Robinson+Cole

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June 19, 2017

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**
761 Amity Road, Bethany, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 140-foot level of the existing 151-foot tower at 761 Amity Road in Bethany, Connecticut (the "Property"). The tower is owned by Crown Castle ("Crown"). The Council approved Cellco's use of this tower in 2010. Cellco now intends to replace six (6) of its existing antennas with three (3) model SBNHH-1D65B, 1900 MHz antennas and three (3) model SBNHH-1D65B, 700/2100 MHz antennas, all at the same 140-foot level on the tower. Cellco also intends to install six (6) remote radio heads ("RRHs") behind its antennas and one (1) HYBRIFLEX™ fiber optic antenna cable inside the monopole. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cable.

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 Derrylyn Gorski, First Selectman for the Town of Bethany; Isabel Kearns, Land Use Administrator; Crown, the owner of the tower; and SNET (Tax Dept.), the owner of the Property.

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 be located at the 140-foot level on the 151-foot 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 worst-case General Power Density table for Cellco's modified facility is included in 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 property owner information is included in Attachment 4.

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:
Derrylyn Gorski, Bethany First Selectman
Isabel Kearns, Land Use Administrator
Crown Castle
SNET (Tax Dept.)
Tim Parks, Verizon Wireless

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
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	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

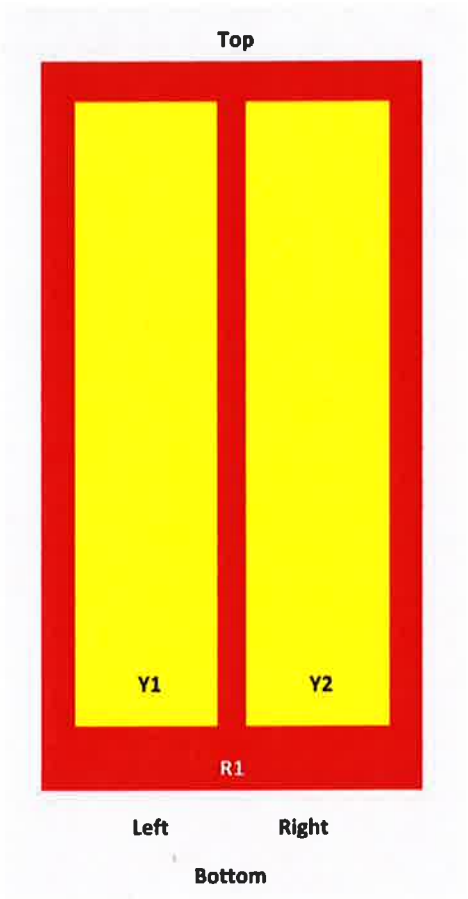
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Array Layout

Product Specifications

SBNHH-1D65B

SBNHH 65



Array	Freq (MHz)	Conns	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxxx.1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxxx.2
Y2	1695-2360	5-6		

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 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	7-16 DIN Female

Product Specifications

SBNHH-1D65B

Color	Light gray
Grounding Type	RF connector inner conductor and 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	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Depth	180.0 mm | 7.1 in
Net Weight, without mounting kit	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Length	2025.0 mm | 79.7 in
Width	390.0 mm | 15.4 in
Depth	296.0 mm | 11.7 in
Shipping Weight	31.0 kg | 68.3 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

SBNHH-1D65B

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.

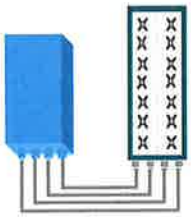
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

TECHNICAL SPECIFICATIONS

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

ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new 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 B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 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, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

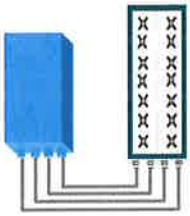
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx 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	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2) RX Diversity scheme	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) Volume (w/ solar shield) in L Weight (w/ solar shield) in kg (lb)	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
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 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 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

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.

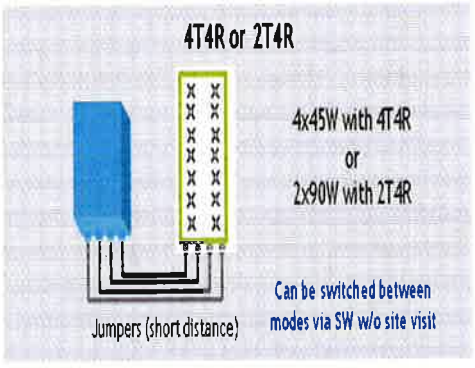
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

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

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 Cable 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 / Wire 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
Operating Temperature			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

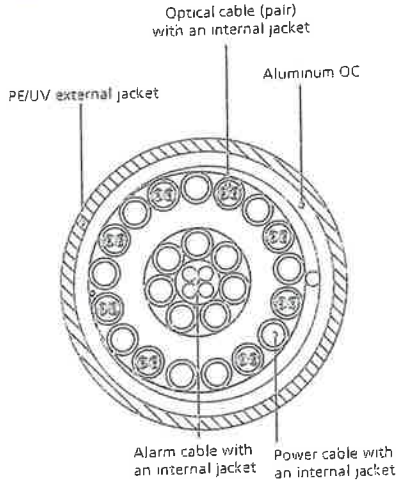


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Bethany N								
Tower Height: 151ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Sprint	2	693	130	1900	0.0324	1.0000	0.32%	
*Sprint	1	390	130	850	0.0091	0.5667	0.16%	
*Sprint	2	693	130	2500	0.0324	1.0000	0.32%	
*Beth Fire Dept			160	33.54	0.0008	0.2000	0.04%	
*Beth Hwy Dept			160	155.835	0.0014	0.2000	0.07%	
*AT&T	2	1077	151	1900	0.0368	1.0000	0.37%	
*AT&T	2	565	151	880	0.0193	0.5867	0.33%	
*AT&T	1	491	151	880	0.0084	0.5867	0.14%	
*AT&T	4	813	151	1900	0.0556	1.0000	0.56%	
*AT&T	1	1313	151	734	0.0225	0.4893	0.46%	
*T-Mobile	2	24	120	2300	0.0013	1.0000	0.01%	
*T-Mobile	2	12	120	1950	0.0007	1.0000	0.01%	
*T-Mobile	2	12	120	2100	0.0007	1.0000	0.01%	
Verizon	**0**	**16337**	**140**	**0.0000**	**1970**	**1.0000**	**0.00%**	
Verizon	**9**	**492**	**140**	**0.0812**	**869**	**0.5793**	**14.02%**	
Verizon	**1**	**7332**	**140**	**0.1345**	**2145**	**1.0000**	**13.45%**	
Verizon	**1**	**2184**	**140**	**0.0401**	**746**	**0.4973**	**8.06%**	
								38.33%
* Source: Siting Council								

ATTACHMENT 3

PJF PAUL J. FORD & COMPANY

Date: **February 14, 2017**

Charles McGuirt
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
704.405.6607

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679
rferrante@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	189548
	Carrier Site Name:	Bethany North CT
Crown Castle Designation:	**Crown Castle BU Number:**	841295
	Crown Castle Site Name:	BETHANY
	Crown Castle JDE Job Number:	419583
	Crown Castle Work Order Number:	1361100
	Crown Castle Application Number:	377580 Rev. 0
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37517-0759.001.7805
Site Data:	**719 AMITY ROAD, BETHANY, New Haven County, CT** **Latitude *41° 26' 33.93"*, Longitude *-72° 59' 32.86"*** **151 Foot - Monopole Tower**	

Dear Charles McGuirt,

Paul J Ford and Company 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 1000302, in accordance with application 377580, revision 0.

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

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 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

We at *Paul J Ford and Company* 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.

Respectfully submitted by:

Ryan Ferrante, EI
Structural Designer RMF

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30301
LICENSED
PROFESSIONAL ENGINEER

2-15-17

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 151 ft. monopole tower designed by Valmont. The original design standard and wind speed are unknown.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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
140.0	140.0	3	alcatel lucent	RRH2x60-700	1	1-5/8	-
		3	alcatel lucent	RRH4X45-AWS4 B66			
		6	andrew	SBNHH-1D65B w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			

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
148.0	156.0	1	kathrein	OG-4	2 2 12 2	3/8 3/4 1-5/8 1-1/4	1
	155.0	1	decibel	DB286-B			
	149.0	6	adc	CG-1900DD-FULL-DIN			
		6	communication components inc.	DTMABP7819VG12A			
		6	ericsson	RRUS-11			
		3	kathrein	800 10121 w/ Mount Pipe			
		3	kathrein	860 10025			
		6	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		12	powerwave technologies	LGP21901			
		1	raycap	DC6-48-60-18-8F			
	148.0	1	tower mounts	Platform Mount [LP 602-1]			
140.0	140.0	3	powerwave technologies	P65-15-XL-R w/ Mount Pipe	-	-	2
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe			
		3	decibel	DB854DG65ESX w/ Mount Pipe	12	1-5/8	1
		1	tower mounts	Platform Mount [LP 303-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
132.0	132.0	1	tower mounts	Pipe Mount [PM 601-3]	-	-	1
	131.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		3	alcatel lucent	TME-1900MHz RRH			
130.0	133.0	1	pctel	GPS-TMG-HR-26NCM	1 3	1/2 1-5/8	1
	130.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		1	tower mounts	T-Arm Mount [TA 602-3]			
122.0	122.0	1	tower mounts	T-Arm Mount [TA 702-3]	13	1-5/8	1
	120.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			

Notes:
1) Existing Equipment
2) Equipment To Be Removed

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
GEOTECHNICAL REPORTS	FDH, 15BBNL1600, 2/18/2016	6133952	CCISITES
POST-MODIFICATION INSPECTION	b+t, 83154.004, 8/3/2012	5135928	CCISITES
TOWER FOUNDATION MAPPING	FDH, 16BBMT1500, 2/17/2016	6133920	CCISITES
TOWER MAPPING	FDH, 16BBMW1500, 3/11/2016	6133951	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T, 84427.0002, 7/19/2012	4945157	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) Monopole has been modified in conformance with the referenced modification drawings.
5) The monopole manufacturer drawings are not available at the time of this analysis. Therefore, we have assumed pole shaft and base plate steel yield strength(s) (Fy) as shown in the attached calculations. Anchor rods are assumed to be ASTM A615 #18J, 2.25" diam, (Fu = 100 ksi, Fy = 75 ksi).

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	151 - 125.25	Pole	TP22.4079x17.59x0.2188	1	-8.00	1093.26	57.9	Pass
L2	125.25 - 118.5	Pole	TP23.6708x22.4079x0.3502	2	-9.93	1260.17	69.3	Pass
L3	118.5 - 117.75	Pole	TP23.8112x23.6708x0.6321	3	-10.10	2198.20	41.9	Pass
L4	117.75 - 97.5	Pole	TP27.6x23.8112x0.4541	4	-13.34	1813.76	82.4	Pass
L5	97.5 - 95	Pole	TP27.6303x26.0525x0.546	5	-15.24	2231.87	77.5	Pass
L6	95 - 92.5	Pole	TP28.0981x27.6303x0.7826	6	-16.04	3226.76	57.2	Pass
L7	92.5 - 87.75	Pole	TP28.9869x28.0981x0.5331	7	-17.21	2291.92	85.8	Pass
L8	87.75 - 84	Pole	TP29.6885x28.9869x0.8388	8	-18.56	3658.26	58.3	Pass
L9	84 - 63.25	Pole	TP33.571x29.6885x0.5695	9	-24.55	2893.18	94.9	Pass
L10	63.25 - 56.75	Pole	TP34.7872x33.571x0.5589	10	-26.56	2950.13	99.6	Pass
L11	56.75 - 47.5	Pole	TP36.518x34.7872x0.6274	11	-28.20	3594.19	86.1	Pass
L12	47.5 - 34.25	Pole	TP38.372x34.4211x0.6672	12	-36.16	4118.71	89.5	Pass
L13	34.25 - 26.75	Pole	TP39.7752x38.372x0.6551	13	-39.16	4200.93	92.8	Pass
L14	26.75 - 16.75	Pole	TP41.6461x39.7752x0.6406	14	-43.25	4313.28	96.9	Pass
L15	16.75 - 14.25	Pole	TP42.1139x41.6461x0.7269	15	-44.41	4737.72	90.0	Pass
L16	14.25 - 0	Pole	TP44.78x42.1139x0.6927	16	-50.99	4866.66	95.5	Pass
							Summary	
						Pole (L10)	99.6	Pass
						Rating =	99.6	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	81.3	Pass
1	Base Plate	0	85.3	Pass
1	Base Foundation Structural Steel	0	55.1	Pass
1	Base Foundation Soil Interaction	0	5.5	Pass

Structure Rating (max from all components) =	99.6%

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

4.1) Recommendations

The monopole and its foundation have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

