Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts

February 3, 2017

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
41 Manitock Hill Road, Waterford, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 107-foot level of the existing 136-foot self-support lattice tower at 41 Manitock Hill Road in Waterford, Connecticut (the "Property"). The tower is owned by Crown Castle. The Council approved Cellco's use of this tower in 2005. Cellco now intends to modify its facility by replacing nine (9) of its existing antennas with three (3) model BXA-70063-6CF, 700 MHz antennas; three (3) model SBNHH-1D65B, 1900 MHz antennas; and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the 107-foot level on the tower. Cellco also intends to replace three (3) remote radio heads ("RRHs") and install six (6) new RRHs, all behind its antennas and install one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for the 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 Daniel M. Steward, First Selectman for the Town of Waterford, Abby Piersall, Planning Director for the Town Waterford, City of New London Water Department, the owner of the Property and Crown Castle, the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. The replacement antennas and RRHs will be located at the 107-foot level on the 136-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 modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included behind Attachment 2.

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

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

A copy of the Town Assessor's 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:
Daniel M. Steward, Waterford First Selectman
Abby Piersall, Waterford Planning Director
City of New London Water Department
Crown Castle
Tim Parks

ATTACHMENT 1

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

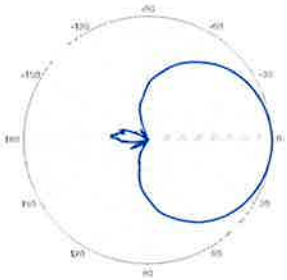
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in
Depth with z-brackets	172 mm	6.8 in
Weight without mounting brackets	7.9 kg	17 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.51 m^2 Side: 0.24 m^2	Front: 5.5 ft^2 Side: 2.6 ft^2
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf

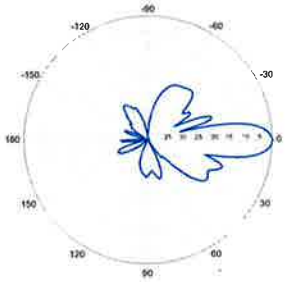
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



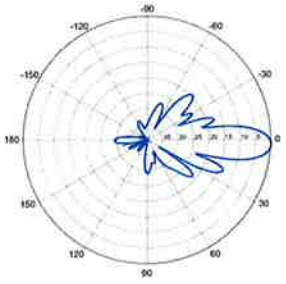
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

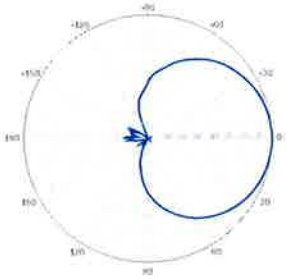


0° | Vertical | 750 MHz

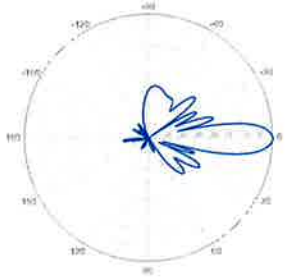
BXA-70063-6CF-EDIN-2



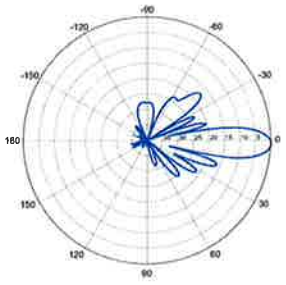
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz

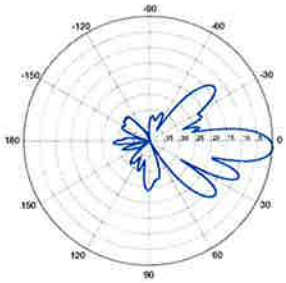


2° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-X

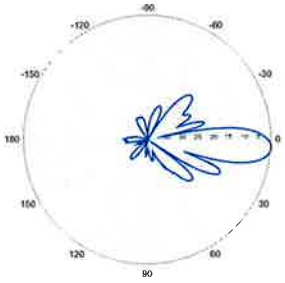
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



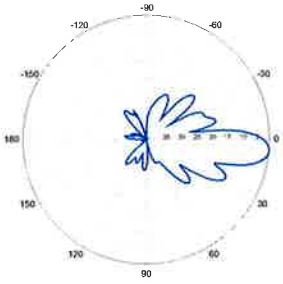
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

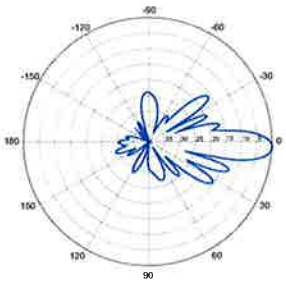


4° | Vertical | 750 MHz

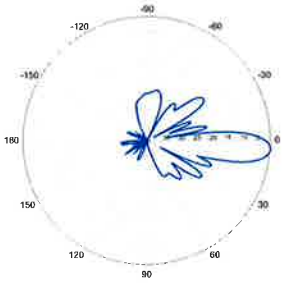
BXA-70063-6CF-EDIN-5



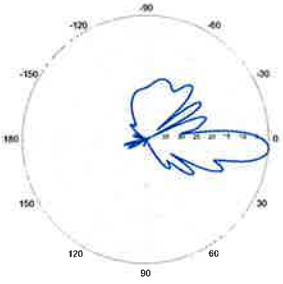
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

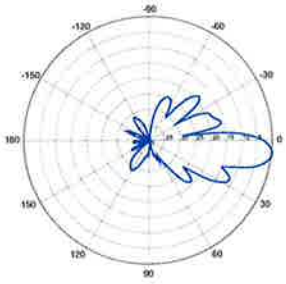


4° | Vertical | 850 MHz



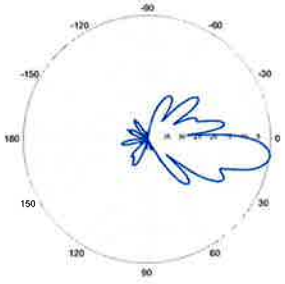
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



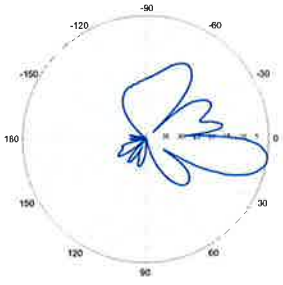
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

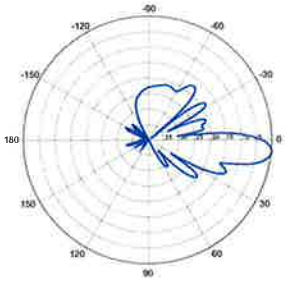


8° | Vertical | 750 MHz

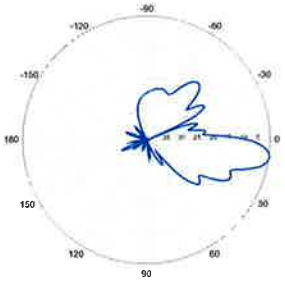
BXA-70063-6CF-EDIN-10



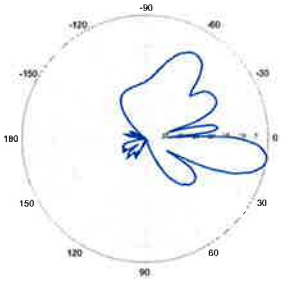
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

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

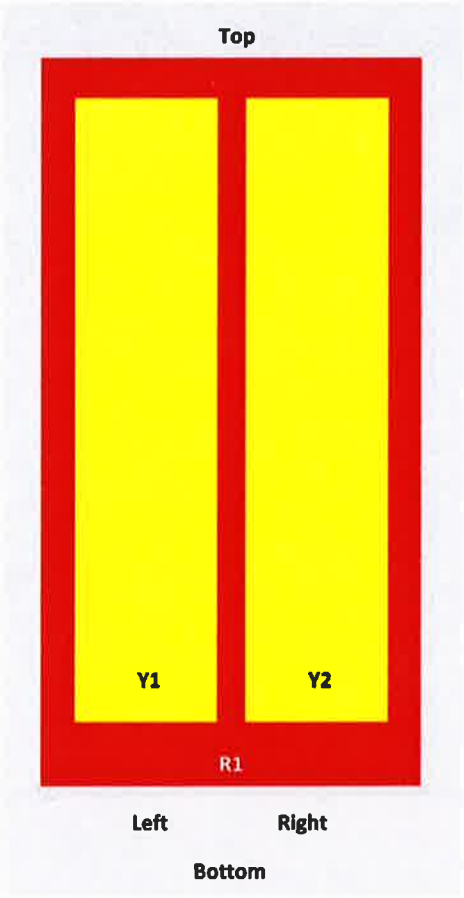
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Array Layout

Product Specifications

SBNHH-1D65B

SBNHH 6S



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.

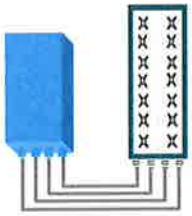
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

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.

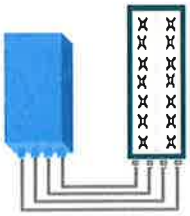
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

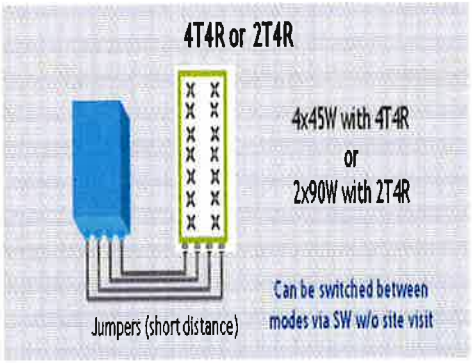
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

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

TECHNICAL SPECIFICATIONS

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

Product Data Sheet HB158-1-08U8-S8J18

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

Product Description

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

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX² 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 Data			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical Properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Optic Properties			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Environmental Data			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

* This data is provisional and subject to change

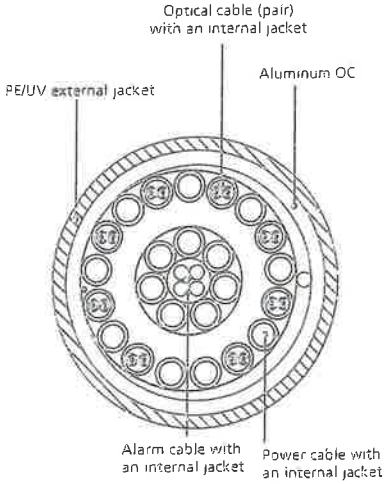


Figure 2: Construction Detail

ATTACHMENT 2

	General	Power	Density					
Site Name: Waterford 2								
Tower Height: 136Ft.								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Nextel	9	100	127	851	0.0221	0.5673	0.39%	
*Sprint	5	693	137	1900	0.0726	1.0000	0.73%	
*Sprint	1	390	137	850	0.0082	0.5667	0.14%	
*Sprint	2	693	137	2500	0.0290	1.0000	0.29%	
*MetroPCS	3	444	89	2140	0.0695	1.0000	0.69%	
*AT&T	2	296	97	880	0.0257	0.5867	0.44%	
*AT&T	2	427	97	1900	0.0371	1.0000	0.37%	
*AT&T	2	500	97	880	0.0434	0.5867	0.74%	
*AT&T	2	500	97	1900	0.0434	1.0000	0.43%	
*AT&T	1	500	97	740	0.0217	0.4933	0.44%	
*T-Mobile	2	24	119	2100	0.0014	1.0000	0.01%	
*T-Mobile	2	12	119	1950	0.0007	1.0000	0.01%	
*T-Mobile	2	12	119	2100	0.0007	1.0000	0.01%	
Verizon	**1**	**3466**	**107**	**0.1089**	**1970**	**1.0000**	**10.89%**	
Verizon	**9**	**309**	**107**	**0.0873**	**869**	**0.5793**	**15.08%**	
Verizon	**1**	**6907**	**107**	**0.2169**	**2145**	**1.0000**	**21.69%**	
Verizon	**1**	**1743**	**107**	**0.0547**	**746**	**0.4973**	**11.01%**	
								63.4%
* Source: Siting Council								

