	-62.30	5.57	3.23	62.30	-5.57	0.000%
35	-5.59	-62.30	3.21	5.59	62.30	-3.21	0.000%
36	-6.46	-62.30	-0.01	6.46	62.30	0.01	0.000%
37	-5.60	-62.30	-3.22	5.60	62.30	3.22	0.000%
38	-3.24	-62.30	-5.57	3.24	62.30	5.57	0.000%
39	0.01	-30.18	-4.63	-0.01	30.18	4.63	0.000%
40	2.32	-30.18	-4.01	-2.32	30.18	4.01	0.000%
41	4.01	-30.18	-2.32	-4.01	30.18	2.32	0.000%
42	4.62	-30.18	-0.01	-4.62	30.18	0.01	0.000%
43	4.00	-30.18	2.31	-4.00	30.18	-2.31	0.000%
44	2.30	-30.18	4.00	-2.30	30.18	-4.00	0.000%
45	-0.01	-30.18	4.63	0.01	30.18	-4.63	0.000%
46	-2.32	-30.18	4.01	2.32	30.18	-4.01	0.000%
47	-4.01	-30.18	2.32	4.01	30.18	-2.32	0.000%
48	-4.62	-30.18	0.01	4.62	30.18	-0.01	0.000%
49	-4.00	-30.18	-2.31	4.00	30.18	2.31	0.000%
50	-2.30	-30.18	-4.00	2.30	30.18	4.00	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	0.00067699
3	Yes	5	0.00000001	0.00029973
4	Yes	6	0.00000001	0.00062906
5	Yes	6	0.00000001	0.00018507
6	Yes	6	0.00000001	0.00059560
7	Yes	6	0.00000001	0.00017352
8	Yes	5	0.00000001	0.00015502
9	Yes	5	0.00000001	0.00006154
10	Yes	6	0.00000001	0.00060113
11	Yes	6	0.00000001	0.00017615
12	Yes	6	0.00000001	0.00061862
13	Yes	6	0.00000001	0.00018226
14	Yes	5	0.00000001	0.00051595
15	Yes	5	0.00000001	0.00022955
16	Yes	6	0.00000001	0.00059204
17	Yes	6	0.00000001	0.00017216
18	Yes	6	0.00000001	0.00062426
19	Yes	6	0.00000001	0.00018338
20	Yes	5	0.00000001	0.00029696
21	Yes	5	0.00000001	0.00012605
22	Yes	6	0.00000001	0.00060869
23	Yes	6	0.00000001	0.00017890
24	Yes	6	0.00000001	0.00059247
25	Yes	6	0.00000001	0.00017314
26	Yes	4	0.00000001	0.00014577
27	Yes	6	0.00000001	0.00077142
28	Yes	7	0.00000001	0.00013073
29	Yes	6	0.00000001	0.00099911
30	Yes	6	0.00000001	0.00077845
31	Yes	7	0.00000001	0.00013101
32	Yes	7	0.00000001	0.00013111
33	Yes	6	0.00000001	0.00077270
34	Yes	6	0.00000001	0.00098954
35	Yes	6	0.00000001	0.00099822
36	Yes	6	0.00000001	0.00077107
37	Yes	6	0.00000001	0.00099632
38	Yes	6	0.00000001	0.00099313
39	Yes	4	0.00000001	0.00065219
40	Yes	5	0.00000001	0.00013175
41	Yes	5	0.00000001	0.00011205
42	Yes	4	0.00000001	0.00042999
43	Yes	5	0.00000001	0.00011515
44	Yes	5	0.00000001	0.00012586
45	Yes	4	0.00000001	0.00063386
46	Yes	5	0.00000001	0.00011093
47	Yes	5	0.00000001	0.00012855
48	Yes	4	0.00000001	0.00043957
49	Yes	5	0.00000001	0.00011957
50	Yes	5	0.00000001	0.00011099

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	155 - 150	22.354	46	1.3497	0.0044
L2	150 - 145	20.944	46	1.3425	0.0048
L3	145 - 140	19.545	46	1.3282	0.0051
L4	140 - 135	18.164	46	1.3086	0.0053
L5	135 - 130	16.808	46	1.2808	0.0042

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L6	130 - 125	15.485	46	1.2437	0.0033
L7	127.94 - 122.94	14.953	46	1.2252	0.0030
L8	122.94 - 117.94	13.684	46	1.1916	0.0027
L9	117.94 - 112.94	12.464	46	1.1383	0.0023
L10	112.94 - 107.94	11.302	46	1.0787	0.0020
L11	107.94 - 102.94	10.206	46	1.0147	0.0018
L12	102.94 - 97.94	9.178	46	0.9478	0.0015
L13	97.94 - 97.5	8.222	46	0.8789	0.0013
L14	97.5 - 97.25	8.141	46	0.8728	0.0013
L15	97.25 - 92.25	8.096	46	0.8694	0.0013
L16	92.25 - 84	7.222	46	0.7994	0.0011
L17	88.05 - 83	6.545	46	0.7403	0.0010
L18	83 - 78	5.779	46	0.7023	0.0009
L19	78 - 73	5.075	46	0.6434	0.0008
L20	73 - 68	4.432	46	0.5851	0.0007
L21	68 - 67.75	3.849	46	0.5275	0.0006
L22	67.75 - 62.75	3.822	46	0.5256	0.0006
L23	62.75 - 57.75	3.291	46	0.4888	0.0005
L24	57.75 - 52.75	2.798	46	0.4516	0.0004
L25	52.75 - 45	2.344	46	0.4152	0.0004
L26	50.09 - 44	2.119	46	0.3958	0.0004
L27	44 - 39	1.630	46	0.3660	0.0003
L28	39 - 34	1.270	46	0.3206	0.0003
L29	34 - 29	0.958	46	0.2763	0.0002
L30	29 - 24	0.691	46	0.2329	0.0002
L31	24 - 19	0.470	46	0.1905	0.0002
L32	19 - 14	0.292	46	0.1490	0.0001
L33	14 - 9	0.157	46	0.1085	0.0001
L34	9 - 4	0.065	46	0.0690	0.0001
L35	4 - 0	0.013	46	0.0303	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
155.00	(2) DB980H90E-M w/ Mount Pipe	46	22.354	1.3497	0.0044	25902
142.00	RRUS 11	46	18.714	1.3173	0.0053	13989
140.00	7770.00 w/ Mount Pipe	46	18.164	1.3086	0.0053	12351
129.25	LPA-80063/6CF w/ Mount Pipe	46	15.291	1.2368	0.0032	7876
74.00	KS24019-L112A	46	4.555	0.5971	0.0007	4900

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	155 - 150	122.782	16	7.4175	0.0237
L2	150 - 145	115.065	16	7.3840	0.0258
L3	145 - 140	107.405	16	7.3102	0.0274
L4	140 - 135	99.838	16	7.2060	0.0288
L5	135 - 130	92.399	16	7.0543	0.0228
L6	130 - 125	85.146	16	6.8511	0.0177
L7	127.94 - 122.94	82.223	16	6.7491	0.0162
L8	122.94 - 117.94	75.262	16	6.5648	0.0146
L9	117.94 - 112.94	68.562	16	6.2712	0.0127
L10	112.94 - 107.94	62.185	16	5.9431	0.0110
L11	107.94 - 102.94	56.162	16	5.5907	0.0095
L12	102.94 - 97.94	50.514	16	5.2220	0.0082
L13	97.94 - 97.5	45.255	16	4.8428	0.0071
L14	97.5 - 97.25	44.811	16	4.8093	0.0070