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 Haven County, Connecticut.
2) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
3) Basic wind speed of 97.00 mph.
4) Structure Class II.
5) Exposure Category C.
6) Topographic Category 1.
7) Crest Height 0.00 ft.
8) Nominal ice thickness of 0.7500 in.
9) Ice thickness is considered to increase with height.
10) Ice density of 56.00 pcf.
11) A wind speed of 50.00 mph is used in combination with ice.
12) Temperature drop of 50.00 °F.
13) Deflections calculated using a wind speed of 60.00 mph.
14) A non-linear (P-delta) analysis was used.
15) Pressures are calculated at each section.
16) Stress ratio used in pole design is 1.
17) 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	151.00-125.25	25.75	0.00	12	17.5900	22.4079	0.2188	0.8752	A572-65 (65 ksi)
L2	125.25-118.50	6.75	0.00	12	22.4079	23.6708	0.3502	1.4007	Reinf 42.26 ksi (42 ksi)
L3	118.50-117.75	0.75	0.00	12	23.6708	23.8112	0.6321	2.5283	Reinf 41.09 ksi (41 ksi)
L4	117.75-97.50	20.25	3.42	12	23.8112	27.6000	0.4541	1.8163	Reinf 41.27 ksi (41 ksi)
L5	97.50-95.00	5.92	0.00	12	26.0525	27.6303	0.5460	2.1841	Reinf 41.33 ksi (41 ksi)
L6	95.00-92.50	2.50	0.00	12	27.6303	28.0981	0.7826	3.1302	Reinf 41.34 ksi (41 ksi)
L7	92.50-87.75	4.75	0.00	12	28.0981	28.9869	0.5331	2.1324	Reinf 41.38 ksi (41 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L8	87.75-84.00	3.75	0.00	12	28.9869	29.6885	0.8388	3.3552	Reinf 41.40 ksi (41 ksi)
L9	84.00-63.25	20.75	0.00	12	29.6885	33.5710	0.5695	2.2779	Reinf 42.16 ksi (42 ksi)
L10	63.25-56.75	6.50	0.00	12	33.5710	34.7872	0.5589	2.2358	Reinf 42.23 ksi (42 ksi)
L11	56.75-47.50	9.25	4.50	12	34.7872	36.5180	0.6274	2.5098	Reinf 44.76 ksi (45 ksi)
L12	47.50-34.25	17.75	0.00	12	34.4211	38.3720	0.6672	2.6686	Reinf 44.84 ksi (45 ksi)
L13	34.25-26.75	7.50	0.00	12	38.3720	39.7752	0.6551	2.6205	Reinf 44.89 ksi (45 ksi)
L14	26.75-16.75	10.00	0.00	12	39.7752	41.6461	0.6406	2.5623	Reinf 44.97 ksi (45 ksi)
L15	16.75-14.25	2.50	0.00	12	41.6461	42.1139	0.7269	2.9075	Reinf 43.13 ksi (43 ksi)
L16	14.25-0.00	14.25		12	42.1139	44.7800	0.6927	2.7709	Reinf 43.64 ksi (44 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	18.2105	12.2386	471.3881	6.2189	9.1116	51.7348	955.1601	6.0235	4.1277	18.865
	23.1984	15.6330	982.4449	7.9437	11.6073	84.6403	1990.6997	7.6941	5.4189	24.767
L2	23.1984	24.8718	1544.5964	7.8967	11.6073	133.0712	3129.7711	12.2412	5.0668	14.469
	24.5059	26.2959	1825.3900	8.3488	12.2615	148.8717	3698.7351	12.9420	5.4053	15.436
L3	24.5059	46.8900	3176.7634	8.2479	12.2615	259.0845	6436.9839	23.0778	4.6498	7.357
	24.6511	47.1756	3235.1670	8.2981	12.3342	262.2927	6555.3255	23.2184	4.6874	7.416
L4	24.6511	34.1505	2378.0522	8.3618	12.3342	192.8017	4818.5786	16.8079	5.1645	11.374
	28.5736	39.6902	3733.1789	9.7182	14.2968	261.1199	7564.4326	19.5343	6.1799	13.61
L5	27.9149	44.8460	3724.0108	9.1313	13.4952	275.9506	7545.8555	22.0718	5.5187	10.107
	28.6050	47.6200	4458.7250	9.6962	14.3125	311.5265	9034.5858	23.4371	5.9416	10.881
L6	28.6050	67.6521	6224.2014	9.6115	14.3125	434.8785	12611.9195	33.2963	5.3077	6.782
	29.0893	68.8309	6555.2437	9.7790	14.5548	450.3831	13282.7009	33.8765	5.4330	6.943
L7	29.0893	47.3167	4588.9869	9.8683	14.5548	315.2899	9298.5317	23.2878	6.1016	11.446
	30.0094	48.8423	5047.3312	10.1864	15.0152	336.1483	10227.2615	24.0387	6.3398	11.893
L8	30.0094	76.0270	7688.6548	10.0770	15.0152	512.0583	15579.2991	37.4182	5.5205	6.581
	30.7358	77.9221	8278.0830	10.3282	15.3787	538.2840	16773.6405	38.3509	5.7085	6.805
L9	30.7358	53.3954	5778.8880	10.4246	15.3787	375.7733	11709.5938	26.2796	6.4303	11.292
	34.7553	60.5147	8412.3257	11.8146	17.3898	483.7508	17045.6526	29.7835	7.4709	13.119
L10	34.7553	59.4147	8264.6806	11.8183	17.3898	475.2604	16746.4835	29.2421	7.4991	13.417
	36.0144	61.6036	9212.1924	12.2537	18.0198	511.2264	18666.3994	30.3194	7.8250	14
L11	36.0144	69.0150	10279.2158	12.2292	18.0198	570.4404	20828.4780	33.9671	7.6414	12.179
	37.8062	72.5117	11922.1540	12.8488	18.9163	630.2574	24157.5163	35.6881	8.1053	12.918
L12	36.6723	72.5121	10544.9956	12.0839	17.8301	591.4139	21367.0199	35.6883	7.4369	11.147
	39.7256	80.9995	14698.1186	13.4983	19.8767	739.4656	29782.3731	39.8655	8.4957	12.734
L13	39.7256	79.5644	14446.9065	13.5026	19.8767	726.8271	29273.3493	39.1592	8.5279	13.017
	41.1783	82.5245	16120.0919	14.0050	20.6035	782.3942	32663.6765	40.6160	8.9040	13.591
L14	41.1783	80.7217	15779.6692	14.0102	20.6035	765.8716	31973.8879	39.7288	8.9430	13.961
	43.1153	84.5808	18152.7923	14.6800	21.5727	841.4706	36782.4787	41.6281	9.4444	14.744
L15	43.1153	95.7724	20468.3200	14.6491	21.5727	948.8066	41474.3656	47.1363	9.2132	12.675
	43.5995	96.8672	21178.2818	14.8165	21.8150	970.8133	42912.9406	47.6751	9.3385	12.848
L16	43.5995	92.3936	20233.5588	14.8288	21.8150	927.5071	40998.6756	45.4733	9.4300	13.613
	46.3597	98.3407	24397.5063	15.7832	23.1960	1051.7962	49435.9623	48.4003	10.1445	14.644

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
LDF2-50(3/8)	C	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
LDF6-50A(1-1/4)	C	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.60
LDF7-50A(1-5/8)	C	No	Inside Pole	148.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
9776(3/4")	C	No	Inside Pole	148.00 - 0.00	2	No Ice	0.00	0.31
						1/2" Ice	0.00	0.31
						1" Ice	0.00	0.31
***								
LDF7-50A(1-5/8)	C	No	Inside Pole	140.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	140.00 - 0.00	1	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	130.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF7-50A(1-5/8)	C	No	Inside Pole	130.00 - 0.00	3	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	C	No	CaAa (Out Of Face)	122.00 - 0.00	1	No Ice	0.00	1.07
						1/2" Ice	0.00	2.37
						1" Ice	0.00	4.28
AL7-50(1-5/8)	C	No	CaAa (Out Of Face)	122.00 - 0.00	10	No Ice	0.00	0.52
						1/2" Ice	0.00	2.02
						1" Ice	0.00	4.14
AL7-50(1-5/8)	C	No	CaAa (Out Of Face)	122.00 - 0.00	2	No Ice	0.20	0.52
						1/2" Ice	0.30	2.02
						1" Ice	0.40	4.14
***								
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	38.70 - 0.00	2	No Ice	0.21	0.00
						1/2" Ice	0.32	0.00
						1" Ice	0.43	0.00
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	90.50 - 38.70	1	No Ice	0.21	0.00
						1/2" Ice	0.32	0.00
						1" Ice	0.43	0.00
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	67.50 - 52.50	1	No Ice	0.21	0.00
						1/2" Ice	0.32	0.00
						1" Ice	0.43	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	120.50 - 90.50	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	97.00 - 82.00	1	No Ice	0.17	0.00
						1/2" Ice	0.28	0.00
						1" Ice	0.39	0.00
***								
Aero MP3-03	C	No	CaAa (Out Of Face)	126.50 - 116.50	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00

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	151.00-125.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.328	0.45
L2	125.25-118.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.477	0.20
L3	118.50-117.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.616	0.02
L4	117.75-97.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

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
		C	0.000	0.000	0.000	11.641	0.67
L5	97.50-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.730	0.08
L6	95.00-92.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.813	0.08
L7	92.50-87.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.560	0.16
L8	87.75-84.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.876	0.12
L9	84.00-63.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	13.675	0.68
L10	63.25-56.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.256	0.21
L11	56.75-47.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.438	0.30
L12	47.50-34.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	8.881	0.44
L13	34.25-26.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.065	0.25
L14	26.75-16.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	8.087	0.33
L15	16.75-14.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.022	0.08
L16	14.25-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.523	0.47

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	151.00-125.25	A	1.730	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.809	0.45
L2	125.25-118.50	A	1.709	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.194	0.56
L3	118.50-117.75	A	1.704	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.695	0.10
L4	117.75-97.50	A	1.688	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	33.377	2.70
L5	97.50-95.00	A	1.669	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.106	0.33
L6	95.00-92.50	A	1.665	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.329	0.33
L7	92.50-87.75	A	1.659	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.212	0.62
L8	87.75-84.00	A	1.651	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.103	0.49
L9	84.00-63.25	A	1.625	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	36.911	2.67
L10	63.25-56.75	A	1.592	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	13.997	0.82
L11	56.75-47.50	A	1.570	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.958	1.15
L12	47.50-34.25	A	1.532	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	23.378	1.65
L13	34.25-26.75	A	1.488	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	15.490	0.88
L14	26.75-16.75	A	1.438	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	20.234	1.14
L15	16.75-14.25	A	1.391	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	4.958	0.28
L16	14.25-0.00	A	1.285	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	26.992	1.45

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	151.00-125.25	-0.0177	0.0102	-0.0371	0.0214
L2	125.25-118.50	-0.5169	0.2985	-0.9418	0.5438
L3	118.50-117.75	-0.7355	0.4246	-1.2648	0.7303
L4	117.75-97.50	-0.5717	0.3301	-1.1041	0.6375
L5	97.50-95.00	-0.6714	0.3876	-1.2906	0.7451
L6	95.00-92.50	-0.6992	0.4037	-1.3358	0.7712
L7	92.50-87.75	-0.7211	0.4163	-1.3589	0.7846
L8	87.75-84.00	-0.7386	0.4264	-1.3816	0.7977
L9	84.00-63.25	-0.6673	0.3853	-1.2767	0.7371
L10	63.25-56.75	-0.7963	0.4597	-1.4844	0.8570
L11	56.75-47.50	-0.7109	0.4105	-1.3659	0.7886
L12	47.50-34.25	-0.6967	0.4022	-1.3567	0.7833
L13	34.25-26.75	-0.8184	0.4725	-1.5368	0.8873
L14	26.75-16.75	-0.8248	0.4762	-1.5440	0.8914
L15	16.75-14.25	-0.8291	0.4787	-1.5427	0.8907
L16	14.25-0.00	-0.8346	0.4819	-1.5211	0.8782