ATTACHMENT 3

PJF PAUL J. FORD & COMPANY | 50 years 1965 - 2015

Date: **November 09, 2016**

Kevin Morrow
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
1-704-405-6619

Paul J Ford and Company
250 E Broad St Suite 600
Columbus, OH 43215
614-221-6679
jjacobs@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	117854
	Carrier Site Name:	Waterford 2 CT
Crown Castle Designation:	**Crown Castle BU Number:**	876338
	Crown Castle Site Name:	WATERFORD
	Crown Castle JDE Job Number:	407410
	Crown Castle Work Order Number:	1323598
	Crown Castle Application Number:	367766 Rev. 0
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37516-3559-001-8700
Site Data:	**41 Manitock Hill Road, Waterford, New London County, CT**	
	Latitude *41° 21' 16.7"*, Longitude *-72° 9' 1.6"*	
	136 Foot - Self Support Tower	

Dear Mr. Morrow,

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 968634, in accordance with application 367766, 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/reserved 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 134 mph converted to a nominal 3-second gust wind speed of 104 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1 and Risk Category IIwere 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.

Structural analysis prepared by:

Respectfully submitted by:

Joseph Jacobs, PE, SE
Project Manager

tnxTower Report - version 7.0.5.1

STATE OF CONNECTICUT · PACHICARAH JACOBS · No. PEN 22731 · LICENSED PROFESSIONAL ENGINEER

NOV 10 2016

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 136 ft Self Support tower designed by PIROD MANUFACTURES INC. in February of 1999. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

The tower was reworked in 2008 by Vertical Structures to accommodate additional loading.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 103.8 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

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)
107.0	107.0	3	alcatel lucent	B66A RRH4X45	1	1-5/8
		3	alcatel lucent	RRH2X60-PCS		
		3	alcatel lucent	RRH2x60-700		
		3	antel	BXA-70063-6CF-2 w/ Mount Pipe		
		2	commscope	RC2DC-3315-PF-48		
		6	commscope	SBNHH-1D65B w/ Mount Pipe		

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
136.0	137.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe	3	1-1/4	1
	136.0	3	rfs celwave	IBC1900BB-1			
		3	rfs celwave	IBC1900HG-2A			
		1	tower mounts	Platform Mount [LP 405-1]			
134.0	134.0	3	alcatel lucent	TME-1900MHz RRH (65MHz)	-	-	1
		2	tower mounts	Pipe Mount [PM 601-3]			
	133.0	3	alcatel lucent	TME-800MHz 2X50W RRH W/FILTER			
127.0	127.0	12	decibel	DB844H90E-XY w/ Mount Pipe	12	1-1/4	1
		1	tower mounts	Sector Mount [SM 410-3]			
117.0	119.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	12	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	1	1 1/4	

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	ericsson	KRY 112 144/1			
	117.0	1	tower mounts	Sector Mount [SM 410-3]			
107.0	107.0	3	alcatel lucent	RRH2x40-AWS			2
		3	antel	BXA-171063/12CF w/ Mount Pipe			
		3	antel	BXA-185063/8CF w/ Mount Pipe			
		3	antel	BXA-70063/6CF w/ Mount Pipe			
		3	antel	BXA-80063/4CF w/ Mount Pipe	13	1-5/8	1
		1	rfs celwave	DB-T1-6Z-8AB-0Z			2
		6	rfs celwave	FD9R6004/2C-3L			1
		1	tower mounts	Sector Mount [SM 307-3]			
97.0	97.0	1	andrew	SBNH-1D6565C w/ Mount Pipe	6 2 1	1-1/4 5/8 3/8	1
		6	ericsson	RRUS 11			
		1	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe			
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	T-Arm Mount [TA 702-3]			
87.0	89.0	3	kathrein	800 10504 w/ Mount Pipe	6	7/8	1
	87.0	3	kathrein	860 10118			
		1	tower mounts	Sector Mount [SM 104-3]			
80.0	81.0	1	gps	GPS_A	1	1/2	1
	80.0	1	tower mounts	Side Arm Mount [SO 701-1]			
72.0	72.0	2	gps	GPS_A	2	1/2	1
		2	tower mounts	Side Arm Mount [SO 701-1]			

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

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Tower Manufacturer Drawing	PiROD, Eng File No: A-115474	1441523	CCI Sites
Tower Modification Drawing	Vertical Structures, Project No: 2009-004-007	2125417	CCI Sites
Post Modification Inspection	Vertical Structures, Project No: 2009-004-007	2376132	CCI Sites
Foundation Drawing	PiROD, Eng File No: A-115474	2068030	CCI Sites
Geotech Report	SEA Consultants, Date: 01/05/1999	2035622	CCI Sites

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.

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 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	136 - 130	Leg	1 1/2" solid	2	-4.688	49.803	9.4	Pass
T2	130 - 110	Leg	2" solid	24	-38.515	111.844	34.4	Pass
T3	110 - 90	Leg	2 1/4" solid	88	-100.909	149.027	67.7	Pass
T4	90 - 80	Leg	Pirod 105244 w/ 1 1/4" tierod	190	-113.904	238.534	47.8	Pass
T5	80 - 60	Leg	Pirod 105217 (12x1.5)	199	-158.407	214.859	73.7	Pass
T6	60 - 40	Leg	Pirod 105218 (12x1.75)	214	-196.006	300.681	65.2	Pass
T7	40 - 20	Leg	Pirod 105218 (12x1.75)	229	-229.560	300.681	76.3	Pass
T8	20 - 0	Leg	Pirod 105219 (12x2)	244	-260.798	399.868	65.2	Pass
T1	136 - 130	Diagonal	3/4" solid	10	-1.383	5.763	24.0	Pass
T2	130 - 110	Diagonal	7/8" solid	36	-3.890	9.335	41.7	Pass
T3	110 - 90	Diagonal	1" solid	101	-6.920	13.501	51.3	Pass
T4	90 - 80	Diagonal	L 2.5 x 2.5 x 3/16	196	-7.414	13.968	53.1	Pass
T5	80 - 60	Diagonal	L 2.5 x 2.5 x 3/16	201	-7.099	10.950	64.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T6	60 - 40	Diagonal	L 3 x 3 x 3/16	216	-6.833	14.947	45.7 55.7 (b)	Pass
T7	40 - 20	Diagonal	L 3 x 3 x 3/16	231	-6.929	12.112	57.2	Pass
T8	20 - 0	Diagonal	L 3 x 3 x 5/16	246	-8.757	15.760	55.6	Pass
T1	136 - 130	Horizontal	3/4" solid	16	0.157	19.880	0.8	Pass
T2	130 - 110	Horizontal	3/4" solid	45	-0.374	2.817	13.3	Pass
T3	110 - 90	Horizontal	7/8" solid	104	-0.756	4.102	18.4	Pass
T3	110 - 90	Secondary Horizontal	1" solid	188	-2.311	16.392	14.1	Pass
T1	136 - 130	Top Girt	7/8" solid	5	-0.406	6.135	6.6	Pass
T2	130 - 110	Top Girt	7/8" solid	28	-0.557	6.223	9.0	Pass
T3	110 - 90	Top Girt	1" solid	90	-1.163	8.386	13.9	Pass
T1	136 - 130	Bottom Girt	7/8" solid	9	-0.556	6.135	9.1	Pass
T2	130 - 110	Bottom Girt	7/8" solid	31	-1.744	4.938	35.3	Pass
T3	110 - 90	Bottom Girt	1" solid	93	-1.093	6.827	16.0	Pass
							Summary	
						Leg (T7)	76.3	Pass
						Diagonal (T5)	64.8	Pass
						Horizontal (T3)	18.4	Pass
						Secondary Horizontal (T3)	14.1	Pass
						Top Girt (T3)	13.9	Pass
						Bottom Girt (T2)	35.3	Pass
						Bolt Checks	64.5	Pass
						Rating =	76.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	% Capacity	Pass / Fail
1	Anchor Rods	54	Pass
	Base Foundation	40	Pass
	Base Foundation Soil Interaction	73	Pass

Structure Rating (max from all components) =	76.3%

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

APPENDIX A

TNXTOWER OUTPUT

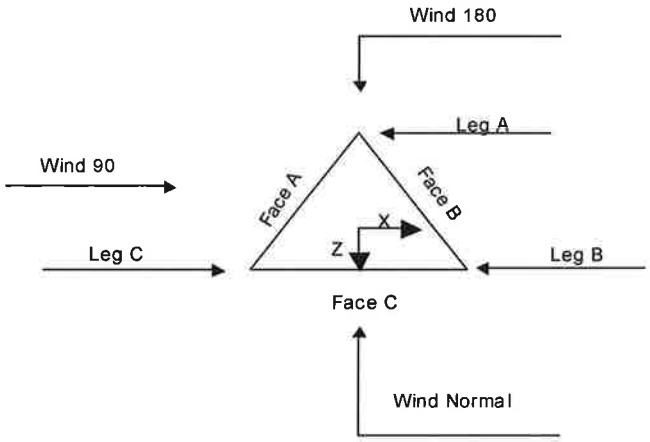
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 136.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 4.000 ft at the top and 14.000 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

1) Tower is located in New London County, Connecticut.
2) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
3) Basic wind speed of 104 mph.
4) Structure Class II.
5) Exposure Category B.
6) Topographic Category 1.
7) Crest Height 0.000 ft.
8) Nominal ice thickness of 0.750 in.
9) Ice thickness is considered to increase with height.
10) Ice density of 56.000 pcf.
11) A wind speed of 50 mph is used in combination with ice.
12) Deflections calculated using a wind speed of 60 mph.
13) The secondary HORZ areas are considered (above 90')-- not controlling.
14) A non-linear (P-delta) analysis was used.
15) Pressures are calculated at each section.
16) Stress ratio used in tower member design is 1.

