Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

September 2, 2020

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
37 Carmen Hill Road, Brookfield, CT 06804
Latitude: 41.493422400
Longitude: -73.4287345000
T-Mobile Site#: CT11196A – Anchor

Dear Ms. Bachman:

T-Mobile currently maintains twelve (12) antennas at the 280-foot level of the existing 456-foot guyed tower at 37 Carmen Hill Road in Brookfield, CT. The 456-foot guyed tower is owned by Vertical Bridge. The property is owned by American Towers LLC. T-Mobile now intends to replace three (3) existing antennas with (3) new 1900/2100 MHz antennas. The new antennas will be installed at the same 280-foot level of the tower.

Planned Modifications:
Tower:

Remove
N/A

Remove and Replace:
(3) AIR 3246 Antennas for (3) AIR 32 1900/2100 MHz Antennas

Install New:
(2) 1-5/8" Hybrid

Existing to Remain:
(3) APXVARR24_43 600/700/1900 MHz
(3) AIR 6448 2500 MHz
(3) APX16DWV-16DWV-S-E-A20 1900/2100 MHz
(3) Radio 4449 B71B85
(3) Radio 4415B25
(6) TMA
(12) 1-5/8" coax
(3) 1-5/8" Hybrid

Ground:
Install New: Equipment inside existing 6160 cabinet

This facility was approved by the Town of Brookfield Planning and Zoning Commission on February 24, 1994. Enclosed is a copy of the approval. The original decision did not come with conditions of approval that would be violated by this proposed modification.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman-Stephen Dunn, Elected Official, and Alice Dew, Land Use Director for the Town of Brookfield, as well as the tower owner and property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kyle Richers
Transcend Wireless
Cell: 908-447-4716
Email: krichers@transcendwireless.com

Attachments
cc: Stephen Dunn – First Selectman of Town of Brookfield
Alice Dew – Land Use Director of Town of Brookfield
Vertical Bridge – Tower Owner
American Tower – Property Owner

View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialogue box that appears. Note: If your browser does not support this function, select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a scheduled Pickup
   - Your driver will pickup your shipment(s) as usual.

   Customers without a scheduled Pickup
   - Schedule a Pickup on ups.com to have a UPS driver pickup all of your packages.
   - Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. To find the location nearest you, please visit the 'Locations' Quick link at ups.com.

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115 FRANKLIN TPKE
MAHWAH NJ

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120 E MAIN ST
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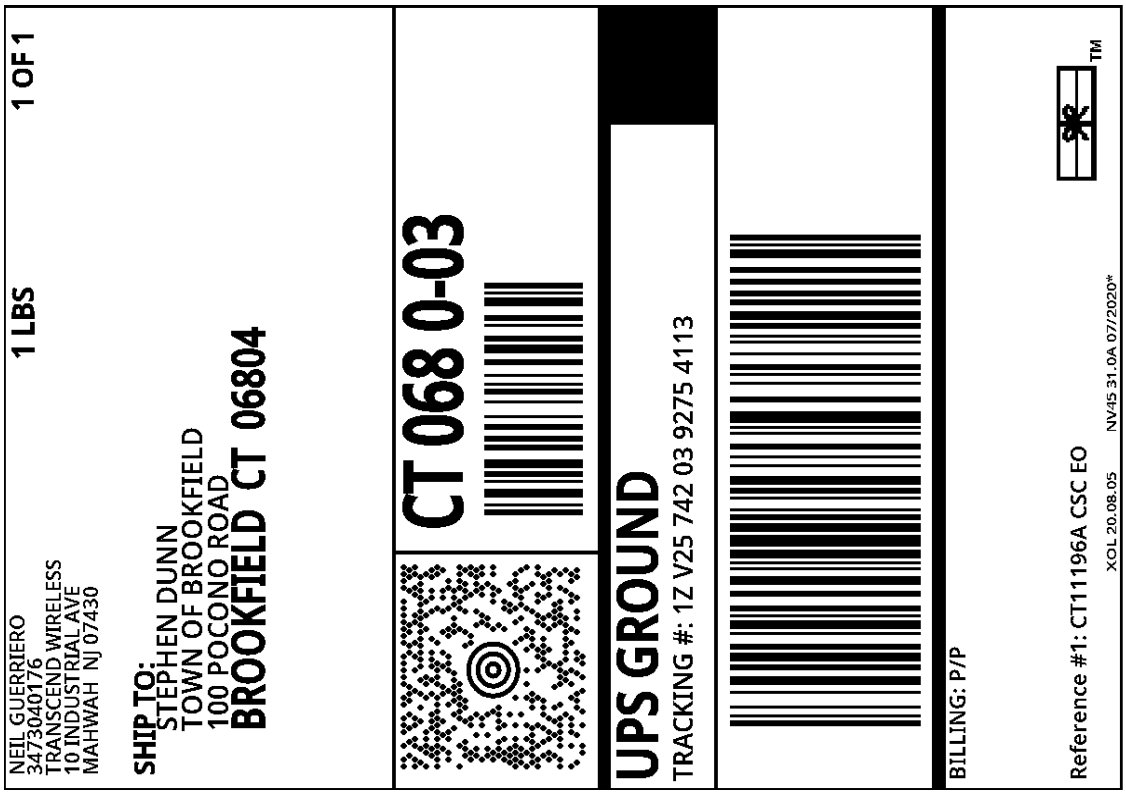
FOLD HERE



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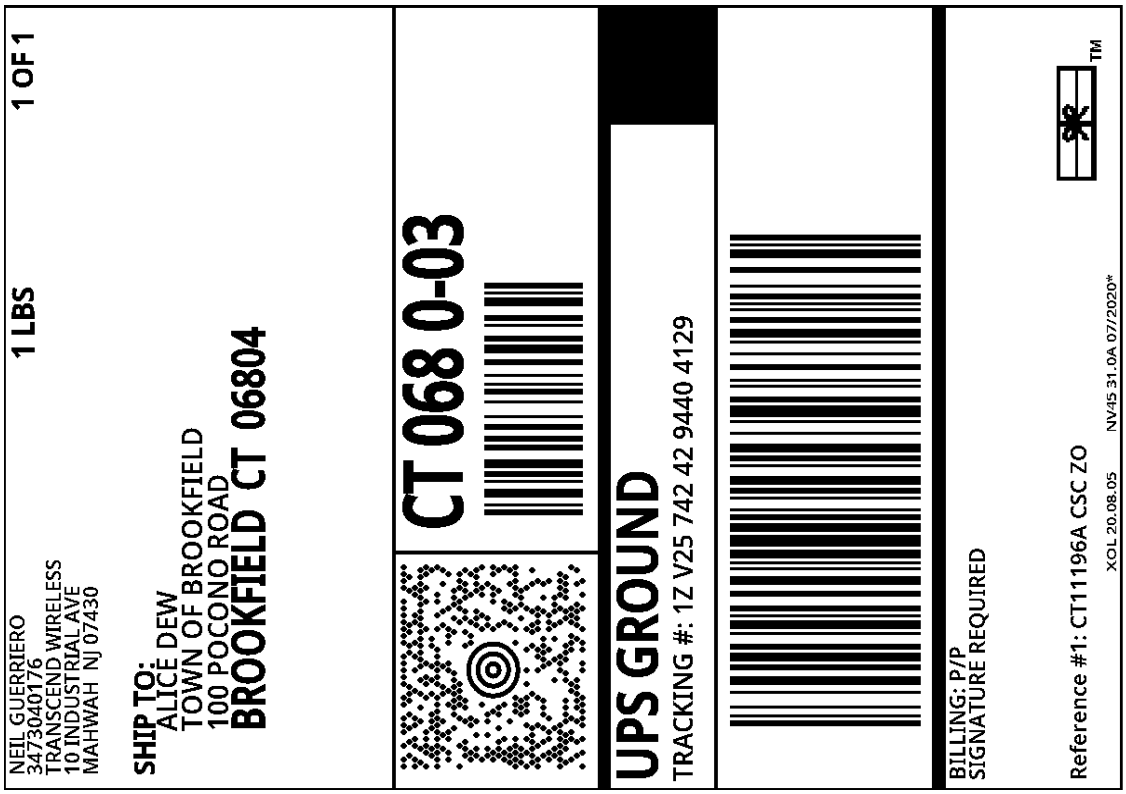

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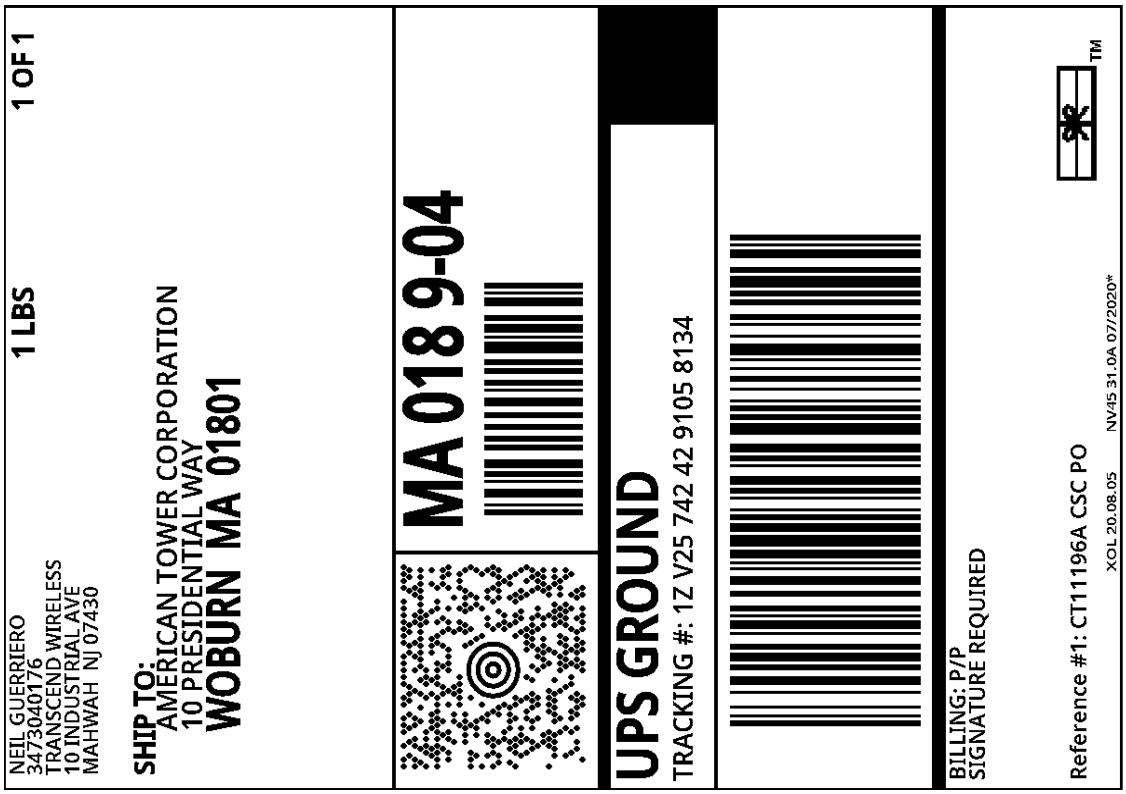

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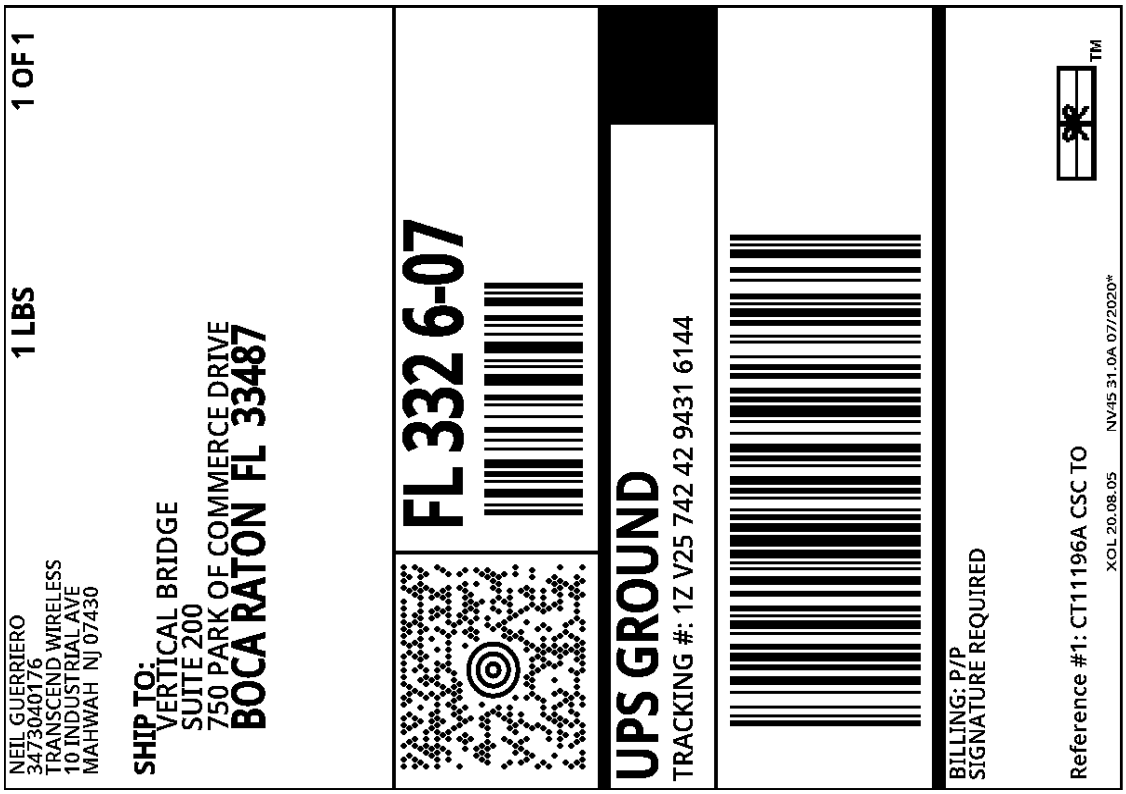


37 CARMEN HILL RD

Location	37 CARMEN HILL RD	**Mblu**	B05/ / 010/ /
Acct#	02704000	**Owner**	AMERICAN TOWERS LLC
Assessment	$354,230	**Appraisal**	$506,040
PID	814	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$16,030	$490,010	$506,040
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$11,220	$343,010	$354,230

Owner of Record

Owner	AMERICAN TOWERS LLC	**Sale Price**	$352,340
Co-Owner	C/O PROPERTY TAX DEPT	**Certificate**	
Address	PO BOX 723597 ATLANTA, GA 31139	**Book & Page**	692/ 597
		Sale Date	11/20/2014
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
AMERICAN TOWERS LLC	$352,340		692/ 597	25	11/20/2014
FLORIDA TOWER PARTNERS LLC	$525,000		683/ 643		04/10/2014
CHARTER COMMUNICATIONS ENTERTAINMENT 1LP	$37,800		313/ 836		11/01/1996

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes

Field	Description
Style	Outbuildings
Model	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bathrooms	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Kitchens	
Whirlpool Tub	
Hot Tubs	
Fireplaces	
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Garages	

Building Photo

(http://images.vgsi.com/photos2/BrookfieldCTPhotos//\01\00\47/79.jpg)

Building Layout

Building Layout

Building Sub-Areas (sq ft)
No Data for Building Sub-Areas

Extra Features

Extra Features
No Data for Extra Features

Land

Land Use

Use Code 435
Description Cell Site Vac Lnd
Zone R100

Land Line Valuation

Size (Acres) 4
Depth
Assessed Value $343,010
Appraised Value $490,010

Outbuildings

Outbuildings						
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD3	Comm Shed	FR		240 S.F.	$8,640	1
ANTG	Guyed Tower	R	Radio	80 L.F.	$7,390	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$16,030	$490,010	$506,040
2018	$16,030	$490,010	$506,040
2017	$16,030	$490,010	$506,040

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$11,220	$343,010	$354,230
2018	$11,220	$343,010	$354,230
2017	$11,220	$343,010	$354,230

Town of Brookfield, CT Assessors Map

MAP DISCLAIMER-NOTICE OF LIABILITY
This map is for assessment purposes only. It is not for legal description or conveyances. All information should be verified by the end user. The Town of Brookfield and its mapping contractors assume no legal responsibility for the information contained herein. All effort has gone into creating an accurate product utilizing the existing sources but all data should be verified by a surveyor prior to making determinations.

Brookfield Town Line
Brookfield Parcels
Private Road
Town Road
State Highway
Federal Highway

<all other values>
BRIDGE
PAVED AREA
UNPAVED AREA
BUILDING
CONSTRUCTION
BLEACHERS
DECK
POOL
TRAIL
PATIO
AGRICULTURE
RECREATION
BEACH
DAM, STRUCTURE
FORESTED
UNFORESTED
WATER
FORESTED WATER
FORESTED WETLAND
UNFORESTED WETLAND
BENCH; BOARDWALK
DOCK_PIER
FENCE; RETAINING_WALL; WALL; RIPRAP
GUIDERAIL; GUIDERAIL_DOUBLE; HEADWALL; JERSEY_BARRIER
PAVED_DRAIN; PIPELINE
RAILROAD
STONEWALL
TRAIL
WATER_LAKE; WATER_RIVER; WATER_STREAM
<all other values>
ANTENNA; CELL_TOWER; FLAGPOLE
CROSS_COUNTRY_POLE; TRANSMISSION_TOWER
FIRE_HYDRANT
LIGHT_POLE; UTPOLE_LIGHT
MANHOLE
TREE_CONIFER
TREE_DECIDUOUS
UTILITY_POLE

Map Number: B05

100 50 0 100 200 Feet

Sharlow Technology Group
860-778-8963

TOWN OF BROOKFIELD
ZONING COMMISSION

Permit No.: SP94-1
Page 1 of 4

SPECIAL PERMIT - DESIGN REVIEW APPROVAL

Issued to:

Danbury Broadcasting, Inc.
1004 Federal Road
Brookfield, CT 06804

Owner of Record:

Danbury Broadcasting, Inc.
1004 Federal Road
Brookfield, CT 06804

Location: Lot No. B05013, 39 Carmen Hill Road, Brookfield, Connecticut.

Project Description: Replacement of an existing radio tower.

Permitted Use: Existing/non-conforming
Application Date: 1-12-94
Decision Date: 2-24-94

Zoning District: R-100
Public Hearing Date: 2-10-94
Publication Date: 3-1-94

Approval and Conditions:

This Special Permit is issued pursuant to Title 8, Chapter 124, Sect. 3c of CGS and Chapter 242, Section 301C. of the Code of the Town of Brookfield. It is subject to the General Conditions, Special Stipulations, plans, drawings and documents as set forth hereinafter.

Effectivity: **This approval IS NOT VALID UNTIL:**

A. This document is filed by the record owner of the property with (i) The Town Clerk, and (ii) upon the land records of the Town of Brookfield prior to the commencement of any site work, but in no event later than sixty (60) days from the date hereof.

B. A performance bond in the form of an irrevokable, unconditional, automatically renewable, bank letter of credit in the amount of: $ 7,500 is on file in the Office of the First Selectman, Town of Brookfield, prior to the commencement of any site work, but in no event later than six (6) months from the date hereof.

You are required to PROMPTLY RETURN the following documents to the Office of the Zoning Commission: (1) Certificate of Filing and Recording executed by the Town Clerk, (2) Site Work Bond and Agreement executed by you, (3) A signed copy of this Special Permit acknowledging both receipt hereof and your obligations hereunder.

Attachments (a part of this Special Permit):

(1) General Conditions of Approval, (2) Special Stipulations, (3) Document Listing, (4) Certificate of Filing and Recording, (5) Site Work and Bond Agreement, (6) Acknowledgment copy of Permit

Approval and Certification:

Approved and certified to be a true copy of the Special Permit granted this 24th day of February, 1994 at Brookfield, Connecticut.

E Bolozel for The Brookfield Zoning Commission

Special Permit No. SP94-1

ATTACHMENT No. 1

SPECIAL PERMIT - DESIGN REVIEW APPROVAL

GENERAL CONDITIONS OF APPROVAL

(1) This approval shall be void and of no effect unless construction of all improvements, buildings and structures shown on the site plan is completed within two (2) years of the date of this letter. However, the Commission may extend said two (2) year period up to an additional three (3) years, if the Commission finds exceptional difficulty would result in applying the original two (2) year completion period. Any renewal periods shall be upon the same terms and conditions as originally approved unless modified by the Commission.

(2) If any activity on the site creates an impact upon the inland wetlands of the Town of Brookfield, then this approval is subject to such condition, if any, as may be imposed by the Inland Wetland Commission, Town of Brookfield.

(3) Prior to the construction of any structure(s), water supply or drainage system, or connection to a septic treatment facility or sewer, you shall conform to the requirements placed upon you by the Building Official, Health Department and Water Pollution Control Authority, Town of Brookfield,. Copies of documents reflecting final approval of these systems shall be filed by you with this Commission within fifteen (15) days after such approval is given.

(4) Any additions to the exterior lighting or the parking areas shall require specific approval of the Commission and shall be in accordance with the appropriate requirements of the Zoning Regulations, Town of Brookfield.

(5) If landscaping is required by the Commission per the approved site plan, you shall maintain such landscaping in a healthy growing condition throughout the duration of the use it is intended to serve. The Commission shall require the replacement of any landscaping which does not survive its initial planting.

(6) You are required to meet all the requirements of Section 242-602, "Technical Standards" of the Brookfield Code.

(7) Prior to the occupancy of any structure, you shall conform to such requirements as may be placed upon you by the Fire Marshal and Fire Chief, Town of Brookfield, relative to: emergency vehicle access, building egress, and provisions for an adequate supply of water for fire fighting purposes.

(8) During construction of the project, you shall take such precautions as may be prescribed by the Building Official, the Highway and Police Departments, Town of Brookfield, and the Zoning Commission, so as to protect the general health, safety, and welfare, and to peclude undue nuisance to residents of the general area. Construction trailers, equipment and the like shall be kept to a minimum of twenty-five (25) feet inside the property lines at all times.

SPECIAL PERMIT - DESIGN REVIEW APPROVAL

GENERAL CONDITIONS OF APPROVAL

(9) During construction of the project, the Erosion and Sediment Protection, (ESP), measures must be fully implemented in accordance with the approved plan. This shall apply not only to the installation of the required ESP measures but also to all meaintenance procedures contained in the plan. Status reports on the ESP plan shall be filed with the Z.E.O. on a monthly basis.

