Centek Engineering, Inc.
3-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

HAND DELIVERED

October 24, 2016

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 48 Cow Hill Road, Clinton

Dear Ms. Bachman:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which 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, copies of this letter are being sent to the chief elected official of the municipality in which the affected cell site is located, the property owner of record, and the tower owner or operator.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical and environmental characteristics of the site will not be significantly changed or altered. 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. The height of the overall structure will not increase.

2. The proposed changes will not extend the site boundaries.

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

4. The changes will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes.

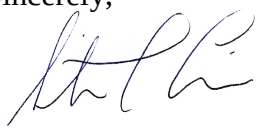
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The proposed changes will not impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

For the foregoing reasons, AT&T respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 830-0380 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Steven L. Levine
Real Estate Consultant

cc: TownCEO – Honorable Bruce N. Farmer, 1st Selectman, Town of Clinton
Property owner of Record – Raymond Heser
Tower Owner / Operator – Crown Castle (by email)

Attachments

NEW CINGULAR WIRELESS PCS, LLC
Equipment Modification

48 (aka 49B) Cow Hill Road, Clinton
Geographic Coordinates: N 41-17-19 W 72-32-21
AT&T Site CT2024
CSC Approvals: Docket 148
Exempt Mods 7/02, 7/07, 3/11, 2/16

Tower Owner/Manager: Crown Castle

Land Owner of Record: Raymond E. Heser

The Docket 148 Property Map exhibit, attached, indicates that Raymond E. Heser was the owner of the property in 1991. The attached current Clinton Assessor Card for the property confirms that Mr. Heser is still the property owner of record.

Equipment Configuration: 212-ft Self-Supporting Lattice Tower

Current and/or Approved: Sector Mounts
Three Powerwave 7770 antennas @ 190 ft c.l.
Three KMW AM-X-CD-14-65-00T-RET antennas @ 190 ft c.l.
Three Andrew SBNHH-1D65A antennas @ 190 ft c.l.
Six ADC TMA's @ 190 ft
Six Ericsson RRUS-11 remote radio heads @190 ft
Three Ericsson RRUS-32 remote radio heads @ 190 ft
Two Raycap DC6-48-60-18-8F surge arrestors @ 190 ft
Twelve runs 1 5/8 inch coax
Four DC lines and two fiber lines
Equipment room in common shelter

Planned Modifications: Remove all KMW antennas.
Remove three RRUS-11 remote radio heads.
Install three Andrew SBNHH-1D65A antennas @ 190 ft c.l.
Install three Ericsson RRUS-32 remote radio heads @ 190 ft.

Original Permitting: Bell Atlantic Mobile's Cow Hill Road facility was approved in 1992 by the Council in Docket 148 (see the attached Decision and Order). AT&T's present Notice contains no proposed modifications that would violate the conditions of approval.

Lease Area: The attached excerpt from the Docket 148 D&M Plan shows the tower, fenced compound, and equipment building layout within a trapezoidal lease area as originally approved in 1992. A Bell Atlantic notice of exempt modification approved by the Council on December 17, 1996 shows that the facility was constructed with a somewhat larger fenced compound within the same lease area but with different tower and equipment building positioning (see the attached site plan excerpt). All subsequent site modifications, including AT&T's current Notice, depict the lease area, the fenced compound, and the general site layout *as approved in 1996* (see AT&T's attached construction drawings). Since all proposed modifications will occur either on the existing tower structure or within AT&T's existing equipment room, the proposed modifications will not extend either AT&T's lease area or the existing overall site boundaries approved by the Council.

Structural Information:

The attached structural analysis demonstrates that the tower and foundation have adequate structural capacity to accommodate the proposed equipment modifications. (Jacobs Engineering, 10/3/16.)

Power Density:

Worst-case calculations with 10 dB reduction for existing wireless operations at the site indicate a radio frequency electromagnetic radiation power density, measured at six feet above ground level beside the tower, of approximately 9.7 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 10.1 % of the standard.

Existing

Carrier & Technology	Frequency (MHz)	Antennas (Total for All Sectors)	Centerline Ht (feet)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users *								9.06
AT&T LTE *	740	KMW AM-X-CD-14 3 Antennas	190	2	500	0.0106	0.4933	0.22
AT&T LTE *	1900	KMW AM-X-CD-14 3 Antennas	190	2	500	0.0106	1.0000	0.11
AT&T LTE *	2300	Andrew SBNHH 3 Antennas	190	2	500	0.0106	1.0000	0.11
AT&T UMTS *	880	PW 7770 3 Antennas	190	1	500	0.0053	0.5867	0.09
AT&T UMTS *	1900	PW 7770 3 Antennas	190	1	500	0.0053	1.0000	0.05
AT&T GSM *	880	Andrew SBNHH 3 Antennas	190	1	296	0.0031	0.5867	0.05
Total								**9.68%**

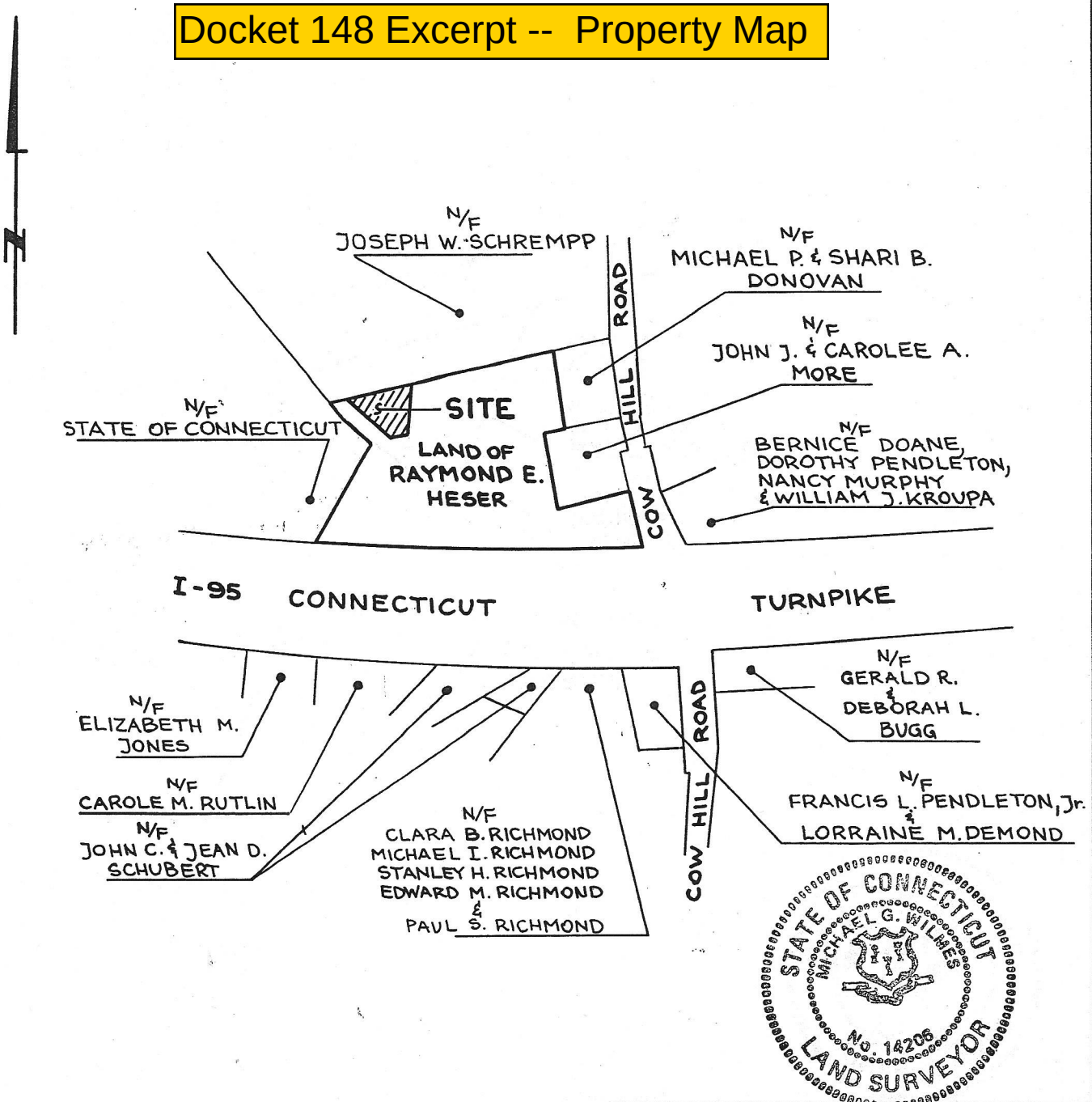
***** Per CSC records.

Proposed

Carrier & Technology	Frequency (MHz)	Antennas (Total for All Sectors)	Centerline Ht (feet)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users *								9.06
AT&T LTE	740	Andrew SBNHH 3 Antennas	190	2	793	0.0168	0.4933	0.34
AT&T LTE	1900	Andrew SBNHH 3 Antennas	190	2	1734	0.0368	1.0000	0.37
AT&T LTE	2300	Andrew SBNHH 3 Antennas	190	2	1094	0.0232	1.0000	0.23
AT&T UMTS	880	PW 7770 3 Antennas	190	1	259	0.0028	0.5867	0.05
AT&T UMTS	1900	PW 7770 3 Antennas	190	1	344	0.0037	1.0000	0.04
AT&T GSM	880	Andrew SBNHH 3 Antennas	190	1	141	0.0015	0.5867	0.03
Total								**10.11%**

***** Per CSC records.

Docket 148 Excerpt -- Property Map



I HEREBY CERTIFY THAT THIS MAP AND SURVEY ARE SUBSTANTIALLY CORRECT AND WERE PREPARED IN ACCORDANCE WITH THE STANDARDS OF A CLASS D SURVEY AS DEFINED IN THE CODE OF PRACTICE FOR THE STANDARDS OF ACCURACY FOR SURVEYS AND MAPS, ADOPTED DECEMBER 10, 1976 AS AMENDED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC.

MICHAEL G. WILMES, L.S. LICENSE NO. 14206

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE ABOVE NAMED LAND SURVEYOR.

CONNECTICUT SITING COUNCIL APPLICATION

CLINTON
PROPOSED CELL SITE
PROPERTY OWNERS
COW HILL ROAD
CLINTON CONNECTICUT

Greiner

Scale: 1" = 400'
Date: NOVEMBER 1991

Surveying and Mapping by:
Greiner, Inc. A-E-S
11 Fairfield Blvd., P.O. Box 767
Wallingford, CT 06492-0767
Tel. (203) 265-6741

Field book #	Crew Chief	Search #	Project #
~	~	3261	F080201
Computed by	Drawn by	Checked by	Map file #
~	~		SK11,472

49B COW HILL RD

Assessor Card

Location	49B COW HILL RD	**Mblu**	32/ 6/ 48/ H026570/A
Acct#	H0265701	**Owner**	HESER RAYMOND
Assessment	$613,300	**Appraisal**	$876,100
PID	106785	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$234,600	$641,500	$876,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$164,200	$449,100	$613,300

Owner of Record

Owner	HESER RAYMOND	**Sale Price**	$0
Co-Owner	CROWN CASTLE ATLANTIC CO LLC	**Certificate**	
Address	4017 WASHINGTON RD PMB353 MCMURRAY, PA 15317	**Book & Page**	088/ 061
		Sale Date	

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
HESER RAYMOND	$0		088/ 061	
HESER RAYMOND				

Building Information

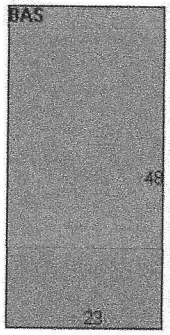
Building 1 : Section 1

Year Built: 1993
Living Area: 1104
Replacement Cost: $176,872
Building Percent Good: 77
Replacement Cost Less Depreciation: $136,200

Building Photo

(http://images.vgsi.com/photos/ClintonCTPhotos//\00\00\07/11.jpg)

Building Layout



Building Attributes	
Field	**Description**
STYLE	Telephone Bldg
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	Central
Bldg Use	TEL X STA MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	4300
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1104	1104
		1104	1104

Docket 148 Decision & Order

DOCKET NO. 148 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telephone tower and associated equipment in the Town of Clinton, Connecticut. The proposed site is located on an interior portion of a 59 acre parcel off Glenwood Road approximately 3,500 feet north of I-95. The alternate site is located on a six acre parcel off Cow Hill Road, approximately 300 feet north of I-95.

Connecticut

Siting

Council

May 5, 1992

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications tower and equipment building at the proposed Clinton, Connecticut, alternate site including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need as provided by section 16-50k of the Connecticut General Statutes (CGS), be issued to Metro Mobile CTS of Hartford, Inc., (Metro Mobile), for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and equipment building at the proposed alternate site off Cow Hill Road in Clinton, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The self-supporting lattice tower shall be no taller than necessary to provide the proposed communications service and in no event shall the tower exceed a total height of 223 feet above ground level, with antennas and appurtenances.

2. Prior to the commencement of construction, the Certificate Holder shall prepare a Development and Management (D&M) plan for this site in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall

include detailed plans of the tower, tower foundation, tower anti-climb sections, tower marking and lighting, and the locations of the equipment buildings, access road, and security fence, and all cellular antennas on the tower. In addition, the D&M plan shall include detailed plans for clearing; a site plan orienting the facility, utilities, and access road avoiding inland wetlands; and detailed plans for erosion and sedimentation control.

3. If and when tower marking and lighting become unnecessary pursuant to a determination by the Federal Aviation Administration, within six months of such determination, such tower marking and lighting shall be removed at the expense of the Certificate Holder.

4. The Certificate Holder shall comply with any existing and future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

6. The Certificate Holder shall permit public or private entities, including Springwich Cellular Limited Partnership (Springwich) which by contract was allowed to share space on the tower, and the Town of Clinton, to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. Provisions shall also be made for the location of a separate Springwich equipment building.

7. If the facility does not initially provide, or permanently ceases to provide cellular service following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three

years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the New Haven Register, Clinton Recorder, Hartford Courant, and the Middletown Press.

By this Decision and Order, the Council disposes of the legal rights, duties and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties and intervenor to this proceeding are:

PARTY	ITS REPRESENTATIVE
Metro Mobile CTS of Hartford 20 Alexander Drive Wallingford, CT 06492 Attn: David S. Malko Mgr. Engr, & Reg. Serv.	Earl W. Phillips, Jr., Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 (203) 275-8200
Town of Clinton	Lynda Batter Munro Gould, Larson, Bennet and Munro 35 Plains Road P.O. Box 959 Essex, CT 06426
INTERVENOR	
Springwich Cellular Limited Partnership	Peter J. Tyrrell Senior Attorney Springwich Cellular Limited Partnership 227 Church St., Rm. 1021 New Haven, CT 06506 (203) 771-7381

CERTIFICATION

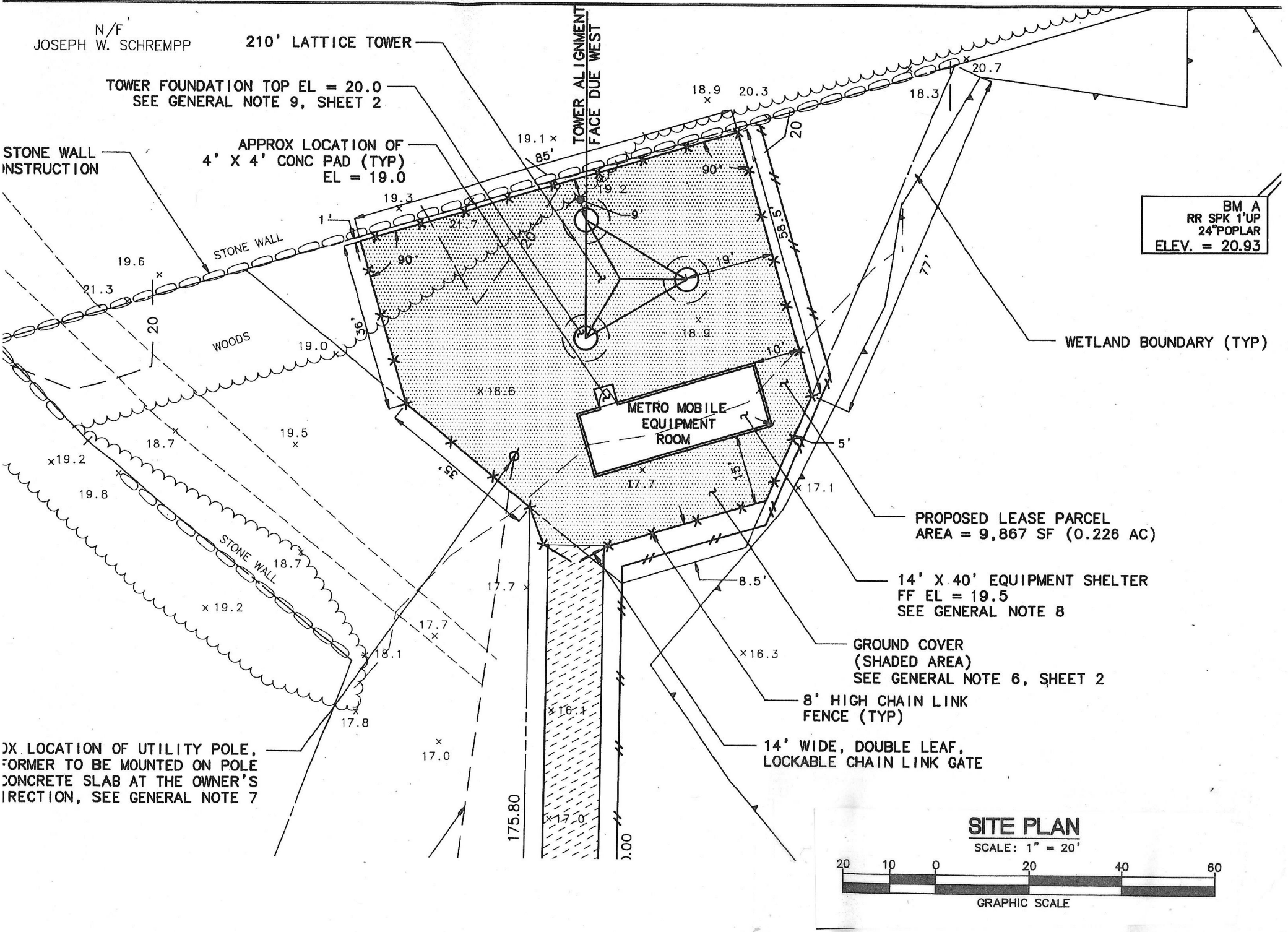
The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in DOCKET NO. 148 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telephone tower and associated equipment in the Town of Clinton, Connecticut, and voted as follows to approve the proposed alternate tower site off of Cow Hill Road, approximately 300 feet north of I-95:

Council Members	Vote Cast
Mortimer A. Gelston Chairman	Yes
Commissioner Clifton A. Leonhardt Designee: Commissioner Richard G. Patterson	Yes
Commissioner Timothy R.E. Keeney Designee: Brian Emerick	Absent
Harry E. Covey	Yes
Daniel P. Lynch, Jr.	Yes
Gloria Dibble Pond	Absent
Paulann H. Sheets	Absent
William H. Smith	Yes
Colin C. Tait	Absent

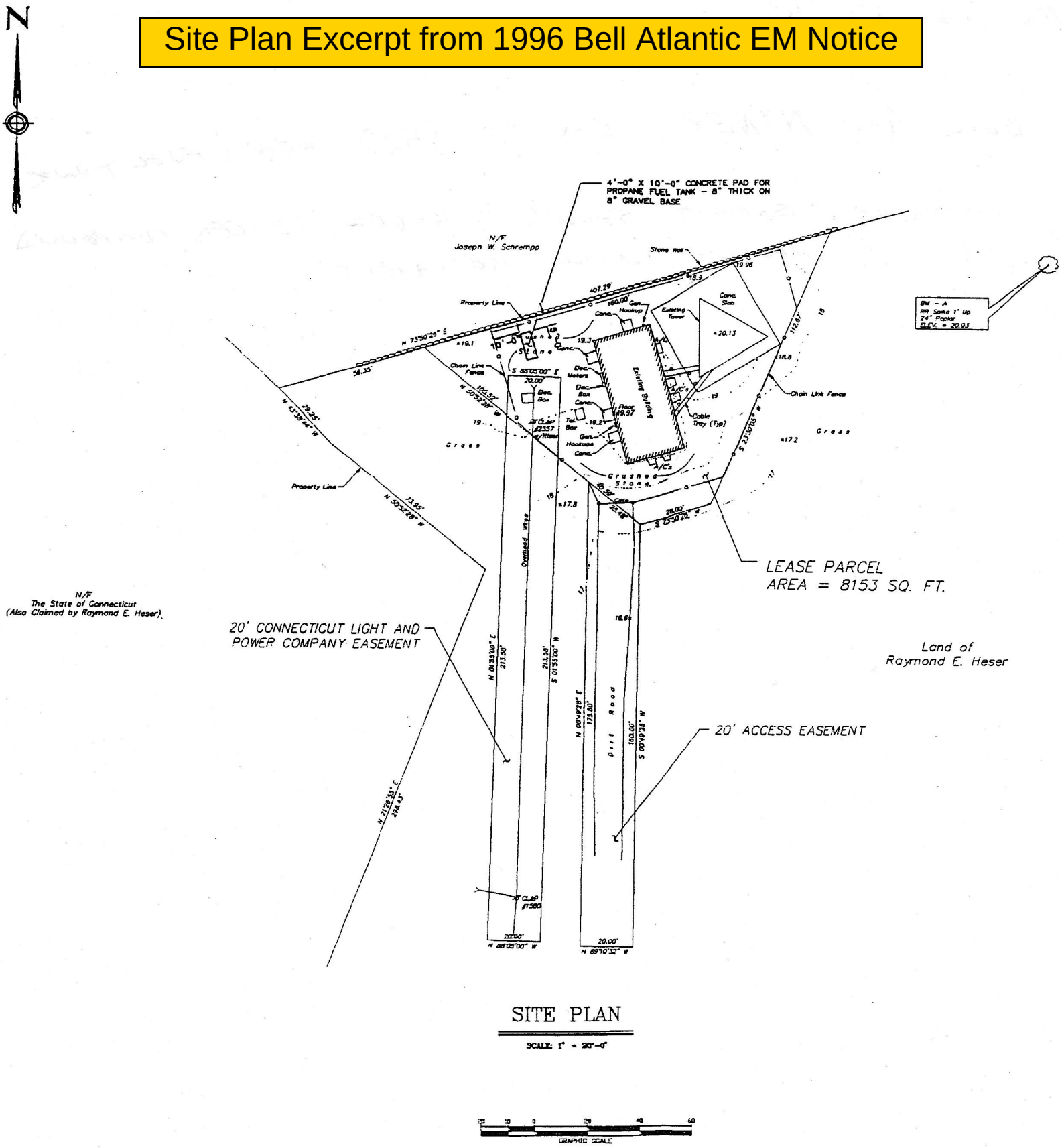
Dated at New Britain, Connecticut, May 5, 1992.