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		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	136.000-130.000		106778 (48)	4.000	1	6.000
T2	130.000-110.000		100246 (48/54)	4.000	1	20.000
T3	110.000-90.000		116640 (54/60)	4.500	1	20.000
T4	90.000-80.000			5.000	1	10.000
T5	80.000-60.000			6.000	1	20.000
T6	60.000-40.000			8.000	1	20.000
T7	40.000-20.000			10.000	1	20.000
T8	20.000-0.000			12.000	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	136.000-130.000	2.500	X Brace	No	Steps	6.000	6.000
T2	130.000-110.000	2.358	X Brace	No	Steps	6.800	6.800
T3	110.000-90.000	2.344	X Brace	No	Yes	8.000	7.000
T4	90.000-80.000	10.000	X Brace	No	No	0.000	0.000
T5	80.000-60.000	10.000	X Brace	No	No	0.000	0.000
T6	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T7	40.000-20.000	10.000	X Brace	No	No	0.000	0.000
T8	20.000-0.000	10.000	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 136.000-130.000	Solid Round	1 1/2" solid	A572-50 (50 ksi)	Solid Round	3/4" solid	A572-50 (50 ksi)
T2 130.000-110.000	Solid Round	2" solid	A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)
T3 110.000-90.000	Solid Round	2 1/4" solid	A572-50 (50 ksi)	Solid Round	1" solid	A572-50 (50 ksi)
T4 90.000-80.000	Truss Leg	Pirod 105244 w/ 1 1/4" tierod	A572-50 (50 ksi)	Equal Angle	L 2.5 x 2.5 x 3/16	A572-50 (50 ksi)
T5 80.000-60.000	Truss Leg	Pirod 105217 (12x1.5)	A572-50 (50 ksi)	Equal Angle	L 2.5 x 2.5 x 3/16	A572-50 (50 ksi)
T6 60.000-40.000	Truss Leg	Pirod 105218 (12x1.75)	A572-50 (50 ksi)	Equal Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T7 40.000-20.000	Truss Leg	Pirod 105218 (12x1.75)	A572-50 (50 ksi)	Equal Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T8 20.000-0.000	Truss Leg	Pirod 105219 (12x2)	A572-50 (50 ksi)	Equal Angle	L 3 x 3 x 5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 136.000-130.000	Solid Round	7/8" solid	A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)
T2 130.000-110.000	Solid Round	7/8" solid	A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)
T3 110.000-90.000	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	1" solid	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 136.000-130.000	None	Solid Round		A572-50 (50 ksi)	Solid Round	3/4" solid	A572-50 (50 ksi)
T2 130.000-110.000	None	Solid Round		A572-50 (50 ksi)	Solid Round	3/4" solid	A572-50 (50 ksi)
T3 110.000-90.000	None	Solid Round		A572-50 (50 ksi)	Solid Round	7/8" solid	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 110.000-90.000	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 136.000-130.000	0.000	0.000	A36 (36 ksi)	1	1	1.025	0.000	0.000	36.000
T2 130.000-110.000	0.000	0.000	A36 (36 ksi)	1	1	1.03	0.000	0.000	36.000
T3 110.000-90.000	0.000	0.000	A36 (36 ksi)	1	1	1.025	0.000	0.000	36.000
T4 90.000-80.000	0.000	0.375	A36 (36 ksi)	1	1	1	0.000	0.000	36.000
T5 80.000-60.000	0.000	0.375	A36 (36 ksi)	1	1	1	0.000	0.000	36.000
T6 60.000-40.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	0.000	0.000	36.000
T7 40.000-20.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	0.000	0.000	36.000
T8 20.000-0.000	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	0.000	0.000	36.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 136.000-130.000	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T2 130.000-110.000	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T3 110.000-90.000	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T4 90.000-80.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 80.000-60.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T6 60.000-40.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T7 40.000-20.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 20.000-0.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 90.000-80.000	1	0.5	0.85	1	0.5	0.85

T5 80.000-60.000	1	0.5	0.85	1	0.5	0.85
T6 60.000-40.000	1	0.5	0.85	1	0.5	0.85
T7 40.000-20.000	1	0.5	0.85	1	0.5	0.85
T8 20.000-0.000	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 136.000-130.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T2 130.000-110.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T3 110.000-90.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T4 90.000-80.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T5 80.000-60.000	0.000	1	0.000	0.75	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T6 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75	0.000	0.75
T7 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75	0.000	0.75
T8 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 136.000-130.000	Sleeve DS	0.563 A325N	5	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325X	0	0.000 A325N	0	0.000 A325X	0
T2 130.000-110.000	Sleeve DS	0.750 A325N	5	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325X	0	0.000 A325N	0	0.000 A325X	0
T3 110.000-90.000	Flange	1.000 A325N	6	0.000 A325N	0	0.500 A325N	0	0.500 A325N	0	0.500 A325N	0	0.500 A325N	0	0.500 A325N	0
T4 90.000-80.000	Flange	1.000 A325N	6	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T5 80.000-60.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T6 60.000-40.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T7 40.000-20.000	Flange	1.000 A325N	6	1.000 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T8 20.000-0.000	Flange	1.250 A-687	6	1.250 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF4-50A(1/2") (E) *&&*	A	No	Ar (CaAa)	72.000 - 0.000	-2.000	0.45	2	2	0.630	0.630		0.000
LDF6-50A(1-1/4) (AB-as per photo)	A	No	Ar (CaAa)	127.000 - 0.000	-2.000	0.45	12	7	1.550	1.550		0.001
T-Brackets (Af) (E) *&&*	A	No	Af (CaAa)	127.000 - 0.000	-2.000	0.45	1	1	1.000	1.000		0.008
LDF6-50A(1-1/4") (E)	B	No	Ar (CaAa)	97.000 - 0.000	-5.000	0.4	9	6	1.000 0.520	1.980		0.001
HB114-1-08U4-M5J(1 1/4") (E)	B	No	Ar (CaAa)	136.000 - 97.000	-5.000	0.4	3	3	1.000 0.520	1.540		0.001
T-Brackets (Af) (E) *&&*	B	No	Af (CaAa)	136.000 - 0.000	-3.000	0.4	1	1	1.000	1.000		0.008
LDF7-50A(1-5/8") (13E+1P) *&&*	B	No	Ar (CaAa)	107.000 - 0.000	-4.000	0.37	14	7	1.000 0.520	1.980		0.001
FB-L98-002-XXX(3/8) (E)	B	No	Ar (CaAa)	97.000 - 0.000	-4.000	0.4	1	1	0.394	0.394		0.000
WR-VG82ST-BRDA(5/8") (E) *&&*	B	No	Ar (CaAa)	97.000 - 0.000	-4.000	0.4	2	2	0.645	0.645		0.000
FLC 12-50J(1/2") (E) *&&*	B	No	Ar (CaAa)	80.000 - 0.000	-4.000	0.39	1	1	0.640	0.640		0.000
LDF7-50A(1-5/8") (12(1-5/8) + 1(1-1/4))	C	No	Ar (CaAa)	117.000 - 0.000	-2.000	0.4	13	7	1.000	1.980		0.001
T-Brackets (Af) (E) *&&*	C	No	Af (CaAa)	117.000 - 0.000	-2.000	0.4	1	1	1.000	1.000		0.008
FXL 780 PE(7/8) (E)	A	No	Ar (CaAa)	87.000 - 0.000	0.000	0	6	6	1.550 1.090	1.090		0.000
Safety Line 3/8 (E) *&&*	C	No	Ar (CaAa)	136.000 - 0.000	0.000	0.5	1	1	0.375	0.375		0.000
1.5" flat Cable Ladder Rail	A	No	Af (CaAa)	90.000 - 0.000	0.000	0	2	2	12.000 1.500	1.500		0.002
1 1/4" Tie-Rod	A	No	Ar (CaAa)	90.000 - 80.000	0.000	0	2	2	6.000 1.250	1.250		0.019
1 1/4" Tie-Rod	B	No	Ar (CaAa)	90.000 - 80.000	0.000	0	2	2	6.000 1.250	1.250		0.019
1 1/4" Tie-Rod	C	No	Ar (CaAa)	90.000 - 80.000	0.000	0	2	2	6.000 1.250	1.250		0.019

Discrete Tower Loads

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
APXVSPP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 1.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
APXVSPP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
APXVSPP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
IBC1900BB-1 (E)	A	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	0.966 1.091 1.223	0.463 0.558 0.660	0.022 0.030 0.039
IBC1900BB-1 (E)	B	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	0.966 1.091 1.223	0.463 0.558 0.660	0.022 0.030 0.039
IBC1900BB-1 (E)	C	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	0.966 1.091 1.223	0.463 0.558 0.660	0.022 0.030 0.039
IBC1900HG-2A (E)	A	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	0.966 1.091 1.223	0.463 0.558 0.660	0.022 0.030 0.039
IBC1900HG-2A (E)	B	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	0.966 1.091 1.223	0.463 0.558 0.660	0.022 0.030 0.039
IBC1900HG-2A (E)	C	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	0.966 1.091 1.223	0.463 0.558 0.660	0.022 0.030 0.039
(2) 6' x 2" Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(2) 6' x 2" Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(2) 6' x 2" Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	136.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
Platform Mount [LP 405-1] (E)	C	None		0.000	136.000	No Ice 1/2" Ice 1" Ice	20.800 28.100 35.400	20.800 28.100 35.400	1.800 2.066 2.332
&& TME-800MHz 2X50W RRH W/FILTER (E)	A	From Leg	4.000 0.000 -1.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	2.145 2.359 2.583	2.294 2.606 2.934	0.072 0.099 0.131

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
TME-800MHz 2X50W RRH W/FILTER (E)	B	From Leg	4.000 0.000 -1.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	2.145 2.359 2.583	2.294 2.606 2.934	0.072 0.099 0.131
TME-800MHz 2X50W RRH W/FILTER (E)	C	From Leg	4.000 0.000 -1.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	2.145 2.359 2.583	2.294 2.606 2.934	0.072 0.099 0.131
TME-1900MHz RRH (65MHz) (E)	A	From Leg	4.000 0.000 0.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.060 0.084 0.111
TME-1900MHz RRH (65MHz) (E)	B	From Leg	4.000 0.000 0.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.060 0.084 0.111
TME-1900MHz RRH (65MHz) (E)	C	From Leg	4.000 0.000 0.000	0.000	134.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.060 0.084 0.111
(2) Pipe Mount [PM 601-3] (E)	C	None		0.000	134.000	No Ice 1/2" Ice 1" Ice	4.390 5.480 6.570	4.390 5.480 6.570	0.195 0.237 0.280
&&									
(4) DB844H90E-XY w/ Mount Pipe (AB)	A	From Face	4.000 0.000 0.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	3.299 3.667 4.035	4.802 5.416 6.040	0.032 0.072 0.117
(4) DB844H90E-XY w/ Mount Pipe (AB)	B	From Face	4.000 0.000 0.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	3.299 3.667 4.035	4.802 5.416 6.040	0.032 0.072 0.117
(4) DB844H90E-XY w/ Mount Pipe (AB)	C	From Face	4.000 0.000 0.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	3.299 3.667 4.035	4.802 5.416 6.040	0.032 0.072 0.117
Sector Mount [SM 410-3] (AB)	C	None		0.000	127.000	No Ice 1/2" Ice 1" Ice	23.960 34.060 44.160	23.960 34.060 44.160	1.100 1.600 2.099
Pipe Mount [PM 601-3] (E-Mount Attachment)	C	None		0.000	127.000	No Ice 1/2" Ice 1" Ice	4.390 5.480 6.570	4.390 5.480 6.570	0.195 0.237 0.280
&&									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.112 0.169 0.233
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.112 0.169 0.233
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.112 0.169 0.233
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	6.319 6.765 7.203	5.633 6.416 7.121	0.112 0.169 0.232
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice	6.319 6.765 7.203	5.633 6.416 7.121	0.112 0.169 0.232

