EM-SPRINT-086-131011

HPC Wireless Services
22 Shelter Rock Lane.
Building C
Danbury, CT, 06810
P.: 203.797.1112

The Honorable Neal Pichon

HPC WIRELESS SERVICES

ORIGINAL

October 10, 2013

RECEIVED
OCT 11 2013
CONNECTICUT SITING COUNCIL

VIA OVERNIGHT COURIER

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Melanie Bachman, Acting Executive Director

Re: Sprint Spectrum, L.P. – exempt modification
57 Cook Drive (aka 57 Cook Road), Montville, Connecticut

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Sprint Spectrum, L.P. ("Sprint"). Sprint is undertaking modifications to certain existing sites in its Connecticut system in order to implement updated technology. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments are being sent to the Mayor of the Town of Montville.

Sprint plans to modify the existing wireless communications facility owned by the State of Connecticut, and located at 57 Cook Drive (aka 57 Cook Road), Montville (coordinates 41°-28'-29.99" N, 72°-06'-18.15" W). Attached are plan and elevation drawings depicting the planned changes. Attached are plan and elevation drawings depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to Sprint's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. Sprint will remove six (6) existing CMDA antennas and add three (3) dual-band panel LTE antennas on the existing T-arms, at a centerline height of approximately 151' AGL. Sprint will also install six (6) RRHs (remote radio heads), three (3) at a centerline of approximately 153' AGL, and three (3) at a centerline of approximately 149' AGL.

of approximately 153' AGL, and three (3) at a centerline of approximately 149' AGL. During an interim period of up to one year, all of the existing CDMA antennas will remain. Sprint will also install three (3) hybriflex cables along the existing coaxial cable run, and will remove the coaxial cable at the end of the interim period. The proposed modifications will not extend the height of the approximately 193' structure.

2. Sprint will replace the two (2) of the four (4) existing cabinets with two (2) similar cabinets, all on the existing concrete pad with ice canopy. Sprint will place a new fiber/power junction box on new posts on a proposed H-frame also on the existing concrete pad. The existing GPS Antenna on the existing Ice Bridge will be removed and replaced with a new GPS Antenna on the existing Ice Bridge Post. These changes will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by EBI Consulting, Sprint's operations at the site will result in a power density of approximately 17.75%; the combined site operations will result in a total power density of approximately 51.427%.

Please contact me by phone at (203) 610-1071 or by e-mail at mjhowlett@optonline.net with questions concerning this matter. Thank you for your consideration.

Respectfully yours,

Melanie J. Howlett

Attachments

cc: Honorable Ronald K. McDonald, Mayor, Town of Montville
Robert W. and Karen A. Kingsborough (underlying property owners)

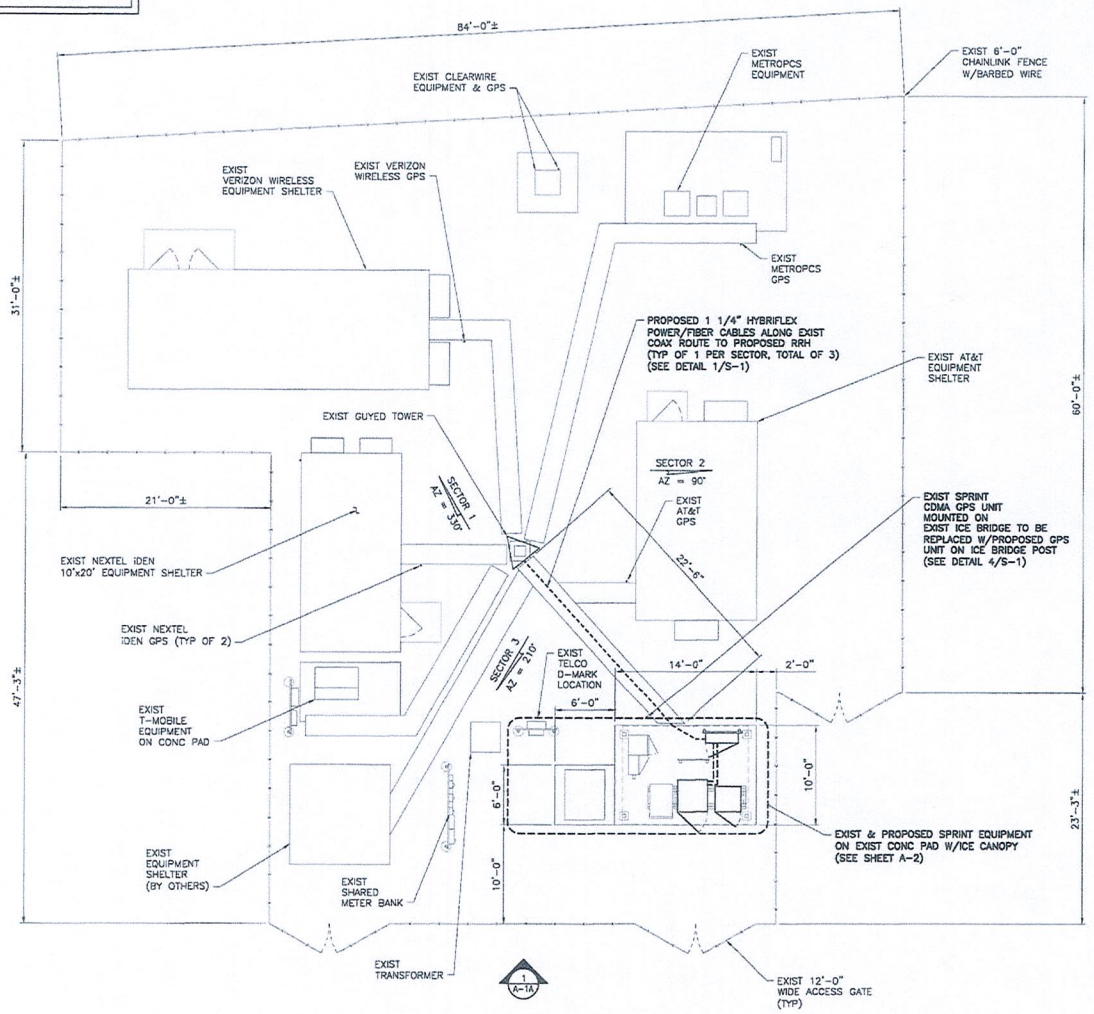
N

APPROX.

NORTH NOTE:

NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.

USE PLUMBING SCENARIO 124



1 A-1 SITE PLAN

SCALE: 3/16" = 1'-0"

Sprint
NETWORK VISION MEETS LAUNCH
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Alcatel·Lucent
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Newburgh, NY 12550
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Fax: (845) 567-8703
www.tectonicengineering.com

SUBMITTALS

PROJECT NO: 6316.23-500

NO	DATE	DESCRIPTION	BY
0	9/27/12	FOR COMMENT	LP
1	2/6/13	PER COMMENTS	MP
2	2/26/13	PER COMMENTS	MP
3	8/6/13	PER COMMENTS	JT

SEAL

SITE NUMBER:
CT23XC500

SITE NAME:
MOHEGAN HILL

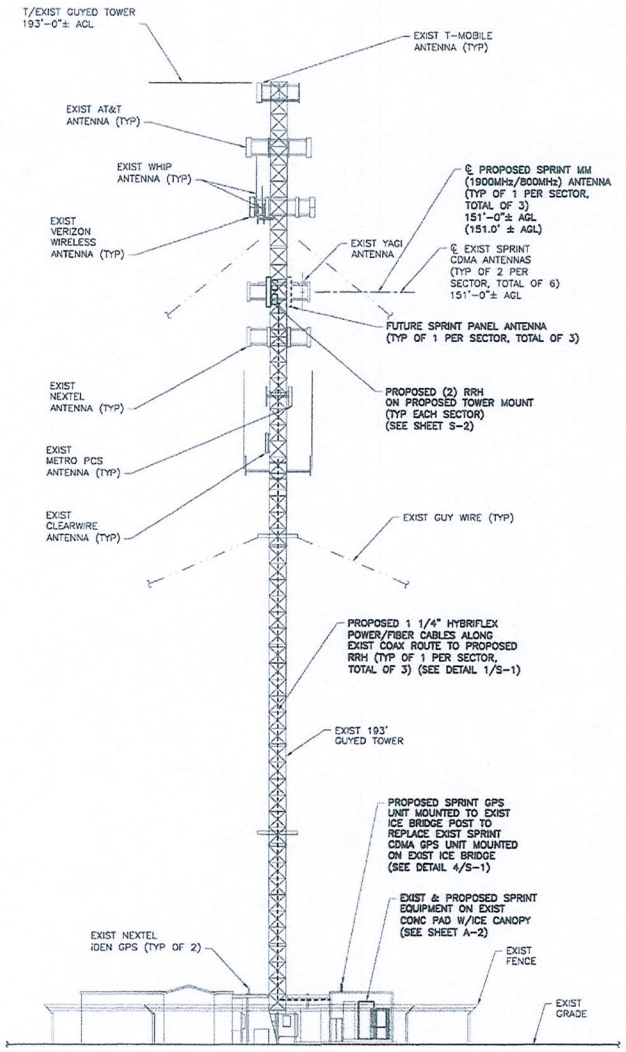
SITE ADDRESS:
57 COOK DR.
MONTVILLE, CT 063825

SHEET TITLE:
SITE PLAN

SHEET NO:
A-1

USE PLUMBING SCENARIO 124

THE PROPOSED INSTALLATION, ANTENNA MOUNT & EXISTING GUYED TOWER SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).



1 / A-1A ELEVATION

SCALE: 3/32" = 1'-0"

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SUBMITTALS

PROJECT NO: 6318.23-500

NO	DATE	DESCRIPTION	BY
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1	2/6/13	PER COMMENTS	MP
2	2/26/13	PER COMMENTS	MP
3	8/6/13	PER COMMENTS	JT

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MOHEGAN HILL

SITE ADDRESS:
57 COOK DR.
MONTVILLE, CT 063825

SHEET TITLE:
ELEVATION

SHEET NO:
A-1A

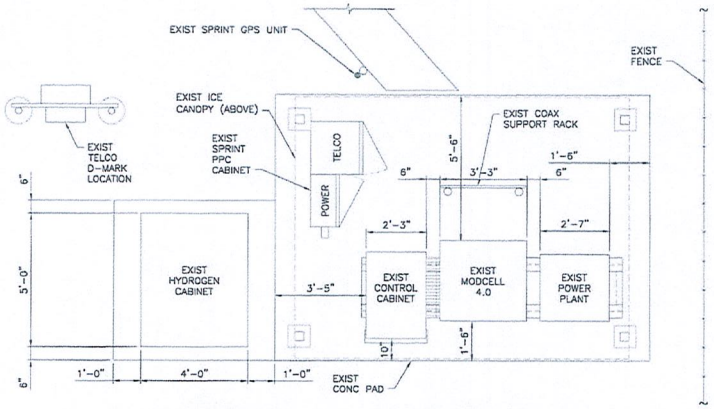
N

APPROX.

USE PLUMBING SCENARIO 124

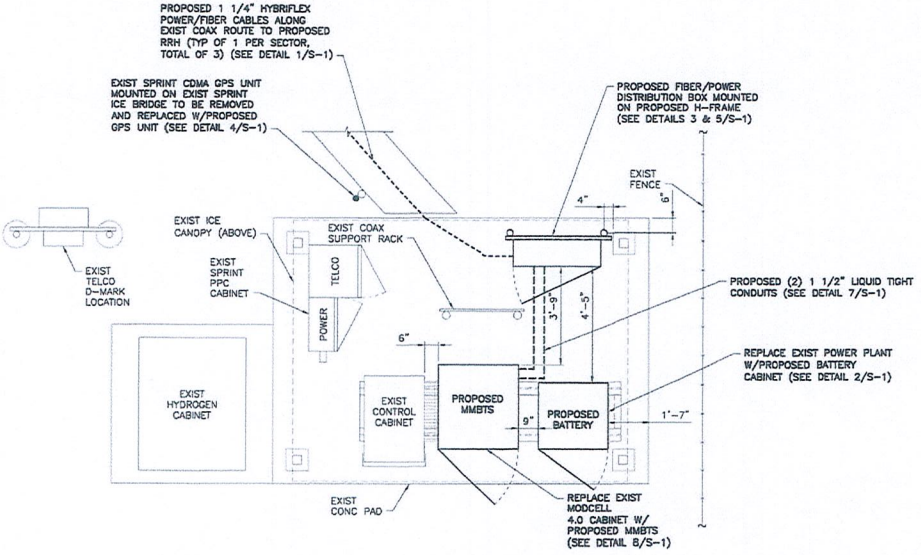
NORTH NOTE:

NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.



1 A-2 EQUIPMENT LAYOUT PLAN (EXIST)

SCALE: 1/2" = 1'-0"



2 A-2 EQUIPMENT LAYOUT PLAN (FINAL)

SCALE: 1/2" = 1'-0"

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SUBMITTALS

PROJECT NO: 6318.23-500

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2	2/26/13	PER COMMENTS	MP
3	8/6/13	PER COMMENTS	JT

SEAL

SITE NUMBER:
CT23XC500

SITE NAME:
MOHEGAN HILL

SITE ADDRESS:
57 COOK DR.
MONTVILLE, CT 063825

SHEET TITLE:
EQUIPMENT LAYOUT PLANS

SHEET NO:
A-2

N

APPROX.