6060E-2

Site Plan Excerpt from Docket 148 D&M Plan



Site Plan Excerpt from 1996 Bell Atlantic EM Notice



PROJECT INFORMATION

SCOPE OF WORK:	TELECOMMUNICATIONS FACILITY UPGRADE (LTE BWE 2016 UPGRADE):
SITE ADDRESS:	49 COW HILL ROAD CLINTON, CT 06413
LATITUDE:	41.288936 N, 41° 17' 20.17" N
LONGITUDE:	72.538471 W, 72° 32' 18.5" W
TYPE OF SITE:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
TOWER HEIGHT:	212'±
RAD CENTER:	190'±
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
NOC#	866-915-5600

SITE NUMBER: CT2024

SITE NAME: CLINTON

PROJECT: LTE BWE 2016 UPGRADE

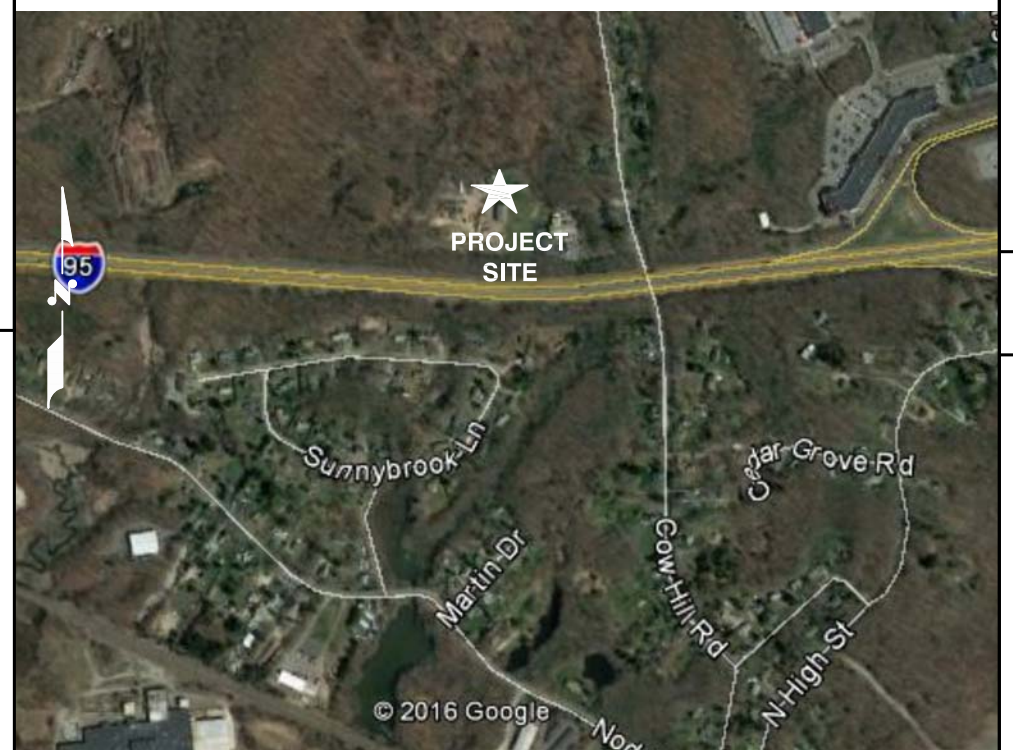
DRAWING INDEX

CROWN CASTLE SITE NAME: HRT105
CROWN CASTLE SITE #: 806363

VICINITY MAP

DIRECTIONS TO SITE:

FROM ROCKY HILL, CT: MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. 3.8 MILES. MERGE ONTO CT-9 S VIA EXIT 22S ON THE LEFT TOWARD MIDDLETOWN / OLD SAYBROOK. 13.9 MILES. TAKE THE CT-81 EXIT- EXIT 9- TOWARD KILLINGWORTH / CLINTON. 0.2 MILES. TURN RIGHT ONTO KILLINGWORTH RD / CT-81. CONTINUE TO FOLLOW CT-81. PASS THROUGH 1 ROUNDABOUT. 12.5 MILES. TURN RIGHT ONTO WOODLAND DR. 0.3 MILES. TURN LEFT ONTO COW HILL RD. 0.6 MILES. END AT 49 COW HILL RD. CLINTON, CT 06413.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

UNDERGROUND SERVICE ALERT

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-888-DIG-SAFE
OR CALL 811
72 HOURS

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
27 NORTHWESTERN DR.
SALEM, NH 03079

SITE NUMBER: CT2024
SITE NAME: CLINTON
CCI SITE #806363
49 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	10/14/16	ISSUED FOR CONSTRUCTION	JK	AT	DJC
A	09/21/16	ISSUED FOR REVIEW	RB	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: RB

STATE OF CONNECTICUT · DEREK J. CHASE · No. 23581 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE BWE)

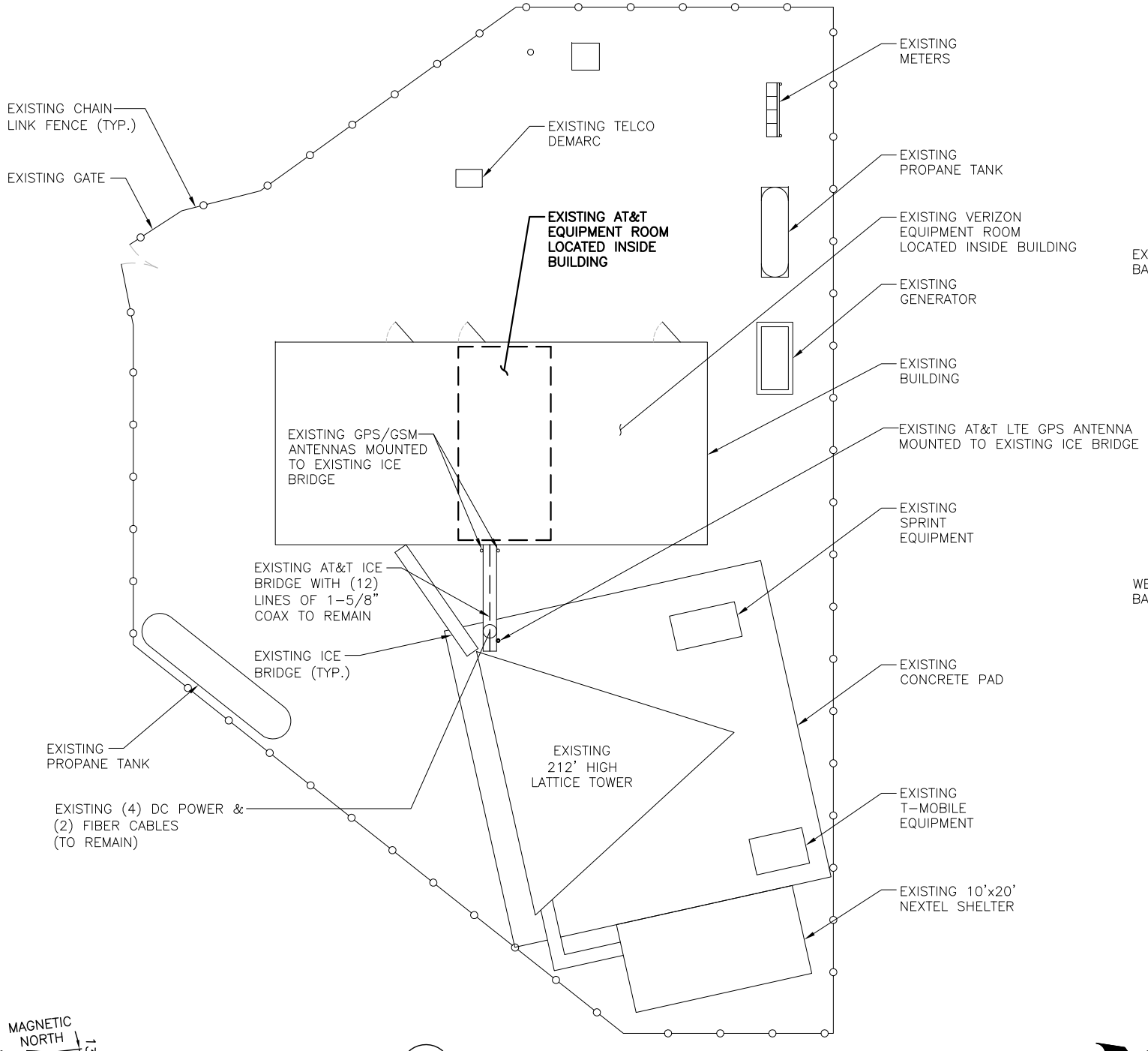
SITE NUMBER	DRAWING NUMBER	REV
CT2024	T-1	1

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC.
DATED: SEPTEMBER 19, 2016

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

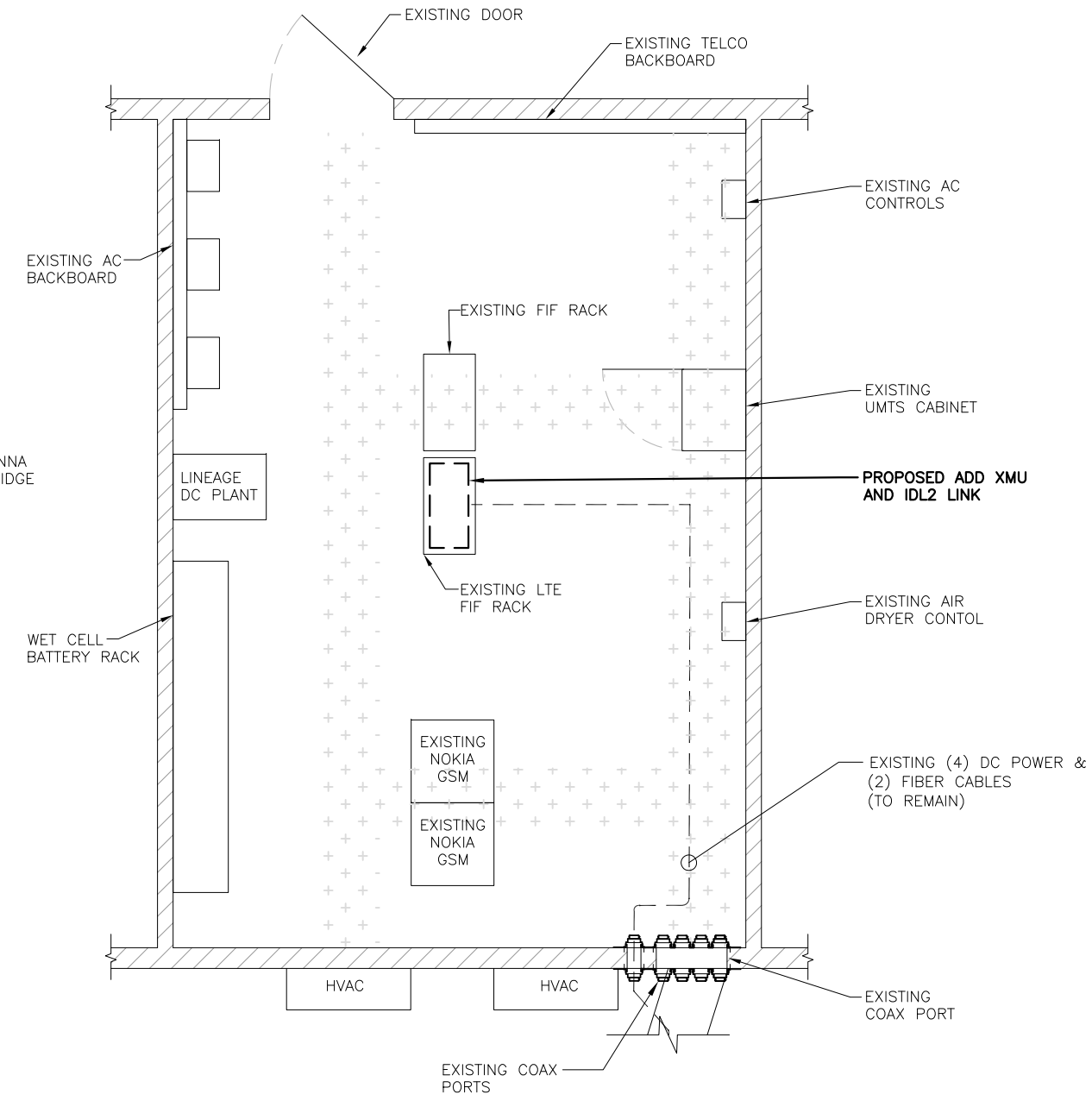
NOTE:
ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.



MAGNETIC NORTH 13°49' TRUE NORTH

COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"



MAGNETIC NORTH 13°49' TRUE NORTH

EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
27 NORTHWESTERN DR.
SALEM, NH 03079

SITE NUMBER: CT2024
SITE NAME: CLINTON
CCI SITE #806363
49 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	10/14/16	ISSUED FOR CONSTRUCTION	JK	AT	DJC
A	09/21/16	ISSUED FOR REVIEW	RB	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: RB

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28551 · LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLANS
(LTE BWE)

SITE NUMBER	DRAWING NUMBER	REV
CT2024	A-1	1

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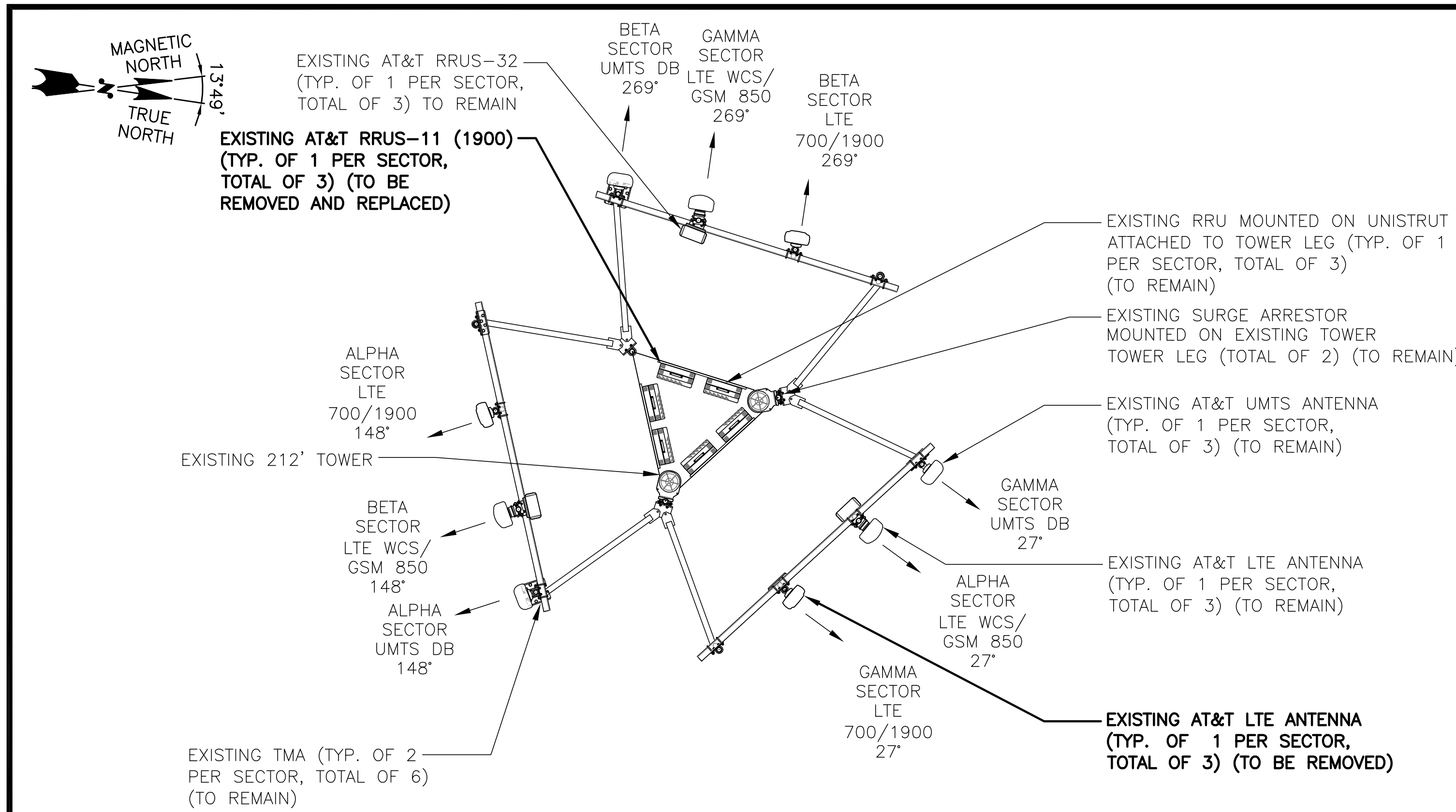
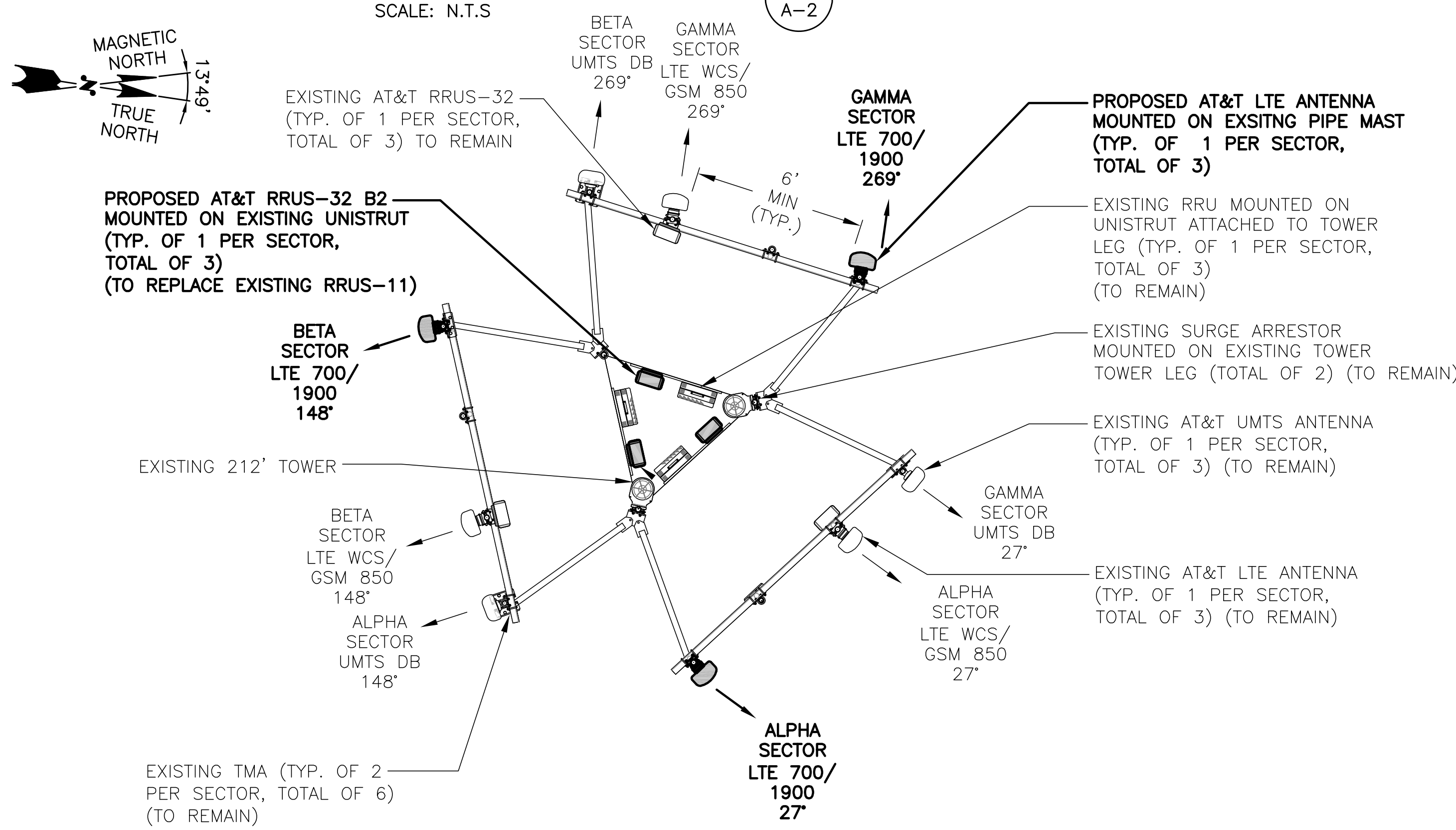


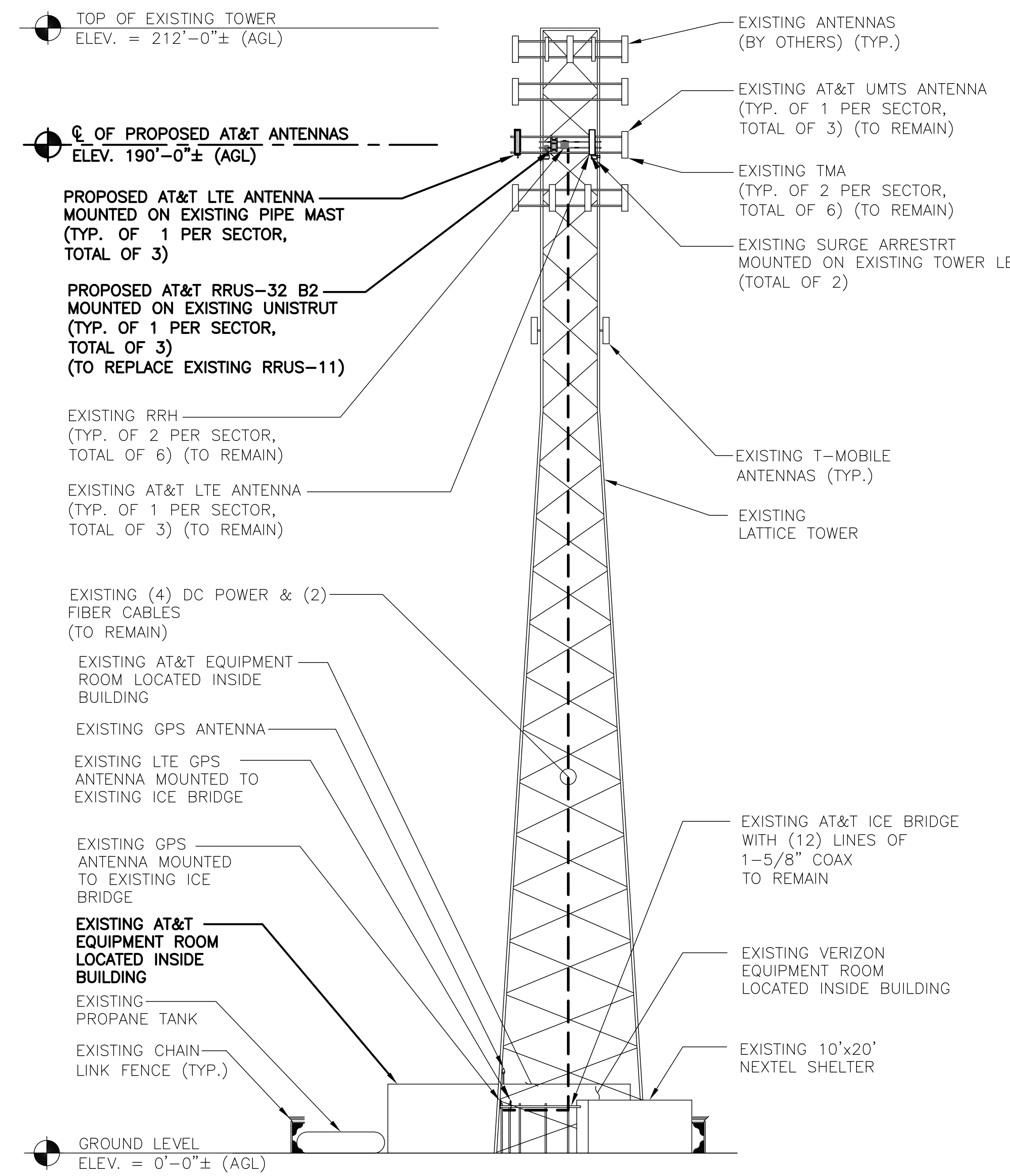
EXISTING ANTENNA LAYOUT (1 / A-2)

SCALE: N.T.S



PROPOSED ANTENNA LAYOUT (2 / A-2)

SCALE: N.T.S



ELEVATION (3 / A-2)

22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

0 8'-0" 16'-0" 32'-0" 48'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
27 NORTHWESTERN DR.
SALEM, NH 03079

SITE NUMBER: CT2024
SITE NAME: CLINTON
CCI SITE #806363
49 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	10/14/16	ISSUED FOR CONSTRUCTION	JK	AT	DJC
A	09/21/16	ISSUED FOR REVIEW	RB	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: RB

AT&T
ANTENNA LAYOUTS & ELEVATION
(LTE BWE)

SITE NUMBER	DRAWING NUMBER	REV
CT2024	A-2	1

Date: **October 03, 2016**

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

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Rd
Acworth, GA 30102
(770) 701-2500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT2024
	Carrier Site Name:	CLINTON-COW HILL RD
Crown Castle Designation:	**Crown Castle BU Number:**	806363
	Crown Castle Site Name:	HRT 105 943201
	Crown Castle JDE Job Number:	399731
	Crown Castle Work Order Number:	1305916
	Crown Castle Application Number:	363815 Rev. 1
Engineering Firm Designation:	**Jacobs Engineering Group Inc. Project Number:**	1305916
Site Data:	**48 COW HILL ROAD, CLINTON, Middlesex County, CT** **Latitude *41° 17' 20.2"*, Longitude *-72° 32' 18.5"*** **212.625 Foot - Self Support Tower**	

Dear Charles Trask,

Jacobs Engineering Group Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 952903, in accordance with application 363815, revision 1.