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" Ice			
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	6.319 6.765 7.203	5.633 6.416 7.121	0.112 0.169 0.232
KRY 112 144/1 (E)	A	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	0.350 0.426 0.509	0.175 0.234 0.301	0.011 0.014 0.019
KRY 112 144/1 (E)	B	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	0.350 0.426 0.509	0.175 0.234 0.301	0.011 0.014 0.019
KRY 112 144/1 (E)	C	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice	0.350 0.426 0.509	0.175 0.234 0.301	0.011 0.014 0.019
Sector Mount [SM 410-3] (E)	C	None		0.000	117.000	No Ice 1/2" Ice 1" Ice	23.960 34.060 44.160	23.960 34.060 44.160	1.100 1.600 2.099
Pipe Mount [PM 601-3] (E-Mount Attachment)	C	None		0.000	117.000	No Ice 1/2" Ice 1" Ice	4.390 5.480 6.570	4.390 5.480 6.570	0.195 0.237 0.280
&&									
Sector Mount [SM 307-3] (E-4 M. Pipes / Sector)	C	None		0.000	107.000	No Ice 1/2" Ice 1" Ice	26.220 36.280 46.340	26.220 36.280 46.340	1.620 2.148 2.676
&&									
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	A	From Leg	3.000 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.304 7.479 8.368	0.074 0.139 0.212
AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	B	From Leg	3.000 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	5.232 5.618 6.012	4.015 4.633 5.257	0.055 0.100 0.151
SBNH-1D6565C w/ Mount Pipe (E)	C	From Leg	3.000 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	11.556 12.223 12.893	9.715 11.186 12.594	0.097 0.185 0.284
7770.00 w/ Mount Pipe (E)	A	From Leg	3.000 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	5.830 6.268 6.697	4.722 5.508 6.213	0.086 0.143 0.208
7770.00 w/ Mount Pipe (E)	B	From Leg	3.000 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	5.830 6.268 6.697	4.722 5.508 6.213	0.086 0.143 0.208
7770.00 w/ Mount Pipe (E)	C	From Leg	3.000 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	5.830 6.268 6.697	4.722 5.508 6.213	0.086 0.143 0.208
(2) RRUS 11 (E-as per photo)	A	From Face	0.500 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.051 0.072 0.095
(2) RRUS 11 (E-as per photo)	B	From Face	0.500 0.000 0.000	0.000	97.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.051 0.072 0.095
(2) RRUS 11 (E-as per photo)	C	From Face	0.500 0.000	0.000	97.000	No Ice 1/2"	2.791 2.998	1.192 1.340	0.051 0.072

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
			0.000			Ice	3.213	1.496	0.095
						1" Ice			
(2) LGP21401	A	From Leg	3.000	0.000	97.000	No Ice	1.104	0.347	0.014
(E)			0.000			1/2"	1.239	0.442	0.021
			0.000			Ice	1.381	0.544	0.030
						1" Ice			
(2) LGP21401	B	From Leg	3.000	0.000	97.000	No Ice	1.104	0.347	0.014
(E)			0.000			1/2"	1.239	0.442	0.021
			0.000			Ice	1.381	0.544	0.030
						1" Ice			
(2) LGP21401	C	From Leg	3.000	0.000	97.000	No Ice	1.104	0.347	0.014
(E)			0.000			1/2"	1.239	0.442	0.021
			0.000			Ice	1.381	0.544	0.030
						1" Ice			
DC6-48-60-18-8F	A	From Leg	3.000	0.000	97.000	No Ice	0.917	0.917	0.019
(E)			0.000			1/2"	1.458	1.458	0.037
			0.000			Ice	1.643	1.643	0.057
						1" Ice			
4' x 3" Pipe Mount	A	From Leg	1.500	0.000	97.000	No Ice	1.000	1.000	0.029
(E)			0.000			1/2"	1.248	1.248	0.038
			0.000			Ice	1.505	1.505	0.050
						1" Ice			
4' x 3" Pipe Mount	B	From Leg	1.500	0.000	97.000	No Ice	1.000	1.000	0.029
(E)			0.000			1/2"	1.248	1.248	0.038
			0.000			Ice	1.505	1.505	0.050
						1" Ice			
4' x 3" Pipe Mount	C	From Leg	1.500	0.000	97.000	No Ice	1.000	1.000	0.029
(E)			0.000			1/2"	1.248	1.248	0.038
			0.000			Ice	1.505	1.505	0.050
						1" Ice			
T-Arm Mount [TA 702-3]	C	None		0.000	97.000	No Ice	5.640	5.640	0.339
(E)						1/2"	6.550	6.550	0.429
						Ice	7.460	7.460	0.519
						1" Ice			
Pipe Mount [PM 601-3]	C	None		0.000	97.000	No Ice	4.390	4.390	0.195
(E-Mount Attachment)						1/2"	5.480	5.480	0.237
						Ice	6.570	6.570	0.280
						1" Ice			
&&									
800 10504 w/ Mount Pipe	A	From Leg	4.000	0.000	87.000	No Ice	3.589	3.178	0.038
(E)			0.000			1/2"	4.007	3.905	0.070
			2.000			Ice	4.422	4.581	0.109
						1" Ice			
800 10504 w/ Mount Pipe	B	From Leg	4.000	0.000	87.000	No Ice	3.589	3.178	0.038
(E)			0.000			1/2"	4.007	3.905	0.070
			2.000			Ice	4.422	4.581	0.109
						1" Ice			
800 10504 w/ Mount Pipe	C	From Leg	4.000	0.000	87.000	No Ice	3.589	3.178	0.038
(E)			0.000			1/2"	4.007	3.905	0.070
			2.000			Ice	4.422	4.581	0.109
						1" Ice			
860 10118	A	From Leg	4.000	0.000	87.000	No Ice	0.150	0.127	0.001
(E)			0.000			1/2"	0.207	0.182	0.003
			0.000			Ice	0.270	0.243	0.005
						1" Ice			
860 10118	B	From Leg	4.000	0.000	87.000	No Ice	0.150	0.127	0.001
(E)			0.000			1/2"	0.207	0.182	0.003
			0.000			Ice	0.270	0.243	0.005
						1" Ice			
860 10118	C	From Leg	4.000	0.000	87.000	No Ice	0.150	0.127	0.001
(E)			0.000			1/2"	0.207	0.182	0.003
			0.000			Ice	0.270	0.243	0.005
						1" Ice			
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	87.000	No Ice	1.425	1.425	0.022
(E)			0.000			1/2"	1.925	1.925	0.033

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
			1.000			Ice	2.294	2.294	0.048
						1" Ice			
6' x 2" Mount Pipe (E)	B	From Leg	4.000	0.000	87.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			1.000			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe (E)	C	From Leg	4.000	0.000	87.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			1.000			1" Ice	2.294	2.294	0.048
Sector Mount [SM 104-3] (E)	C	None		0.000	87.000	No Ice	30.020	30.020	0.953
						1/2" Ice	40.480	40.480	1.405
						1" Ice	50.940	50.940	1.857
&& GPS_A (E)	C	From Leg	3.000	20.000	80.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			1.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 701-1] (E)	C	From Leg	1.500	0.000	80.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
&& GPS_A (E)	B	From Leg	3.000	0.000	72.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			0.000			1" Ice	0.393	0.393	0.010
GPS_A (E)	C	From Leg	3.000	0.000	72.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			0.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 701-1] (E)	B	From Leg	1.500	0.000	72.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
Side Arm Mount [SO 701-1] (E)	C	From Leg	1.500	0.000	72.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
&& BXA-80063/4CF w/ Mount Pipe (Installed)	A	From Leg	4.000	0.000	107.000	No Ice	4.945	3.424	0.028
			0.000			1/2" Ice	5.324	4.022	0.069
			0.000			1" Ice	5.712	4.637	0.116
(2) FD9R6004/2C-3L (Installed)	A	From Leg	4.000	0.000	107.000	No Ice	0.314	0.076	0.003
			0.000			1/2" Ice	0.386	0.119	0.005
			0.000			1" Ice	0.466	0.169	0.009
B66A RRH4X45 (Proposed)	A	From Leg	4.000	0.000	107.000	No Ice	2.580	1.630	0.067
			0.000			1/2" Ice	2.794	1.811	0.087
			0.000			1" Ice	3.015	1.999	0.111
RRH2x60-700 (Proposed)	A	From Leg	4.000	0.000	107.000	No Ice	3.500	1.816	0.060
			0.000			1/2" Ice	3.761	2.052	0.083
			0.000			1" Ice	4.029	2.289	0.109
RRH2X60-PCS (Proposed)	A	From Leg	4.000	0.000	107.000	No Ice	2.200	1.723	0.055
			0.000			1/2" Ice	2.393	1.901	0.075
			0.000			1" Ice	2.593	2.087	0.099
BXA-70063-6CF-2 w/ Mount Pipe (Proposed)	A	From Leg	4.000	0.000	107.000	No Ice	7.806	5.801	0.042
			0.000			1/2" Ice	8.357	6.953	0.103
			0.000			1" Ice	8.872	7.819	0.171

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) SBNHH-1D65B w/ Mount Pipe (Proposed)	A	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	8.400 8.964 9.494	7.073 8.264 9.175	0.066 0.135 0.213
BXA-80063/4CF w/ Mount Pipe (Installed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	4.945 5.324 5.712	3.424 4.022 4.637	0.028 0.069 0.116
(2) FD9R6004/2C-3L (Installed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.003 0.005 0.009
B66A RRH4X45 (Proposed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	2.580 2.794 3.015	1.630 1.811 1.999	0.067 0.087 0.111
RRH2x60-700 (Proposed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.060 0.083 0.109
RRH2X60-PCS (Proposed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	2.200 2.393 2.593	1.723 1.901 2.087	0.055 0.075 0.099
BXA-70063-6CF-2 w/ Mount Pipe (Proposed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	7.806 8.357 8.872	5.801 6.953 7.819	0.042 0.103 0.171
(2) SBNHH-1D65B w/ Mount Pipe (Proposed)	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	8.400 8.964 9.494	7.073 8.264 9.175	0.066 0.135 0.213
BXA-80063/4CF w/ Mount Pipe (Installed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	4.945 5.324 5.712	3.424 4.022 4.637	0.028 0.069 0.116
(2) FD9R6004/2C-3L (Installed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	0.314 0.386 0.466	0.076 0.119 0.169	0.003 0.005 0.009
B66A RRH4X45 (Proposed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	2.580 2.794 3.015	1.630 1.811 1.999	0.067 0.087 0.111
RRH2x60-700 (Proposed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	3.500 3.761 4.029	1.816 2.052 2.289	0.060 0.083 0.109
RRH2X60-PCS (Proposed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	2.200 2.393 2.593	1.723 1.901 2.087	0.055 0.075 0.099
BXA-70063-6CF-2 w/ Mount Pipe (Proposed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	7.806 8.357 8.872	5.801 6.953 7.819	0.042 0.103 0.171
(2) SBNHH-1D65B w/ Mount Pipe (Proposed)	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	8.400 8.964 9.494	7.073 8.264 9.175	0.066 0.135 0.213
RC2DC-3315-PF-48 (Proposed)	A	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	3.792 4.044 4.303	2.512 2.725 2.945	0.032 0.063 0.099
RC2DC-3315-PF-48	B	From Leg	4.000	0.000	107.000	No Ice	3.792	2.512	0.032