NORTH NOTE:

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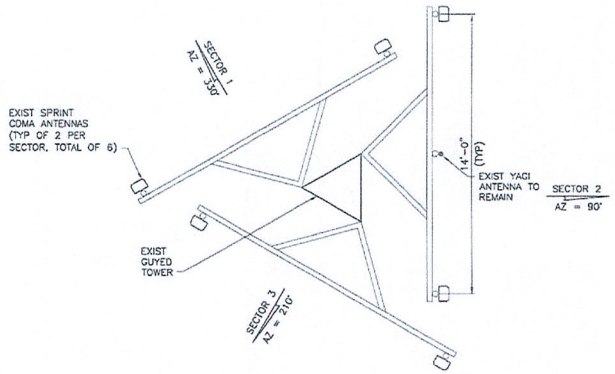
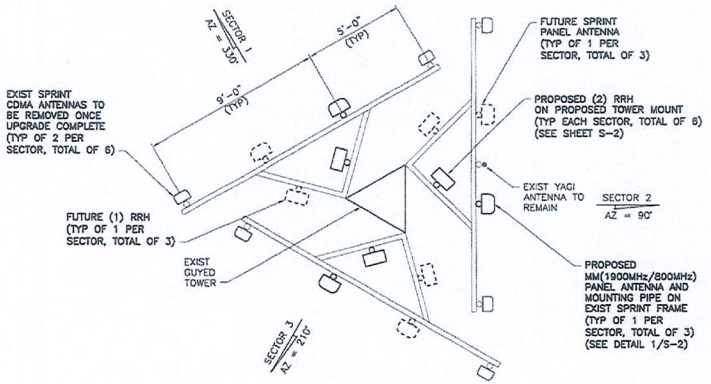
USE PLUMBING SCENARIO 124



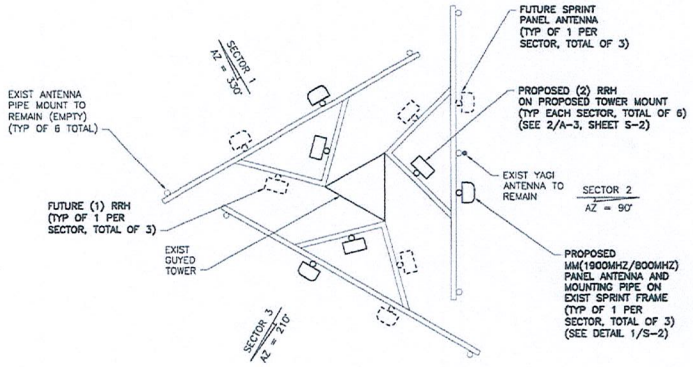
1 / A-3 ANTENNA LAYOUT PLAN (EXIST)

SCALE: 3/8" = 1'-0"



2 / A-3 ANTENNA LAYOUT PLAN (INTERIM)

SCALE: 3/8" = 1'-0"



3 / A-3 ANTENNA LAYOUT PLAN (FINAL)

SCALE: 3/8" = 1'-0"

THE PROPOSED INSTALLATION, ANTENNA MOUNT & EXISTING GUYED TOWER SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

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SUBMITTALS

PROJECT NO: 6318.23-500

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1	2/6/13	PER COMMENTS	MP
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3	8/6/13	PER COMMENTS	JT

SEAL

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CT23XC500

SITE NAME:
MOHEGAN HILL

SITE ADDRESS:
57 COOK DR.
MONTVILLE, CT 063825

SHEET TITLE:
ANTENNA LAYOUT PLANS

SHEET NO:
A-3

STRUCTURAL ANALYSIS REPORT

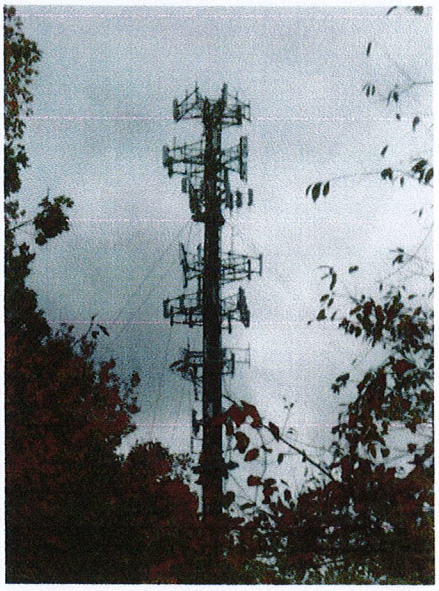
For

CT23XC500

MOHEGAN HILL

57 COOK DRIVE
MONTVILLE, CT 06382

Antennas Mounted to the Tower



Prepared for:

Sprint VISION

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MAHWAH, NJ 07495
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TEL: (978) 952-1600

Dated: February 21, 2013

Prepared by:

Hudson Design Group LLC

STATE OF CONNECTICUT
GI KAI WANG
No. 28220
LICENSED PROFESSIONAL ENGINEER
Gi Kai Wang 2/22/2013

1600 Osgood Street Building 20 North, Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
www.hudsondesigngroupllc.com

Hudson Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by Sprint to conduct a structural evaluation of the 193' guyed tower supporting the proposed Sprint antennas located at elevation 151' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of Sprint existing and proposed antennas listed below.

Record drawings of the existing tower were not available for our use. The previous structural analysis report prepared by Centek Engineering Inc., dated December 8, 2011 was available and obtained for our use. This office conducted an on-site visual survey and tower mapping on October 15, 2012 to record dimensional properties of the existing tower and its appurtenances. Attendees included Nick Bestor (HDG - Associate) and Jay Lee (HDG - Associate).

The previous structural analysis report and tower modification drawings prepared by this office, dated February 13, 2013 were available for our use.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower and foundation **are in conformance** with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **97.5%** - (Leg at Tower Section T9 from EL.20' to EL.40' Controlling).

Hudson Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(3) APX16DWV-16DWVS Antennas	192.7'	12' Boom Gate
	(3) TMAs	191.5'	12' Boom Gate
	20' Omni	188'	15' Boom Gate
	6' Omni	181'	15' Boom Gate
	(6) Powerwave 7770 Antennas	180'	15' Boom Gate
	(6) TT19-08BP111 TMAs	180'	15' Boom Gate
	SBNH-1D6565C Antenna	180'	15' Boom Gate
	AM-X-CD-16-65-00 Antenna	180'	15' Boom Gate
	P65-17-XLH-RR Antenna	180'	15' Boom Gate
	(6) RRUs	180'	15' Boom Gate
	Surge Arrestor DC6-48-60-18-8F	180'	Tower Leg
	(6) LPA-80080 Antennas	168'	15' T-Frame
	(3) BXA-171085 Antennas	168'	15' T-Frame
	(3) BXA-70063 Antennas	168'	15' T-Frame
	7' Dipole	154.5'	4' Side Mount Standoff
SPRINT	***(3) APXVSPP18-C Antennas***	151'	15' Boom Gate
SPRINT	***(3) RRH-800***	153'	15' Boom Gate
SPRINT	***(3) RRH-1900***	149'	15' Boom Gate
	(12) DB844H90E-XY Antennas	142'	15' Boom Gate
	(3) Kathrein 800 10504 Antennas	130'	10' T-Frame
	10' Dipole	124'	4' Side Mount Standoff
	Junction Box	119'	Tower Leg
	(2) 20' Omni	117'	4' Side Mount Standoff
	(3) LLPX310R Antennas	116.3'	1' Side Mount Standoff
	(3) RRHs	114.5'	1' Side Mount Standoff
	6' Yagi	113'	Tower Leg
	GPS	105'	3' Side Mount Standoff

Proposed SPRINT Appurtenances shown in Bold.

Hudson Design Group LLC

AT&T EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
SPRINT	(6) 1 5/8" Cables	151'	Face of Tower
SPRINT	***(3) 1 1/4" Cables***	151'	Face of Tower

Proposed SPRINT Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Legs	**97.5 %**	20 – 40	PASS	**Controlling**
Diagonals	81.4 %	20 – 40	PASS	
Horizontals	3.0 %	0 – 5	PASS	
Sec. Horizontals	41.3 %	160 – 180	PASS	
Top Girt	19.9 %	20 – 40	PASS	
Bottom Girt	51.1 %	160 – 180	PASS	
Guy	93.7 %	162.6	PASS	
Torque Arm	88.2 %	162.6	PASS	

Hudson Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   City/Town: Montville
   County: New London
   Wind Load: 95 mph (fastest mile)
   115 mph (3 second gust)
   Nominal Ice Thickness: 1/2 inch

2. Approximate height above grade to proposed antennas: 151'

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. Material strength of the existing structure was not available for structural analysis, and was assumed as follows:

   Tower Legs (Pipes): Fy=50 ksi
   Tower Diagonals (Pipes): Fy=42 ksi
   Angles and Channels: Fy=36 ksi

2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.

3. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

Hudson Design Group LLC

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and RRHs be mounted on the existing steel frames supported by the tower.

Reference latest Construction Drawings for all component and connection requirements (attached).

Hudson Design Group LLC

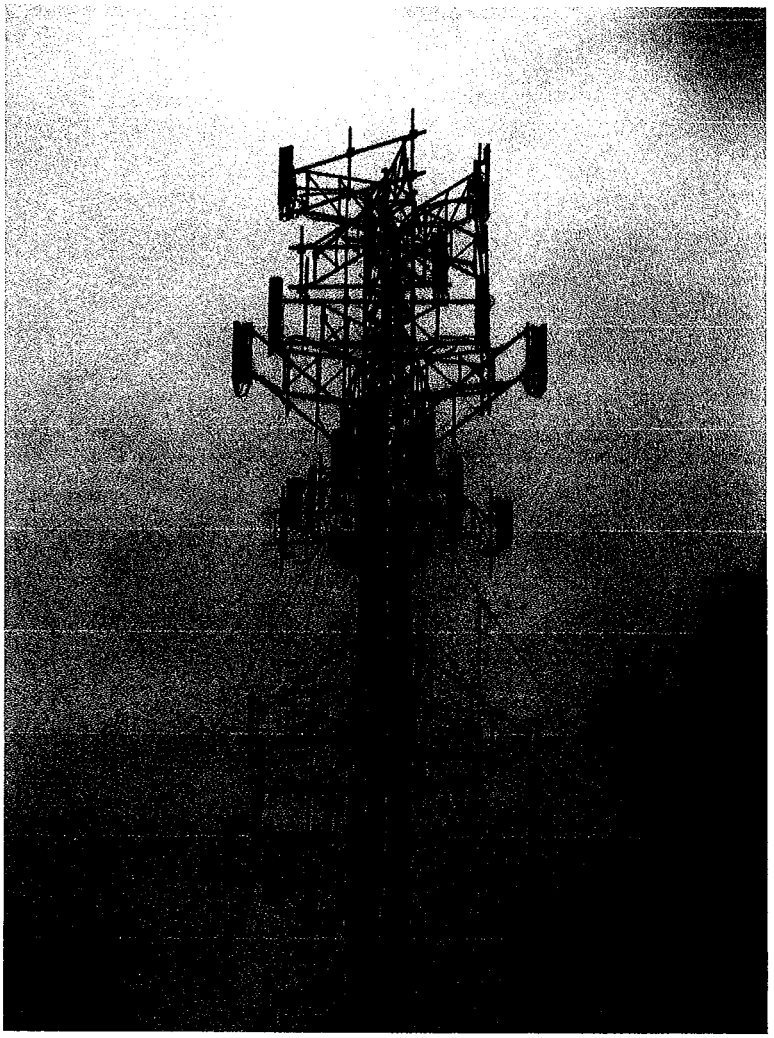
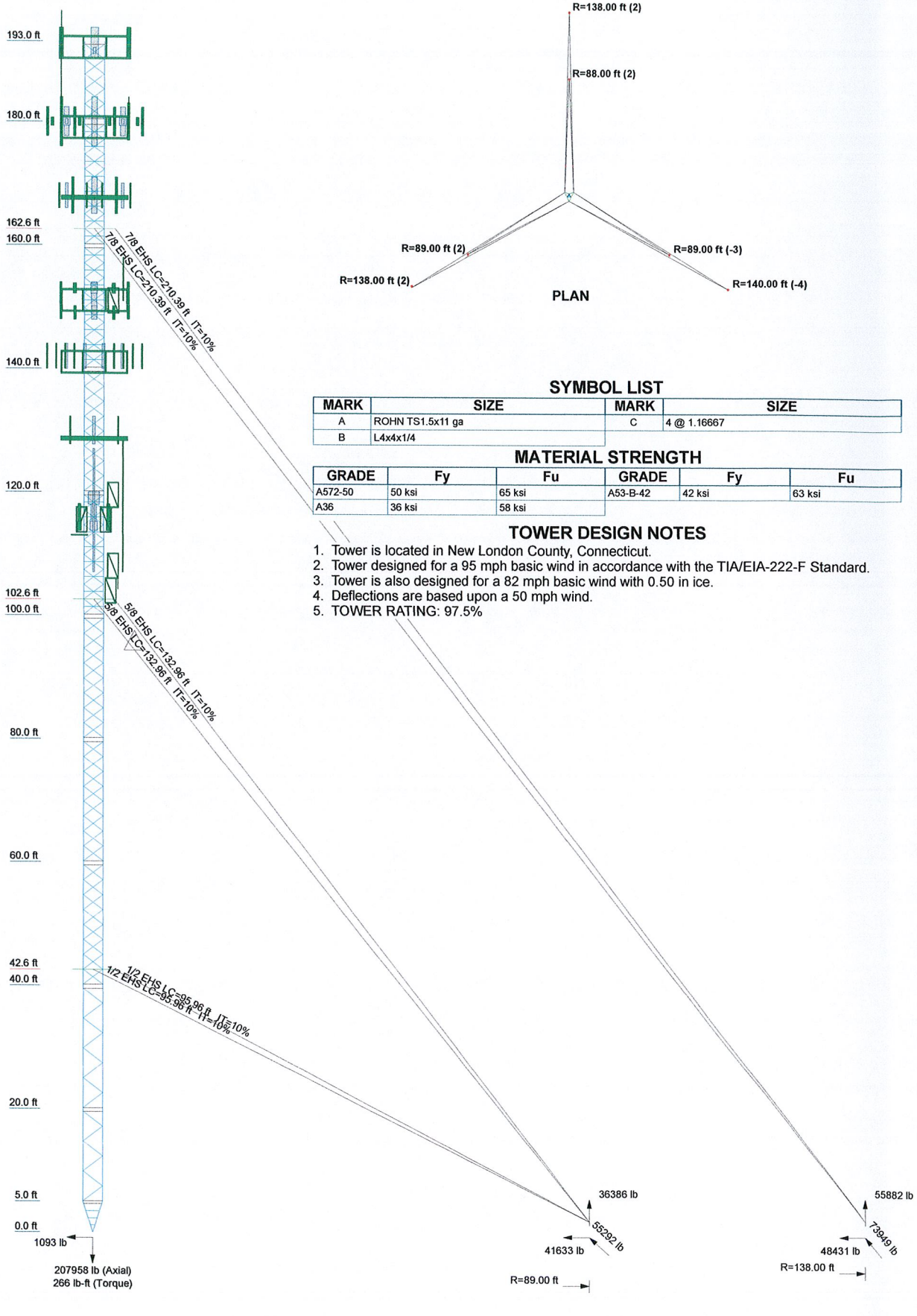


Photo 1: Photo illustrating the Tower with Appurtenances shown.