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L15	97.25 - 92.25	44.560	16	4.7901	0.0069
L16	92.25 - 84	39.755	16	4.4044	0.0059
L17	88.05 - 83	36.029	16	4.0787	0.0052
L18	83 - 78	31.818	16	3.8697	0.0047
L19	78 - 73	27.941	16	3.5448	0.0041
L20	73 - 68	24.401	16	3.2233	0.0035
L21	68 - 67.75	21.195	16	2.9060	0.0030
L22	67.75 - 62.75	21.043	16	2.8957	0.0030
L23	62.75 - 57.75	18.119	16	2.6926	0.0027
L24	57.75 - 52.75	15.409	16	2.4880	0.0024
L25	52.75 - 45	12.910	16	2.2871	0.0021
L26	50.09 - 44	11.666	16	2.1805	0.0020
L27	44 - 39	8.975	16	2.0163	0.0018
L28	39 - 34	6.996	16	1.7662	0.0015
L29	34 - 29	5.275	16	1.5217	0.0013
L30	29 - 24	3.807	16	1.2826	0.0011
L31	24 - 19	2.587	16	1.0489	0.0008
L32	19 - 14	1.609	16	0.8206	0.0006
L33	14 - 9	0.867	16	0.5975	0.0005
L34	9 - 4	0.355	16	0.3796	0.0003
L35	4 - 0	0.070	16	0.1668	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
155.00	(2) DB980H90E-M w/ Mount Pipe	16	122.782	7.4175	0.0237	5417
142.00	RRUS 11	16	102.851	7.2524	0.0289	2708
140.00	7770.00 w/ Mount Pipe	16	99.838	7.2060	0.0288	2364
129.25	LPA-80063/6CF w/ Mount Pipe	16	84.078	6.8132	0.0171	1478
74.00	KS24019-L112A	16	25.082	3.2897	0.0037	896

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	155 - 150 (1)	TP18.1483x17x0.1875	5.00	0.00	0.0	10.6889	-1.60	794.13	0.002
L2	150 - 145 (2)	TP19.2967x18.1483x0.1875	5.00	0.00	0.0	11.3723	-1.82	840.98	0.002
L3	145 - 140 (3)	TP20.445x19.2967x0.1875	5.00	0.00	0.0	12.0557	-2.29	877.76	0.003
L4	140 - 135 (4)	TP21.5933x20.445x0.1875	5.00	0.00	0.0	12.7391	-4.52	912.99	0.005
L5	135 - 130 (5)	TP22.7417x21.5933x0.1875	5.00	0.00	0.0	13.4225	-4.85	946.65	0.005
L6	130 - 125 (6)	TP23.89x22.7417x0.1875	5.00	0.00	0.0	13.7041	-7.83	960.06	0.008
L7	125 - 122.94 (7)	TP23.9857x22.8398x0.25	5.00	0.00	0.0	18.8343	-8.51	1399.29	0.006
L8	122.94 - 117.94 (8)	TP25.1316x23.9857x0.25	5.00	0.00	0.0	19.7435	-9.09	1466.85	0.006
L9	117.94 - 112.94 (9)	TP26.2775x25.1316x0.25	5.00	0.00	0.0	20.6528	-9.70	1518.83	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L10	112.94 - 107.94 (10)	TP27.4234x26.2775x0.25	5.00	0.00	0.0	21.5621	-10.34	1567.28	0.007
L11	107.94 - 102.94 (11)	TP28.5693x27.4234x0.25	5.00	0.00	0.0	22.4714	-11.01	1614.19	0.007
L12	102.94 - 97.94 (12)	TP29.7152x28.5693x0.25	5.00	0.00	0.0	23.3806	-11.70	1659.54	0.007
L13	97.94 - 97.5 (13)	TP29.8161x29.7152x0.25	0.44	0.00	0.0	23.4607	-11.77	1663.45	0.007
L14	97.5 - 97.25 (14)	TP29.8734x29.8161x0.25	0.25	0.00	0.0	23.5061	-11.81	1665.67	0.007
L15	97.25 - 92.25 (15)	TP31.0193x29.8734x0.25	5.00	0.00	0.0	24.4154	-12.52	1709.26	0.007
L16	92.25 - 84 (16)	TP32.91x31.0193x0.25	8.25	0.00	0.0	25.1792	-13.15	1744.67	0.008
L17	84 - 83 (17)	TP32.6394x31.4818x0.3125	5.05	0.00	0.0	32.0643	-14.41	2362.00	0.006
L18	83 - 78 (18)	TP33.7855x32.6394x0.3125	5.00	0.00	0.0	33.2011	-15.30	2423.06	0.006
L19	78 - 73 (19)	TP34.9317x33.7855x0.3125	5.00	0.00	0.0	34.3379	-16.30	2482.56	0.007
L20	73 - 68 (20)	TP36.0778x34.9317x0.3125	5.00	0.00	0.0	35.4747	-17.24	2540.51	0.007
L21	68 - 67.75 (21)	TP36.1351x36.0778x0.4875	0.25	0.00	0.0	55.1584	-17.32	4098.00	0.004
L22	67.75 - 62.75 (22)	TP37.2812x36.1351x0.4875	5.00	0.00	0.0	56.9319	-18.60	4229.75	0.004
L23	62.75 - 57.75 (23)	TP38.4274x37.2812x0.475	5.00	0.00	0.0	57.2189	-19.92	4251.08	0.005
L24	57.75 - 52.75 (24)	TP39.5735x38.4274x0.475	5.00	0.00	0.0	58.9468	-21.27	4379.46	0.005
L25	52.75 - 45 (25)	TP41.35x39.5735x0.4688	7.75	0.00	0.0	59.0877	-21.99	4389.92	0.005
L26	45 - 44 (26)	TP40.9542x39.5582x0.375	6.09	0.00	0.0	48.2994	-24.61	3515.07	0.007
L27	44 - 39 (27)	TP42.1003x40.9542x0.375	5.00	0.00	0.0	49.6636	-25.83	3586.08	0.007
L28	39 - 34 (28)	TP43.2464x42.1003x0.375	5.00	0.00	0.0	51.0277	-27.09	3655.52	0.007
L29	34 - 29 (29)	TP44.3925x43.2464x0.375	5.00	0.00	0.0	52.3919	-28.38	3723.42	0.008
L30	29 - 24 (30)	TP45.5387x44.3925x0.375	5.00	0.00	0.0	53.7560	-29.69	3789.76	0.008
L31	24 - 19 (31)	TP46.6848x45.5387x0.375	5.00	0.00	0.0	55.1202	-31.04	3854.55	0.008
L32	19 - 14 (32)	TP47.8309x46.6848x0.375	5.00	0.00	0.0	56.4844	-32.41	3917.78	0.008
L33	14 - 9 (33)	TP48.977x47.8309x0.375	5.00	0.00	0.0	57.8485	-33.81	3979.46	0.008
L34	9 - 4 (34)	TP50.1231x48.977x0.375	5.00	0.00	0.0	59.2127	-35.15	4039.59	0.009
L35	4 - 0 (35)	TP51.04x50.1231x0.375	4.00	0.00	0.0	60.3040	-36.21	4086.57	0.009

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	155 - 150 (1)	TP18.1483x17x0.1875	17.11	292.55	0.058	0.00	292.55	0.000
L2	150 - 145 (2)	TP19.2967x18.1483x0.1875	33.34	329.82	0.101	0.00	329.82	0.000
L3	145 - 140 (3)	TP20.445x19.2967x0.1875	51.97	365.14	0.142	0.00	365.14	0.000
L4	140 - 135 (4)	TP21.5933x20.445x0.1875	93.40	401.51	0.233	0.00	401.51	0.000