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
(Proposed)			0.000 0.000		1/2" Ice 1" Ice	4.044 4.303	2.725 2.945	0.063 0.099

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105244 w/ 1 1/4" tierod	1109.027	3164.410	0.680	1.055	7.702	21.975	5.830
Pirod 105217 (12x1.5)	2303.921	6131.576	0.676	2.116	8.000	21.290	5.301
Pirod 105218 (12x1.75)	2432.861	6165.515	0.845	2.123	8.447	21.408	7.216
Pirod 105218 (12x1.75)	2432.861	6110.124	0.845	2.070	8.447	21.216	7.216
Pirod 105219 (12x2)	2608.786	6072.164	1.219	2.022	9.058	21.084	9.425

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	136 - 130	3.822	44	0.247	0.000
T2	130 - 110	3.496	44	0.246	0.001
T3	110 - 90	2.463	43	0.226	0.001
T4	90 - 80	1.566	43	0.177	0.001
T5	80 - 60	1.204	43	0.154	0.001
T6	60 - 40	0.644	43	0.102	0.001
T7	40 - 20	0.278	43	0.064	0.001
T8	20 - 0	0.068	43	0.027	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
136.000	APXVSPP18-C-A20 w/ Mount Pipe	44	3.822	0.247	0.000	74154
134.000	TME-800MHz 2X50W RRH W/FILTER	44	3.713	0.247	0.001	74154
127.000	(4) DB844H90E-XY w/ Mount Pipe	44	3.335	0.245	0.001	54665
117.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	44	2.813	0.237	0.001	46485
107.000	Sector Mount [SM 307-3]	43	2.317	0.220	0.001	34797
97.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	43	1.857	0.195	0.001	22116

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
87.000	800 10504 w/ Mount Pipe	43	1.451	0.170	0.001	18762
80.000	GPS_A	43	1.204	0.154	0.001	21515
72.000	GPS_A	43	0.955	0.133	0.001	22612

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	136 - 130	18.376	12	1.188	0.003
T2	130 - 110	16.806	12	1.181	0.003
T3	110 - 90	11.838	12	1.088	0.003
T4	90 - 80	7.520	10	0.850	0.006
T5	80 - 60	5.781	10	0.738	0.006
T6	60 - 40	3.094	10	0.488	0.005
T7	40 - 20	1.335	10	0.307	0.003
T8	20 - 0	0.326	10	0.131	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
136.000	APXVSPP18-C-A20 w/ Mount Pipe	12	18.376	1.188	0.003	15445
134.000	TME-800MHz 2X50W RRH W/FILTER	12	17.851	1.186	0.003	15445
127.000	(4) DB844H90E-XY w/ Mount Pipe	12	16.032	1.176	0.003	11393
117.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	12	13.522	1.139	0.003	9716
107.000	Sector Mount [SM 307-3]	12	11.136	1.058	0.003	7271
97.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	12	8.919	0.937	0.005	4607
87.000	800 10504 w/ Mount Pipe	10	6.967	0.816	0.006	3899
80.000	GPS_A	10	5.781	0.738	0.006	4460
72.000	GPS_A	10	4.585	0.638	0.006	4696

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	136	Leg	A325N	0.563	5	1.189	20.129	0.059 ✔	1	Bolt DS
T2	130	Leg	A325N	0.750	5	8.355	35.785	0.233 ✔	1	Bolt DS
T3	110	Leg	A325N	1.000	6	15.753	53.014	0.297 ✔	1	Bolt Tension
T4	90	Leg	A325N	1.000	6	16.903	53.014	0.319 ✔	1	Bolt Tension
		Diagonal	A325N	1.000	1	6.724	13.025	0.516 ✔	1	Member Block Shear
T5	80	Leg	A325N	1.000	6	23.637	53.014	0.446 ✔	1	Bolt Tension
		Diagonal	A325N	1.000	1	7.124	13.025	0.547 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T6	60	Leg	A325N	1.000	6	29.247	53.014	0.552 ✔	1	Bolt Tension
		Diagonal	A325N	1.000	1	6.509	11.682	0.557 ✔	1	Member Block Shear
T7	40	Leg	A325N	1.000	6	34.196	53.014	0.645 ✔	1	Bolt Tension
		Diagonal	A325N	1.000	1	6.447	11.682	0.552 ✔	1	Member Block Shear
T8	20	Leg	A-687	1.250	6	38.579	86.286	0.447 ✔	1	Bolt Tension
		Diagonal	A325N	1.250	1	7.901	20.303	0.389 ✔	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $P_u / \phi P_n$
T1	136 - 130	1 1/2" solid	6.000	2.500	80.0 K=1.00	1.767	-4.688	49.803	0.094 [1] ✔
T2	130 - 110	2" solid	20.002	2.359	56.6 K=1.00	3.142	-38.515	111.844	0.344 [1] ✔
T3	110 - 90	2 1/4" solid	20.002	2.344	50.0 K=1.00	3.976	-100.909	149.027	0.677 [1] ✔
T4	90 - 80	Pirod 105244 w/ 1 1/4" tierod	10.017	10.017	36.1 K=1.00	5.830	-113.904	238.534	0.478 [1] ✔
T5	80 - 60	Pirod 105217 (12x1.5)	20.033	10.017	37.8 K=1.00	5.301	-158.407	214.859	0.737 [1] ✔
T6	60 - 40	Pirod 105218 (12x1.75)	20.033	10.017	32.4 K=1.00	7.216	-196.006	300.681	0.652 [1] ✔
T7	40 - 20	Pirod 105218 (12x1.75)	20.033	10.017	32.4 K=1.00	7.216	-229.560	300.681	0.763 [1] ✔
T8	20 - 0	Pirod 105219 (12x2)	20.033	10.017	28.4 K=1.00	9.425	-260.798	399.868	0.652 [1] ✔

[1] $P_u / \phi P_n$ controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	90 - 80	0.5	1.467	119.7	262.350	0.196	0.974	3.463	0.282 ✔
T5	80 - 60	0.5	1.471	120.0	238.565	0.196	0.378	3.335	0.114 ✔
T6	60 - 40	0.5	1.459	119.0	324.713	0.196	0.168	3.378	0.051 ✔
T7	40 - 20	0.5	1.459	119.0	324.713	0.196	0.328	3.378	0.097 ✔
T8	20 - 0	0.625	1.446	94.4	424.115	0.307	1.063	6.958	0.153 ✔

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	3/4" solid	4.717	2.285	131.6 K=0.90	0.442	-1.383	5.763	0.240 [1] ✔
T2	130 - 110	7/8" solid	5.042	2.443	120.6 K=0.90	0.601	-3.890	9.335	0.417 [1] ✔
T3	110 - 90	1" solid	5.482	2.654	114.6 K=0.90	0.785	-6.920	13.501	0.513 [1] ✔
T4	90 - 80	L 2.5 x 2.5 x 3/16	11.416	4.982	120.8 K=1.00	0.902	-7.414	13.968	0.531 [1] ✔
T5	80 - 60	L 2.5 x 2.5 x 3/16	12.503	5.627	136.4 K=1.00	0.902	-7.099	10.950	0.648 [1] ✔
T6	60 - 40	L 3 x 3 x 3/16	13.796	6.327	127.4 K=1.00	1.090	-6.833	14.947	0.457 [1] ✔
T7	40 - 20	L 3 x 3 x 3/16	15.243	7.082	142.6 K=1.00	1.090	-6.929	12.112	0.572 [1] ✔
T8	20 - 0	L 3 x 3 x 5/16	16.803	7.840	159.7 K=1.00	1.780	-8.757	15.760	0.556 [1] ✔

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	130 - 110	3/4" solid	4.368	4.201	188.2 K=0.70	0.442	-0.374	2.817	0.133 [1] ✔
T3	110 - 90	7/8" solid	4.927	4.739	182.0 K=0.70	0.601	-0.756	4.102	0.184 [1] ✔

[1] $P_u / \phi P_n$ controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	110 - 90	1" solid	4.546	4.358	102.5 K=0.49	0.785	-2.311	16.392	0.141 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	7/8" solid	4.000	3.875	148.8 K=0.70	0.601	-0.406	6.135	0.066 [1] ✔
T2	130 - 110	7/8" solid	4.014	3.847	147.7 K=0.70	0.601	-0.557	6.223	0.090 [1] ✔
T3	110 - 90	1" solid	4.517	4.329	145.5 K=0.70	0.785	-1.163	8.386	0.139 [1] ✔

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	7/8" solid	4.000	3.875	148.8 K=0.70	0.601	-0.556	6.135	0.091 [1] ✔
T2	130 - 110	7/8" solid	4.486	4.319	165.9 K=0.70	0.601	-1.744	4.938	0.353 [1] ✔
T3	110 - 90	1" solid	4.985	4.798	161.2 K=0.70	0.785	-1.093	6.827	0.160 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	1 1/2" solid	6.000	0.500	16.0	1.767	3.552	79.522	0.045 [1] ✔
T2	130 - 110	2" solid	20.002	0.567	13.6	2.188	35.468	106.689	0.332 [1] # ✔
T3	110 - 90	2 1/4" solid	20.002	0.583	12.4	3.976	94.519	178.924	0.528 [1] ✔
T4	90 - 80	Pirod 105244 w/ 1 1/4" tierod	10.017	10.017	36.1	5.830	101.417	262.350	0.387 [1] ✔
T5	80 - 60	Pirod 105217 (12x1.5)	20.033	10.017	37.8	5.301	141.819	238.565	0.594 [1] ✔
T6	60 - 40	Pirod 105218 (12x1.75)	20.033	10.017	32.4	7.216	175.484	324.713	0.540 [1] ✔
T7	40 - 20	Pirod 105218 (12x1.75)	20.033	10.017	32.4	7.216	205.175	324.713	0.632 [1] ✔
T8	20 - 0	Pirod 105219 (12x2)	20.033	10.017	28.4	9.425	231.472	424.115	0.546 [1] ✔