Hudson Design Group LLC

CALCULATIONS

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			ROHN 3 EH					ROHN 2.5 EH	ROHN 2.5 EH (CT2171)		ROHN 2.5 EH
Leg Grade			A572-50								
Diagonals	N.A.	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	L1 3/4x1 3/4x3/16	ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga		L2x2x1/4	
Diagonal Grade	N.A.		A53-B-42		A36	A53-B-42	A36	A53-B-42		A36	
Top Girts	B	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga		ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga		L2x2x1/4	
Bottom Girts	N.A.	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga		ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga		L2x2x1/4	
Horizontals	B					N.A.					
Sec. Horizontals			N.A.				L2x2x1/4	N.A.	L2x2x1/4		N.A.
Face Width (ft)						75 @ 2.41667					3.42
# Panels @ (ft)	C										
Weight (lb)	323.5	631.6	724.0	1558.3	1076.9	813.8	2468.4	852.3	1558.1	2888.1	765.5
13460.6											



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN TS1.5x11 ga	C	4 @ 1.16667
B	L4x4x1/4		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 95 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 82 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 97.5%

Hudson Design Group, LLC
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North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 226-5586

Job: *CT23XC500 Uncasville, CT*		
Project: *193 ft Guyed Tower*		
Client: SPRINT	Drawn by: kw	App'd:
Code: TIA/EIA-222-F	Date: 02/21/13	Scale: NTS
Path: C:\Users\jkwang\Documents\HUDSON DESIGN GROUP\AAA\CT23XC500 - GT (Sprint)\CT23XC500\CT23XC500.eri		Dwg No. E-1

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 193.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.42 ft at the top and tapered at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 95 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 82 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	193.00-180.00			3.42	1	13.00
T2	180.00-160.00			3.42	1	20.00
T3	160.00-140.00			3.42	1	20.00
T4	140.00-120.00			3.42	1	20.00
T5	120.00-100.00			3.42	1	20.00
T6	100.00-80.00			3.42	1	20.00
T7	80.00-60.00			3.42	1	20.00
T8	60.00-40.00			3.42	1	20.00
T9	40.00-20.00			3.42	1	20.00
T10	20.00-5.00			3.42	1	15.00
T11	5.00-0.00			3.42	1	5.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	193.00-180.00	2.42	X Brace	No	No	6.0000	5.0000
T2	180.00-160.00	2.42	X Brace	No	Yes	6.0000	2.0000
T3	160.00-140.00	2.42	X Brace	No	Yes	6.0000	2.0000
T4	140.00-120.00	2.42	CX Brace	No	No	6.0000	2.0000
T5	120.00-100.00	2.42	X Brace	No	Yes	6.0000	2.0000
T6	100.00-80.00	2.42	CX Brace	No	No	6.0000	2.0000
T7	80.00-60.00	2.42	X Brace	No	No	6.0000	2.0000

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
T8	60.00-40.00	2.42	CX Brace	No	No	6.0000	2.0000
T9	40.00-20.00	2.42	K Brace Left	No	No	6.0000	2.0000
T10	20.00-5.00	2.42	K Brace Left	No	No	5.0000	1.0000
T11	5.00-0.00	1.17	X Brace	No	Yes	4.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 193.00-180.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 180.00-160.00	Pipe	ROHN 2.5 EH (CT2171)	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 2.5 EH (CT2171)	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 120.00-100.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.00-60.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T8 60.00-40.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T9 40.00-20.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.00-5.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T11 5.00-0.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle		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 193.00-180.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 180.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T4 140.00-120.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 120.00-100.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.00-60.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T8 60.00-40.00	Pipe	ROHN TS1.5x11 ga	A53-B-42	Pipe	ROHN TS1.5x11 ga	A53-B-42

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T9 40.00-20.00	Pipe	ROHN TS1.5x16 ga	(42 ksi) A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	(42 ksi) A53-B-42 (42 ksi)
T10 20.00-5.00	Pipe	ROHN TS1.5x11 ga	(42 ksi) A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	(42 ksi) A53-B-42 (42 ksi)
T11 5.00-0.00	Equal Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 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
T11 5.00-0.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 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
T2 180.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T3 160.00-140.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 120.00-100.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
162.583	EHS	A	7/8	7970.00	10%	19000	1.581	210.20	138.00	0.0000	2.00	100%
		B	7/8	7970.00	10%	19000	1.581	216.08	140.00	0.0000	-4.00	100%
		C	7/8	7970.00	10%	19000	1.581	210.20	138.00	0.0000	2.00	100%
102.583	EHS	A	5/8	4240.00	10%	21000	0.813	132.20	88.00	0.0000	2.00	100%
		B	5/8	4240.00	10%	21000	0.813	136.67	89.00	0.0000	-3.00	100%
		C	5/8	4240.00	10%	21000	0.813	132.85	89.00	0.0000	2.00	100%
42.5833	EHS	A	1/2	2690.00	10%	21000	0.517	94.98	88.00	0.0000	2.00	100%
		B	1/2	2690.00	10%	21000	0.517	98.10	89.00	0.0000	-3.00	100%
		C	1/2	2690.00	10%	21000	0.517	95.88	89.00	0.0000	2.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
162.583	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x50
102.583	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
42.5833	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C12x25

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8	C	Yes	Ar (CaAa)	192.00 - 8.00	6	3	0.0000	1.9800		1.04
3/8	C	Yes	Ar (CaAa)	192.00 - 8.00	1	1	0.0000	0.5000		0.25
7/8	A	Yes	Ar (CaAa)	178.00 - 8.00	1	1	0.0000	1.1100		0.54
7/8	C	Yes	Ar (CaAa)	178.00 - 8.00	1	1	0.0000	1.1100		0.54
1 1/4	A	Yes	Ar (CaAa)	180.00 - 8.00	12	12	1.5500	1.5500		0.66
1 5/8	C	Yes	Ar (CaAa)	168.00 - 8.00	18	12	0.0000	1.9800		1.04
1 5/8 (Sprint)	A	Yes	Ar (CaAa)	151.00 - 8.00	6	6	0.0000	1.9800		1.04
1 5/8	A	Yes	Ar (CaAa)	151.00 - 8.00	1	1	0.0000	1.9800		1.04
1 1/4	B	Yes	Ar (CaAa)	141.00 - 8.00	12	12	1.5500	1.5500		0.66
1 5/8	B	Yes	Ar (CaAa)	129.00 - 8.00	6	6	0.0000	1.9800		1.04
1 1/4	A	Yes	Ar (CaAa)	120.00 - 8.00	1	1	1.5500	1.5500		0.66
3" conduit	C	Yes	Ar (CaAa)	115.00 - 8.00	1	1	3.5000	3.5000		3.00
1 1/4	A	Yes	Ar (CaAa)	107.00 - 8.00	1	1	1.5500	1.5500		0.66
7/8	A	Yes	Ar (CaAa)	108.00 - 8.00	1	1	1.1100	1.1100		0.54
7/8	A	Yes	Ar (CaAa)	104.00 - 8.00	1	1	1.1100	1.1100		0.54
7/8	A	Yes	Ar (CaAa)	108.00 - 8.00	1	1	1.1100	1.1100		0.54
FB-L98B-002	A	Yes	Ar (CaAa)	180.00 - 8.00	1	1	0.0000	0.4000		0.25
WR-VG122ST-BRDA **********	A	Yes	Ar (CaAa)	180.00 - 8.00	2	2	0.0000	0.4000		0.25
1 1/4 cable (Sprint - proposed)	A	Yes	Ar (CaAa)	151.00 - 8.00	3	3	1.5500	1.5500		0.66

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Rohn 6'x12' Boom Gate (3)	A	None		0.0000	192.00	No Ice	49.80	49.80	1680.00
						1/2" Ice	59.30	59.30	2100.00
APX16DWV-16DWVS w/mount pipe	A	From Leg	5.00 0.00 0.00	0.0000	192.70	No Ice	10.00	6.39	40.40
						1/2" Ice	10.59	7.30	110.14

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 lb
APX16DWV-16DWVS w/mount pipe	B	From Leg	5.00 0.00 0.00	0.0000	192.70	No Ice 1/2" Ice	10.00 10.59	6.39 7.30	40.40 110.14
APX16DWV-16DWVS w/mount pipe	C	From Leg	5.00 0.00 0.00	0.0000	192.70	No Ice 1/2" Ice	10.00 10.59	6.39 7.30	40.40 110.14
Gen. TMA	A	From Leg	5.00 0.00 0.00	0.0000	191.50	No Ice 1/2" Ice	0.68 0.80	0.45 0.56	13.20 18.38
Gen. TMA	B	From Leg	5.00 0.00 0.00	0.0000	191.50	No Ice 1/2" Ice	0.68 0.80	0.45 0.56	13.20 18.38
Gen. TMA	C	From Leg	5.00 0.00 0.00	0.0000	191.50	No Ice 1/2" Ice	0.68 0.80	0.45 0.56	13.20 18.38
**********									
Omni 3"x20'	C	From Leg	5.00 0.00 0.00	0.0000	188.00	No Ice 1/2" Ice	6.00 8.03	6.00 8.03	50.00 93.17
Omni 3"x6'	B	From Leg	5.00 0.00 0.00	0.0000	181.00	No Ice 1/2" Ice	1.77 2.13	1.77 2.13	20.00 33.24
**********									
Rohn 6'x15' Boom Gate (3) (AT&T)	A	None		0.0000	179.00	No Ice 1/2" Ice	53.20 63.30	53.20 63.30	1790.00 2230.00
(2) Powerwave 7770 w/mount pipe	A	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	6.02 6.47	4.10 4.75	57.25 101.14
(2) Powerwave 7770 w/mount pipe	B	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	6.02 6.47	4.10 4.75	57.25 101.14
(2) Powerwave 7770 w/mount pipe	C	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	6.02 6.47	4.10 4.75	57.25 101.14
(2) Powerwave TT19-08BP111-001	A	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.64 0.76	0.52 0.62	16.00 21.80
(2) Powerwave TT19-08BP111-001	B	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.64 0.76	0.52 0.62	16.00 21.80
(2) Powerwave TT19-08BP111-001	C	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.64 0.76	0.52 0.62	16.00 21.80
**********									
SBNH-1D6565C w/mount pipe (AT&T)	A	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	11.69 12.40	10.29 11.81	113.11 203.89
KMW AM-X-CD-16-65-00T-RET w/mount pipe	B	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	8.50 9.15	6.30 7.48	74.05 136.21
Powerwave P65-17-XLH-RR w/mount pipe	C	From Leg	5.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	11.75 12.47	9.39 10.90	122.11 209.23
(2) Ericsson RRU	A	From Leg	4.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	2.07 2.26	1.08 1.23	44.00 58.64
(2) Ericsson RRU	B	From Leg	4.00	0.0000	180.00	No Ice	2.07	1.08	44.00

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 lb
			0.00			1/2" Ice	2.26	1.23	58.64
			0.00						
(2) Ericsson RRU	C	From Leg	4.00	0.0000	180.00	No Ice	2.07	1.08	44.00
			0.00			1/2" Ice	2.26	1.23	58.64
			0.00						
Surge Arrestor (DC6-48-60-18-8F) w/mount pipe	A	From Leg	0.50	0.0000	180.00	No Ice	2.45	2.45	38.25
			0.00			1/2" Ice	2.95	2.95	64.62
			0.00						
**********									
PiROD 15' T-Frame	A	From Leg	1.50	0.0000	168.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
PiROD 15' T-Frame	B	From Leg	1.50	0.0000	168.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
PiROD 15' T-Frame	C	From Leg	1.50	0.0000	168.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
(2) LPA-80080-4CF w/mount pipe	A	From Leg	2.50	0.0000	168.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00						
BXA-171085-8BF-EDIN w/mount pipe	A	From Leg	2.50	0.0000	168.00	No Ice	3.17	3.34	28.75
			0.00			1/2" Ice	3.54	3.95	58.78
			0.00						
BXA-70063-6CF-EDIN w/mount pipe	A	From Leg	2.50	0.0000	168.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00						
(2) LPA-80080-4CF w/mount pipe	B	From Leg	2.50	0.0000	168.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00						
BXA-171085-8BF-EDIN w/mount pipe	B	From Leg	2.50	0.0000	168.00	No Ice	3.17	3.34	28.75
			0.00			1/2" Ice	3.54	3.95	58.78
			0.00						
BXA-70063-6CF-EDIN w/mount pipe	B	From Leg	2.50	0.0000	168.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00						
(2) LPA-80080-4CF w/mount pipe	C	From Leg	2.50	0.0000	168.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00						
BXA-171085-8BF-EDIN w/mount pipe	C	From Leg	2.50	0.0000	168.00	No Ice	3.17	3.34	28.75
			0.00			1/2" Ice	3.54	3.95	58.78
			0.00						
BXA-70063-6CF-EDIN w/mount pipe	C	From Leg	2.50	0.0000	168.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00						
**********									
Rohn 6'x15' Boom Gate (3) (Sprint - existing)	A	None		0.0000	151.00	No Ice	53.20	53.20	1790.00
						1/2" Ice	63.30	63.30	2230.00
APXVSPP18-C w/mount pipe (Sprint - proposed)	A	From Leg	5.00	0.0000	151.00	No Ice	8.55	7.30	97.53
			0.00			1/2" Ice	9.18	8.32	166.61
			0.00						
APXVSPP18-C w/mount pipe (Sprint - proposed)	B	From Leg	5.00	0.0000	151.00	No Ice	8.55	7.30	97.53
			0.00			1/2" Ice	9.18	8.32	166.61
			0.00						
APXVSPP18-C w/mount pipe (Sprint - proposed)	C	From Leg	5.00	0.0000	151.00	No Ice	8.55	7.30	97.53
			0.00			1/2" Ice	9.18	8.32	166.61
			0.00						

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 lb
RRH-1900	A	From Leg	2.00	0.0000	149.00	No Ice	2.71	3.66	60.00
(Sprint - proposed)			0.00			1/2" Ice	2.95	3.92	88.32
			0.00						
RRH-1900	B	From Leg	2.00	0.0000	149.00	No Ice	2.71	3.66	60.00
(Sprint - proposed)			0.00			1/2" Ice	2.95	3.92	88.32
			0.00						
RRH-1900	C	From Leg	2.00	0.0000	149.00	No Ice	2.71	3.66	60.00
(Sprint - proposed)			0.00			1/2" Ice	2.95	3.92	88.32
			0.00						
RRH-800	A	From Leg	2.00	0.0000	153.00	No Ice	2.49	3.22	64.00
(Sprint - proposed)			0.00			1/2" Ice	2.71	3.46	91.74
			0.00						
RRH-800	B	From Leg	2.00	0.0000	153.00	No Ice	2.49	3.22	64.00
(Sprint - proposed)			0.00			1/2" Ice	2.71	3.46	91.74
			0.00						
RRH-800	C	From Leg	2.00	0.0000	153.00	No Ice	2.49	3.22	64.00
(Sprint - proposed)			0.00			1/2" Ice	2.71	3.46	91.74
			0.00						
**********									
Pirod 4' Side Mount Standoff	B	From Leg	2.00	0.0000	151.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
7' Dipole	B	From Leg	4.00	0.0000	154.50	No Ice	2.10	2.10	20.00
			0.00			1/2" Ice	2.64	2.64	35.37
			0.00						
**********									
Rohn 6'x15' Boom Gate (3)	A	None		0.0000	141.00	No Ice	53.20	53.20	1790.00
						1/2" Ice	63.30	63.30	2230.00
(4) DB844H90E-XY	A	From Leg	5.00	0.0000	142.00	No Ice	3.10	4.92	28.25
w/Mount Pipe			0.00			1/2" Ice	3.48	5.60	64.88
			0.00						
(4) DB844H90E-XY	B	From Leg	5.00	0.0000	142.00	No Ice	3.10	4.92	28.25
w/Mount Pipe			0.00			1/2" Ice	3.48	5.60	64.88
			0.00						
(4) DB844H90E-XY	C	From Leg	5.00	0.0000	142.00	No Ice	3.10	4.92	28.25
w/Mount Pipe			0.00			1/2" Ice	3.48	5.60	64.88
			0.00						
**********									
PiROD 10' Lightweight	A	From Leg	1.50	0.0000	129.00	No Ice	9.30	9.30	251.00
T-Frame			0.00			1/2" Ice	14.50	14.50	344.00
			0.00						
PiROD 10' Lightweight	B	From Leg	1.50	0.0000	129.00	No Ice	9.30	9.30	251.00
T-Frame			0.00			1/2" Ice	14.50	14.50	344.00
			0.00						
PiROD 10' Lightweight	C	From Leg	1.50	0.0000	129.00	No Ice	9.30	9.30	251.00
T-Frame			0.00			1/2" Ice	14.50	14.50	344.00
			0.00						
Kathrein 800 10504 w/mount	A	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
pipe			0.00			1/2" Ice	4.18	4.11	73.39
			0.00						
Kathrein 800 10504 w/mount	B	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
pipe			0.00			1/2" Ice	4.18	4.11	73.39
			0.00						
Kathrein 800 10504 w/mount	C	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
pipe			0.00			1/2" Ice	4.18	4.11	73.39
			0.00						
**********									