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 $\frac{M_{uy}}{\phi M_{ny}}$
L5	135 - 130 (5)	TP22.7417x21.5933x0.1875	135.71	438.85	0.309	0.00	438.85	0.000
L6	130 - 125 (6)	TP23.89x22.7417x0.1875	174.76	454.48	0.385	0.00	454.48	0.000
L7	125 - 122.94 (7)	TP23.9857x22.8398x0.25	256.30	681.16	0.376	0.00	681.16	0.000
L8	122.94 - 117.94 (8)	TP25.1316x23.9857x0.25	339.61	748.88	0.453	0.00	748.88	0.000
L9	117.94 - 112.94 (9)	TP26.2775x25.1316x0.25	424.64	811.49	0.523	0.00	811.49	0.000
L10	112.94 - 107.94 (10)	TP27.4234x26.2775x0.25	511.41	874.59	0.585	0.00	874.59	0.000
L11	107.94 - 102.94 (11)	TP28.5693x27.4234x0.25	599.93	939.10	0.639	0.00	939.10	0.000
L12	102.94 - 97.94 (12)	TP29.7152x28.5693x0.25	690.20	1004.89	0.687	0.00	1004.89	0.000
L13	97.94 - 97.5 (13)	TP29.8161x29.7152x0.25	698.22	1010.74	0.691	0.00	1010.74	0.000
L14	97.5 - 97.25 (14)	TP29.8734x29.8161x0.25	702.79	1014.07	0.693	0.00	1014.07	0.000
L15	97.25 - 92.25 (15)	TP31.0193x29.8734x0.25	795.06	1081.19	0.735	0.00	1081.19	0.000
L16	92.25 - 84 (16)	TP32.91x31.0193x0.25	873.92	1138.39	0.768	0.00	1138.39	0.000
L17	84 - 83 (17)	TP32.6394x31.4818x0.3125	970.63	1567.33	0.619	0.00	1567.33	0.000
L18	83 - 78 (18)	TP33.7855x32.6394x0.3125	1068.35	1665.38	0.641	0.00	1665.38	0.000
L19	78 - 73 (19)	TP34.9317x33.7855x0.3125	1168.08	1765.25	0.662	0.00	1765.25	0.000
L20	73 - 68 (20)	TP36.0778x34.9317x0.3125	1269.74	1866.80	0.680	0.00	1866.80	0.000
L21	68 - 67.75 (21)	TP36.1351x36.0778x0.4875	1274.88	2986.72	0.427	0.00	2986.72	0.000
L22	67.75 - 62.75 (22)	TP37.2812x36.1351x0.4875	1378.58	3183.21	0.433	0.00	3183.21	0.000
L23	62.75 - 57.75 (23)	TP38.4274x37.2812x0.475	1484.35	3302.39	0.449	0.00	3302.39	0.000
L24	57.75 - 52.75 (24)	TP39.5735x38.4274x0.475	1592.14	3506.13	0.454	0.00	3506.13	0.000
L25	52.75 - 45 (25)	TP41.35x39.5735x0.4688	1650.30	3571.10	0.462	0.00	3571.10	0.000
L26	45 - 44 (26)	TP40.9542x39.5582x0.375	1785.81	2929.11	0.610	0.00	2929.11	0.000
L27	44 - 39 (27)	TP42.1003x40.9542x0.375	1899.22	3073.45	0.618	0.00	3073.45	0.000
L28	39 - 34 (28)	TP43.2464x42.1003x0.375	2014.32	3219.79	0.626	0.00	3219.79	0.000
L29	34 - 29 (29)	TP44.3925x43.2464x0.375	2131.03	3368.03	0.633	0.00	3368.03	0.000
L30	29 - 24 (30)	TP45.5387x44.3925x0.375	2249.33	3518.05	0.639	0.00	3518.05	0.000
L31	24 - 19 (31)	TP46.6848x45.5387x0.375	2369.21	3669.74	0.646	0.00	3669.74	0.000
L32	19 - 14 (32)	TP47.8309x46.6848x0.375	2490.69	3823.00	0.652	0.00	3823.00	0.000
L33	14 - 9 (33)	TP48.977x47.8309x0.375	2613.79	3977.71	0.657	0.00	3977.71	0.000
L34	9 - 4 (34)	TP50.1231x48.977x0.375	2738.52	4133.75	0.662	0.00	4133.75	0.000
L35	4 - 0 (35)	TP51.04x50.1231x0.375	2839.48	4259.48	0.667	0.00	4259.48	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	155 - 150 (1)	TP18.1483x17x0.1875	3.10	397.07	0.008	0.00	585.82	0.000

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 $\frac{T_u}{\phi T_n}$
L2	150 - 145 (2)	TP19.2967x18.1483x0.1875	3.40	420.49	0.008	0.00	660.45	0.000
L3	145 - 140 (3)	TP20.445x19.2967x0.1875	4.15	438.88	0.009	0.02	731.16	0.000
L4	140 - 135 (4)	TP21.5933x20.445x0.1875	8.30	456.49	0.018	2.22	804.01	0.003
L5	135 - 130 (5)	TP22.7417x21.5933x0.1875	8.63	473.32	0.018	2.22	878.77	0.003
L6	130 - 125 (6)	TP23.89x22.7417x0.1875	16.12	480.03	0.034	1.51	910.07	0.002
L7	125 - 122.94 (7)	TP23.9857x22.8398x0.25	16.49	699.65	0.024	1.51	1363.99	0.001
L8	122.94 - 117.94 (8)	TP25.1316x23.9857x0.25	16.84	733.42	0.023	1.51	1499.60	0.001
L9	117.94 - 112.94 (9)	TP26.2775x25.1316x0.25	17.19	759.41	0.023	1.51	1624.96	0.001
L10	112.94 - 107.94 (10)	TP27.4234x26.2775x0.25	17.54	783.64	0.022	1.50	1751.33	0.001
L11	107.94 - 102.94 (11)	TP28.5693x27.4234x0.25	17.89	807.09	0.022	1.50	1880.49	0.001
L12	102.94 - 97.94 (12)	TP29.7152x28.5693x0.25	18.24	829.77	0.022	1.50	2012.24	0.001
L13	97.94 - 97.5 (13)	TP29.8161x29.7152x0.25	18.27	831.73	0.022	1.50	2023.95	0.001
L14	97.5 - 97.25 (14)	TP29.8734x29.8161x0.25	18.29	832.84	0.022	1.50	2030.62	0.001
L15	97.25 - 92.25 (15)	TP31.0193x29.8734x0.25	18.64	854.63	0.022	1.50	2165.03	0.001
L16	92.25 - 84 (16)	TP32.91x31.0193x0.25	18.93	872.33	0.022	1.50	2279.57	0.001
L17	84 - 83 (17)	TP32.6394x31.4818x0.3125	19.37	1181.00	0.016	1.50	3138.47	0.000
L18	83 - 78 (18)	TP33.7855x32.6394x0.3125	19.74	1211.53	0.016	1.50	3334.85	0.000
L19	78 - 73 (19)	TP34.9317x33.7855x0.3125	20.16	1241.28	0.016	1.57	3534.82	0.000
L20	73 - 68 (20)	TP36.0778x34.9317x0.3125	20.52	1270.25	0.016	1.56	3738.16	0.000
L21	68 - 67.75 (21)	TP36.1351x36.0778x0.4875	20.54	2049.00	0.010	1.56	5980.76	0.000
L22	67.75 - 62.75 (22)	TP37.2812x36.1351x0.4875	20.96	2114.88	0.010	1.56	6374.20	0.000
L23	62.75 - 57.75 (23)	TP38.4274x37.2812x0.475	21.36	2125.54	0.010	1.56	6612.86	0.000
L24	57.75 - 52.75 (24)	TP39.5735x38.4274x0.475	21.77	2189.73	0.010	1.56	7020.84	0.000
L25	52.75 - 45 (25)	TP41.35x39.5735x0.4688	21.98	2194.96	0.010	1.56	7150.94	0.000
L26	45 - 44 (26)	TP40.9542x39.5582x0.375	22.52	1757.54	0.013	1.56	5865.38	0.000
L27	44 - 39 (27)	TP42.1003x40.9542x0.375	22.87	1793.04	0.013	1.56	6154.42	0.000
L28	39 - 34 (28)	TP43.2464x42.1003x0.375	23.20	1827.76	0.013	1.56	6447.46	0.000
L29	34 - 29 (29)	TP44.3925x43.2464x0.375	23.51	1861.71	0.013	1.56	6744.30	0.000
L30	29 - 24 (30)	TP45.5387x44.3925x0.375	23.83	1894.88	0.013	1.56	7044.70	0.000
L31	24 - 19 (31)	TP46.6848x45.5387x0.375	24.15	1927.27	0.013	1.56	7348.46	0.000
L32	19 - 14 (32)	TP47.8309x46.6848x0.375	24.47	1958.89	0.012	1.56	7655.35	0.000
L33	14 - 9 (33)	TP48.977x47.8309x0.375	24.79	1989.73	0.012	1.56	7965.14	0.000
L34	9 - 4 (34)	TP50.1231x48.977x0.375	25.12	2019.79	0.012	1.56	8277.62	0.000
L35	4 - 0 (35)	TP51.04x50.1231x0.375	25.39	2043.28	0.012	1.56	8529.42	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	155 - 150 (1)	0.002	0.058	0.000	0.008	0.000	0.061	1.000	4.8.2
L2	150 - 145 (2)	0.002	0.101	0.000	0.008	0.000	0.103	1.000	4.8.2
L3	145 - 140 (3)	0.003	0.142	0.000	0.009	0.000	0.145	1.000	4.8.2
L4	140 - 135 (4)	0.005	0.233	0.000	0.018	0.003	0.238	1.000	4.8.2
L5	135 - 130 (5)	0.005	0.309	0.000	0.018	0.003	0.315	1.000	4.8.2
L6	130 - 125 (6)	0.008	0.385	0.000	0.034	0.002	0.394	1.000	4.8.2
L7	125 - 122.94 (7)	0.006	0.376	0.000	0.024	0.001	0.383	1.000	4.8.2
L8	122.94 - 117.94 (8)	0.006	0.453	0.000	0.023	0.001	0.460	1.000	4.8.2
L9	117.94 - 112.94 (9)	0.006	0.523	0.000	0.023	0.001	0.530	1.000	4.8.2
L10	112.94 - 107.94 (10)	0.007	0.585	0.000	0.022	0.001	0.592	1.000	4.8.2
L11	107.94 - 102.94 (11)	0.007	0.639	0.000	0.022	0.001	0.646	1.000	4.8.2
L12	102.94 - 97.94 (12)	0.007	0.687	0.000	0.022	0.001	0.694	1.000	4.8.2
L13	97.94 - 97.5 (13)	0.007	0.691	0.000	0.022	0.001	0.698	1.000	4.8.2
L14	97.5 - 97.25 (14)	0.007	0.693	0.000	0.022	0.001	0.701	1.000	4.8.2
L15	97.25 - 92.25 (15)	0.007	0.735	0.000	0.022	0.001	0.743	1.000	4.8.2
L16	92.25 - 84 (16)	0.008	0.768	0.000	0.022	0.001	0.776	1.000	4.8.2
L17	84 - 83 (17)	0.006	0.619	0.000	0.016	0.000	0.626	1.000	4.8.2
L18	83 - 78 (18)	0.006	0.641	0.000	0.016	0.000	0.648	1.000	4.8.2
L19	78 - 73 (19)	0.007	0.662	0.000	0.016	0.000	0.669	1.000	4.8.2
L20	73 - 68 (20)	0.007	0.680	0.000	0.016	0.000	0.687	1.000	4.8.2
L21	68 - 67.75 (21)	0.004	0.427	0.000	0.010	0.000	0.431	1.000	4.8.2
L22	67.75 - 62.75 (22)	0.004	0.433	0.000	0.010	0.000	0.438	1.000	4.8.2
L23	62.75 - 57.75 (23)	0.005	0.449	0.000	0.010	0.000	0.454	1.000	4.8.2
L24	57.75 - 52.75 (24)	0.005	0.454	0.000	0.010	0.000	0.459	1.000	4.8.2
L25	52.75 - 45 (25)	0.005	0.462	0.000	0.010	0.000	0.467	1.000	4.8.2
L26	45 - 44 (26)	0.007	0.610	0.000	0.013	0.000	0.617	1.000	4.8.2
L27	44 - 39 (27)	0.007	0.618	0.000	0.013	0.000	0.625	1.000	4.8.2
L28	39 - 34 (28)	0.007	0.626	0.000	0.013	0.000	0.633	1.000	4.8.2
L29	34 - 29 (29)	0.008	0.633	0.000	0.013	0.000	0.641	1.000	4.8.2
L30	29 - 24 (30)	0.008	0.639	0.000	0.013	0.000	0.647	1.000	4.8.2
L31	24 - 19 (31)	0.008	0.646	0.000	0.013	0.000	0.654	1.000	4.8.2
L32	19 - 14 (32)	0.008	0.652	0.000	0.012	0.000	0.660	1.000	4.8.2
L33	14 - 9 (33)	0.008	0.657	0.000	0.012	0.000	0.666	1.000	4.8.2
L34	9 - 4 (34)	0.009	0.662	0.000	0.012	0.000	0.671	1.000	4.8.2
L35	4 - 0 (35)	0.009	0.667	0.000	0.012	0.000	0.676	1.000	4.8.2