(10) Upon application for a Zoning Certificate of Compliance, you must provide a complete set of drawings revised to indicate the true "as built" condition of the project. These drawings shall be submitted in two (2) blue line copies and one (1) reproducible copy. The Zoning Enforcement Officer will then inspect the property to verify that the project has been completed in accordance with this approval. Only then will a Certificate of Compliance be issued. Occupancy shall not be permitted until such certificate is issued.

(11) An "as built" plot plan shall be submitted to the Commission after the foundations and/or footings are poured. This plot plan shall contain all dimensions enabling the locations of the foundations, footings, drainage pipes, catch basins, galleries, underground utility lines, etc., to be compared for conformity to the approved site plan. No further earth covering over or building on these structures may be initiated until the submitted "as built" is approved by the Commission or the Zoning Enforcement Officer. The Commission will interpret failure to comply with this stipulation as grounds to deny any and all requests for subsequent modifications of the original site plan.

Special Permit No. SP94-1 Attachment No. 2

SPECIAL PERMIT - DESIGN REVIEW APPROVAL

SPECIAL STIPULATIONS

1. The bond shall be set at $7,500.

DOCUMENT LISTING

1. Real Estate Impact Study, Proposed Radio Tower Replacement, Prepared by Lesher-Glendinning & Co., Inc./Appraisers & Counselors, P. O. BOX 402, Georgetown, Conn. 06829, Dated 2/8/94.

2. General Arrangement Drawing of WINE/WRKI RADIO, No. E-1, prepared by Stainless, Inc., 3rd St. and Montgomery Ave., North Wales, PA 19454, dated 12/15/93.

3. Site Plan Proposed Radio Tower Replacement, prepared for Danbury Broadcasting, Inc., 39 Carmen Hill Road, by Carroccio-Covill & Associates, Inc., 40 Old New Milford Road, Brookfield, CT 06804, Drawing No. 1465, Sheet 1 of 1, dated 1/24/94.

ZONING COMMISSION

APPLICATION FOR DESIGN REVIEW APPROVAL

NO. SP 94-1

PROJECT DATA

Project Name: Proposed Radio Tower Replacement
Street Address: 39 Carmen Hill Road, Brookfield CT
Zoning District: R-100 Lot No.: B05013
Permitted Use: No; Existing/Non conform Permitted Use No.: N.A.
Acreage: 4.31 Ac Soil Types Present: Cr, Wx
Building Footprint: 1205 S.F. Impervious Area Footprint: 6205 S.F.
Total Building Sq. Ft. 1205 S.F. No. of Stories 1
No. of Occupants: 0 No. of Parking Spaces: 2
No. of Buildings: 2 (1 Building 1 Tower) Flood Plain Designation: N.A.
Wetlands Approval Req'd.? NO Wetlands Approval Obtained? N.A.
Steep Slopes Present? NO On Sewer Line? NO
Fences/Walls Present? YES Wooded Areas Present? YES
Fuel Tank Size: 275 gal. ± Fire Tank Size: N.A.
Phased Construction? NO Adjacent to Residential Zone? YES
Estimated Project Cost: $300,000.00 Estimated Cost of Site Work: $5100.00

Note: Application must be accompanied by all data specified in Section 242-301 C.(3) of the Brookfield Code, the required fee, and an itemized breakdown of site work costs.

APPLICANT DATA

	Owner of Record	Agent/Developer
Name:	Danbury Broadcasting, Inc.	Attorney Ted D. Backer
Street:	c/o 1004 Federal Road	Lee-Farm Corp. Park, 83 Wooster Heights
City/Zip:	Brookfield, CT 06804	Danbury, CT 06813-3499
Phone:	(203) 775-1212	(203) 743-2721

Name of Proposed Occupant: WINE/WRKI Radio Stations (Existing)
Occupant's Products/Services: Broadcast Transmission (Existing)

AUTHORITY OF AGENT

I hereby authorize the above designated Agent/Developer to act in my behalf in all matters related to this application.

Owner of Record's Signature: Danbury Broadcasting, Inc. BY: [signature] Pres. Date: Jan. 12/94

APPLICANT'S REPRESENTATION

I hereby make application for Design Review Approval in accordance with the Zoning Regulations, Town of Brookfield. I agree herewith to hold the Town of Brookfield and its agents harmless for any and all expenses incurred as a result of the applicant/occupant's lack of compliance with the aforementioned regulations and any enforcement action resulting therefrom.

Applicant's Signature Ted D Backer Date: Jan. 12/94

FOR COMMISSION USE

Date Received: 1/13/94 Date Application Accepted: 1/13/94
Fee Calculation: Amount $ 190.00 + 16.00
Hearing set for: 2/10/94 Publication Dates: 1/27 & 2/3 $ 3/4/94
Disposition: approved w/stips. Date: 2/24/94
Bond Posted: Approval Filed:

TOWN OF BROOKFIELD - ZONING COMMISSION

Rev. 4/87

DESIGN REVIEW APPROVAL - CHECKLIST

PROJECT ADDRESS: 39 Carmen Hill Road PROJECT NAME: Danbury Broadcasting, Inc.

PART I - SITE PLAN REQUIRED DATA per Sect. 242-301 C. (3) (a & b)

	SECT. No.	DATA ITEM		SECT. No.	DATA ITEM
(X)	a.	Key Map	(X)	b.7a.	Road and Drives, Configuration
(X)	b.	Four (4) copies of site plan	(NA)	b.7b.	Road/Drives Profiles
(X)	b.	Scale, not greater than 1"=100'	(NA)	b.7c.	Pavement Cross Section
(X)	b.1a.	Project Name	(X)	b.7d.	Walkways, Malls, Paths
(X)	b.1b.	Developer Name	(X)	b.7e.	Entranceways & Exits
(X)	b.1c.	Land Owner of Record	(NA)	b.8a.	Loading & Storage Areas
(X)	b.1d.	Zoning District	(NA)	b.8b.	Refuse Areas & Screening
(NA)	b.1e.	Permitted Use Identification	(X)	b.8c.	Machine & Equipment Areas
(X)	b.1f.	Names, Abutting Property Owners	(X)	b.8d.	Parking Areas, loc.,dim.
(X)	b.1g.	Northpoint	(X)	b.8e.	Total Vehicle Number
(X)	b.1h.	Scale	(NA)	b.8f.	Curbs, Barriers, Wheel Guards
(X)	b.1i.	Date of Preparation	(X)	b.8g.	Dustless Pavement Type
(X)	b.2a.	Boundary Lines	(X)	b.8h.	Catch Basins, loc.,dim.
(X)	b.2b.	Bearings and Distances	(X)	b.8i.	Culverts & Pipe, loc.,dim.
(X)	b.2c.	Total Property Area	(NA)	b.8j.	Parking Area Landscaping
(X)	b.2d.	Easements, purpose,loc.,dim.	(NA)	b.9a.	Open Space, loc.,dim.,type
(X)	b.2e.	Names, Adjourning Streets	(NA)	b.9b.	Recreational Areas
(X)	b.2f.	Dimensions, Adjourning Streets	(NA)	b.10a.	Water Supply Plan
(X)	b.3a.	Buildings & Structures, type,loc.,dim.	(NA)	b.10b.	Sewage Disposal Plan
(X)	b.3b.	Number of Occupants	(NA)	b.10c.	Reserve Areas, Septic
(X)	b.3c.	Distances to Property Lines & Buildings	(NA)	b.10d.	Drainage Plan & Calculations
(X)	b.4a.	Existing Contours @ 2' intervals	(X)	b.10e.	Electric, Phone, Gas Lines
(NA)	b.4b.	Proposed Contours @ 2' intervals	(NA)	b.10f.	Grades/Elevations, Basins/Piping
(X)	b.4c.	Watercourses, Wetlands, Soil Types	(NA)	b.11a.	Signs, description,loc.dim.
(X)	b.4d.	Proposed Site Alterations (fill etc.)	(X)	b.12a.	Walls/Fences, type,loc.,dim.
(X)	b.4e.	Unusual Site Features	(X)	b.12b.	Unique Items, specify
(X)	b.5a.	Erosion & Sedimentation Plans (ESP)	(X)	b.13a.	Technical Data per 242-602 A thru H
(X)	b.5b.	ESP Design & Details	(X)	b.14a.	Prof. Engr. Seal,) 80,000 sq. ft.
(X)	b.5c.	ESP Procedures/Measures/Reports	(X)	b.15a.	Start/Completion Dates
(X)	b.6a.	Trees & Shrubs, Existing/Proposed	(X)	b.15b.	Milestone/Schedule
(X)	b.6b.	Tree/Shrub Names/Type/Size	(X)	b.15c.	Phases of Construction Shown
( )	other	_____	( )	other	_____
( )	other	_____	( )	other	_____

PART II - ARCHITECTURAL REQUIRED DATA per Sect. 242-301 C. (3)

SECT. No.	DATA ITEM	SECT. No.	DATA ITEM
(NA) c.1.	Building Elevations & Floor Plans	(NA) c.5.	Screening Details
(NA) c.2.	Color & Texture of Building Material	(NA) c.6.	Sign Details
(NA) c.3.	Facade & Window Details	(X) c.7.	Lighting Fixture Deails
(NA) c.4.	Roofscape Details	(NA) c.8.	Illumination & Intensity Data

PART III - ADDITIONAL REQUIRED DATA per Sect. 242-301 C. (4). See cited Section to determine applicability.

(NA)	602 F.	Hydrogeological Report	(NA)	501 D2.	Water Retention Plan
(NA)	602 G.	Traffic Report	( )	other	_____
(NA)	502 E.	Spill Containment Plan	( )	other	_____

DESIGN REVIEW APPROVAL - CHECKLIST Danbury Broadcasting, Inc.

PART IV - APPROVAL CRITERIA, STANDARDS, AND REQUIREMENTS (Industrial and Commercial Applications)

SECTION No.	ITEM	STANDARD/REQUIREMENT	PROPOSED	COMMENTS
	GENERAL			
	*******			
501 B.	Permitted use:	identify	N.A.	Existing Non-Conforming
501 C.	Lot Area:	I=80/C=40k sq. ft.	4.31 ac.	Conforms
501 C.	Lot Width:	I=200'/C=150'	295' ±	Conforms
501 C.	Side Yard:	I=50'/C=30'	64' ±	Conforms
501 C.	Rear Yard:	I=50'/C=30'	465' ±	Conforms
501 C.	Building Height:	I=40'/C=30'	250' +/-	Tower to be 499'
501 D.	Land Coverage:	75%	3.3%	
501 D.	Foundation Plantings:	req'd	N.A.	
501 D.	Water Retention Plan:	)50% coverage, req'd	N.A.	
501 E.	Set Back:	100' fm: lot line	N.A.	
501 E.	Set Back (no front parking):	50' fm: lot line	119' ±	Conforms
308 B.	Set Back, watercourse:	25'	N.A.	
308 H.	Residential Buffer:	100' side/rear, 25' front	N.A.	
501 F.	Drive Design:	per Road Ordinance	N.A.	Existing Drives Servicable
501 F.	Pavement:	10"/2"/1 1/2"/1 1/2"	N.A.	Existing Drives Servicable
201 C.	Lot Access:	)50' frontage	YES	300' ± Available
201 C.	R.O.W. Width:	)50'	50' ±	Site is 26'to30' from centerline
201 E.	Pre-existing Lot, Y / N:	prior to 6/60	YES	
309.	Non-conforming status:	See 242-309	YES	Existing Non-Conforming
203 C.	Zoning Boundry Verified:	Y / N	YES	
203 D.	Lot in 2 Districts:	(30' intrusion	NO	
301 C.	Alteration:	(25%/10K sq. ft.	YES	
301 C	Inland Wetland Approval:	rec'd	N.A.	
301 C	Erosion Control Plan:	See 242-602 D.	N.A.	
301 C	Landscape:	adequate	N.A.	
301 C	Drainage:	per Town Engr.	N.A.	
301 C	Height, walls/fences:	(8'	6' ±	Around Tower Base
308 E.	Sight Obstruction, intersect.	(3'h@(20'distance	N.A.	Existing is Adequate
302.	Natural Resources Removal:	See 242-302	N.A.	
303 A.	Fill Impact:	See 242-303 A.	N.A.	
303 B.	Fill, below structures:	See 242-303 B.	N.A.	
303 C.	Burial of Material:	See 242-303 C.	N.A.	
	PARKING			
	*******			
305 C1.	Parking Space Size:	9' x 20' min.	YES	
305 C1.	Pavement Type:	dustless	YES	Existing Bituminous Concrete
305 C1.	Pavement Markings:	req'd	YES	
305 C2.	Off-site Parking	(250' fm: building	N.A.	
305 C3.	Ingress/Egress:	defined drive req'd	YES	Existing Drive Entrance
305 C4.	Aisles:	24'@90 deg.,14'@parallel	YES	24' ± Available
305 C5.	Drive Width:	22'	NO	Intermittent Access:Satisfactory
305 C6.	Set Back, road pavement	20'	YES	Exists
305 C6.	Set Back, buildings	10'	YES	Exists
305 C7.	Walkways:	Commission option	YES	Exists
305 C8.	Curbing, perimeter	6"	NO	Wheel Stops to be Used
305 C9.	Set Back, intersection:	75'	N.A.	
305 C10.	Lighting:	See 242-602 B.	NO	No Parking illumination proposed
305 D.	Parking Space Calculation:	See 242-305 D.	YES	

SECTION No.	ITEM	STANDARD/REQUIREMENT	PROPOSED	COMMENTS
305 E.	Trailers, construction:	water/septic req'd	NO	None Required
305 E.	Trailer, mat'l storage:	60 day permit	NO	None Required
305 G.	Loading Area Calculation:	See 242-305 G.	N.A.	
305 H.	Landscape:	8% of parking area	N.A.	
305 H.	8' Planters:	)50 cars	N.A.	
305 H.	Trees, 2 1/2" @ 3'height:	1 per 12 cars	N.A.	
	PERFORMANCE STANDARDS			
	**********			
602 A.	NOISE:			
602 A2.	Ind'l DbA	Day 65, Night 55	N.A.	
602 A2.	Comm'l DbA	Day 60, Night 50	N.A.	
602 A2.	Resd'l DbA	Day 55, Night 45	N.A.	
602 B.	GLARE:			
602 B2a.	Light Source Visability:	none @ prop. line	YES	Aircraft Warning Lights 242-602 B.2.F.4.
602 B2a.	Foot Candles:	(I/C=1.0, R=.5	YES	
602 B2c.	Upward Angle, no contact:	not permitted	N.A.	
602 B2d.	Signs, flashing, animated:	not permitted	N.A.	
602 C.	WASTEWATER:			
602 C2.	Soil Map Data:	req'd	N.A.	
602 C3.	Test Hole Analysis:	req'd	N.A.	
602 C4.	Discharge Rates:	Table I	N.A.	
602 C6.	Loading Rates:	Table II	N.A.	
602 C.	Sewer, municipal:	WPCA approval req'd	N.A.	
602 D.	EROSION/SEDIMENT PLAN:	See 242-602 D.	YES	See Plans
602 E.	WOODCUTTING:	See 242-602 F.	N.A.	
602 F.	WATERSUPPLY:			
602 F2.	Hydrogeological Report:	)2,500 gpd	N.A.	No new use proposed
602 F3a.	Water Source:	on-site/other	YES	Existing
602 F3b.	Demand/Availability:	in balance	YES	No previous problems reported
602 F3c.	DPUC/DHS Certificate:	)25 persons,15 conc't'ns	N.A.	
602 F3d.	Stand-by Well:	)2,500 gpd	N.A.	
602 F3e.	Yield, multi-well project:	2 x avg daily demand	N.A.	
602 F3f.	Demand, drought periods:	) available supply	N.A.	
602 F3g.	Recharge Provisions:	maximize	N.A.	
602 F3h.	Yield Tests:	36hr/10gpm,72hr/50gpm	N.A.	
602 F3i.	Long Term Supply Reduction:	Not permitted	N.A.	
602 F3j.	Conservation Plan:	)5,000 gpd	N.A.	
602 F3k.	Process Water:	(5,000 gpd	NO	None required
602 F3l.	Location, well sites:	contamination proof	YES	Existing
602 F3m.	Construction Start:	DH appv'l of well/yield	N.A.	
602 F4.	Water Monitoring Program:	case-by-case	N.A.	
602 G.	TRAFFIC:			
602 G2.	Traffic Report:	)50 spaces/100 TPD	N.A.	
602 G3a&f.	Access/Circulation:	avoid queing	YES	Existing Adequate
602 G3b.	Access by resd'l streets:	avoid	YES	Exists
602 G3c.	Access on 2 streets:	use lesser impact steet.	N.A.	Exists
602 G3d.	Street Capacity:	adequate/calculated	N.A.	Use Exists
602 G3e.	Turn Lane/Controls:	case-by-case	N.A.	
602 G3g.	Grade/Algm't/Sight lines:	good engr. practice	YES	Existing Adequate
602 G3h.	Curb Cuts:	minimize	YES	One Existing
602 G3i.	Emergency Access:	req'd	NO	Not Required
602 G3i.	Interconnecting drives:	case-by-case	N.A.	
602 G3i.	Driveway Width:	(30'	20'	At R.O.W. Line
602 G3j.	Shoulder Improvements:	case-by-case	N.A.	
602 G3k.	Level of Service:	(Level "D"	N.A.	

SECTION No.	ITEM	STANDARD/REQUIREMENT	PROPOSED	COMMENTS
602 H.	FIRE PROTECTION:			
602 H2.	Storage Tank, or:	20,000 gal	N.A.	Non-Flammable Alteration
602 H2.	Other Supply, or	20,000 gal	N.A.	Non-Flammable Alteration
602 H2.	Sprinkler	option	N.A.	Non-Flammable Alteration
602 H3.	Location:	per Fire Marshall	N.A.	Non-Flammable Alteration
602 H3.	Fixturing:	per Fire Marshall	N.A.	Non-Flammable Alteration
602 H3.	Alarms/Key Box:	case-by-case	N.A.	Non-Flammable Alteration
301 C.	ENVIRONMENTAL			
	**********			
301 C5b.	Hazardous Material Storage:	case-by-case	N.A.	None Proposed
301 C5c.	Dust:	minimize	N.A.	None Proposed
301 C5c.	Odor:	not noticeable off-prem.	N.A.	None Proposed
301 C5c.	Vibration:	case-by-case	N.A.	None Proposed
	ARCHITECTURAL			
	**********			
301 C5d.	Color:	identify Orange	& White	As Required by FAA & FCC*
301 C5d.	Type/Texture of Siding:	identify	Paint	Smooth Paint on Metal
301 C5d.	Facade/Window Detail:	identify	N.A.	
301 C5d.	Roofscape:	minimize appurtenances	N.A.	
301 C5d.	Screening:	mech. areas req'd	N.A.	
301 C5d.	Lighting:	See 242-602 B.	YES	Per FAA & FCC*
301 C5d.	Area Compatibility:	req'd	N.A.	Replacement of Existing
301 C5d.	Preservation of Site Features:	maximize	YES	Minimal disturbance
301 C5d.	Landscaping, f'n'd'n plantings:	req'd	N.A.	Minimal disturbance
301 C5d.	Overall appearance:	case-by-case	YES	Similar to Existing
301 C5d.	Property Values:	No lessening impact	YES	Similar to Existing

* Federal Aviation Administration
Federal Communications Commission

503.	AQUIFER PROTECTION			
	**********			
503 B.	Prohibited uses:	Salt, hazardous/toxic, land fills, truck terminals, service stations, industrial wastes, metalworking, publishing and reproduction services.		NOT APPLICABLE
503 C.	Water Quality Impact:	not (Fed/State stds.		
503 C.	DH/TE/IWL/PC opinion:	req'd		
503 D.	Data:	See 242-503 D.		
503 D.	Analysis/Compliace Report:	req'd.		
503 E.	Spill Control Plan:	req'd.		
502.	FLOOD PLAIN			
	**********			
502 B.	Mean Flood Elevation at Site:	identify		NOT APPLICABLE
502 B.	Lowest Floor Elevation:	identify		
502 E.	Fill:	See 242-301 C.		
502.	Other Requirements:	See 242-502		

PART V - STIPULATIONS:

PART VI - DISPOSITION: _____ BOND SET @: $_____ BY: _____ DATE: _____

ADJOINING PROPERTY OWNERS
WINE RADIO TOWER SITE
37 TO 41 CARMEN HILL ROAD
BROOKFIELD, CONNECTICUT
DECEMBER 6, 1993

ASSESSOR'S LOT #	OWNER/ADDRESS
B05010	CROWN MEDIA, INC. 1 GALLERIA TOWER 13355 NOEL ROAD SUITE 1500 DALLAS, TEXAS 75240
B05011	DAVID HESAM SAADATMANDI 33 CARMEN HILL ROAD BROOKFIELD, CONNECTICUT 06804
B05012	ROBERT J. & RITA GARRETT 33A CARMEN HILL ROAD BROOKFIELD, CONNECTICUT 06804
B05014	RICHARD & J. PATRICIA ALEXANDER 43 CARMEN HILL ROAD BROOKFIELD, CONNECTICUT 06804
B05020	NORMAN TUCHMANN 46 River Street New Haven, Connecticut 06513

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

BROOKFIELD/JUNCTION RD

SITE ID: CT11196A

37 CARMEN HILL ROAD

BROOKFIELD, CT 06804

T-MOBILE RF CONFIGURATION

67D5994DB_2xAIR+1QP+1OP

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2018 CONNECTICUT FIRE SAFETY CODE, 2017 NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

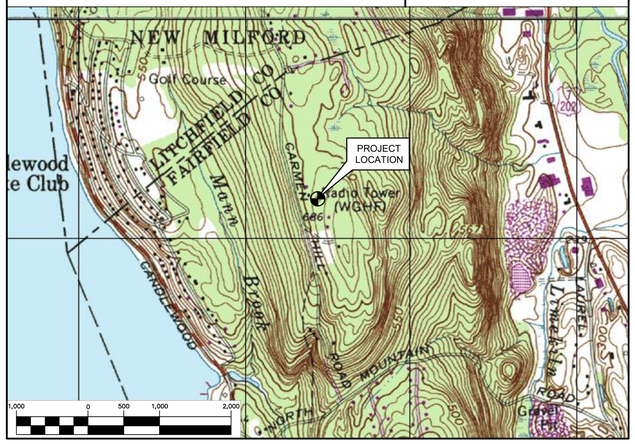
FROM: 35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

TO: 37 CARMEN HILL ROAD
BROOKFIELD, CT 06804

1.	START OUT GOING SOUTH ON GRIFFIN RD TOWARD W NEWBERRY RD.	0.07 MI.
2.	TURN LEFT ONTO W NEWBERRY RD.	0.51 MI.
3.	TURN RIGHT ONTO WOODLAND AVE.	2.49 MI.
4.	TURN RIGHT ONTO WINTONBURY AVE.	0.22 MI.
5.	TURN LEFT ONTO TUNXIS AVE/CT-189. CONTINUE TO FOLLOW CT-189.	1.03 MI.
6.	TURN RIGHT ONTO COTTAGE GROVE RD/CT-218. CONTINUE TO FOLLOW CT-218.	2.69 MI.
7.	CT-218 BECOMES N MAIN ST.	3.52 MI.
8.	MERGE ONTO I-84 W TOWARD WATERBURY.	45.41 MI.
9.	TAKE THE CT-25 EXIT, EXIT 9, TOWARD BROOKFIELD.	0.31 MI.
10.	MERGE ONTO CT-25 TOWARD BROOKFIELD/HAWLEYVILLE.	5.22 MI.
11.	CT-25 BECOMES STATION RD.	0.18 MI.
12.	TURN RIGHT ONTO LAUREL HILL RD.	0.20 MI.
13.	TAKE THE 1ST LEFT ONTO N MOUNTAIN RD.	0.82 MI.
14.	TAKE THE 1ST RIGHT ONTO CARMEN HILL RD.	0.49 MI.
15.	37 CARMEN HILL RD, BROOKFIELD, CT 06804-1004, 37 CARMEN HILL RD IS ON THE RIGHT.	