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 lb
Pirod 4' Side Mount Standoff	B	From Leg	2.00	0.0000	119.50	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
10' Dipole	B	From Leg	4.00	0.0000	124.00	No Ice	4.00	4.00	25.00
			0.00			1/2" Ice	4.97	4.97	53.13
			0.00						
**********									
1' Standoff T-Arm (6' face	A	From Leg	0.50	0.0000	115.50	No Ice	3.50	3.50	85.00
width)			0.00			1/2" Ice	4.20	4.20	110.00
			0.00						
1' Standoff T-Arm (6' face	B	From Leg	0.50	0.0000	115.50	No Ice	3.50	3.50	85.00
width)			0.00			1/2" Ice	4.20	4.20	110.00
			0.00						
1' Standoff T-Arm (6' face	C	From Leg	0.50	0.0000	115.50	No Ice	3.50	3.50	85.00
width)			0.00			1/2" Ice	4.20	4.20	110.00
			0.00						
Argus LLPX310R w/mount	A	From Leg	1.00	0.0000	116.30	No Ice	4.94	2.81	43.60
pipe			0.00			1/2" Ice	5.32	3.32	78.53
			0.00						
Argus LLPX310R w/mount	B	From Leg	1.00	0.0000	116.30	No Ice	4.94	2.81	43.60
pipe			0.00			1/2" Ice	5.32	3.32	78.53
			0.00						
Argus LLPX310R w/mount	C	From Leg	1.00	0.0000	116.30	No Ice	4.94	2.81	43.60
pipe			0.00			1/2" Ice	5.32	3.32	78.53
			0.00						
RRH	A	From Leg	1.00	0.0000	114.50	No Ice	2.79	1.69	51.00
			0.00			1/2" Ice	3.02	1.87	72.75
			0.00						
RRH	B	From Leg	1.00	0.0000	114.50	No Ice	2.79	1.69	51.00
			0.00			1/2" Ice	3.02	1.87	72.75
			0.00						
RRH	C	From Leg	1.00	0.0000	114.50	No Ice	2.79	1.69	51.00
			0.00			1/2" Ice	3.02	1.87	72.75
			0.00						
Junction Box 2'x2'	A	From Leg	0.50	0.0000	119.00	No Ice	5.60	1.40	15.00
			0.00			1/2" Ice	5.92	1.60	44.78
			0.00						
**********									
6' Yagi	C	From Leg	1.00	0.0000	113.00	No Ice	1.40	0.35	35.00
			0.00			1/2" Ice	1.88	0.48	85.85
			0.00						
3' Side Mount Standoff	B	From Leg	1.50	0.0000	104.00	No Ice	1.90	1.90	40.00
			0.00			1/2" Ice	3.30	3.30	70.00
			0.00						
GPS	B	From Leg	3.00	0.0000	105.00	No Ice	0.21	0.21	5.00
			0.00			1/2" Ice	0.32	0.32	7.52
			0.00						
Pirod 4' Side Mount Standoff	B	From Leg	2.00	0.0000	108.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
Omni 3"x20'	B	From Leg	4.00	0.0000	117.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00						
Pirod 4' Side Mount Standoff	A	From Leg	2.00	0.0000	108.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
Omni 3"x20'	A	From Leg	4.00	0.0000	117.00	No Ice	6.00	6.00	50.00

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 lb
			0.00 0.00			1/2" Ice	8.03	8.03	93.17

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 90 deg - No Ice+Guy
4	Dead+Wind 180 deg - No Ice+Guy
5	Dead+Ice+Temp+Guy
6	Dead+Wind 0 deg+Ice+Temp+Guy
7	Dead+Wind 90 deg+Ice+Temp+Guy
8	Dead+Wind 180 deg+Ice+Temp+Guy
9	Dead+Wind 0 deg - Service+Guy
10	Dead+Wind 90 deg - Service+Guy
11	Dead+Wind 180 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	6	207958.13	-60.37	-683.85
	Max. H_x	7	194192.13	137.79	610.09
	Max. H_z	3	180897.93	-116.78	673.90
	Max. M_x	1	0.00	2.05	2.98
	Max. M_z	1	0.00	2.05	2.98
	Max. Torsion	4	-37.64	17.90	-1092.37
	Min. Vert	1	101520.83	2.05	2.98
	Min. H_x	10	102631.12	-431.73	7.70
	Min. H_z	4	139928.65	17.90	-1092.37
	Min. M_x	1	0.00	2.05	2.98
	Min. M_z	1	0.00	2.05	2.98
	Min. Torsion	2	-265.91	-73.80	-594.14
Guy C @ 138 ft Elev 2 ft Azimuth 240 deg	Max. Vert	4	-4652.08	-3652.42	1501.91
	Max. H_x	4	-4652.08	-3652.42	1501.91
	Max. H_z	3	-55882.50	-42273.45	23642.70
	Min. Vert	3	-55882.50	-42273.45	23642.70
	Min. H_x	3	-55882.50	-42273.45	23642.70
	Min. H_z	4	-4652.08	-3652.42	1501.91
Guy B @ 140 ft Elev -4 ft Azimuth 120 deg	Max. Vert	3	-1324.41	671.76	680.49
	Max. H_x	2	-49399.52	35690.03	21772.81
	Max. H_z	2	-49399.52	35690.03	21772.81
	Min. Vert	2	-49399.52	35690.03	21772.81

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. H_x	3	-1324.41	671.76	680.49
	Min. H_z	3	-1324.41	671.76	680.49
Guy A @ 138 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-527.90	0.14	-270.12
	Max. H_x	9	-3416.87	0.28	-3035.46
	Max. H_z	2	-527.90	0.14	-270.12
	Min. Vert	4	-51664.47	-6.22	-44809.53
	Min. H_x	7	-26788.07	-1199.02	-23176.23
	Min. H_z	4	-51664.47	-6.22	-44809.53
Guy C @ 89 ft Elev 2 ft Azimuth 240 deg	Max. Vert	4	-2808.26	-3171.93	1476.77
	Max. H_x	4	-2808.26	-3171.93	1476.77
	Max. H_z	3	-36385.88	-36231.10	20511.96
	Min. Vert	3	-36385.88	-36231.10	20511.96
	Min. H_x	3	-36385.88	-36231.10	20511.96
	Min. H_z	4	-2808.26	-3171.93	1476.77
Guy B @ 89 ft Elev -3 ft Azimuth 120 deg	Max. Vert	3	-783.62	582.47	502.31
	Max. H_x	2	-33163.61	30713.41	18397.28
	Max. H_z	2	-33163.61	30713.41	18397.28
	Min. Vert	2	-33163.61	30713.41	18397.28
	Min. H_x	3	-783.62	582.47	502.31
	Min. H_z	3	-783.62	582.47	502.31
Guy A @ 88 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-341.88	0.17	-307.19
	Max. H_x	9	-2797.26	1.89	-3931.68
	Max. H_z	2	-341.88	0.17	-307.19
	Min. Vert	4	-34128.91	-14.66	-38698.67
	Min. H_x	7	-16620.02	-836.85	-19367.87
	Min. H_z	4	-34128.91	-14.66	-38698.67

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	101520.83	-2.05	-2.98	0.00	0.00	88.92
Dead+Wind 0 deg - No Ice+Guy	202264.58	73.80	594.14	0.00	0.00	265.91
Dead+Wind 90 deg - No Ice+Guy	180897.93	116.78	-673.90	0.00	0.00	177.21
Dead+Wind 180 deg - No Ice+Guy	139928.65	-17.90	1092.37	0.00	0.00	37.64
Dead+Ice+Temp+Guy	134515.65	-6.17	-6.53	0.00	0.00	117.09
Dead+Wind 0 deg+Ice+Temp+Guy	207958.13	60.37	683.85	0.00	0.00	264.05
Dead+Wind 90 deg+Ice+Temp+Guy	194192.13	-137.79	-610.09	0.00	0.00	153.09
Dead+Wind 180 deg+Ice+Temp+Guy	171680.43	-19.34	624.37	0.00	0.00	66.39
Dead+Wind 0 deg - Service+Guy	102375.75	4.38	-447.47	0.00	0.00	101.10

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 90 deg - Service+Guy	102631.12	431.73	-7.70	0.00	0.00	87.31
Dead+Wind 180 deg - Service+Guy	102572.43	-6.78	428.76	0.00	0.00	77.56

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	-0.00	-39129.69	0.00	-4.61	39129.29	-2.82	0.014%
2	-6.13	-39339.37	-79117.63	6.09	39339.27	79115.84	0.002%
3	78773.86	-39111.04	2.11	-78772.02	39110.92	-1.06	0.002%
4	6.13	-38919.86	78667.06	-5.28	38919.81	-78665.77	0.002%
5	-0.00	-64319.61	0.00	-4.26	64319.53	-1.68	0.007%
6	-11.82	-64703.60	-69144.19	11.75	64703.42	69141.06	0.003%
7	69045.39	-64284.11	3.73	-69043.81	64284.01	-2.77	0.002%
8	11.82	-63935.49	69030.16	-11.12	63935.45	-69028.99	0.001%
9	-1.70	-39187.81	-21916.24	1.67	39187.80	21915.66	0.001%
10	21821.01	-39124.55	0.58	-21820.32	39124.54	-0.12	0.002%
11	1.70	-39071.58	21791.43	-1.70	39071.56	-21789.55	0.004%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	193 - 180	4.011	9	0.2175	0.0122
T2	180 - 160	3.421	9	0.2048	0.0082
T3	160 - 140	2.715	9	0.0996	0.0033
T4	140 - 120	2.417	9	0.0789	0.0117
T5	120 - 100	1.986	9	0.1198	0.0215
T6	100 - 80	1.511	9	0.0847	0.0171
T7	80 - 60	1.233	9	0.0745	0.0109
T8	60 - 40	0.888	9	0.0890	0.0081
T9	40 - 20	0.523	9	0.0706	0.0045
T10	20 - 5	0.300	9	0.0657	0.0124
T11	5 - 0	0.079	9	0.0734	0.0033

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.70	APX16DWV-16DWVS w/mount pipe	9	3.997	0.2175	0.0121	73774
192.00	Rohn 6'x12' Boom Gate (3)	9	3.965	0.2176	0.0119	73774
191.50	Gen. TMA	9	3.942	0.2177	0.0118	73774
188.00	Omni 3"x20'	9	3.780	0.2173	0.0108	73774
181.00	Omni 3"x6'	9	3.465	0.2077	0.0086	29816

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	(2) Powerwave 7770 w/mount pipe	9	3.421	0.2048	0.0082	26875
179.00	Rohn 6'x15' Boom Gate (3)	9	3.378	0.2013	0.0078	24201
168.00	PiROD 15' T-Frame	9	2.946	0.1431	0.0041	10406
162.58	Guy	9	2.780	0.1121	0.0033	8190
154.50	7' Dipole	9	2.610	0.0812	0.0044	12629
153.00	RRH-800	9	2.588	0.0780	0.0049	15747
151.00	Rohn 6'x15' Boom Gate (3)	9	2.560	0.0749	0.0057	23472
149.00	RRH-1900	9	2.534	0.0731	0.0066	46081
142.00	(4) DB844H90E-XY w/Mount Pipe	9	2.446	0.0758	0.0105	19788
141.00	Rohn 6'x15' Boom Gate (3)	9	2.432	0.0773	0.0111	17335
130.00	Kathrein 800 10504 w/mount pipe	9	2.227	0.1032	0.0179	22107
129.00	PiROD 10' Lightweight T-Frame	9	2.205	0.1057	0.0184	23596
124.00	10' Dipole	9	2.086	0.1161	0.0206	35531
119.50	Pirod 4' Side Mount Standoff (1)	9	1.973	0.1199	0.0216	73583
119.00	Junction Box 2'x2'	9	1.960	0.1199	0.0217	85821
117.00	Omni 3"x20'	9	1.908	0.1189	0.0217	300315
116.30	Argus LLPX310R w/mount pipe	9	1.890	0.1183	0.0217	428387
115.50	1' Standoff T-Arm (6' face width)	9	1.869	0.1175	0.0216	170692
114.50	RRH	9	1.844	0.1161	0.0215	97194
113.00	6' Yagi	9	1.805	0.1137	0.0213	59047
108.00	Pirod 4' Side Mount Standoff (1)	9	1.681	0.1031	0.0200	25580
105.00	GPS	9	1.612	0.0958	0.0190	19089
104.00	3' Side Mount Standoff	9	1.591	0.0934	0.0186	17621
102.58	Guy	9	1.561	0.0901	0.0181	16089
42.58	Guy	9	0.562	0.0732	0.0040	20398