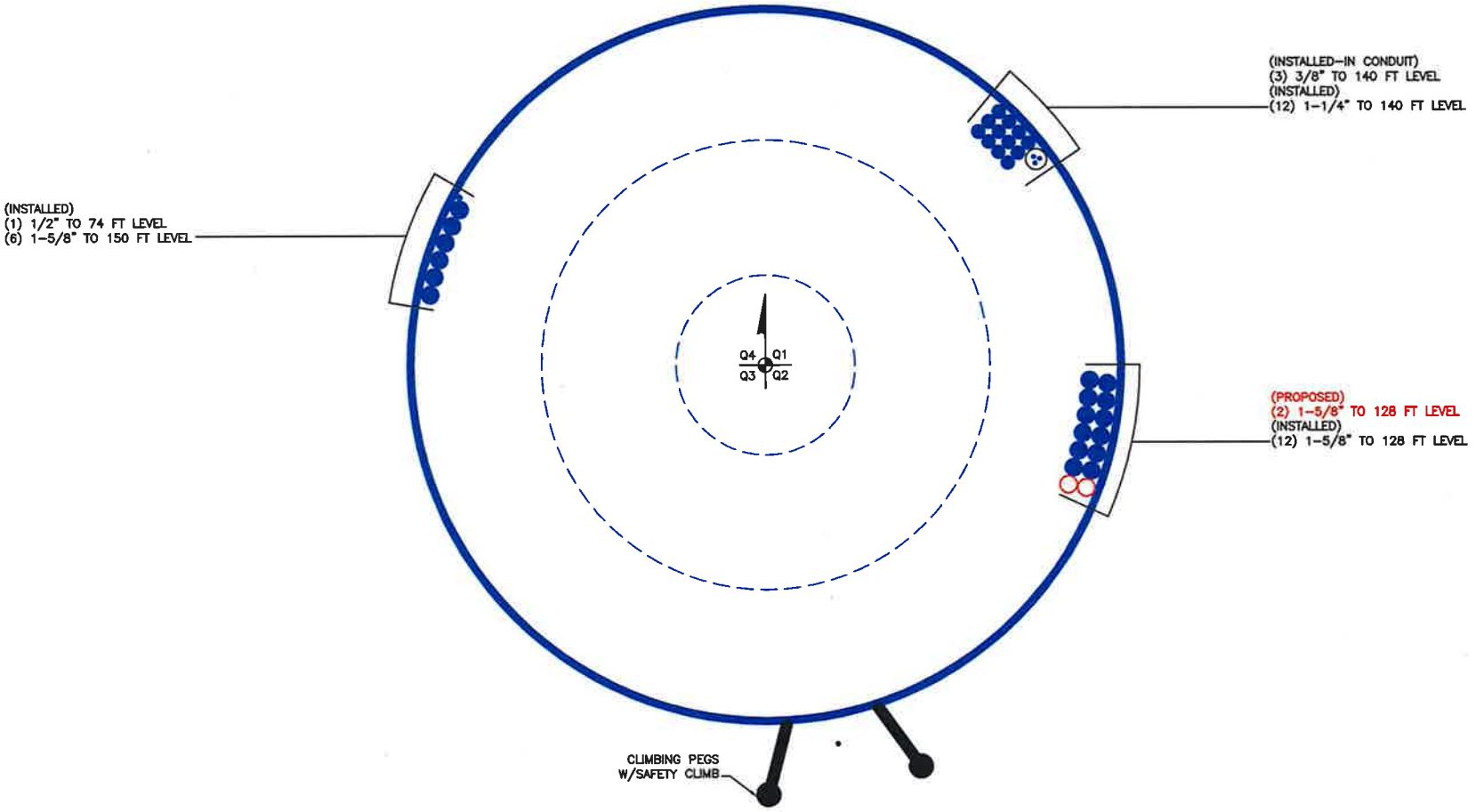
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	155 - 150	Pole	TP18.1483x17x0.1875	1	-1.60	794.13	6.1	Pass
L2	150 - 145	Pole	TP19.2967x18.1483x0.1875	2	-1.82	840.98	10.3	Pass
L3	145 - 140	Pole	TP20.445x19.2967x0.1875	3	-2.29	877.76	14.5	Pass
L4	140 - 135	Pole	TP21.5933x20.445x0.1875	4	-4.52	912.99	23.8	Pass
L5	135 - 130	Pole	TP22.7417x21.5933x0.1875	5	-4.85	946.65	31.5	Pass
L6	130 - 125	Pole	TP23.89x22.7417x0.1875	6	-7.83	960.06	39.4	Pass
L7	125 - 122.94	Pole	TP23.9857x22.8398x0.25	7	-8.51	1399.29	38.3	Pass
L8	122.94 - 117.94	Pole	TP25.1316x23.9857x0.25	8	-9.09	1466.85	46.0	Pass
L9	117.94 - 112.94	Pole	TP26.2775x25.1316x0.25	9	-9.70	1518.83	53.0	Pass
L10	112.94 - 107.94	Pole	TP27.4234x26.2775x0.25	10	-10.34	1567.28	59.2	Pass
L11	107.94 - 102.94	Pole	TP28.5693x27.4234x0.25	11	-11.01	1614.19	64.6	Pass
L12	102.94 - 97.94	Pole	TP29.7152x28.5693x0.25	12	-11.70	1659.54	69.4	Pass
L13	97.94 - 97.5	Pole	TP29.8161x29.7152x0.25	13	-11.77	1663.45	69.8	Pass
L14	97.5 - 97.25	Pole	TP29.8734x29.8161x0.25	14	-11.81	1665.67	70.1	Pass
L15	97.25 - 92.25	Pole	TP31.0193x29.8734x0.25	15	-12.52	1709.26	74.3	Pass
L16	92.25 - 84	Pole	TP32.91x31.0193x0.25	16	-13.15	1744.67	77.6	Pass
L17	84 - 83	Pole	TP32.6394x31.4818x0.3125	17	-14.41	2362.00	62.6	Pass
L18	83 - 78	Pole	TP33.7855x32.6394x0.3125	18	-15.30	2423.06	64.8	Pass
L19	78 - 73	Pole	TP34.9317x33.7855x0.3125	19	-16.30	2482.56	66.9	Pass
L20	73 - 68	Pole	TP36.0778x34.9317x0.3125	20	-17.24	2540.51	68.7	Pass
L21	68 - 67.75	Pole	TP36.1351x36.0778x0.4875	21	-17.32	4098.00	43.1	Pass
L22	67.75 - 62.75	Pole	TP37.2812x36.1351x0.4875	22	-18.60	4229.75	43.8	Pass
L23	62.75 - 57.75	Pole	TP38.4274x37.2812x0.475	23	-19.92	4251.08	45.4	Pass
L24	57.75 - 52.75	Pole	TP39.5735x38.4274x0.475	24	-21.27	4379.46	45.9	Pass
L25	52.75 - 45	Pole	TP41.35x39.5735x0.4688	25	-21.99	4389.92	46.7	Pass
L26	45 - 44	Pole	TP40.9542x39.5582x0.375	26	-24.61	3515.07	61.7	Pass
L27	44 - 39	Pole	TP42.1003x40.9542x0.375	27	-25.83	3586.08	62.5	Pass
L28	39 - 34	Pole	TP43.2464x42.1003x0.375	28	-27.09	3655.52	63.3	Pass
L29	34 - 29	Pole	TP44.3925x43.2464x0.375	29	-28.38	3723.42	64.1	Pass
L30	29 - 24	Pole	TP45.5387x44.3925x0.375	30	-29.69	3789.76	64.7	Pass
L31	24 - 19	Pole	TP46.6848x45.5387x0.375	31	-31.04	3854.55	65.4	Pass
L32	19 - 14	Pole	TP47.8309x46.6848x0.375	32	-32.41	3917.78	66.0	Pass
L33	14 - 9	Pole	TP48.977x47.8309x0.375	33	-33.81	3979.46	66.6	Pass
L34	9 - 4	Pole	TP50.1231x48.977x0.375	34	-35.15	4039.59	67.1	Pass
L35	4 - 0	Pole	TP51.04x50.1231x0.375	35	-36.21	4086.57	67.6	Pass
							Summary	
						Pole (L16)	77.6	Pass
						RATING =	**77.6**	**Pass**