[1] $P_u / \phi P_n$ controls
[#] Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	90 - 80	0.5	1.467	119.7	262.350	0.196	0.974	3.463	0.282 ✓
T5	80 - 60	0.5	1.471	120.0	238.565	0.196	0.378	3.335	0.114 ✓
T6	60 - 40	0.5	1.459	119.0	324.713	0.196	0.168	3.378	0.051 ✓
T7	40 - 20	0.5	1.459	119.0	324.713	0.196	0.328	3.378	0.097 ✓
T8	20 - 0	0.625	1.446	94.4	424.115	0.307	1.063	6.958	0.153 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	3/4" solid	4.717	2.285	146.2	0.442	1.324	19.880	0.067 [1] ✓
T2	130 - 110	7/8" solid	5.042	2.443	134.0	0.601	3.905	27.059	0.144 [1] ✓
T3	110 - 90	1" solid	5.482	2.654	127.4	0.785	6.605	35.343	0.187 [1] ✓
T4	90 - 80	L 2.5 x 2.5 x 3/16	11.416	4.982	80.1	0.518	6.724	25.267	0.266 [1] ✓
T5	80 - 60	L 2.5 x 2.5 x 3/16	11.930	5.383	86.2	0.518	7.124	25.267	0.282 [1] ✓
T6	60 - 40	L 3 x 3 x 3/16	13.128	6.016	79.5	0.659	6.509	28.679	0.227 [1] ✓
T7	40 - 20	L 3 x 3 x 3/16	14.503	6.726	88.6	0.659	6.447	28.679	0.225 [1] ✓
T8	20 - 0	L 3 x 3 x 5/16	16.803	7.840	105.3	1.013	7.901	44.054	0.179 [1] ✓

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	3/4" solid	4.000	3.875	248.0	0.442	0.157	19.880	0.008 [1] ✓
T2	130 - 110	3/4" solid	4.368	4.201	268.9	0.442	0.528	19.880	0.027 [1] ✓
T3	110 - 90	7/8" solid	4.927	4.739	260.0	0.601	1.029	27.059	0.038 [1] ✓

[1] $P_u / \phi P_n$ controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	110 - 90	1" solid	4.546	4.358	209.2	0.785	2.293	35.343	0.065 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	7/8" solid	4.000	3.875	212.6	0.601	0.426	27.059	0.016 [1] ✔
T2	130 - 110	7/8" solid	4.014	3.847	211.1	0.601	0.559	27.059	0.021 [1] ✔
T3	110 - 90	1" solid	4.517	4.329	207.8	0.785	1.320	35.343	0.037 [1] ✔

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	136 - 130	7/8" solid	4.000	3.875	212.6	0.601	0.592	27.059	0.022 [1] ✔
T2	130 - 110	7/8" solid	4.486	4.319	236.9	0.601	1.746	27.059	0.065 [1] ✔
T3	110 - 90	1" solid	4.985	4.798	230.3	0.785	1.255	35.343	0.036 [1] ✔

[1] $P_u / \phi P_n$ controls

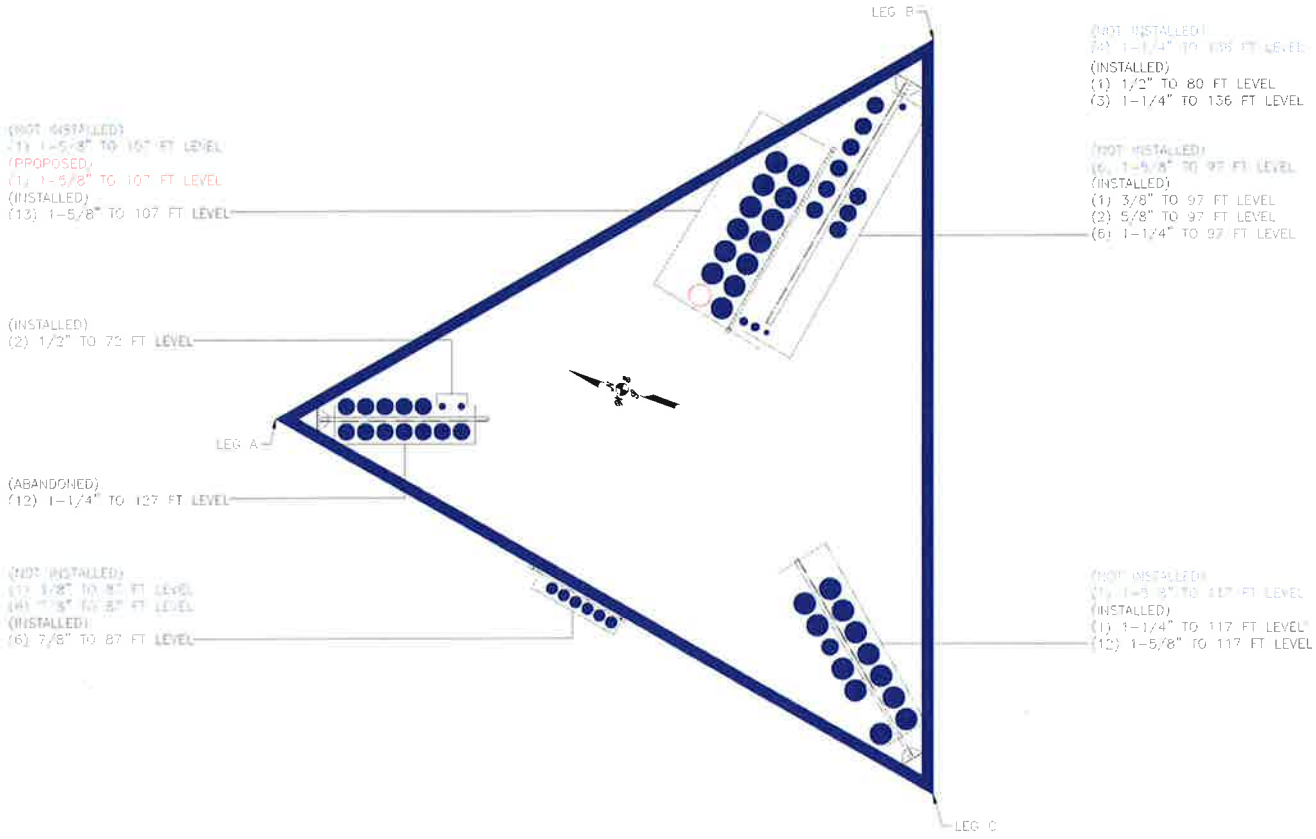
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	136 - 130	Leg	1 1/2" solid	2	-4.688	49.803	9.4	Pass
T2	130 - 110	Leg	2" solid	24	-38.515	111.844	34.4	Pass
T3	110 - 90	Leg	2 1/4" solid	88	-100.909	149.027	67.7	Pass
T4	90 - 80	Leg	Pirod 105244 w/ 1 1/4" tierod	190	-113.904	238.534	47.8	Pass
T5	80 - 60	Leg	Pirod 105217 (12x1.5)	199	-158.407	214.859	73.7	Pass
T6	60 - 40	Leg	Pirod 105218 (12x1.75)	214	-196.006	300.681	65.2	Pass
T7	40 - 20	Leg	Pirod 105218 (12x1.75)	229	-229.560	300.681	76.3	Pass
T8	20 - 0	Leg	Pirod 105219 (12x2)	244	-260.798	399.868	65.2	Pass
T1	136 - 130	Diagonal	3/4" solid	10	-1.383	5.763	24.0	Pass
T2	130 - 110	Diagonal	7/8" solid	36	-3.890	9.335	41.7	Pass
T3	110 - 90	Diagonal	1" solid	101	-6.920	13.501	51.3	Pass
T4	90 - 80	Diagonal	L 2.5 x 2.5 x 3/16	196	-7.414	13.968	53.1	Pass
T5	80 - 60	Diagonal	L 2.5 x 2.5 x 3/16	201	-7.099	10.950	64.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T6	60 - 40	Diagonal	L 3 x 3 x 3/16	216	-6.833	14.947	45.7 55.7 (b)	Pass
T7	40 - 20	Diagonal	L 3 x 3 x 3/16	231	-6.929	12.112	57.2	Pass
T8	20 - 0	Diagonal	L 3 x 3 x 5/16	246	-8.757	15.760	55.6	Pass
T1	136 - 130	Horizontal	3/4" solid	16	0.157	19.880	0.8	Pass
T2	130 - 110	Horizontal	3/4" solid	45	-0.374	2.817	13.3	Pass
T3	110 - 90	Horizontal	7/8" solid	104	-0.756	4.102	18.4	Pass
T3	110 - 90	Secondary Horizontal	1" solid	188	-2.311	16.392	14.1	Pass
T1	136 - 130	Top Girt	7/8" solid	5	-0.406	6.135	6.6	Pass
T2	130 - 110	Top Girt	7/8" solid	28	-0.557	6.223	9.0	Pass
T3	110 - 90	Top Girt	1" solid	90	-1.163	8.386	13.9	Pass
T1	136 - 130	Bottom Girt	7/8" solid	9	-0.556	6.135	9.1	Pass
T2	130 - 110	Bottom Girt	7/8" solid	31	-1.744	4.938	35.3	Pass
T3	110 - 90	Bottom Girt	1" solid	93	-1.093	6.827	16.0	Pass
							Summary	
						Leg (T7)	76.3	Pass
						Diagonal (T5)	64.8	Pass
						Horizontal (T3)	18.4	Pass
						Secondary Horizontal (T3)	14.1	Pass
						Top Girt (T3)	13.9	Pass
						Bottom Girt (T2)	35.3	Pass
						Bolt Checks	64.5	Pass
						RATING =	**76.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