Section Capacity Table

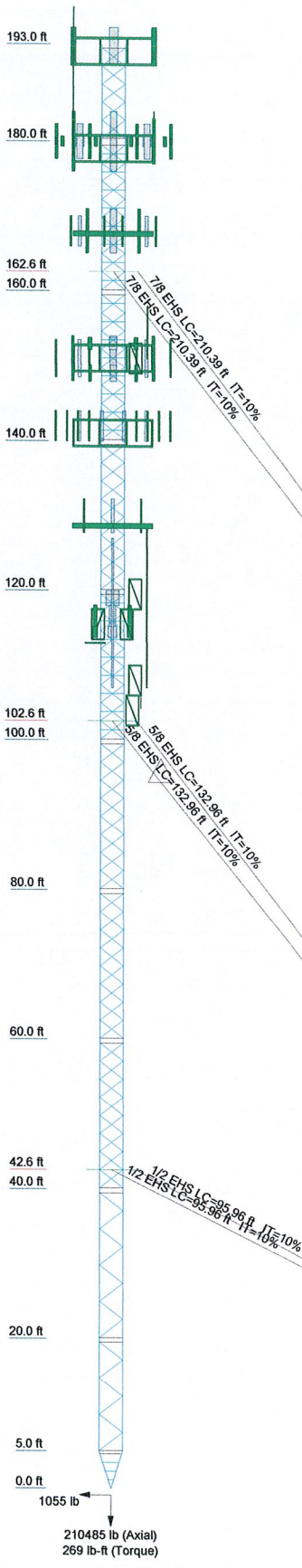
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	193 - 180	Leg	ROHN 2.5 EH	3	-19471.30	81047.33	24.0	Pass
T2	180 - 160	Leg	ROHN 2.5 EH (CT2171)	42	-103719.00	116029.65	89.4	Pass
T3	160 - 140	Leg	ROHN 2.5 EH (CT2171)	123	-91627.60	113264.47	80.9	Pass
T4	140 - 120	Leg	ROHN 2.5 EH	202	-54038.80	79142.61	68.3	Pass
T5	120 - 100	Leg	ROHN 3 EH	261	-85724.30	111519.71	76.9	Pass
T6	100 - 80	Leg	ROHN 3 EH	342	-82605.90	107836.63	76.6	Pass
T7	80 - 60	Leg	ROHN 3 EH	399	-74048.90	106135.59	69.8	Pass
T8	60 - 40	Leg	ROHN 3 EH	456	-99208.00	107237.98	92.5	Pass
T9	40 - 20	Leg	ROHN 3 EH	513	-94811.90	97239.41	97.5	Pass
T10	20 - 5	Leg	ROHN 3 EH	546	-72730.90	97239.41	74.8	Pass
T11	5 - 0	Leg	ROHN 3 EH	571	-75357.50	111241.65	67.7	Pass
T1	193 - 180	Diagonal	L2x2x1/4	14	-2884.19	19907.82	14.5	Pass
T2	180 - 160	Diagonal	L2x2x1/4	52	-13128.60	19923.55	65.9	Pass
T3	160 - 140	Diagonal	L2x2x1/4	195	-9115.38	19923.55	45.8	Pass
T4	140 - 120	Diagonal	ROHN TS1.5x11 ga	212	-3040.69	10182.92	29.9	Pass
T5	120 - 100	Diagonal	L2x2x1/4	273	-7286.21	20006.06	36.4	Pass
T6	100 - 80	Diagonal	ROHN TS1.5x16 ga	391	-3222.10	5441.12	59.2	Pass
T7	80 - 60	Diagonal	L1 3/4x1 3/4x3/16	409	-2447.22	12695.48	19.3	Pass
T8	60 - 40	Diagonal	ROHN TS1.5x11 ga	468	-5102.55	10358.18	49.3	Pass
T9	40 - 20	Diagonal	ROHN TS1.5x16 ga	543	-4427.38	5441.12	81.4	Pass
T10	20 - 5	Diagonal	ROHN TS1.5x11 ga	570	-1951.81	10358.18	18.8	Pass
T11	5 - 0	Horizontal	L4x4x1/4	583	-1195.57	39846.57	3.0	Pass
T2	180 - 160	Secondary Horizontal	L2x2x1/4	55	-7245.78	17534.28	41.3	Pass
T3	160 - 140	Secondary Horizontal	L2x2x1/4	199	2132.91	27007.65	7.9	Pass
T5	120 - 100	Secondary Horizontal	L2x2x1/4	284	5596.30	27007.65	20.7	Pass
T1	193 - 180	Top Girt	L2x2x1/4	4	-480.24	14794.57	3.2	Pass
T2	180 - 160	Top Girt	L2x2x1/4	43	-1476.82	14815.89	10.0	Pass

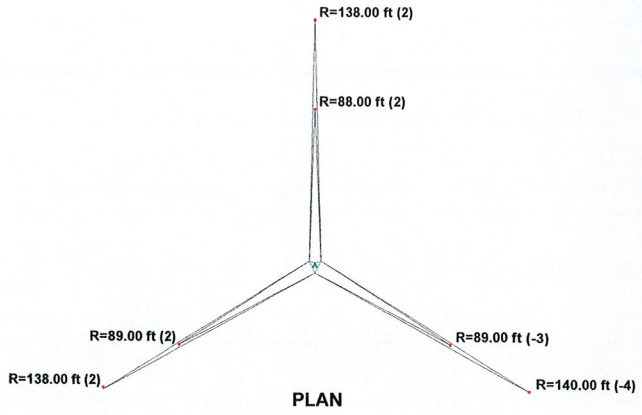
tnxTower	Job: CT23XC500 Uncasville, CT	Page: 13 of 13
Hudson Design Group, LLC 1600 Osgood Street, Building 20 North, Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 226-5586	Project: 193 ft Guyed Tower	Date: 09:39:49 02/21/13
	Client: SPRINT	Designed by: kw

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T3	160 - 140	Top Girt	ROHN TS1.5x11 ga	125	674.52	17475.90	3.9	Pass
T4	140 - 120	Top Girt	ROHN TS1.5x11 ga	205	908.95	17475.90	5.2	Pass
T5	120 - 100	Top Girt	L2x2x1/4	262	1217.82	27007.65	4.5	Pass
T6	100 - 80	Top Girt	ROHN TS1.5x16 ga	343	895.01	8826.21	10.1	Pass
T7	80 - 60	Top Girt	ROHN TS1.5x11 ga	401	966.55	17475.90	5.5	Pass
T8	60 - 40	Top Girt	ROHN TS1.5x11 ga	457	1034.86	17475.90	5.9	Pass
T9	40 - 20	Top Girt	ROHN TS1.5x16 ga	515	-1251.44	6298.60	19.9	Pass
T10	20 - 5	Top Girt	ROHN TS1.5x11 ga	549	662.42	17475.90	3.8	Pass
T11	5 - 0	Top Girt	L4x4x1/4	574	9349.53	55858.03	16.7	Pass
T1	193 - 180	Bottom Girt	L2x2x1/4	7	-1084.60	14794.57	7.3	Pass
T2	180 - 160	Bottom Girt	L2x2x1/4	46	-7564.80	14815.89	51.1	Pass
T3	160 - 140	Bottom Girt	ROHN TS1.5x11 ga	127	796.72	17475.90	4.6	Pass
T4	140 - 120	Bottom Girt	ROHN TS1.5x11 ga	209	988.80	17475.90	5.7	Pass
T5	120 - 100	Bottom Girt	L2x2x1/4	265	-2922.15	14927.87	19.6	Pass
T6	100 - 80	Bottom Girt	ROHN TS1.5x16 ga	346	559.25	8826.21	6.3	Pass
T7	80 - 60	Bottom Girt	ROHN TS1.5x11 ga	405	1042.70	17475.90	6.0	Pass
T8	60 - 40	Bottom Girt	ROHN TS1.5x11 ga	462	2145.49	17475.90	12.3	Pass
T9	40 - 20	Bottom Girt	ROHN TS1.5x16 ga	517	453.64	8826.21	5.1	Pass
T10	20 - 5	Bottom Girt	ROHN TS1.5x11 ga	550	7075.13	17475.90	40.5	Pass
T2	180 - 160	Guy A@162.583	7/8	594	34484.30	39850.00	86.5	Pass
T5	120 - 100	Guy A@102.583	5/8	606	18162.70	21200.00	85.7	Pass
T8	60 - 40	Guy A@42.5833	1/2	618	8440.20	13450.00	62.8	Pass
T2	180 - 160	Guy B@162.583	7/8	590	32776.10	39850.00	82.2	Pass
T5	120 - 100	Guy B@102.583	5/8	602	17033.70	21200.00	80.3	Pass
T8	60 - 40	Guy B@42.5833	1/2	614	8081.17	13450.00	60.1	Pass
T2	180 - 160	Guy C@162.583	7/8	586	37327.30	39850.00	93.7	Pass
T5	120 - 100	Guy C@102.583	5/8	598	19537.80	21200.00	92.2	Pass
T8	60 - 40	Guy C@42.5833	1/2	610	9006.12	13450.00	67.0	Pass
T2	180 - 160	Torque Arm Top@162.583	C15x50	593	-15015.20	168521.85	88.2	Pass
T5	120 - 100	Torque Arm Top@102.583	C15x40	605	-8163.42	147576.42	52.0	Pass
T8	60 - 40	Torque Arm Top@42.5833	C12x25	617	-5284.13	109695.76	27.1	Pass

Summary		
Leg (T9)	97.5	Pass
Diagonal (T9)	81.4	Pass
Horizontal (T11)	3.0	Pass
Secondary Horizontal (T2)	41.3	Pass
Top Girt (T9)	19.9	Pass
Bottom Girt (T2)	51.1	Pass
Guy A (T2)	86.5	Pass
Guy B (T2)	82.2	Pass
Guy C (T2)	93.7	Pass
Torque Arm Top (T2)	88.2	Pass
RATING =	**97.5**	**Pass**

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			ROHN 3 EH					ROHN 2.5 EH	ROHN 2.5 EH (CT2171)		ROHN 2.5 EH
Leg Grade			A572-50								
Diagonals	N.A.	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	L1 3/4x1 3/4x3/16	ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga	L2x2x1/4		
Diagonal Grade	N.A.		A53-B-42		A36	A53-B-42	A36	A53-B-42	A36		
Top Girts	B	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga		ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga	L2x2x1/4		
Bottom Girts	N.A.	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga		ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga	L2x2x1/4		
Horizontals	B		N.A.								
Sec. Horizontals			N.A.				L2x2x1/4	N.A.	L2x2x1/4		N.A.
Face Width (ft)											3.42
# Panels @ (ft)	C				75 @ 2.41667						
Weight (lb)	323.5	631.6	724.0	1558.3	1076.9	613.8	2468.4	852.3	1558.1	2668.1	765.5





PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN TS1.5x11 ga	C	4 @ 1.16667
B	L4x4x1/4		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 95 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 82 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 99.3%

Hudson Design Group, LLC
1600 Osgood Street, Building 20 North, Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 226-5586

Job: *CT23XC500 (Interim) Uncasville, CT*			
Project: *193 ft Guyed Tower*			
Client: SPRINT	Drawn by: kw	App'd:	
Code: TIA/EIA-222-F	Date: 03/19/13	Scale: NTS	
Path: C:\Users\lnerang\Documents\HUDSON DESIGN GROUP\AAA\CT23XC500 - GT (Print\CT23XC500 (Interim\CT23XC500 - Interim.eri		Dwg No. E-1	

tnxTower	Job: CT23XC500 (Interim) Uncasville, CT	Page: 1 of 13
Hudson Design Group, LLC 1600 Osgood Street, Building 20 North, Suite 3090 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 226-5586	Project: 193 ft Guyed Tower	Date: 14:05:11 03/19/13
	Client: SPRINT	Designed by: kw

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 193.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.42 ft at the top and tapered at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 95 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 82 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	193.00-180.00			3.42	1	13.00
T2	180.00-160.00			3.42	1	20.00
T3	160.00-140.00			3.42	1	20.00
T4	140.00-120.00			3.42	1	20.00
T5	120.00-100.00			3.42	1	20.00
T6	100.00-80.00			3.42	1	20.00
T7	80.00-60.00			3.42	1	20.00
T8	60.00-40.00			3.42	1	20.00
T9	40.00-20.00			3.42	1	20.00
T10	20.00-5.00			3.42	1	15.00
T11	5.00-0.00			3.42	1	5.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	193.00-180.00	2.42	X Brace	No	No	6.0000	5.0000
T2	180.00-160.00	2.42	X Brace	No	Yes	6.0000	2.0000
T3	160.00-140.00	2.42	X Brace	No	Yes	6.0000	2.0000
T4	140.00-120.00	2.42	CX Brace	No	No	6.0000	2.0000
T5	120.00-100.00	2.42	X Brace	No	Yes	6.0000	2.0000
T6	100.00-80.00	2.42	CX Brace	No	No	6.0000	2.0000
T7	80.00-60.00	2.42	X Brace	No	No	6.0000	2.0000
T8	60.00-40.00	2.42	CX Brace	No	No	6.0000	2.0000

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
T9	40.00-20.00	2.42	K Brace Left	No	No	6.0000	2.0000
T10	20.00-5.00	2.42	K Brace Left	No	No	5.0000	1.0000
T11	5.00-0.00	1.17	X Brace	No	Yes	4.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 193.00-180.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 180.00-160.00	Pipe	ROHN 2.5 EH (CT2171)	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 2.5 EH (CT2171)	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 120.00-100.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.00-60.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T8 60.00-40.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T9 40.00-20.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.00-5.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T11 5.00-0.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle		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 193.00-180.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 180.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T4 140.00-120.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 120.00-100.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.00-60.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T8 60.00-40.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T9 40.00-20.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.00-5.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T11 5.00-0.00	Equal Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 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
T11 5.00-0.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 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
T2 180.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T3 160.00-140.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 120.00-100.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
162.583	EHS	A	7/8	7970.00	10%	19000	1.581	210.20	138.00	0.0000	2.00	100%
		B	7/8	7970.00	10%	19000	1.581	216.08	140.00	0.0000	-4.00	100%
		C	7/8	7970.00	10%	19000	1.581	210.20	138.00	0.0000	2.00	100%
102.583	EHS	A	5/8	4240.00	10%	21000	0.813	132.20	88.00	0.0000	2.00	100%
		B	5/8	4240.00	10%	21000	0.813	136.67	89.00	0.0000	-3.00	100%
		C	5/8	4240.00	10%	21000	0.813	132.85	89.00	0.0000	2.00	100%
42.5833	EHS	A	1/2	2690.00	10%	21000	0.517	94.98	88.00	0.0000	2.00	100%
		B	1/2	2690.00	10%	21000	0.517	98.10	89.00	0.0000	-3.00	100%
		C	1/2	2690.00	10%	21000	0.517	95.88	89.00	0.0000	2.00	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
162.583	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x50
102.583	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
42.5833	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C12x25