SITE COORDINATES: LATITUDE: 41°-29'-36.39" N
LONGITUDE: 73°-25'-43.43" W
GROUND ELEVATION: 722'± AMSL

COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

A. INSTALLATION OF (3) NEW ANTENNAS, (1) PER SECTOR
B. INSTALL (1) IXRE ROUTER IN EXISTING 6160 CABINET
C. INSTALL (3) BB6630'S FOR L2500 IN EXISTING 6160 CABINET
D. INSTALL (1) BB6630 FOR N2500 IN EXISTING 6160 CABINET
E. REMOVE EXISTING EXCESSIVE COAX CABLES
F. INSTALL (2) 6X12 HCS
G. INSTALL (1) 200A PPC CABINET

PROJECT INFORMATION

SITE NAME:	BROOKFIELD/JUNCTION RD.
SITE ID:	CT11196A
SITE ADDRESS:	37 CARMEN HILL ROAD BROOKFIELD, CT 06804
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592-8291
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
PROJECT COORDINATES:	LATITUDE: 41°-29'-36.39" N LONGITUDE: 73°-25'-43.43" W GROUND ELEVATION: 722'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/19/20	RTS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile
Transcend Wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
BROOKFIELD/JUNCTION RD.
SITE ID: CT11196A
37 CARMEN HILL ROAD
BROOKFIELD, CT 06804

DATE: 05/06/20
SCALE: AS NOTED
JOB NO. 20074.01

TITLE SHEET

T-1

Sheet No. 1 of 8

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 93 MPH (Vasd) (EXPOSURE C/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND IT'S COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS, ARE TO BE BROUGHT TO THE ATTENTION OF THE SITE OWNER'S CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "DIG SAFE" (DIAL 811) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
20. THE COUNTY/CITY/TOWN WILL MAKE PERIODIC FIELD OBSERVATION AND INSPECTIONS TO MONITOR THE INSTALLATION, MATERIALS, WORKMANSHIP AND EQUIPMENT INCORPORATED INTO THE PROJECT TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND APPROVED SHOP DRAWINGS.
21. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.

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BROOKFIELD/JUNCTION RD.

SITE ID: CT11196A

37 CARMEN HILL ROAD
BROOKFIELD, CT 06804

DATE: 05/06/20

SCALE: AS NOTED

JOB NO. 20074.01

DESIGN BASIS AND SITE NOTES

N-1

NOTE:
ALL COAX LENGTHS TO BE MEASURED
AND VERIFIED IN FIELD BEFORE ORDERING

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) TMA (QTY)	(QTY) PROPOSED COAX (LENGTH)
A1	EXISTING	RFS (APX16DWV-16DWV-S-E-A20)	55.9 x 13.0 x 3.15	280'	10°		(E) GENERIC TWIN STYLE 1B (2)	(1) 6x12 HYBRID CABLE (±310')
A2	EXISTING	ERICCSON (AIR6488 B41)	34.8 x 20.5 x 7.2	280'	10°			
A3	PROPOSED	ERICCSON (AIR32 KRD901146-1_B66A_B2A)	56.6 x 12.9 x 8.7	280'	10°			
A4	EXISTING	RFS (APXVAARR24_43-U-NA20)	95.9 x 24 x 8.7	280'	10°	(E) RADIO 4449 B71 (1), (E) RADIO 4415 B25 (1)		
B1	EXISTING	RFS (APX16DWV-16DWV-S-E-A20)	55.9 x 13.0 x 3.15	280'	130°		(E) GENERIC TWIN STYLE 1B (2)	(1) 6x12 HYBRID CABLE (±310')
B2	EXISTING	ERICCSON (AIR6488 B41)	34.8 x 20.5 x 7.2	280'	130°			
B3	PROPOSED	ERICCSON (AIR32 KRD901146-1_B66A_B2A)	56.6 x 12.9 x 8.7	280'	130°			
B4	EXISTING	RFS (APXVAARR24_43-U-NA20)	95.9 x 24 x 8.7	280'	130°	(E) RADIO 4449 B71 (1), (E) RADIO 4415 B25 (1)		
C1	EXISTING	RFS (APX16DWV-16DWV-S-E-A20)	55.9 x 13.0 x 3.15	280'	250°		(E) GENERIC TWIN STYLE 1B (2)	
C2	EXISTING	ERICCSON (AIR6488 B41)	34.8 x 20.5 x 7.2	280'	250°			
C3	PROPOSED	ERICCSON (AIR32 KRD901146-1_B66A_B2A)	56.6 x 12.9 x 8.7	280'	250°			
C4	EXISTING	RFS (APXVAARR24_43-U-NA20)	95.9 x 24 x 8.7	280'	250°	(E) RADIO 4449 B71 (1), (E) RADIO 4415 B25 (1)		

1 / C-1 SITE LOCATION PLAN
SCALE: 1" = 50'

APPROX. NORTH

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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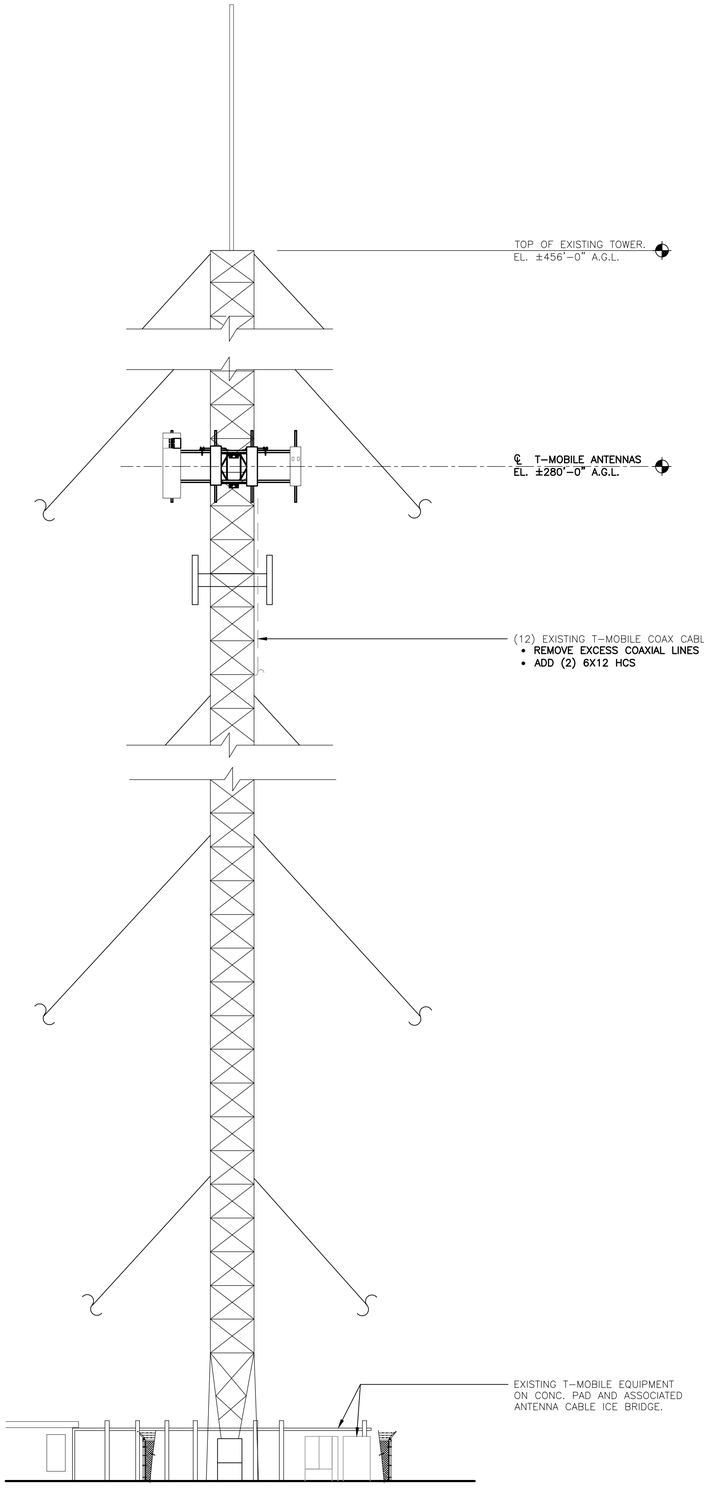
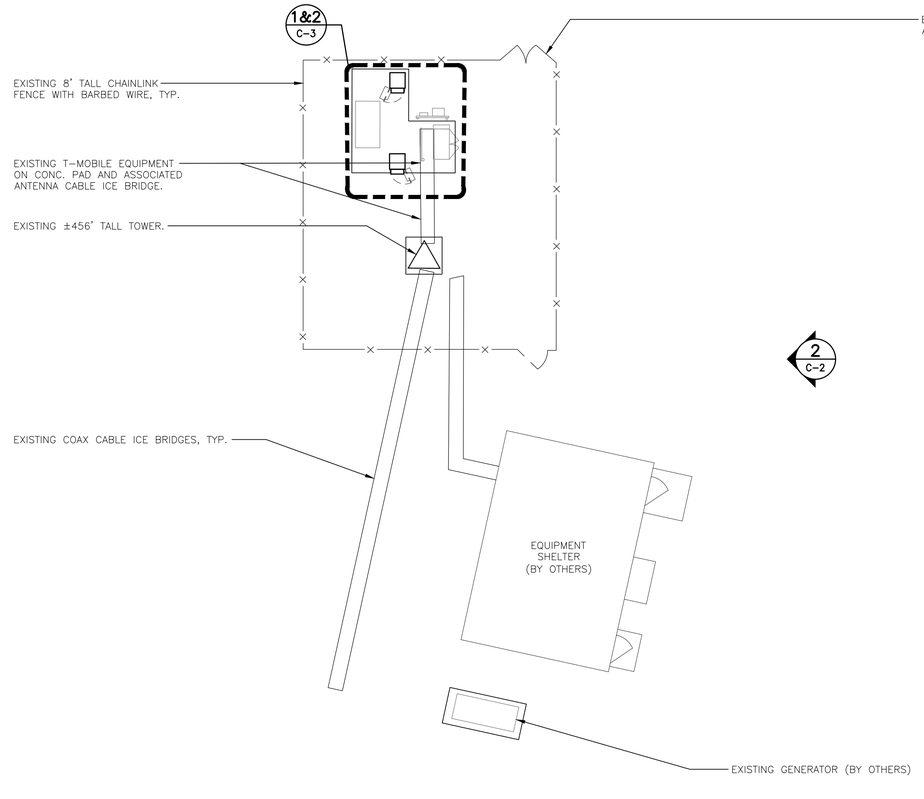
SITE LOCATION PLAN

C-1

Sheet No. 3 of 8



2 C-2 **TOWER ELEVATION**
SCALE: NOT TO SCALE



1 C-2 **COMPOUND PLAN**
SCALE: 1" = 10'

TRUE NORTH

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 20074.01) DATED 07/07/20 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY VERTICAL BRIDGE ENGINEERING, LLC (PROJECT # US-CT-5009) DATED 06/01/20 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

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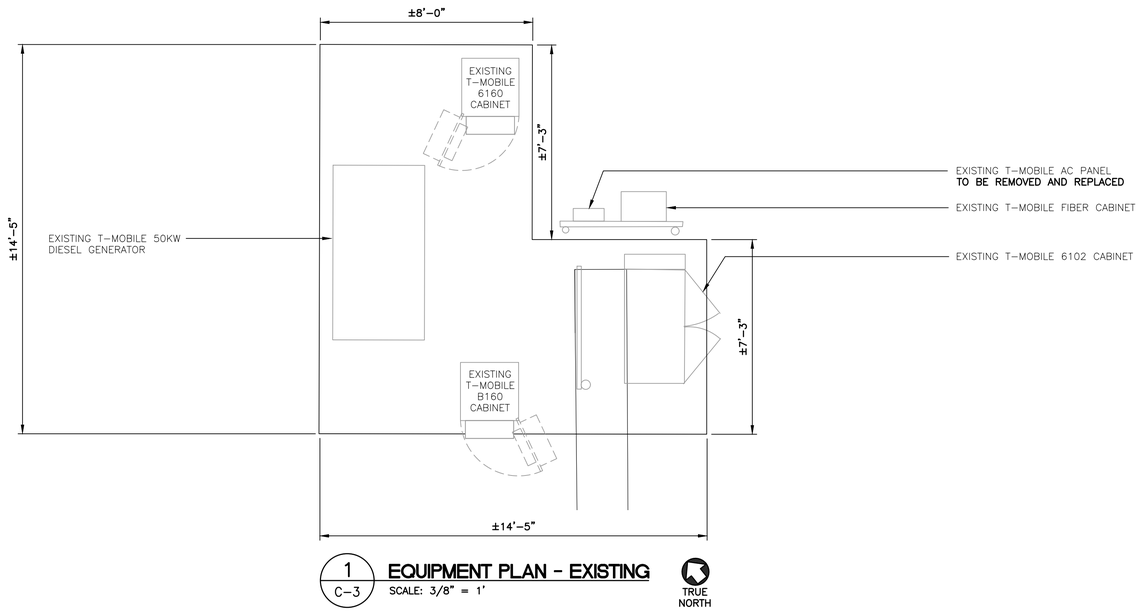
COMPOUND PLAN, AND ELEVATION

C-2

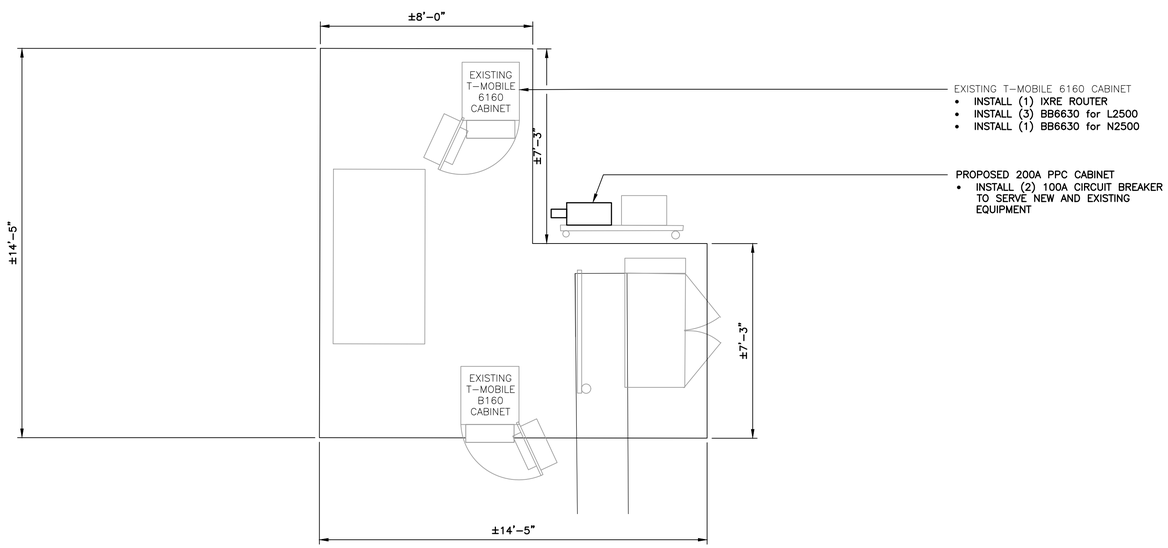
Sheet No. 4 of 8



1 / C-3 **EQUIPMENT PLAN - EXISTING**

SCALE: 3/8" = 1'

TRUE NORTH



2 / C-3 **EQUIPMENT PLAN - PROPOSED**

SCALE: 3/8" = 1'

TRUE NORTH

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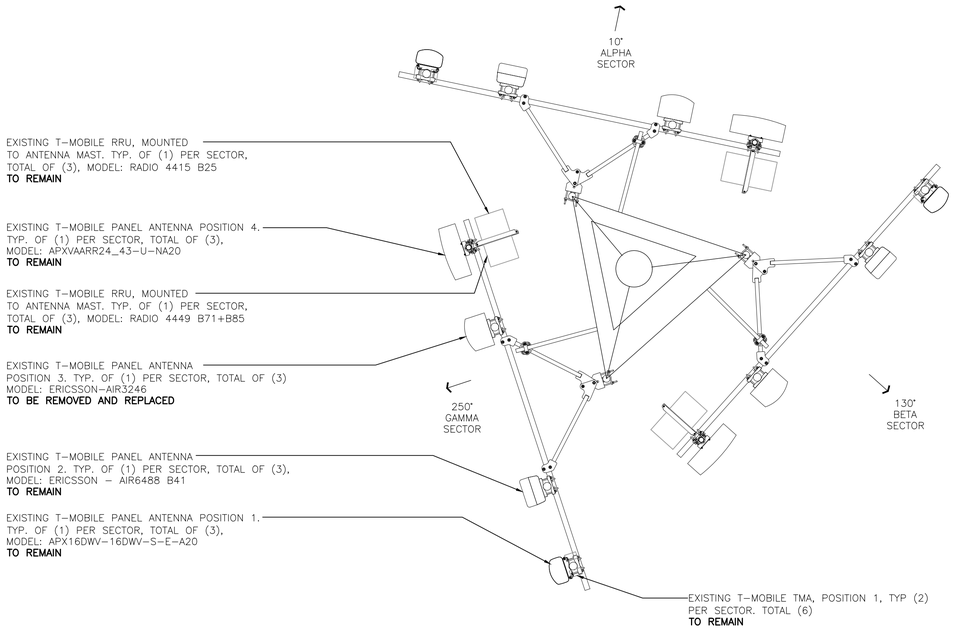
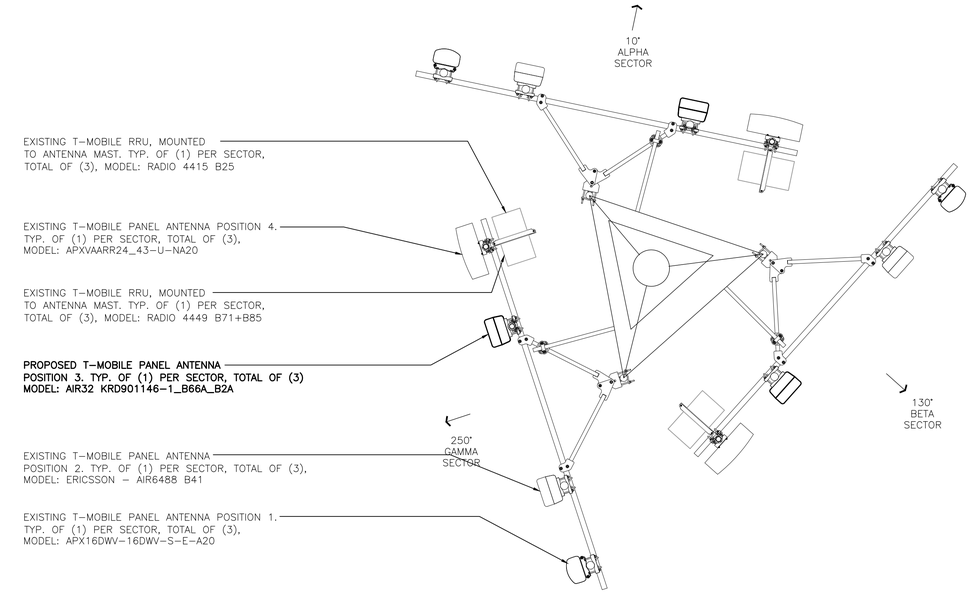
EQUIPMENT LAYOUT PLANS