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) AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	148.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	0.07 0.14 0.21
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	148.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	0.07 0.14 0.21
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	148.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	0.07 0.14 0.21
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00	0.00	148.00	No Ice 1/2" Ice	5.74 6.34	4.95 6.02	0.07 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	6.86	6.81	0.18
800 10121 w/ Mount Pipe	B	From Leg	4.00	0.00	148.00	No Ice	5.74	4.95	0.07
			0.00			1/2" Ice	6.34	6.02	0.12
			1.00			1" Ice	6.86	6.81	0.18
800 10121 w/ Mount Pipe	C	From Leg	4.00	0.00	148.00	No Ice	5.74	4.95	0.07
			0.00			1/2" Ice	6.34	6.02	0.12
			1.00			1" Ice	6.86	6.81	0.18
OG-4	A	From Leg	4.00	0.00	148.00	No Ice	4.06	4.06	0.02
			0.00			1/2" Ice	7.14	7.14	0.06
			8.00			1" Ice	7.86	7.86	0.11
DB286-B	B	From Leg	4.00	0.00	148.00	No Ice	4.99	4.99	0.08
			0.00			1/2" Ice	8.98	8.98	0.11
			7.00			1" Ice	12.97	12.97	0.13
(2) CG-1900DD-FULL-DIN	A	From Leg	4.00	0.00	148.00	No Ice	1.10	0.29	0.01
			0.00			1/2" Ice	1.23	0.37	0.02
			1.00			1" Ice	1.37	0.46	0.03
(2) CG-1900DD-FULL-DIN	B	From Leg	4.00	0.00	148.00	No Ice	1.10	0.29	0.01
			0.00			1/2" Ice	1.23	0.37	0.02
			1.00			1" Ice	1.37	0.46	0.03
(2) CG-1900DD-FULL-DIN	C	From Leg	4.00	0.00	148.00	No Ice	1.10	0.29	0.01
			0.00			1/2" Ice	1.23	0.37	0.02
			1.00			1" Ice	1.37	0.46	0.03
(4) LGP21901	A	From Leg	4.00	0.00	148.00	No Ice	0.23	0.16	0.01
			0.00			1/2" Ice	0.29	0.21	0.01
			1.00			1" Ice	0.36	0.28	0.01
(4) LGP21901	B	From Leg	4.00	0.00	148.00	No Ice	0.23	0.16	0.01
			0.00			1/2" Ice	0.29	0.21	0.01
			1.00			1" Ice	0.36	0.28	0.01
(4) LGP21901	C	From Leg	4.00	0.00	148.00	No Ice	0.23	0.16	0.01
			0.00			1/2" Ice	0.29	0.21	0.01
			1.00			1" Ice	0.36	0.28	0.01
(2) DTMABP7819VG12A	A	From Leg	4.00	0.00	148.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			1.00			1" Ice	1.23	0.51	0.04
(2) DTMABP7819VG12A	B	From Leg	4.00	0.00	148.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			1.00			1" Ice	1.23	0.51	0.04
(2) DTMABP7819VG12A	C	From Leg	4.00	0.00	148.00	No Ice	0.98	0.34	0.02
			0.00			1/2" Ice	1.10	0.42	0.03
			1.00			1" Ice	1.23	0.51	0.04
(2) RRUS-11	A	From Leg	4.00	0.00	148.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			1.00			1" Ice	3.21	1.50	0.09
(2) RRUS-11	B	From Leg	4.00	0.00	148.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			1.00			1" Ice	3.21	1.50	0.09
(2) RRUS-11	C	From Leg	4.00	0.00	148.00	No Ice	2.79	1.19	0.05
			0.00			1/2" Ice	3.00	1.34	0.07
			1.00			1" Ice	3.21	1.50	0.09
860 10025	A	From Leg	4.00	0.00	148.00	No Ice	0.14	0.12	0.00
			0.00			1/2" Ice	0.19	0.17	0.00
			1.00			1" Ice	0.25	0.23	0.01
860 10025	B	From Leg	4.00	0.00	148.00	No Ice	0.14	0.12	0.00
			0.00			1/2" Ice	0.19	0.17	0.00
			1.00			1" Ice	0.25	0.23	0.01
860 10025	C	From Leg	4.00	0.00	148.00	No Ice	0.14	0.12	0.00
			0.00			1/2" Ice	0.19	0.17	0.00
			1.00			1" Ice	0.25	0.23	0.01
DC6-48-60-18-8F	A	From Leg	4.00	0.00	148.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			1.00			1" Ice	1.64	1.64	0.06
Platform Mount [LP 602-1]	C	None		0.00	148.00	No Ice	32.03	32.03	1.34
						1/2" Ice	38.71	38.71	1.80
						1" Ice	45.39	45.39	2.26

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB854DG65ESX w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	5.55 5.94 6.34	4.10 4.73 5.36	0.04 0.08 0.14
DB854DG65ESX w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	5.55 5.94 6.34	4.10 4.73 5.36	0.04 0.08 0.14
DB854DG65ESX w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	5.55 5.94 6.34	4.10 4.73 5.36	0.04 0.08 0.14
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	8.42 8.96 9.48	7.42 8.45 9.35	0.08 0.15 0.23
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	8.42 8.96 9.48	7.42 8.45 9.35	0.08 0.15 0.23
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	8.42 8.96 9.48	7.42 8.45 9.35	0.08 0.15 0.23
RRH4X45-AWS4 B66	A	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	2.66 2.88 3.10	1.59 1.77 1.96	0.06 0.08 0.11
RRH4X45-AWS4 B66	B	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	2.66 2.88 3.10	1.59 1.77 1.96	0.06 0.08 0.11
RRH4X45-AWS4 B66	C	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	2.66 2.88 3.10	1.59 1.77 1.96	0.06 0.08 0.11
RRH2x60-700	A	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-700	B	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-700	C	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
Platform Mount [LP 303-1]	C	None		0.00	140.00	No Ice 1/2" Ice 1" Ice	14.66 18.87 23.08	14.66 18.87 23.08	1.25 1.48 1.71
2.375" OD x 6' Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.03 0.04 0.05
2.375" OD x 6' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.03 0.04 0.05
2.375" OD x 6' Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.03 0.04 0.05
***									
TME-1900MHz RRH	A	From Leg	1.00 0.00 -1.00	0.00	132.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.04 0.08 0.11
TME-1900MHz RRH	B	From Leg	1.00 0.00 -1.00	0.00	132.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.04 0.08 0.11
TME-1900MHz RRH	C	From Leg	1.00 0.00 -1.00	0.00	132.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.04 0.08 0.11
800 EXTERNAL NOTCH FILTER	A	From Leg	1.00 0.00 -1.00	0.00	132.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH	B	From Leg	1.00	0.00	132.00	No Ice	0.66	0.32	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
FILTER			0.00			1/2" Ice	0.76	0.40	0.02
			-1.00			1" Ice	0.87	0.48	0.02
800 EXTERNAL NOTCH FILTER	C	From Leg	1.00	0.00	132.00	No Ice	0.66	0.32	0.01
			0.00			1/2" Ice	0.76	0.40	0.02
			-1.00			1" Ice	0.87	0.48	0.02
800MHZ RRH	A	From Leg	1.00	0.00	132.00	No Ice	2.13	1.77	0.05
			0.00			1/2" Ice	2.32	1.95	0.07
			-1.00			1" Ice	2.51	2.13	0.10
800MHZ RRH	B	From Leg	1.00	0.00	132.00	No Ice	2.13	1.77	0.05
			0.00			1/2" Ice	2.32	1.95	0.07
			-1.00			1" Ice	2.51	2.13	0.10
800MHZ RRH	C	From Leg	1.00	0.00	132.00	No Ice	2.13	1.77	0.05
			0.00			1/2" Ice	2.32	1.95	0.07
			-1.00			1" Ice	2.51	2.13	0.10
Pipe Mount [PM 601-3]	C	None		0.00	132.00	No Ice	4.39	4.39	0.20
						1/2" Ice	5.48	5.48	0.24
						1" Ice	6.57	6.57	0.28
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.00	130.00	No Ice	8.26	6.95	0.08
			0.00			1/2" Ice	8.82	8.13	0.15
			0.00			1" Ice	9.35	9.02	0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.00	130.00	No Ice	8.26	6.95	0.08
			0.00			1/2" Ice	8.82	8.13	0.15
			0.00			1" Ice	9.35	9.02	0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.00	130.00	No Ice	8.26	6.95	0.08
			0.00			1/2" Ice	8.82	8.13	0.15
			0.00			1" Ice	9.35	9.02	0.23
GPS-TMG-HR-26NCM	A	From Leg	4.00	0.00	130.00	No Ice	0.13	0.13	0.00
			0.00			1/2" Ice	0.18	0.18	0.00
			3.00			1" Ice	0.24	0.24	0.01
T-Arm Mount [TA 602-3]	C	None		0.00	130.00	No Ice	11.59	11.59	0.77
						1/2" Ice	15.44	15.44	0.99
						1" Ice	19.29	19.29	1.21
(2) 2.375" OD x 6' Mount Pipe	A	From Leg	4.00	0.00	130.00	No Ice	1.43	1.43	0.03
			0.00			1/2" Ice	1.92	1.92	0.04
			0.00			1" Ice	2.29	2.29	0.05
(2) 2.375" OD x 6' Mount Pipe	B	From Leg	4.00	0.00	130.00	No Ice	1.43	1.43	0.03
			0.00			1/2" Ice	1.92	1.92	0.04
			0.00			1" Ice	2.29	2.29	0.05
(2) 2.375" OD x 6' Mount Pipe	C	From Leg	4.00	0.00	130.00	No Ice	1.43	1.43	0.03
			0.00			1/2" Ice	1.92	1.92	0.04
			0.00			1" Ice	2.29	2.29	0.05
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.00	122.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			-2.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.00	122.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			-2.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00	0.00	122.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			-2.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00	0.00	122.00	No Ice	6.32	5.63	0.11
			0.00			1/2" Ice	6.76	6.42	0.17
			-2.00			1" Ice	7.20	7.12	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00	0.00	122.00	No Ice	6.32	5.63	0.11
			0.00			1/2" Ice	6.76	6.42	0.17
			-2.00			1" Ice	7.20	7.12	0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00	0.00	122.00	No Ice	6.32	5.63	0.11
			0.00			1/2" Ice	6.76	6.42	0.17
			-2.00			1" Ice	7.20	7.12	0.23
T-Arm Mount [TA 702-3]	C	None		0.00	122.00	No Ice	5.64	5.64	0.34
						1/2" Ice	6.55	6.55	0.43
						1" Ice	7.46	7.46	0.52

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 151.00-125.25	137.61	1.354	30.97	44.428	A	0.000	44.428	44.428	100.00	0.000	0.000
					B	0.000	44.428		100.00	0.000	0.000
					C	0.000	44.428		100.00	0.000	0.328
L2 125.25-118.50	121.84	1.319	30.19	13.417	A	0.000	13.417	13.417	100.00	0.000	0.000
					B	0.000	13.417		100.00	0.000	0.000
					C	0.000	13.417		100.00	0.000	3.477
L3 118.50-117.75	118.12	1.311	29.99	1.536	A	0.000	1.536	1.536	100.00	0.000	0.000
					B	0.000	1.536		100.00	0.000	0.000
					C	0.000	1.536		100.00	0.000	0.616
L4 117.75-97.50	107.38	1.285	29.40	44.908	A	0.000	44.908	44.908	100.00	0.000	0.000
					B	0.000	44.908		100.00	0.000	0.000
					C	0.000	44.908		100.00	0.000	11.641
L5 97.50-95.00	96.24	1.255	28.73	5.887	A	0.000	5.887	5.887	100.00	0.000	0.000
					B	0.000	5.887		100.00	0.000	0.000
					C	0.000	5.887		100.00	0.000	1.730
L6 95.00-92.50	93.75	1.249	28.57	6.010	A	0.000	6.010	6.010	100.00	0.000	0.000
					B	0.000	6.010		100.00	0.000	0.000
					C	0.000	6.010		100.00	0.000	1.813
L7 92.50-87.75	90.11	1.238	28.33	11.697	A	0.000	11.697	11.697	100.00	0.000	0.000
					B	0.000	11.697		100.00	0.000	0.000
					C	0.000	11.697		100.00	0.000	3.560
L8 87.75-84.00	85.87	1.226	28.05	9.491	A	0.000	9.491	9.491	100.00	0.000	0.000
					B	0.000	9.491		100.00	0.000	0.000
					C	0.000	9.491		100.00	0.000	2.876
L9 84.00-63.25	73.41	1.186	27.14	56.623	A	0.000	56.623	56.623	100.00	0.000	0.000
					B	0.000	56.623		100.00	0.000	0.000
					C	0.000	56.623		100.00	0.000	13.675
L10 63.25-56.75	59.98	1.136	26.01	19.167	A	0.000	19.167	19.167	100.00	0.000	0.000
					B	0.000	19.167		100.00	0.000	0.000
					C	0.000	19.167		100.00	0.000	5.256
L11 56.75-47.50	52.09	1.103	25.24	28.452	A	0.000	28.452	28.452	100.00	0.000	0.000
					B	0.000	28.452		100.00	0.000	0.000
					C	0.000	28.452		100.00	0.000	6.438
L12 47.50-34.25	40.79	1.048	23.98	42.178	A	0.000	42.178	42.178	100.00	0.000	0.000
					B	0.000	42.178		100.00	0.000	0.000
					C	0.000	42.178		100.00	0.000	8.881
L13 34.25-26.75	30.48	0.986	22.55	25.282	A	0.000	25.282	25.282	100.00	0.000	0.000
					B	0.000	25.282		100.00	0.000	0.000
					C	0.000	25.282		100.00	0.000	6.065
L14 26.75-16.75	21.71	0.918	21.00	35.122	A	0.000	35.122	35.122	100.00	0.000	0.000
					B	0.000	35.122		100.00	0.000	0.000
					C	0.000	35.122		100.00	0.000	8.087
L15 16.75-14.25	15.50	0.855	19.56	9.033	A	0.000	9.033	9.033	100.00	0.000	0.000
					B	0.000	9.033		100.00	0.000	0.000
					C	0.000	9.033		100.00	0.000	2.022
L16 14.25-0.00	7.05	0.85	19.45	53.413	A	0.000	53.413	53.413	100.00	0.000	0.000
					B	0.000	53.413		100.00	0.000	0.000
					C	0.000	53.413		100.00	0.000	11.523