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8	C	Yes	Ar (CaAa)	192.00 - 8.00	6	3	0.0000	1.9800		1.04
3/8	C	Yes	Ar (CaAa)	192.00 - 8.00	1	1	0.0000	0.5000		0.25
7/8	A	Yes	Ar (CaAa)	178.00 - 8.00	1	1	0.0000	1.1100		0.54
7/8	C	Yes	Ar (CaAa)	178.00 - 8.00	1	1	0.0000	1.1100		0.54
1 1/4	A	Yes	Ar (CaAa)	180.00 - 8.00	12	12	1.5500	1.5500		0.66
1 5/8	C	Yes	Ar (CaAa)	168.00 - 8.00	18	12	0.0000	1.9800		1.04
1 5/8 (Sprint)	A	Yes	Ar (CaAa)	151.00 - 8.00	6	6	0.0000	1.9800		1.04
1 5/8	A	Yes	Ar (CaAa)	151.00 - 8.00	1	1	0.0000	1.9800		1.04
1 1/4	B	Yes	Ar (CaAa)	141.00 - 8.00	12	12	1.5500	1.5500		0.66
1 5/8	B	Yes	Ar (CaAa)	129.00 - 8.00	6	6	0.0000	1.9800		1.04
1 1/4	A	Yes	Ar (CaAa)	120.00 - 8.00	1	1	1.5500	1.5500		0.66
3" conduit	C	Yes	Ar (CaAa)	115.00 - 8.00	1	1	3.5000	3.5000		3.00
1 1/4	A	Yes	Ar (CaAa)	107.00 - 8.00	1	1	1.5500	1.5500		0.66
7/8	A	Yes	Ar (CaAa)	108.00 - 8.00	1	1	1.1100	1.1100		0.54
7/8	A	Yes	Ar (CaAa)	104.00 - 8.00	1	1	1.1100	1.1100		0.54
7/8	A	Yes	Ar (CaAa)	108.00 - 8.00	1	1	1.1100	1.1100		0.54
FB-L98B-002	A	Yes	Ar (CaAa)	180.00 - 8.00	1	1	0.0000	0.4000		0.25
WR-VG122ST-BRDA **********	A	Yes	Ar (CaAa)	180.00 - 8.00	2	2	0.0000	0.4000		0.25
1 1/4 cable (Sprint - proposed)	A	Yes	Ar (CaAa)	151.00 - 8.00	3	3	1.5500	1.5500		0.66

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Rohn 6'x12' Boom Gate (3)	A	None		0.0000	192.00	No Ice	49.80	49.80	1680.00
						1/2" Ice	59.30	59.30	2100.00
APX16DWV-16DWVS w/mount pipe	A	From Leg	5.00 0.00 0.00	0.0000	192.70	No Ice	10.00	6.39	40.40
						1/2" Ice	10.59	7.30	110.14
APX16DWV-16DWVS w/mount pipe	B	From Leg	5.00 0.00 0.00	0.0000	192.70	No Ice	10.00	6.39	40.40
						1/2" Ice	10.59	7.30	110.14

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 lb
APX16DWV-16DWVS	C	From Leg	5.00	0.0000	192.70	No Ice	10.00	6.39	40.40
w/mount pipe			0.00			1/2" Ice	10.59	7.30	110.14
			0.00						
Gen. TMA	A	From Leg	5.00	0.0000	191.50	No Ice	0.68	0.45	13.20
			0.00			1/2" Ice	0.80	0.56	18.38
			0.00						
Gen. TMA	B	From Leg	5.00	0.0000	191.50	No Ice	0.68	0.45	13.20
			0.00			1/2" Ice	0.80	0.56	18.38
			0.00						
Gen. TMA	C	From Leg	5.00	0.0000	191.50	No Ice	0.68	0.45	13.20
			0.00			1/2" Ice	0.80	0.56	18.38
			0.00						
**********									
Omni 3"x20'	C	From Leg	5.00	0.0000	188.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00						
Omni 3"x6'	B	From Leg	5.00	0.0000	181.00	No Ice	1.77	1.77	20.00
			0.00			1/2" Ice	2.13	2.13	33.24
			0.00						
**********									
Rohn 6'x15' Boom Gate (3)	A	None		0.0000	179.00	No Ice	53.20	53.20	1790.00
(AT&T)						1/2" Ice	63.30	63.30	2230.00
(2) Powerwave 7770 w/mount	A	From Leg	5.00	0.0000	180.00	No Ice	6.02	4.10	57.25
pipe			0.00			1/2" Ice	6.47	4.75	101.14
			0.00						
(2) Powerwave 7770 w/mount	B	From Leg	5.00	0.0000	180.00	No Ice	6.02	4.10	57.25
pipe			0.00			1/2" Ice	6.47	4.75	101.14
			0.00						
(2) Powerwave 7770 w/mount	C	From Leg	5.00	0.0000	180.00	No Ice	6.02	4.10	57.25
pipe			0.00			1/2" Ice	6.47	4.75	101.14
			0.00						
(2) Powerwave	A	From Leg	5.00	0.0000	180.00	No Ice	0.64	0.52	16.00
TT19-08BP111-001			0.00			1/2" Ice	0.76	0.62	21.80
			0.00						
(2) Powerwave	B	From Leg	5.00	0.0000	180.00	No Ice	0.64	0.52	16.00
TT19-08BP111-001			0.00			1/2" Ice	0.76	0.62	21.80
			0.00						
(2) Powerwave	C	From Leg	5.00	0.0000	180.00	No Ice	0.64	0.52	16.00
TT19-08BP111-001			0.00			1/2" Ice	0.76	0.62	21.80
			0.00						
**********									
SBNH-1D6565C w/mount	A	From Leg	5.00	0.0000	180.00	No Ice	11.69	10.29	113.11
pipe			0.00			1/2" Ice	12.40	11.81	203.89
(AT&T)			0.00						
KMW	B	From Leg	5.00	0.0000	180.00	No Ice	8.50	6.30	74.05
AM-X-CD-16-65-00T-RET			0.00			1/2" Ice	9.15	7.48	136.21
w/mount pipe			0.00						
Powerwave P65-17-XLH-RR	C	From Leg	5.00	0.0000	180.00	No Ice	11.75	9.39	122.11
w/mount pipe			0.00			1/2" Ice	12.47	10.90	209.23
			0.00						
(2) Ericsson RRU	A	From Leg	4.00	0.0000	180.00	No Ice	2.07	1.08	44.00
			0.00			1/2" Ice	2.26	1.23	58.64
			0.00						
(2) Ericsson RRU	B	From Leg	4.00	0.0000	180.00	No Ice	2.07	1.08	44.00
			0.00			1/2" Ice	2.26	1.23	58.64
			0.00						
(2) Ericsson RRU	C	From Leg	4.00	0.0000	180.00	No Ice	2.07	1.08	44.00

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 lb
			0.00			1/2" Ice	2.26	1.23	58.64
			0.00						
Surge Arrestor	A	From Leg	0.50	0.0000	180.00	No Ice	2.45	2.45	38.25
(DC6-48-60-18-8F) w/mount pipe			0.00			1/2" Ice	2.95	2.95	64.62
**********			0.00						
PiROD 15' T-Frame	A	From Leg	1.50	0.0000	168.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
PiROD 15' T-Frame	B	From Leg	1.50	0.0000	168.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
PiROD 15' T-Frame	C	From Leg	1.50	0.0000	168.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
(2) LPA-80080-4CF w/mount pipe	A	From Leg	2.50	0.0000	168.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00						
BXA-171085-8BF-EDIN w/mount pipe	A	From Leg	2.50	0.0000	168.00	No Ice	3.17	3.34	28.75
			0.00			1/2" Ice	3.54	3.95	58.78
			0.00						
BXA-70063-6CF-EDIN w/mount pipe	A	From Leg	2.50	0.0000	168.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00						
(2) LPA-80080-4CF w/mount pipe	B	From Leg	2.50	0.0000	168.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00						
BXA-171085-8BF-EDIN w/mount pipe	B	From Leg	2.50	0.0000	168.00	No Ice	3.17	3.34	28.75
			0.00			1/2" Ice	3.54	3.95	58.78
			0.00						
BXA-70063-6CF-EDIN w/mount pipe	B	From Leg	2.50	0.0000	168.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00						
(2) LPA-80080-4CF w/mount pipe	C	From Leg	2.50	0.0000	168.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00						
BXA-171085-8BF-EDIN w/mount pipe	C	From Leg	2.50	0.0000	168.00	No Ice	3.17	3.34	28.75
			0.00			1/2" Ice	3.54	3.95	58.78
			0.00						
BXA-70063-6CF-EDIN w/mount pipe	C	From Leg	2.50	0.0000	168.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00						
**********									
Rohn 6'x15' Boom Gate (3) (Sprint - existing)	A	None		0.0000	151.00	No Ice	53.20	53.20	1790.00
						1/2" Ice	63.30	63.30	2230.00
(2) DB980H90E-M w/Mount Pipe	A	From Leg	5.00	0.0000	151.00	No Ice	4.27	3.86	34.05
			0.00			1/2" Ice	4.86	4.95	69.84
(Sprint - existing)			0.00						
(2) DB980H90E-M w/Mount Pipe	B	From Leg	5.00	0.0000	151.00	No Ice	4.27	3.86	34.05
			0.00			1/2" Ice	4.86	4.95	69.84
(Sprint - existing)			0.00						
(2) DB980H90E-M w/Mount Pipe	C	From Leg	5.00	0.0000	151.00	No Ice	4.27	3.86	34.05
			0.00			1/2" Ice	4.86	4.95	69.84
(Sprint - existing)			0.00						
APXVSPP18-C w/mount pipe	A	From Leg	5.00	0.0000	151.00	No Ice	8.55	7.30	97.53
			0.00			1/2" Ice	9.18	8.32	166.61
(Sprint - proposed)			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
APXVSPP18-C w/mount pipe	B	From Leg	5.00 0.00	0.0000	151.00	No Ice 1/2" Ice	8.55 9.18	7.30 8.32	97.53 166.61
(Sprint - proposed)			0.00						
APXVSPP18-C w/mount pipe	C	From Leg	5.00 0.00	0.0000	151.00	No Ice 1/2" Ice	8.55 9.18	7.30 8.32	97.53 166.61
(Sprint - proposed)			0.00						
RRH-1900	A	From Leg	2.00	0.0000	149.00	No Ice	2.71	3.66	60.00
(Sprint - proposed)			0.00 0.00			1/2" Ice	2.95	3.92	88.32
RRH-1900	B	From Leg	2.00	0.0000	149.00	No Ice	2.71	3.66	60.00
(Sprint - proposed)			0.00 0.00			1/2" Ice	2.95	3.92	88.32
RRH-1900	C	From Leg	2.00	0.0000	149.00	No Ice	2.71	3.66	60.00
(Sprint - proposed)			0.00 0.00			1/2" Ice	2.95	3.92	88.32
RRH-800	A	From Leg	2.00	0.0000	153.00	No Ice	2.49	3.22	64.00
(Sprint - proposed)			0.00 0.00			1/2" Ice	2.71	3.46	91.74
RRH-800	B	From Leg	2.00	0.0000	153.00	No Ice	2.49	3.22	64.00
(Sprint - proposed)			0.00 0.00			1/2" Ice	2.71	3.46	91.74
RRH-800	C	From Leg	2.00	0.0000	153.00	No Ice	2.49	3.22	64.00
(Sprint - proposed)			0.00 0.00			1/2" Ice	2.71	3.46	91.74
**********									
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	151.00	No Ice	2.72	2.72	50.00
			0.00 0.00			1/2" Ice	4.91	4.91	89.00
7' Dipole	B	From Leg	4.00	0.0000	154.50	No Ice	2.10	2.10	20.00
			0.00 0.00			1/2" Ice	2.64	2.64	35.37
**********									
Rohn 6'x15' Boom Gate (3)	A	None		0.0000	141.00	No Ice	53.20	53.20	1790.00
						1/2" Ice	63.30	63.30	2230.00
(4) DB844H90E-XY w/Mount Pipe	A	From Leg	5.00	0.0000	142.00	No Ice	3.10	4.92	28.25
			0.00 0.00			1/2" Ice	3.48	5.60	64.88
(4) DB844H90E-XY w/Mount Pipe	B	From Leg	5.00	0.0000	142.00	No Ice	3.10	4.92	28.25
			0.00 0.00			1/2" Ice	3.48	5.60	64.88
(4) DB844H90E-XY w/Mount Pipe	C	From Leg	5.00	0.0000	142.00	No Ice	3.10	4.92	28.25
			0.00 0.00			1/2" Ice	3.48	5.60	64.88
**********									
PiROD 10' Lightweight T-Frame	A	From Leg	1.50	0.0000	129.00	No Ice	9.30	9.30	251.00
			0.00 0.00			1/2" Ice	14.50	14.50	344.00
PiROD 10' Lightweight T-Frame	B	From Leg	1.50	0.0000	129.00	No Ice	9.30	9.30	251.00
			0.00 0.00			1/2" Ice	14.50	14.50	344.00
PiROD 10' Lightweight T-Frame	C	From Leg	1.50	0.0000	129.00	No Ice	9.30	9.30	251.00
			0.00 0.00			1/2" Ice	14.50	14.50	344.00
Kathrein 800 10504 w/mount pipe	A	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
			0.00 0.00			1/2" Ice	4.18	4.11	73.39
Kathrein 800 10504 w/mount	B	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
pipe			0.00			1/2" Ice	4.18	4.11	73.39
			0.00						
Kathrein 800 10504 w/mount pipe	C	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
			0.00			1/2" Ice	4.18	4.11	73.39
			0.00						
**********									
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	119.50	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
10' Dipole	B	From Leg	4.00	0.0000	124.00	No Ice	4.00	4.00	25.00
			0.00			1/2" Ice	4.97	4.97	53.13
			0.00						
**********									
1' Standoff T-Arm (6' face width)	A	From Leg	0.50	0.0000	115.50	No Ice	3.50	3.50	85.00
			0.00			1/2" Ice	4.20	4.20	110.00
			0.00						
1' Standoff T-Arm (6' face width)	B	From Leg	0.50	0.0000	115.50	No Ice	3.50	3.50	85.00
			0.00			1/2" Ice	4.20	4.20	110.00
			0.00						
1' Standoff T-Arm (6' face width)	C	From Leg	0.50	0.0000	115.50	No Ice	3.50	3.50	85.00
			0.00			1/2" Ice	4.20	4.20	110.00
			0.00						
Argus LLPX310R w/mount pipe	A	From Leg	1.00	0.0000	116.30	No Ice	4.94	2.81	43.60
			0.00			1/2" Ice	5.32	3.32	78.53
			0.00						
Argus LLPX310R w/mount pipe	B	From Leg	1.00	0.0000	116.30	No Ice	4.94	2.81	43.60
			0.00			1/2" Ice	5.32	3.32	78.53
			0.00						
Argus LLPX310R w/mount pipe	C	From Leg	1.00	0.0000	116.30	No Ice	4.94	2.81	43.60
			0.00			1/2" Ice	5.32	3.32	78.53
			0.00						
RRH	A	From Leg	1.00	0.0000	114.50	No Ice	2.79	1.69	51.00
			0.00			1/2" Ice	3.02	1.87	72.75
			0.00						
RRH	B	From Leg	1.00	0.0000	114.50	No Ice	2.79	1.69	51.00
			0.00			1/2" Ice	3.02	1.87	72.75
			0.00						
RRH	C	From Leg	1.00	0.0000	114.50	No Ice	2.79	1.69	51.00
			0.00			1/2" Ice	3.02	1.87	72.75
			0.00						
Junction Box 2'x2'	A	From Leg	0.50	0.0000	119.00	No Ice	5.60	1.40	15.00
			0.00			1/2" Ice	5.92	1.60	44.78
			0.00						
**********									
6' Yagi	C	From Leg	1.00	0.0000	113.00	No Ice	1.40	0.35	35.00
			0.00			1/2" Ice	1.88	0.48	85.85
			0.00						
3' Side Mount Standoff	B	From Leg	1.50	0.0000	104.00	No Ice	1.90	1.90	40.00
			0.00			1/2" Ice	3.30	3.30	70.00
			0.00						
GPS	B	From Leg	3.00	0.0000	105.00	No Ice	0.21	0.21	5.00
			0.00			1/2" Ice	0.32	0.32	7.52
			0.00						
Pirod 4' Side Mount Standoff (1)	B	From Leg	2.00	0.0000	108.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
Omni 3"x20'	B	From Leg	4.00	0.0000	117.00	No Ice	6.00	6.00	50.00