Note: These values are approximate for more accurate results see CCI pole output in Appendix C.

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876366 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole
per TIA-222- G

Site BU: 876366
Work Order: 1426959

CROWN CASTLE

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	155	30	2.94	18	17	23.89	0.1875	0.75	A572-65
2	127.94	43.94	4.05	18	22.84	32.91	0.25	1	A572-65
3	88.05	43.05	5.09	18	31.48	41.35	0.3125	1.25	A572-65
4	50.09	50.09	0	18	39.56	51.04	0.375	1.5	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	47	68	plate	CCI-SFP-060100	3	E						E						E					
2	85.5	97.5	plate	CCI-SFP-045100	3	E						E						E					
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
2	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	155 - 150	5		18	17.000	18.148	0.1875	A572-65	1.000
2	150 - 145	5		18	18.148	19.297	0.1875	A572-65	1.000
3	145 - 140	5		18	19.297	20.445	0.1875	A572-65	1.000
4	140 - 135	5		18	20.445	21.593	0.1875	A572-65	1.000
5	135 - 130	5		18	21.593	22.742	0.1875	A572-65	1.000
6	130 - 127.94	5	2.94	18	22.742	23.890	0.1875	A572-65	1.000
7	127.94 - 122.94	5		18	22.840	23.986	0.25	A572-65	1.000
8	122.94 - 117.94	5		18	23.986	25.132	0.25	A572-65	1.000
9	117.94 - 112.94	5		18	25.132	26.277	0.25	A572-65	1.000
10	112.94 - 107.94	5		18	26.277	27.423	0.25	A572-65	1.000
11	107.94 - 102.94	5		18	27.423	28.569	0.25	A572-65	1.000
12	102.94 - 97.94	5		18	28.569	29.715	0.25	A572-65	1.000
13	97.94 - 97.5	0.44		18	29.715	29.816	0.25	A572-65	1.000
14	97.5 - 97.25	0.25		18	29.816	29.873	0.25	A572-65	1.000
15	97.25 - 92.25	5		18	29.873	31.019	0.25	A572-65	1.000
16	92.25 - 88.05	8.25	4.05	18	31.019	32.910	0.25	A572-65	1.000
17	88.05 - 83	5.05		18	31.482	32.639	0.3125	A572-65	1.000
18	83 - 78	5		18	32.639	33.786	0.3125	A572-65	1.000
19	78 - 73	5		18	33.786	34.932	0.3125	A572-65	1.000
20	73 - 68	5		18	34.932	36.078	0.3125	A572-65	1.000
21	68 - 67.75	0.25		18	36.078	36.135	0.4875	A572-65	0.971
22	67.75 - 62.75	5		18	36.135	37.281	0.4875	A572-65	0.960
23	62.75 - 57.75	5		18	37.281	38.427	0.475	A572-65	0.975
24	57.75 - 52.75	5		18	38.427	39.573	0.475	A572-65	0.966
25	52.75 - 50.09	7.75	5.09	18	39.573	41.350	0.46875	A572-65	0.974
26	50.09 - 44	6.09		18	39.558	40.954	0.375	A572-65	1.000
27	44 - 39	5		18	40.954	42.100	0.375	A572-65	1.000
28	39 - 34	5		18	42.100	43.246	0.375	A572-65	1.000
29	34 - 29	5		18	43.246	44.393	0.375	A572-65	1.000
30	29 - 24	5		18	44.393	45.539	0.375	A572-65	1.000
31	24 - 19	5		18	45.539	46.685	0.375	A572-65	1.000
32	19 - 14	5		18	46.685	47.831	0.375	A572-65	1.000
33	14 - 9	5		18	47.831	48.977	0.375	A572-65	1.000
34	9 - 4	5		18	48.977	50.123	0.375	A572-65	1.000
35	4 - 0	4		18	50.123	51.040	0.375	A572-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	155 - 150	1.60	17.11	3.10
2	150 - 145	1.82	33.34	3.40
3	145 - 140	2.29	51.97	4.15
4	140 - 135	4.52	93.40	8.30
5	135 - 130	4.85	135.71	8.63
6	130 - 127.94	7.83	174.76	16.12
7	127.94 - 122.94	8.51	256.30	16.49
8	122.94 - 117.94	9.09	339.61	16.84
9	117.94 - 112.94	9.70	424.64	17.19
10	112.94 - 107.94	10.34	511.41	17.54
11	107.94 - 102.94	11.01	599.93	17.89
12	102.94 - 97.94	11.70	690.19	18.24
13	97.94 - 97.5	11.77	698.22	18.27
14	97.5 - 97.25	11.81	702.79	18.29
15	97.25 - 92.25	12.52	795.06	18.64
16	92.25 - 88.05	13.15	873.92	18.93
17	88.05 - 83	14.41	970.62	19.37
18	83 - 78	15.30	1068.35	19.74
19	78 - 73	16.30	1168.08	20.16
20	73 - 68	17.24	1269.74	20.53
21	68 - 67.75	17.32	1274.88	20.54
22	67.75 - 62.75	18.60	1378.59	20.96
23	62.75 - 57.75	19.92	1484.35	21.36
24	57.75 - 52.75	21.27	1592.14	21.77
25	52.75 - 50.09	21.99	1650.30	21.98
26	50.09 - 44	24.61	1785.81	22.52
27	44 - 39	25.83	1899.22	22.87
28	39 - 34	27.09	2014.32	23.20
29	34 - 29	28.38	2131.03	23.51
30	29 - 24	29.69	2249.33	23.83
31	24 - 19	31.04	2369.21	24.15
32	19 - 14	32.41	2490.69	24.47
33	14 - 9	33.81	2613.79	24.79
34	9 - 4	35.15	2738.52	25.12
35	4 - 0	36.21	2839.49	25.39