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

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

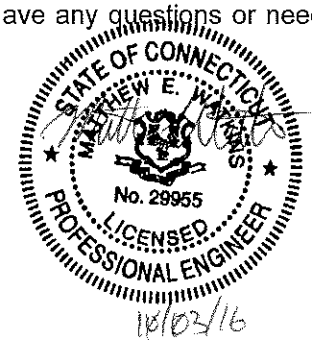
This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1 and Risk Category II was used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Structural analysis prepared by:

Syamkumar Neelangattu
Structural Engineer



10/03/16

Reviewed by:

Mathew E. Watkins, P.E
Engineering Project Manager

tnxTower Report - version 7.0.6.2

1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by ROHN in June of 1992. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E. The tower has been modified per reinforcement drawings prepared by Vertical Structures, in June of 2007.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
189.0	190.0	2	ericsson	RRUS 32 B2	4 1	13/16 3/8	-
		1	raycap	DC6-48-60-18-8F			
		3	ericsson	WCS RRUS-32-B30			
		6	andrew	SBNHH-1D65A w/ Mount Pipe			
	189.0	1	ericsson	RRUS 32 B2			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
208.0	209.0	3	alcatel lucent	RRH2X60-AWS	2	1-5/8	2
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-700			
		9	andrew	SBNHH-1D65B w/ Mount Pipe			
		1	rfs celwave	DB-B1-6C-12AB-0Z			
		6	antel	LPA-80080/6CF w/ Mount Pipe	18 1	1-5/8 1-1/4	1
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
	208.0	1	tower mounts	Sector Mount [SM 510-3]			
199.0	199.0	1	tower mounts	Sector Mount [SM 505-3]	4	1-1/4	1
	198.0	3	alcatel lucent	1900MHz RRH (65MHz)			
		3	alcatel lucent	800MHz 2X50W RRH W/FILTER			
		3	alcatel lucent	TD-RRH8x20-25			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
189.0	190.0	3	powerwave Technologies	7770.00 W/Mount Pipe	2	7/8	4
		3	RMW comm	AM-X-CD-14-65-00T-RET			
		3	powerwave technologies	7020.00			
		6	powerwave technologies	LGP13519			
		3	ericsson	RRUS11			
		3	powerwave technologies	7020.00	12 1	1-5/8 3/8	1
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
		6	adc	DUAL BAND 800/1900 FULL BAND MASTHEAD			
		1	ericsson	RRUS 11			
	189.0	2	ericsson	RRUS 11			
		1	tower mounts	Sector Mount [SM 510-3]			
183.0	183.0	3	rfs celwave	APXV18-206517LS	-	-	1
		1	tower mounts	Pipe Mount [PM 601-3]			
175.0	179.0	2	radiowaves	HPD2-23	4	1/4	1
	176.0	12	decibel	DB844H90E-XY w/ Mount Pipe	12	1-1/4	3
	175.0	1	tower mounts	Sector Mount [SM 510-3]	-	-	1
167.0	173.0	1	rfs celwave	1151-3	1	7/8	1
	167.0	1	tower mounts	Side Arm Mount [SO 308-1]			
164.0	173.0	1	rfs celwave	1151-3	1	7/8	1
	164.0	1	tower mounts	Side Arm Mount [SO 308-1]			
162.0	162.0	1	tower mounts	Side Arm Mount [SO 308-1]	1	3/8	1
	160.0	1	sinclair	SD310-HL			
147.0	153.0	1	rfs celwave	1151-3	1	7/8	1
	147.0	1	tower mounts	Side Arm Mount [SO 308-1]			
145.0	148.0	1	sinclair	SD310-HL	1	7/8	1
	145.0	1	tower mounts	Side Arm Mount [SO 308-1]			
139.0	140.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	7 5 3	1-5/8 1-1/4 7/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	139.0	1	tower mounts	Side Arm Mount [SO 201-3]			
128.0	132.0	1	rfs celwave	1142-2C	1	7/8	1
	128.0	1	tower mounts	Side Arm Mount [SO 308-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
51.0	51.0	1	gps	GPS_A	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment; considered in this analysis.
4) Equipment to be removed; Not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
212	212	12	sinclair	SRL410C4	-	-
200	200	2	generic	6' Grid Dish	-	-
190	190	9	swedcom	ALP9212N	-	-
100	100	1	decibel	DB222	-	-
90	90	1	decibel	DB225	-	-
80	80	2	decibel	DB225-2	-	-
60	60	1	decibel	DB212-2	-	-
		1	decibel	DB225		
		1	decibel	DB225-2		
50	50	1	decibel	DB212-2	-	-
40	40	1	decibel	DB212	-	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	262276	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	ROHN	262273	CCISITES
4-TOWER MANUFACTURER DRAWINGS	ROHN	262274	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, Inc.	2169576	CCISITES
4-POST-MODIFICATION INSPECTION	Vertical Structures, Inc.	2309344	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Crown Castle	4922028	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.6.2), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-5.61	56.63	9.9	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-29.29	93.89	31.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-74.65	159.26	46.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-129.63	238.69	54.3	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-162.21	242.93	66.8	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-200.78	302.24	66.4	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-236.81	302.24	78.4	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-271.52	384.98	70.5	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-305.67	384.71	79.5	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-321.94	503.24	64.0	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-353.61	503.90	70.2	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	9	-3.45	23.83	14.5	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-10.58	17.54	60.3	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	77	-11.12	15.16	73.3	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-11.35	13.03	87.1	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-14.89	16.29	91.4	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-14.07	14.28	98.6	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-14.52	24.70	58.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-14.54	21.81	66.6	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-15.76	19.15	82.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	303	-21.98	31.16	70.5	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-25.53	29.77	85.7	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	13	-2.47	22.58	11.0	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-5.66	22.52	25.1	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-6.89	19.14	36.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	115	-7.73	27.21	28.4 31.3 (b)	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-8.90	22.64	39.3	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-9.19	16.86	54.5	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-10.10	28.85	35.0 40.7 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-10.63	22.53	47.2	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-11.95	17.82	67.0	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-12.11	31.65	38.3	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-14.61	25.75	56.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.21	22.63	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-5.59	13.01	43.0	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	334	-6.13	11.05	55.5	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	296	-5.16	8.81	58.6	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-5.28	8.16	64.8	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	306	-0.07	11.94	0.6	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	339	-0.07	10.04	0.7	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	307	-0.09	10.38	0.9	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	340	-0.08	9.38	0.9	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	17	-0.00	6.54	0.5	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	6.44	0.5	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	79	-0.01	4.79	0.6	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	120	-0.01	3.28	0.7	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.01	2.48	0.8	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.01	5.23	0.7	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.02	6.88	0.7	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.02	11.20	0.5	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.02	8.92	0.5	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.02	29.87	0.3	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.02	24.44	0.2	Pass
							Summary	
						Leg (T9)	79.5	Pass
						Diagonal (T6)	98.6	Pass
						Horizontal	67.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						(T9)		
						Top Girt (T1)	0.9	Pass
						Redund Horz 1 Bracing (T11)	55.5	Pass
						Redund Diag 1 Bracing (T11)	64.8	Pass
						Redund Hip 1 Bracing (T11)	0.7	Pass
						Redund Hip Diagonal 1 Bracing (T11)	0.9	Pass
						Inner Bracing (T5)	0.8	Pass
						Bolt Checks	63.7	Pass
						Rating =	98.6	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	66.7	Pass
1	Base Foundation Structural	0	19.8	Pass
1	Base Foundation Soil Interaction	0	53.7	Pass

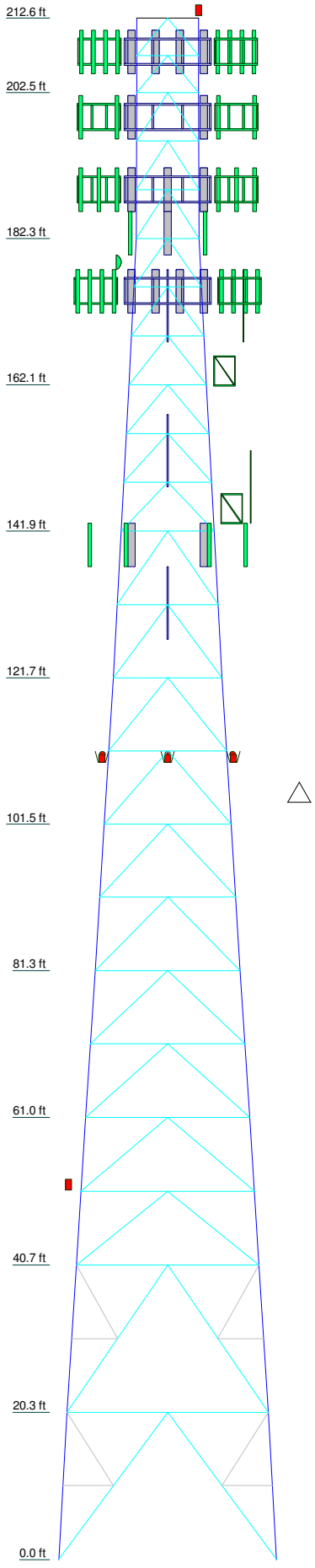
Structure Rating (max from all components) =	98.6%

Notes:
See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to support the existing, reserved and proposed loads. No modifications are required at this time.

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH		ROHN 8 EHS		ROHN 6 EH		ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH	A
Leg Grade	A572-50										
Diagonals	ROHN 3 STD						ROHN 2.5 STD		ROHN 2 STD		
Diagonal Grade	A572-50										
Top Girts	N.A.										B
Horizontals	ROHN 3 STD			ROHN 2.5 STD			ROHN 2 STD			ROHN 1.5 STD	
Red. Horizontals	ROHN 1.5 STD						N.A.				
Red. Diagonals	ROHN 2 STD						N.A.				
Red. Hips	ROHN 1.5 STD						N.A.				
Inner Bracing	ROHN 3 STD		L3 1/2x3 1/2x1/4		L3x3x3/16		L2 1/2x2 1/2x3/16		L2x2x1/8		
Face Width (ft)	30.0417	27.8333	25.1771	22.6771	20.0417	17.5417	15.0417	12.7917	10.7083	8.625	8.54167	8.5
# Panels @ (ft)	1 @ 20.25	1 @ 20.3333	2 @ 10.1667	2 @ 10.1354	6 @ 10.1042			3 @ 6.73611	3 @ 6.72917	3 @ 6.72222	2 @ 5.08333	
Weight (K)	37.5	5.7	5.6	4.9	4.7	4.0	3.3	2.7	2.4	1.8	1.5	0.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	212	(2) SBNHH-1D65A w/ Mount Pipe	189
(2) LPA-80080/6CF w/ Mount Pipe	208	(2) SBNHH-1D65A w/ Mount Pipe	189
(2) LPA-80080/6CF w/ Mount Pipe	208	WCS RRUS-32-B30	189
(2) LPA-80080/6CF w/ Mount Pipe	208	WCS RRUS-32-B30	189
(3) SBNHH-1D65B w/ Mount Pipe	208	WCS RRUS-32-B30	189
(3) SBNHH-1D65B w/ Mount Pipe	208	DC6-48-60-18-8F	189
(3) SBNHH-1D65B w/ Mount Pipe	208	RRUS 32 B2	189
RRH2X60-PCS	208	RRUS 32 B2	189
RRH2X60-PCS	208	RRUS 32 B2	189
RRH2X60-PCS	208	Sector Mount [SM 510-3]	189
RRH2x60-700	208	APXV18-206517LS	183
RRH2x60-700	208	APXV18-206517LS	183
RRH2x60-700	208	APXV18-206517LS	183
RRH2X60-AWS	208	Pipe Mount [PM 601-3]	183
RRH2X60-AWS	208	(4) DB844H90E-XY w/ Mount Pipe	175
RRH2X60-AWS	208	(4) DB844H90E-XY w/ Mount Pipe	175
DB-B1-6C-12AB-0Z	208	(4) DB844H90E-XY w/ Mount Pipe	175
DB-T1-6Z-8AB-0Z	208	Sector Mount [SM 510-3]	175
Sector Mount [SM 510-3]	208	6' x 2" Mount Pipe	175
APXVSPP18-C-A20 w/ Mount Pipe	199	6' x 2" Mount Pipe	175
APXVSPP18-C-A20 w/ Mount Pipe	199	HPD2-23	175
APXVSPP18-C-A20 w/ Mount Pipe	199	HPD2-23	175
APXVTM14-C-120 w/ Mount Pipe	199	1151-3	167
APXVTM14-C-120 w/ Mount Pipe	199	Side Arm Mount [SO 308-1]	167
APXVTM14-C-120 w/ Mount Pipe	199	1151-3	164
800MHz 2X50W RRH W/FILTER	199	Side Arm Mount [SO 308-1]	164
800MHz 2X50W RRH W/FILTER	199	SD310-HL	162
800MHz 2X50W RRH W/FILTER	199	Side Arm Mount [SO 308-1]	162
1900MHz RRH (65MHz)	199	1151-3	147
1900MHz RRH (65MHz)	199	Side Arm Mount [SO 308-1]	147
1900MHz RRH (65MHz)	199	SD310-HL	145
TD-RRH8x20-25	199	Side Arm Mount [SO 308-1]	145
TD-RRH8x20-25	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
TD-RRH8x20-25	199		
Sector Mount [SM 505-3]	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
(3) 4' x 2" Pipe Mount	199		
(3) 4' x 2" Pipe Mount	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
(3) 4' x 2" Pipe Mount	199		
7770.00 w/ Mount Pipe	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
7770.00 w/ Mount Pipe	189		
7770.00 w/ Mount Pipe	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	189	KRY 112 144/1	139
		KRY 112 144/1	139
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	189	KRY 112 144/1	139
		Side Arm Mount [SO 201-3]	139
7020.00	189	1142-2C	128
7020.00	189	Side Arm Mount [SO 308-1]	128
7020.00	189	Side Lighting	110
RRUS-11	189	Side Lighting	110
RRUS-11	189	Side Lighting	110
RRUS-11	189	GPS_A	51
DC6-48-60-18-8F	189	Side Arm Mount [SO 701-1]	51
(2) SBNHH-1D65A w/ Mount Pipe	189		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	ROHN 1.5 STD

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

JACOBS
Jacobs Engineering Group Inc.

Jacobs Engineering Group Inc.
5449 Bells Ferry Rd
Acworth, GA 30102
Phone: (770) 701-2500
FAX: (770) 701-2500

Job: ***212 ht Self Support Tower***		
Project: ***BU 806363 WO 1305916***		
Client: Crown Castle	Drawn by: NeelanS	App'd:
Code: TIA-222-G	Date: 10/03/16	Scale: NTS
Path:		Dwg No. E-1

Centek Engineering, Inc.
3-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

October 24, 2016

Honorable Bruce N. Farmer
1st Selectman, Town of Clinton
54 East Main Street
Clinton, CT 06413

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 48 Cow Hill Road, Clinton

Dear Mr. Farmer:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The enclosed Notice fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned at 860-830-0380 or Ms. Melanie Bachman, Acting Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine
Real Estate Consultant

Enclosure

Centek Engineering, Inc.
3-2 North Branford Road
Branford, Connecticut 06405
Phone: (203) 488-0580
Fax: (203) 488-8587

Steven L. Levine
Real Estate Consultant

October 24, 2016

Mr. Raymond Heser
110 Killingworth Turnpike
Clinton, CT 06413

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 48 Cow Hill Road, Clinton

Dear Mr. Heser:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

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Sincerely,

Steven L. Levine
Real Estate Consultant

Enclosure

Date: **October 03, 2016**

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

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Rd
Acworth, GA 30102
(770) 701-2500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT2024
	Carrier Site Name:	CLINTON-COW HILL RD
Crown Castle Designation:	**Crown Castle BU Number:**	806363
	Crown Castle Site Name:	HRT 105 943201
	Crown Castle JDE Job Number:	399731
	Crown Castle Work Order Number:	1305916
	Crown Castle Application Number:	363815 Rev. 1
Engineering Firm Designation:	**Jacobs Engineering Group Inc. Project Number:**	1305916
Site Data:	**48 COW HILL ROAD, CLINTON, Middlesex County, CT** **Latitude *41° 17' 20.2"*, Longitude *-72° 32' 18.5"*** **212.625 Foot - Self Support Tower**	

Dear Charles Trask,

Jacobs Engineering Group Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 952903, in accordance with application 363815, revision 1.

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

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

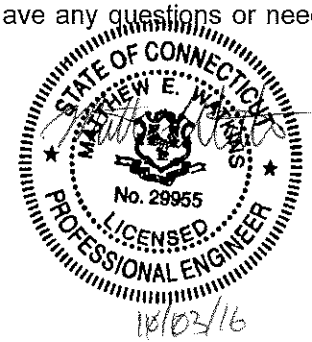
This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B with a maximum topographic factor, Kzt, of 1 and Risk Category II was used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Structural analysis prepared by:

Syamkumar Neelangattu
Structural Engineer



10/03/16

Reviewed by:

Mathew E. Watkins, P.E
Engineering Project Manager

tnxTower Report - version 7.0.6.2

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by ROHN in June of 1992. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E. The tower has been modified per reinforcement drawings prepared by Vertical Structures, in June of 2007.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
189.0	190.0	2	ericsson	RRUS 32 B2	4 1	13/16 3/8	-
		1	raycap	DC6-48-60-18-8F			
		3	ericsson	WCS RRUS-32-B30			
		6	andrew	SBNHH-1D65A w/ Mount Pipe			
	189.0	1	ericsson	RRUS 32 B2			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
208.0	209.0	3	alcatel lucent	RRH2X60-AWS	2	1-5/8	2
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-700			
		9	andrew	SBNHH-1D65B w/ Mount Pipe			
		1	rfs celwave	DB-B1-6C-12AB-0Z			
		6	antel	LPA-80080/6CF w/ Mount Pipe	18 1	1-5/8 1-1/4	1
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
	208.0	1	tower mounts	Sector Mount [SM 510-3]			
199.0	199.0	1	tower mounts	Sector Mount [SM 505-3]	4	1-1/4	1
	198.0	3	alcatel lucent	1900MHz RRH (65MHz)			
		3	alcatel lucent	800MHz 2X50W RRH W/FILTER			
		3	alcatel lucent	TD-RRH8x20-25			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
189.0	190.0	3	powerwave Technologies	7770.00 W/Mount Pipe	2	7/8	4
		3	RMW comm	AM-X-CD-14-65-00T-RET			
		3	powerwave technologies	7020.00			
		6	powerwave technologies	LGP13519			
		3	ericsson	RRUS11			
		3	powerwave technologies	7020.00	12 1	1-5/8 3/8	1
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
		6	adc	DUAL BAND 800/1900 FULL BAND MASTHEAD			
		1	ericsson	RRUS 11			
	189.0	2	ericsson	RRUS 11			
		1	tower mounts	Sector Mount [SM 510-3]			
183.0	183.0	3	rfs celwave	APXV18-206517LS	-	-	1
		1	tower mounts	Pipe Mount [PM 601-3]			
175.0	179.0	2	radiowaves	HPD2-23	4	1/4	1
	176.0	12	decibel	DB844H90E-XY w/ Mount Pipe	12	1-1/4	3
	175.0	1	tower mounts	Sector Mount [SM 510-3]	-	-	1
167.0	173.0	1	rfs celwave	1151-3	1	7/8	1
	167.0	1	tower mounts	Side Arm Mount [SO 308-1]			
164.0	173.0	1	rfs celwave	1151-3	1	7/8	1
	164.0	1	tower mounts	Side Arm Mount [SO 308-1]			
162.0	162.0	1	tower mounts	Side Arm Mount [SO 308-1]	1	3/8	1
	160.0	1	sinclair	SD310-HL			
147.0	153.0	1	rfs celwave	1151-3	1	7/8	1
	147.0	1	tower mounts	Side Arm Mount [SO 308-1]			
145.0	148.0	1	sinclair	SD310-HL	1	7/8	1
	145.0	1	tower mounts	Side Arm Mount [SO 308-1]			
139.0	140.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	7 5 3	1-5/8 1-1/4 7/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	139.0	1	tower mounts	Side Arm Mount [SO 201-3]			
128.0	132.0	1	rfs celwave	1142-2C	1	7/8	1
	128.0	1	tower mounts	Side Arm Mount [SO 308-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
51.0	51.0	1	gps	GPS_A	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment; considered in this analysis.
4) Equipment to be removed; Not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
212	212	12	sinclair	SRL410C4	-	-
200	200	2	generic	6' Grid Dish	-	-
190	190	9	swedcom	ALP9212N	-	-
100	100	1	decibel	DB222	-	-
90	90	1	decibel	DB225	-	-
80	80	2	decibel	DB225-2	-	-
60	60	1	decibel	DB212-2	-	-
		1	decibel	DB225		
		1	decibel	DB225-2		
50	50	1	decibel	DB212-2	-	-
40	40	1	decibel	DB212	-	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	262276	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	ROHN	262273	CCISITES
4-TOWER MANUFACTURER DRAWINGS	ROHN	262274	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, Inc.	2169576	CCISITES
4-POST-MODIFICATION INSPECTION	Vertical Structures, Inc.	2309344	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Crown Castle	4922028	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.6.2), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-5.61	56.63	9.9	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-29.29	93.89	31.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-74.65	159.26	46.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-129.63	238.69	54.3	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-162.21	242.93	66.8	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-200.78	302.24	66.4	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-236.81	302.24	78.4	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-271.52	384.98	70.5	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-305.67	384.71	79.5	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-321.94	503.24	64.0	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-353.61	503.90	70.2	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	9	-3.45	23.83	14.5	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-10.58	17.54	60.3	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	77	-11.12	15.16	73.3	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-11.35	13.03	87.1	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-14.89	16.29	91.4	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-14.07	14.28	98.6	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-14.52	24.70	58.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-14.54	21.81	66.6	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-15.76	19.15	82.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	303	-21.98	31.16	70.5	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-25.53	29.77	85.7	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	13	-2.47	22.58	11.0	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-5.66	22.52	25.1	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-6.89	19.14	36.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	115	-7.73	27.21	28.4 31.3 (b)	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-8.90	22.64	39.3	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-9.19	16.86	54.5	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-10.10	28.85	35.0 40.7 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-10.63	22.53	47.2	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-11.95	17.82	67.0	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-12.11	31.65	38.3	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-14.61	25.75	56.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.21	22.63	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-5.59	13.01	43.0	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	334	-6.13	11.05	55.5	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	296	-5.16	8.81	58.6	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-5.28	8.16	64.8	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	306	-0.07	11.94	0.6	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	339	-0.07	10.04	0.7	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	307	-0.09	10.38	0.9	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	340	-0.08	9.38	0.9	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	17	-0.00	6.54	0.5	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	6.44	0.5	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	79	-0.01	4.79	0.6	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	120	-0.01	3.28	0.7	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.01	2.48	0.8	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.01	5.23	0.7	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.02	6.88	0.7	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.02	11.20	0.5	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.02	8.92	0.5	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.02	29.87	0.3	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.02	24.44	0.2	Pass
							Summary	
						Leg (T9)	79.5	Pass
						Diagonal (T6)	98.6	Pass
						Horizontal	67.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						(T9)		
						Top Girt (T1)	0.9	Pass
						Redund Horz 1 Bracing (T11)	55.5	Pass
						Redund Diag 1 Bracing (T11)	64.8	Pass
						Redund Hip 1 Bracing (T11)	0.7	Pass
						Redund Hip Diagonal 1 Bracing (T11)	0.9	Pass
						Inner Bracing (T5)	0.8	Pass
						Bolt Checks	63.7	Pass
						Rating =	98.6	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	66.7	Pass
1	Base Foundation Structural	0	19.8	Pass
1	Base Foundation Soil Interaction	0	53.7	Pass