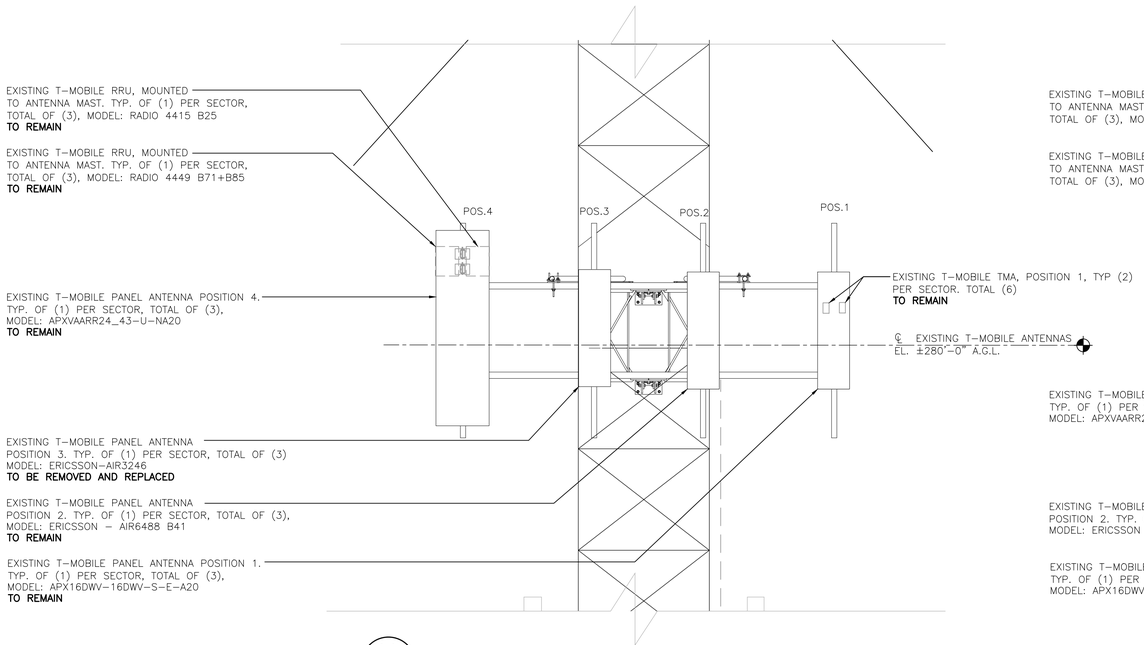
C-3



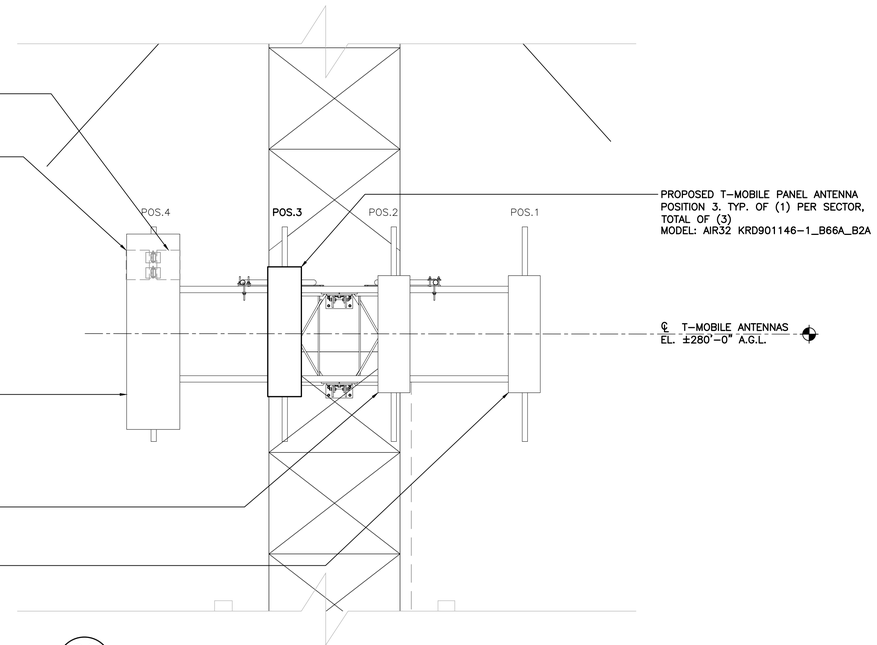
1 C-4 **EXISTING ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1' **280' ELEVATION** TRUE NORTH



2 C-4 **PROPOSED ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1' **240' ELEVATION** TRUE NORTH



1A C-4 **EXISTING ANTENNA ELEVATION**
SCALE: 3/8" = 1'



2A C-4 **PROPOSED ANTENNA ELEVATION**
SCALE: 3/8" = 1'

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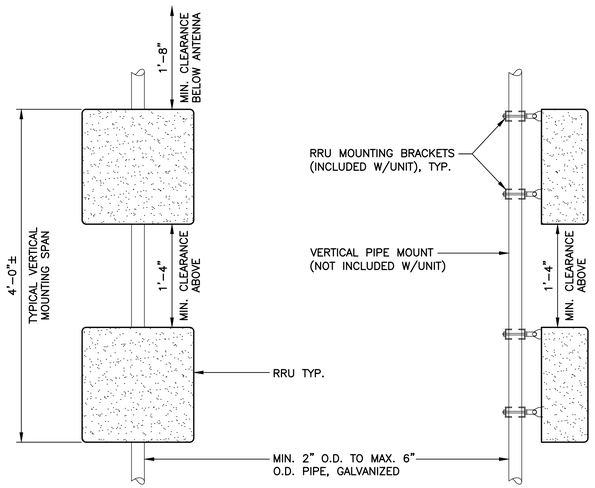
ANTENNA PLANS AND ELEVATIONS

C-4

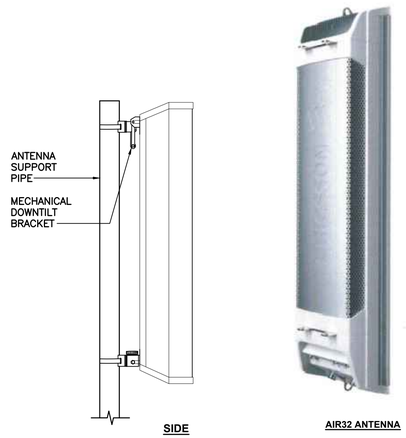
Sheet No. 6 of 8



NOTES:

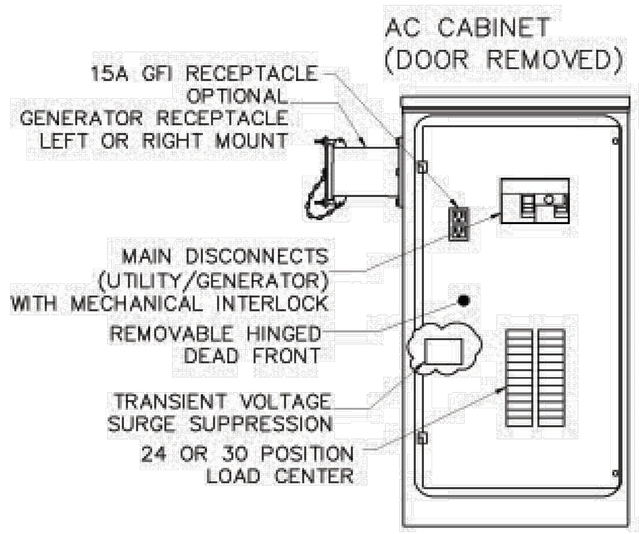
1. T–MOBILE SHALL SUPPLY RRU, AND RRU POLE–MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE–MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 / C–5 **TYPICAL RRUS MOUNTING DETAILS**
SCALE: NOT TO SCALE



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR32 KRD901146–1 B66A_B2A	56.6"L x 12.9"W x 8.7"D	±132 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T–MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.		

2 / C–5 **PROPOSED ANTENNA DETAIL**
SCALE: NOT TO SCALE



PPC CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: EMERSON MODEL: CAC–A75201090	40.0"H x 20.0"W x 10.0"D	±80 LBS

3 / C–6 **PPC CABINET DETAIL**
NOT TO SCALE

EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: ENCLOSURE 6160	62.0"H x 26.0"W x 26.0"D	±1200 LBS

4 / C–5 **ENCLOSURE 6160 (OUTDOOR)**
SCALE: NOT TO SCALE

EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: BATTERY CABINET B160	62.0"H x 26.0"W x 26.0"D	±1883 LBS

5 / C–5 **BATTERY CABINET DETAIL**
NOT TO SCALE

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TYPICAL DETAILS

C-5

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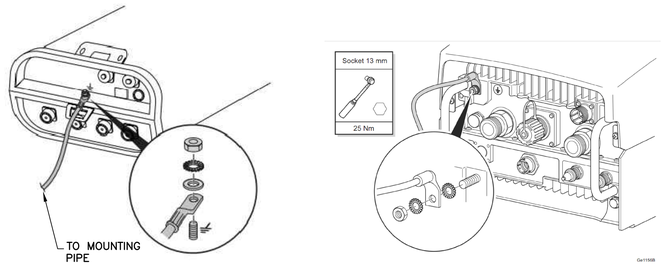
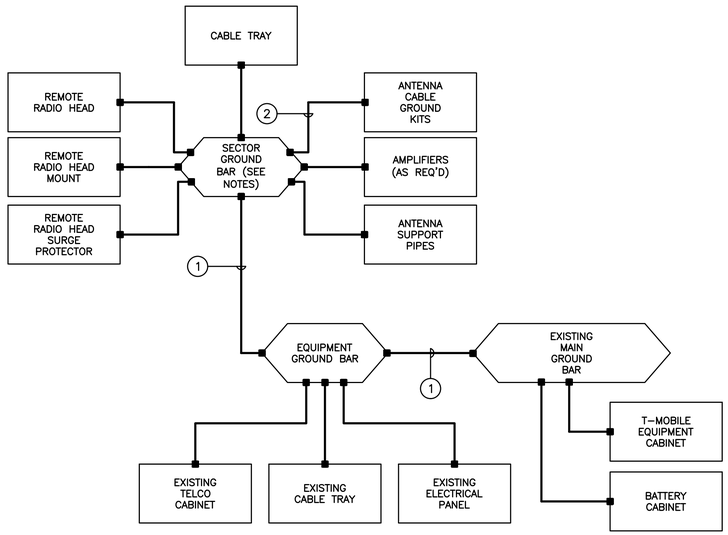


1 E-1 TYPICAL ANTENNA/RRU GROUNDING DETAILS

SCALE: NOT TO SCALE



GROUNDING SCHEMATIC NOTES

(1) #2 AWG

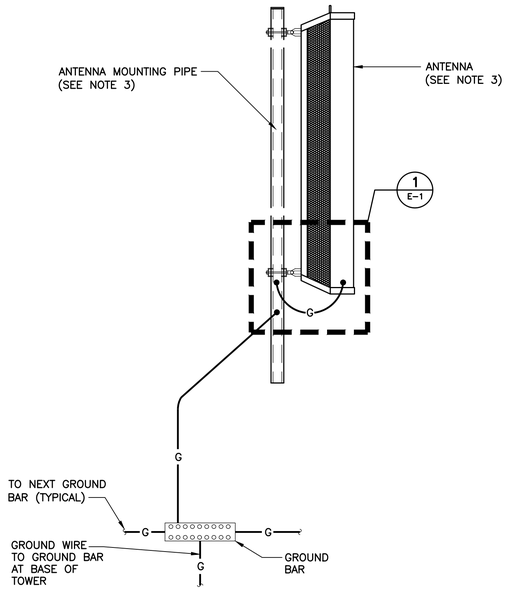
(2) #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
4. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
5. COORDINATE ALL ROOF MOUNTED EQUIPMENT WITH OWNER.
6. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
7. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

4 E-1 TYPICAL GROUNDING SCHEMATIC DETAIL

SCALE: NOT TO SCALE

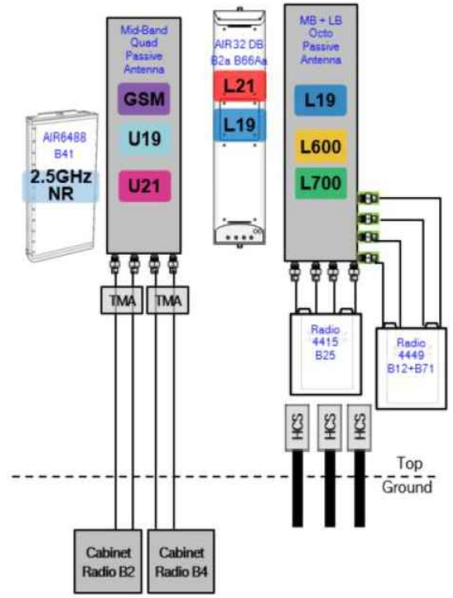


NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

2 E-1 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NOT TO SCALE

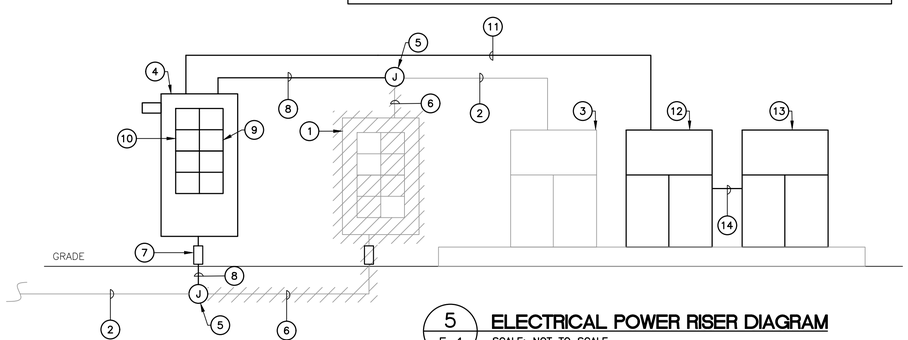


3 E-1 PROPOSED PLUMBING DIAGRAM

SCALE: NOT TO SCALE

RISER DIAGRAM NOTES

(1) EXISTING 200A, 120/240V, SINGLE PHASE PANEL TO BE REMOVED. RELOCATE ALL EXISTING CIRCUITS TO NEW PPC CABINET.
(2) SECTION OF EXISTING CONDUITS AND CONDUCTORS TO REMAIN.
(3) EXISTING EQUIPMENT CABINET TO REMAIN.
(4) NEW 200A PPC CABINET
(5) JUNCTION BOX SIZED PER NEC REQUIREMENTS
(6) SECTION OF CONDUITS AND CONDUCTORS TO BE REMOVED.
(7) EXPANSION COUPLING TYP.
(8) EXTEND EXISTING CONDUITS AND CONDUCTORS TO NEW PPC CABINET
(9) NEW 100A/2P CIRCUIT BREAKER TO SERVE EXISTING EQUIPMENT CABINET. COORDINATE CABINET DOWNGRADE WITH CONSTRUCTION MANAGER.
(10) NEW 100A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT CABINET.
(11) (3) #1 AWG, (1) #8 AWG GROUND, 1-1/4" CONDUIT.
(12) NEW RADIO EQUIPMENT CABINET.
(13) NEW BATTERY CABINET.
(14) DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.



5 E-1 ELECTRICAL POWER RISER DIAGRAM

SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-1

Sheet No. 8 of 8

Structural Analysis Report

Structure	**:** 492 Foot Guyed Tower
VB Site Name	**:** WRKI-FM
VB Site Number	**:** US-CT-5009
Proposed Carrier	**:** T-Mobile
Carrier Site Name	**:** Brookfield/Junction Rd.
Carrier Site Number	**:** CT11196A
Site Location	**:** 0.3 Mi. Sse of Intersection of Carmen Hill Rd. & Se Trail Brookfield, CT 06804 (Fairfield County) 41.4934, -73.4288
Date	**:** June 1, 2020
Max Member Stress Level	**:** 83%
Result	**: PASS**

06/01/2020

Prepared by:

VERTICAL BRIDGE ENGINEERING, LLC

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by **T-Mobile**. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Structural Components Tower Mapping Dated June 12, 2015.
Foundation Information	Structural Components Foundation Mapping Dated April 7, 2016.
Geotechnical Information	Delta Oaks Group Job No. GEO16-00237-03 dated April 11, 2016.
Existing Equipment Information	Vertical Bridge Collocation Application dated May 21, 2020.
Tower Reinforcement Information	Tower has been reinforced and is included in this analysis. ETS Modification Drawings Job No. 192640.14 dated May 10, 2019.

Final Proposed Equipment Loading for T-Mobile

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (ft.)	RAD (ft.)	Qty.	Antenna	Type	Qty.	Size/Type
280.0	-	3	Sector Frames	Mount	12 1 **4**	1-5/8” Coax 1-5/8” Hybrid **1-5/8” Fiber**
	280.0	3	RFS APX16DWV-16DWV-S-E-ACU	Panel		
		3	RFS APXVAARR24_43-U-NA-20	Panel		
		3	Ericsson KRY 112144	TMA		
		3	Ericsson KRY 112 89-4	TMA		
		3	Ericsson RRU 4449 B71B85	RRU		
		3	**Ericsson AIR6488 2.5GHz**	Panel		
		3	**Ericsson AIR 32**	Panel		
		3	**Ericsson 4415 B25**	RRU		

Note: Proposed equipment shown in bold.
Note: Other existing loading can be found on the tower profile attached.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.7.4) tower analysis software using the following design criteria.

State	Connecticut
City/County Building Code	Fairfield County (IBC 2018)
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	115 MPH (V_{ult})
Basic Wind Speed w/ Ice	50 MPH w/ 1.0" Ice
Steel Grade	50 ksi Legs / 36 ksi All Other Members / A325 Bolts
Exposure Category	C
Topographic Category (height)	1 (0.0 ft)
Risk Category	II
Ss	0.21
Seismic Design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without modification.** The existing tower base, inner, and outer anchor foundations have also been evaluated. The tower base, inner, and outer anchor foundations **are structurally capable of supporting the proposed equipment loads.** A seismic analysis has been performed on this tower and is not controlling.

Assumptions

The below assumptions are true, complete and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **has sufficient capacity** to support the proposed loading based on the governing Building Code. The tower base, inner, and outer anchor foundations have also been evaluated and are acceptable**.** A seismic analysis has been performed on this tower and is not controlling.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 561-948-6367.

Sincerely,

Analysis by:

Jesse Wagner
Modifications and Safety Manager

Reviewed by:

Michael T. DeBoer, PE
Vice President of Structural Engineering 06/01/2020

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and its components, or relevant information.

- Information from drawings in possession of Vertical Bridge Engineering, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un- corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-H requested.

All services are performed, results obtained, and recommendations made in accordance with the generally accepted engineering principles and practices. Vertical Bridge Engineering LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

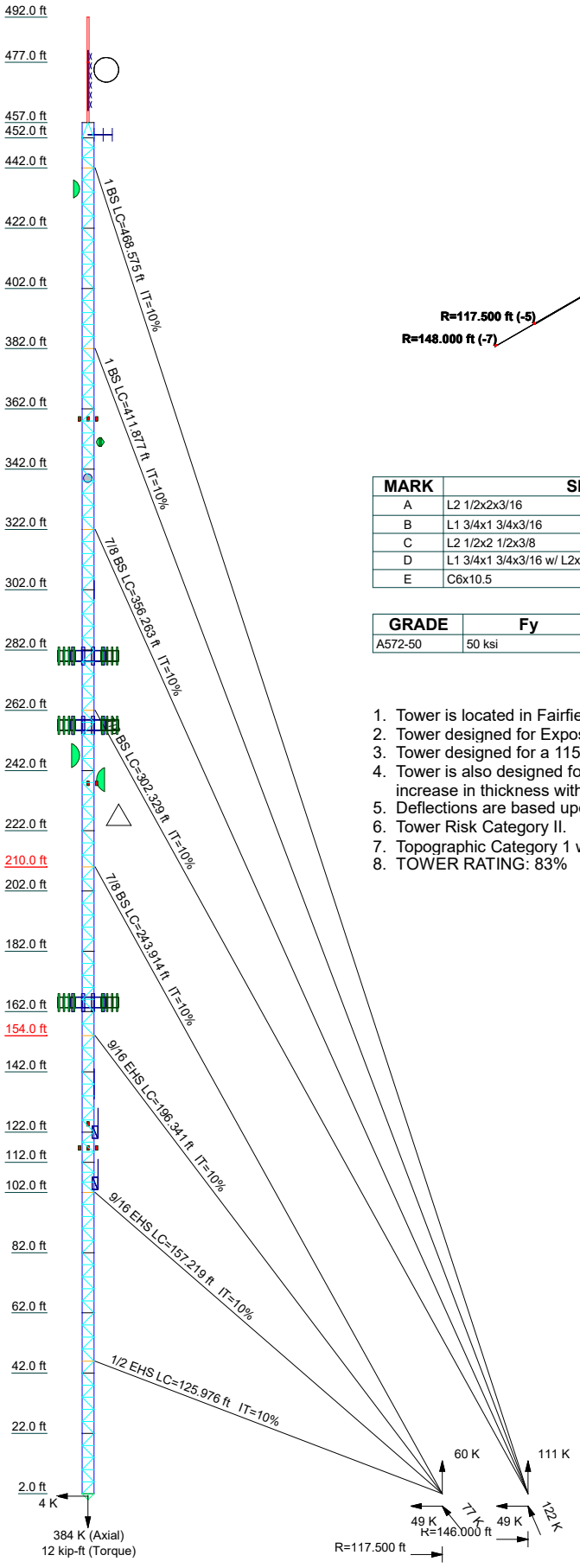
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be expressly included in this report.

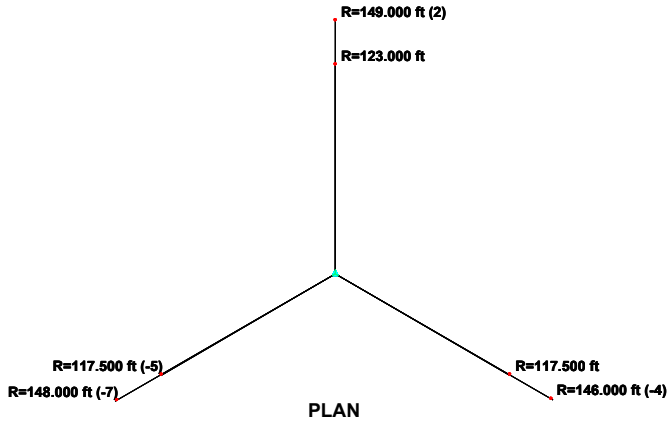
The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC but are beyond the scope of this report.