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
155 - 150	Pole	TP18.148x17x0.1875	Pole	6.1%	Pass
150 - 145	Pole	TP19.297x18.148x0.1875	Pole	10.3%	Pass
145 - 140	Pole	TP20.445x19.297x0.1875	Pole	14.5%	Pass
140 - 135	Pole	TP21.593x20.445x0.1875	Pole	23.8%	Pass
135 - 130	Pole	TP22.742x21.593x0.1875	Pole	31.5%	Pass
130 - 127.94	Pole	TP23.89x22.742x0.1875	Pole	39.4%	Pass
127.94 - 122.94	Pole	TP23.986x22.84x0.25	Pole	38.3%	Pass
122.94 - 117.94	Pole	TP25.132x23.986x0.25	Pole	46.0%	Pass
117.94 - 112.94	Pole	TP26.277x25.132x0.25	Pole	53.0%	Pass
112.94 - 107.94	Pole	TP27.423x26.277x0.25	Pole	59.2%	Pass
107.94 - 102.94	Pole	TP28.569x27.423x0.25	Pole	64.6%	Pass
102.94 - 97.94	Pole	TP29.715x28.569x0.25	Pole	69.4%	Pass
97.94 - 97.5	Pole	TP29.816x29.715x0.25	Pole	69.8%	Pass
97.5 - 97.25	Pole	TP29.873x29.816x0.25	Pole	70.1%	Pass
97.25 - 92.25	Pole	TP31.019x29.873x0.25	Pole	74.3%	Pass
92.25 - 88.05	Pole	TP32.91x31.019x0.25	Pole	77.6%	Pass
88.05 - 83	Pole	TP32.639x31.482x0.3125	Pole	62.6%	Pass
83 - 78	Pole	TP33.786x32.639x0.3125	Pole	64.8%	Pass
78 - 73	Pole	TP34.932x33.786x0.3125	Pole	66.9%	Pass
73 - 68	Pole	TP36.078x34.932x0.3125	Pole	68.7%	Pass
68 - 67.75	Pole + Reinf.	TP36.135x36.078x0.4875	Reinf. 1 Tension Rupture	67.8%	Pass
67.75 - 62.75	Pole + Reinf.	TP37.281x36.135x0.4875	Reinf. 1 Tension Rupture	69.6%	Pass
62.75 - 57.75	Pole + Reinf.	TP38.427x37.281x0.475	Reinf. 1 Tension Rupture	71.2%	Pass
57.75 - 52.75	Pole + Reinf.	TP39.573x38.427x0.475	Reinf. 1 Tension Rupture	72.7%	Pass
52.75 - 50.09	Pole + Reinf.	TP41.35x39.573x0.4688	Reinf. 1 Tension Rupture	73.5%	Pass
50.09 - 44	Pole	TP40.954x39.558x0.375	Pole	61.7%	Pass
44 - 39	Pole	TP42.1x40.954x0.375	Pole	62.5%	Pass
39 - 34	Pole	TP43.246x42.1x0.375	Pole	63.3%	Pass
34 - 29	Pole	TP44.393x43.246x0.375	Pole	64.1%	Pass
29 - 24	Pole	TP45.539x44.393x0.375	Pole	64.7%	Pass
24 - 19	Pole	TP46.685x45.539x0.375	Pole	65.4%	Pass
19 - 14	Pole	TP47.831x46.685x0.375	Pole	66.0%	Pass
14 - 9	Pole	TP48.977x47.831x0.375	Pole	66.6%	Pass
9 - 4	Pole	TP50.123x48.977x0.375	Pole	67.1%	Pass
4 - 0	Pole	TP51.04x50.123x0.375	Pole	67.6%	Pass
				Summary	
			Pole	77.6%	Pass
			Reinforcement	73.5%	Pass
			Overall	77.6%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity		
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2
155 - 150	435	n/a	435	10.69	n/a	10.69	6.1%		
150 - 145	524	n/a	524	11.37	n/a	11.37	10.3%		
145 - 140	625	n/a	625	12.06	n/a	12.06	14.5%		
140 - 135	737	n/a	737	12.74	n/a	12.74	23.8%		
135 - 130	862	n/a	862	13.42	n/a	13.42	31.5%		
130 - 127.94	918	n/a	918	13.70	n/a	13.70	39.4%		
127.94 - 122.94	1340	n/a	1340	18.83	n/a	18.83	38.3%		
122.94 - 117.94	1544	n/a	1544	19.74	n/a	19.74	46.0%		
117.94 - 112.94	1767	n/a	1767	20.65	n/a	20.65	53.0%		
112.94 - 107.94	2011	n/a	2011	21.56	n/a	21.56	59.2%		
107.94 - 102.94	2276	n/a	2276	22.47	n/a	22.47	64.6%		
102.94 - 97.94	2564	n/a	2564	23.38	n/a	23.38	69.4%		
97.94 - 97.5	2590	n/a	2590	23.46	n/a	23.46	69.8%		
97.5 - 97.25	2605	n/a	2605	23.51	n/a	23.51	70.1%		
97.25 - 92.25	2919	n/a	2919	24.41	n/a	24.41	74.3%		
92.25 - 88.05	3202	n/a	3202	25.18	n/a	25.18	77.6%		
88.05 - 83	4232	n/a	4232	32.06	n/a	32.06	62.6%		
83 - 78	4698	n/a	4698	33.20	n/a	33.20	64.8%		
78 - 73	5197	n/a	5197	34.34	n/a	34.34	66.9%		
73 - 68	5731	n/a	5731	35.47	n/a	35.47	68.7%		
68 - 67.75	5759	3131	8889	35.53	18.00	53.53	44.0%	67.8%	
67.75 - 62.75	6329	3325	9654	36.67	18.00	54.67	45.6%	69.6%	
62.75 - 57.75	6936	3525	10462	37.80	18.00	55.80	47.2%	71.2%	
57.75 - 52.75	7581	3732	11313	38.94	18.00	56.94	48.7%	72.7%	
52.75 - 50.09	7940	3844	11784	39.55	18.00	57.55	49.5%	73.5%	
50.09 - 44	10045	n/a	10045	48.30	n/a	48.30	61.7%		
44 - 39	10920	n/a	10920	49.66	n/a	49.66	62.5%		
39 - 34	11845	n/a	11845	51.03	n/a	51.03	63.3%		
34 - 29	12820	n/a	12820	52.39	n/a	52.39	64.1%		
29 - 24	13848	n/a	13848	53.75	n/a	53.75	64.7%		
24 - 19	14929	n/a	14929	55.12	n/a	55.12	65.4%		
19 - 14	16065	n/a	16065	56.48	n/a	56.48	66.0%		
14 - 9	17258	n/a	17258	57.85	n/a	57.85	66.6%		
9 - 4	18508	n/a	18508	59.21	n/a	59.21	67.1%		
4 - 0	19550	n/a	19550	60.30	n/a	60.30	67.6%		

Note: Section capacity checked in 5 degree increments.