Structure Rating (max from all components) =	98.6%

Notes:
See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

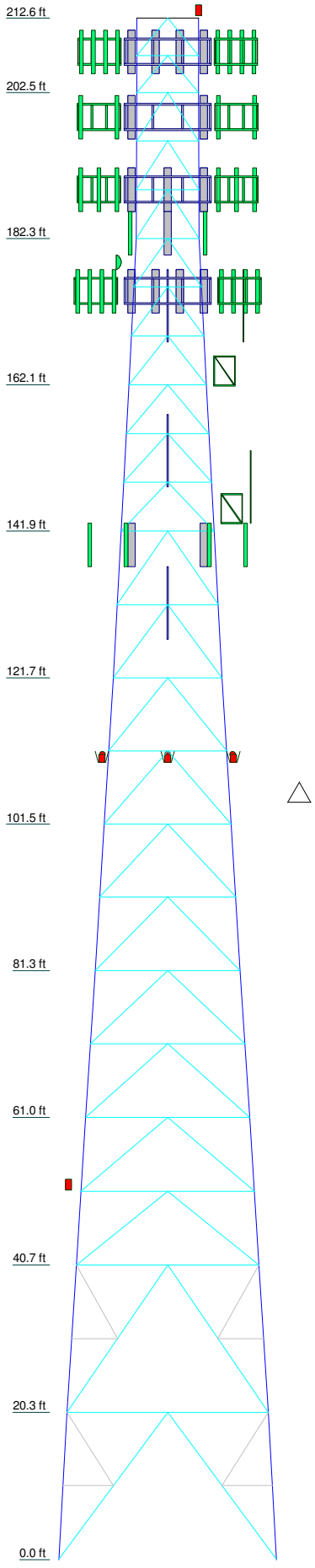
4.1) Recommendations

The tower and its foundation have sufficient capacity to support the existing, reserved and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH		ROHN 8 EHS		ROHN 6 EH		ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH	A
Leg Grade	A572-50										
Diagonals	ROHN 3 STD						ROHN 2.5 STD		ROHN 2 STD		
Diagonal Grade	A572-50										
Top Girts	N.A.										B
Horizontals	ROHN 3 STD			ROHN 2.5 STD			ROHN 2 STD			ROHN 1.5 STD	
Red. Horizontals	ROHN 1.5 STD						N.A.				
Red. Diagonals	ROHN 2 STD						N.A.				
Red. Hips	ROHN 1.5 STD						N.A.				
Inner Bracing	ROHN 3 STD		L3 1/2x3 1/2x1/4		L3x3x3/16		L2 1/2x2 1/2x3/16		L2x2x1/8		
Face Width (ft)	30.0417	27.8333	25.1771	22.6771	20.0417	17.5417	15.0417	12.7917	10.7083	8.625	8.54167	8.5
# Panels @ (ft)	1 @ 20.25	1 @ 20.3333	2 @ 10.1667	2 @ 10.1354	6 @ 10.1042			3 @ 6.73611	3 @ 6.72917	3 @ 6.72222	2 @ 5.08333	
Weight (K)	37.5	5.7	5.6	4.9	4.7	4.0	3.3	2.7	2.4	1.8	1.5	0.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	212	(2) SBNHH-1D65A w/ Mount Pipe	189
(2) LPA-80080/6CF w/ Mount Pipe	208	(2) SBNHH-1D65A w/ Mount Pipe	189
(2) LPA-80080/6CF w/ Mount Pipe	208	WCS RRUS-32-B30	189
(2) LPA-80080/6CF w/ Mount Pipe	208	WCS RRUS-32-B30	189
(3) SBNHH-1D65B w/ Mount Pipe	208	WCS RRUS-32-B30	189
(3) SBNHH-1D65B w/ Mount Pipe	208	DC6-48-60-18-8F	189
(3) SBNHH-1D65B w/ Mount Pipe	208	RRUS 32 B2	189
RRH2X60-PCS	208	RRUS 32 B2	189
RRH2X60-PCS	208	RRUS 32 B2	189
RRH2X60-PCS	208	Sector Mount [SM 510-3]	189
RRH2x60-700	208	APXV18-206517LS	183
RRH2x60-700	208	APXV18-206517LS	183
RRH2x60-700	208	APXV18-206517LS	183
RRH2X60-AWS	208	Pipe Mount [PM 601-3]	183
RRH2X60-AWS	208	(4) DB844H90E-XY w/ Mount Pipe	175
RRH2X60-AWS	208	(4) DB844H90E-XY w/ Mount Pipe	175
DB-B1-6C-12AB-0Z	208	(4) DB844H90E-XY w/ Mount Pipe	175
DB-T1-6Z-8AB-0Z	208	Sector Mount [SM 510-3]	175
Sector Mount [SM 510-3]	208	6' x 2" Mount Pipe	175
APXVSPP18-C-A20 w/ Mount Pipe	199	6' x 2" Mount Pipe	175
APXVSPP18-C-A20 w/ Mount Pipe	199	HPD2-23	175
APXVSPP18-C-A20 w/ Mount Pipe	199	HPD2-23	175
APXVTM14-C-120 w/ Mount Pipe	199	1151-3	167
APXVTM14-C-120 w/ Mount Pipe	199	Side Arm Mount [SO 308-1]	167
APXVTM14-C-120 w/ Mount Pipe	199	1151-3	164
800MHz 2X50W RRH W/FILTER	199	Side Arm Mount [SO 308-1]	164
800MHz 2X50W RRH W/FILTER	199	SD310-HL	162
800MHz 2X50W RRH W/FILTER	199	Side Arm Mount [SO 308-1]	162
1900MHz RRH (65MHz)	199	1151-3	147
1900MHz RRH (65MHz)	199	Side Arm Mount [SO 308-1]	147
1900MHz RRH (65MHz)	199	SD310-HL	145
TD-RRH8x20-25	199	Side Arm Mount [SO 308-1]	145
TD-RRH8x20-25	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
TD-RRH8x20-25	199		
Sector Mount [SM 505-3]	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
(3) 4' x 2" Pipe Mount	199		
(3) 4' x 2" Pipe Mount	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
(3) 4' x 2" Pipe Mount	199		
7770.00 w/ Mount Pipe	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
7770.00 w/ Mount Pipe	189		
7770.00 w/ Mount Pipe	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	189	KRY 112 144/1	139
		KRY 112 144/1	139
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	189	KRY 112 144/1	139
		Side Arm Mount [SO 201-3]	139
7020.00	189	1142-2C	128
7020.00	189	Side Arm Mount [SO 308-1]	128
7020.00	189	Side Lighting	110
RRUS-11	189	Side Lighting	110
RRUS-11	189	Side Lighting	110
RRUS-11	189	GPS_A	51
DC6-48-60-18-8F	189	Side Arm Mount [SO 701-1]	51
(2) SBNHH-1D65A w/ Mount Pipe	189		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	ROHN 1.5 STD

MATERIAL STRENGTH

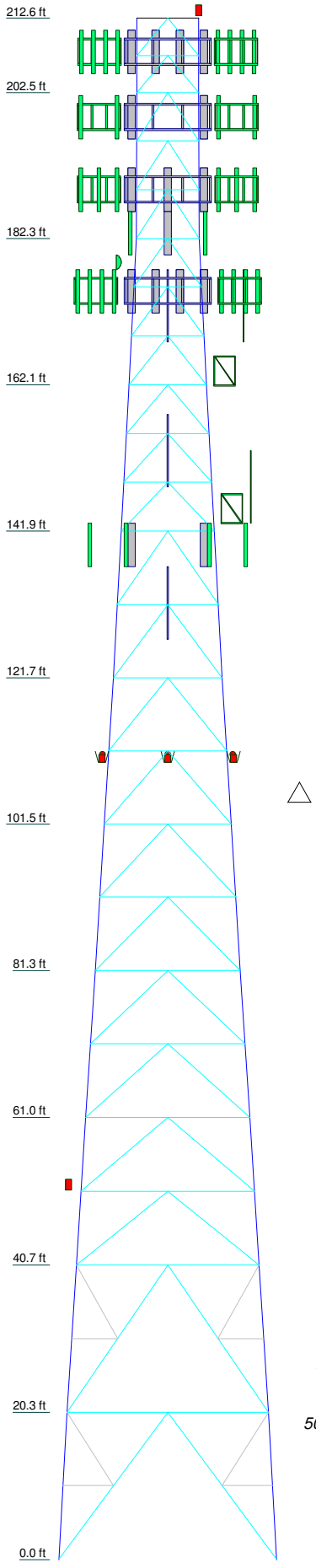
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

JACOBS
Jacobs Engineering Group Inc.

Jacobs Engineering Group Inc.
5449 Bells Ferry Rd
Acworth, GA 30102
Phone: (770) 701-2500
FAX: (770) 701-2500

Job: ***212 ht Self Support Tower***		
Project: ***BU 806363 WO 1305916***		
Client: Crown Castle	Drawn by: NeelanS	App'd:
Code: TIA-222-G	Date: 10/03/16	Scale: NTS
Path:		Dwg No. E-1

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH		ROHN 8 EHS		ROHN 6 EH		ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH	A
Leg Grade					A572-50						
Diagonals			ROHN 3 STD			ROHN 2.5 STD			ROHN 2 STD		
Diagonal Grade					N.A.	A572-50					
Top Girts											B
Horizontals	ROHN 3 STD			ROHN 2.5 STD			ROHN 2 STD			ROHN 1.5 STD	
Red. Horizontals	ROHN 1.5 STD					N.A.					
Red. Diagonals	ROHN 2 STD					N.A.					
Red. Hips	ROHN 1.5 STD						N.A.				
Inner Bracing	ROHN 3 STD		L3 1/2x3 1/2x1/4		L3x3x3/16	L2 1/2x2 1/2x3/16		L2x2x1/8			
Face Width (ft)	27.8333	25.1771	22.6771	20.0417	17.5417	15.0417	12.7917	10.7083	8.625	8.54167	8.5
# Panels @ (ft)	1 @ 20.25	1 @ 20.3333	2 @ 10.1667	2 @ 10.1354		6 @ 10.1042		3 @ 6.73611	3 @ 6.72917	3 @ 6.72222	2 @ 5.08333
Weight (K)	37.5	5.7	5.6	4.9	4.7	4.0	3.3	2.7	2.4	1.8	1.5	0.7



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	ROHN 1.5 STD

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 98.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 388 K
SHEAR: 45 K

UPLIFT: -328 K
SHEAR: 42 K

AXIAL 257 K
SHEAR 22 K
MOMENT 2934 kip-ft

TORQUE 8 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 100 K
SHEAR 76 K
MOMENT 9291 kip-ft

TORQUE 32 kip-ft
REACTIONS - 101 mph WIND

Jacobs Engineering Group Inc.
5449 Bells Ferry Rd
Acworth, GA 30102
Phone: (770) 701-2500
FAX: (770) 701-2500

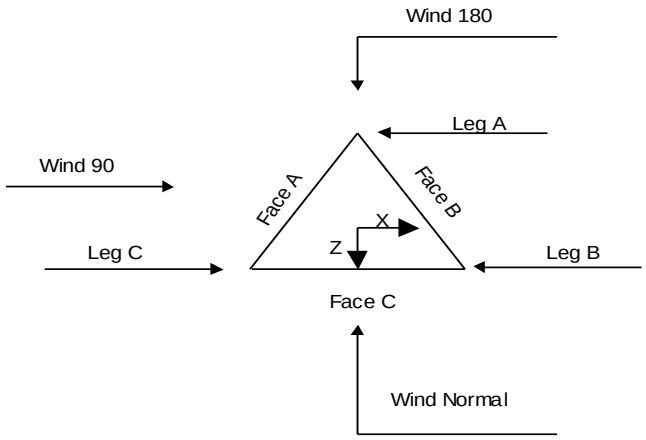
Job: ***212 ht Self Support Tower***		
Project: ***BU 806363 WO 1305916***		
Client: Crown Castle	Drawn by: NeelanS	App'd:
Code: TIA-222-G	Date: 10/03/16	Scale: NTS
Path:		Dwg No. E-1

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 212.63 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 8.50 ft at the top and 30.04 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:
Tower is located in Middlesex County, Connecticut.
Basic wind speed of 101 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	212.63-202.46			8.50	1	10.17
T2	202.46-182.29			8.54	1	20.17
T3	182.29-162.10			8.63	1	20.19
T4	162.10-141.90			10.71	1	20.21
T5	141.90-121.69			12.79	1	20.21
T6	121.69-101.48			15.04	1	20.21
T7	101.48-81.27			17.54	1	20.21
T8	81.27-61.00			20.04	1	20.27
T9	61.00-40.67			22.68	1	20.33
T10	40.67-20.33			25.18	1	20.33
T11	20.33-0.00			27.83	1	20.33

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	212.63-202.46	5.08	K Brace Down	No	Yes	0.0000	0.0000
T2	202.46-182.29	6.72	K Brace Down	No	Yes	0.0000	0.0000
T3	182.29-162.10	6.73	K Brace Down	No	Yes	0.0000	0.0000
T4	162.10-141.90	6.74	K Brace Down	No	Yes	0.0000	0.0000
T5	141.90-121.69	10.10	K Brace Down	No	Yes	0.0000	0.0000
T6	121.69-101.48	10.10	K Brace Down	No	Yes	0.0000	0.0000
T7	101.48-81.27	10.10	K Brace Down	No	Yes	0.0000	0.0000
T8	81.27-61.00	10.14	K Brace Down	No	Yes	0.0000	0.0000
T9	61.00-40.67	10.17	K Brace Down	No	Yes	0.0000	0.0000
T10	40.67-20.33	20.33	K1 Down	No	Yes	0.0000	0.0000
T11	20.33-0.00	20.25	K1 Down	No	Yes	0.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 212.63-202.46	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 202.46-182.29	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T3 182.29-162.10	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T4 162.10-141.90	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141.90-121.69	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T6 121.69-101.48	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T7 101.48-81.27	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 81.27-61.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 61.00-40.67	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T10 40.67-20.33	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.33-0.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 212.63-202.46	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 202.46-182.29	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 182.29-162.10	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T4 162.10-141.90	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141.90-121.69	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T6 121.69-101.48	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T7 101.48-81.27	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T8 81.27-61.00	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T9 61.00-40.67	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T10 40.67-20.33	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.33-0.00	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 212.63-202.46	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 202.46-182.29	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 182.29-162.10	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 162.10-141.90	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T5 141.90-121.69	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T6 121.69-101.48	Single Angle		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 101.48-81.27	Single Angle		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 81.27-61.00	Single Angle		A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 61.00-40.67	Single Angle		A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T10 40.67-20.33	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.33-0.00	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T10 40.67-20.33	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T11 20.33-0.00	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 212.63-202.46	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T2 202.46-182.29	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T3 182.29-162.10	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T4 162.10-141.90	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T5 141.90-121.69	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T6 121.69-101.48	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T7 101.48-81.27	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T8 81.27-61.00	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T9 61.00-40.67	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T10 40.67-20.33	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000
T11 20.33-0.00	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 212.63-202.46	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 202.46-182.29	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 182.29-162.10	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 162.10-141.90	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 141.90-121.69	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T6 121.69-101.48	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T7 101.48-81.27	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 81.27-61.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 61.00-40.67	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T10 40.67-20.33	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T11 20.33-0.00	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 212.63-202.46	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T2 202.46-182.29	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T3 182.29-162.10	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T4 162.10-141.90	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T5 141.90-121.69	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T6 121.69-101.48	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T7 101.48-81.27	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T8 81.27-61.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T9 61.00-40.67	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T10 40.67-20.33	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T11 20.33-0.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 212.63-202.46	Flange	0.7500 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T2 202.46-182.29	Flange	0.8750 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T3 182.29-162.10	Flange	1.0000 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T4 162.10-141.90	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T5 141.90-121.69	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T6 121.69-101.48	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T7 101.48-81.27	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T8 81.27-61.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T9 61.00-40.67	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T10 40.67-20.33	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325N	2	0.6250 A325X	0
T11 20.33-0.00	Flange	1.0000 A354-BC	0	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325N	2	0.6250 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF4-50A(1/2")	A	No	Ar (CaAa)	51.00 - 0.00	0.0000	0.48	1	1	0.6300	0.6300		0.15
HB114-1-08U4-M5J(1 1/4")	A	No	Ar (CaAa)	199.00 - 0.00	0.0000	0.45	4	4	1.5400	1.5400		1.08
Feedline Ladder (Af)	A	No	Af (CaAa)	199.00 - 0.00	0.0000	0.46	1	1	3.0000	3.0000		8.40
LDF5-50A(7/8")	A	No	Ar (CaAa)	128.00 - 0.00	0.0000	0.36	5	5	1.0900	1.0900		0.33
LDF5-50A(7/8")	A	No	Ar (CaAa)	145.00 - 128.00	0.0000	0.36	4	4	1.0900	1.0900		0.33
LDF5-	A	No	Ar (CaAa)	147.00 - 145.00	0.0000	0.36	3	3	1.0900	1.0900		0.33

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
50A(7/8")												
LDF5-50A(7/8")	A	No	Ar (CaAa)	164.00 - 147.00	0.0000	0.36	2	2	1.0900	1.0900		0.33
LDF5-50A(7/8")	A	No	Ar (CaAa)	167.00 - 164.00	0.0000	0.36	1	1	1.0900	1.0900		0.33
FSJ2-50(3/8")	A	No	Ar (CaAa)	162.00 - 0.00	0.0000	0.38	1	1	0.4250	0.4250		0.08
CR 50 1873(1-5/8")	A	No	Ar (CaAa)	189.00 - 0.00	0.0000	-0.44	12	6	1.9800	1.9800		0.83
ATCB-B01-100K(1/4")	A	No	Ar (CaAa)	175.00 - 0.00	0.0000	-0.48	4	2	0.3150	0.3150		0.07
Feedline Ladder (Af)	A	No	Af (CaAa)	189.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40
***												
LDF6-50A(1-1/4")	B	No	Ar (CaAa)	139.00 - 0.00	2.0000	-0.45	5	5	1.5500	1.5500		0.66
LDF7-50A(1-5/8")	B	No	Ar (CaAa)	139.00 - 0.00	2.0000	-0.45	7	6	1.9800	1.9800		0.82
Feedline Ladder (Af)	B	No	Af (CaAa)	139.00 - 0.00	0.0000	-0.45	1	1	3.0000	3.0000		8.40
LDF6-50A(1-1/4")	B	No	Ar (CaAa)	175.00 - 0.00	0.0000	0.45	12	12	1.5500	1.5500		0.66
Feedline Ladder (Af)	B	No	Af (CaAa)	175.00 - 0.00	0.0000	-0.45	1	1	3.0000	3.0000		8.40
AVA7-50(1-5/8)	C	No	Ar (CaAa)	208.00 - 0.00	0.0000	0.43	18	12	2.0100	2.0100		0.70
Feedline Ladder (Af)	C	No	Af (CaAa)	183.00 - 0.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
***												
FB-L98B-034-XXX(3/8")	A	No	Ar (CaAa)	189.00 - 0.00	0.0000	-0.2	1	1	0.3937	0.3937		0.06
PWRT-608-S(13/16")	A	No	Ar (CaAa)	189.00 - 0.00	0.0000	-0.2	2	2	0.8200	0.8200		0.62
PWRT-608-S(13/16")	A	No	Ar (CaAa)	189.00 - 0.00	0.0000	0.3	2	2	0.8200	0.8200		0.62
AVA7-50(1-5/8")	C	No	Ar (CaAa)	208.00 - 0.00	0.0000	0	1	1	2.0100	2.0100		0.70
HB114-1-08U4-M5J(1-1/4")	C	No	Ar (CaAa)	208.00 - 0.00	0.0000	0.45	1	1	1.5400	1.5400		1.08
LDF5-50A(7/8")	B	No	Ar (CaAa)	139.00 - 0.00	0.0000	-0.43	3	2	1.0900	1.0900		0.33

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
***										
2 1/4" Flex Conduit	C	No	CaAa (In Face)	189.00 - 0.00	0.0000	-0.22	1	No Ice	0.23	2.40
								1/2" Ice	0.32	4.08
								1" Ice	0.43	6.37

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	212.63-202.46	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	22.017	0.000	0.08
T2	202.46-182.29	A	0.000	0.000	40.404	0.000	0.35
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	81.986	0.000	0.31
T3	182.29-162.10	A	0.000	0.000	90.370	0.000	0.68
		B	0.000	0.000	30.434	0.000	0.21
		C	0.000	0.000	94.841	0.000	0.51
T4	162.10-141.90	A	0.000	0.000	96.760	0.000	0.70
		B	0.000	0.000	47.692	0.000	0.33
		C	0.000	0.000	94.939	0.000	0.51
T5	141.90-121.69	A	0.000	0.000	101.000	0.000	0.72
		B	0.000	0.000	99.421	0.000	0.65
		C	0.000	0.000	94.939	0.000	0.51
T6	121.69-101.48	A	0.000	0.000	102.514	0.000	0.72
		B	0.000	0.000	108.074	0.000	0.70
		C	0.000	0.000	94.939	0.000	0.51
T7	101.48-81.27	A	0.000	0.000	102.514	0.000	0.72
		B	0.000	0.000	108.074	0.000	0.70
		C	0.000	0.000	94.939	0.000	0.51
T8	81.27-61.00	A	0.000	0.000	102.831	0.000	0.72
		B	0.000	0.000	108.408	0.000	0.70
		C	0.000	0.000	95.232	0.000	0.51
T9	61.00-40.67	A	0.000	0.000	103.799	0.000	0.73
		B	0.000	0.000	108.743	0.000	0.71
		C	0.000	0.000	95.526	0.000	0.51
T10	40.67-20.33	A	0.000	0.000	104.429	0.000	0.73
		B	0.000	0.000	108.743	0.000	0.71
		C	0.000	0.000	95.526	0.000	0.51
T11	20.33-0.00	A	0.000	0.000	104.429	0.000	0.73
		B	0.000	0.000	108.743	0.000	0.71
		C	0.000	0.000	95.526	0.000	0.51

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	212.63-202.46	A	1.803	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	41.124	0.000	0.85
T2	202.46-182.29	A	1.789	0.000	0.000	89.830	0.000	1.71
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	153.983	0.000	3.18
T3	182.29-162.10	A	1.769	0.000	0.000	199.538	0.000	3.76
		B		0.000	0.000	74.714	0.000	1.24
		C		0.000	0.000	178.268	0.000	3.72
T4	162.10-141.90	A	1.748	0.000	0.000	232.086	0.000	4.07
		B		0.000	0.000	116.867	0.000	1.92
		C		0.000	0.000	177.968	0.000	3.69
T5	141.90-121.69	A	1.723	0.000	0.000	240.112	0.000	4.17
		B		0.000	0.000	249.213	0.000	4.00
		C		0.000	0.000	177.421	0.000	3.66
T6	121.69-101.48	A	1.694	0.000	0.000	242.045	0.000	4.17
		B		0.000	0.000	270.435	0.000	4.29
		C		0.000	0.000	176.794	0.000	3.61
T7	101.48-81.27	A	1.661	0.000	0.000	240.143	0.000	4.10
		B		0.000	0.000	269.309	0.000	4.22
		C		0.000	0.000	176.054	0.000	3.57
T8	81.27-61.00	A	1.620	0.000	0.000	238.550	0.000	4.04
		B		0.000	0.000	268.758	0.000	4.15
		C		0.000	0.000	175.690	0.000	3.52
T9	61.00-40.67	A	1.566	0.000	0.000	240.122	0.000	3.99
		B		0.000	0.000	267.780	0.000	4.06
		C		0.000	0.000	175.043	0.000	3.45
T10	40.67-20.33	A	1.488	0.000	0.000	239.125	0.000	3.88
		B		0.000	0.000	265.150	0.000	3.90
		C		0.000	0.000	173.313	0.000	3.34
T11	20.33-0.00	A	1.333	0.000	0.000	229.694	0.000	3.58
		B		0.000	0.000	259.941	0.000	3.60