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 151.00-125.25	137.61	1.354	8.23	1.7302	51.854	A	0.000	51.854	51.854	100.00	0.000	0.000
						B	0.000	51.854		100.00	0.000	0.000
						C	0.000	51.854		100.00	0.000	0.809

Section Elevation ft	z ft	K_Z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L2 125.25-118.50	121.84	1.319	8.02	1.7093	15.340	A	0.000	15.340	15.340	100.00	0.000	0.000
						B	0.000	15.340		100.00	0.000	0.000
						C	0.000	15.340		100.00	0.000	9.194
L3 118.50-117.75	118.12	1.311	7.97	1.7040	1.749	A	0.000	1.749	1.749	100.00	0.000	0.000
						B	0.000	1.749		100.00	0.000	0.000
						C	0.000	1.749		100.00	0.000	1.695
L4 117.75-97.50	107.38	1.285	7.81	1.6878	50.605	A	0.000	50.605	50.605	100.00	0.000	0.000
						B	0.000	50.605		100.00	0.000	0.000
						C	0.000	50.605		100.00	0.000	33.377
L5 97.50-95.00	96.24	1.255	7.63	1.6695	6.591	A	0.000	6.591	6.591	100.00	0.000	0.000
						B	0.000	6.591		100.00	0.000	0.000
						C	0.000	6.591		100.00	0.000	5.106
L6 95.00-92.50	93.75	1.249	7.59	1.6651	6.704	A	0.000	6.704	6.704	100.00	0.000	0.000
						B	0.000	6.704		100.00	0.000	0.000
						C	0.000	6.704		100.00	0.000	5.329
L7 92.50-87.75	90.11	1.238	7.53	1.6585	13.010	A	0.000	13.010	13.010	100.00	0.000	0.000
						B	0.000	13.010		100.00	0.000	0.000
						C	0.000	13.010		100.00	0.000	10.212
L8 87.75-84.00	85.87	1.226	7.45	1.6505	10.523	A	0.000	10.523	10.523	100.00	0.000	0.000
						B	0.000	10.523		100.00	0.000	0.000
						C	0.000	10.523		100.00	0.000	8.103
L9 84.00-63.25	73.41	1.186	7.21	1.6249	62.242	A	0.000	62.242	62.242	100.00	0.000	0.000
						B	0.000	62.242		100.00	0.000	0.000
						C	0.000	62.242		100.00	0.000	36.911
L10 63.25-56.75	59.98	1.136	6.91	1.5924	20.892	A	0.000	20.892	20.892	100.00	0.000	0.000
						B	0.000	20.892		100.00	0.000	0.000
						C	0.000	20.892		100.00	0.000	13.997
L11 56.75-47.50	52.09	1.103	6.71	1.5700	30.872	A	0.000	30.872	30.872	100.00	0.000	0.000
						B	0.000	30.872		100.00	0.000	0.000
						C	0.000	30.872		100.00	0.000	16.958
L12 47.50-34.25	40.79	1.048	6.37	1.5321	45.645	A	0.000	45.645	45.645	100.00	0.000	0.000
						B	0.000	45.645		100.00	0.000	0.000
						C	0.000	45.645		100.00	0.000	23.378
L13 34.25-26.75	30.48	0.986	5.99	1.4881	27.143	A	0.000	27.143	27.143	100.00	0.000	0.000
						B	0.000	27.143		100.00	0.000	0.000
						C	0.000	27.143		100.00	0.000	15.490
L14 26.75-16.75	21.71	0.918	5.58	1.4385	37.520	A	0.000	37.520	37.520	100.00	0.000	0.000
						B	0.000	37.520		100.00	0.000	0.000
						C	0.000	37.520		100.00	0.000	20.234
L15 16.75-14.25	15.50	0.855	5.20	1.3908	9.612	A	0.000	9.612	9.612	100.00	0.000	0.000
						B	0.000	9.612		100.00	0.000	0.000
						C	0.000	9.612		100.00	0.000	4.958
L16 14.25-0.00	7.05	0.85	5.17	1.2855	56.466	A	0.000	56.466	56.466	100.00	0.000	0.000
						B	0.000	56.466		100.00	0.000	0.000
						C	0.000	56.466		100.00	0.000	26.992

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 151.00-125.25	137.61	1.354	10.60	44.428	A	0.000	44.428	44.428	100.00	0.000	0.000
					B	0.000	44.428		100.00	0.000	0.000
					C	0.000	44.428		100.00	0.000	0.328
L2 125.25-118.50	121.84	1.319	10.34	13.417	A	0.000	13.417	13.417	100.00	0.000	0.000
					B	0.000	13.417		100.00	0.000	0.000
					C	0.000	13.417		100.00	0.000	3.477
L3 118.50-117.75	118.12	1.311	10.27	1.536	A	0.000	1.536	1.536	100.00	0.000	0.000
					B	0.000	1.536		100.00	0.000	0.000
					C	0.000	1.536		100.00	0.000	0.616
L4 117.75-97.50	107.38	1.285	10.06	44.908	A	0.000	44.908	44.908	100.00	0.000	0.000
					B	0.000	44.908		100.00	0.000	0.000
					C	0.000	44.908		100.00	0.000	11.641

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L5 97.50-95.00	96.24	1.255	9.83	5.887	A	0.000	5.887	5.887	100.00	0.000	0.000
					B	0.000	5.887		100.00	0.000	0.000
					C	0.000	5.887		100.00	0.000	1.730
L6 95.00-92.50	93.75	1.249	9.78	6.010	A	0.000	6.010	6.010	100.00	0.000	0.000
					B	0.000	6.010		100.00	0.000	0.000
					C	0.000	6.010		100.00	0.000	1.813
L7 92.50-87.75	90.11	1.238	9.70	11.697	A	0.000	11.697	11.697	100.00	0.000	0.000
					B	0.000	11.697		100.00	0.000	0.000
					C	0.000	11.697		100.00	0.000	3.560
L8 87.75-84.00	85.87	1.226	9.60	9.491	A	0.000	9.491	9.491	100.00	0.000	0.000
					B	0.000	9.491		100.00	0.000	0.000
					C	0.000	9.491		100.00	0.000	2.876
L9 84.00-63.25	73.41	1.186	9.29	56.623	A	0.000	56.623	56.623	100.00	0.000	0.000
					B	0.000	56.623		100.00	0.000	0.000
					C	0.000	56.623		100.00	0.000	13.675
L10 63.25-56.75	59.98	1.136	8.90	19.167	A	0.000	19.167	19.167	100.00	0.000	0.000
					B	0.000	19.167		100.00	0.000	0.000
					C	0.000	19.167		100.00	0.000	5.256
L11 56.75-47.50	52.09	1.103	8.64	28.452	A	0.000	28.452	28.452	100.00	0.000	0.000
					B	0.000	28.452		100.00	0.000	0.000
					C	0.000	28.452		100.00	0.000	6.438
L12 47.50-34.25	40.79	1.048	8.21	42.178	A	0.000	42.178	42.178	100.00	0.000	0.000
					B	0.000	42.178		100.00	0.000	0.000
					C	0.000	42.178		100.00	0.000	8.881
L13 34.25-26.75	30.48	0.986	7.72	25.282	A	0.000	25.282	25.282	100.00	0.000	0.000
					B	0.000	25.282		100.00	0.000	0.000
					C	0.000	25.282		100.00	0.000	6.065
L14 26.75-16.75	21.71	0.918	7.19	35.122	A	0.000	35.122	35.122	100.00	0.000	0.000
					B	0.000	35.122		100.00	0.000	0.000
					C	0.000	35.122		100.00	0.000	8.087
L15 16.75-14.25	15.50	0.855	6.70	9.033	A	0.000	9.033	9.033	100.00	0.000	0.000
					B	0.000	9.033		100.00	0.000	0.000
					C	0.000	9.033		100.00	0.000	2.022
L16 14.25-0.00	7.05	0.85	6.66	53.413	A	0.000	53.413	53.413	100.00	0.000	0.000
					B	0.000	53.413		100.00	0.000	0.000
					C	0.000	53.413		100.00	0.000	11.523

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice

Comb. No.	Description
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	151 - 125.25	Pole	Max Tension	21	0.00	-0.00	-0.00
			Max. Compression	26	-23.34	-0.66	2.04
			Max. Mx	8	-8.02	-279.92	0.12
			Max. My	2	-8.00	-0.27	281.63
			Max. Vy	8	17.28	-279.92	0.12
			Max. Vx	2	-17.41	-0.27	281.63
			Max. Torque	25			-1.48
L2	125.25 - 118.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.88	-0.28	1.84
			Max. Mx	8	-9.95	-403.90	0.12
			Max. My	2	-9.93	-0.26	406.49
			Max. Vy	8	20.31	-403.90	0.12
			Max. Vx	2	-20.43	-0.26	406.49
			Max. Torque	25			-1.48
L3	118.5 - 117.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.17	-0.20	1.80
			Max. Mx	8	-10.13	-419.17	0.12
			Max. My	2	-10.10	-0.26	421.87
			Max. Vy	8	20.45	-419.17	0.12
			Max. Vx	2	-20.57	-0.26	421.87
			Max. Torque	25			-1.30
L4	117.75 - 97.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.00	1.67	0.78
			Max. Mx	8	-13.37	-787.15	0.06
			Max. My	2	-13.34	-0.15	792.09
			Max. Vy	20	-23.34	786.68	0.06
			Max. Vx	14	23.47	-0.15	-791.83
			Max. Torque	25			-1.27
L5	97.5 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.05	2.35	0.40
			Max. Mx	8	-15.26	-928.67	0.04
			Max. My	2	-15.24	-0.10	934.40
			Max. Vy	20	-24.50	928.29	0.04
			Max. Vx	14	24.63	-0.10	-934.19
			Max. Torque	23			-0.71
L6	95 - 92.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.25	2.65	0.24

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-16.07	-990.48	0.03
			Max. My	2	-16.04	-0.09	996.55
			Max. Vy	20	-24.99	990.15	0.03
			Max. Vx	14	25.12	-0.09	-996.37
			Max. Torque	23			-0.63
L7	92.5 - 87.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.13	3.22	-0.08
			Max. Mx	8	-17.23	-1111.18	0.01
			Max. My	2	-17.21	-0.05	1117.89
			Max. Vy	20	-25.88	1110.94	0.01
			Max. Vx	14	26.01	-0.05	-1117.77
			Max. Torque	23			-0.53
L8	87.75 - 84	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.07	3.69	-0.34
			Max. Mx	8	-18.58	-1209.56	-0.01
			Max. My	2	-18.56	-0.02	1216.78
			Max. Vy	20	-26.63	1209.38	-0.01
			Max. Vx	14	26.76	-0.02	-1216.69
			Max. Torque	21			-0.40
L9	84 - 63.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.10	6.38	-1.85
			Max. Mx	20	-24.56	1801.01	-0.11
			Max. My	14	-24.55	0.17	-1810.96
			Max. Vy	20	-30.44	1801.01	-0.11
			Max. Vx	14	30.57	0.17	-1810.96
			Max. Torque	2			0.88
L10	63.25 - 56.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.03	7.25	-2.35
			Max. Mx	20	-26.57	2002.76	-0.15
			Max. My	14	-26.56	0.23	-2013.53
			Max. Vy	20	-31.65	2002.76	-0.15
			Max. Vx	14	31.78	0.23	-2013.53
			Max. Torque	2			1.18
L11	56.75 - 47.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.35	7.91	-2.72
			Max. Mx	20	-28.21	2155.12	-0.18
			Max. My	14	-28.20	0.28	-2166.49
			Max. Vy	20	-32.52	2155.12	-0.18
			Max. Vx	14	32.65	0.28	-2166.49
			Max. Torque	12			-1.38
L12	47.5 - 34.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.19	10.39	-4.13
			Max. Mx	20	-36.17	2761.66	-0.29
			Max. My	14	-36.16	0.48	-2775.27
			Max. Vy	20	-35.72	2761.66	-0.29
			Max. Vx	14	35.85	0.48	-2775.27
			Max. Torque	12			-2.16
L13	34.25 - 26.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.17	11.42	-4.72
			Max. Mx	20	-39.16	3034.19	-0.34
			Max. My	14	-39.16	0.57	-3048.73
			Max. Vy	20	-36.98	3034.19	-0.34
			Max. Vx	14	37.10	0.57	-3048.73
			Max. Torque	12			-2.56
L14	26.75 - 16.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.51	12.72	-5.48
			Max. Mx	20	-43.25	3411.52	-0.41
			Max. My	14	-43.25	0.69	-3427.29
			Max. Vy	20	-38.51	3411.52	-0.41
			Max. Vx	14	38.64	0.69	-3427.29
			Max. Torque	12			-3.06
L15	16.75 - 14.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.97	13.05	-5.67
			Max. Mx	20	-44.41	3508.24	-0.43
			Max. My	14	-44.41	0.72	-3524.32
			Max. Vy	20	-38.88	3508.24	-0.43
			Max. Vx	14	39.01	0.72	-3524.32
			Max. Torque	12			-3.18
L16	14.25 - 0	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	-86.09	14.77	-6.67
			Max. Mx	20	-50.99	4076.74	-0.54
			Max. My	14	-50.99	0.91	-4094.53
			Max. Vy	20	-40.93	4076.74	-0.54
			Max. Vx	14	41.05	0.91	-4094.53
			Max. Torque	12			-3.90