ANCHOR ROD ANALYSIS

Anchor Rod Information

TIA Code	G
eta Factor	0.5
Number of Bolt Circles	2
Base Plate Type	Circular

Reactions		
Moment	2839	kip-ft
Axial	36	kip
Shear	25	kip

	1st BC	2nd BC	
Anchor Rod Quantity	12	3	
Anchor Rod Diameter	2.25	1.75	in
Anchor Rod Material	#18J	A193 B7	ksi
Bolt Circle Diameter	62.5	68.04	in
Base Plate or Bracketed Connection?		Bracket*	

Bolt #	Orientation of Anchor Bolts (Degrees)	
1	0.0	105
2	30.0	225
3	60.0	345
4	90.0	
5	120.0	
6	150.0	
7	180.0	
8	210.0	
9	240.0	
10	270.0	
11	300.0	
12	330.0	

Anchor Rod Results

	1st BC	2nd BC	
Moment on Bolt Group	2407.5	431.5	kip-ft
Axial on Bolt Group	36.0	0.0	kip
Shear on Bolt Group	25.0	0.0	kip
Combined Load per Anchor Rod	161.2	101.5	kip
Anchor Rod Capacity	259.8	189.9	kip
Max Stress Ratio	62.1%	53.4%	

(it is assumed that all Axial and Shear loads will go to the original anchor rods)

*Bracket Calculations & Results are on the following pages.

ANCHOR ROD BRACKET CALCULATIONS

TIA-222-G Reference

Tower & Foundation Properties		
Monopole Thickness at Base	0.375	in
Monopole Material	A572 Gr.65	
Yield Stress, Fy	65	ksi
Ultimate Stress, Fu	80	ksi
Base Plate Material	A572 Gr.50	
Yield Stress, Fy	50	ksi
Ultimate Stress, Fu	65	ksi
Pier Foundation Diameter	7	ft
Rebar Yield Stress	60	ksi
Concrete Strength	3000	psi
Clear Cover	3	in
Rebar Size	11	
Tie Size	4	
Vertical Rebar Quantity	32	
	2nd BC	
Analysis or Design of Bracket?	Analysis	
Bracket Loading Information		
Moment on Bolt Group	431.5	kip-ft
Axial Load on Anchor Rod	101.5	kip
Anchor Rod Capacity	189.9	kip
Tube Properties		
Tube Section	HSS4x4x0.5	
Length	27	in
Gap Between Base Plate and Tube	0	in
Outside Width/Diameter	4	in
Thickness	0.5	in
Area	6.02	in^2
Moment of Inertia	11.9	in^4
Radius of Gyration	1.41	in
Material	A500 Gr.B (Rect)	
Yield Stress	46	ksi
Ultimate Stress	58	ksi
Gusset Plate Properties		
Width	6.5	in
Thickness	1.25	in
Height of Plate at Pole, L_{plate1}	30	in
Height of Plate at Tube, L_{plate2}	24	in
Notch Size	0.75	in
Material	A572 Gr. 65	
Yield Stress	65	ksi
Ultimate Stress	80	ksi
Weld Properties		
Plate to Monopole Weld Size	0.3125	in
Plate to Tube Weld Size	0.3125	in
Plate to Base Plate Weld Size	0.25	in
Electrode	E80	
Material Grade, F_{EXX}	80	ksi
Anchor Rod Embedment Properties		
Embedment Depth	5.83	ft
Epoxy Material	Hilti RE 500 SD	
Bond Strength	1.575	ksi

AISCM Table 1-12

ANCHOR ROD BRACKET CALCULATIONS

TIA-222-G Reference

Tube Analysis

Bearing Check

ϕ_b =	0.75		
$\phi P_n = \phi_b 1.8 F_y A_g$ =	373.84	kip	AISCM Eq (J7-1)
Stress Ratio	27.1%		

Compression Check

ϕ_c =	0.90		
K =	1		
KL/r =	19.15		
$4.71\sqrt{(E/F_y)}$ =	118.26		
$F_e = \pi^2 E/(KL/r)^2$ =	780.56	ksi	AISCM Eq (E3-4)
$F_{cr} = 0.658^{(Fy/Fe)} F_y$ =	44.88	ksi	AISCM Eq (E3-2)
$\phi P_n = \phi_c F_y A_g$ =	249.23	kip	AISCM Eq (J4-6)
Stress Ratio	40.8%		

Gusset Plate Analysis

Plate Shear Yielding Check

ϕ_v =	1		
$A_{nv} = A_g = t_{plate} * L_{tube}$ =	30	in^2	
$\phi V_n = \phi_v 0.6 A_g F_y$ =	1170	kip	AISCM Eq (J4-3)
Stress Ratio	8.7%		

Plate Shear Rupture Check

ϕ_v =	0.75		
$\phi V_n = \phi_v 0.6 A_{nv} F_u$ =	1080.00	kip	AISCM Eq (J4-4)
Stress Ratio	9.4%		

Plate to Monopole Punching Shear Check

ϕ_v =	0.90	
$e = w_{plate} + d_{tube} - t_{tube} - D_b/2$ =	9.13	in
M = P * e =	925.92	kip-in
$f_v = 6M/L_{plate1}^2$ =	6.17	kip/in
$\phi F_v = \phi_v 0.6 F_{ymp} (2t_{mp})$ =	26.33	kip/in
Stress Ratio	23.4%	

Plate to Tube Punching Shear Check

$e = d_{tube} - t_{tube} - D_b/2$ =	2.63	in
M = P * e =	266.36	kip-in
$f_v = 6M/L_{plate2}^2$ =	2.77	kip/in
$\phi F_v = \phi_v 0.6 F_{ytube} (2t_{tube})$ =	24.84	kip/in
Stress Ratio	11.1%	

Gusset Plate to Monopole Weld Analysis

ϕ_{wg} =	0.75		
$\phi R_{nweld} = \phi_{wg} 0.6 F_{EXX}$ =	36.0	ksi	
$\phi R_{nplate} = \phi_{wg} 0.6 F_{uplate}$ =	29.3	ksi	
$\phi R_{npole} = \phi_{wg} 0.6 F_{upole}$ =	36.0	ksi	
Stress Ratio	44.5%		

Gusset Plate to Tube Weld Analysis

ϕ_w =	0.75	
$a = (d_{tube} - t_{tube} - D_b/2)/L_{plate2}$ =	0.10	
C =	1.03	
C_1 =	3.72	
$\phi R_n = \phi_w C C_1 D L_{plate2}$ =	344.84	kip
Stress Ratio	29.4%	

ANCHOR ROD BRACKET CALCULATIONS

TIA-222-G Reference

Embedment Depth Analysis

ACI 318-08 Chapter 12

Development Length Calculation

Transverse Reinforcement Index, k_{rt} =	0	
Rebar Location Factor, ψ_t =	1	
Rebar Coating Factor, ψ_e =	1	
Rebar Size Factor, ψs =	1	
Concrete Weight Factor, λ =	1	
Diameter of Rebar, d_b =	1.38	in
Diameter of Tie, d_{tie} =	0.50	in
$BC_{rebar} = D_{pier} - 2c_c - 2d_{tie} - d_b$ =	75.63	in
$S_{rebar} = \pi BC_{rebar} / n$ =	7.42	in
$c_b = c_c + d_{tie} + d_b/2$ =	3.71	in
$l_d = [3/40\ (f_y/\lambda\sqrt{f'_c})\ \psi_t\psi_e\psi_s/2.5]d_b$ =	45.19	in

Development Length Check

$A = S_{rebar} / 2$ =	3.71	in
$B = BC_{rebar}/2 - BC_{bracket}/2$ =	3.79	in
$G = \sqrt{(A^2 + B^2)}$ =	5.31	in
$l'_d = l_d + G/1.5 + 3in$ =	51.73	in
S_b =	1.58	ksi
ϕ_{bond} =	0.55	
$L_{be} = P_n / (\pi D_b S_b \phi_{bond})$ =	21.31	in
$L_{mln1} = L_{be} + 6in$ =	27.31	in
$L_{mln2} = l'_d + 0.25L_{be}$ =	57.05	in
Stress Ratio	81.5%	

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876366*
Site Name: *WAPPINGERS FALLS / PRESTON*
App #: *395028 Rev. 10*

Pole Manufacturer:	*Other*

Reactions		
Mu:	2408	ft-kips
Axial, Pu:	36	kips
Shear, Vu:	25	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	62.5	in

Plate Data		
Diam:	68	in
Thick:	1.75	in
Grade:	50	ksi
Single-Rod B-eff:	13.50	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Groove	
Groove Depth:	0.3125	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.3125	<-- Disregard
Fillet V. Weld:	0.25	in
Width:	7.5	in
Height:	23	in
Thick:	0.625	in
Notch:	0	in
Grade:	50	ksi
Weld str.:	80	ksi

Pole Data		
Diam:	51.04	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Base Plate Results Flexural Check