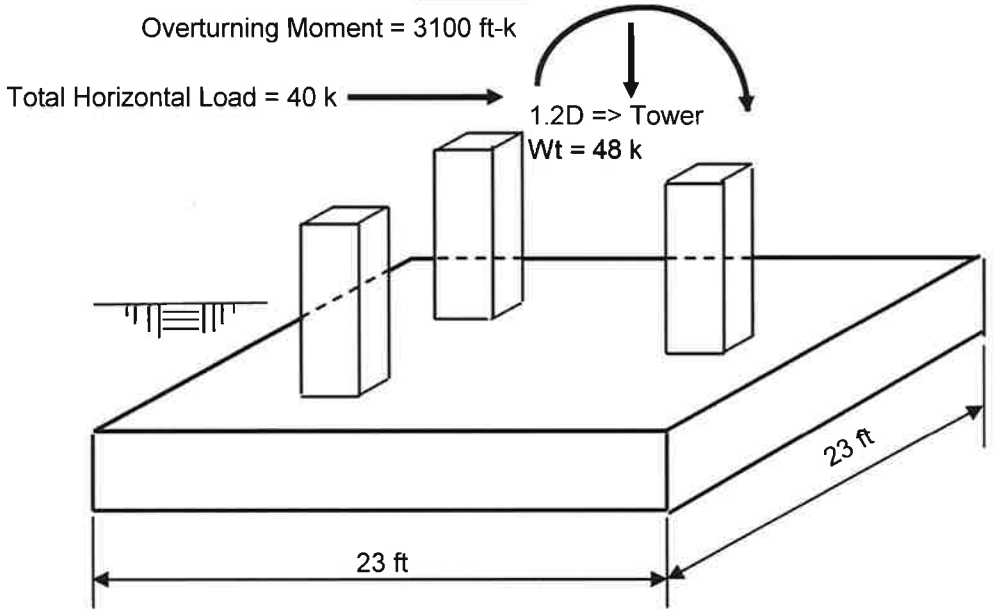


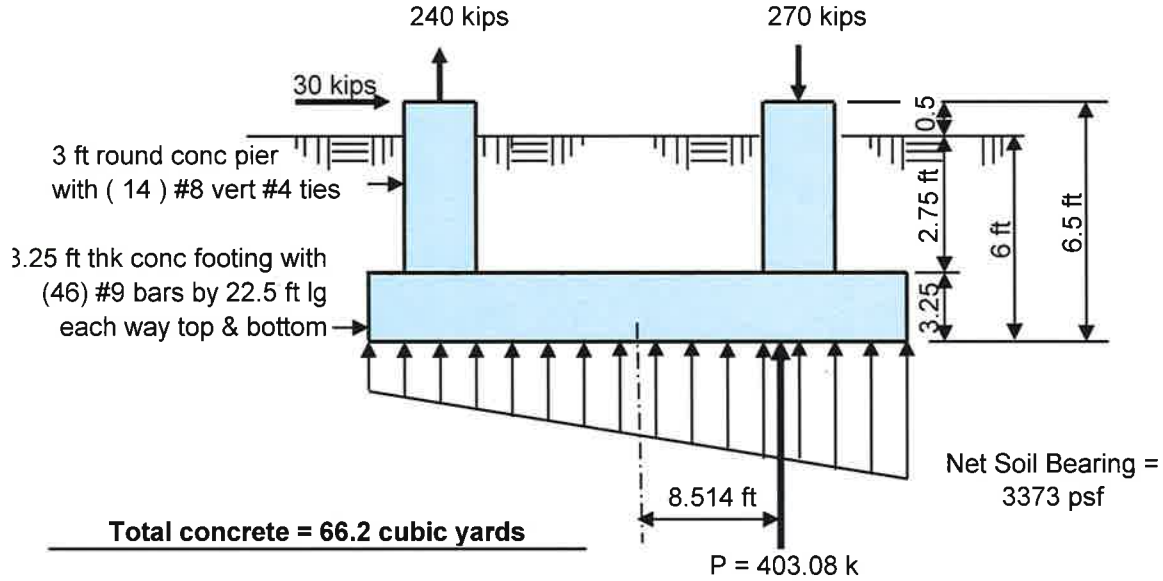
APPENDIX C

ADDITIONAL CALCULATIONS

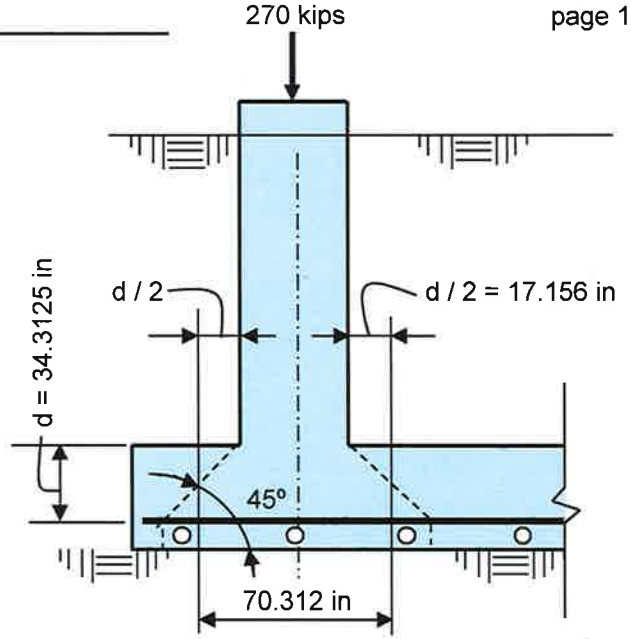
Combined Footing Foundation

Concrete strength F'c =	**3**	(ksi)
Rebar Strength Fy =	**60**	(ksi)
Soil Density =	**100**	(pcf)
Depth to Water Table =	**99**	(ft)
minimum cover over vert rebar =	**3**	inches





Total concrete = 66.2 cubic yards



Ftg Overturning Resistance = 4635.4 ft-kips
Total Overturning Moment = 3432 ft-kips
Required Overturning Safety Factor = 1
Overturning Safety Factor = 1.35
Ratio = 0.74 OK

Maximum Net Soil Bearing = 4.381 ksf
Ultimate Net Soil Bearing = 6 ksf
Soil Bearing Stress Ratio = 0.73 OK

Ult Punching Shear Capacity = 219 psi
Ult Punching Shear Force = 47 psi
Punching Shear Stress Ratio = 0.22 OK

Pad Bending Moment Capacity= 3755 ft-k
Pad Bending Moment = 602 ft-k
Bending Moment Stress Ratio = 0.16 OK

Pier Rebar Capacity = -597.24 kips
Pier Rebar Required = -240 kips
Pier Rebar Stress Ratio = 0.4 OK

Pad Bending Shear Capacity= 778 ft-k
Pad Bending Shear = 76 ft-k
Bending Shear Stress Ratio = 0.1 OK

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9

Site Data	
BU#:	876338
Site Name:	
App #:	

Anchor Rod Data		
Qty:	6	
Diam:	1.25	in
Rod Material:	A687	
Strength (Fu):	150	ksi
Yield (Fy):	105	ksi

* Rod Circle:		in
* e:		in
* # of Rods		1 or 2

Mu= Pu x e:		ft-kips

** Enter rod circle, offset (e) and number of anchor rods at the extreme fiber to consider if eccentric load due to leg reinforcement exists.*

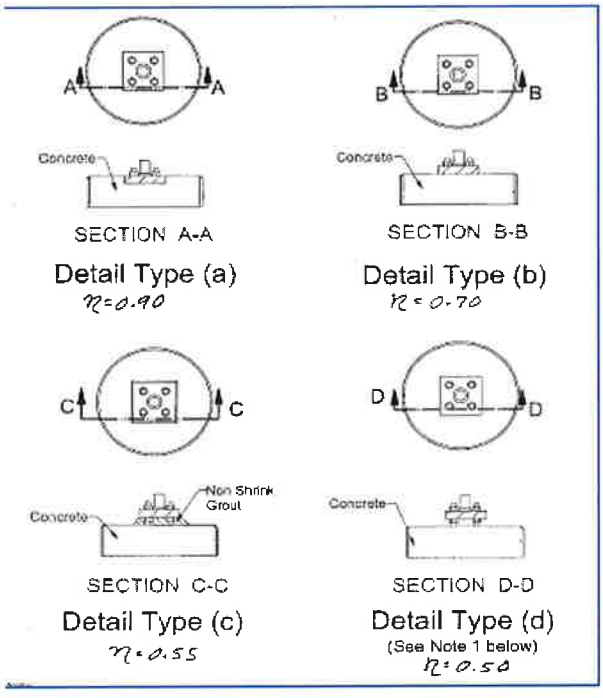


Figure 4-4 of TIA-222-G

Reactions		
Eta Factor, η	0.55	Detail Type
Uplift, Pu:	315	kips
Shear, Vu:	35	kips

l_{ar}:	0	in
Mu = 0.65*l_{ar}*V_u		ft-kips

Anchor Rod Results:

Max Rod (Cu+ Vu/ŋ):	63.1	Kips
Allowable Axial, Φ*Fu*Anet:	116.3	Kips
Anchor Rod Stress Ratio:	54.3%	

If Applicable;

Anchor Rod Results with Bending Considered:

When the clear distance from the top of concrete to the bottom of level nut excceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):

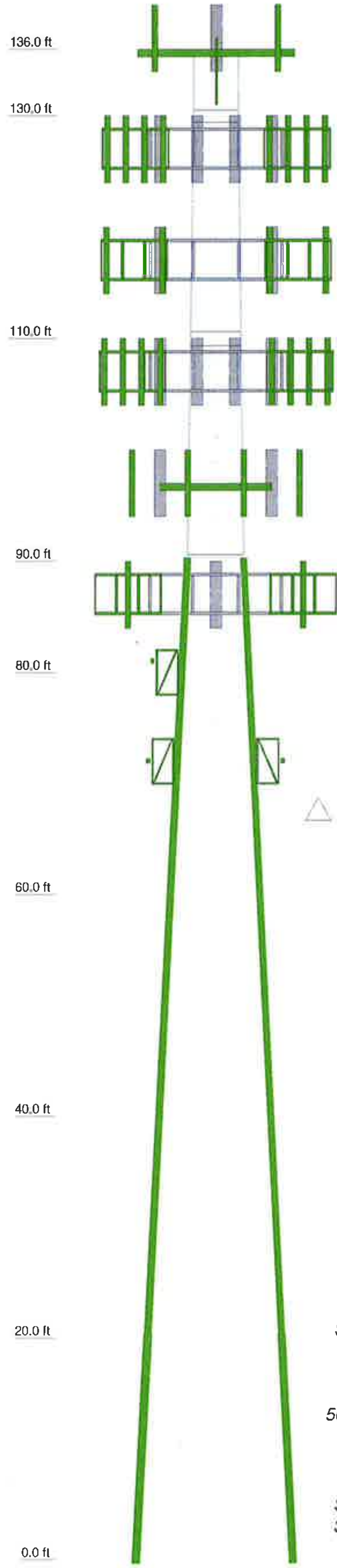
$$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$$

$\phi R_{nv}=\phi*0.45*F_{ub}*A_b=$		kips
$\phi R_{nt}=\phi*F_u*A_{net}=$		kips
$\phi R_{nm}=\phi*F_y*Z=$		ft-kips

Maximum Acceptable Ratio:	105	%
Governing Stress Ratio:	54.3%	Pass

Section (top to bottom)	136.0–130.0 ft	130.0–110.0 ft	110.0–90.0 ft	90.0–80.0 ft	80.0–60.0 ft	60.0–40.0 ft	40.0–20.0 ft	20.0–0.0 ft
Legs	A	SR 2" solid	SR 2 1/4" solid	B	Pirod 105217 (12x1.5)	Pirod 105218 (12x1.75)		Pirod 105219 (12x2)
Leg Grade					A572-50			
Diagonals	C	SR 7/8" solid	SR 1" solid		L 2.5 x 2.5 x 3/16	L 3 x 3 x 3/16		L 3 x 3 x 5/16
Diagonal Grade			A572-50				A36	
Top Girts		SR 7/8" solid	SR 1" solid			N.A.		
Bottom Girts		SR 7/8" solid	SR 1" solid			N.A.		
Horizontals		SR 3/4" solid	SR 7/8" solid			N.A.		
Sec. Horizontals		N.A.	SR 1" solid			N.A.		
Face Width (ft)	4	4.5	5	6	8	10	12	14
# Panels @ (ft)	2 @ 2.5	8 @ 2.35833	9 @ 2.34375			9 @ 10		
Weight (K)	0.3	1.3	2.1	1.2	2.5	3.2	3.2	4.9