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	86.09	-0.00	0.00
	Max. H_x	20	51.00	40.91	-0.00
	Max. H_z	2	51.01	0.00	41.03
	Max. M_x	2	4093.46	0.00	41.03
	Max. M_z	8	4074.90	-40.91	-0.00
	Max. Torsion	24	3.89	20.46	35.54
	Min. Vert	21	38.25	40.91	-0.00
	Min. H_x	8	51.00	-40.91	-0.00
	Min. H_z	14	51.01	0.00	-41.03
	Min. M_x	14	-4094.53	0.00	-41.03
	Min. M_z	20	-4076.74	40.91	-0.00
	Min. Torsion	12	-3.90	-20.46	-35.54

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	42.50	-0.00	0.00	0.44	0.75	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	51.01	-0.00	-41.03	-4093.46	0.91	-3.54
0.9 Dead+1.6 Wind 0 deg - No Ice	38.25	-0.00	-41.03	-4048.73	0.68	-3.53
1.2 Dead+1.6 Wind 30 deg - No Ice	51.01	20.46	-35.54	-3545.22	-2037.24	-2.24
0.9 Dead+1.6 Wind 30 deg - No Ice	38.25	20.46	-35.54	-3506.58	-2015.20	-2.23
1.2 Dead+1.6 Wind 60 deg - No Ice	51.01	35.43	-20.52	-2046.63	-3529.31	-0.33
0.9 Dead+1.6 Wind 60 deg - No Ice	38.25	35.43	-20.52	-2024.38	-3490.96	-0.34
1.2 Dead+1.6 Wind 90 deg - No Ice	51.00	40.91	0.00	0.54	-4074.90	1.66
0.9 Dead+1.6 Wind 90 deg - No Ice	38.25	40.91	0.00	0.40	-4030.39	1.65
1.2 Dead+1.6 Wind 120 deg - No Ice	51.01	35.43	20.52	2047.70	-3529.30	3.21
0.9 Dead+1.6 Wind 120 deg - No Ice	38.25	35.43	20.52	2025.18	-3490.96	3.20
1.2 Dead+1.6 Wind 150 deg - No Ice	51.01	20.46	35.54	3546.29	-2037.24	3.90
0.9 Dead+1.6 Wind 150 deg - No Ice	38.25	20.46	35.54	3507.38	-2015.20	3.89
1.2 Dead+1.6 Wind 180 deg - No Ice	51.01	-0.00	41.03	4094.53	0.91	3.54
0.9 Dead+1.6 Wind 180 deg - No Ice	38.25	-0.00	41.03	4049.53	0.68	3.53
1.2 Dead+1.6 Wind 210 deg - No Ice	51.01	-20.46	35.54	3546.29	2039.06	2.23
0.9 Dead+1.6 Wind 210 deg - No Ice	38.25	-20.46	35.54	3507.39	2016.56	2.23
1.2 Dead+1.6 Wind 240 deg - No Ice	51.01	-35.43	20.52	2047.71	3531.14	0.33
0.9 Dead+1.6 Wind 240 deg - No Ice	38.25	-35.43	20.52	2025.19	3492.33	0.33
1.2 Dead+1.6 Wind 270 deg - No Ice	51.00	-40.91	0.00	0.54	4076.74	-1.66
0.9 Dead+1.6 Wind 270 deg - No Ice	38.25	-40.91	0.00	0.40	4031.76	-1.65
1.2 Dead+1.6 Wind 300 deg - No Ice	51.01	-35.43	-20.52	-2046.64	3531.14	-3.20
0.9 Dead+1.6 Wind 300 deg - No Ice	38.25	-35.43	-20.52	-2024.39	3492.33	-3.20
1.2 Dead+1.6 Wind 330 deg - No Ice	51.01	-20.46	-35.54	-3545.22	2039.06	-3.89
0.9 Dead+1.6 Wind 330 deg - No Ice	38.25	-20.46	-35.54	-3506.59	2016.56	-3.89
1.2 Dead+1.0 Ice+1.0 Temp	86.09	0.00	-0.00	6.67	14.77	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	86.09	0.00	-10.35	-1145.62	15.00	-1.34
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	86.09	5.16	-8.96	-991.24	-559.01	-0.65
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	86.09	8.94	-5.17	-569.44	-979.21	0.21
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	86.09	10.32	-0.00	6.74	-1133.02	1.02
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	86.09	8.94	5.17	582.92	-979.21	1.55
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	86.09	5.16	8.96	1004.71	-559.01	1.67
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	86.09	0.00	10.35	1159.10	15.00	1.34
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	86.09	-5.16	8.96	1004.71	589.00	0.65

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	86.09	-8.94	5.17	582.92	1009.20	-0.21
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	86.09	-10.32	-0.00	6.74	1163.00	-1.02
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	86.09	-8.94	-5.17	-569.44	1009.20	-1.55
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	86.09	-5.16	-8.96	-991.23	589.00	-1.67
Dead+Wind 0 deg - Service	42.50	0.00	-8.78	-870.85	0.76	0.24
Dead+Wind 30 deg - Service	42.50	4.38	-7.60	-754.12	-432.97	0.10
Dead+Wind 60 deg - Service	42.50	7.58	-4.39	-435.20	-750.49	-0.07
Dead+Wind 90 deg - Service	42.50	8.75	-0.00	0.44	-866.71	-0.22
Dead+Wind 120 deg - Service	42.50	7.58	4.39	436.09	-750.49	-0.32
Dead+Wind 150 deg - Service	42.50	4.38	7.60	755.10	-433.02	-0.32
Dead+Wind 180 deg - Service	42.50	0.00	8.78	871.73	0.76	-0.24
Dead+Wind 210 deg - Service	42.50	-4.38	7.60	755.00	434.49	-0.10
Dead+Wind 240 deg - Service	42.50	-7.58	4.39	436.09	752.01	0.07
Dead+Wind 270 deg - Service	42.50	-8.75	-0.00	0.44	868.23	0.22
Dead+Wind 300 deg - Service	42.50	-7.58	-4.39	-435.25	752.10	0.32
Dead+Wind 330 deg - Service	42.50	-4.38	-7.60	-754.12	434.49	0.32

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	-42.50	0.00	0.00	42.50	-0.00	0.000%
2	0.00	-51.01	-41.04	0.00	51.01	41.03	0.003%
3	0.00	-38.25	-41.04	0.00	38.25	41.03	0.005%
4	20.46	-51.01	-35.54	-20.46	51.01	35.54	0.000%
5	20.46	-38.25	-35.54	-20.46	38.25	35.54	0.000%
6	35.43	-51.01	-20.52	-35.43	51.01	20.52	0.000%
7	35.43	-38.25	-20.52	-35.43	38.25	20.52	0.000%
8	40.91	-51.01	0.00	-40.91	51.00	-0.00	0.007%
9	40.91	-38.25	0.00	-40.91	38.25	-0.00	0.011%
10	35.43	-51.01	20.52	-35.43	51.01	-20.52	0.000%
11	35.43	-38.25	20.52	-35.43	38.25	-20.52	0.000%
12	20.46	-51.01	35.54	-20.46	51.01	-35.54	0.000%
13	20.46	-38.25	35.54	-20.46	38.25	-35.54	0.000%
14	0.00	-51.01	41.04	0.00	51.01	-41.03	0.003%
15	0.00	-38.25	41.04	0.00	38.25	-41.03	0.005%
16	-20.46	-51.01	35.54	20.46	51.01	-35.54	0.000%
17	-20.46	-38.25	35.54	20.46	38.25	-35.54	0.000%
18	-35.43	-51.01	20.52	35.43	51.01	-20.52	0.000%
19	-35.43	-38.25	20.52	35.43	38.25	-20.52	0.000%
20	-40.91	-51.01	0.00	40.91	51.00	-0.00	0.007%
21	-40.91	-38.25	0.00	40.91	38.25	-0.00	0.011%
22	-35.43	-51.01	-20.52	35.43	51.01	20.52	0.000%
23	-35.43	-38.25	-20.52	35.43	38.25	20.52	0.000%
24	-20.46	-51.01	-35.54	20.46	51.01	35.54	0.000%
25	-20.46	-38.25	-35.54	20.46	38.25	35.54	0.000%
26	0.00	-86.09	0.00	-0.00	86.09	0.00	0.001%
27	0.00	-86.09	-10.35	-0.00	86.09	10.35	0.001%
28	5.16	-86.09	-8.96	-5.16	86.09	8.96	0.001%
29	8.94	-86.09	-5.17	-8.94	86.09	5.17	0.001%
30	10.32	-86.09	0.00	-10.32	86.09	0.00	0.001%
31	8.94	-86.09	5.17	-8.94	86.09	-5.17	0.001%
32	5.16	-86.09	8.96	-5.16	86.09	-8.96	0.001%
33	0.00	-86.09	10.35	-0.00	86.09	-10.35	0.001%
34	-5.16	-86.09	8.96	5.16	86.09	-8.96	0.001%
35	-8.94	-86.09	5.17	8.94	86.09	-5.17	0.001%
36	-10.32	-86.09	0.00	10.32	86.09	0.00	0.001%
37	-8.94	-86.09	-5.17	8.94	86.09	5.17	0.001%
38	-5.16	-86.09	-8.96	5.16	86.09	8.96	0.001%
39	0.00	-42.50	-8.78	-0.00	42.50	8.78	0.004%
40	4.38	-42.50	-7.60	-4.38	42.50	7.60	0.004%
41	7.58	-42.50	-4.39	-7.58	42.50	4.39	0.004%
42	8.75	-42.50	0.00	-8.75	42.50	0.00	0.004%
43	7.58	-42.50	4.39	-7.58	42.50	-4.39	0.004%
44	4.38	-42.50	7.60	-4.38	42.50	-7.60	0.002%
45	0.00	-42.50	8.78	-0.00	42.50	-8.78	0.004%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
46	-4.38	-42.50	7.60	4.38	42.50	-7.60	0.004%
47	-7.58	-42.50	4.39	7.58	42.50	-4.39	0.004%
48	-8.75	-42.50	0.00	8.75	42.50	0.00	0.004%
49	-7.58	-42.50	-4.39	7.58	42.50	4.39	0.002%
50	-4.38	-42.50	-7.60	4.38	42.50	7.60	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00003538	0.00007722
3	Yes	16	0.00004849	0.00012026
4	Yes	22	0.00000001	0.00008764
5	Yes	21	0.00000001	0.00012872
6	Yes	22	0.00000001	0.00008844
7	Yes	21	0.00000001	0.00012998
8	Yes	16	0.00007235	0.00008674
9	Yes	15	0.00009908	0.00014351
10	Yes	22	0.00000001	0.00008866
11	Yes	21	0.00000001	0.00013029
12	Yes	22	0.00000001	0.00008756
13	Yes	21	0.00000001	0.00012859
14	Yes	17	0.00003538	0.00007723
15	Yes	16	0.00004849	0.00012027
16	Yes	22	0.00000001	0.00008897
17	Yes	21	0.00000001	0.00013071
18	Yes	22	0.00000001	0.00008789
19	Yes	21	0.00000001	0.00012911
20	Yes	16	0.00007236	0.00008676
21	Yes	15	0.00009908	0.00014353
22	Yes	22	0.00000001	0.00008770
23	Yes	21	0.00000001	0.00012883
24	Yes	22	0.00000001	0.00008907
25	Yes	21	0.00000001	0.00013087
26	Yes	11	0.00000001	0.00004858
27	Yes	19	0.00000001	0.00009105
28	Yes	19	0.00000001	0.00013537
29	Yes	19	0.00000001	0.00013485
30	Yes	19	0.00000001	0.00008985
31	Yes	19	0.00000001	0.00013777
32	Yes	19	0.00000001	0.00013534
33	Yes	19	0.00000001	0.00009149
34	Yes	19	0.00000001	0.00014066
35	Yes	19	0.00000001	0.00014085
36	Yes	19	0.00000001	0.00009183
37	Yes	19	0.00000001	0.00013801
38	Yes	19	0.00000001	0.00014086
39	Yes	15	0.00012404	0.00004600
40	Yes	15	0.00012386	0.00014499
41	Yes	15	0.00012385	0.00014343
42	Yes	15	0.00012405	0.00004536
43	Yes	15	0.00012385	0.00013028
44	Yes	16	0.00000001	0.00008304
45	Yes	15	0.00012402	0.00004601
46	Yes	15	0.00012382	0.00013783
47	Yes	15	0.00012381	0.00013820
48	Yes	15	0.00012401	0.00004537
49	Yes	16	0.00000001	0.00008251
50	Yes	15	0.00012384	0.00013044