Base Plate Stress:	29.7 ksi
Allowable Plate Stress:	45.0 ksi
Base Plate Stress Ratio:	66.0% **Pass**

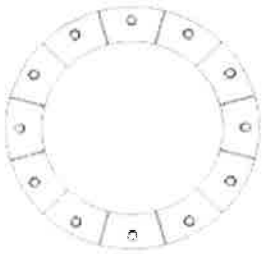
Stiffened
AISC LRFD
φ*Fy
Y.L. Length: N/A, Roark

Stiffener Results

Horizontal Weld :	45.4% **Pass**
Vertical Weld:	35.0% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	12.6% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	46.8% **Pass**
Plate Comp. (AISC Bracket):	54.6% **Pass**

Pole Results

Pole Punching Shear Check:	7.4% **Pass**



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Pier and Pad Foundation

BU # :	876366
Site Name:	WAPPINGERS FA
App. Number:	395028 Rev. 10

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?: ☐

Superstructure Analysis Reactions

Compression, P_{comp}:	36	kips
Base Shear, Vu_comp:	25	kips
Moment, M_u:	2839	ft-kips
Tower Height, **H**:	155	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7.0	ft
Ext. Above Grade, **E**:	0.58	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	32	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	8	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.4	ft
Pad Width, **W**:	24.0	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size, **Sp**:	8	
Pad Rebar Quantity, **mp**:	28	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	100	pcf
Ultimate Gross Bearing, Qult:	5.640	ksf
Cohesion, **Cu**:	1.000	ksf
Friction Angle, φ:		degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.39	
Neglected Depth, **N**:	2.0	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	6	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	260.19	25.00	**9.6%**	**Pass**
Bearing Pressure (ksf)	4.23	1.84	**43.4%**	**Pass**
*Overturning (kip*ft)*	4573.95	3020.25	**66.0%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	7558.32	2951.50	**39.0%**	**Pass**
Pier Compression (kip)	23390.64	75.69	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	2448.33	1110.55	**45.4%**	**Pass**
Pad Shear - 1-way (kips)	603.37	187.01	**31.0%**	**Pass**
Pad Shear - 2-way (ksi)	0.16	0.04	**24.3%**	**Pass**

Soil Rating:	**66.0%**
Structural Rating:	**45.4%**

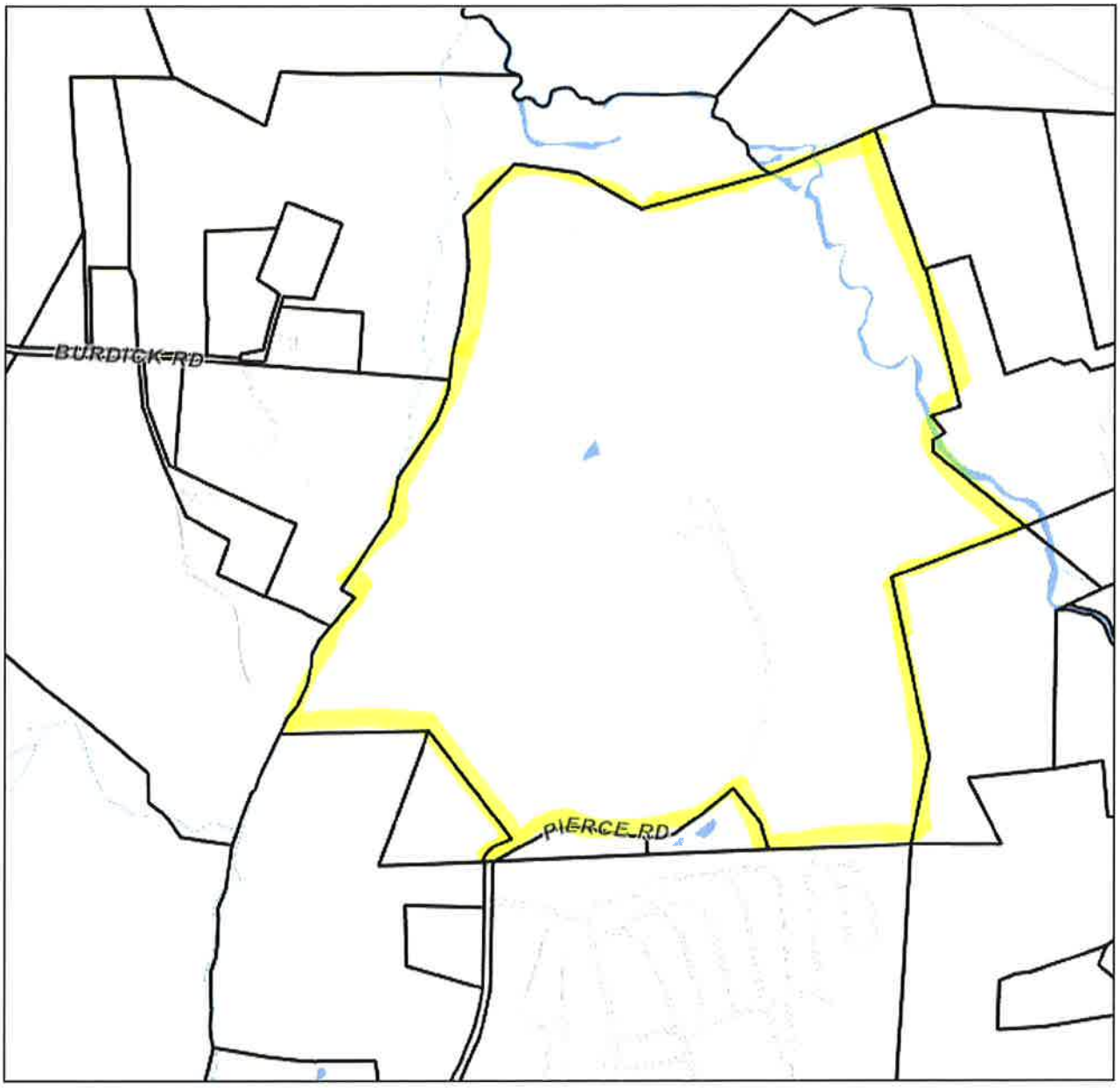
Version 2.4.1

ATTACHMENT 4

Town of Preston

Geographic Information System (GIS)

Date Printed: 2/1/2018



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Preston and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 800 feet

0 800 Feet

N W E S

Town of Preston
Property Listing Report

Parcel ID 8-0-PIE1-101 **Account** 00059300

Property Information

Owner	PANUS FARM LLC
Address	101 PIERCE RD
Mailing Address	60 PIERCE RD PRESTON , CT 06365
Land Use	1010 - Single Fam MDL-01
Land Class	R

Census Tract	7001
Neighborhood	0050
Zoning	R-80
Acreage	198.43
Utilities	Well,Septic
Lot Setting/ Desc	Rural / Low

Photo

No Photo Available

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	69800	48900
Outbuildings	34400	24100
Improvements	104200	73000
Extras	0	0
Land	955000	97600
Total	1059200	170600
Previous		

Construction Details

Year Built	1950
Stories	2
Building Style	Conventional
Building Use	Residential
Building Condition	Below Average
Total Rooms	6
Bedrooms	4 Bedrooms
Full Bathrooms	1
Half Bathrooms	1
Bath Style	Average
Kitchen Style	Average
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp

EXTERIOR WALLS:	
Primary	Wood Shingle
Secondary	
INTERIOR WALLS:	
Primary	Plastered
Secondary	Panel
FLOORS:	
Primary	Carpet
Secondary	Vinyl/Asphalt
HEATING/AC:	
Heating Type	Hot Water
Heating Fuel	Gas
AC Type	None

BUILDING AREA:

Effective Building Area	
Gross Building Area	1326
Total Living Area	1170

SALES HISTORY:

Sale Date	12/3/2015
Sale Price	
Book/ Page	196/ 38

Report Created On **2/1/2018**

ATTACHMENT 5

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	3		neopost 02/05/2018 US POSTAGE $002.38⁰ ZIP 06103 041L12203380
	Postmaster, per *(name of receiving employee)*		OLD STATE HOUSE STATION 06103 FEB 05 2018 USPS

	USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.		Robert Congdon, First Selectman Town of Preston 389 Route 2 Preston, CT 06365				
2.		Kathy Warzecha, Town Planner Town of Preston 389 Route 2 Preston, CT 06365				
3.		Panus Farm LLC 60 Pierce Road Preston, CT 06365				
4.						
5.						
6.						