Vertical Bridge Engineering, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

Section	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	L2	L1
Legs							SR 3							SR 2 3/4			SR 2 1/2				SR 2 1/4					P8x.406	
Leg Grade													A572-50													A53-B-35	
Diagonals			L2x2x1/4			D			L2x2x1/4			C	L2x2x1/4		C	L2x2x1/4	B				L2x2x1/4			A	N.A.	
Diagonal Grade													A36													N.A.	
Top Girts			L2x2x3/16		N.A.					L2x2x3/16		C		N.A.	L2x2x3/16		N.A.	L2x2x3/16		N.A.		L2x2x3/16	N.A.	F	E	N.A.	
Bottom Girts	L2x2x3/16														N.A.												
Horizontals													L2x2x3/16													N.A.	
Top Guy Pull-Offs	N.A.		G	N.A.	G		N.A.		G	N.A.		G	N.A.	G	L2x2x3/16	N.A.	G	N.A.	G	N.A.	G	N.A.				N.A.	
Face Width (ft)													4			80 @ 4								I	H	0.71875	
# Panels @ (ft)			25 @ 4			6 @ 3.33333																				N.A.	N.A.
Weight (K)	39.3	1.9	2.0	1.9	2.0	1.1	1.0	1.9	2.0	1.9	1.9	2.2	1.6	1.7	1.9	1.4	1.4	1.2	1.2	1.3	1.2	1.2	1.3	0.6	0.4	0.7	0.5





SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2 1/2x2x3/16	F	L2x2x3/16
B	L1 3/4x1 3/4x3/16	G	2L2 1/2x2 1/2x3/8x1/4
C	L2 1/2x2 1/2x3/8	H	1 @ 5
D	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	I	3 @ 3.33333
E	C6x10.5		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

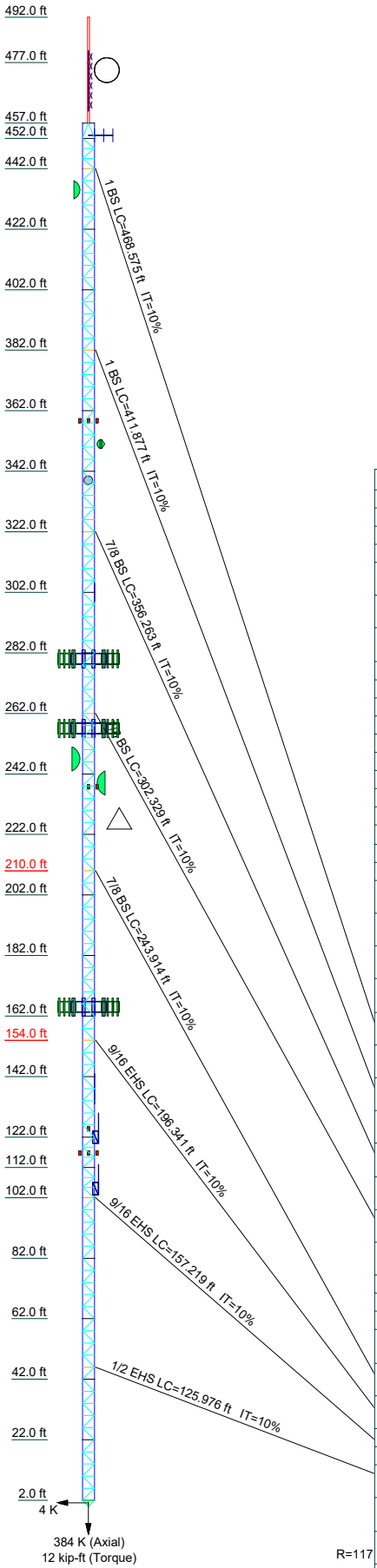
1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 83%

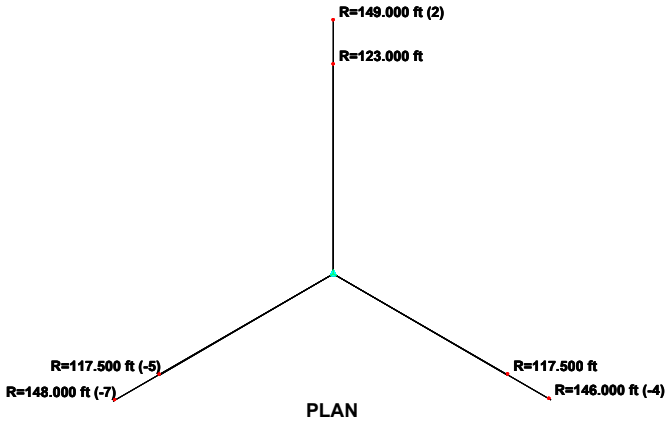
ALL REACTIONS ARE FACTORED

Vertical Bridge
750 Park of Commerce Drive
Boca Raton, FL 33487
Phone: 561-948-6367
FAX:

Job: ***US-CT-5009***		
Project: ***Guyed Tower Structural Analysis***		
Client:	Drawn by: JWagner	App'd:
Code: TIA-222-H	Date: 05/29/20	Scale: NTS
Path: C:\Users\jwagner\Desktop\VB\Operationals\US-CT-5009\US-CT-5009_SA_052820_T-Mobile.eri		Dwg No. E-1

Section	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	L2	L1
Legs						SR 3								SR 2 3/4			SR 2 1/2				SR 2 1/4					P8x.406	
Leg Grade													A572-50													A53-B-35	
Diagonals			L2x2x1/4			D			L2x2x1/4			C	L2x2x1/4		C	L2x2x1/4	B				L2x2x1/4			A	N.A.	
Diagonal Grade													A36													N.A.	
Top Girts		L2x2x3/16			N.A.				L2x2x3/16			C		N.A.		L2x2x3/16	N.A.		L2x2x3/16	N.A.		L2x2x3/16	N.A.	F	E	N.A.	
Bottom Girts	L2x2x3/16														N.A.												
Horizontals													L2x2x3/16													N.A.	
Top Guy Pull-Offs		N.A.	G	N.A.	G		N.A.		G	N.A.	G	G	N.A.	G	L2x2x3/16	N.A.	G	N.A.	L2x2x3/16	G	N.A.		G			N.A.	
Face Width (ft)												4			80 @ 4											0.71875	
# Panels @ (ft)			25 @ 4			6 @ 3.33333																		I	H	N.A.	N.A.
Weight (K)	39.3	1.9	2.0	1.9	2.0	1.1	1.0	1.9	2.0	1.9	1.9	2.2	1.6	1.7	1.9	1.4	1.4	1.2	1.2	1.3	1.2	1.2	1.3	0.6	0.4	0.7	0.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Beacon (.075k 2.250CAAA) (Tower)	490	Nokia AAHC MIMO (25.6x19.7x9.64) (Sprint)	257
2 Bay FM Antenna	471	Nokia AAHC MIMO (25.6x19.7x9.64) (Sprint)	257
3' Yagi(.03k,2.08CAAA)	453	CommScope NNVV-65B-R4 (72x19.6x7.8) (Sprint)	257
6' Grid Dish	435	CommScope NNVV-65B-R4 (72x19.6x7.8) (Sprint)	257
Obstruction Light(.01k,.8CAAA) (Tower)	358	CommScope NNVV-65B-R4 (72x19.6x7.8) (Sprint)	257
Obstruction Light(.01k,.8CAAA) (Tower)	358	8' Grid Dish (140lbs 20.1CaAa)	247
Obstruction Light(.01k,.8CAAA) (Tower)	358	8' Grid Dish (140lbs 20.1CaAa)	239
3' Dish w/ Radomes	351	Beacon (.075k 2.250CAAA) (Tower)	237
3' Grid Dish	339	Beacon (.075k 2.250CAAA) (Tower)	237
6' Omni	302	Ericsson RRUS-4483 (15x13.2x9) (AT&I)	165
2' Side arm (25lbs 0.5CaAa)	302	Ericsson RRUS-4483 (15x13.2x9) (AT&I)	165
Kathrein CA5-FM/CP/RM	300	Raycap DC6-48-60-0-8C-EV (31.4x18.28x10.24) (AT&I)	165
KRY 112 89/4 (T-Mobile)	280	Raycap DC6-48-60-0-8C-EV (31.4x18.28x10.24) (AT&I)	165
KRY 112 89/4 (T-Mobile)	280	Raycap DC6-48-60-0-8C-EV (31.4x18.28x10.24) (AT&I)	165
KRY 112 89/4 (T-Mobile)	280	Ice Bridge (2'x2') (AT&I)	165
Sector Frames (T-Mobile)	280	CCI HPA65R-BU8A (96x11.7x7.6) (AT&I)	165
KRY 112 144/1 (T-Mobile)	280	Ericsson RRUS-4483 (15x13.2x9) (AT&I)	165
KRY 112 144/1 (T-Mobile)	280	(2) CCI TPA65R-BU8DA-K (96.0x21.0x7.8) (AT&I)	165
KRY 112 144/1 (T-Mobile)	280	Ericsson 8843 (15x13.1x10.9) (AT&I)	165
RFS APX16DWV-16DWV-S-E-A20 (55.9x13.3x3.15) (T-Mobile)	280	Ericsson 8843 (15x13.1x10.9) (AT&I)	165
RFS APX16DWV-16DWV-S-E-A20 (55.9x13.3x3.15) (T-Mobile)	280	Ericsson 8843 (15x13.1x10.9) (AT&I)	165
RFS APX16DWV-16DWV-S-E-A20 (55.9x13.3x3.15) (T-Mobile)	280	Ericsson RRUS E2 (20.4x18.5x7.5) (AT&I)	165
RFS APXVAARR24_43-U-NA20 (95.9x24x8.7) (T-Mobile)	280	Ericsson RRUS E2 (20.4x18.5x7.5) (AT&I)	165
RFS APXVAARR24_43-U-NA20 (95.9x24x8.7) (T-Mobile)	280	Ericsson RRUS E2 (20.4x18.5x7.5) (AT&I)	165
RFS APXVAARR24_43-U-NA20 (95.9x24x8.7) (T-Mobile)	280	Ericsson 4415 B30 (16.5x13.4x5.9) (AT&I)	165
Ericsson RRU 4449 B71B12 (14.9x13.2x10.4) (T-Mobile)	280	Ericsson 4415 B30 (16.5x13.4x5.9) (AT&I)	165
Ericsson RRU 4449 B71B12 (14.9x13.2x10.4) (T-Mobile)	280	Ericsson 4415 B30 (16.5x13.4x5.9) (AT&I)	165
Ericsson RRU 4449 B71B12 (14.9x13.2x10.4) (T-Mobile)	280	Ericsson 4449 (18x13.2x9.4) (AT&I)	165
Ericsson AIR6488 2.5GHz (34.8x20.5x7.2) (T-Mobile)	280	Ericsson 4449 (18x13.2x9.4) (AT&I)	165
Ericsson AIR6488 2.5GHz (34.8x20.5x7.2) (T-Mobile)	280	Ericsson 4449 (18x13.2x9.4) (AT&I)	165
Ericsson AIR6488 2.5GHz (34.8x20.5x7.2) (T-Mobile)	280	Sector Frames (AT&I)	165
Ericsson AIR 32 (T-Mobile)	280	(2) CCI TPA65R-BU8DA-K (96.0x21.0x7.8) (AT&I)	165
Ericsson AIR 32 (T-Mobile)	280	(2) CCI TPA65R-BU8DA-K (96.0x21.0x7.8) (AT&I)	165
Ericsson AIR 32 (T-Mobile)	280	CCI HPA65R-BU8A (96x11.7x7.6) (AT&I)	165
Ericsson 4415 B25 (15x13.2x5.4) (T-Mobile)	280	CCI HPA65R-BU8A (96x11.7x7.6) (AT&I)	165
Ericsson 4415 B25 (15x13.2x5.4) (T-Mobile)	280	3' Side Arm	138
Ericsson 4415 B25 (15x13.2x5.4) (T-Mobile)	280	10' Dipole	138
SM 408-3 (Sprint)	257	10' Dipole	125
PCS 1900MHz 4x45W-65MHz (Sprint)	257	3' Side Arm	125
800 EXTERNAL NOTCH FILTER (Sprint)	257	Beacon (.075k 2.250CAAA) (Tower)	124
Alcatel Lucent RRH-4x45-1900 (25x12x12) (Sprint)	257	Obstruction Light(.01k,.8CAAA) (Tower)	116
Alcatel Lucent RRH-4x45-1900 (25x12x12) (Sprint)	257	Obstruction Light(.01k,.8CAAA) (Tower)	116
Alcatel Lucent RRH 2x50-800 (16x13x10) (Sprint)	257	Obstruction Light(.01k,.8CAAA) (Tower)	116
Alcatel Lucent RRH 2x50-800 (16x13x10) (Sprint)	257		
Nokia AAHC MIMO (25.6x19.7x9.64) (Sprint)	257		

R=117

ALL REACTIONS ARE FACT

Vertical Bridge
750 Park of Commerce Drive
Boca Raton, FL 33487
Phone: 561-948-6367
FAX:

Job: **US-CT-5009**
Project: ***Guyed Tower Structural Analysis***
Client: | Drawn by: JWagner | App'd:
Code: TIA-222-H | Date: 05/29/20 | Scale: NTS
Path: C:\Users\jwagner\Desktop\VB\Operationals\US-CT-5009\US-CT-5009_SA_052820_T-Mobile.eri | Dwg No. E-1

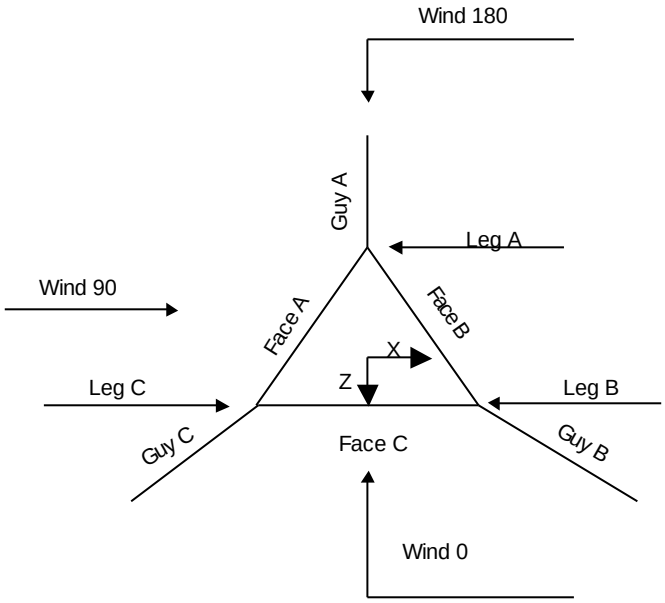
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 492.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 4.000 ft at the top and 4.000 ft at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Tower base elevation above sea level: 718.000 ft.
Basic wind speed of 115 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
I-Beam base is 2.000 ft above the pivot.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
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-H Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-H 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	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	492.000-477.000	15.000	P8x.406	A53-B-35 (35 ksi)	
L2	477.000-457.000	20.000	P8x.406	A53-B-35 (35 ksi)	

Tower Elevation *ft*	*Gusset Area (per face)* *ft²*	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor* A_f	*Adjust. Factor* A_r	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
L1 492.000-477.000				1	1	1			
L2 477.000-457.000				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	457.000-452.000			4.000	1	5.000
T2	452.000-442.000			4.000	1	10.000
T3	442.000-422.000			4.000	1	20.000
T4	422.000-402.000			4.000	1	20.000
T5	402.000-382.000			4.000	1	20.000
T6	382.000-362.000			4.000	1	20.000
T7	362.000-342.000			4.000	1	20.000
T8	342.000-322.000			4.000	1	20.000
T9	322.000-302.000			4.000	1	20.000
T10	302.000-282.000			4.000	1	20.000
T11	282.000-262.000			4.000	1	20.000
T12	262.000-242.000			4.000	1	20.000
T13	242.000-222.000			4.000	1	20.000
T14	222.000-202.000			4.000	1	20.000
T15	202.000-182.000			4.000	1	20.000
T16	182.000-162.000			4.000	1	20.000
T17	162.000-142.000			4.000	1	20.000
T18	142.000-122.000			4.000	1	20.000
T19	122.000-112.000			4.000	1	10.000
T20	112.000-102.000			4.000	1	10.000
T21	102.000-82.000			4.000	1	20.000
T22	82.000-62.000			4.000	1	20.000
T23	62.000-42.000			4.000	1	20.000
T24	42.000-22.000			4.000	1	20.000
T25	22.000-2.000			4.000	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	457.000-452.000	5.000	K Brace Down	No	Yes	0.0000	0.0000
T2	452.000-442.000	3.333	K Brace Right	No	Yes	0.0000	0.0000
T3	442.000-422.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T4	422.000-402.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T5	402.000-382.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T6	382.000-362.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T7	362.000-342.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T8	342.000-322.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T9	322.000-302.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T10	302.000-282.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T11	282.000-262.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T12	262.000-242.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T13	242.000-222.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T14	222.000-202.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T15	202.000-182.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T16	182.000-162.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T17	162.000-142.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T18	142.000-122.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T19	122.000-112.000	3.333	K Brace Left	No	Yes	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T20	112.000-102.000	3.333	K Brace Right	No	Yes	0.0000	0.0000
T21	102.000-82.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T22	82.000-62.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T23	62.000-42.000	4.000	K Brace Left	No	Yes	0.0000	0.0000
T24	42.000-22.000	4.000	K Brace Right	No	Yes	0.0000	0.0000
T25	22.000-2.000	4.000	K Brace Left	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 457.000-452.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2x3/16	A36 (36 ksi)
T2 452.000-442.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T3 442.000-422.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T4 422.000-402.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T5 402.000-382.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T6 382.000-362.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T7 362.000-342.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T8 342.000-322.000	Solid Round	2 1/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T9 322.000-302.000	Solid Round	2 1/2	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T10 302.000-282.000	Solid Round	2 1/2	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T11 282.000-262.000	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T12 262.000-242.000	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T13 242.000-222.000	Solid Round	2 3/4	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T14 222.000-202.000	Solid Round	3	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T15 202.000-182.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T16 182.000-162.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T17 162.000-142.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T18 142.000-122.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T19 122.000-112.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T20 112.000-102.000	Solid Round	3	A572-50 (50 ksi)	Arbitrary Shape	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	A36 (36 ksi)
T21 102.000-82.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T22 82.000-62.000	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T23	Solid Round	3	A572-50	Equal Angle	L2x2x1/4	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
62.000-42.000			(50 ksi)			(36 ksi)
T24	Solid Round	3	A572-50	Equal Angle	L2x2x1/4	A36
42.000-22.000			(50 ksi)			(36 ksi)
T25 22.000-2.000	Solid Round	3	A572-50	Equal Angle	L2x2x1/4	A36
			(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1	Channel	C6x10.5	A36	Single Angle	L2x2x3/16	A36
457.000-452.000			(36 ksi)			(36 ksi)
T2	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
452.000-442.000			(36 ksi)			(36 ksi)
T3	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
442.000-422.000			(36 ksi)			(36 ksi)
T4	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
422.000-402.000			(36 ksi)			(36 ksi)
T5	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
402.000-382.000			(36 ksi)			(36 ksi)
T6	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
382.000-362.000			(36 ksi)			(36 ksi)
T7	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
362.000-342.000			(36 ksi)			(36 ksi)
T8	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
342.000-322.000			(36 ksi)			(36 ksi)
T9	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
322.000-302.000			(36 ksi)			(36 ksi)
T10	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
302.000-282.000			(36 ksi)			(36 ksi)
T11	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
282.000-262.000			(36 ksi)			(36 ksi)
T12	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
262.000-242.000			(36 ksi)			(36 ksi)
T13	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
242.000-222.000			(36 ksi)			(36 ksi)
T14	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
222.000-202.000			(36 ksi)			(36 ksi)
T15	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
202.000-182.000			(36 ksi)			(36 ksi)
T16	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
182.000-162.000			(36 ksi)			(36 ksi)
T17	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
162.000-142.000			(36 ksi)			(36 ksi)
T18	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
142.000-122.000			(36 ksi)			(36 ksi)
T19	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
122.000-112.000			(36 ksi)			(36 ksi)
T20	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
112.000-102.000			(36 ksi)			(36 ksi)
T21	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
102.000-82.000			(36 ksi)			(36 ksi)
T22	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
82.000-62.000			(36 ksi)			(36 ksi)
T23	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
62.000-42.000			(36 ksi)			(36 ksi)
T24	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
42.000-22.000			(36 ksi)			(36 ksi)
T25 22.000-2.000	Single Angle	L2x2x3/16	A36	Single Angle	L2x2x3/16	A36
			(36 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
457.000-452.000				(50 ksi)			(36 ksi)
T2	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
452.000-442.000				(50 ksi)			(36 ksi)
T3	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
442.000-422.000				(50 ksi)			(36 ksi)
T4	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
422.000-402.000				(50 ksi)			(36 ksi)
T5	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
402.000-382.000				(50 ksi)			(36 ksi)
T6	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
382.000-362.000				(50 ksi)			(36 ksi)
T7	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
362.000-342.000				(50 ksi)			(36 ksi)
T8	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
342.000-322.000				(50 ksi)			(36 ksi)
T9	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
322.000-302.000				(50 ksi)			(36 ksi)
T10	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
302.000-282.000				(50 ksi)			(36 ksi)
T11	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
282.000-262.000				(50 ksi)			(36 ksi)
T12	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
262.000-242.000				(50 ksi)			(36 ksi)
T13	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
242.000-222.000				(50 ksi)			(36 ksi)
T14	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
222.000-202.000				(50 ksi)			(36 ksi)
T15	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
202.000-182.000				(50 ksi)			(36 ksi)
T16	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
182.000-162.000				(50 ksi)			(36 ksi)
T17	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
162.000-142.000				(50 ksi)			(36 ksi)
T18	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
142.000-122.000				(50 ksi)			(36 ksi)
T19	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
122.000-112.000				(50 ksi)			(36 ksi)
T20	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
112.000-102.000				(50 ksi)			(36 ksi)
T21	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
102.000-82.000				(50 ksi)			(36 ksi)
T22	None	Solid Round		A572-50	Single Angle	L2x2x3/16	A36
82.000-62.000				(50 ksi)			(36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T23 62.000-42.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T24 42.000-22.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T25 22.000-2.000	None	Solid Round		A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 457.000-452.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 452.000-442.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 442.000-422.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 422.000-402.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 402.000-382.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 382.000-362.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 362.000-342.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 342.000-322.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 322.000-302.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 302.000-282.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 282.000-262.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 262.000-242.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 242.000-222.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 222.000-202.0	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	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
00									
T15 202.000-182.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 182.000-162.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T17 162.000-142.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T18 142.000-122.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T19 122.000-112.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T20 112.000-102.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T21 102.000-82.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T22 82.000-62.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T23 62.000-42.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T24 42.000-22.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T25 22.000-2.000	0.000	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	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 457.000-452.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 452.000-442.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 442.000-422.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 422.000-402.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 402.000-382.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6	Yes	Yes	1	1	1	1	1	1	1	1

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
382.000-362.000				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
362.000-342.000				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
342.000-322.000				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
322.000-302.000				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
302.000-282.000				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
282.000-262.000				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
262.000-242.000				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
242.000-222.000				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
222.000-202.000				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
202.000-182.000				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
182.000-162.000				1	1	1	1	1	1	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
162.000-142.000				1	1	1	1	1	1	1
T18	Yes	Yes	1	1	1	1	1	1	1	1
142.000-122.000				1	1	1	1	1	1	1
T19	Yes	Yes	1	1	1	1	1	1	1	1
122.000-112.000				1	1	1	1	1	1	1
T20	Yes	Yes	1	1	1	1	1	1	1	1
112.000-102.000				1	1	1	1	1	1	1
T21	Yes	Yes	1	1	1	1	1	1	1	1
102.000-82.000				1	1	1	1	1	1	1
T22	Yes	Yes	1	1	1	1	1	1	1	1
82.000-62.000				1	1	1	1	1	1	1
T23	Yes	Yes	1	1	1	1	1	1	1	1
62.000-42.000				1	1	1	1	1	1	1
T24	Yes	Yes	1	1	1	1	1	1	1	1
42.000-22.000				1	1	1	1	1	1	1
T25	Yes	Yes	1	1	1	1	1	1	1	1
22.000-2.000				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 457.000-452.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 452.000-442.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 442.000-422.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 422.000-402.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 402.000-382.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 382.000-362.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 362.000-342.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 342.000-322.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 322.000-302.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 302.000-282.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 282.000-262.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 262.000-242.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 242.000-222.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 222.000-202.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 202.000-182.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 182.000-162.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	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
T17 162.000-142.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 142.000-122.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 122.000-112.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 112.000-102.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T21 102.000-82.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T22 82.000-62.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T23 62.000-42.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T24 42.000-22.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T25 22.000-2.000	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	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 457.000-452.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T2 452.000-442.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T3 442.000-422.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T4 422.000-402.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T5 402.000-382.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T6 382.000-362.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T7 362.000-342.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0