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	169.880	0.000	3.12

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	212.63-202.46	-6.0274	4.6608	-4.5797	3.6484
T2	202.46-182.29	-6.9089	2.8989	-5.2289	1.5749
T3	182.29-162.10	-5.7845	2.8432	-3.7265	1.4714
T4	162.10-141.90	-5.5673	2.9233	-3.1492	1.2649
T5	141.90-121.69	-5.2004	-0.7838	-2.8401	-2.2048
T6	121.69-101.48	-5.8514	-1.5728	-3.1857	-3.1347
T7	101.48-81.27	-6.6104	-1.7773	-3.6398	-3.5607
T8	81.27-61.00	-7.2929	-1.9613	-4.0806	-3.9680
T9	61.00-40.67	-8.0992	-2.2477	-4.5409	-4.5854
T10	40.67-20.33	-8.8706	-2.5318	-4.9758	-5.1672
T11	20.33-0.00	-9.6314	-2.7491	-5.4680	-5.5571

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	25	AVA7-50(1-5/8)	202.46 - 208.00	0.6000	0.6000
T1	33	AVA7-50(1-5/8")	202.46 - 208.00	0.6000	0.6000
T1	34	HB114-1-08U4-M5J(1-1/4")	202.46 - 208.00	0.6000	0.6000
T2	2	HB114-1-08U4-M5J(1 1/4")	182.29 - 199.00	0.6000	0.6000
T2	4	Feedline Ladder (Af)	182.29 - 199.00	0.6000	0.6000
T2	11	CR 50 1873(1-5/8")	182.29 - 189.00	0.6000	0.6000
T2	15	Feedline Ladder (Af)	182.29 - 189.00	0.6000	0.6000
T2	25	AVA7-50(1-5/8)	182.29 - 202.46	0.6000	0.6000
T2	28	Feedline Ladder (Af)	182.29 - 183.00	0.6000	0.6000
T2	30	FB-L98B-034-XXX(3/8")	182.29 - 189.00	0.6000	0.6000
T2	31	PWRT-608-S(13/16")	182.29 - 189.00	0.6000	0.6000
T2	32	PWRT-608-S(13/16")	182.29 - 189.00	0.6000	0.6000
T2	33	AVA7-50(1-5/8")	182.29 - 202.46	0.6000	0.6000
T2	34	HB114-1-08U4-M5J(1-1/4")	182.29 - 202.46	0.6000	0.6000
T2	36	2 1/4" Flex Conduit	182.29 - 189.00	1.0000	1.0000
T3	2	HB114-1-08U4-M5J(1 1/4")	162.10 - 182.29	0.6000	0.6000
T3	4	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	8	LDF5-50A(7/8")	162.10 - 164.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	9	LDF5-50A(7/8")	164.00 - 167.00	0.6000	0.6000
T3	11	CR 50 1873(1-5/8")	162.10 - 182.29	0.6000	0.6000
T3	14	ATCB-B01-100K(1/4")	162.10 - 175.00	0.6000	0.6000
T3	15	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	21	LDF6-50A(1-1/4")	162.10 - 175.00	0.6000	0.6000
T3	22	Feedline Ladder (Af)	162.10 - 175.00	0.6000	0.6000
T3	25	AVA7-50(1-5/8)	162.10 - 182.29	0.6000	0.6000
T3	28	Feedline Ladder (Af)	162.10 - 182.29	0.6000	0.6000
T3	30	FB-L98B-034-XXX(3/8")	162.10 - 182.29	0.6000	0.6000
T3	31	PWRT-608-S(13/16")	162.10 - 182.29	0.6000	0.6000
T3	32	PWRT-608-S(13/16")	162.10 - 182.29	0.6000	0.6000
T3	33	AVA7-50(1-5/8")	162.10 - 182.29	0.6000	0.6000
T3	34	HB114-1-08U4-M5J(1-1/4")	162.10 - 182.29	0.6000	0.6000
T3	36	2 1/4" Flex Conduit	162.10 - 182.29	1.0000	1.0000
T4	2	HB114-1-08U4-M5J(1 1/4")	141.90 - 162.10	0.6000	0.6000
T4	4	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	6	LDF5-50A(7/8")	141.90 - 145.00	0.6000	0.6000
T4	7	LDF5-50A(7/8")	145.00 - 147.00	0.6000	0.6000
T4	8	LDF5-50A(7/8")	147.00 - 162.10	0.6000	0.6000
T4	10	FSJ2-50(3/8")	141.90 - 162.00	0.6000	0.6000
T4	11	CR 50 1873(1-5/8")	141.90 - 162.10	0.6000	0.6000
T4	14	ATCB-B01-100K(1/4")	141.90 - 162.10	0.6000	0.6000
T4	15	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	21	LDF6-50A(1-1/4")	141.90 - 162.10	0.6000	0.6000
T4	22	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	25	AVA7-50(1-5/8)	141.90 - 162.10	0.6000	0.6000
T4	28	Feedline Ladder (Af)	141.90 - 162.10	0.6000	0.6000
T4	30	FB-L98B-034-XXX(3/8")	141.90 - 162.10	0.6000	0.6000
T4	31	PWRT-608-S(13/16")	141.90 - 162.10	0.6000	0.6000
T4	32	PWRT-608-S(13/16")	141.90 - 162.10	0.6000	0.6000
T4	33	AVA7-50(1-5/8")	141.90 - 162.10	0.6000	0.6000
T4	34	HB114-1-08U4-M5J(1-1/4")	141.90 - 162.10	0.6000	0.6000
T4	36	2 1/4" Flex Conduit	141.90 - 162.10	1.0000	1.0000
T5	2	HB114-1-08U4-M5J(1 1/4")	121.69 - 141.90	0.6000	0.6000
T5	4	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	5	LDF5-50A(7/8")	121.69 - 128.00	0.6000	0.6000
T5	6	LDF5-50A(7/8")	128.00 - 141.90	0.6000	0.6000
T5	10	FSJ2-50(3/8")	121.69 - 141.90	0.6000	0.6000
T5	11	CR 50 1873(1-5/8")	121.69 - 141.90	0.6000	0.6000
T5	14	ATCB-B01-100K(1/4")	121.69 - 141.90	0.6000	0.6000
T5	15	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	17	LDF6-50A(1-1/4")	121.69 - 139.00	0.6000	0.6000
T5	18	LDF7-50A(1-5/8")	121.69 - 139.00	0.6000	0.6000
T5	20	Feedline Ladder (Af)	121.69 - 139.00	0.6000	0.6000
T5	21	LDF6-50A(1-1/4")	121.69 - 141.90	0.6000	0.6000
T5	22	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	25	AVA7-50(1-5/8)	121.69 - 141.90	0.6000	0.6000
T5	28	Feedline Ladder (Af)	121.69 - 141.90	0.6000	0.6000
T5	30	FB-L98B-034-XXX(3/8")	121.69 - 141.90	0.6000	0.6000
T5	31	PWRT-608-S(13/16")	121.69 - 141.90	0.6000	0.6000
T5	32	PWRT-608-S(13/16")	121.69 - 141.90	0.6000	0.6000
T5	33	AVA7-50(1-5/8")	121.69 - 141.90	0.6000	0.6000
T5	34	HB114-1-08U4-M5J(1-1/4")	121.69 - 141.90	0.6000	0.6000
T5	35	LDF5-50A(7/8")	121.69 - 139.00	0.6000	0.6000
T5	36	2 1/4" Flex Conduit	121.69 - 141.90	1.0000	1.0000
T6	2	HB114-1-08U4-M5J(1 1/4")	101.48 - 121.69	0.6000	0.6000
T6	4	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	5	LDF5-50A(7/8")	101.48 - 121.69	0.6000	0.6000
T6	10	FSJ2-50(3/8")	101.48 - 121.69	0.6000	0.6000
T6	11	CR 50 1873(1-5/8")	101.48 - 121.69	0.6000	0.6000
T6	14	ATCB-B01-100K(1/4")	101.48 - 121.69	0.6000	0.6000
T6	15	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	17	LDF6-50A(1-1/4")	101.48 - 121.69	0.6000	0.6000
T6	18	LDF7-50A(1-5/8")	101.48 - 121.69	0.6000	0.6000
T6	20	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	21	LDF6-50A(1-1/4")	101.48 - 121.69	0.6000	0.6000
T6	22	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	25	AVA7-50(1-5/8)	101.48 - 121.69	0.6000	0.6000
T6	28	Feedline Ladder (Af)	101.48 - 121.69	0.6000	0.6000
T6	30	FB-L98B-034-XXX(3/8")	101.48 - 121.69	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	31	PWRT-608-S(13/16")	101.48 - 121.69	0.6000	0.6000
T6	32	PWRT-608-S(13/16")	101.48 - 121.69	0.6000	0.6000
T6	33	AVA7-50(1-5/8")	101.48 - 121.69	0.6000	0.6000
T6	34	HB114-1-08U4-M5J(1-1/4")	101.48 - 121.69	0.6000	0.6000
T6	35	LDF5-50A(7/8")	101.48 - 121.69	0.6000	0.6000
T6	36	2 1/4" Flex Conduit	101.48 - 121.69	1.0000	1.0000
T7	2	HB114-1-08U4-M5J(1 1/4")	81.27 - 101.48	0.6000	0.6000
T7	4	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	5	LDF5-50A(7/8")	81.27 - 101.48	0.6000	0.6000
T7	10	FSJ2-50(3/8")	81.27 - 101.48	0.6000	0.6000
T7	11	CR 50 1873(1-5/8")	81.27 - 101.48	0.6000	0.6000
T7	14	ATCB-B01-100K(1/4")	81.27 - 101.48	0.6000	0.6000
T7	15	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	17	LDF6-50A(1-1/4")	81.27 - 101.48	0.6000	0.6000
T7	18	LDF7-50A(1-5/8")	81.27 - 101.48	0.6000	0.6000
T7	20	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	21	LDF6-50A(1-1/4")	81.27 - 101.48	0.6000	0.6000
T7	22	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	25	AVA7-50(1-5/8)	81.27 - 101.48	0.6000	0.6000
T7	28	Feedline Ladder (Af)	81.27 - 101.48	0.6000	0.6000
T7	30	FB-L98B-034-XXX(3/8")	81.27 - 101.48	0.6000	0.6000
T7	31	PWRT-608-S(13/16")	81.27 - 101.48	0.6000	0.6000
T7	32	PWRT-608-S(13/16")	81.27 - 101.48	0.6000	0.6000
T7	33	AVA7-50(1-5/8")	81.27 - 101.48	0.6000	0.6000
T7	34	HB114-1-08U4-M5J(1-1/4")	81.27 - 101.48	0.6000	0.6000
T7	35	LDF5-50A(7/8")	81.27 - 101.48	0.6000	0.6000
T7	36	2 1/4" Flex Conduit	81.27 - 101.48	1.0000	1.0000
T8	2	HB114-1-08U4-M5J(1 1/4")	61.00 - 81.27	0.6000	0.6000
T8	4	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	5	LDF5-50A(7/8")	61.00 - 81.27	0.6000	0.6000
T8	10	FSJ2-50(3/8")	61.00 - 81.27	0.6000	0.6000
T8	11	CR 50 1873(1-5/8")	61.00 - 81.27	0.6000	0.6000
T8	14	ATCB-B01-100K(1/4")	61.00 - 81.27	0.6000	0.6000
T8	15	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	17	LDF6-50A(1-1/4")	61.00 - 81.27	0.6000	0.6000
T8	18	LDF7-50A(1-5/8")	61.00 - 81.27	0.6000	0.6000
T8	20	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	21	LDF6-50A(1-1/4")	61.00 - 81.27	0.6000	0.6000
T8	22	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	25	AVA7-50(1-5/8)	61.00 - 81.27	0.6000	0.6000
T8	28	Feedline Ladder (Af)	61.00 - 81.27	0.6000	0.6000
T8	30	FB-L98B-034-XXX(3/8")	61.00 - 81.27	0.6000	0.6000
T8	31	PWRT-608-S(13/16")	61.00 - 81.27	0.6000	0.6000
T8	32	PWRT-608-S(13/16")	61.00 - 81.27	0.6000	0.6000
T8	33	AVA7-50(1-5/8")	61.00 - 81.27	0.6000	0.6000
T8	34	HB114-1-08U4-M5J(1-1/4")	61.00 - 81.27	0.6000	0.6000
T8	35	LDF5-50A(7/8")	61.00 - 81.27	0.6000	0.6000
T8	36	2 1/4" Flex Conduit	61.00 - 81.27	1.0000	1.0000
T9	1	LDF4-50A(1/2")	40.67 - 51.00	0.6000	0.6000
T9	2	HB114-1-08U4-M5J(1 1/4")	40.67 - 61.00	0.6000	0.6000
T9	4	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	5	LDF5-50A(7/8")	40.67 - 61.00	0.6000	0.6000
T9	10	FSJ2-50(3/8")	40.67 - 61.00	0.6000	0.6000
T9	11	CR 50 1873(1-5/8")	40.67 - 61.00	0.6000	0.6000
T9	14	ATCB-B01-100K(1/4")	40.67 - 61.00	0.6000	0.6000
T9	15	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	17	LDF6-50A(1-1/4")	40.67 - 61.00	0.6000	0.6000
T9	18	LDF7-50A(1-5/8")	40.67 - 61.00	0.6000	0.6000
T9	20	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	21	LDF6-50A(1-1/4")	40.67 - 61.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	25	AVA7-50(1-5/8)	40.67 - 61.00	0.6000	0.6000
T9	28	Feedline Ladder (Af)	40.67 - 61.00	0.6000	0.6000
T9	30	FB-L98B-034-XXX(3/8")	40.67 - 61.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	31	PWRT-608-S(13/16")	40.67 - 61.00	0.6000	0.6000
T9	32	PWRT-608-S(13/16")	40.67 - 61.00	0.6000	0.6000
T9	33	AVA7-50(1-5/8")	40.67 - 61.00	0.6000	0.6000
T9	34	HB114-1-08U4-M5J(1-1/4")	40.67 - 61.00	0.6000	0.6000
T9	35	LDF5-50A(7/8")	40.67 - 61.00	0.6000	0.6000
T9	36	2 1/4" Flex Conduit	40.67 - 61.00	1.0000	1.0000
T10	1	LDF4-50A(1/2")	20.33 - 40.67	0.6000	0.6000
T10	2	HB114-1-08U4-M5J(1 1/4")	20.33 - 40.67	0.6000	0.6000
T10	4	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	5	LDF5-50A(7/8")	20.33 - 40.67	0.6000	0.6000
T10	10	FSJ2-50(3/8")	20.33 - 40.67	0.6000	0.6000
T10	11	CR 50 1873(1-5/8")	20.33 - 40.67	0.6000	0.6000
T10	14	ATCB-B01-100K(1/4")	20.33 - 40.67	0.6000	0.6000
T10	15	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	17	LDF6-50A(1-1/4")	20.33 - 40.67	0.6000	0.6000
T10	18	LDF7-50A(1-5/8")	20.33 - 40.67	0.6000	0.6000
T10	20	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	21	LDF6-50A(1-1/4")	20.33 - 40.67	0.6000	0.6000
T10	22	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	25	AVA7-50(1-5/8)	20.33 - 40.67	0.6000	0.6000
T10	28	Feedline Ladder (Af)	20.33 - 40.67	0.6000	0.6000
T10	30	FB-L98B-034-XXX(3/8")	20.33 - 40.67	0.6000	0.6000
T10	31	PWRT-608-S(13/16")	20.33 - 40.67	0.6000	0.6000
T10	32	PWRT-608-S(13/16")	20.33 - 40.67	0.6000	0.6000
T10	33	AVA7-50(1-5/8")	20.33 - 40.67	0.6000	0.6000
T10	34	HB114-1-08U4-M5J(1-1/4")	20.33 - 40.67	0.6000	0.6000
T10	35	LDF5-50A(7/8")	20.33 - 40.67	0.6000	0.6000
T10	36	2 1/4" Flex Conduit	20.33 - 40.67	1.0000	1.0000
T11	1	LDF4-50A(1/2")	0.00 - 20.33	0.6000	0.6000
T11	2	HB114-1-08U4-M5J(1 1/4")	0.00 - 20.33	0.6000	0.6000
T11	4	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	5	LDF5-50A(7/8")	0.00 - 20.33	0.6000	0.6000
T11	10	FSJ2-50(3/8")	0.00 - 20.33	0.6000	0.6000
T11	11	CR 50 1873(1-5/8")	0.00 - 20.33	0.6000	0.6000
T11	14	ATCB-B01-100K(1/4")	0.00 - 20.33	0.6000	0.6000
T11	15	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	17	LDF6-50A(1-1/4")	0.00 - 20.33	0.6000	0.6000
T11	18	LDF7-50A(1-5/8")	0.00 - 20.33	0.6000	0.6000
T11	20	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	21	LDF6-50A(1-1/4")	0.00 - 20.33	0.6000	0.6000
T11	22	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	25	AVA7-50(1-5/8)	0.00 - 20.33	0.6000	0.6000
T11	28	Feedline Ladder (Af)	0.00 - 20.33	0.6000	0.6000
T11	30	FB-L98B-034-XXX(3/8")	0.00 - 20.33	0.6000	0.6000
T11	31	PWRT-608-S(13/16")	0.00 - 20.33	0.6000	0.6000
T11	32	PWRT-608-S(13/16")	0.00 - 20.33	0.6000	0.6000
T11	33	AVA7-50(1-5/8")	0.00 - 20.33	0.6000	0.6000
T11	34	HB114-1-08U4-M5J(1-1/4")	0.00 - 20.33	0.6000	0.6000
T11	35	LDF5-50A(7/8")	0.00 - 20.33	0.6000	0.6000
T11	36	2 1/4" Flex Conduit	0.00 - 20.33	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Flash Beacon Lighting	B	From Leg	0.00 0.00 1.00	0.0000	212.00	No Ice 1/2" Ice 1" Ice	2.70 3.10 3.50	2.70 3.10 3.50	0.05 0.07 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Side Lighting	A	From Leg	1.00	0.0000	110.00	No Ice	0.13	0.13	0.01
			0.00			1/2" Ice	0.19	0.19	0.01
			0.00			1" Ice	0.27	0.27	0.01
Side Lighting	B	From Leg	1.00	0.0000	110.00	No Ice	0.13	0.13	0.01
			0.00			1/2" Ice	0.19	0.19	0.01
			0.00			1" Ice	0.27	0.27	0.01
Side Lighting	C	From Leg	1.00	0.0000	110.00	No Ice	0.13	0.13	0.01
			0.00			1/2" Ice	0.19	0.19	0.01
			0.00			1" Ice	0.27	0.27	0.01
level 208									
(2) LPA-80080/6CF w/ Mount Pipe	A	From Face	4.00	0.0000	208.00	No Ice	4.56	10.26	0.05
			0.00			1/2" Ice	5.11	11.43	0.11
			1.00			1" Ice	5.61	12.31	0.19
(2) LPA-80080/6CF w/ Mount Pipe	B	From Face	4.00	0.0000	208.00	No Ice	4.56	10.26	0.05
			0.00			1/2" Ice	5.11	11.43	0.11
			1.00			1" Ice	5.61	12.31	0.19
(2) LPA-80080/6CF w/ Mount Pipe	C	From Face	4.00	0.0000	208.00	No Ice	4.56	10.26	0.05
			0.00			1/2" Ice	5.11	11.43	0.11
			1.00			1" Ice	5.61	12.31	0.19
(3) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00	0.0000	208.00	No Ice	8.40	7.07	0.07
			0.00			1/2" Ice	8.96	8.26	0.13
			1.00			1" Ice	9.49	9.17	0.21
(3) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00	0.0000	208.00	No Ice	8.40	7.07	0.07
			0.00			1/2" Ice	8.96	8.26	0.13
			1.00			1" Ice	9.49	9.17	0.21
(3) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00	0.0000	208.00	No Ice	8.40	7.07	0.07
			0.00			1/2" Ice	8.96	8.26	0.13
			1.00			1" Ice	9.49	9.17	0.21
RRH2X60-PCS	A	From Leg	4.00	0.0000	208.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			1.00			1" Ice	2.59	2.09	0.10
RRH2X60-PCS	B	From Leg	4.00	0.0000	208.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			1.00			1" Ice	2.59	2.09	0.10
RRH2X60-PCS	C	From Leg	4.00	0.0000	208.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			1.00			1" Ice	2.59	2.09	0.10
RRH2x60-700	A	From Leg	4.00	0.0000	208.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2x60-700	B	From Leg	4.00	0.0000	208.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2x60-700	C	From Leg	4.00	0.0000	208.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2X60-AWS	A	From Leg	4.00	0.0000	208.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2X60-AWS	B	From Leg	4.00	0.0000	208.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
RRH2X60-AWS	C	From Leg	4.00	0.0000	208.00	No Ice	3.50	1.82	0.06
			0.00			1/2" Ice	3.76	2.05	0.08
			1.00			1" Ice	4.03	2.29	0.11
DB-B1-6C-12AB-0Z	A	From Leg	4.00	0.0000	208.00	No Ice	3.36	2.19	0.02
			0.00			1/2" Ice	3.60	2.39	0.05
			1.00			1" Ice	3.84	2.61	0.08
DB-T1-6Z-8AB-0Z	C	From Face	4.00	0.0000	208.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			1.00			1" Ice	5.35	2.39	0.12
Sector Mount [SM 510-3]	C	None		0.0000	208.00	No Ice	40.10	40.10	2.40
						1/2" Ice	57.33	57.33	3.09
						1" Ice	74.56	74.56	3.78
level 199									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
800MHz 2X50W RRH W/FILTER	A	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
1900MHz RRH (65MHz)	A	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	2.31 2.52 2.73	2.38 2.58 2.79	0.06 0.08 0.11
1900MHz RRH (65MHz)	B	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	2.31 2.52 2.73	2.38 2.58 2.79	0.06 0.08 0.11
1900MHz RRH (65MHz)	C	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	2.31 2.52 2.73	2.38 2.58 2.79	0.06 0.08 0.11
TD-RRH8x20-25	A	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8x20-25	B	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8x20-25	C	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
Sector Mount [SM 505-3]	C	None		0.0000	199.00	No Ice 1/2" Ice 1" Ice	34.86 49.79 64.72	34.86 49.79 64.72	1.73 2.32 2.91
(3) 4' x 2" Pipe Mount	A	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	0.79 1.03 1.28	0.79 1.03 1.28	0.03 0.04 0.04
(3) 4' x 2" Pipe Mount	B	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	0.79 1.03 1.28	0.79 1.03 1.28	0.03 0.04 0.04
(3) 4' x 2" Pipe Mount	C	From Leg	4.00 0.00 -1.00	0.0000	199.00	No Ice 1/2" Ice 1" Ice	0.79 1.03 1.28	0.79 1.03 1.28	0.03 0.04 0.04
level 189									
7770.00 w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.0000	189.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.0000	189.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	C	From Face	4.00	0.0000	189.00	No Ice	5.75	4.25	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	6.18	5.01	0.10
			1.00			1" Ice	6.61	5.71	0.16
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	A	From Face	4.00	0.0000	189.00	No Ice	1.33	0.69	0.03
			0.00			1/2" Ice	1.47	0.81	0.04
			1.00			1" Ice	1.62	0.93	0.05
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	B	From Face	4.00	0.0000	189.00	No Ice	1.33	0.69	0.03
			0.00			1/2" Ice	1.47	0.81	0.04
			1.00			1" Ice	1.62	0.93	0.05
(2) DUAL BAND 800/1900 FULL BAND MASTHEAD	C	From Face	4.00	0.0000	189.00	No Ice	1.33	0.69	0.03
			0.00			1/2" Ice	1.47	0.81	0.04
			1.00			1" Ice	1.62	0.93	0.05
7020.00	A	From Leg	4.00	0.0000	189.00	No Ice	0.10	0.17	0.00
			0.00			1/2" Ice	0.15	0.24	0.01
			1.00			1" Ice	0.20	0.31	0.01
7020.00	B	From Leg	4.00	0.0000	189.00	No Ice	0.10	0.17	0.00
			0.00			1/2" Ice	0.15	0.24	0.01
			1.00			1" Ice	0.20	0.31	0.01
7020.00	C	From Leg	4.00	0.0000	189.00	No Ice	0.10	0.17	0.00
			0.00			1/2" Ice	0.15	0.24	0.01
			1.00			1" Ice	0.20	0.31	0.01
RRUS-11	A	From Face	4.00	0.0000	189.00	No Ice	2.52	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			1.00			1" Ice	2.92	1.36	0.10
RRUS-11	B	From Face	4.00	0.0000	189.00	No Ice	2.52	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.00			1" Ice	2.92	1.36	0.10
RRUS-11	C	From Face	4.00	0.0000	189.00	No Ice	2.52	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.00			1" Ice	2.92	1.36	0.10
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	189.00	No Ice	0.92	0.92	0.03
			0.00			1/2" Ice	1.46	1.46	0.05
			1.00			1" Ice	1.64	1.64	0.07
(2) SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.00	0.0000	189.00	No Ice	5.95	5.19	0.06
			0.00			1/2" Ice	6.39	5.96	0.11
			1.00			1" Ice	6.82	6.66	0.17
(2) SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.00	0.0000	189.00	No Ice	5.95	5.19	0.06
			0.00			1/2" Ice	6.39	5.96	0.11
			1.00			1" Ice	6.82	6.66	0.17
(2) SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.00	0.0000	189.00	No Ice	5.95	5.19	0.06
			0.00			1/2" Ice	6.39	5.96	0.11
			1.00			1" Ice	6.82	6.66	0.17
WCS RRUS-32-B30	A	From Leg	4.00	0.0000	189.00	No Ice	3.31	2.42	0.08
			0.00			1/2" Ice	3.56	2.64	0.10
			1.00			1" Ice	3.81	2.86	0.14
WCS RRUS-32-B30	B	From Leg	4.00	0.0000	189.00	No Ice	3.31	2.42	0.08
			0.00			1/2" Ice	3.56	2.64	0.10
			1.00			1" Ice	3.81	2.86	0.14
WCS RRUS-32-B30	C	From Leg	4.00	0.0000	189.00	No Ice	3.31	2.42	0.08
			0.00			1/2" Ice	3.56	2.64	0.10
			1.00			1" Ice	3.81	2.86	0.14
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	189.00	No Ice	0.92	0.92	0.03
			0.00			1/2" Ice	1.46	1.46	0.05
			1.00			1" Ice	1.64	1.64	0.07
RRUS 32 B2	A	From Leg	4.00	0.0000	189.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			0.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Leg	4.00	0.0000	189.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			1.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Leg	4.00	0.0000	189.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			1.00			1" Ice	3.18	2.05	0.10
Sector Mount [SM 510-3]	C	None		0.0000	189.00	No Ice	40.10	40.10	2.40
						1/2" Ice	57.33	57.33	3.09
						1" Ice	74.56	74.56	3.78