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 lb
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00						
Pirod 4' Side Mount Standoff (1)	A	From Leg	2.00	0.0000	108.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00						
Omni 3"x20'	A	From Leg	4.00	0.0000	117.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00						

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 90 deg - No Ice+Guy
4	Dead+Wind 180 deg - No Ice+Guy
5	Dead+Ice+Temp+Guy
6	Dead+Wind 0 deg+Ice+Temp+Guy
7	Dead+Wind 90 deg+Ice+Temp+Guy
8	Dead+Wind 180 deg+Ice+Temp+Guy
9	Dead+Wind 0 deg - Service+Guy
10	Dead+Wind 90 deg - Service+Guy
11	Dead+Wind 180 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	6	210485.12	-62.88	-767.67
	Max. H_x	7	196291.02	199.82	634.12
	Max. H_z	3	183163.44	-39.79	703.07
	Max. M_x	1	0.00	1.98	2.93
	Max. M_z	1	0.00	1.98	2.93
	Max. Torsion	4	-38.27	18.38	-1054.56
	Min. Vert	1	101725.38	1.98	2.93
	Min. H_x	10	102886.91	-425.21	8.24
	Min. H_z	4	141106.18	18.38	-1054.56
	Min. M_x	1	0.00	1.98	2.93
	Min. M_z	1	0.00	1.98	2.93
	Min. Torsion	2	-268.56	-76.81	-697.97
Guy C @ 138 ft Elev 2 ft Azimuth 240 deg	Max. Vert	4	-4588.82	-3606.09	1474.83
	Max. H_x	4	-4588.82	-3606.09	1474.83
	Max. H_z	3	-56872.92	-43023.86	24054.09
	Min. Vert	3	-56872.92	-43023.86	24054.09
	Min. H_x	3	-56872.92	-43023.86	24054.09
	Min. H_z	4	-4588.82	-3606.09	1474.83

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy B @ 140 ft Elev -4 ft Azimuth 120 deg	Max. Vert	3	-1303.57	656.88	671.71
	Max. H_x	2	-50293.93	36332.07	22169.47
	Max. H_z	2	-50293.93	36332.07	22169.47
	Min. Vert	2	-50293.93	36332.07	22169.47
	Min. H_x	3	-1303.57	656.88	671.71
	Min. H_z	3	-1303.57	656.88	671.71
Guy A @ 138 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-519.71	0.14	-263.36
	Max. H_x	9	-3282.55	0.28	-2921.73
	Max. H_z	2	-519.71	0.14	-263.36
	Min. Vert	4	-52469.11	-6.43	-45503.06
	Min. H_x	7	-27196.50	-1208.82	-23525.42
	Min. H_z	4	-52469.11	-6.43	-45503.06
Guy C @ 89 ft Elev 2 ft Azimuth 240 deg	Max. Vert	4	-2782.96	-3153.45	1466.27
	Max. H_x	4	-2782.96	-3153.45	1466.27
	Max. H_z	3	-36796.57	-36542.80	20685.75
	Min. Vert	3	-36796.57	-36542.80	20685.75
	Min. H_x	3	-36796.57	-36542.80	20685.75
	Min. H_z	4	-2782.96	-3153.45	1466.27
Guy B @ 89 ft Elev -3 ft Azimuth 120 deg	Max. Vert	3	-775.44	576.38	498.72
	Max. H_x	2	-33532.45	30980.81	18558.43
	Max. H_z	2	-33532.45	30980.81	18558.43
	Min. Vert	2	-33532.45	30980.81	18558.43
	Min. H_x	3	-775.44	576.38	498.72
	Min. H_z	3	-775.44	576.38	498.72
Guy A @ 88 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-338.29	0.17	-304.04
	Max. H_x	9	-2728.72	1.86	-3876.18
	Max. H_z	2	-338.29	0.17	-304.04
	Min. Vert	4	-34477.28	-14.76	-38988.91
	Min. H_x	7	-16774.56	-838.12	-19507.07
	Min. H_z	4	-34477.28	-14.76	-38988.91

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	101725.38	-1.98	-2.93	0.00	0.00	89.11
Dead+Wind 0 deg - No Ice+Guy	204946.60	76.81	697.97	0.00	0.00	268.56
Dead+Wind 90 deg - No Ice+Guy	183163.44	39.79	-703.07	0.00	0.00	181.65
Dead+Wind 180 deg - No Ice+Guy	141106.18	-18.38	1054.56	0.00	0.00	38.27
Dead+Ice+Temp+Guy	134909.38	-6.16	-6.53	0.00	0.00	117.46
Dead+Wind 0 deg+Ice+Temp+Guy	210485.12	62.88	767.67	0.00	0.00	266.51
Dead+Wind 90	196291.02	-199.82	-634.12	0.00	0.00	157.48

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
deg+Ice+Temp+Guy Dead+Wind 180	172821.99	-19.73	593.78	0.00	0.00	67.08
deg+Ice+Temp+Guy Dead+Wind 0 deg - Service+Guy	102664.92	4.66	-440.31	0.00	0.00	101.43
Dead+Wind 90 deg - Service+Guy	102886.91	425.21	-8.24	0.00	0.00	87.53
Dead+Wind 180 deg - Service+Guy	102806.21	-6.97	422.82	0.00	0.00	77.75

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-39333.99	0.00	-1.75	39333.95	-1.03	0.005%
2	-6.13	-39543.67	-80138.75	6.09	39543.56	80136.90	0.002%
3	79794.98	-39315.33	2.11	-79793.08	39315.21	-1.03	0.002%
4	6.13	-39124.16	79688.18	-5.19	39124.10	-79686.83	0.002%
5	-0.00	-64738.66	0.00	-4.27	64738.58	-1.69	0.007%
6	-11.82	-65122.65	-70030.62	11.78	65122.56	70029.02	0.002%
7	69931.81	-64703.15	3.73	-69930.17	64703.05	-2.74	0.002%
8	11.82	-64354.54	69916.59	-11.05	64354.49	-69915.36	0.002%
9	-1.70	-39392.11	-22199.10	1.67	39392.09	22198.41	0.002%
10	22103.87	-39328.85	0.58	-22103.10	39328.84	-0.07	0.002%
11	1.70	-39275.88	22074.29	-1.70	39275.86	-22072.35	0.004%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	193 - 180	4.067	9	0.2154	0.0122
T2	180 - 160	3.482	9	0.2026	0.0082
T3	160 - 140	2.786	9	0.0977	0.0034
T4	140 - 120	2.487	9	0.0817	0.0118
T5	120 - 100	2.034	9	0.1258	0.0216
T6	100 - 80	1.535	9	0.0893	0.0171
T7	80 - 60	1.242	9	0.0771	0.0109
T8	60 - 40	0.889	9	0.0902	0.0082
T9	40 - 20	0.521	9	0.0709	0.0045
T10	20 - 5	0.298	9	0.0655	0.0124
T11	5 - 0	0.079	9	0.0731	0.0033

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.70	APX16DWV-16DWVS w/mount	9	4.053	0.2154	0.0121	72500

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	pipe					
192.00	Rohn 6'x12' Boom Gate (3)	9	4.021	0.2155	0.0119	72500
191.50	Gen. TMA	9	3.998	0.2156	0.0117	72500
188.00	Omni 3"x20'	9	3.838	0.2152	0.0107	72500
181.00	Omni 3"x6'	9	3.526	0.2056	0.0085	29376
180.00	(2) Powerwave 7770 w/mount pipe	9	3.482	0.2026	0.0082	26530
179.00	Rohn 6'x15' Boom Gate (3)	9	3.439	0.1992	0.0078	23949
168.00	PiROD 15' T-Frame	9	3.013	0.1407	0.0041	10489
162.58	Guy	9	2.849	0.1099	0.0034	8284
154.50	7' Dipole	9	2.682	0.0802	0.0045	13111
153.00	RRH-800	9	2.660	0.0774	0.0051	16594
151.00	Rohn 6'x15' Boom Gate (3)	9	2.632	0.0748	0.0059	25699
149.00	RRH-1900	9	2.607	0.0735	0.0068	56940
142.00	(4) DB844H90E-XY w/Mount Pipe	9	2.517	0.0781	0.0106	17791
141.00	Rohn 6'x15' Boom Gate (3)	9	2.502	0.0798	0.0112	15759
130.00	Kathrein 800 10504 w/mount pipe	9	2.288	0.1082	0.0179	20676
129.00	PiROD 10' Lightweight T-Frame	9	2.264	0.1109	0.0184	22117
124.00	10' Dipole	9	2.140	0.1218	0.0206	33912
119.50	Pirod 4' Side Mount Standoff (1)	9	2.020	0.1259	0.0216	72695
119.00	Junction Box 2'x2'	9	2.007	0.1259	0.0217	85293
117.00	Omni 3"x20'	9	1.952	0.1250	0.0218	323327
116.30	Argus LLPX310R w/mount pipe	9	1.933	0.1244	0.0217	346749
115.50	1' Standoff T-Arm (6' face width)	9	1.912	0.1235	0.0217	153697
114.50	RRH	9	1.885	0.1221	0.0216	90449
113.00	6' Yagi	9	1.844	0.1196	0.0214	55922
108.00	Pirod 4' Side Mount Standoff (1)	9	1.714	0.1086	0.0201	24609
105.00	GPS	9	1.642	0.1010	0.0190	18420
104.00	3' Side Mount Standoff	9	1.619	0.0985	0.0187	17015
102.58	Guy	9	1.587	0.0951	0.0181	15546
42.58	Guy	9	0.560	0.0736	0.0040	20168

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	193 - 180	Leg	ROHN 2.5 EH	3	-19472.00	81047.33	24.0	Pass
T2	180 - 160	Leg	ROHN 2.5 EH (CT2171)	42	-103774.00	116029.65	89.4	Pass
T3	160 - 140	Leg	ROHN 2.5 EH (CT2171)	123	-90934.90	113243.68	80.3	Pass
T4	140 - 120	Leg	ROHN 2.5 EH	202	-56334.60	79217.92	71.1	Pass
T5	120 - 100	Leg	ROHN 3 EH	261	-87829.00	111625.14	78.7	Pass
T6	100 - 80	Leg	ROHN 3 EH	342	-84741.30	107913.41	78.5	Pass
T7	80 - 60	Leg	ROHN 3 EH	399	-76091.50	106251.43	71.6	Pass
T8	60 - 40	Leg	ROHN 3 EH	456	-101086.00	107297.97	94.2	Pass
T9	40 - 20	Leg	ROHN 3 EH	513	-96606.10	97239.41	99.3	Pass
T10	20 - 5	Leg	ROHN 3 EH	546	-74087.80	97239.41	76.2	Pass
T11	5 - 0	Leg	ROHN 3 EH	571	-76202.70	111282.56	68.5	Pass
T1	193 - 180	Diagonal	L2x2x1/4	14	-2884.29	19907.82	14.5	Pass
T2	180 - 160	Diagonal	L2x2x1/4	52	-13570.60	19923.55	68.1	Pass
T3	160 - 140	Diagonal	L2x2x1/4	195	-9446.15	19923.55	47.4	Pass
T4	140 - 120	Diagonal	ROHN TS1.5x11 ga	212	-3205.31	10182.92	31.5	Pass
T5	120 - 100	Diagonal	L2x2x1/4	273	-7351.77	20006.06	36.7	Pass
T6	100 - 80	Diagonal	ROHN TS1.5x16 ga	391	-3223.04	5441.12	59.2	Pass
T7	80 - 60	Diagonal	L1 3/4x1 3/4x3/16	409	-2460.58	12695.48	19.4	Pass
T8	60 - 40	Diagonal	ROHN TS1.5x11 ga	468	-5110.79	10358.18	49.3	Pass
T9	40 - 20	Diagonal	ROHN TS1.5x16 ga	543	-4478.41	5441.12	82.3	Pass
T10	20 - 5	Diagonal	ROHN TS1.5x11 ga	570	-2015.54	10358.18	19.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T11	5 - 0	Horizontal	L4x4x1/4	583	-1209.31	39846.57	3.0	Pass
T2	180 - 160	Secondary Horizontal	L2x2x1/4	55	-7339.86	17534.28	41.9	Pass
T3	160 - 140	Secondary Horizontal	L2x2x1/4	200	2132.21	27007.65	7.9	Pass
T5	120 - 100	Secondary Horizontal	L2x2x1/4	284	5694.78	27007.65	21.1	Pass
T1	193 - 180	Top Girt	L2x2x1/4	4	-480.20	14794.57	3.2	Pass
T2	180 - 160	Top Girt	L2x2x1/4	43	-1477.99	14815.89	10.0	Pass
T3	160 - 140	Top Girt	ROHN TS1.5x11 ga	125	696.29	17475.90	4.0	Pass
T4	140 - 120	Top Girt	ROHN TS1.5x11 ga	205	982.58	17475.90	5.6	Pass
T5	120 - 100	Top Girt	L2x2x1/4	262	1262.25	27007.65	4.7	Pass
T6	100 - 80	Top Girt	ROHN TS1.5x16 ga	343	908.07	8826.21	10.3	Pass
T7	80 - 60	Top Girt	ROHN TS1.5x11 ga	401	985.72	17475.90	5.6	Pass
T8	60 - 40	Top Girt	ROHN TS1.5x11 ga	457	1032.89	17475.90	5.9	Pass
T9	40 - 20	Top Girt	ROHN TS1.5x16 ga	515	-1259.39	6298.60	20.0	Pass
T10	20 - 5	Top Girt	ROHN TS1.5x11 ga	549	681.57	17475.90	3.9	Pass
T11	5 - 0	Top Girt	L4x4x1/4	574	9450.88	55858.03	16.9	Pass
T1	193 - 180	Bottom Girt	L2x2x1/4	7	-1085.71	14794.57	7.3	Pass
T2	180 - 160	Bottom Girt	L2x2x1/4	46	-7785.24	14815.89	52.5	Pass
T3	160 - 140	Bottom Girt	ROHN TS1.5x11 ga	127	801.31	17475.90	4.6	Pass
T4	140 - 120	Bottom Girt	ROHN TS1.5x11 ga	209	1016.01	17475.90	5.8	Pass
T5	120 - 100	Bottom Girt	L2x2x1/4	265	-2958.62	14927.87	19.8	Pass
T6	100 - 80	Bottom Girt	ROHN TS1.5x16 ga	346	558.53	8826.21	6.3	Pass
T7	80 - 60	Bottom Girt	ROHN TS1.5x11 ga	405	1060.06	17475.90	6.1	Pass
T8	60 - 40	Bottom Girt	ROHN TS1.5x11 ga	462	2153.60	17475.90	12.3	Pass
T9	40 - 20	Bottom Girt	ROHN TS1.5x16 ga	517	464.28	8826.21	5.3	Pass
T10	20 - 5	Bottom Girt	ROHN TS1.5x11 ga	550	7155.54	17475.90	40.9	Pass
T2	180 - 160	Guy A@162.583	7/8	594	35015.70	39850.00	87.9	Pass
T5	120 - 100	Guy A@102.583	5/8	606	18399.90	21200.00	86.8	Pass
T8	60 - 40	Guy A@42.5833	1/2	618	8429.38	13450.00	62.7	Pass
T2	180 - 160	Guy B@162.583	7/8	590	33338.40	39850.00	83.7	Pass
T5	120 - 100	Guy B@102.583	5/8	602	17303.70	21200.00	81.6	Pass
T8	60 - 40	Guy B@42.5833	1/2	614	8089.73	13450.00	60.1	Pass
T2	180 - 160	Guy C@162.583	7/8	586	37966.20	39850.00	95.3	Pass
T5	120 - 100	Guy C@102.583	5/8	598	19834.70	21200.00	93.6	Pass
T8	60 - 40	Guy C@42.5833	1/2	610	9006.03	13450.00	67.0	Pass
T2	180 - 160	Torque Arm Top@162.583	C15x50	593	-15321.30	168521.85	89.7	Pass
T5	120 - 100	Torque Arm Top@102.583	C15x40	605	-8279.04	147576.42	52.8	Pass
T8	60 - 40	Torque Arm Top@42.5833	C12x25	617	-5279.20	109695.76	27.1	Pass