Total weight (K): 18.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe (E)	136	BXA-80063/4CF w/ Mount Pipe (Installed)	107
APXVSPP18-C-A20 w/ Mount Pipe (E)	136	(2) FD9R6004/2C-3L (Installed)	107
APXVSPP18-C-A20 w/ Mount Pipe (E)	136	B66A RRH4X45 (Proposed)	107
IBC1900BB-1 (E)	136	RRH2x60-700 (Proposed)	107
IBC1900BB-1 (E)	136	RRH2X60-PCS (Proposed)	107
IBC1900BB-1 (E)	136	BXA-70063-6CF-2 w/ Mount Pipe (Proposed)	107
IBC1900HG-2A (E)	136	(2) SBNHH-1D65B w/ Mount Pipe (Proposed)	107
IBC1900HG-2A (E)	136	BXA-80063/4CF w/ Mount Pipe (Installed)	107
IBC1900HG-2A (E)	136	(2) FD9R6004/2C-3L (Installed)	107
(2) 6' x 2" Mount Pipe (E)	136	B66A RRH4X45 (Proposed)	107
(2) 6' x 2" Mount Pipe (E)	136	RRH2x60-700 (Proposed)	107
(2) 6' x 2" Mount Pipe (E)	136	RRH2X60-PCS (Proposed)	107
Platform Mount [LP 405-1] (E)	136	BXA-70063-6CF-2 w/ Mount Pipe (Proposed)	107
TME-800MHz 2X50W RRH W/FILTER (E)	134	(2) SBNHH-1D65B w/ Mount Pipe (Proposed)	107
TME-800MHz 2X50W RRH W/FILTER (E)	134	RC2DC-3315-PF-48 (Proposed)	107
TME-800MHz 2X50W RRH W/FILTER (E)	134	RC2DC-3315-PF-48 (Proposed)	107
TME-1900MHz RRH (65MHz) (E)	134	AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	97
TME-1900MHz RRH (65MHz) (E)	134	AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	97
TME-1900MHz RRH (65MHz) (E)	134	SBNH-1D6565C w/ Mount Pipe (E)	97
(2) Pipe Mount [PM 601-3] (E)	134	7770.00 w/ Mount Pipe (E)	97
(4) DB844H90E-XY w/ Mount Pipe (AB)	127	7770.00 w/ Mount Pipe (E)	97
(4) DB844H90E-XY w/ Mount Pipe (AB)	127	7770.00 w/ Mount Pipe (E)	97
(4) DB844H90E-XY w/ Mount Pipe (AB)	127	(2) RRUS 11 (E-as per photo)	97
Sector Mount [SM 410-3] (AB)	127	(2) RRUS 11 (E-as per photo)	97
Pipe Mount [PM 601-3] (E-Mount Attachment)	127	(2) RRUS 11 (E-as per photo)	97
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	117	(2) LGP21401 (E)	97
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	117	(2) LGP21401 (E)	97
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	117	(2) LGP21401 (E)	97
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	117	DC6-48-60-18-8F (E)	97
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	117	4' x 3" Pipe Mount (E)	97
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	117	4' x 3" Pipe Mount (E)	97
KRY 112 144/1 (E)	117	4' x 3" Pipe Mount (E)	97
KRY 112 144/1 (E)	117	T-Arm Mount [TA 702-3] (E)	97
KRY 112 144/1 (E)	117	Pipe Mount [PM 601-3] (E-Mount Attachment)	97
Sector Mount [SM 410-3] (E)	117	860 10118 (E)	87
Pipe Mount [PM 601-3] (E-Mount Attachment)	117	6' x 2" Mount Pipe (E)	87
Sector Mount [SM 307-3] (E-4 M. Pipes / Sector)	107	6' x 2" Mount Pipe (E)	87
BXA-80063/4CF w/ Mount Pipe (Installed)	107	6' x 2" Mount Pipe (E)	87
(2) FD9R6004/2C-3L (Installed)	107	Sector Mount [SM 104-3] (E)	87
B66A RRH4X45 (Proposed)	107	800 10504 w/ Mount Pipe (E)	87
RRH2x60-700 (Proposed)	107	800 10504 w/ Mount Pipe (E)	87
RRH2X60-PCS (Proposed)	107	800 10504 w/ Mount Pipe (E)	87
BXA-70063-6CF-2 w/ Mount Pipe (Proposed)	107	860 10118 (E)	87
(2) SBNHH-1D65B w/ Mount Pipe (Proposed)	107	860 10118 (E)	87
		Side Arm Mount [SO 701-1] (E)	80
		GPS_A (E)	80
		Side Arm Mount [SO 701-1] (E)	72
		Side Arm Mount [SO 701-1] (E)	72
		GPS_A (E)	72
		GPS_A (E)	72

ALL ... ARE ...
MAX ... D ... S ... U ... S ...

SHEAR 10 K
TOR ...
50 mph W...

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1 1/2" solid	C	SR 3/4" solid
B	Pirod 105244 w/ 1 1/4" tierod		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

SHEAR 39 K
TOR...
REACTION...

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 104 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. The secondary HORZ areas are considered (above 90')-- not controlling
9. TOWER RATING: [illegible]

PJF HKEY_CURRENT_USER	**Paul J Ford and Company** 250 E Broad St Suite 600 Columbus, OH 43215 Phone: Software\TNX\Settings FAX:	Job: **37516-3559-001-8700** Project: **BU 876338** Client: Crown Castle — Drawn by: Joseph Jacobs — App'd: Code: TIA-222-G — Date: 11/10/16 — Scale: N Path: [illegible] — Dwg No.

ATTACHMENT 4

Property Viewer (Public)

Click the About icon below the search bar for more information.

Property Location: 41 MANITOCK HILL ROAD | **MAP ID:** 117/ / 4376/ / | **Bldg Name:** | **State Use:** 929

Vision ID: 4376 | **Account #** 00395800 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 02/02/2017 11:55

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
NEW LONDON CITY OF		6 Well		
120 BROAD ST		7 Septic		
NEW LONDON, CT 06320				
Additional Owners:				

SUPPLEMENTAL DATA

Other ID:	117	Call back	
District			
Old Map/Lot	038 0154A	490 Size	0.00
Asking date		SFLA	0
Asking price		Lot Size	0.00
Census Tract	6933112		
GIS ID: 0395800		ASSOC PID#	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
EX VC OTB	55	1,216,500	851,550
		Total	1,216,500	851,550

6152
WATERFORD, CT

VISION

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
NEW LONDON CITY OF	173/ 256	06/11/1968	Q	I	0	00

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2013	55	851,550	2012	55	851,550	2010	25	852,260
	Total:	851,550		Total:	851,550		Total:	852,260

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

NOTES

TANK EXEMPT, LAND TAXABLE ACCT
#0395700;NEW TANK; LUMP SUM-WATER
STORAGE TANK;LARGE STORAGE TANK;CELL
TOWER; 6'CHAIN LINK FENCE SURROUNDS
SITE IMPROVEMENTS;

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	0
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	1,216,500
Appraised Land Value (Bldg)	0
Special Land Value	0
Total Appraised Parcel Value	1,216,500
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	1,216,500

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
18015	04/23/2002			84,000	03/26/2012	100		

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
05/01/2012			JEW	99	Vacant Land - Inspected

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value
1	929	Exempt Comm Vac OB	R-40				0.00 AC	0.00	1.0000	5	1.00	600	0.90			.00		0

Total Card Land Units: 0.00 AC | **Parcel Total Land Area:** 0 AC | **Total Land Value:** 0

Property Location: 41 MANITOCK HILL ROAD | **MAP ID:** 117/ / 4376/ / | **Bldg Name:** | **State Use:** 929

Vision ID: 4376 | **Account #**00395800 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 02/02/2017 11:55

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Model	00		Vacant

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
929	Exempt Comm Vac OB	100

COST/MARKET VALUATION

Adj. Base Rate:	0.00
Replace Cost	0
AYB	
EYB	0
Dep Code	
Remodel Rating	
Year Remodeled	
Dep %	
Functional Obslnc	
External Obslnc	
Cost Trend Factor	1
Status	
% Complete	
Overall % Cond	
Apprais Val	
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	

OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
SHD1	Shed	MT	Metal	L	200	10.00	1973	C		G	75	1,500
LSUM	Lump Sum			L	1,620,	1.00	1973	C		G	75	1,215,000

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
	Ttl. Gross Liv/Lease Area:	0	0	0		

No Photo On Record

Property Location: 41 MANITOCK HILL ROAD | **MAP ID:** 117/ / 4375/ / | **Bldg Name:** | **State Use:** 109

Vision ID: 4375 | **Account #** 00395700 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 02/02/2017 11:54

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
NEW LONDON CITY OF	01 Wooded	6 Well	1 Paved	2 Suburban
WATER DEPT	02 Rocky	7 Septic		
120 BROAD ST	03 Rolling			
NEW LONDON, CT 06320				
Additional Owners:				

SUPPLEMENTAL DATA

Other ID:	117	Call back	
District			
Old Map/Lot	038 0154A	490 Size	0.00
Asking date		SFLA	0
Asking price		Lot Size	5.50
Census Tract	6933112		
GIS ID: 0395700		*ASSOC PID#*	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
VAC RS LN	5-1	13,980	9,790
VAC OUTBL	5-5	2,250	1,580
	Total	16,230	11,370

6152
WATERFORD, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
NEW LONDON CITY OF	173/ 256	06/11/1968	Q	I	0	00

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2013	5-1	9,790	2012	5-1	9,790	2010	5-1	8,800
2013	5-5	1,580	2012	5-5	1,580	2010	1-4	1,420
	Total:	11,370		*Total:*	11,370		*Total:*	10,220

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

NOTES

TELECOMMUNICATIONS TOWER W/ANTENNAS &
EQUIPMENT;4/09 ANTENNAS ON EXIS 1/10
ANT & EQUIP,CO10-24; POWER LINES

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	0
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	2,250
Appraised Land Value (Bldg)	13,980
Special Land Value	0
Total Appraised Parcel Value	16,230
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	16,230

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
01272010	01/27/2010			50,000		100		

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
12/19/2012			MM	41	Hearing - No Change
09/11/2012			MM	20	Field Review
02/08/2012			SBS	99	Vacant Land - Inspected

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.		C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		S Adj Fact	Adj. Unit Price	Land Value
1	109	Vacant W/ OB	R-40				5.50	AC	110,000.00	0.2562	5		0.10	600	0.90	ACCESS/SHAPE			1.00		13,980

Total Card Land Units: 5.50 AC | **Parcel Total Land Area:** 5.5 AC | **Total Land Value:** 13,980

Property Location: 41 MANITOCK HILL ROAD **MAP ID:** 117/ / 4375/ / **Bldg Name:** **State Use:** 109

Vision ID: 4375 **Account #**00395700 **Bldg #:** 1 of 1 **Sec #:** 1 of 1 **Card** 1 of 1 **Print Date:** 02/02/2017 11:54

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Model	00		Vacant

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
109	Vacant W/ OB	100

COST/MARKET VALUATION

Adj. Base Rate:	0.00
Replace Cost	0
AYB	
EYB	0
Dep Code	
Remodel Rating	
Year Remodeled	
Dep %	
Functional Obslnc	
External Obslnc	
Cost Trend Factor	1
Status	
% Complete	
Overall % Cond	
Apprais Val	
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	

OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
SHD1	Shed	FR	Frame	L	200	15.00	2000	C		G	75	2,250

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
	Ttl. Gross Liv/Lease Area:	0	0	0		

No Photo On Record