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.*
T8 342.000-322.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T9 322.000-302.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T10 302.000-282.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T11 282.000-262.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T12 262.000-242.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T13 242.000-222.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T14 222.000-202.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T15 202.000-182.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T16 182.000-162.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T17 162.000-142.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T18 142.000-122.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T19 122.000-112.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T20 112.000-102.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T21 102.000-82.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T22 82.000-62.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T23 62.000-42.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T24 42.000-22.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T25 22.000-2.000	Sleeve DS	0.7500 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
442	BS	A	1	12.200	10%	24000.000	2.100	463.412	149.000	0.0000	2.000	100%
		B	1	12.200	10%	24000.000	2.100	468.175	146.000	0.0000	-4.000	100%
		C	1	12.200	10%	24000.000	2.100	471.642	148.000	0.0000	-7.000	100%
382	BS	A	1	12.200	10%	24000.000	2.100	406.985	149.000	0.0000	2.000	100%
		B	1	12.200	10%	24000.000	2.100	411.527	146.000	0.0000	-4.000	100%
		C	1	12.200	10%	24000.000	2.100	415.034	148.000	0.0000	-7.000	100%
322	BS	A	7/8	9.200	10%	24000.000	1.610	351.727	149.000	0.0000	2.000	100%
		B	7/8	9.200	10%	24000.000	1.610	355.966	146.000	0.0000	-4.000	100%
		C	7/8	9.200	10%	24000.000	1.610	359.515	148.000	0.0000	-7.000	100%
262	BS	A	7/8	9.200	10%	24000.000	1.610	298.280	149.000	0.0000	2.000	100%
		B	7/8	9.200	10%	24000.000	1.610	302.079	146.000	0.0000	-4.000	100%
		C	7/8	9.200	10%	24000.000	1.610	305.666	148.000	0.0000	-7.000	100%
210	BS	A	7/8	9.200	10%	24000.000	1.610	242.010	123.000	0.0000	0.000	100%
		B	7/8	9.200	10%	24000.000	1.610	239.318	117.500	0.0000	0.000	100%
		C	7/8	9.200	10%	24000.000	1.610	243.710	117.500	0.0000	-5.000	100%
154	EHS	A	9/16	3.500	10%	21000.000	0.671	195.493	123.000	0.0000	0.000	100%
		B	9/16	3.500	10%	21000.000	0.671	192.151	117.500	0.0000	0.000	100%
		C	9/16	3.500	10%	21000.000	0.671	196.174	117.500	0.0000	-5.000	100%
102	EHS	A	9/16	3.500	10%	21000.000	0.671	157.886	123.000	0.0000	0.000	100%
		B	9/16	3.500	10%	21000.000	0.671	153.730	117.500	0.0000	0.000	100%
		C	9/16	3.500	10%	21000.000	0.671	157.086	117.500	0.0000	-5.000	100%
46	EHS	A	1/2	2.690	10%	21000.000	0.517	129.052	123.000	0.0000	0.000	100%
		B	1/2	2.690	10%	21000.000	0.517	123.932	117.500	0.0000	0.000	100%
		C	1/2	2.690	10%	21000.000	0.517	125.870	117.500	0.0000	-5.000	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
442	Corner						
382	Corner						
322	Corner						
262	Corner						
210	Corner						
154	Corner						
102	Corner						
46	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
442.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
382.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
322.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
262.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
210.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
154.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
102.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4
46.000	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Equal Angle	2L2 1/2x2 1/2x3/8x1/4

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
442	0.973	0.983	0.990		17.825 7.3 sec/pulse	18.185 7.4 sec/pulse	18.450 7.4 sec/pulse	
382	0.855	0.864	0.872		13.817 6.4 sec/pulse	14.120 6.5 sec/pulse	14.359 6.5 sec/pulse	
322	0.566	0.573	0.579		10.540 5.6 sec/pulse	10.790 5.7 sec/pulse	11.003 5.7 sec/pulse	
262	0.480	0.486	0.492		7.619 4.8 sec/pulse	7.810 4.8 sec/pulse	7.995 4.9 sec/pulse	
210	0.390	0.385	0.392		5.037 3.9 sec/pulse	4.925 3.8 sec/pulse	5.106 3.9 sec/pulse	
154	0.131	0.129	0.132		3.613 3.3 sec/pulse	3.491 3.2 sec/pulse	3.637 3.3 sec/pulse	
102	0.106	0.103	0.105		2.369 2.7 sec/pulse	2.245 2.6 sec/pulse	2.344 2.6 sec/pulse	
46	0.067	0.064	0.065		1.595 2.2 sec/pulse	1.471 2.1 sec/pulse	1.516 2.1 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
442	No	No			1	1	1	1
382	No	No			1	1	1	1
322	No	No			1	1	1	1

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
262	No	No			1	1	1	1
210	No	No			1	1	1	1
154	No	No			1	1	1	1
102	No	No			1	1	1	1
46	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
442	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
382	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
322	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
262	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
210	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
154	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
102	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
46	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
442	A	222.000	0.042	0.008	1.2100
	B	219.000	0.042	0.008	1.2084
	C	217.500	0.042	0.008	1.2075
382	A	192.000	0.041	0.008	1.1926
	B	189.000	0.041	0.008	1.1907
	C	187.500	0.041	0.008	1.1897
322	A	162.000	0.039	0.007	1.1725
	B	159.000	0.039	0.007	1.1703
	C	157.500	0.039	0.007	1.1692
262	A	132.000	0.038	0.007	1.1487
	B	129.000	0.037	0.007	1.1461
	C	127.500	0.037	0.007	1.1447
210	A	105.000	0.036	0.007	1.1227
	B	105.000	0.036	0.007	1.1227
	C	102.500	0.036	0.007	1.1200
154	A	77.000	0.034	0.006	1.0884
	B	77.000	0.034	0.006	1.0884

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
	C	74.500	0.033	0.006	1.0848
102	A	51.000	0.031	0.006	1.0445
	B	51.000	0.031	0.006	1.0445
	C	48.500	0.030	0.006	1.0393
46	A	23.000	0.026	0.005	0.9645
	B	23.000	0.026	0.005	0.9645
	C	20.500	0.025	0.005	0.9535

Guy-Tensioning Information

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation ft		H ft	V ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
442	A	146.69	440.00	12.735	17.10	12.556	17.33	12.378	17.58	12.200	17.83	12.023	18.08	11.846	18.34	11.670	18.61
	B	143.69	446.00	12.704	17.48	12.535	17.71	12.367	17.95	12.200	18.18	12.033	18.43	11.866	18.68	11.700	18.94
	C	145.69	449.00	12.709	17.73	12.539	17.96	12.369	18.20	12.200	18.45	12.031	18.70	11.862	18.96	11.694	19.22
382	A	146.69	380.00	12.893	13.09	12.662	13.33	12.430	13.57	12.200	13.82	11.970	14.08	11.741	14.34	11.513	14.62
	B	143.69	386.00	12.852	13.42	12.634	13.65	12.417	13.88	12.200	14.12	11.984	14.37	11.769	14.62	11.554	14.89
	C	145.69	389.00	12.858	13.64	12.638	13.87	12.419	14.11	12.200	14.36	11.982	14.61	11.765	14.88	11.548	15.15
322	A	146.69	320.00	9.909	9.80	9.672	10.04	9.435	10.28	9.200	10.54	8.966	10.81	8.733	11.09	8.501	11.39
	B	143.69	326.00	9.865	10.08	9.643	10.30	9.421	10.54	9.200	10.79	8.980	11.05	8.761	11.32	8.543	11.60
	C	145.69	329.00	9.869	10.27	9.645	10.51	9.422	10.75	9.200	11.00	8.979	11.27	8.758	11.54	8.539	11.83
262	A	146.69	260.00	10.187	6.89	9.856	7.12	9.527	7.36	9.200	7.62	8.875	7.89	8.552	8.18	8.232	8.50
	B	143.69	266.00	10.125	7.11	9.815	7.33	9.507	7.56	9.200	7.81	8.895	8.07	8.592	8.35	8.291	8.65
	C	145.69	269.00	10.127	7.28	9.817	7.50	9.507	7.74	9.200	7.99	8.894	8.26	8.591	8.55	8.289	8.85
210	A	120.69	210.00	10.231	4.54	9.886	4.69	9.542	4.86	9.200	5.04	8.859	5.23	8.520	5.43	8.184	5.65
	B	115.19	210.00	10.163	4.46	9.841	4.61	9.520	4.76	9.200	4.93	8.881	5.10	8.564	5.29	8.249	5.48
	C	115.19	215.00	10.129	4.64	9.818	4.79	9.508	4.94	9.200	5.11	8.893	5.28	8.587	5.46	8.282	5.66
154	A	120.69	154.00	4.083	3.10	3.887	3.26	3.693	3.43	3.500	3.61	3.308	3.82	3.119	4.05	2.931	4.30
	B	115.19	154.00	4.052	3.02	3.867	3.16	3.683	3.32	3.500	3.49	3.318	3.68	3.138	3.89	2.961	4.12
	C	115.19	159.00	4.029	3.16	3.852	3.31	3.675	3.47	3.500	3.64	3.326	3.83	3.153	4.03	2.981	4.26
102	A	120.69	102.00	4.397	1.89	4.096	2.03	3.796	2.18	3.500	2.37	3.207	2.58	2.919	2.84	2.638	3.13
	B	115.19	102.00	4.364	1.80	4.074	1.93	3.786	2.08	3.500	2.25	3.217	2.44	2.939	2.67	2.666	2.94
	C	115.19	107.00	4.328	1.90	4.050	2.03	3.774	2.17	3.500	2.34	3.229	2.54	2.962	2.76	2.700	3.03
46	A	120.69	46.00	3.729	1.15	3.379	1.27	3.033	1.42	2.690	1.59	2.354	1.82	2.027	2.11	1.717	2.49
	B	115.19	46.00	3.719	1.06	3.373	1.17	3.030	1.31	2.690	1.47	2.356	1.68	2.031	1.95	1.721	2.29
	C	115.19	51.00	3.687	1.11	3.352	1.22	3.019	1.35	2.690	1.52	2.366	1.72	2.051	1.99	1.749	2.33

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
3" Coax	B	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	-0.3	1	1	0.0000	3.0100		0.002
AVA5-50(7/8")	B	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	-0.2	1	1	0.0000	1.1020		0.000
1" Conduit (Tower)	C	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	-0.25	1	1	0.0000	1.1630		0.001
LDF4.5-50(5/ 8")	C	No	No	Ar (CaAa)	351.000 - 8.000	-1.0000	0	1	1	0.0000	0.8650		0.000
1 5/8" OD Conduit	C	No	No	Ar (CaAa)	430.000 - 8.000	-1.0000	0.4	1	1	0.0000	1.6250		0.001
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	108.000 - 8.000	-1.0000	0.31	1	1	0.0000	1.0900		0.000
LDF5-50A(7/ 8")	A	No	No	Ar (CaAa)	124.000 - 8.000	-1.0000	0.38	1	1	0.0000	1.0900		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	138.000 - 8.000	-1.0000	0.32	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	239.000 - 8.000	-1.0000	0.33	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	247.000 - 8.000	-1.0000	0.34	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	339.000 - 8.000	-1.0000	0.37	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	0.36	1	1	0.0000	1.0900		0.000
LDF5-50A(7/8")	A	No	No	Ar (CaAa)	435.000 - 8.000	-1.0000	0.35	1	1	0.0000	1.0900		0.000
LDF6-50A(1-1/4") (Berkshire)	A	No	No	Ar (CaAa)	302.000 - 8.000	0.0000	0.35	1	1	0.0000	1.5500		0.001
LDF2-50A(3/8") SC (Tower)	C	No	No	Ar (CaAa)	445.000 - 8.000	-5.0000	0.35	1	1	0.0000	0.4400		0.000
LDF4.5-50(5/8")	A	No	No	Ar (CaAa)	455.000 - 8.000	0.0000	0	1	1	0.0000	0.8650		0.000
LDF4-50A(1/2")	C	No	No	Ar (CaAa)	289.000 - 8.000	-1.0000	-0.35	1	1	0.0000	0.6300		0.000
1.625' Fiber Cables (T-Mobile)	A	No	No	Ar (CaAa)	280.000 - 8.000	0.0000	0.25	4	4	0.0000	1.5500		0.001
LDF7-50A(1-5/8") (T-Mobile)	B	No	No	Ar (CaAa)	280.000 - 8.000	-1.0000	0	6	3	0.0000	1.9800		0.001
LDF7-50A(1-5/8") (T-Mobile)	A	No	No	Ar (CaAa)	280.000 - 8.000	0.0000	0.25	6	3	0.0000	1.9800		0.001
1.625" Hybrid Cable (T-Mobile)	C	No	No	Ar (CaAa)	280.000 - 8.000	0.0000	0	1	1	0.0000	1.9800		0.001
LDF6-50A(1-1/4") (Sprint)	C	No	No	Ar (CaAa)	257.000 - 8.000	-1.0000	-0.35	1	1	0.0000	1.5500		0.001
LDF6-50A(1-1/4") (Sprint)	C	No	No	Ar (CaAa)	257.000 - 8.000	-1.0000	0.35	3	3	0.0000	1.5500		0.001
LDF2-50(3/8") (AT&T)	C	No	No	Ar (CaAa)	165.000 - 8.000	0.0000	0.4	2	2	0.0000	0.4400		0.000
LDF4.5-50(5/8") (AT&T)	C	No	No	Ar (CaAa)	165.000 - 8.000	0.0000	0.1	6	3	0.0000	0.8650		0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	492.000-477.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	477.000-457.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	0.000	0.000
T1	457.000-452.000	A	0.000	0.000	0.260	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T2	452.000-442.000	A	0.000	0.000	0.865	0.000	0.002
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.132	0.000	0.000
T3	442.000-422.000	A	0.000	0.000	4.564	0.000	0.012
		B	0.000	0.000	5.346	0.000	0.027
		C	0.000	0.000	3.692	0.000	0.017
T4	422.000-402.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	6.456	0.000	0.031
T5	402.000-382.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	6.456	0.000	0.031
T6	382.000-362.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	6.456	0.000	0.031
T7	362.000-342.000	A	0.000	0.000	6.090	0.000	0.016
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	7.235	0.000	0.033
T8	342.000-322.000	A	0.000	0.000	7.943	0.000	0.022
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	8.186	0.000	0.034
T9	322.000-302.000	A	0.000	0.000	8.270	0.000	0.023
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	8.186	0.000	0.034
T10	302.000-282.000	A	0.000	0.000	11.370	0.000	0.036
		B	0.000	0.000	8.224	0.000	0.042
		C	0.000	0.000	8.627	0.000	0.035
T11	282.000-262.000	A	0.000	0.000	43.914	0.000	0.172
		B	0.000	0.000	29.608	0.000	0.130
		C	0.000	0.000	13.010	0.000	0.052
T12	262.000-242.000	A	0.000	0.000	48.075	0.000	0.189
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	22.706	0.000	0.093
T13	242.000-222.000	A	0.000	0.000	51.563	0.000	0.199
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	25.806	0.000	0.107
T14	222.000-202.000	A	0.000	0.000	51.890	0.000	0.200
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	25.806	0.000	0.107
T15	202.000-182.000	A	0.000	0.000	51.890	0.000	0.200
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	25.806	0.000	0.107
T16	182.000-162.000	A	0.000	0.000	51.890	0.000	0.200
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	27.627	0.000	0.110
T17	162.000-142.000	A	0.000	0.000	51.890	0.000	0.200
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T18	142.000-122.000	A	0.000	0.000	53.852	0.000	0.206
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T19	122.000-112.000	A	0.000	0.000	28.125	0.000	0.107
		B	0.000	0.000	15.992	0.000	0.070
		C	0.000	0.000	18.973	0.000	0.064
T20	112.000-102.000	A	0.000	0.000	28.779	0.000	0.109
		B	0.000	0.000	15.992	0.000	0.070
		C	0.000	0.000	18.973	0.000	0.064

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
T21	102.000-82.000	A	0.000	0.000	58.430	0.000	0.220
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T22	82.000-62.000	A	0.000	0.000	58.430	0.000	0.220
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T23	62.000-42.000	A	0.000	0.000	58.430	0.000	0.220
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T24	42.000-22.000	A	0.000	0.000	58.430	0.000	0.220
		B	0.000	0.000	31.984	0.000	0.140
		C	0.000	0.000	37.946	0.000	0.128
T25	22.000-2.000	A	0.000	0.000	40.901	0.000	0.154
		B	0.000	0.000	22.389	0.000	0.098
		C	0.000	0.000	26.562	0.000	0.089

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	492.000-477.000	A	1.308	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	477.000-457.000	A	1.303	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T1	457.000-452.000	A	1.300	0.000	0.000	1.039	0.000	0.011
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T2	452.000-442.000	A	1.298	0.000	0.000	3.460	0.000	0.036
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.911	0.000	0.009
T3	442.000-422.000	A	1.293	0.000	0.000	16.462	0.000	0.178
		B		0.000	0.000	12.071	0.000	0.165
		C		0.000	0.000	14.297	0.000	0.159
T4	422.000-402.000	A	1.287	0.000	0.000	21.536	0.000	0.233
		B		0.000	0.000	18.521	0.000	0.252
		C		0.000	0.000	21.902	0.000	0.254
T5	402.000-382.000	A	1.281	0.000	0.000	21.459	0.000	0.232
		B		0.000	0.000	18.470	0.000	0.250
		C		0.000	0.000	21.825	0.000	0.253
T6	382.000-362.000	A	1.274	0.000	0.000	21.379	0.000	0.230
		B		0.000	0.000	18.417	0.000	0.249
		C		0.000	0.000	21.745	0.000	0.251
T7	362.000-342.000	A	1.267	0.000	0.000	21.295	0.000	0.228
		B		0.000	0.000	18.361	0.000	0.247
		C		0.000	0.000	24.720	0.000	0.280
T8	342.000-322.000	A	1.260	0.000	0.000	27.342	0.000	0.293
		B		0.000	0.000	18.301	0.000	0.246
		C		0.000	0.000	28.341	0.000	0.315
T9	322.000-302.000	A	1.252	0.000	0.000	28.300	0.000	0.302
		B		0.000	0.000	18.239	0.000	0.244
		C		0.000	0.000	28.216	0.000	0.313
T10	302.000-282.000	A	1.244	0.000	0.000	36.242	0.000	0.398
		B		0.000	0.000	18.173	0.000	0.242
		C		0.000	0.000	30.266	0.000	0.331
T11	282.000-262.000	A	1.235	0.000	0.000	81.386	0.000	0.916

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	41.921	0.000	0.548
		C		0.000	0.000	42.152	0.000	0.468
T12	262.000-242.000	A	1.225	0.000	0.000	87.876	0.000	0.986
		B		0.000	0.000	44.427	0.000	0.578
		C		0.000	0.000	64.100	0.000	0.689
T13	242.000-222.000	A	1.215	0.000	0.000	98.793	0.000	1.097
		B		0.000	0.000	44.275	0.000	0.574
		C		0.000	0.000	70.843	0.000	0.753
T14	222.000-202.000	A	1.204	0.000	0.000	99.395	0.000	1.098
		B		0.000	0.000	44.111	0.000	0.570
		C		0.000	0.000	70.463	0.000	0.745
T15	202.000-182.000	A	1.193	0.000	0.000	98.900	0.000	1.086
		B		0.000	0.000	43.933	0.000	0.565
		C		0.000	0.000	70.050	0.000	0.736
T16	182.000-162.000	A	1.180	0.000	0.000	98.357	0.000	1.074
		B		0.000	0.000	43.737	0.000	0.559
		C		0.000	0.000	73.610	0.000	0.754
T17	162.000-142.000	A	1.165	0.000	0.000	97.754	0.000	1.060
		B		0.000	0.000	43.520	0.000	0.553
		C		0.000	0.000	95.648	0.000	0.901
T18	142.000-122.000	A	1.149	0.000	0.000	103.172	0.000	1.107
		B		0.000	0.000	43.275	0.000	0.547
		C		0.000	0.000	94.850	0.000	0.886
T19	122.000-112.000	A	1.135	0.000	0.000	54.970	0.000	0.584
		B		0.000	0.000	21.534	0.000	0.270
		C		0.000	0.000	47.089	0.000	0.437
T20	112.000-102.000	A	1.125	0.000	0.000	56.724	0.000	0.599
		B		0.000	0.000	21.458	0.000	0.268
		C		0.000	0.000	46.842	0.000	0.432
T21	102.000-82.000	A	1.108	0.000	0.000	115.215	0.000	1.204
		B		0.000	0.000	42.664	0.000	0.530
		C		0.000	0.000	92.860	0.000	0.849
T22	82.000-62.000	A	1.081	0.000	0.000	113.777	0.000	1.173
		B		0.000	0.000	42.261	0.000	0.519
		C		0.000	0.000	91.548	0.000	0.825
T23	62.000-42.000	A	1.047	0.000	0.000	111.922	0.000	1.133
		B		0.000	0.000	41.742	0.000	0.505
		C		0.000	0.000	89.857	0.000	0.794
T24	42.000-22.000	A	0.997	0.000	0.000	109.264	0.000	1.078
		B		0.000	0.000	40.998	0.000	0.486
		C		0.000	0.000	87.434	0.000	0.751
T25	22.000-2.000	A	0.904	0.000	0.000	72.993	0.000	0.684
		B		0.000	0.000	27.721	0.000	0.315
		C		0.000	0.000	58.020	0.000	0.471