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	151 - 125.25	27.09	39	1.65	0.01
L2	125.25 - 118.5	18.54	45	1.44	0.00
L3	118.5 - 117.75	16.56	45	1.36	0.00
L4	117.75 - 97.5	16.35	45	1.35	0.00
L5	100.917 - 95	11.94	45	1.14	0.00
L6	95 - 92.5	10.55	45	1.09	0.00
L7	92.5 - 87.75	9.99	45	1.07	0.00
L8	87.75 - 84	8.96	45	1.00	0.00
L9	84 - 63.25	8.18	45	0.97	0.00
L10	63.25 - 56.75	4.55	45	0.70	0.00
L11	56.75 - 47.5	3.66	45	0.61	0.00
L12	52 - 34.25	3.07	45	0.56	0.00
L13	34.25 - 26.75	1.31	45	0.37	0.00
L14	26.75 - 16.75	0.79	45	0.29	0.00
L15	16.75 - 14.25	0.30	45	0.17	0.00
L16	14.25 - 0	0.22	45	0.15	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	39	26.05	1.63	0.01	18445
140.00	DB854DG65ESX w/ Mount Pipe	45	23.31	1.58	0.00	8384
132.00	TME-1900MHz RRH	45	20.66	1.52	0.00	4853
130.00	APXVSPP18-C-A20 w/ Mount Pipe	45	20.02	1.50	0.00	4391
122.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	45	17.57	1.40	0.00	4291

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	151 - 125.25	127.16	2	7.75	0.02
L2	125.25 - 118.5	87.09	14	6.78	0.00
L3	118.5 - 117.75	77.80	14	6.39	0.00
L4	117.75 - 97.5	76.80	14	6.36	0.00
L5	100.917 - 95	56.08	14	5.37	0.00
L6	95 - 92.5	49.57	14	5.12	0.00
L7	92.5 - 87.75	46.92	14	5.01	0.00
L8	87.75 - 84	42.09	14	4.71	0.00
L9	84 - 63.25	38.45	14	4.56	0.00
L10	63.25 - 56.75	21.40	14	3.29	0.00
L11	56.75 - 47.5	17.19	14	2.89	0.00
L12	52 - 34.25	14.45	14	2.62	0.00
L13	34.25 - 26.75	6.14	14	1.76	0.00
L14	26.75 - 16.75	3.69	14	1.36	0.00
L15	16.75 - 14.25	1.42	14	0.81	0.00
L16	14.25 - 0	1.03	14	0.69	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	14	122.29	7.68	0.02	4091
140.00	DB854DG65ESX w/ Mount Pipe	14	109.44	7.45	0.01	1858
132.00	TME-1900MHz RRH	14	97.02	7.14	0.01	1073
130.00	APXVSPP18-C-A20 w/ Mount Pipe	14	94.01	7.04	0.00	970
122.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	14	82.54	6.57	0.00	941

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	151 - 125.25 (1)	TP22.4079x17.59x0.2188	25.75	0.00	0.0	15.6330	-8.00	1093.26	0.007
L2	125.25 - 118.5 (2)	TP23.6708x22.4079x0.3502	6.75	0.00	0.0	26.2959	-9.93	1260.17	0.008
L3	118.5 - 117.75 (3)	TP23.8112x23.6708x0.6321	0.75	0.00	0.0	47.1756	-10.10	2198.20	0.005
L4	117.75 - 97.5 (4)	TP27.6x23.8112x0.4541	20.25	0.00	0.0	38.7554	-13.34	1813.76	0.007
L5	97.5 - 95 (5)	TP27.6303x26.0525x0.546	5.92	0.00	0.0	47.6200	-15.24	2231.87	0.007
L6	95 - 92.5 (6)	TP28.0981x27.6303x0.7826	2.50	0.00	0.0	68.8309	-16.04	3226.76	0.005
L7	92.5 - 87.75 (7)	TP28.9869x28.0981x0.5331	4.75	0.00	0.0	48.8423	-17.21	2291.92	0.008
L8	87.75 - 84 (8)	TP29.6885x28.9869x0.8388	3.75	0.00	0.0	77.9221	-18.56	3658.26	0.005
L9	84 - 63.25 (9)	TP33.571x29.6885x0.5695	20.75	0.00	0.0	60.5147	-24.55	2893.18	0.008
L10	63.25 - 56.75 (10)	TP34.7872x33.571x0.5589	6.50	0.00	0.0	61.6036	-26.56	2950.13	0.009
L11	56.75 - 47.5 (11)	TP36.518x34.7872x0.6274	9.25	0.00	0.0	70.8106	-28.20	3594.19	0.008
L12	47.5 - 34.25 (12)	TP38.372x34.4211x0.6672	17.75	0.00	0.0	80.9995	-36.16	4118.71	0.009
L13	34.25 - 26.75 (13)	TP39.7752x38.372x0.6551	7.50	0.00	0.0	82.5245	-39.16	4200.93	0.009
L14	26.75 - 16.75 (14)	TP41.6461x39.7752x0.6406	10.00	0.00	0.0	84.5808	-43.25	4313.28	0.010
L15	16.75 - 14.25 (15)	TP42.1139x41.6461x0.7269	2.50	0.00	0.0	96.8672	-44.41	4737.72	0.009
L16	14.25 - 0 (16)	TP44.78x42.1139x0.6927	14.25	0.00	0.0	98.3407	-50.99	4866.66	0.010

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	151 - 125.25 (1)	TP22.4079x17.59x0.2188	281.63	493.26	0.571	0.00	493.26	0.000
L2	125.25 - 118.5 (2)	TP23.6708x22.4079x0.3502	406.49	594.53	0.684	0.00	594.53	0.000
L3	118.5 - 117.75 (3)	TP23.8112x23.6708x0.6321	421.87	1018.48	0.414	0.00	1018.48	0.000
L4	117.75 - 97.5 (4)	TP27.6x23.8112x0.4541	792.09	970.58	0.816	0.00	970.58	0.000
L5	97.5 - 95 (5)	TP27.6303x26.0525x0.546	934.40	1216.72	0.768	0.00	1216.72	0.000
L6	95 - 92.5 (6)	TP28.0981x27.6303x0.7826	996.55	1759.48	0.566	0.00	1759.48	0.000
L7	92.5 - 87.75 (7)	TP28.9869x28.0981x0.5331	1117.89	1314.47	0.850	0.00	1314.47	0.000
L8	87.75 - 84 (8)	TP29.6885x28.9869x0.8388	1216.78	2105.93	0.578	0.00	2105.93	0.000
L9	84 - 63.25 (9)	TP33.571x29.6885x0.5695	1810.96	1927.33	0.940	0.00	1927.33	0.000
L10	63.25 - 56.75 (10)	TP34.7872x33.571x0.5589	2013.53	2040.17	0.987	0.00	2040.17	0.000
L11	56.75 - 47.5 (11)	TP36.518x34.7872x0.6274	2166.49	2541.21	0.853	0.00	2541.21	0.000
L12	47.5 - 34.25 (12)	TP38.372x34.4211x0.6672	2775.27	3133.40	0.886	0.00	3133.40	0.000
L13	34.25 - 26.75 (13)	TP39.7752x38.372x0.6551	3048.73	3319.00	0.919	0.00	3319.00	0.000
L14	26.75 - 16.75 (14)	TP41.6461x39.7752x0.6406	3427.29	3575.97	0.958	0.00	3575.97	0.000
L15	16.75 - 14.25 (15)	TP42.1139x41.6461x0.7269	3524.32	3956.82	0.891	0.00	3956.82	0.000
L16	14.25 - 0 (16)	TP44.78x42.1139x0.6927	4094.53	4337.58	0.944	0.00	4337.58	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	151 - 125.25 (1)	TP22.4079x17.59x0.2188	17.41	546.63	0.032	1.11	1000.18	0.001
L2	125.25 - 118.5 (2)	TP23.6708x22.4079x0.3502	20.43	630.09	0.032	0.98	1205.52	0.001
L3	118.5 - 117.75 (3)	TP23.8112x23.6708x0.6321	20.57	1099.10	0.019	0.95	2065.17	0.000
L4	117.75 - 97.5 (4)	TP27.6x23.8112x0.4541	23.47	906.88	0.026	0.50	1968.04	0.000
L5	97.5 - 95 (5)	TP27.6303x26.0525x0.546	24.63	1115.93	0.022	0.33	2467.13	0.000
L6	95 - 92.5 (6)	TP28.0981x27.6303x0.7826	25.12	1613.38	0.016	0.24	3567.68	0.000
L7	92.5 - 87.75 (7)	TP28.9869x28.0981x0.5331	26.01	1145.96	0.023	0.06	2665.35	0.000
L8	87.75 - 84 (8)	TP29.6885x28.9869x0.8388	26.76	1829.13	0.015	0.14	4270.17	0.000
L9	84 - 63.25 (9)	TP33.571x29.6885x0.5695	30.57	1446.59	0.021	0.88	3908.01	0.000
L10	63.25 - 56.75 (10)	TP34.7872x33.571x0.5589	31.78	1475.06	0.022	1.18	4136.82	0.000
L11	56.75 - 47.5 (11)	TP36.518x34.7872x0.6274	32.65	1797.10	0.018	1.36	5152.78	0.000
L12	47.5 - 34.25 (12)	TP38.372x34.4211x0.6672	35.85	2059.35	0.017	2.04	6353.55	0.000
L13	34.25 - 26.75 (13)	TP39.7752x38.372x0.6551	37.10	2100.47	0.018	2.38	6729.89	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 $\frac{T_u}{\phi T_n}$
L14	26.75 - 16.75 (14)	TP41.6461x39.7752x0.6406	38.64	2156.64	0.018	2.82	7250.95	0.000
L15	16.75 - 14.25 (15)	TP42.1139x41.6461x0.7269	39.01	2368.86	0.016	2.92	8023.21	0.000
L16	14.25 - 0 (16)	TP44.78x42.1139x0.6927	41.06	2433.33	0.017	3.54	8795.25	0.000