Summary		
Leg (T9)	99.3	Pass
Diagonal (T9)	82.3	Pass
Horizontal (T11)	3.0	Pass
Secondary Horizontal (T2)	41.9	Pass
Top Girt (T9)	20.0	Pass
Bottom Girt (T2)	52.5	Pass
Guy A (T2)	87.9	Pass
Guy B (T2)	83.7	Pass
Guy C (T2)	95.3	Pass
Torque Arm Top (T2)	89.7	Pass
RATING =	**99.3**	**Pass**

DATE: 2/21/2013
Project Name: CT23XC500
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Design By: KW Chk'd By: Page 1 of 4

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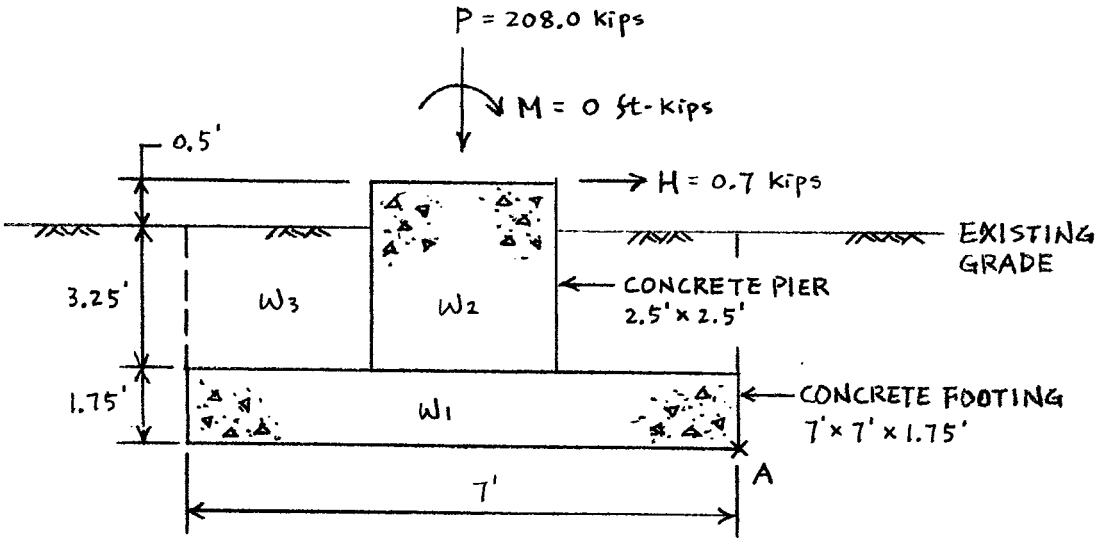
FOUNDATION ANALYSIS (TOWER MAST)



FOUNDATION INFORMATION ARE BASED ON STRUCTURAL ANALYSIS REPORT BY CENTEK ENGINEERING, DATED 12/8/2011.

$\gamma_{CONC.}$ = 150 pcf

γ_{SOIL} = 125 pcf

$\gamma_{sub.}$ = 60 pcf

k_a = 0.31

k_p = 3.25

ALLOWABLE BEARING PRESSURE = 6 ksf

GROUND WATER LEVEL IS 5.5 ft BELOW GRADE

MAXIMUM REACTIONS AT TOWER BASE

P = 208.0 kips

H = 0.7 kips

M = 0 ft-kips

DATE: 2/21/2013
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Design By: KW Chk'd By: Page 2 of 4

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NEGLECT SOIL PRESSURE & HORIZONTAL REACTION

$W_1 = 0.15 \times 7 \times 7 \times 1.75 = 12.9$ kips

$W_2 = 0.15 \times 2.5 \times 2.5 \times 3.75 = 3.5$ kips

$W_3 = 0.125 \times (7 \times 7 - 2.5 \times 2.5) \times 3.25 = 17.4$ kips

$\Sigma W = 33.8$ kips

$$\text{F.S. (SLIDING)} = \frac{0.45 \times (208.0 + 33.8)}{0.7} = 155.4 \quad \text{OK}$$

$$\text{BEARING PRESSURE} = \frac{208.0 + 33.8}{7 \times 7} = 4.93 \text{ ksf} \quad \text{OK}$$

157132

DATE: 2/21/2013
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Project No.:
Design By: KW Chk'd By: Page 3 of 4

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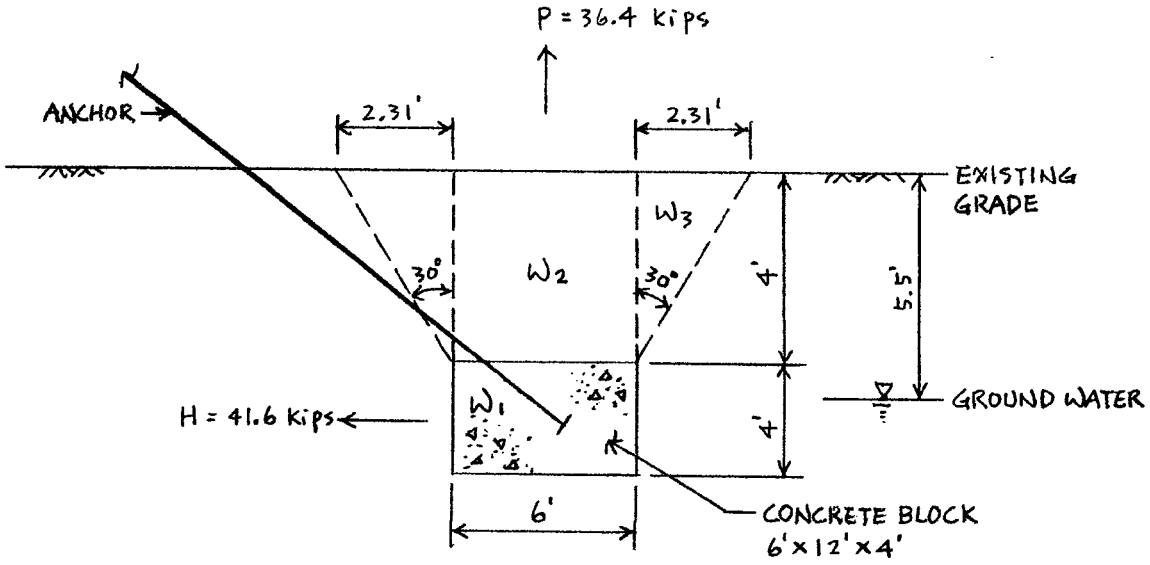
GUY ANCHOR (INNER)



MAXIMUM REACTIONS AT GUY ANCHOR

P = 36.4 kips

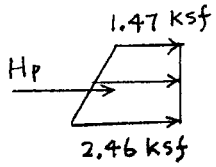
H = 41.6 kips

$W_1 = 0.15 \times 6 \times 12 \times 1.5 + 0.088 \times 6 \times 12 \times 2.5 = 32.0$ kips

$W_2 = 0.125 \times 6 \times 12 \times 4 = 36.0$ kips

$W_3 = 0.125 \times (8.31 \times 14.31 - 6 \times 12) \times 4 = 23.5$ kips $\quad \Sigma W = 91.5$ kips

SOIL PRESSURE



$Hp = \frac{1}{2} \times (1.47 + 2.46) \times 4 \times 12 = 94.3$ kips

$$F.S.\ (SLIDING) = \frac{0.45 \times (91.5 - 36.4) + 94.3}{41.6} = 2.9 \quad OK$$

CHECK UPLIFT

$$\frac{W_R}{2} + \frac{W_c}{1.25} = \frac{59.5}{2} + \frac{32.0}{1.25} = 55.4 \text{ kips} > 36.4 \text{ kips} \quad OK$$

$$\frac{W_R + W_c}{1.5} = \frac{91.5}{1.5} = 61 \text{ kips} > 36.4 \text{ kips} \quad OK$$

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DATE: 2/21/2013
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Project No.:
Design By: KW Chk'd By: Page 4 of 4

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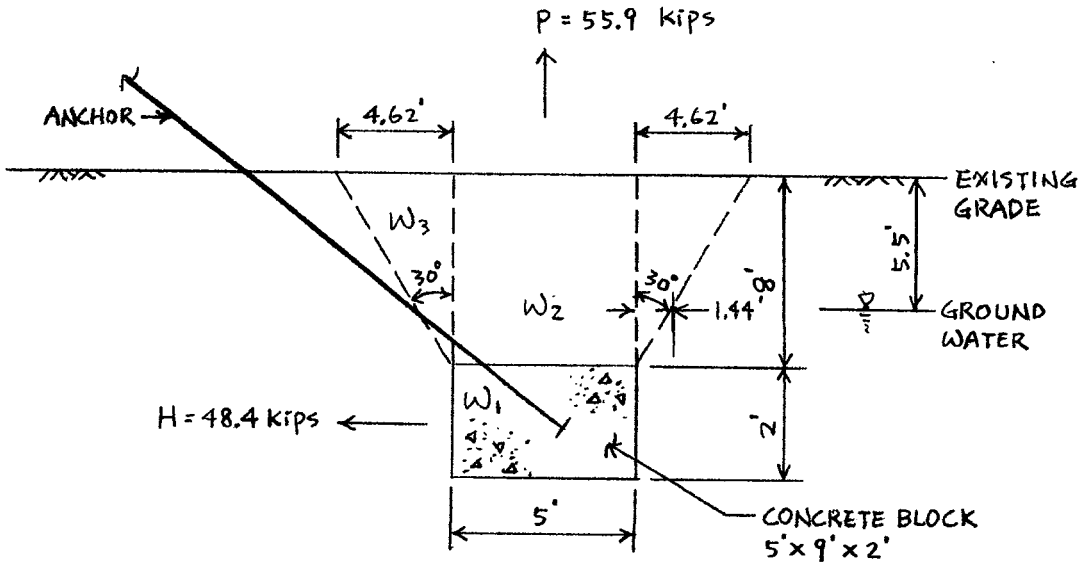
GUY ANCHOR (OUTER)



MAXIMUM REACTIONS AT GUY ANCHOR

P = 55.9 kips

H = 48.4 kips

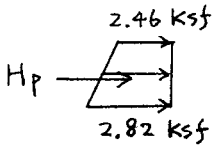
$W_1 = 0.088 \times 5 \times 9 \times 2 = 7.9$ kips

$W_2 = 0.125 \times 5 \times 9 \times 5.5 + 0.06 \times 5 \times 9 \times 2.5 = 37.7$ kips

$W_3 = 0.125 \times (11.06 \times 15.06 - 5 \times 9) \times 5.5 = 83.6$ kips

$= 0.06 \times (6.44 \times 10.44 - 5 \times 9) \times 2.5 = 3.3$ kips $\quad \Sigma W = 132.5$ kips

SOIL PRESSURE



$Hp = \frac{1}{2} \times (2.46 + 2.82) \times 2 \times 9 = 47.5$ kips

$$F.S.(\text{SLIDING}) = \frac{0.45 \times (132.5 - 55.9) + 47.5}{48.4} = 1.7 \quad \text{OK}$$

CHECK UPLIFT

$$\frac{124.6}{2} + \frac{7.9}{1.25} = 68.6 \text{ kips} > 55.9 \text{ kips} \quad \text{OK}$$

$$\frac{124.6 + 7.9}{1.5} = 88.3 \text{ kips} > 55.9 \text{ kips} \quad \text{OK}$$

157132

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Sprint Existing Facility

Site ID: CT23XC500

Mohegan Hill
57 Cook Drive
Montville, CT 06382

September 27, 2013

EBI Project Number 69130123

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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September 27, 2013

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Emissions Values for Site: **CT23XC500 – Mohegan Hill**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 57 Cook Drive, Montville, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the cellular band is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the PCS band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 57 Cook Drive, Montville, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

1) 4 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

6) The antenna mounting height centerline of the proposed antennas is **151 feet** above ground level (AGL)
7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT23XC500 - Mohegan Hill
Site Addresss	57 Cook Drive, Montville, CT, 06382
Site Type	Guyed Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	151	145	1/2 "	0.5	0	2773.8948	47.43075	4.74307%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	151	145	1/2 "	0.5	0	389.96892	6.668067	1.17603%
														Sector total Power Density Value:		5.919%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	151	145	1/2 "	0.5	0	2773.8948	47.43075	4.74307%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	151	145	1/2 "	0.5	0	389.96892	6.668067	1.17603%
														Sector total Power Density Value:		5.919%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	151	145	1/2 "	0.5	0	2773.8948	47.43075	4.74307%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	151	145	1/2 "	0.5	0	389.96892	6.668067	1.17603%
														Sector total Power Density Value:		5.919%	

Site Composite MPE %	
Carrier	MPE %
Sprint	17.757%
AT&T	10.610%
Clearwire	4.280%
Metro PCS	2.830%
Nextel	4.240%
Verizon Wireless	10.480%
T-Mobile	1.230%
Total Site MPE %	**51.427%**

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sprint facility are **15.757% (5.919% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **51.427%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

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21 B Street
Burlington, MA 01803