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	492.000-477.000	0.0000	0.0000	0.0000	0.0000
L2	477.000-457.000	0.0000	0.0000	0.0000	0.0000
T1	457.000-452.000	-0.1574	-0.1028	-0.3653	-0.2258
T2	452.000-442.000	-0.4381	-0.1893	-1.1561	-0.3513
T3	442.000-422.000	-0.3372	-2.6140	-1.3071	-2.4156
T4	422.000-402.000	-0.5234	-3.3319	-1.4863	-2.9577
T5	402.000-382.000	-0.5234	-3.3319	-1.4843	-2.9566

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T6	382.000-362.000	-0.5195	-3.3097	-1.4775	-2.9471
T7	362.000-342.000	-0.5182	-3.1649	-1.4495	-2.6270
T8	342.000-322.000	-0.5409	-3.4168	-1.4261	-3.0176
T9	322.000-302.000	-0.5465	-3.4837	-1.4257	-3.1399
T10	302.000-282.000	-0.5823	-4.0432	-1.3140	-3.8291
T11	282.000-262.000	-0.3522	-6.0738	-0.7800	-5.1484
T12	262.000-242.000	-0.9327	-5.7228	-1.2230	-4.5172
T13	242.000-222.000	-1.1468	-5.8794	-1.4085	-4.9066
T14	222.000-202.000	-1.1050	-5.7035	-1.3856	-4.8777
T15	202.000-182.000	-1.1395	-5.8524	-1.4082	-4.9470
T16	182.000-162.000	-1.1985	-5.7344	-1.5128	-4.7625
T17	162.000-142.000	-1.5087	-5.0747	-2.0556	-3.7645
T18	142.000-122.000	-1.5314	-5.2854	-2.0742	-4.1193
T19	122.000-112.000	-1.4987	-5.4302	-2.0246	-4.4810
T20	112.000-102.000	-1.5127	-5.5447	-2.0338	-4.6965
T21	102.000-82.000	-1.5540	-5.7207	-2.0876	-4.8956
T22	82.000-62.000	-1.6711	-5.4019	-2.0892	-4.9087
T23	62.000-42.000	-1.6650	-5.3852	-2.0836	-4.9106
T24	42.000-22.000	-1.6711	-5.4019	-2.0835	-4.9301
T25	22.000-2.000	-1.4125	-4.6221	-1.8232	-4.3731

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	16	LDF4.5-50(5/8")	452.00 - 455.00	0.6000	0.4943
T2	15	LDF2-50A(3/8") SC	442.00 - 445.00	0.6000	0.5877
T2	16	LDF4.5-50(5/8")	442.00 - 452.00	0.6000	0.5877
T3	1	3" Coax	422.00 - 435.00	1.0000	0.6000
T3	2	AVA5-50(7/8")	422.00 - 435.00	0.6000	0.6000
T3	3	1" Conduit	422.00 - 435.00	0.6000	0.6000
T3	5	1 5/8" OD Conduit	422.00 - 430.00	0.6000	0.6000
T3	12	LDF5-50A(7/8")	422.00 - 435.00	0.6000	0.6000
T3	13	LDF5-50A(7/8")	422.00 - 435.00	0.6000	0.6000
T3	15	LDF2-50A(3/8") SC	422.00 - 442.00	0.6000	0.6000
T3	16	LDF4.5-50(5/8")	422.00 - 442.00	0.6000	0.6000
T4	1	3" Coax	402.00 - 422.00	1.0000	0.6000
T4	2	AVA5-50(7/8")	402.00 - 422.00	0.6000	0.6000
T4	3	1" Conduit	402.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	5	1 5/8" OD Conduit	402.00 - 422.00	0.6000	0.6000
T4	12	LDF5-50A(7/8")	402.00 - 422.00	0.6000	0.6000
T4	13	LDF5-50A(7/8")	402.00 - 422.00	0.6000	0.6000
T4	15	LDF2-50A(3/8") SC	402.00 - 422.00	0.6000	0.6000
T4	16	LDF4.5-50(5/8")	402.00 - 422.00	0.6000	0.6000
T5	1	3" Coax	382.00 - 402.00	1.0000	0.6000
T5	2	AVA5-50(7/8")	382.00 - 402.00	0.6000	0.6000
T5	3	1" Conduit	382.00 - 402.00	0.6000	0.6000
T5	5	1 5/8" OD Conduit	382.00 - 402.00	0.6000	0.6000
T5	12	LDF5-50A(7/8")	382.00 - 402.00	0.6000	0.6000
T5	13	LDF5-50A(7/8")	382.00 - 402.00	0.6000	0.6000
T5	15	LDF2-50A(3/8") SC	382.00 - 402.00	0.6000	0.6000
T5	16	LDF4.5-50(5/8")	382.00 - 402.00	0.6000	0.6000
T6	1	3" Coax	362.00 - 382.00	1.0000	0.6000
T6	2	AVA5-50(7/8")	362.00 - 382.00	0.6000	0.6000
T6	3	1" Conduit	362.00 - 382.00	0.6000	0.6000
T6	5	1 5/8" OD Conduit	362.00 - 382.00	0.6000	0.6000
T6	12	LDF5-50A(7/8")	362.00 - 382.00	0.6000	0.6000
T6	13	LDF5-50A(7/8")	362.00 - 382.00	0.6000	0.6000
T6	15	LDF2-50A(3/8") SC	362.00 - 382.00	0.6000	0.6000
T6	16	LDF4.5-50(5/8")	362.00 - 382.00	0.6000	0.6000
T7	1	3" Coax	342.00 - 362.00	1.0000	0.6000
T7	2	AVA5-50(7/8")	342.00 - 362.00	0.6000	0.6000
T7	3	1" Conduit	342.00 - 362.00	0.6000	0.6000
T7	4	LDF4.5-50(5/8")	342.00 - 351.00	0.6000	0.6000
T7	5	1 5/8" OD Conduit	342.00 - 362.00	0.6000	0.6000
T7	12	LDF5-50A(7/8")	342.00 - 362.00	0.6000	0.6000
T7	13	LDF5-50A(7/8")	342.00 - 362.00	0.6000	0.6000
T7	15	LDF2-50A(3/8") SC	342.00 - 362.00	0.6000	0.6000
T7	16	LDF4.5-50(5/8")	342.00 - 362.00	0.6000	0.6000
T8	1	3" Coax	322.00 -	1.0000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	2	AVA5-50(7/8")	322.00 - 342.00	0.6000	0.6000
T8	3	1" Conduit	322.00 - 342.00	0.6000	0.6000
T8	4	LDF4.5-50(5/8")	322.00 - 342.00	0.6000	0.6000
T8	5	1 5/8" OD Conduit	322.00 - 342.00	0.6000	0.6000
T8	11	LDF5-50A(7/8")	322.00 - 339.00	0.6000	0.6000
T8	12	LDF5-50A(7/8")	322.00 - 342.00	0.6000	0.6000
T8	13	LDF5-50A(7/8")	322.00 - 342.00	0.6000	0.6000
T8	15	LDF2-50A(3/8") SC	322.00 - 342.00	0.6000	0.6000
T8	16	LDF4.5-50(5/8")	322.00 - 342.00	0.6000	0.6000
T9	1	3" Coax	302.00 - 322.00	1.0000	0.6000
T9	2	AVA5-50(7/8")	302.00 - 322.00	0.6000	0.6000
T9	3	1" Conduit	302.00 - 322.00	0.6000	0.6000
T9	4	LDF4.5-50(5/8")	302.00 - 322.00	0.6000	0.6000
T9	5	1 5/8" OD Conduit	302.00 - 322.00	0.6000	0.6000
T9	11	LDF5-50A(7/8")	302.00 - 322.00	0.6000	0.6000
T9	12	LDF5-50A(7/8")	302.00 - 322.00	0.6000	0.6000
T9	13	LDF5-50A(7/8")	302.00 - 322.00	0.6000	0.6000
T9	15	LDF2-50A(3/8") SC	302.00 - 322.00	0.6000	0.6000
T9	16	LDF4.5-50(5/8")	302.00 - 322.00	0.6000	0.6000
T10	1	3" Coax	282.00 - 302.00	1.0000	0.6000
T10	2	AVA5-50(7/8")	282.00 - 302.00	0.6000	0.6000
T10	3	1" Conduit	282.00 - 302.00	0.6000	0.6000
T10	4	LDF4.5-50(5/8")	282.00 - 302.00	0.6000	0.6000
T10	5	1 5/8" OD Conduit	282.00 - 302.00	0.6000	0.6000
T10	11	LDF5-50A(7/8")	282.00 - 302.00	0.6000	0.6000
T10	12	LDF5-50A(7/8")	282.00 - 302.00	0.6000	0.6000
T10	13	LDF5-50A(7/8")	282.00 - 302.00	0.6000	0.6000
T10	14	LDF6-50A(1-1/4")	282.00 - 302.00	0.6000	0.6000
T10	15	LDF2-50A(3/8") SC	282.00 - 302.00	0.6000	0.6000
T10	16	LDF4.5-50(5/8")	282.00 - 302.00	0.6000	0.6000
T10	17	LDF4-50A(1/2")	282.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	1	3" Coax	289.00 262.00 - 282.00	1.0000	0.6000
T11	2	AVA5-50(7/8")	262.00 - 282.00	0.6000	0.6000
T11	3	1" Conduit	262.00 - 282.00	0.6000	0.6000
T11	4	LDF4.5-50(5/8")	262.00 - 282.00	0.6000	0.6000
T11	5	1 5/8" OD Conduit	262.00 - 282.00	0.6000	0.6000
T11	11	LDF5-50A(7/8")	262.00 - 282.00	0.6000	0.6000
T11	12	LDF5-50A(7/8")	262.00 - 282.00	0.6000	0.6000
T11	13	LDF5-50A(7/8")	262.00 - 282.00	0.6000	0.6000
T11	14	LDF6-50A(1-1/4")	262.00 - 282.00	0.6000	0.6000
T11	15	LDF2-50A(3/8") SC	262.00 - 282.00	0.6000	0.6000
T11	16	LDF4.5-50(5/8")	262.00 - 282.00	0.6000	0.6000
T11	17	LDF4-50A(1/2")	262.00 - 282.00	0.6000	0.6000
T11	21	1.625' Fiber Cables	262.00 - 280.00	0.6000	0.6000
T11	22	LDF7-50A(1-5/8")	262.00 - 280.00	0.6000	0.6000
T11	23	LDF7-50A(1-5/8")	262.00 - 280.00	0.6000	0.6000
T11	24	1.625" Hybrid Cable	262.00 - 280.00	0.6000	0.6000
T12	1	3" Coax	242.00 - 262.00	1.0000	0.6000
T12	2	AVA5-50(7/8")	242.00 - 262.00	0.6000	0.6000
T12	3	1" Conduit	242.00 - 262.00	0.6000	0.6000
T12	4	LDF4.5-50(5/8")	242.00 - 262.00	0.6000	0.6000
T12	5	1 5/8" OD Conduit	242.00 - 262.00	0.6000	0.6000
T12	10	LDF5-50A(7/8")	242.00 - 247.00	0.6000	0.6000
T12	11	LDF5-50A(7/8")	242.00 - 262.00	0.6000	0.6000
T12	12	LDF5-50A(7/8")	242.00 - 262.00	0.6000	0.6000
T12	13	LDF5-50A(7/8")	242.00 - 262.00	0.6000	0.6000
T12	14	LDF6-50A(1-1/4")	242.00 - 262.00	0.6000	0.6000
T12	15	LDF2-50A(3/8") SC	242.00 - 262.00	0.6000	0.6000
T12	16	LDF4.5-50(5/8")	242.00 - 262.00	0.6000	0.6000
T12	17	LDF4-50A(1/2")	242.00 - 262.00	0.6000	0.6000
T12	21	1.625' Fiber Cables	242.00 - 262.00	0.6000	0.6000
T12	22	LDF7-50A(1-5/8")	242.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	23	LDF7-50A(1-5/8")	262.00 242.00 - 262.00	0.6000	0.6000
T12	24	1.625" Hybrid Cable	242.00 - 262.00	0.6000	0.6000
T12	25	LDF6-50A(1-1/4")	242.00 - 257.00	0.6000	0.6000
T12	26	LDF6-50A(1-1/4")	242.00 - 257.00	0.6000	0.6000
T13	1	3" Coax	222.00 - 242.00	1.0000	0.6000
T13	2	AVA5-50(7/8")	222.00 - 242.00	0.6000	0.6000
T13	3	1" Conduit	222.00 - 242.00	0.6000	0.6000
T13	4	LDF4.5-50(5/8")	222.00 - 242.00	0.6000	0.6000
T13	5	1 5/8" OD Conduit	222.00 - 242.00	0.6000	0.6000
T13	9	LDF5-50A(7/8")	222.00 - 239.00	0.6000	0.6000
T13	10	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.6000
T13	11	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.6000
T13	12	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.6000
T13	13	LDF5-50A(7/8")	222.00 - 242.00	0.6000	0.6000
T13	14	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.6000
T13	15	LDF2-50A(3/8") SC	222.00 - 242.00	0.6000	0.6000
T13	16	LDF4.5-50(5/8")	222.00 - 242.00	0.6000	0.6000
T13	17	LDF4-50A(1/2")	222.00 - 242.00	0.6000	0.6000
T13	21	1.625' Fiber Cables	222.00 - 242.00	0.6000	0.6000
T13	22	LDF7-50A(1-5/8")	222.00 - 242.00	0.6000	0.6000
T13	23	LDF7-50A(1-5/8")	222.00 - 242.00	0.6000	0.6000
T13	24	1.625" Hybrid Cable	222.00 - 242.00	0.6000	0.6000
T13	25	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.6000
T13	26	LDF6-50A(1-1/4")	222.00 - 242.00	0.6000	0.6000
T14	1	3" Coax	202.00 - 222.00	1.0000	0.5965
T14	2	AVA5-50(7/8")	202.00 - 222.00	0.6000	0.5965
T14	3	1" Conduit	202.00 - 222.00	0.6000	0.5965
T14	4	LDF4.5-50(5/8")	202.00 - 222.00	0.6000	0.5965
T14	5	1 5/8" OD Conduit	202.00 - 222.00	0.6000	0.5965
T14	9	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5965
T14	10	LDF5-50A(7/8")	202.00 -	0.6000	0.5965

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	11	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5965
T14	12	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5965
T14	13	LDF5-50A(7/8")	202.00 - 222.00	0.6000	0.5965
T14	14	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5965
T14	15	LDF2-50A(3/8") SC	202.00 - 222.00	0.6000	0.5965
T14	16	LDF4.5-50(5/8")	202.00 - 222.00	0.6000	0.5965
T14	17	LDF4-50A(1/2")	202.00 - 222.00	0.6000	0.5965
T14	21	1.625' Fiber Cables	202.00 - 222.00	0.6000	0.5965
T14	22	LDF7-50A(1-5/8")	202.00 - 222.00	0.6000	0.5965
T14	23	LDF7-50A(1-5/8")	202.00 - 222.00	0.6000	0.5965
T14	24	1.625" Hybrid Cable	202.00 - 222.00	0.6000	0.5965
T14	25	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5965
T14	26	LDF6-50A(1-1/4")	202.00 - 222.00	0.6000	0.5965
T15	1	3" Coax	182.00 - 202.00	1.0000	0.6000
T15	2	AVA5-50(7/8")	182.00 - 202.00	0.6000	0.6000
T15	3	1" Conduit	182.00 - 202.00	0.6000	0.6000
T15	4	LDF4.5-50(5/8")	182.00 - 202.00	0.6000	0.6000
T15	5	1 5/8" OD Conduit	182.00 - 202.00	0.6000	0.6000
T15	9	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.6000
T15	10	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.6000
T15	11	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.6000
T15	12	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.6000
T15	13	LDF5-50A(7/8")	182.00 - 202.00	0.6000	0.6000
T15	14	LDF6-50A(1-1/4")	182.00 - 202.00	0.6000	0.6000
T15	15	LDF2-50A(3/8") SC	182.00 - 202.00	0.6000	0.6000
T15	16	LDF4.5-50(5/8")	182.00 - 202.00	0.6000	0.6000
T15	17	LDF4-50A(1/2")	182.00 - 202.00	0.6000	0.6000
T15	21	1.625' Fiber Cables	182.00 - 202.00	0.6000	0.6000
T15	22	LDF7-50A(1-5/8")	182.00 - 202.00	0.6000	0.6000
T15	23	LDF7-50A(1-5/8")	182.00 - 202.00	0.6000	0.6000
T15	24	1.625" Hybrid Cable	182.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	25	LDF6-50A(1-1/4")	202.00 182.00 -	0.6000	0.6000
T15	26	LDF6-50A(1-1/4")	202.00 182.00 -	0.6000	0.6000
T16	1	3" Coax	202.00 162.00 -	1.0000	0.6000
T16	2	AVA5-50(7/8")	182.00 162.00 -	0.6000	0.6000
T16	3	1" Conduit	182.00 162.00 -	0.6000	0.6000
T16	4	LDF4.5-50(5/8")	182.00 162.00 -	0.6000	0.6000
T16	5	1 5/8" OD Conduit	182.00 162.00 -	0.6000	0.6000
T16	9	LDF5-50A(7/8")	182.00 162.00 -	0.6000	0.6000
T16	10	LDF5-50A(7/8")	182.00 162.00 -	0.6000	0.6000
T16	11	LDF5-50A(7/8")	182.00 162.00 -	0.6000	0.6000
T16	12	LDF5-50A(7/8")	182.00 162.00 -	0.6000	0.6000
T16	13	LDF5-50A(7/8")	182.00 162.00 -	0.6000	0.6000
T16	14	LDF6-50A(1-1/4")	182.00 162.00 -	0.6000	0.6000
T16	15	LDF2-50A(3/8") SC	182.00 162.00 -	0.6000	0.6000
T16	16	LDF4.5-50(5/8")	182.00 162.00 -	0.6000	0.6000
T16	17	LDF4-50A(1/2")	182.00 162.00 -	0.6000	0.6000
T16	21	1.625' Fiber Cables	182.00 162.00 -	0.6000	0.6000
T16	22	LDF7-50A(1-5/8")	182.00 162.00 -	0.6000	0.6000
T16	23	LDF7-50A(1-5/8")	182.00 162.00 -	0.6000	0.6000
T16	24	1.625" Hybrid Cable	182.00 162.00 -	0.6000	0.6000
T16	25	LDF6-50A(1-1/4")	182.00 162.00 -	0.6000	0.6000
T16	26	LDF6-50A(1-1/4")	182.00 162.00 -	0.6000	0.6000
T16	27	LDF2-50(3/8")	182.00 162.00 -	0.6000	0.6000
T16	28	LDF4.5-50(5/8")	165.00 162.00 -	0.6000	0.6000
T17	1	3" Coax	165.00 142.00 -	1.0000	0.6000
T17	2	AVA5-50(7/8")	162.00 142.00 -	0.6000	0.6000
T17	3	1" Conduit	162.00 142.00 -	0.6000	0.6000
T17	4	LDF4.5-50(5/8")	162.00 142.00 -	0.6000	0.6000
T17	5	1 5/8" OD Conduit	162.00 142.00 -	0.6000	0.6000
T17	9	LDF5-50A(7/8")	162.00 142.00 -	0.6000	0.6000
T17	10	LDF5-50A(7/8")	162.00 142.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T17	11	LDF5-50A(7/8")	162.00 142.00 - 162.00	0.6000	0.6000
T17	12	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.6000
T17	13	LDF5-50A(7/8")	142.00 - 162.00	0.6000	0.6000
T17	14	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.6000
T17	15	LDF2-50A(3/8") SC	142.00 - 162.00	0.6000	0.6000
T17	16	LDF4.5-50(5/8")	142.00 - 162.00	0.6000	0.6000
T17	17	LDF4-50A(1/2")	142.00 - 162.00	0.6000	0.6000
T17	21	1.625' Fiber Cables	142.00 - 162.00	0.6000	0.6000
T17	22	LDF7-50A(1-5/8")	142.00 - 162.00	0.6000	0.6000
T17	23	LDF7-50A(1-5/8")	142.00 - 162.00	0.6000	0.6000
T17	24	1.625" Hybrid Cable	142.00 - 162.00	0.6000	0.6000
T17	25	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.6000
T17	26	LDF6-50A(1-1/4")	142.00 - 162.00	0.6000	0.6000
T17	27	LDF2-50(3/8")	142.00 - 162.00	0.6000	0.6000
T17	28	LDF4.5-50(5/8")	142.00 - 162.00	0.6000	0.6000
T18	1	3" Coax	122.00 - 142.00	1.0000	0.6000
T18	2	AVA5-50(7/8")	122.00 - 142.00	0.6000	0.6000
T18	3	1" Conduit	122.00 - 142.00	0.6000	0.6000
T18	4	LDF4.5-50(5/8")	122.00 - 142.00	0.6000	0.6000
T18	5	1 5/8" OD Conduit	122.00 - 142.00	0.6000	0.6000
T18	7	LDF5-50A(7/8")	122.00 - 124.00	0.6000	0.6000
T18	8	LDF5-50A(7/8")	122.00 - 138.00	0.6000	0.6000
T18	9	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.6000
T18	10	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.6000
T18	11	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.6000
T18	12	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.6000
T18	13	LDF5-50A(7/8")	122.00 - 142.00	0.6000	0.6000
T18	14	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.6000
T18	15	LDF2-50A(3/8") SC	122.00 - 142.00	0.6000	0.6000
T18	16	LDF4.5-50(5/8")	122.00 - 142.00	0.6000	0.6000
T18	17	LDF4-50A(1/2")	122.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T18	21	1.625' Fiber Cables	122.00 - 142.00	0.6000	0.6000
T18	22	LDF7-50A(1-5/8")	122.00 - 142.00	0.6000	0.6000
T18	23	LDF7-50A(1-5/8")	122.00 - 142.00	0.6000	0.6000
T18	24	1.625" Hybrid Cable	122.00 - 142.00	0.6000	0.6000
T18	25	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.6000
T18	26	LDF6-50A(1-1/4")	122.00 - 142.00	0.6000	0.6000
T18	27	LDF2-50(3/8")	122.00 - 142.00	0.6000	0.6000
T18	28	LDF4.5-50(5/8")	122.00 - 142.00	0.6000	0.6000
T19	1	3" Coax	112.00 - 122.00	1.0000	0.5946
T19	2	AVA5-50(7/8")	112.00 - 122.00	0.6000	0.5946
T19	3	1" Conduit	112.00 - 122.00	0.6000	0.5946
T19	4	LDF4.5-50(5/8")	112.00 - 122.00	0.6000	0.5946
T19	5	1 5/8" OD Conduit	112.00 - 122.00	0.6000	0.5946
T19	7	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	8	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	9	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	10	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	11	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	12	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	13	LDF5-50A(7/8")	112.00 - 122.00	0.6000	0.5946
T19	14	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5946
T19	15	LDF2-50A(3/8") SC	112.00 - 122.00	0.6000	0.5946
T19	16	LDF4.5-50(5/8")	112.00 - 122.00	0.6000	0.5946
T19	17	LDF4-50A(1/2")	112.00 - 122.00	0.6000	0.5946
T19	21	1.625' Fiber Cables	112.00 - 122.00	0.6000	0.5946
T19	22	LDF7-50A(1-5/8")	112.00 - 122.00	0.6000	0.5946
T19	23	LDF7-50A(1-5/8")	112.00 - 122.00	0.6000	0.5946
T19	24	1.625" Hybrid Cable	112.00 - 122.00	0.6000	0.5946
T19	25	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5946
T19	26	LDF6-50A(1-1/4")	112.00 - 122.00	0.6000	0.5946
T19	27	LDF2-50(3/8")	112.00 -	0.6000	0.5946