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
level 183									
APXV18-206517LS	A	From Leg	1.00	0.0000	183.00	No Ice	5.05	3.01	0.03
			0.00			1/2" Ice	5.50	3.44	0.05
			0.00			1" Ice	5.95	3.88	0.09
APXV18-206517LS	B	From Leg	1.00	0.0000	183.00	No Ice	5.05	3.01	0.03
			0.00			1/2" Ice	5.50	3.44	0.05
			0.00			1" Ice	5.95	3.88	0.09
APXV18-206517LS	C	From Leg	1.00	0.0000	183.00	No Ice	5.05	3.01	0.03
			0.00			1/2" Ice	5.50	3.44	0.05
			0.00			1" Ice	5.95	3.88	0.09
Pipe Mount [PM 601-3]	C	None		0.0000	183.00	No Ice	4.39	4.39	0.20
						1/2" Ice	5.48	5.48	0.24
						1" Ice	6.57	6.57	0.28
level 175									
(4) DB844H90E-XY w/ Mount Pipe	A	From Face	4.00	0.0000	175.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			1.00			1" Ice	4.03	6.04	0.12
(4) DB844H90E-XY w/ Mount Pipe	B	From Face	4.00	0.0000	175.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			1.00			1" Ice	4.03	6.04	0.12
(4) DB844H90E-XY w/ Mount Pipe	C	From Face	4.00	0.0000	175.00	No Ice	3.30	4.80	0.03
			0.00			1/2" Ice	3.67	5.42	0.07
			1.00			1" Ice	4.03	6.04	0.12
Sector Mount [SM 510-3]	C	None		0.0000	175.00	No Ice	40.10	40.10	2.40
						1/2" Ice	57.33	57.33	3.09
						1" Ice	74.56	74.56	3.78
6' x 2" Mount Pipe	A	From Face	0.50	0.0000	175.00	No Ice	1.43	1.43	0.02
			-3.00			1/2" Ice	1.92	1.92	0.03
			4.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Face	0.50	0.0000	175.00	No Ice	1.43	1.43	0.02
			3.00			1/2" Ice	1.92	1.92	0.03
			4.00			1" Ice	2.29	2.29	0.05
level 167									
1151-3	A	From Leg	6.00	0.0000	167.00	No Ice	4.18	4.18	0.02
			0.00			1/2" Ice	5.73	5.73	0.05
			6.00			1" Ice	7.30	7.30	0.09
Side Arm Mount [SO 308-1]	A	From Leg	3.00	0.0000	167.00	No Ice	0.98	3.03	0.05
			0.00			1/2" Ice	1.70	5.22	0.08
			0.00			1" Ice	2.42	7.41	0.10
level 164									
1151-3	B	From Leg	6.00	0.0000	164.00	No Ice	4.18	4.18	0.02
			0.00			1/2" Ice	5.73	5.73	0.05
			9.00			1" Ice	7.30	7.30	0.09
Side Arm Mount [SO 308-1]	B	From Leg	3.00	0.0000	164.00	No Ice	0.98	3.03	0.05
			0.00			1/2" Ice	1.70	5.22	0.08
			0.00			1" Ice	2.42	7.41	0.10
level 162									
SD310-HL	A	From Leg	6.00	0.0000	162.00	No Ice	1.11	1.11	6.50
			0.00			1/2" Ice	1.36	1.36	6.51
			-2.00			1" Ice	1.62	1.62	6.52
Side Arm Mount [SO 308-1]	A	From Leg	3.00	0.0000	162.00	No Ice	0.98	3.03	0.05
			0.00			1/2" Ice	1.70	5.22	0.08
			0.00			1" Ice	2.42	7.41	0.10
level 147									
1151-3	A	From Leg	6.00	0.0000	147.00	No Ice	4.18	4.18	0.02
			0.00			1/2" Ice	5.73	5.73	0.05
			6.00			1" Ice	7.30	7.30	0.09
Side Arm Mount [SO 308-1]	A	From Leg	3.00	0.0000	147.00	No Ice	0.98	3.03	0.05
			0.00			1/2" Ice	1.70	5.22	0.08
			0.00			1" Ice	2.42	7.41	0.10
level 145									
SD310-HL	B	From Leg	6.00	0.0000	145.00	No Ice	1.11	1.11	6.50
			0.00			1/2" Ice	1.36	1.36	6.51
			3.00			1" Ice	1.62	1.62	6.52
Side Arm Mount [SO 308-1]	B	From Leg	3.00	0.0000	145.00	No Ice	0.98	3.03	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	1.70	5.22	0.08
			0.00			1" Ice	2.42	7.41	0.10
level 139									
ERICSSON AIR 21 B2A	A	From Leg	2.00	0.0000	139.00	No Ice	6.33	5.64	0.11
B4P w/ Mount Pipe			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A	B	From Leg	2.00	0.0000	139.00	No Ice	6.33	5.64	0.11
B4P w/ Mount Pipe			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A	C	From Leg	2.00	0.0000	139.00	No Ice	6.33	5.64	0.11
B4P w/ Mount Pipe			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A	A	From Leg	2.00	0.0000	139.00	No Ice	6.33	5.64	0.11
B2P w/ Mount Pipe			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A	B	From Leg	2.00	0.0000	139.00	No Ice	6.33	5.64	0.11
B2P w/ Mount Pipe			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B4A	C	From Leg	2.00	0.0000	139.00	No Ice	6.33	5.64	0.11
B2P w/ Mount Pipe			0.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
KRY 112 144/1	A	From Leg	2.00	0.0000	139.00	No Ice	0.35	0.16	0.01
			0.00			1/2" Ice	0.43	0.22	0.01
			1.00			1" Ice	0.51	0.28	0.02
KRY 112 144/1	B	From Leg	2.00	0.0000	139.00	No Ice	0.35	0.16	0.01
			0.00			1/2" Ice	0.43	0.22	0.01
			1.00			1" Ice	0.51	0.28	0.02
KRY 112 144/1	C	From Leg	2.00	0.0000	139.00	No Ice	0.35	0.16	0.01
			0.00			1/2" Ice	0.43	0.22	0.01
			1.00			1" Ice	0.51	0.28	0.02
Side Arm Mount [SO 201-3]	C	None		0.0000	139.00	No Ice	5.71	5.71	0.29
						1/2" Ice	7.91	7.91	0.35
						1" Ice	10.11	10.11	0.41
level 128									
1142-2C	A	From Leg	6.00	0.0000	128.00	No Ice	2.09	2.09	0.02
			0.00			1/2" Ice	3.37	3.37	0.04
			4.00			1" Ice	4.67	4.67	0.07
Side Arm Mount [SO 308-1]	A	From Leg	3.00	0.0000	128.00	No Ice	0.98	3.03	0.05
			0.00			1/2" Ice	1.70	5.22	0.08
			0.00			1" Ice	2.42	7.41	0.10
level 51									
GPS_A	C	From Leg	2.00	0.0000	51.00	No Ice	0.26	0.26	0.00
			0.00			1/2" Ice	0.32	0.32	0.00
			0.00			1" Ice	0.39	0.39	0.01
Side Arm Mount [SO 701-1]	C	From Leg	1.00	0.0000	51.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-23	C	Paraboloid w/o Radome	From Leg	2.00	-90.0000		175.00	2.00	No Ice	3.14	0.03
				0.00					1/2" Ice	3.41	0.04
				4.00					1" Ice	3.68	0.06

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-23	C	Paraboloid w/o Radome	From Leg	2.00 0.00 4.00	50.0000		175.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	0.03 0.04 0.06
***											

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	212.625 - 202.458	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	35	-5.61	0.07	-0.00
			Max. Mx	2	-2.15	-0.51	0.00
			Max. My	8	-1.56	-0.00	-0.52
			Max. Vy	2	-1.85	0.34	0.00
			Max. Vx	24	-1.84	-0.00	0.32
		Diagonal	Max Tension	8	3.38	0.00	0.00
			Max. Compression	8	-3.45	0.00	0.00
			Max. Mx	38	0.80	0.05	0.00
			Max. My	2	-0.02	0.00	0.00
			Max. Vy	38	-0.03	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	14	2.52	0.00	0.00
			Max. Compression	2	-2.47	-0.01	-0.00
			Max. Mx	33	0.10	-0.03	-0.00
			Max. My	14	-1.16	-0.01	-0.01
			Max. Vy	33	-0.03	-0.03	-0.00
			Max. Vx	14	0.00	-0.01	-0.01
		Top Girt	Max Tension	6	0.21	-0.01	0.00
			Max. Compression	18	-0.21	-0.01	-0.00
			Max. Mx	33	-0.03	-0.03	-0.00
			Max. My	6	-0.07	-0.01	-0.00
			Max. Vy	33	-0.03	-0.03	-0.00
			Max. Vx	6	0.00	-0.01	-0.00
		Inner Bracing	Max Tension	2	0.00	0.00	0.00
			Max. Compression	14	-0.00	0.00	0.00
			Max. Mx	26	-0.00	-0.03	0.00
			Max. My	37	-0.00	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	37	-0.00	0.00	0.00
T2	202.458 - 182.292	Leg	Max Tension	15	20.88	0.12	-0.02
			Max. Compression	2	-29.29	0.29	0.06
			Max. Mx	6	1.87	1.32	0.00
			Max. My	24	-3.22	-0.00	-1.33
			Max. Vy	6	-1.34	0.12	0.01
			Max. Vx	24	1.37	-0.00	-0.10
		Diagonal	Max Tension	4	10.50	0.00	0.00
			Max. Compression	4	-10.58	0.00	0.00
			Max. Mx	38	2.71	0.06	0.00
			Max. My	2	0.05	0.00	0.00
			Max. Vy	38	-0.03	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	4	5.70	-0.01	-0.00
			Max. Compression	4	-5.66	-0.01	-0.00
			Max. Mx	37	0.32	-0.04	-0.00
			Max. My	14	-0.77	-0.02	-0.01
			Max. Vy	37	-0.03	-0.04	-0.00
			Max. Vx	6	0.00	-0.02	-0.01
		Inner Bracing	Max Tension	2	0.01	0.00	0.00
			Max. Compression	14	-0.01	0.00	0.00
			Max. Mx	26	-0.00	-0.03	0.00
			Max. My	37	-0.00	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	37	0.00	0.00	0.00
T3	182.292 - 162.104	Leg	Max Tension	23	60.95	-0.29	-0.04
			Max. Compression	2	-74.65	0.30	-0.04
			Max. Mx	14	59.01	-0.37	0.01
			Max. My	24	-5.93	-0.03	0.43
			Max. Vy	6	-0.99	-0.35	-0.06
			Max. Vx	24	1.01	-0.03	0.43
		Diagonal	Max Tension	4	11.02	0.00	0.00
			Max. Compression	4	-11.12	0.00	0.00
			Max. Mx	38	2.77	0.08	0.00
			Max. My	2	0.46	0.00	0.00
			Max. Vy	38	-0.04	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	4	6.87	-0.01	-0.00
			Max. Compression	4	-6.89	-0.01	-0.00
			Max. Mx	37	0.51	-0.05	-0.00
			Max. My	22	-1.31	-0.02	-0.01
			Max. Vy	37	-0.04	-0.05	-0.00
			Max. Vx	2	-0.00	0.00	0.01
		Inner Bracing	Max Tension	13	0.01	0.00	0.00
			Max. Compression	22	-0.01	0.00	0.00
			Max. Mx	26	-0.00	-0.04	0.00
			Max. My	27	-0.00	0.00	-0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	27	0.00	0.00	0.00
T4	162.104 - 141.896	Leg	Max Tension	7	103.72	-1.15	0.00
			Max. Compression	2	-129.62	0.32	0.01
			Max. Mx	22	89.67	-1.53	-0.03
			Max. My	8	-19.00	0.05	1.16
			Max. Vy	14	-0.95	-0.21	0.04
			Max. Vx	8	0.29	0.05	0.25
		Diagonal	Max Tension	16	11.35	0.00	0.00
			Max. Compression	16	-11.47	0.00	0.00
			Max. Mx	38	2.70	0.10	0.00
			Max. My	2	0.43	0.00	0.00
			Max. Vy	38	-0.04	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	16	7.77	0.00	0.00
			Max. Compression	16	-7.73	-0.03	0.00
			Max. Mx	37	0.91	-0.08	-0.00
			Max. My	14	-1.27	-0.04	-0.02
			Max. Vy	37	-0.05	-0.08	-0.00
			Max. Vx	6	0.00	-0.04	-0.02
		Inner Bracing	Max Tension	11	0.01	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	26	-0.01	-0.05	0.00
			Max. My	27	-0.00	0.00	-0.00
			Max. Vy	26	0.04	0.00	0.00
			Max. Vx	27	0.00	0.00	0.00
T5	141.896 - 121.688	Leg	Max Tension	7	134.18	-0.93	0.07
			Max. Compression	2	-162.21	0.67	0.06
			Max. Mx	22	102.41	-1.53	-0.03
			Max. My	8	-18.97	0.05	1.16
			Max. Vy	22	-0.45	-1.53	-0.03
			Max. Vx	12	-0.40	-0.00	-1.13
		Diagonal	Max Tension	16	14.69	0.00	0.00
			Max. Compression	16	-14.89	0.00	0.00
			Max. Mx	38	3.82	0.20	0.00
			Max. My	2	0.91	0.00	0.00
			Max. Vy	38	0.06	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	16	8.71	0.00	0.00
			Max. Compression	16	-8.90	-0.03	-0.00
			Max. Mx	29	1.02	-0.11	-0.00
			Max. My	14	-1.58	-0.06	-0.02
			Max. Vy	29	-0.06	-0.11	-0.00
			Max. Vx	14	0.00	-0.06	-0.02
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	37	-0.01	0.00	0.00
			Max. Mx	26	-0.01	-0.07	0.00
			Max. My	37	-0.01	0.00	0.00
			Max. Vy	26	0.04	0.00	0.00
			Max. Vx	37	-0.00	0.00	0.00
T6	121.688 - 101.479	Leg	Max Tension	7	168.61	-0.68	0.02
			Max. Compression	2	-200.78	1.00	0.07
			Max. Mx	6	165.81	-1.06	0.05
			Max. My	24	-11.85	-0.03	1.08
			Max. Vy	14	0.14	-1.05	-0.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	12	0.14	-0.03	-1.07
		Diagonal	Max Tension	16	13.83	0.00	0.00
			Max. Compression	16	-14.07	0.00	0.00
			Max. Mx	38	3.48	0.25	0.00
			Max. My	2	0.84	0.00	0.00
			Max. Vy	38	0.07	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	16	9.04	0.00	0.00
			Max. Compression	16	-9.19	-0.04	-0.00
			Max. Mx	37	1.30	-0.13	-0.00
			Max. My	18	1.15	-0.01	0.02
			Max. Vy	37	-0.07	-0.13	-0.00
			Max. Vx	18	-0.00	-0.01	0.02
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	37	-0.01	0.00	0.00
			Max. Mx	26	-0.01	-0.12	0.00
			Max. My	37	-0.01	0.00	0.00
			Max. Vy	26	0.06	0.00	0.00
			Max. Vx	37	-0.00	0.00	0.00
T7	101.479 - 81.2708	Leg	Max Tension	7	200.16	-0.67	0.03
			Max. Compression	2	-236.81	0.85	0.05
			Max. Mx	6	181.69	-1.06	0.05
			Max. My	24	-13.05	-0.03	1.08
			Max. Vy	14	-0.14	-1.05	-0.05
			Max. Vx	12	-0.14	-0.03	-1.07
		Diagonal	Max Tension	16	14.13	0.00	0.00
			Max. Compression	16	-14.52	0.00	0.00
			Max. Mx	38	3.42	0.36	0.00
			Max. My	2	0.75	0.00	0.00
			Max. Vy	38	-0.10	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	16	9.99	0.00	0.00
			Max. Compression	16	-10.10	-0.09	-0.00
			Max. Mx	37	1.51	-0.22	-0.01
			Max. My	18	1.00	-0.03	0.02
			Max. Vy	37	-0.10	-0.22	-0.01
			Max. Vx	18	-0.00	-0.03	0.02
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	37	-0.02	0.00	0.00
			Max. Mx	26	-0.01	-0.18	0.00
			Max. My	37	-0.02	0.00	0.00
			Max. Vy	26	0.08	0.00	0.00
			Max. Vx	37	-0.00	0.00	0.00
T8	81.2708 - 61	Leg	Max Tension	7	229.94	-1.42	0.02
			Max. Compression	2	-271.52	0.79	0.04
			Max. Mx	6	225.96	-1.43	0.03
			Max. My	24	-16.77	-0.05	1.33
			Max. Vy	14	0.17	-1.39	-0.01
			Max. Vx	24	-0.15	-0.05	1.33
		Diagonal	Max Tension	16	14.04	0.00	0.00
			Max. Compression	16	-14.54	0.00	0.00
			Max. Mx	38	3.23	0.43	0.00
			Max. My	2	0.68	0.00	0.00
			Max. Vy	38	-0.11	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	16	10.59	0.00	0.00
			Max. Compression	16	-10.63	-0.11	-0.00
			Max. Mx	37	1.74	-0.26	-0.01
			Max. My	18	1.20	-0.06	0.02
			Max. Vy	37	-0.11	-0.26	-0.01
			Max. Vx	18	-0.00	-0.06	0.02
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	33	-0.02	0.00	0.00
			Max. Mx	26	-0.02	-0.29	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	26	0.11	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T9	61 - 40.6667	Leg	Max Tension	7	258.91	-2.01	0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	2	-305.66	-3.11	0.17
			Max. Mx	2	-305.66	-3.11	0.17
			Max. My	24	-21.87	-0.59	3.80
			Max. Vy	10	0.60	2.28	-0.02
			Max. Vx	24	-0.41	-0.59	3.80
		Diagonal	Max Tension	17	15.19	0.00	0.00
			Max. Compression	16	-15.76	0.00	0.00
			Max. Mx	38	3.47	0.49	0.00
			Max. My	2	0.61	0.00	0.00
			Max. Vy	38	-0.12	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Horizontal	Max Tension	16	12.05	0.00	0.00
			Max. Compression	17	-11.95	-0.10	-0.00
			Max. Mx	37	1.95	-0.31	-0.01
			Max. My	14	-2.86	-0.16	-0.02
			Max. Vy	37	-0.12	-0.31	-0.01
			Max. Vx	14	0.00	-0.16	-0.02
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	33	-0.02	0.00	0.00
			Max. Mx	26	-0.02	-0.35	0.00
			Max. My	2	-0.00	0.00	-0.00
			Max. Vy	26	0.12	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T10	40.6667 - 20.3333	Leg	Max Tension	7	270.78	1.65	0.10
			Max. Compression	2	-321.94	-9.12	0.35
			Max. Mx	2	-321.34	10.30	-0.26
			Max. My	24	-24.26	-1.22	6.05
			Max. Vy	2	1.95	10.30	-0.26
			Max. Vx	24	-1.01	-1.22	6.05
		Diagonal	Max Tension	17	21.22	-0.15	0.11
			Max. Compression	16	-21.98	0.00	0.00
			Max. Mx	6	17.67	-0.21	0.08
			Max. My	4	-20.74	0.01	-0.13
			Max. Vy	37	-0.08	-0.20	0.01
			Max. Vx	4	-0.01	0.00	0.00
		Horizontal	Max Tension	16	11.55	0.00	0.00
			Max. Compression	16	-12.11	-0.21	-0.00
			Max. Mx	37	-2.06	-0.44	-0.01
			Max. My	18	1.51	-0.12	0.03
			Max. Vy	37	0.15	-0.44	-0.01
			Max. Vx	18	-0.00	-0.12	0.03
		Redund Horz 1 Bracing	Max Tension	2	5.59	0.00	0.00
			Max. Compression	2	-5.59	0.00	0.00
			Max. Mx	26	1.11	0.05	0.00
			Max. My	12	4.87	0.00	-0.00
			Max. Vy	26	-0.03	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	2	5.16	0.00	0.00
			Max. Compression	2	-5.16	0.00	0.00
			Max. Mx	38	2.41	0.10	0.00
			Max. My	16	4.43	0.00	-0.00
			Max. Vy	38	-0.03	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	16	-0.07	0.00	0.00
			Max. Mx	26	-0.01	0.05	0.00
			Max. Vy	26	0.03	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	16	0.11	0.00	0.00
			Max. Compression	30	-0.09	0.00	0.00
			Max. Mx	38	0.08	0.33	0.00
			Max. My	24	0.03	0.00	0.00
			Max. Vy	38	-0.09	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
		Inner Bracing	Max Tension	17	0.00	0.00	0.00
			Max. Compression	34	-0.02	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	26	-0.02	0.37	0.00
			Max. My	2	-0.00	0.00	0.00
			Max. Vy	26	-0.12	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
T11	20.3333 - 0	Leg	Max Tension	7	330.45	1.76	-0.03
			Max. Compression	2	-390.40	-0.00	-0.00
			Max. Mx	2	-352.95	9.72	-0.25
			Max. My	24	-26.64	-1.22	6.05
			Max. Vy	15	21.25	-0.00	-0.00
			Max. Vx	12	8.14	0.00	-0.00
		Diagonal	Max Tension	17	24.75	-0.14	0.11
			Max. Compression	16	-25.53	0.00	0.00
			Max. Mx	4	11.83	-0.21	0.04
			Max. My	4	-25.02	-0.02	-0.13
			Max. Vy	37	-0.08	-0.20	0.01
			Max. Vx	4	-0.01	0.00	0.00
		Horizontal	Max Tension	16	14.41	0.00	0.00
			Max. Compression	17	-14.61	-0.19	-0.00
			Max. Mx	37	2.29	-0.45	-0.01
			Max. My	18	0.92	-0.17	0.03
			Max. Vy	37	-0.15	-0.45	-0.01
			Max. Vx	18	-0.00	-0.17	0.03
		Redund Horz 1 Bracing	Max Tension	2	6.13	0.00	0.00
			Max. Compression	2	-6.13	0.00	0.00
			Max. Mx	34	2.86	0.05	0.00
			Max. Vy	34	-0.03	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	2	5.28	0.00	0.00
			Max. Compression	2	-5.28	0.00	0.00
			Max. Mx	35	2.67	0.10	0.00
			Max. My	16	4.55	0.00	-0.00
			Max. Vy	35	-0.03	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	16	-0.07	0.00	0.00
			Max. Mx	26	-0.01	0.05	0.00
			Max. Vy	26	0.03	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	16	0.12	0.00	0.00
			Max. Compression	30	-0.08	0.00	0.00
			Max. Mx	37	0.07	0.35	0.00
			Max. My	2	0.05	0.00	0.00
			Max. Vy	37	0.09	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Inner Bracing	Max Tension	17	0.01	0.00	0.00
			Max. Compression	16	-0.02	0.00	0.00
			Max. Mx	26	-0.02	0.42	0.00
			Max. My	2	-0.00	0.00	0.00
			Max. Vy	26	-0.12	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	380.85	38.83	-22.94
	Max. H_x	18	380.85	38.83	-22.94
	Max. H_z	5	-282.71	-28.70	21.80
	Min. Vert	7	-328.49	-35.85	21.13
	Min. H_x	7	-328.49	-35.85	21.13
	Min. H_z	16	335.40	32.03	-23.45
Leg B	Max. Vert	10	384.05	-39.17	-22.52