Pole Interaction Design Data

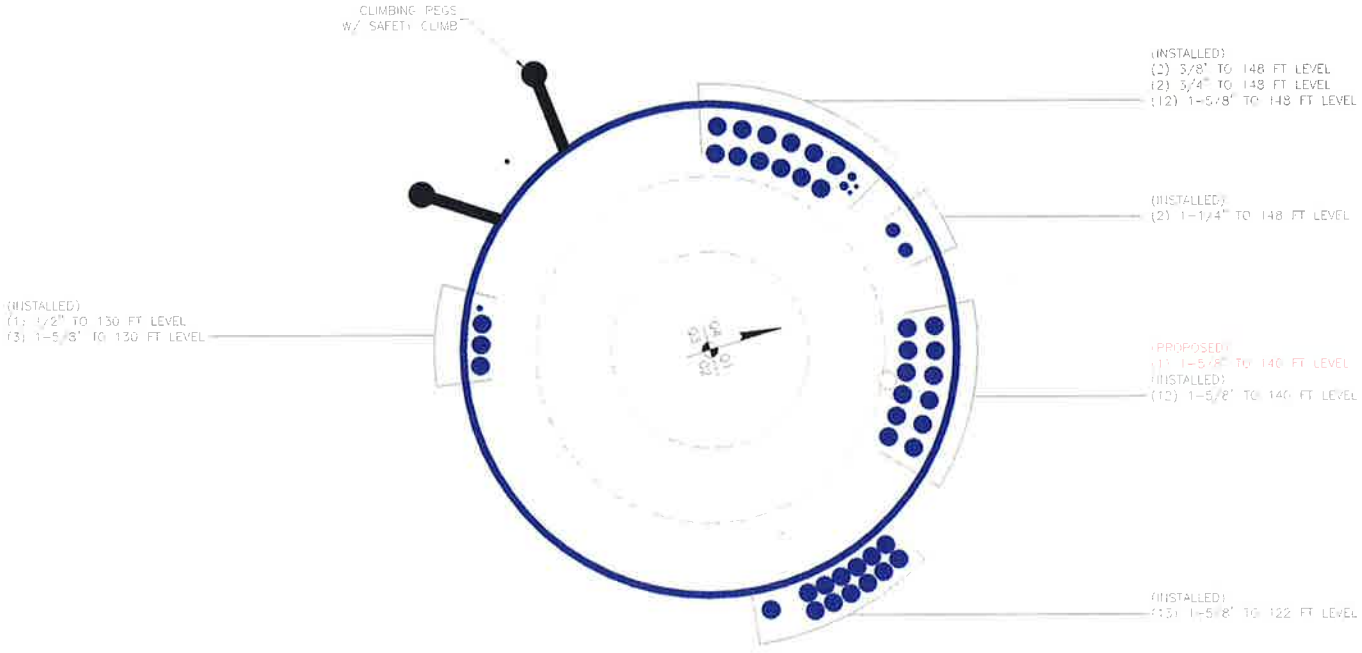
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	151 - 125.25 (1)	0.007	0.571	0.000	0.032	0.001	0.579 ✔	1.000	4.8.2 ✔
L2	125.25 - 118.5 (2)	0.008	0.684	0.000	0.032	0.001	0.693 ✔	1.000	4.8.2 ✔
L3	118.5 - 117.75 (3)	0.005	0.414	0.000	0.019	0.000	0.419 ✔	1.000	4.8.2 ✔
L4	117.75 - 97.5 (4)	0.007	0.816	0.000	0.026	0.000	0.824 ✔	1.000	4.8.2 ✔
L5	97.5 - 95 (5)	0.007	0.768	0.000	0.022	0.000	0.775 ✔	1.000	4.8.2 ✔
L6	95 - 92.5 (6)	0.005	0.566	0.000	0.016	0.000	0.572 ✔	1.000	4.8.2 ✔
L7	92.5 - 87.75 (7)	0.008	0.850	0.000	0.023	0.000	0.858 ✔	1.000	4.8.2 ✔
L8	87.75 - 84 (8)	0.005	0.578	0.000	0.015	0.000	0.583 ✔	1.000	4.8.2 ✔
L9	84 - 63.25 (9)	0.008	0.940	0.000	0.021	0.000	0.949 ✔	1.000	4.8.2 ✔
L10	63.25 - 56.75 (10)	0.009	0.987	0.000	0.022	0.000	0.996 ✔	1.000	4.8.2 ✔
L11	56.75 - 47.5 (11)	0.008	0.853	0.000	0.018	0.000	0.861 ✔	1.000	4.8.2 ✔
L12	47.5 - 34.25 (12)	0.009	0.886	0.000	0.017	0.000	0.895 ✔	1.000	4.8.2 ✔
L13	34.25 - 26.75 (13)	0.009	0.919	0.000	0.018	0.000	0.928 ✔	1.000	4.8.2 ✔
L14	26.75 - 16.75 (14)	0.010	0.958	0.000	0.018	0.000	0.969 ✔	1.000	4.8.2 ✔
L15	16.75 - 14.25 (15)	0.009	0.891	0.000	0.016	0.000	0.900 ✔	1.000	4.8.2 ✔
L16	14.25 - 0 (16)	0.010	0.944	0.000	0.017	0.000	0.955 ✔	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	151 - 125.25	Pole	TP22.4079x17.59x0.2188	1	-8.00	1093.26	57.9	Pass
L2	125.25 - 118.5	Pole	TP23.6708x22.4079x0.3502	2	-9.93	1260.17	69.3	Pass
L3	118.5 - 117.75	Pole	TP23.8112x23.6708x0.6321	3	-10.10	2198.20	41.9	Pass
L4	117.75 - 97.5	Pole	TP27.6x23.8112x0.4541	4	-13.34	1813.76	82.4	Pass
L5	97.5 - 95	Pole	TP27.6303x26.0525x0.546	5	-15.24	2231.87	77.5	Pass
L6	95 - 92.5	Pole	TP28.0981x27.6303x0.7826	6	-16.04	3226.76	57.2	Pass
L7	92.5 - 87.75	Pole	TP28.9869x28.0981x0.5331	7	-17.21	2291.92	85.8	Pass
L8	87.75 - 84	Pole	TP29.6885x28.9869x0.8388	8	-18.56	3658.26	58.3	Pass
L9	84 - 63.25	Pole	TP33.571x29.6885x0.5695	9	-24.55	2893.18	94.9	Pass
L10	63.25 - 56.75	Pole	TP34.7872x33.571x0.5589	10	-26.56	2950.13	99.6	Pass
L11	56.75 - 47.5	Pole	TP36.518x34.7872x0.6274	11	-28.20	3594.19	86.1	Pass
L12	47.5 - 34.25	Pole	TP38.372x34.4211x0.6672	12	-36.16	4118.71	89.5	Pass
L13	34.25 - 26.75	Pole	TP39.7752x38.372x0.6551	13	-39.16	4200.93	92.8	Pass
L14	26.75 - 16.75	Pole	TP41.6461x39.7752x0.6406	14	-43.25	4313.28	96.9	Pass
L15	16.75 - 14.25	Pole	TP42.1139x41.6461x0.7269	15	-44.41	4737.72	90.0	Pass
L16	14.25 - 0	Pole	TP44.78x42.1139x0.6927	16	-50.99	4866.66	95.5	Pass
							Summary	
						Pole (L10)	99.6	Pass
						RATING =	**99.6**	**Pass**

APPENDIX B

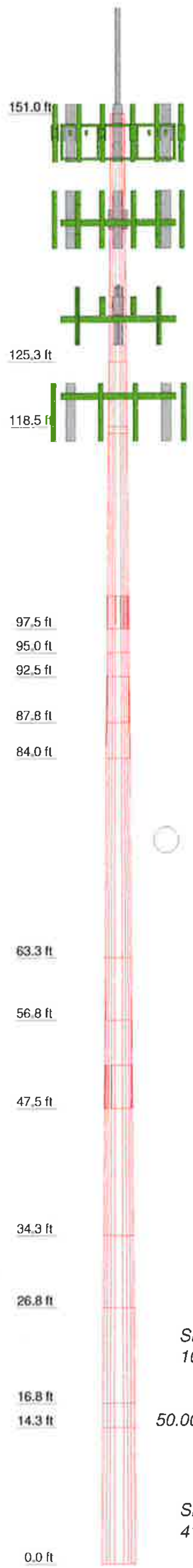
BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	25.75	12	0.2188		17.5900	22.4079	A572-65	1.2
2	6.75	12	0.3502		22.4079	23.6708	Reinf 42.26 ksi	0.6
3	0.75	12	0.6321		23.6708	23.8112	Reinf 41.09 ksi	0.1
4	20.25	12	0.4541	3.42	23.8112	27.6000	Reinf 41.27 ksi	2.5
5	5.92	12	[illegible]		[illegible]	[illegible]	[illegible]	0.9
6	2.50	12	[illegible]		[illegible]	[illegible]	[illegible]	0.6
7	4.75	12	0.5331		[illegible]	[illegible]	[illegible]	0.8
8	3.75	12	0.8388		[illegible]	[illegible]	[illegible]	1.0
9	20.75	12	0.5695		29.6885	33.5710	Reinf 41.40 ksi	4.0
10	6.50	12	0.5589		33.5710	34.7872	Reinf 42.16 ksi	1.3
11	9.25	12	0.6274	4.50	34.7872	36.5180	Reinf 42.23 ksi	2.2
12	17.75	12	0.6672		34.4211	38.3720	Reinf 44.76 ksi	4.6
13	7.50	12	0.6551		38.3720	39.7752	Reinf 44.84 ksi	2.1
14	10.00	12	0.6406		39.7752	41.6461	Reinf 44.89 ksi	2.8
15	2.50	12	0.7269		41.6461	42.1139	Reinf 44.97 ksi	0.8
16	14.25	12	0.6927		42.1139	44.7800	Reinf 43.13 / 43.64 ksi	4.6
								30.3



DESIGNED APPURTENANCE LOADING

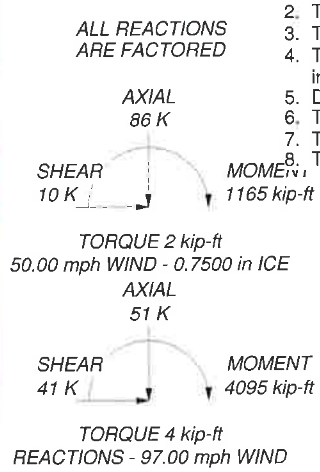
TYPE	ELEVATION	TYPE	ELEVATION
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	148	RRH2x60-700	140
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	148	RRH2x60-700	140
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	148	DB-T1-6Z-8AB-0Z	140
800 10121 w/ Mount Pipe	148	Platform Mount [LP 303-1]	140
800 10121 w/ Mount Pipe	148	2.375" OD x 6' Mount Pipe	140
800 10121 w/ Mount Pipe	148	2.375" OD x 6' Mount Pipe	140
OG-4	148	2.375" OD x 6' Mount Pipe	140
DB286-B	148	TME-1900MHz RRH	132
(2) CG-1900DD-FULL-DIN	148	TME-1900MHz RRH	132
(2) CG-1900DD-FULL-DIN	148	TME-1900MHz RRH	132
(2) CG-1900DD-FULL-DIN	148	800 EXTERNAL NOTCH FILTER	132
(4) LGP21901	148	800 EXTERNAL NOTCH FILTER	132
(4) LGP21901	148	800 EXTERNAL NOTCH FILTER	132
(4) LGP21901	148	800MHZ RRH	132
(2) DTMABP7819VG12A	148	800MHZ RRH	132
(2) DTMABP7819VG12A	148	800MHZ RRH	132
(2) DTMABP7819VG12A	148	Pipe Mount [PM 601-3]	132
(2) RRUS-11	148	APXVSPP18-C-A20 w/ Mount Pipe	130
(2) RRUS-11	148	APXVSPP18-C-A20 w/ Mount Pipe	130
(2) RRUS-11	148	APXVSPP18-C-A20 w/ Mount Pipe	130
860 10025	148	GPS-TMG-HR-26NCM	130
860 10025	148	T-Arm Mount [TA 602-3]	130
860 10025	148	(2) 2.375" OD x 6' Mount Pipe	130
DC6-48-60-18-8F	148	(2) 2.375" OD x 6' Mount Pipe	130
Platform Mount [LP 602-1]	148	(2) 2.375" OD x 6' Mount Pipe	130
DB854DG65ESX w/ Mount Pipe	140	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	122
DB854DG65ESX w/ Mount Pipe	140	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	122
DB854DG65ESX w/ Mount Pipe	140	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	122
(2) SBNHH-1D65B w/ Mount Pipe	140	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	122
(2) SBNHH-1D65B w/ Mount Pipe	140	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	122
(2) SBNHH-1D65B w/ Mount Pipe	140	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	122
RRH4X45-AWS4 B66	140	T-Arm Mount [TA 702-3]	122
RRH4X45-AWS4 B66	140		
RRH4X45-AWS4 B66	140		
RRH2x60-700	140		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	Reinf 42.16 ksi	42 ksi	53 ksi
Reinf 42.26 ksi	42 ksi	53 ksi	Reinf 42.23 ksi	42 ksi	53 ksi
Reinf 41.09 ksi	41 ksi	52 ksi	Reinf 44.76 ksi	45 ksi	56 ksi
Reinf 41.27 ksi	41 ksi	52 ksi	Reinf 44.84 ksi	45 ksi	57 ksi
Reinf 41.33 ksi	41 ksi	52 ksi	Reinf 44.89 ksi	45 ksi	57 ksi
Reinf 41.34 ksi	41 ksi	52 ksi	Reinf 44.97 ksi	45 ksi	57 ksi
Reinf 41.38 ksi	41 ksi	52 ksi	Reinf 43.13 ksi	43 ksi	54 ksi
Reinf 41.40 ksi	41 ksi	52 ksi	Reinf 43.64 ksi	44 ksi	55 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97.00 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.00 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.00 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.6%



PJF
Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: 151 Ft. Monopole / Bethany, CT		
Project: PJF 37517-07559.001 / BU 841295		
Client: Crown Castle	Drawn by: Ryan Ferrante	App'd:
Code: TIA-222-G	Date: 02/14/17	Scale: N
Path: [illegible]		Dwg No.

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

v4.4 - Effective 7-12-13

Date: 2/14/2017
PJF Project: 37517-0759.001.7805
Client Ref. # BU 841295
Site Name: Bethany
Description: 151' MP
Owner: Crown Castle
Engineer: RMF

Asymmetric Anchor Rod Analysis

Moment =	4095	k-ft	TIA Ref.	G	Location =	Base Plate		
Axial =	51.0	kips	ASIF =	N/A	η =	0.50	for BP, Rev. G Sect. 4.9.9	
Shear =	41.0	kips	Max Ratio =	105.0%	Threads =	N/A	for FP, Rev. G	
Anchor Qty =	18							

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.250	#18J A615 Gr 75	75	100	0.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
2	2.250	#18J A615 Gr 75	75	100	30.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
3	2.250	#18J A615 Gr 75	75	100	60.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
4	2.250	#18J A615 Gr 75	75	100	90.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
5	2.250	#18J A615 Gr 75	75	100	120.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
6	2.250	#18J A615 Gr 75	75	100	150.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
7	2.250	#18J A615 Gr 75	75	100	180.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
8	2.250	#18J A615 Gr 75	75	100	210.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
9	2.250	#18J A615 Gr 75	75	100	240.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
10	2.250	#18J A615 Gr 75	75	100	270.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
11	2.250	#18J A615 Gr 75	75	100	300.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
12	2.250	#18J A615 Gr 75	75	100	330.0	52.75	0.00	3.98	207.00	201.41	211.50	0.00	260.00	81.3%
13	2.250	Williams R71	127.7	150	45.0	52.75	0.00	4.14	215.53	209.71	220.21	0.00	489.60	45.0%
14	2.250	Williams R71	127.7	150	105.0	52.75	0.00	4.14	215.53	209.71	220.21	0.00	489.60	45.0%
15	2.250	Williams R71	127.7	150	165.0	52.75	0.00	4.14	215.53	209.71	220.21	0.00	489.60	45.0%
16	2.250	Williams R71	127.7	150	225.0	52.75	0.00	4.14	215.53	209.71	220.21	0.00	489.60	45.0%
17	2.250	Williams R71	127.7	150	285.0	52.75	0.00	4.14	215.53	209.71	220.21	0.00	489.60	45.0%
18	2.250	Williams R71	127.7	150	345.0	52.75	0.00	4.14	215.53	209.71	220.21	0.00	489.60	45.0%
								72.62						

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#:
Site Name:
App #:
Pole Manufacturer: *Other*

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	52.75	in

Plate Data		
Diam:	58.75	in
Thick:	3	in
Grade:	50	ksi
Single-Rod B-eff:	6.00	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	44.78	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	5661.8773	ft-kips
Axial, Pu:	51	kips
Shear, Vu:	41	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

Reactions and anchor quantity adjusted to account for post installed anchors.