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	23	-326.47	36.11	20.60
	Max. H_z	25	-280.71	29.20	20.83
	Min. Vert	23	-326.47	36.11	20.60
	Min. H_x	10	384.05	-39.17	-22.52
	Min. H_z	12	338.60	-32.60	-22.67
Leg A	Max. Vert	2	388.32	-0.55	45.21
	Max. H_x	21	28.53	7.81	1.96
	Max. H_z	2	388.32	-0.55	45.21
	Min. Vert	15	-322.79	0.65	-41.48
	Min. H_x	9	27.63	-7.78	1.88
	Min. H_z	15	-322.79	0.65	-41.48

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	83.03	-0.00	0.00	-85.07	-34.21	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	99.63	-0.07	-75.96	-9238.82	-28.34	-31.32
0.9 Dead+1.6 Wind 0 deg - No Ice	74.73	-0.07	-75.98	-9200.30	-17.89	-31.47
1.2 Dead+1.6 Wind 30 deg - No Ice	99.63	38.07	-65.86	-8056.94	-4627.86	-31.32
0.9 Dead+1.6 Wind 30 deg - No Ice	74.73	38.07	-65.88	-8020.05	-4610.96	-31.34
1.2 Dead+1.6 Wind 60 deg - No Ice	99.63	66.07	-37.97	-4653.68	-7969.85	-20.87
0.9 Dead+1.6 Wind 60 deg - No Ice	74.72	66.07	-37.98	-4621.87	-7948.35	-20.94
1.2 Dead+1.6 Wind 90 deg - No Ice	99.63	76.15	-0.02	-96.45	-9230.74	-8.27
0.9 Dead+1.6 Wind 90 deg - No Ice	74.73	76.16	-0.00	-70.74	-9207.39	-8.07
1.2 Dead+1.6 Wind 120 deg - No Ice	99.63	65.89	37.94	4458.61	-7965.74	7.75
0.9 Dead+1.6 Wind 120 deg - No Ice	74.73	65.91	37.95	4477.96	-7944.20	8.01
1.2 Dead+1.6 Wind 150 deg - No Ice	99.63	38.09	65.84	7839.93	-4647.96	22.32
0.9 Dead+1.6 Wind 150 deg - No Ice	74.73	38.11	65.84	7854.52	-4631.05	22.57
1.2 Dead+1.6 Wind 180 deg - No Ice	99.63	0.08	76.13	9032.93	-55.80	31.56
0.9 Dead+1.6 Wind 180 deg - No Ice	74.72	0.08	76.13	9045.90	-45.34	31.72
1.2 Dead+1.6 Wind 210 deg - No Ice	99.63	-38.04	65.82	7836.37	4554.01	30.53
0.9 Dead+1.6 Wind 210 deg - No Ice	74.73	-38.05	65.83	7850.99	4558.00	30.56
1.2 Dead+1.6 Wind 240 deg - No Ice	99.63	-65.80	37.97	4464.01	7866.23	22.19
0.9 Dead+1.6 Wind 240 deg - No Ice	74.73	-65.82	37.98	4483.36	7865.60	22.09
1.2 Dead+1.6 Wind 270 deg - No Ice	99.63	-76.14	-0.14	-120.08	9145.86	7.98
0.9 Dead+1.6 Wind 270 deg - No Ice	74.73	-76.14	-0.13	-94.32	9143.42	7.79
1.2 Dead+1.6 Wind 300 deg - No Ice	99.63	-65.98	-38.13	-4681.07	7872.15	-7.92
0.9 Dead+1.6 Wind 300 deg - No Ice	74.72	-65.98	-38.12	-4648.93	7871.81	-8.30
1.2 Dead+1.6 Wind 330 deg - No Ice	99.63	-38.09	-65.84	-8054.31	4548.42	-22.36
0.9 Dead+1.6 Wind 330 deg -	74.73	-38.08	-65.86	-8017.42	4552.45	-22.61

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	256.62	0.00	0.00	-131.27	209.68	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	256.62	0.01	-22.25	-2811.64	209.66	-4.77
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	256.62	11.08	-19.11	-2433.16	-1124.82	-7.37
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	256.62	19.32	-11.09	-1470.51	-2124.66	-7.63
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	256.62	22.14	-0.02	-133.53	-2457.75	-6.10
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	256.62	19.34	11.10	1204.26	-2121.54	-2.94
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	256.62	11.07	19.08	2164.31	-1123.56	1.04
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	256.62	-0.00	22.19	2547.36	210.30	4.80
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	256.62	-11.08	19.10	2166.71	1546.90	7.22
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	256.62	-19.34	11.14	1210.70	2541.41	7.86
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	256.62	-22.14	-0.00	-132.07	2877.58	6.04
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	256.62	-19.28	-11.09	-1470.66	2538.81	2.86
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	256.62	-11.05	-19.09	-2429.53	1540.39	-1.05
Dead+Wind 0 deg - Service	83.03	-0.02	-16.77	-2098.53	-31.48	-6.92
Dead+Wind 30 deg - Service	83.03	8.39	-14.53	-1838.11	-1045.05	-6.88
Dead+Wind 60 deg - Service	83.03	14.57	-8.37	-1088.16	-1781.54	-4.63
Dead+Wind 90 deg - Service	83.03	16.80	0.01	-83.88	-2059.37	-1.81
Dead+Wind 120 deg - Service	83.03	14.54	8.37	919.86	-1780.59	1.76
Dead+Wind 150 deg - Service	83.03	8.41	14.52	1664.99	-1049.52	4.98
Dead+Wind 180 deg - Service	83.03	0.02	16.79	1927.89	-37.55	6.98
Dead+Wind 210 deg - Service	83.03	-8.40	14.52	1664.22	978.29	6.71
Dead+Wind 240 deg - Service	83.03	-14.52	8.38	921.07	1708.24	4.88
Dead+Wind 270 deg - Service	83.03	-16.80	-0.02	-89.08	1990.17	1.75
Dead+Wind 300 deg - Service	83.03	-14.55	-8.41	-1094.19	1709.52	-1.82
Dead+Wind 330 deg - Service	83.03	-8.39	-14.53	-1837.53	977.04	-4.99

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-83.03	0.00	0.00	83.03	-0.00	0.001%
2	-0.07	-99.63	-76.04	0.07	99.63	75.96	0.069%
3	-0.07	-74.72	-76.04	0.07	74.73	75.98	0.060%
4	38.05	-99.63	-65.92	-38.07	99.63	65.86	0.050%
5	38.05	-74.72	-65.92	-38.07	74.73	65.88	0.044%
6	66.06	-99.63	-37.97	-66.07	99.63	37.97	0.013%
7	66.06	-74.72	-37.97	-66.07	74.72	37.98	0.010%
8	76.18	-99.63	0.03	-76.15	99.63	0.02	0.046%
9	76.18	-74.72	0.03	-76.16	74.73	0.00	0.041%
10	65.96	-99.63	37.98	-65.89	99.63	-37.94	0.067%
11	65.96	-74.72	37.98	-65.91	74.73	-37.95	0.059%
12	38.16	-99.63	65.85	-38.09	99.63	-65.84	0.050%
13	38.16	-74.72	65.85	-38.11	74.73	-65.84	0.043%
14	0.08	-99.63	76.12	-0.08	99.63	-76.13	0.010%
15	0.08	-74.72	76.12	-0.08	74.72	-76.13	0.008%
16	-38.10	-99.63	65.83	38.04	99.63	-65.82	0.046%
17	-38.10	-74.72	65.83	38.05	74.73	-65.83	0.041%
18	-65.87	-99.63	38.01	65.80	99.63	-37.97	0.065%
19	-65.87	-74.72	38.01	65.82	74.73	-37.98	0.057%
20	-76.17	-99.63	-0.10	76.14	99.63	0.14	0.045%
21	-76.17	-74.72	-0.10	76.14	74.73	0.13	0.040%
22	-65.97	-99.63	-38.12	65.98	99.63	38.13	0.008%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
23	-65.97	-74.72	-38.12	65.98	74.72	38.12	0.010%
24	-38.06	-99.63	-65.90	38.09	99.63	65.84	0.051%
25	-38.06	-74.72	-65.90	38.08	74.73	65.86	0.044%
26	0.00	-256.62	0.00	-0.00	256.62	-0.00	0.001%
27	0.00	-256.62	-22.27	-0.01	256.62	22.25	0.007%
28	11.09	-256.62	-19.12	-11.08	256.62	19.11	0.006%
29	19.33	-256.62	-11.10	-19.32	256.62	11.09	0.004%
30	22.16	-256.62	-0.01	-22.14	256.62	0.02	0.005%
31	19.36	-256.62	11.11	-19.34	256.62	-11.10	0.006%
32	11.08	-256.62	19.09	-11.07	256.62	-19.08	0.005%
33	-0.00	-256.62	22.20	0.00	256.62	-22.19	0.003%
34	-11.10	-256.62	19.11	11.08	256.62	-19.10	0.006%
35	-19.36	-256.62	11.15	19.34	256.62	-11.14	0.007%
36	-22.15	-256.62	-0.00	22.14	256.62	0.00	0.006%
37	-19.29	-256.62	-11.10	19.28	256.62	11.09	0.004%
38	-11.06	-256.62	-19.10	11.05	256.62	19.09	0.006%
39	-0.02	-83.03	-16.77	0.02	83.03	16.77	0.009%
40	8.39	-83.03	-14.54	-8.39	83.03	14.53	0.007%
41	14.57	-83.03	-8.38	-14.57	83.03	8.37	0.004%
42	16.80	-83.03	0.01	-16.80	83.03	-0.01	0.006%
43	14.55	-83.03	8.38	-14.54	83.03	-8.37	0.008%
44	8.42	-83.03	14.52	-8.41	83.03	-14.52	0.006%
45	0.02	-83.03	16.79	-0.02	83.03	-16.79	0.003%
46	-8.40	-83.03	14.52	8.40	83.03	-14.52	0.005%
47	-14.53	-83.03	8.38	14.52	83.03	-8.38	0.007%
48	-16.80	-83.03	-0.02	16.80	83.03	0.02	0.005%
49	-14.55	-83.03	-8.41	14.55	83.03	8.41	0.004%
50	-8.39	-83.03	-14.54	8.39	83.03	14.53	0.007%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00011386
2	Yes	4	0.00034805	0.00086851
3	Yes	4	0.00026078	0.00065811
4	Yes	4	0.00033839	0.00084125
5	Yes	4	0.00025134	0.00063153
6	Yes	4	0.00032711	0.00082252
7	Yes	4	0.00024013	0.00059605
8	Yes	4	0.00033714	0.00083578
9	Yes	4	0.00025023	0.00062655
10	Yes	4	0.00034766	0.00086631
11	Yes	4	0.00026054	0.00065663
12	Yes	4	0.00033763	0.00083617
13	Yes	4	0.00025090	0.00062806
14	Yes	4	0.00032531	0.00079827
15	Yes	4	0.00023924	0.00059311
16	Yes	4	0.00033606	0.00082991
17	Yes	4	0.00024978	0.00062436
18	Yes	4	0.00034671	0.00085949
19	Yes	4	0.00026009	0.00065294
20	Yes	4	0.00033633	0.00082956
21	Yes	4	0.00025001	0.00062371
22	Yes	4	0.00032593	0.00081389
23	Yes	4	0.00023936	0.00059239
24	Yes	4	0.00033749	0.00083648
25	Yes	4	0.00025056	0.00062751
26	Yes	4	0.00000001	0.00014137
27	Yes	5	0.00034481	0.00056922
28	Yes	5	0.00034228	0.00055568
29	Yes	5	0.00033840	0.00054182
30	Yes	5	0.00033649	0.00052660
31	Yes	5	0.00033606	0.00052098
32	Yes	5	0.00033381	0.00051253

33	Yes	5	0.00033410	0.00051970
34	Yes	5	0.00033796	0.00053286
35	Yes	5	0.00034167	0.00055197
36	Yes	5	0.00034161	0.00055854
37	Yes	5	0.00034149	0.00056543
38	Yes	5	0.00034330	0.00056749
39	Yes	4	0.00000001	0.00063221
40	Yes	4	0.00000001	0.00063358
41	Yes	4	0.00000001	0.00062654
42	Yes	4	0.00000001	0.00062793
43	Yes	4	0.00000001	0.00062289
44	Yes	4	0.00000001	0.00060879
45	Yes	4	0.00000001	0.00058904
46	Yes	4	0.00000001	0.00058857
47	Yes	4	0.00000001	0.00059122
48	Yes	4	0.00000001	0.00059619
49	Yes	4	0.00000001	0.00060115
50	Yes	4	0.00000001	0.00062048

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load*	*Tilt*	*Twist*
	ft	*in*	*Comb.*	°	°
T1	212.625 - 202.458	4.430	40	0.1849	0.0193
T2	202.458 - 182.292	4.032	40	0.1847	0.0194
T3	182.292 - 162.104	3.235	40	0.1768	0.0179
T4	162.104 - 141.896	2.485	40	0.1600	0.0134
T5	141.896 - 121.688	1.839	40	0.1341	0.0104
T6	121.688 - 101.479	1.317	40	0.1082	0.0085
T7	101.479 - 81.2708	0.891	40	0.0868	0.0066
T8	81.2708 - 61	0.564	40	0.0650	0.0053
T9	61 - 40.6667	0.318	40	0.0462	0.0040
T10	40.6667 - 20.3333	0.147	46	0.0275	0.0027
T11	20.3333 - 0	0.051	45	0.0137	0.0013

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft		*Comb.*	*in*	°	°	*ft*
212.00	Flash Beacon Lighting	40	4.405	0.1849	0.0193	244242
208.00	(2) LPA-80080/6CF w/ Mount Pipe	40	4.249	0.1850	0.0194	244242
199.00	APXVSPP18-C-A20 w/ Mount Pipe	40	3.895	0.1841	0.0193	238837
189.00	7770.00 w/ Mount Pipe	40	3.498	0.1805	0.0188	125029
183.00	APXV18-206517LS	40	3.262	0.1772	0.0180	69716
179.00	HPD2-23	40	3.107	0.1746	0.0173	68716
175.00	(4) DB844H90E-XY w/ Mount Pipe	40	2.955	0.1718	0.0164	62331
167.00	1151-3	40	2.659	0.1650	0.0145	47713
164.00	1151-3	40	2.552	0.1620	0.0138	44043
162.00	SD310-HL	40	2.481	0.1599	0.0134	42406
147.00	1151-3	40	1.990	0.1411	0.0110	37329
145.00	SD310-HL	40	1.930	0.1384	0.0107	35862
139.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	40	1.757	0.1302	0.0101	35641
128.00	1142-2C	40	1.468	0.1158	0.0091	48814
110.00	Side Lighting	40	1.059	0.0957	0.0074	50111
51.00	GPS_A	40	0.223	0.0367	0.0034	65039

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	18.788	4	0.7691	0.0876
T2	202.458 - 182.292	17.133	4	0.7680	0.0879
T3	182.292 - 162.104	13.812	4	0.7312	0.0812
T4	162.104 - 141.896	10.714	4	0.6541	0.0607
T5	141.896 - 121.688	7.997	4	0.5599	0.0473
T6	121.688 - 101.479	5.767	4	0.4586	0.0385
T7	101.479 - 81.2708	3.925	4	0.3716	0.0299
T8	81.2708 - 61	2.505	4	0.2800	0.0239
T9	61 - 40.6667	1.425	4	0.1999	0.0180
T10	40.6667 - 20.3333	0.663	22	0.1195	0.0122
T11	20.3333 - 0	0.225	14	0.0596	0.0060

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
212.00	Flash Beacon Lighting	4	18.687	0.7691	0.0877	56674
208.00	(2) LPA-80080/6CF w/ Mount Pipe	4	18.038	0.7694	0.0878	56674
199.00	APXVSPP18-C-A20 w/ Mount Pipe	4	16.562	0.7653	0.0877	53819
189.00	7770.00 w/ Mount Pipe	4	14.907	0.7488	0.0852	31505
183.00	APXV18-206517LS	4	13.926	0.7333	0.0817	16981
179.00	HPD2-23	4	13.285	0.7207	0.0784	15735
175.00	(4) DB844H90E-XY w/ Mount Pipe	4	12.655	0.7067	0.0744	15170
167.00	1151-3	4	11.434	0.6750	0.0657	13702
164.00	1151-3	4	10.990	0.6623	0.0626	13200
162.00	SD310-HL	4	10.698	0.6537	0.0606	12823
147.00	1151-3	4	8.638	0.5850	0.0499	9650
145.00	SD310-HL	4	8.383	0.5753	0.0488	9314
139.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	4	7.649	0.5453	0.0459	9255
128.00	1142-2C	4	6.418	0.4892	0.0411	12332
110.00	Side Lighting	4	4.652	0.4079	0.0333	11951
51.00	GPS_A	4	1.008	0.1590	0.0152	15102

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	212.625	Leg	A325N	0.7500	4	0.47	29.82	0.016 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	1.15	12.43	0.093 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	1.26	12.43	0.102 ✔	1	Bolt Shear
T2	202.458	Leg	A325N	0.8750	4	5.22	40.59	0.129 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	3.53	12.43	0.284 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2.85	12.43	0.229 ✔	1	Bolt Shear
T3	182.292	Leg	A325N	1.0000	4	15.24	53.01	0.287 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	3.71	12.43	0.298 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3.44	12.43	0.277 ✔	1	Bolt Shear
T4	162.104	Leg	A325N	1.0000	6	17.29	53.01	0.326 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	3.82	12.43	0.308 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3.89	12.43	0.313 ✔	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T5	141.896	Leg	A325N	1.0000	6	22.36	53.01	0.422 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.96	12.43	0.399 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	4.45	12.43	0.358 ✔	1	Bolt Shear
T6	121.688	Leg	A325N	1.0000	6	28.10	53.01	0.530 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.69	12.43	0.377 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	4.59	12.43	0.370 ✔	1	Bolt Shear
T7	101.479	Leg	A325N	1.0000	8	25.02	53.01	0.472 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.84	12.43	0.389 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5.05	12.43	0.407 ✔	1	Bolt Shear
T8	81.2708	Leg	A325N	1.0000	8	28.74	53.01	0.542 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	4.85	12.43	0.390 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	5.31	12.43	0.428 ✔	1	Bolt Shear
T9	61	Leg	A325N	1.0000	8	32.36	53.01	0.610 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	5.25	12.43	0.423 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	6.03	12.43	0.485 ✔	1	Bolt Shear
T10	40.6667	Leg	A325N	1.0000	8	33.77	53.01	0.637 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	3	7.33	17.89	0.409 ✔	1	Bolt Shear
		Horizontal	A325N	0.7500	2	6.06	17.89	0.338 ✔	1	Bolt Shear
T11	20.3333	Diagonal	A325N	0.7500	3	8.51	17.89	0.476 ✔	1	Bolt Shear
		Horizontal	A325N	0.7500	2	7.30	17.89	0.408 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 2.5 STD	10.17	5.08	64.4 K=1.00	1.7040	-5.61	56.63	0.099 [1] ✔
T2	202.458 - 182.292	ROHN 3 EH	20.17	6.72	71.0 K=1.00	3.0159	-29.29	93.89	0.312 [1] ✔
T3	182.292 - 162.104	ROHN 4 EH	20.22	6.74	54.8 K=1.00	4.4074	-74.65	159.26	0.469 [1] ✔
T4	162.104 - 141.896	ROHN 5 EH	20.24	6.75	44.0 K=1.00	6.1120	-129.63	238.69	0.543 [1] ✔
T5	141.896 - 121.688	ROHN 6 EHS	20.25	10.13	54.6 K=1.00	6.7133	-162.21	242.93	0.668 [1] ✔
T6	121.688 - 101.479	ROHN 6 EH	20.26	10.13	55.4 K=1.00	8.4049	-200.78	302.24	0.664 [1] ✔
T7	101.479 - 81.2708	ROHN 6 EH	20.26	10.13	55.4 K=1.00	8.4049	-236.81	302.24	0.784 [1] ✔
T8	81.2708 - 61	ROHN 8 EHS	20.33	10.16	41.8 K=1.00	9.7193	-271.52	384.98	0.705 [1] ✔
T9	61 - 40.6667	ROHN 8 EHS	20.38	10.19	41.9 K=1.00	9.7193	-305.67	384.71	0.795 [1] ✔
T10	40.6667 - 20.3333	ROHN 8 EH	20.39	10.20	42.5 K=1.00	12.7627	-321.94	503.24	0.640 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	20.3333 - 0	ROHN 8 EH	20.37	10.14	42.3 K=1.00	12.7627	-353.61	503.90	0.702 [1]

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 2 STD	6.64	6.45	98.4 K=1.00	1.0745	-3.45	23.83	0.145 [1]
T2	202.458 - 182.292	ROHN 2 STD	7.99	7.72	117.6 K=1.00	1.0745	-10.58	17.54	0.603 [1]
T3	182.292 - 162.104	ROHN 2 STD	8.60	8.30	126.5 K=1.00	1.0745	-11.12	15.16	0.733 [1]
T4	162.104 - 141.896	ROHN 2 STD	9.29	8.95	136.5 K=1.00	1.0745	-11.35	13.03	0.871 [1]
T5	141.896 - 121.688	ROHN 2.5 STD	12.60	12.14	153.7 K=1.00	1.7040	-14.89	16.29	0.914 [1]
T6	121.688 - 101.479	ROHN 2.5 STD	13.38	12.96	164.2 K=1.00	1.7040	-14.07	14.28	0.986 [1]
T7	101.479 - 81.2708	ROHN 3 STD	14.24	13.84	142.8 K=1.00	2.2285	-14.52	24.70	0.588 [1]
T8	81.2708 - 61	ROHN 3 STD	15.21	14.73	151.9 K=1.00	2.2285	-14.54	21.81	0.666 [1]
T9	61 - 40.6667	ROHN 3 STD	16.19	15.72	162.2 K=1.00	2.2285	-15.76	19.15	0.823 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	24.65	12.33	127.1 K=1.00	2.2285	-21.98	31.16	0.705 [1]
T11	20.3333 - 0	ROHN 3 STD	25.22	12.61	130.0 K=1.00	2.2285	-25.53	29.77	0.857 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.52	4.14	79.8 K=1.00	0.7995	-2.47	22.58	0.110 [1]
T2	202.458 - 182.292	ROHN 1.5 STD	8.60	4.15	80.0 K=1.00	0.7995	-5.66	22.52	0.251 [1]
T3	182.292 - 162.104	ROHN 1.5 STD	10.01	4.82	92.9 K=1.00	0.7995	-6.89	19.14	0.360 [1]
T4	162.104 - 141.896	ROHN 2 STD	12.10	5.82	88.7 K=1.00	1.0745	-7.73	27.21	0.284 [1]
T5	141.896 - 121.688	ROHN 2 STD	13.92	6.68	101.9 K=1.00	1.0745	-8.90	22.64	0.393 [1]
T6	121.688 - 101.479	ROHN 2 STD	16.29	7.87	120.0 K=1.00	1.0745	-9.19	16.86	0.545 [1]
T7	101.479 -	ROHN 2.5 STD	18.79	9.12	115.5	1.7040	-10.10	28.85	0.350 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	81.2708				K=1.00				✔
T8	81.2708 - 61	ROHN 2.5 STD	21.36	10.32	130.7 K=1.00	1.7040	-10.63	22.53	0.472 [1] ✔
T9	61 - 40.6667	ROHN 2.5 STD	23.93	11.60	147.0 K=1.00	1.7040	-11.95	17.82	0.670 [1] ✔
T10	40.6667 - 20.3333	ROHN 3 STD	25.18	12.23	126.1 K=1.00	2.2285	-12.11	31.65	0.383 [1] ✔
T11	20.3333 - 0	ROHN 3 STD	27.83	13.56	139.8 K=1.00	2.2285	-14.61	25.75	0.567 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.50	4.13	79.6 K=1.00	0.7995	-0.21	22.63	0.009 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6.29	5.93	114.4 K=1.00	0.7995	-5.59	13.01	0.430 [1] ✔
T11	20.3333 - 0	ROHN 1.5 STD	6.96	6.60	127.2 K=1.00	0.7995	-6.13	11.05	0.555 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 2 STD	11.63	10.89	166.0 K=1.00	1.0745	-5.16	8.81	0.586 [1] ✔
T11	20.3333 - 0	ROHN 2 STD	11.99	11.32	172.5 K=1.00	1.0745	-5.28	8.16	0.648 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6.29	6.29	121.3 K=1.00	0.7995	-0.07	11.94	0.006 [1] ✔
T11	20.3333 - 0	ROHN 1.5 STD	6.96	6.96	134.1 K=1.00	0.7995	-0.07	10.04	0.007 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 2.5 STD	15.20	15.20	192.6 K=1.00	1.7040	-0.09	10.38	0.009 [1] ✔
T11	20.3333 - 0	ROHN 2.5 STD	15.99	15.99	202.6 K=1.00	1.7040	-0.08	9.38	0.009 [1] ✔