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

Anchor Rod Results

Max Rod (Cu+ Vu/η): 220.2 Kips

Rigid
AISC LRFD
φ*Tn

See Asymmetric Anchor Rod Analysis for Anchor Capacity Usage.

Base Plate Results Flexural Check

		Rigid
Base Plate Stress:	38.4 ksi	AISC LRFD
Allowable Plate Stress:	45.0 ksi	φ*Fy
Base Plate Stress Ratio:	85.3% Pass	Y.L. Length: 27.88

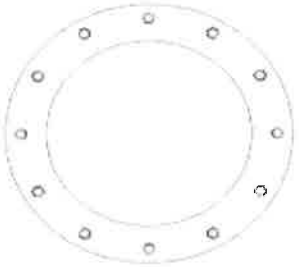
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a



* 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

Structure Type:

Type = Pole

Factored Foundation Loads:

Load Combo 1 = LC1 = 1.2D + 1.6Wo

Load Combo 2 = LC2 = 0.9D + 1.6Wo

	LC1	LC2	
Factored Axial Load (+Comp, -Ten) =	429	321.8	kips
Factored Horiz. Load at Top of Pier =	41	41.0	kips
Factored OTM at Top of Pier =	4095	4095	k-ft

LRFD Resistance and Load Factors:

	Φ	Dead Load Factors	
Soil Bearing =	0.75		
Soil Weight =	0.75	1.2	0.9
Concrete Weight =	0.75	1.2	0.9

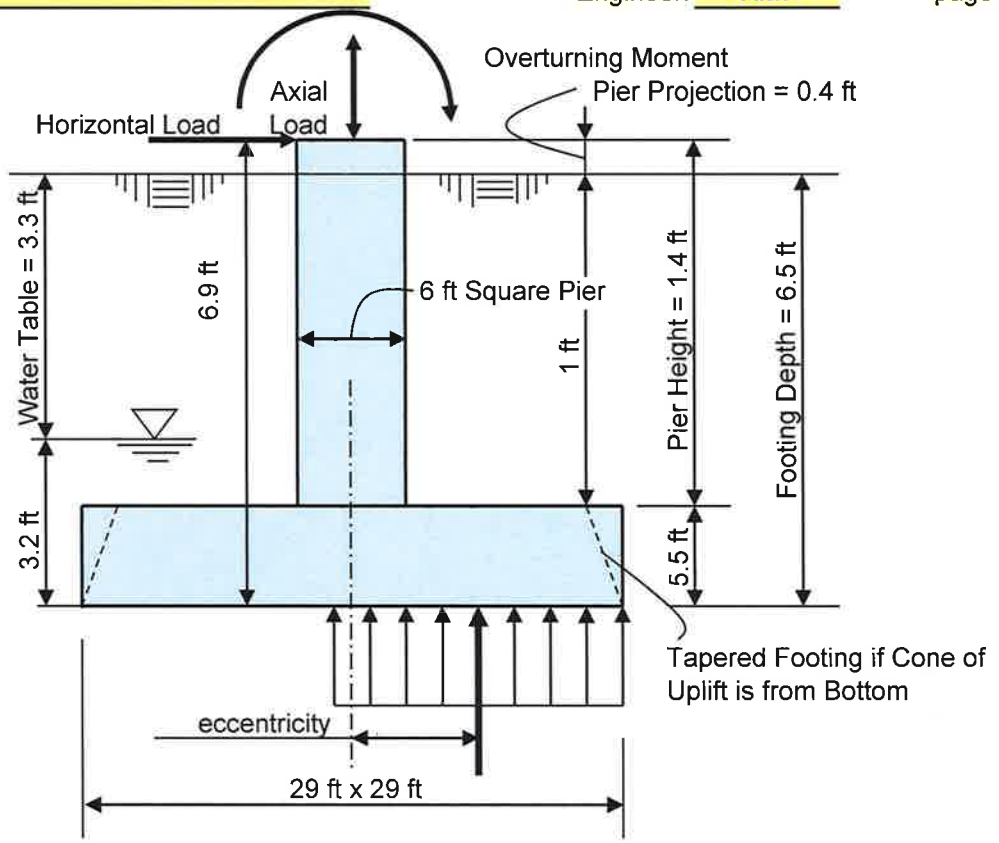
Soil Properties:

Depth to Water Table =	3.3	ft
Use? (Cohesion or Soil Cone)	S	
Soil Cone of Uplift =	30	degrees
Cohesion (for Uplift) =	0	ksf
Depth to Ignore for Uplift and PP?	3.3	ft
Include Side Friction? (Yes or No)	N	
Include Passive Pressure On?	N	(Not Included)
Include Soil Wedges? (Yes or No)	N	(For LC2 LC Only)
Treat Conc as Load or Resistance?	R	for Uplift Calc

Layer Thk	Soil Density	Cohesion ksf	Friction Angle degrees	Ult Bearing ksf	Depth ft
2	110	0	30		2.00
4	115	0	30		6.00
6	130	0	30	30	12.00

Dimensions:

Pier Shape (Round or Square)	S	
Pier Width =	6	ft
Pier Height above Grade =	0.4	ft
Depth to Bottom of Footing =	6.5	ft
Footing Thickness =	5.5	ft
Footing Width, B =	29	ft
Footing Length, L =	29	ft



Concrete:

Concrete Strength =	3	ksi
Rebar Strength =	60	ksi

Reinforcing Steel:

	Pad	
Minimum Cover over Rebar =	6	inches
Size of Pad Rebar =	# 7	bar
Quantity of Pad Rebar, Parallel to Width =	29	#7 bars @ 12.2" oc
Quantity of Pad Rebar, Parallel to Length =	29	#7 bars @ 12.2" oc

Pad rebar is less than ACI minimum steel.

	Pier	
Minimum Cover over Rebar =	2.5	inches
Size of Pier Rebar =	# 10	bar
Rebar Qty (Multiples of 2 or 4 Only) =	40	(Min = 4, Max = 40)
Size Of Pier Ties =	# 4	bar
Bar Layout (Round or Square)	S	
Column (Spiral or Tied)	T	

Pier rebar area exceeds minimum steel requirements.

PJF Job No. **37517-0759.001** Project Name: **BU 841295** Engineer: RMF

Factored Foundation Loads:

	LC1	LC2	
Factored Axial Load (+Comp, -Ten) =	429	321.75	kips
Factored Horiz. Load at Top of Pier =	41	41	kips
Factored OTM at Top of Pier =	4095	4095	kips

LRFD Resistance and Load Factors:

	Φ	Dead Load Factors	
Soil Bearing =	0.75		
Soil Weight =	0.75	1.2	0.9
Concrete Weight =	0.75	1.2	0.9

Soil Properties:

Depth to Water Table = 3.3 ft

Uplift Cone from Top of footing

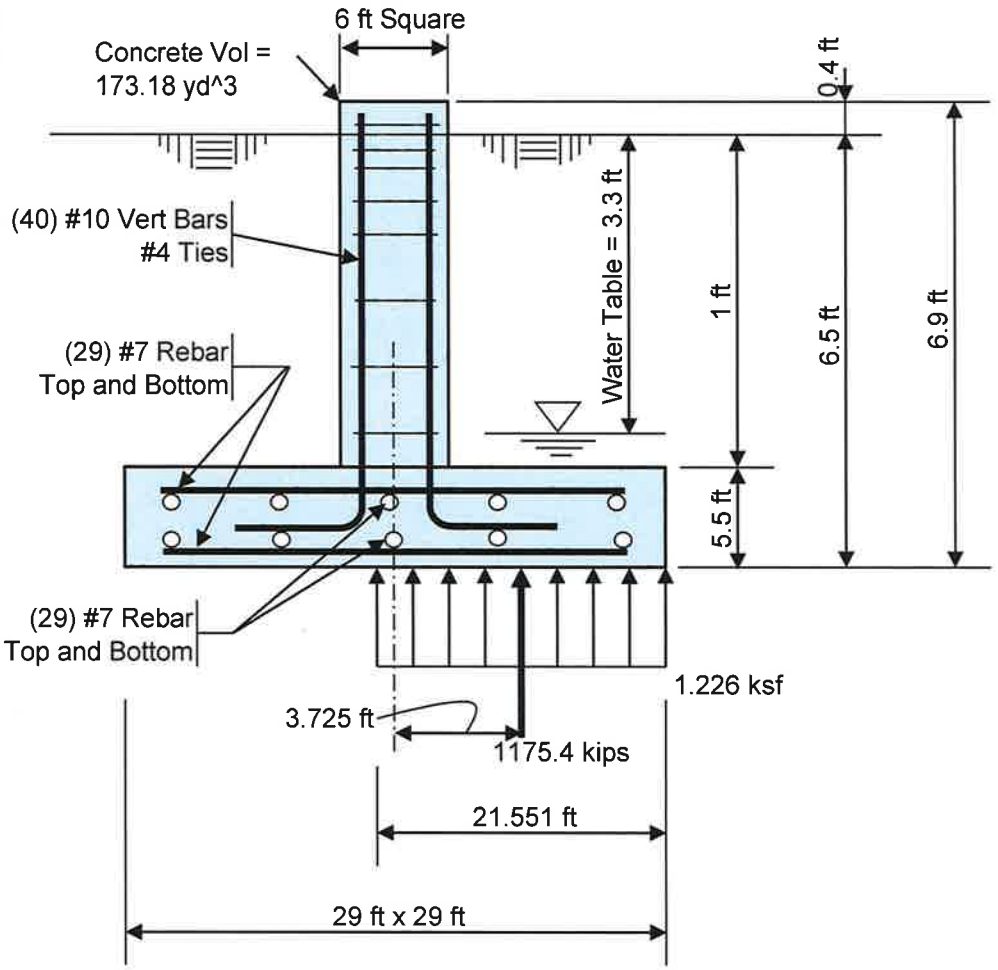
Layer Thk ft	Soil Density pcf	Cohesion ksf	Friction Angle degrees	Ult Bearing ksf	Depth ft
2	110	0	30		2.00
4	115	0	30		6.00
6	130	0	30	30	12.00

Dimensions:

Pier Shape =	Square	
Pier Width =	6	ft Square
Pier Height above Grade =	0.4	ft
Depth to Bottom of Footing =	6.5	ft
Footing Thickness =	5.5	ft
Footing Width, B =	29	ft
Footing Length, L =	29	ft

Concrete:

Concrete Strength =	3	ksi
Rebar Strength =	60	ksi



Total Pad Reinf Stl =	34.80	in^2 < 41.34 in^2 = Min Stl
Total Pier Reinf Stl =	50.80	in^2 >= 25.92 in^2 = Min Stl, OK
Footing Thickness =	5.50	ft >= 2.12 ft = Min Ftg Thk, OK

Summary Results:

	Required		Available		
Maximum Net Soil Bearing =	1.231	ksf	22.500	ksf	Stress Ratio = 5.5% in Soil Bearing
Uplift =	0.0	kips	469.3	kips	Stress Ratio = 0.0% in Uplift
Punching Shear Stress =	0.028	ksi	0.164	ksi	Stress Ratio = 16.8% in Punching Shear
Bending Shear Stress =	258.1	kips	1677.9	kips	Stress Ratio = 15.4% in Bending Shear
Bending Moment =	2507.4	k-ft	4549.2	k-ft	Stress Ratio = 55.1% in Bending Moment
Conc Pier Reinforcing Steel =	4152.4	k-ft	8084.6	k-ft	Stress Ratio = 51.4% in Pier Rebar

ATTACHMENT 4

Full Town View | Reset Map | **Search** | Print Map | Map Layer

Full Extent | Zoom In | Zoom Out | Prev Extent | Next Extent | Pan | **Parcel Information** | Simple

MapXpress v1.2

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2013.

Information on the Property Records for the Municipality of Bethany was last updated on 6/15/2017.

Parcel Information

Location:	761 AMITY RD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	00182510	Map Block Lot:	117/1	Acres:	0.00
490 Acres:	0.00	Zone:	B&I	Volume / Page:	0000/0000
Developers Map / Lot:		Census:			

Value Information

	Appraised Value	70% Assessed Value
Land	0	0
Buildings	0	0
Detached Outbuildings	257,230	180,060
Total	257,230	180,060

Owner's Information

Owner's Data

SNET (TAX DEPT)
FRONTIER COMMUNICATIONS
401 MERRITT 7
NORWALK CT 06851

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Fencing	1996			2,720
Cell Tower	1996			250,000
Average Shed	2008			288
Average Shed	1996			288