[1] $P_u / \phi P_n$ controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	L2x2x1/8	4.26	4.26	128.6 K=1.00	0.4844	-0.00	6.54	0.001 [1] ✔
T2	202.458 - 182.292	L2x2x1/8	4.30	4.30	129.8 K=1.00	0.4844	-0.01	6.44	0.001 [1] ✔
T3	182.292 - 162.104	L2x2x1/8	5.01	5.01	151.1 K=1.00	0.4844	-0.01	4.79	0.001 [1] ✔
T4	162.104 - 141.896	L2x2x1/8	6.05	6.05	182.6 K=1.00	0.4844	-0.01	3.28	0.003 [1] ✔
T5	141.896 - 121.688	L2x2x1/8	6.96	6.96	210.0 K=1.00	0.4844	-0.01	2.48	0.004 [1] ✔
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	8.15	8.15	197.5 K=1.00	0.9020	-0.01	5.23	0.002 [1] ✔
T7	101.479 - 81.2708	L3x3x3/16	9.40	9.40	189.2 K=1.00	1.0900	-0.02	6.88	0.002 [1] ✔
T8	81.2708 - 61	L3 1/2x3 1/2x1/4	10.68	10.68	184.7 K=1.00	1.6900	-0.02	11.20	0.002 [1] ✔
T9	61 - 40.6667	L3 1/2x3 1/2x1/4	11.96	11.96	206.9 K=1.00	1.6900	-0.02	8.92	0.002 [1] ✔
T10	40.6667 - 20.3333	ROHN 3 STD	12.59	12.59	129.8 K=1.00	2.2285	-0.02	29.87	0.001 [1] ✔
T11	20.3333 - 0	ROHN 3 STD	13.92	13.92	143.5 K=1.00	2.2285	-0.02	24.44	0.001 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	202.458 - 182.292	ROHN 3 EH	20.17	6.72	71.0	3.0159	20.88	135.72	0.154 [1] ✔
T3	182.292 - 162.104	ROHN 4 EH	20.22	6.74	54.8	4.4074	60.95	198.34	0.307 [1] ✔
T4	162.104 - 141.896	ROHN 5 EH	20.24	6.75	44.0	6.1120	103.72	275.04	0.377 [1] ✔
T5	141.896 - 121.688	ROHN 6 EHS	20.25	10.13	54.6	6.7133	134.18	302.10	0.444 [1] ✔
T6	121.688 - 101.479	ROHN 6 EH	20.26	10.13	55.4	8.4049	168.61	378.22	0.446 [1] ✔
T7	101.479 - 81.2708	ROHN 6 EH	20.26	10.13	55.4	8.4049	200.16	378.22	0.529 [1] ✔
T8	81.2708 - 61	ROHN 8 EHS	20.33	10.16	41.8	9.7193	229.94	437.37	0.526 [1] ✔
T9	61 - 40.6667	ROHN 8 EHS	20.38	10.19	41.9	9.7193	258.91	437.37	0.592 [1] ✔
T10	40.6667 - 20.3333	ROHN 8 EH	20.39	10.20	42.5	12.7627	270.78	574.32	0.471 [1] ✔
T11	20.3333 - 0	ROHN 8 EH	20.37	0.08	0.3	12.7627	330.45	574.32	0.575 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 2 STD	6.64	6.45	98.4	1.0745	3.38	48.35	0.070 [1] ✔
T2	202.458 - 182.292	ROHN 2 STD	7.99	7.72	117.6	1.0745	10.50	48.35	0.217 [1] ✔
T3	182.292 - 162.104	ROHN 2 STD	8.60	8.30	126.5	1.0745	11.02	48.35	0.228 [1] ✔
T4	162.104 - 141.896	ROHN 2 STD	9.06	8.72	132.9	1.0745	11.35	48.35	0.235 [1] ✔
T5	141.896 - 121.688	ROHN 2.5 STD	12.60	12.14	153.7	1.7040	14.69	76.68	0.192 [1] ✔
T6	121.688 - 101.479	ROHN 2.5 STD	13.38	12.96	164.2	1.7040	13.83	76.68	0.180 [1] ✔
T7	101.479 - 81.2708	ROHN 3 STD	14.24	13.84	142.8	2.2285	14.13	100.28	0.141 [1] ✔
T8	81.2708 - 61	ROHN 3 STD	15.21	14.73	151.9	2.2285	14.04	100.28	0.140 [1] ✔
T9	61 - 40.6667	ROHN 3 STD	16.19	15.72	162.2	2.2285	15.19	100.28	0.152 [1] ✔
T10	40.6667 - 20.3333	ROHN 3 STD	24.65	12.33	127.1	2.2285	21.22	100.28	0.212 [1] ✔
T11	20.3333 - 0	ROHN 3 STD	25.22	12.61	130.0	2.2285	24.75	100.28	0.247 [1] ✔

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.52	4.14	79.8	0.7995	2.52	35.98	0.070 [1] ✔
T2	202.458 - 182.292	ROHN 1.5 STD	8.60	4.15	80.0	0.7995	5.70	35.98	0.158 [1] ✔
T3	182.292 - 162.104	ROHN 1.5 STD	10.01	4.82	92.9	0.7995	6.87	35.98	0.191 [1] ✔
T4	162.104 - 141.896	ROHN 2 STD	12.10	5.82	88.7	1.0745	7.77	48.35	0.161 [1] ✔
T5	141.896 - 121.688	ROHN 2 STD	13.92	6.68	101.9	1.0745	8.71	48.35	0.180 [1] ✔
T6	121.688 - 101.479	ROHN 2 STD	16.29	7.87	120.0	1.0745	9.04	48.35	0.187 [1] ✔
T7	101.479 - 81.2708	ROHN 2.5 STD	18.79	9.12	115.5	1.7040	9.99	76.68	0.130 [1] ✔
T8	81.2708 - 61	ROHN 2.5 STD	21.36	10.32	130.7	1.7040	10.59	76.68	0.138 [1] ✔
T9	61 - 40.6667	ROHN 2.5 STD	23.93	11.60	147.0	1.7040	12.05	76.68	0.157 [1] ✔
T10	40.6667 - 20.3333	ROHN 3 STD	25.18	12.23	126.1	2.2285	11.55	100.28	0.115 [1] ✔
T11	20.3333 - 0	ROHN 3 STD	27.83	13.56	139.8	2.2285	14.41	100.28	0.144 [1] ✔

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	ROHN 1.5 STD	8.50	4.13	79.6	0.7995	0.21	35.98	0.006 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6.29	5.93	114.4	0.7995	5.59	25.90	0.216 [1] ✔
T11	20.3333 - 0	ROHN 1.5 STD	6.96	6.60	127.2	0.7995	6.13	25.90	0.237 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 2 STD	11.63	10.89	166.0	1.0745	5.16	34.81	0.148 [1] ✔
T11	20.3333 - 0	ROHN 2 STD	11.99	11.32	172.5	1.0745	5.28	34.81	0.152 [1] ✔

[1] $P_u / \phi P_n$ controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	40.6667 - 20.3333	ROHN 2.5 STD	15.20	15.20	192.6	1.7040	0.11	55.21	0.002 [1] ✔
T11	20.3333 - 0	ROHN 2.5 STD	15.99	15.99	202.6	1.7040	0.12	55.21	0.002 [1] ✔

[1] $P_u / \phi P_n$ controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	212.625 - 202.458	L2x2x1/8	4.26	4.26	81.6	0.4844	0.00	15.69	0.000 [1] ✔
T2	202.458 - 182.292	L2x2x1/8	4.30	4.30	82.4	0.4844	0.01	15.69	0.000 [1] ✔
T3	182.292 - 162.104	L2x2x1/8	4.66	4.66	89.3	0.4844	0.01	15.69	0.000 [1] ✔
T4	162.104 - 141.896	L2x2x1/8	5.35	5.35	102.6	0.4844	0.01	15.69	0.000 [1] ✔
T5	141.896 - 121.688	L2x2x1/8	6.40	6.40	122.6	0.4844	0.00	15.69	0.000 [1] ✔
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	7.52	7.52	116.0	0.9020	0.00	29.22	0.000 [1] ✔
T7	101.479 - 81.2708	L3x3x3/16	8.77	8.77	112.1	1.0900	0.00	35.32	0.000 [1] ✔
T10	40.6667 - 20.3333	ROHN 3 STD	12.59	12.59	129.8	2.2285	0.00	100.28	0.000 [1] ✔
T11	20.3333 - 0	ROHN 3 STD	13.92	13.92	143.5	2.2285	0.01	100.28	0.000 [1] ✔

[1] $P_u / \phi P_n$ controls

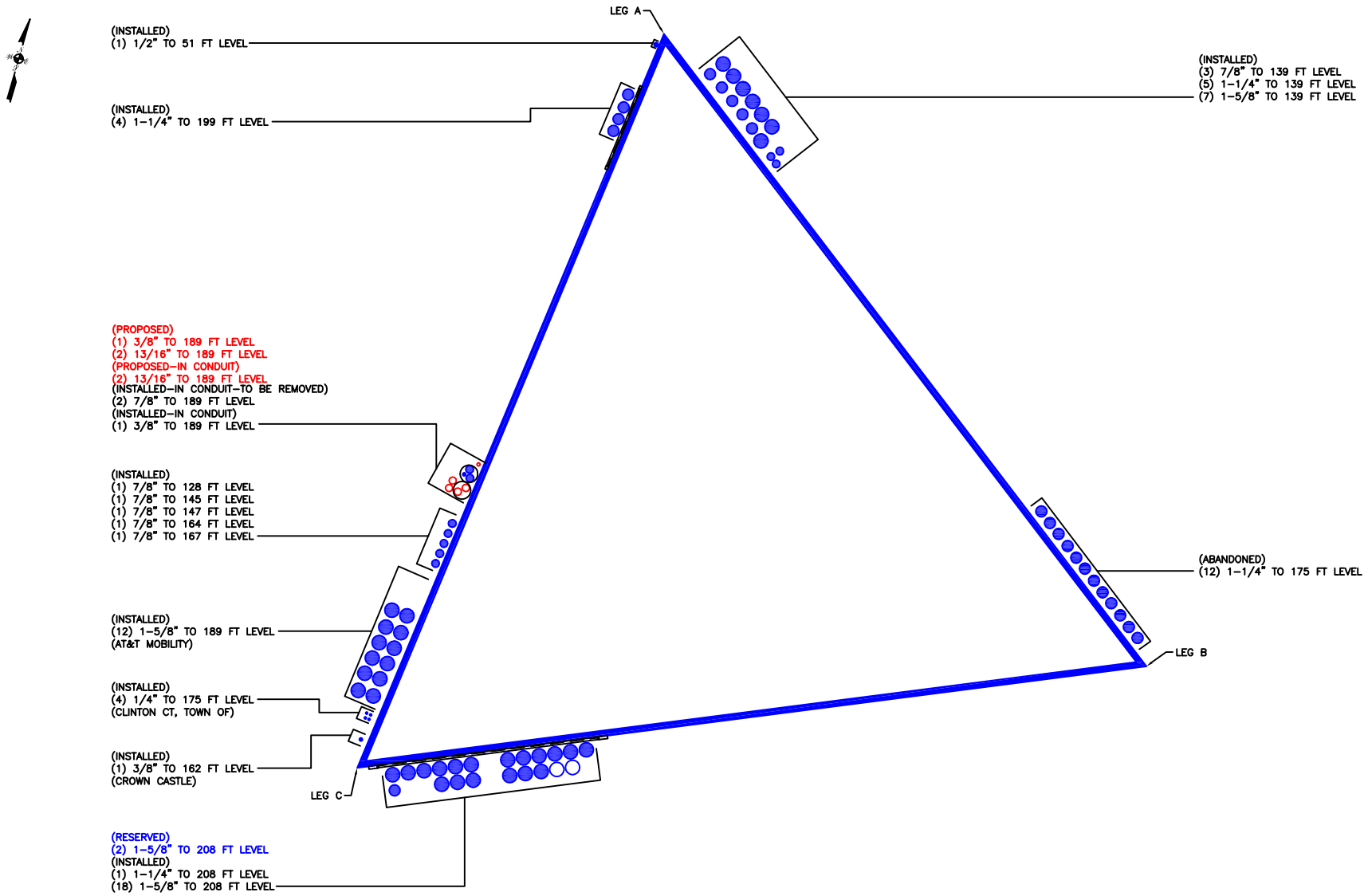
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-5.61	56.63	9.9	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	30	-29.29	93.89	31.2	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	69	-74.65	159.26	46.9	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-129.63	238.69	54.3	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	147	-162.21	242.93	66.8	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	174	-200.78	302.24	66.4	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	201	-236.81	302.24	78.4	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	228	-271.52	384.98	70.5	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	255	-305.67	384.71	79.5	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	282	-321.94	503.24	64.0	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	315	-353.61	503.90	70.2	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	9	-3.45	23.83	14.5	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	38	-10.58	17.54	60.3	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	77	-11.12	15.16	73.3	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	117	-11.35	13.03	87.1	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	156	-14.89	16.29	91.4	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	183	-14.07	14.28	98.6	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	210	-14.52	24.70	58.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	237	-14.54	21.81	66.6	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	264	-15.76	19.15	82.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	303	-21.98	31.16	70.5	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	336	-25.53	29.77	85.7	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	13	-2.47	22.58	11.0	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	37	-5.66	22.52	25.1	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	76	-6.89	19.14	36.0	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	115	-7.73	27.21	28.4 31.3 (b)	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	154	-8.90	22.64	39.3	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	181	-9.19	16.86	54.5	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	208	-10.10	28.85	35.0 40.7 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	235	-10.63	22.53	47.2	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	262	-11.95	17.82	67.0	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	299	-12.11	31.65	38.3	Pass
T11	20.3333 - 0	Horizontal	ROHN 3 STD	332	-14.61	25.75	56.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.21	22.63	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	295	-5.59	13.01	43.0	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	334	-6.13	11.05	55.5	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	296	-5.16	8.81	58.6	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	329	-5.28	8.16	64.8	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	306	-0.07	11.94	0.6	Pass
T11	20.3333 - 0	Redund Hip 1	ROHN 1.5 STD	339	-0.07	10.04	0.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Bracing						
T10	40.6667 - 20.3333	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	307	-0.09	10.38	0.9	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	340	-0.08	9.38	0.9	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	17	-0.00	6.54	0.5	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	6.44	0.5	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	79	-0.01	4.79	0.6	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	120	-0.01	3.28	0.7	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.01	2.48	0.8	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.01	5.23	0.7	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	213	-0.02	6.88	0.7	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	240	-0.02	11.20	0.5	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	267	-0.02	8.92	0.5	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.02	29.87	0.3	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.02	24.44	0.2	Pass
							Summary	
						Leg (T9)	79.5	Pass
						Diagonal (T6)	98.6	Pass
						Horizontal (T9)	67.0	Pass
						Top Girt (T1)	0.9	Pass
						Redund Horz 1 Bracing (T11)	55.5	Pass
						Redund Diag 1 Bracing (T11)	64.8	Pass
						Redund Hip 1 Bracing (T11)	0.7	Pass
						Redund Hip Diagonal 1 Bracing (T11)	0.9	Pass
						Inner Bracing (T5)	0.8	Pass
						Bolt Checks	63.7	Pass
						RATING =	**98.6**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806363 TOWER ID: C_BASELEVEL

CROWN REGION ADDRESS

USA

24/11/14	UPDATED PER WORK ORDER # 968474	AH
11/12/2014	UPDATED PER WORK ORDER 979442 979540	BMH
19/2/2015	UPDATED PER WORK ORDER 1000879	KAH
3/6/2015	UPDATED PER WORK ORDER 1089909	BMH
22/12/2015	UPDATED PER WORK ORDER 1170570	AP
4/1/2016	UPDATED PER WORK ORDER 1172962	DMB
14/06/16	UPDATED PER WORK ORDER 1213830	SAT
28/09/16	UPDATED PER WORK ORDER 1305911	ARR
28/09/16	UPDATED PER WORK ORDER 1305902	ARR

DRAWN BY: SJK
CHECKED BY:
DRAWING DATE: 15/05/07

SITE NUMBER:
SITE NAME:

SITE NAME

HRT 105 943201

BUSINESS UNIT NUMBER

806363

SITE ADDRESS

48 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

BASE LEVEL DRAWING	SCALE: N.T.S.	1

PLOT DATE: 9/28/2016 FILE NAME: 806363-BASELEVEL.dwg
Xref R:\TEMPLATES\TYPICAL BLOCKS FOR TEMPLATES\TITLE BLOCK STD-VER 5.1.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9 Rev. 6.1

Site Data	
BU#:	**806363**
Site Name:	**CLINTON-COW HILL RD**
App #:	**363815 Rev.1**

Anchor Rod Data		
Qty:	**10**	
Diam:	**1**	in
Rod Material:	**A354 Gr. BC (1/4 to 2-1/2 incl.)**	
Strength (Fu):	125	ksi
Yield (Fy):	109	ksi

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

Mu= Pu x e:		ft-kips

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

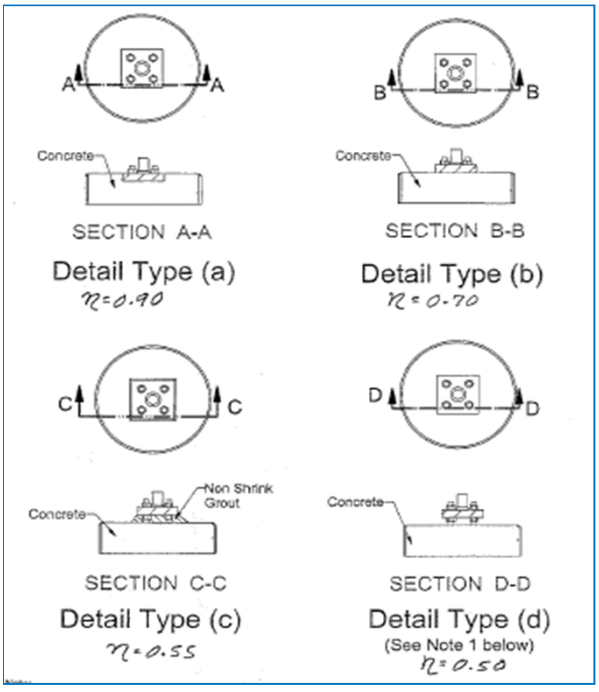


Figure 4-4 of TIA-222-G

Reactions		
Eta Factor, η	**0.55**	Detail Type
Uplift, Pu:	**328**	kips
Shear, Vu:	**42**	kips

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

Anchor Rod Results:

Max Rod (Cu+ Vu/ή):	40.4	Kips
Design Axial, Φ*Fu*Anet:	60.6	Kips
Anchor Rod Stress Ratio:	66.7%	

If Applicable;

Anchor Rod Results with Bending Considered:

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

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

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

Maximum Acceptable Ratio:	**105**	%
Governing Stress Ratio:	**66.7%**	**Pass**

Project Name:	HRT 105 943201	JACOBS® Jacobs Engineering Group. Inc.	Created On: 10/6/2014
Project Number:	BU#806363		Checked By: JTE / DW
Job Number:	WO#1305916		Revised On: 12/2/2014
Date:	10/3/2016		Revision No.: 1.0

Self Support Single Pad Stability Checks

Foundation Properties		
Foundation Type:	Single Pad	
Length (Short Side):	40.25	ft
Width (Long Side):	40.25	ft
Thickness:	4.5	ft
Bearing Depth:	4	ft

Reactions	
Code:	G
Axial:	100
Shear:	76
Moment:	9291

Factored Loads	
0.9 Axial:	75
1.2 Axial:	100
Shear:	76
Moment:	9291

Soil Properties		
Unit Weight:	120	pcf
Friction Angle:	35	
Cohesion:	0	psf
Friction Coefficient (μ):	0.3	
Ultimate Bearing Strength:	8	ksf
Water Table:	3	ft

Calculate Bearing Length

Sliding Resistance:		
K_p:	3.690172	
Friction Resistance:	290.46	kip
Passive Resistance:	142.59	kip
Total Resistance:	433.05	kip
Sliding Capacity:	17.5%	Pass

Overturning Check		
Orthogonal Direction		
Eccentricity:	18.12	ft
Allowable Moment:	17303.6	kip-ft
Moment Capacity:	53.7%	Pass
Diagonal Direction:		
Eccentricity:	14.1	ft
Allowable Moment:	19116.0	kip-ft
Moment Capacity:	48.6%	Pass

Bearing Check		
Orthogonal Direction		
Compressive Force:	1412.3	kip
Eccentricity:	6.75	ft
q_{max}:	1.749	ksf
Bearing Capacity:	29.1%	Pass
Diagonal Direction		
Compressive Force:	1412.3	kip
Eccentricity:	4.77	ft
q_{max}:	1.498	ksf
Bearing Capacity:	25.0%	Pass

Project Name:	HRT 105 943201	Created On:	10/6/2014
Project Number:	BU#806363	Checked By:	JTE / DW
Job Number:	WO#1305916	Revised On:	12/2/2014
Date:	10/3/2016	Revision No.:	1.0

JACOBS
Jacobs Engineering Group. Inc.

Self Support Single Pad Structural Checks

Structural Properties		
Tower Width:	30.04	ft
f'_c:	3000	psi
Concrete Density:	150	pcf
Clear Cover:	3	in
Flexual Rebar Strength:	60	ksi
Tie Strength:	40	ksi

Pad Reinforcement (1 Level):			
Short Side		*Long Side*	
Size:	7	Size:	7
Quantity:	55	Quantity:	55

Maximum Single Pier Reactions		
Max Compression:	388	kip
Max Comp. Shear:	45	kip
Max Uplift:	328	kip
Max Uplift Shear:	42	kip
Tower and Foundation Centroids Are Alligned		

Pad Beam Shear		
Overturning over Length		
V_c:	2629.0	kip
φV_n:	1971.7	kip
Critical Shear:	216.1	kip
Beam Shear Capacity:	11.0%	Pass
Overturning over Width		
V_c:	2629.0	kip
φV_n:	1971.7	kip
Critical Shear:	216.1	kip
Beam Shear Capacity:	11.0%	Pass

Pad Flexural Strength		
Overturning Capacity Independent of Direction		
φM_n:	7259.2	kip-ft
Applied Moment:	1439.3	kip-ft
Flexural Capacity:	19.8%	Pass