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	28	LDF4.5-50(5/8")	122.00 112.00 - 122.00	0.6000	0.5946
T20	1	3" Coax	102.00 - 112.00	1.0000	0.6000
T20	2	AVA5-50(7/8")	102.00 - 112.00	0.6000	0.6000
T20	3	1" Conduit	102.00 - 112.00	0.6000	0.6000
T20	4	LDF4.5-50(5/8")	102.00 - 112.00	0.6000	0.6000
T20	5	1 5/8" OD Conduit	102.00 - 112.00	0.6000	0.6000
T20	6	LDF5-50A(7/8")	102.00 - 108.00	0.6000	0.6000
T20	7	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	8	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	9	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	10	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	11	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	12	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	13	LDF5-50A(7/8")	102.00 - 112.00	0.6000	0.6000
T20	14	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.6000
T20	15	LDF2-50A(3/8") SC	102.00 - 112.00	0.6000	0.6000
T20	16	LDF4.5-50(5/8")	102.00 - 112.00	0.6000	0.6000
T20	17	LDF4-50A(1/2")	102.00 - 112.00	0.6000	0.6000
T20	21	1.625' Fiber Cables	102.00 - 112.00	0.6000	0.6000
T20	22	LDF7-50A(1-5/8")	102.00 - 112.00	0.6000	0.6000
T20	23	LDF7-50A(1-5/8")	102.00 - 112.00	0.6000	0.6000
T20	24	1.625" Hybrid Cable	102.00 - 112.00	0.6000	0.6000
T20	25	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.6000
T20	26	LDF6-50A(1-1/4")	102.00 - 112.00	0.6000	0.6000
T20	27	LDF2-50(3/8")	102.00 - 112.00	0.6000	0.6000
T20	28	LDF4.5-50(5/8")	102.00 - 112.00	0.6000	0.6000
T21	1	3" Coax	82.00 - 102.00	1.0000	0.6000
T21	2	AVA5-50(7/8")	82.00 - 102.00	0.6000	0.6000
T21	3	1" Conduit	82.00 - 102.00	0.6000	0.6000
T21	4	LDF4.5-50(5/8")	82.00 - 102.00	0.6000	0.6000
T21	5	1 5/8" OD Conduit	82.00 - 102.00	0.6000	0.6000
T21	6	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	7	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	8	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	9	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T21	10	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	11	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	12	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	13	LDF5-50A(7/8")	82.00 - 102.00	0.6000	0.6000
T21	14	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.6000
T21	15	LDF2-50A(3/8") SC	82.00 - 102.00	0.6000	0.6000
T21	16	LDF4.5-50(5/8")	82.00 - 102.00	0.6000	0.6000
T21	17	LDF4-50A(1/2")	82.00 - 102.00	0.6000	0.6000
T21	21	1.625' Fiber Cables	82.00 - 102.00	0.6000	0.6000
T21	22	LDF7-50A(1-5/8")	82.00 - 102.00	0.6000	0.6000
T21	23	LDF7-50A(1-5/8")	82.00 - 102.00	0.6000	0.6000
T21	24	1.625" Hybrid Cable	82.00 - 102.00	0.6000	0.6000
T21	25	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.6000
T21	26	LDF6-50A(1-1/4")	82.00 - 102.00	0.6000	0.6000
T21	27	LDF2-50(3/8")	82.00 - 102.00	0.6000	0.6000
T21	28	LDF4.5-50(5/8")	82.00 - 102.00	0.6000	0.6000
T22	1	3" Coax	62.00 - 82.00	0.6000	0.6000
T22	2	AVA5-50(7/8")	62.00 - 82.00	0.6000	0.6000
T22	3	1" Conduit	62.00 - 82.00	0.6000	0.6000
T22	4	LDF4.5-50(5/8")	62.00 - 82.00	0.6000	0.6000
T22	5	1 5/8" OD Conduit	62.00 - 82.00	0.6000	0.6000
T22	6	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	7	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	8	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	9	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	10	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	11	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	12	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	13	LDF5-50A(7/8")	62.00 - 82.00	0.6000	0.6000
T22	14	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.6000
T22	15	LDF2-50A(3/8") SC	62.00 - 82.00	0.6000	0.6000
T22	16	LDF4.5-50(5/8")	62.00 - 82.00	0.6000	0.6000
T22	17	LDF4-50A(1/2")	62.00 - 82.00	0.6000	0.6000
T22	21	1.625' Fiber Cables	62.00 - 82.00	0.6000	0.6000
T22	22	LDF7-50A(1-5/8")	62.00 - 82.00	0.6000	0.6000
T22	23	LDF7-50A(1-5/8")	62.00 - 82.00	0.6000	0.6000
T22	24	1.625" Hybrid Cable	62.00 - 82.00	0.6000	0.6000
T22	25	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.6000
T22	26	LDF6-50A(1-1/4")	62.00 - 82.00	0.6000	0.6000
T22	27	LDF2-50(3/8")	62.00 - 82.00	0.6000	0.6000
T22	28	LDF4.5-50(5/8")	62.00 - 82.00	0.6000	0.6000
T23	1	3" Coax	42.00 - 62.00	0.6000	0.6000
T23	2	AVA5-50(7/8")	42.00 - 62.00	0.6000	0.6000
T23	3	1" Conduit	42.00 - 62.00	0.6000	0.6000
T23	4	LDF4.5-50(5/8")	42.00 - 62.00	0.6000	0.6000
T23	5	1 5/8" OD Conduit	42.00 - 62.00	0.6000	0.6000
T23	6	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	7	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	8	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	9	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	10	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	11	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	12	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	13	LDF5-50A(7/8")	42.00 - 62.00	0.6000	0.6000
T23	14	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.6000
T23	15	LDF2-50A(3/8") SC	42.00 - 62.00	0.6000	0.6000
T23	16	LDF4.5-50(5/8")	42.00 - 62.00	0.6000	0.6000
T23	17	LDF4-50A(1/2")	42.00 - 62.00	0.6000	0.6000
T23	21	1.625' Fiber Cables	42.00 - 62.00	0.6000	0.6000
T23	22	LDF7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T23	23	LDF7-50A(1-5/8")	42.00 - 62.00	0.6000	0.6000
T23	24	1.625" Hybrid Cable	42.00 - 62.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T23	25	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.6000
T23	26	LDF6-50A(1-1/4")	42.00 - 62.00	0.6000	0.6000
T23	27	LDF2-50(3/8")	42.00 - 62.00	0.6000	0.6000
T23	28	LDF4.5-50(5/8")	42.00 - 62.00	0.6000	0.6000
T24	1	3" Coax	22.00 - 42.00	0.6000	0.6000
T24	2	AVA5-50(7/8")	22.00 - 42.00	0.6000	0.6000
T24	3	1" Conduit	22.00 - 42.00	0.6000	0.6000
T24	4	LDF4.5-50(5/8")	22.00 - 42.00	0.6000	0.6000
T24	5	1 5/8" OD Conduit	22.00 - 42.00	0.6000	0.6000
T24	6	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	7	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	8	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	9	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	10	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	11	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	12	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	13	LDF5-50A(7/8")	22.00 - 42.00	0.6000	0.6000
T24	14	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.6000
T24	15	LDF2-50A(3/8") SC	22.00 - 42.00	0.6000	0.6000
T24	16	LDF4.5-50(5/8")	22.00 - 42.00	0.6000	0.6000
T24	17	LDF4-50A(1/2")	22.00 - 42.00	0.6000	0.6000
T24	21	1.625' Fiber Cables	22.00 - 42.00	0.6000	0.6000
T24	22	LDF7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T24	23	LDF7-50A(1-5/8")	22.00 - 42.00	0.6000	0.6000
T24	24	1.625" Hybrid Cable	22.00 - 42.00	0.6000	0.6000
T24	25	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.6000
T24	26	LDF6-50A(1-1/4")	22.00 - 42.00	0.6000	0.6000
T24	27	LDF2-50(3/8")	22.00 - 42.00	0.6000	0.6000
T24	28	LDF4.5-50(5/8")	22.00 - 42.00	0.6000	0.6000
T25	1	3" Coax	8.00 - 22.00	0.6000	0.6000
T25	2	AVA5-50(7/8")	8.00 - 22.00	0.6000	0.6000
T25	3	1" Conduit	8.00 - 22.00	0.6000	0.6000
T25	4	LDF4.5-50(5/8")	8.00 - 22.00	0.6000	0.6000
T25	5	1 5/8" OD Conduit	8.00 - 22.00	0.6000	0.6000
T25	6	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	7	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	8	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	9	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	10	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	11	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	12	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	13	LDF5-50A(7/8")	8.00 - 22.00	0.6000	0.6000
T25	14	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.6000
T25	15	LDF2-50A(3/8") SC	8.00 - 22.00	0.6000	0.6000
T25	16	LDF4.5-50(5/8")	8.00 - 22.00	0.6000	0.6000
T25	17	LDF4-50A(1/2")	8.00 - 22.00	0.6000	0.6000
T25	21	1.625' Fiber Cables	8.00 - 22.00	0.6000	0.6000
T25	22	LDF7-50A(1-5/8")	8.00 - 22.00	0.6000	0.6000
T25	23	LDF7-50A(1-5/8")	8.00 - 22.00	0.6000	0.6000
T25	24	1.625" Hybrid Cable	8.00 - 22.00	0.6000	0.6000
T25	25	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.6000
T25	26	LDF6-50A(1-1/4")	8.00 - 22.00	0.6000	0.6000
T25	27	LDF2-50(3/8")	8.00 - 22.00	0.6000	0.6000
T25	28	LDF4.5-50(5/8")	8.00 - 22.00	0.6000	0.6000

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
10' Dipole	B	From Face	1.500 0.000 0.000	0.0000	108.000	No Ice 1/2" Ice 1" Ice	3.000 4.000 5.000	3.000 4.000 5.000	0.030 0.055 0.080
10' Dipole	B	From Face	1.500 0.000 0.000	0.0000	125.000	No Ice 1/2" Ice 1" Ice	3.000 4.000 5.000	3.000 4.000 5.000	0.030 0.055 0.080
Obstruction Light(.01k,.8CAAA) (Tower)	A	From Leg	1.000 0.000 0.000	0.0000	116.000	No Ice 1/2" Ice 1" Ice	0.800 1.000 1.200	0.800 1.000 1.200	0.010 0.016 0.022
Obstruction Light(.01k,.8CAAA) (Tower)	B	From Leg	1.000 0.000 0.000	0.0000	116.000	No Ice 1/2" Ice 1" Ice	0.800 1.000 1.200	0.800 1.000 1.200	0.010 0.016 0.022
Obstruction Light(.01k,.8CAAA) (Tower)	C	From Leg	1.000 0.000 0.000	0.0000	116.000	No Ice 1/2" Ice 1" Ice	0.800 1.000 1.200	0.800 1.000 1.200	0.010 0.016 0.022
3' Side Arm	B	From Leg	1.500 0.000 0.000	0.0000	108.000	No Ice 1/2" Ice 1" Ice	0.450 0.570 0.690	2.750 3.860 4.970	0.040 0.060 0.080
3' Side Arm	B	From Leg	1.500 0.000 0.000	0.0000	125.000	No Ice 1/2" Ice 1" Ice	0.450 0.570 0.690	2.750 3.860 4.970	0.040 0.060 0.080
Beacon (.075k 2.250CAAA) (Tower)	A	From Leg	1.000 0.000 0.000	0.0000	124.000	No Ice 1/2" Ice 1" Ice	2.250 2.500 2.750	2.250 2.500 2.750	0.075 0.100 0.125
10' Dipole	A	From Leg	1.500 0.000 0.000	0.0000	138.000	No Ice 1/2" Ice 1" Ice	3.000 4.000 5.000	3.000 4.000 5.000	0.030 0.055 0.080
3' Side Arm	A	From Leg	1.500 0.000 0.000	0.0000	138.000	No Ice 1/2" Ice 1" Ice	0.450 0.570 0.690	2.750 3.860 4.970	0.040 0.060 0.080
Beacon (.075k 2.250CAAA) (Tower)	A	From Leg	1.000 0.000 0.000	0.0000	237.000	No Ice 1/2" Ice 1" Ice	2.250 2.500 2.750	2.250 2.500 2.750	0.075 0.100 0.125
Beacon (.075k 2.250CAAA) (Tower)	B	From Leg	1.000 0.000 0.000	0.0000	237.000	No Ice 1/2" Ice 1" Ice	2.250 2.500 2.750	2.250 2.500 2.750	0.075 0.100 0.125
6' Omni	A	From Leg	2.000 0.000 0.000	0.0000	302.000	No Ice 1/2" Ice 1" Ice	2.250 2.619 2.998	2.250 2.619 2.998	0.010 0.029 0.052
2' Side arm (25lbs 0.5CaAa)	A	From Leg	1.000 0.000 0.000	0.0000	302.000	No Ice 1/2" Ice 1" Ice	0.500 0.000 0.000	0.500 0.000 0.000	0.025 0.033 0.040
3' Yagi(.03k,2.08CAAA)	A	From Leg	2.000 0.000 0.000	0.0000	453.000	No Ice 1/2" Ice 1" Ice	2.080 3.790 5.500	2.080 3.790 5.500	0.030 0.050 0.070
2 Bay FM Antenna	A	From Leg	2.000 0.000 0.000	0.0000	471.000	No Ice 1/2" Ice 1" Ice	5.000 8.000 11.000	5.000 8.000 11.000	0.050 0.090 0.130
Beacon (.075k 2.250CAAA) (Tower)	C	None		0.0000	490.000	No Ice 1/2" Ice 1" Ice	2.250 2.500 2.750	2.250 2.500 2.750	0.075 0.100 0.125
Obstruction Light(.01k,.8CAAA) (Tower)	A	From Leg	1.000 0.000 0.000	0.0000	358.000	No Ice 1/2" Ice 1" Ice	0.800 1.000 1.200	0.800 1.000 1.200	0.010 0.016 0.022

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
Obstruction	B	From Leg	1.000	0.0000	358.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Obstruction	C	From Leg	1.000	0.0000	358.000	No Ice	0.800	0.800	0.010
Light(.01k,.8CAAA)			0.000			1/2" Ice	1.000	1.000	0.016
(Tower)			0.000			1" Ice	1.200	1.200	0.022
Kathrein CA5-FM/CP/RM	C	From Leg	1.500	0.0000	300.000	No Ice	4.500	3.500	0.018
			0.000			1/2" Ice	5.500	4.400	0.023
			0.000			1" Ice	6.500	5.300	0.029
SM 408-3	A	From Leg	2.000	0.0000	257.000	No Ice	22.450	22.450	1.000
(Sprint)			0.000			1/2" Ice	33.500	33.500	1.500
			0.000			1" Ice	44.550	44.550	2.000
PCS 1900MHz	A	From Leg	4.000	0.0000	257.000	No Ice	2.322	2.238	0.060
4x45W-65MHz			0.000			1/2" Ice	2.527	2.441	0.083
(Sprint)			0.000			1" Ice	2.739	2.651	0.110
800 EXTERNAL NOTCH	A	From Leg	4.000	0.0000	257.000	No Ice	0.660	0.321	0.011
FILTER			0.000			1/2" Ice	0.763	0.398	0.017
(Sprint)			0.000			1" Ice	0.873	0.483	0.024
Alcatel Lucent	B	From Leg	4.000	0.0000	257.000	No Ice	2.500	2.500	0.070
RRH-4x45-1900 (25x12x12)			0.000			1/2" Ice	2.709	2.709	0.095
(Sprint)			0.000			1" Ice	2.926	2.926	0.124
Alcatel Lucent	C	From Leg	4.000	0.0000	257.000	No Ice	2.500	2.500	0.070
RRH-4x45-1900 (25x12x12)			0.000			1/2" Ice	2.709	2.709	0.095
(Sprint)			0.000			1" Ice	2.926	2.926	0.124
Alcatel Lucent RRH	B	From Leg	4.000	0.0000	257.000	No Ice	1.701	1.282	0.053
2x50-800 (16x13x10)			0.000			1/2" Ice	1.864	1.428	0.070
(Sprint)			0.000			1" Ice	2.035	1.580	0.090
Alcatel Lucent RRH	C	From Leg	4.000	0.0000	257.000	No Ice	1.701	1.282	0.053
2x50-800 (16x13x10)			0.000			1/2" Ice	1.864	1.428	0.070
(Sprint)			0.000			1" Ice	2.035	1.580	0.090
Nokia AAHC MIMO	A	From Leg	4.000	0.0000	257.000	No Ice	4.203	2.068	0.103
(25.6x19.7x9.64)			0.000			1/2" Ice	4.458	2.260	0.135
(Sprint)			0.000			1" Ice	4.721	2.463	0.171
Nokia AAHC MIMO	B	From Leg	4.000	0.0000	257.000	No Ice	4.203	2.068	0.103
(25.6x19.7x9.64)			0.000			1/2" Ice	4.458	2.260	0.135
(Sprint)			0.000			1" Ice	4.721	2.463	0.171
Nokia AAHC MIMO	C	From Leg	4.000	0.0000	257.000	No Ice	4.203	2.068	0.103
(25.6x19.7x9.64)			0.000			1/2" Ice	4.458	2.260	0.135
(Sprint)			0.000			1" Ice	4.721	2.463	0.171
CommScope NNVV-65B-R4	A	From Leg	4.000	0.0000	257.000	No Ice	12.271	5.750	0.085
(72x19.6x7.8)			0.000			1/2" Ice	12.766	6.207	0.157
(Sprint)			0.000			1" Ice	13.268	6.671	0.236
CommScope NNVV-65B-R4	B	From Leg	4.000	0.0000	257.000	No Ice	12.271	5.750	0.085
(72x19.6x7.8)			0.000			1/2" Ice	12.766	6.207	0.157
(Sprint)			0.000			1" Ice	13.268	6.671	0.236
CommScope NNVV-65B-R4	C	From Leg	4.000	0.0000	257.000	No Ice	12.271	5.750	0.085
(72x19.6x7.8)			0.000			1/2" Ice	12.766	6.207	0.157
(Sprint)			0.000			1" Ice	13.268	6.671	0.236
Sector Frames	C	None		0.0000	165.000	No Ice	30.000	30.000	1.000
(AT&T)						1/2" Ice	35.000	35.000	1.250
						1" Ice	40.000	40.000	1.500
(2) CCI TPA65R-BU8DA-K	A	From Leg	4.000	0.0000	165.000	No Ice	18.089	8.200	0.087
(96.0x21.0x7.8)			0.000			1/2" Ice	18.722	8.794	0.185
(AT&T)			0.000			1" Ice	19.362	9.395	0.283
(2) CCI TPA65R-BU8DA-K	B	From Leg	4.000	0.0000	165.000	No Ice	18.089	8.200	0.087
(96.0x21.0x7.8)			0.000			1/2" Ice	18.722	8.794	0.185
(AT&T)			0.000			1" Ice	19.362	9.395	0.283

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) CCI TPA65R-BU8DA-K	C	From Leg	4.000	0.0000	165.000	No Ice	18.089	8.200	0.087
(96.0x21.0x7.8)			0.000			1/2" Ice	18.722	8.794	0.185
(AT&T)			0.000			1" Ice	19.362	9.395	0.283
Ericsson 8843 (15x13.1x10.9)	A	From Leg	4.000	0.0000	165.000	No Ice	1.638	1.363	0.071
(AT&T)			0.000			1/2" Ice	1.797	1.510	0.089
			0.000			1" Ice	1.965	1.665	0.109
Ericsson 8843 (15x13.1x10.9)	B	From Leg	4.000	0.0000	165.000	No Ice	1.638	1.363	0.071
(AT&T)			0.000			1/2" Ice	1.797	1.510	0.089
			0.000			1" Ice	1.965	1.665	0.109
Ericsson 8843 (15x13.1x10.9)	C	From Leg	4.000	0.0000	165.000	No Ice	1.638	1.363	0.071
(AT&T)			0.000			1/2" Ice	1.797	1.510	0.089
			0.000			1" Ice	1.965	1.665	0.109
Ericsson RRUS E2	A	From Leg	4.000	0.0000	165.000	No Ice	3.145	1.285	0.060
(20.4x18.5x7.5)			0.000			1/2" Ice	3.365	1.438	0.083
(AT&T)			0.000			1" Ice	3.592	1.600	0.110
Ericsson RRUS E2	B	From Leg	4.000	0.0000	165.000	No Ice	3.145	1.285	0.060
(20.4x18.5x7.5)			0.000			1/2" Ice	3.365	1.438	0.083
(AT&T)			0.000			1" Ice	3.592	1.600	0.110
Ericsson RRUS E2	C	From Leg	4.000	0.0000	165.000	No Ice	3.145	1.285	0.060
(20.4x18.5x7.5)			0.000			1/2" Ice	3.365	1.438	0.083
(AT&T)			0.000			1" Ice	3.592	1.600	0.110
Ericsson 4415 B30	A	From Leg	4.000	0.0000	165.000	No Ice	1.843	0.820	0.046
(16.5x13.4x5.9)			0.000			1/2" Ice	2.012	0.943	0.060
(AT&T)			0.000			1" Ice	2.190	1.075	0.077
Ericsson 4415 B30	B	From Leg	4.000	0.0000	165.000	No Ice	1.843	0.820	0.046
(16.5x13.4x5.9)			0.000			1/2" Ice	2.012	0.943	0.060
(AT&T)			0.000			1" Ice	2.190	1.075	0.077
Ericsson 4415 B30	C	From Leg	4.000	0.0000	165.000	No Ice	1.843	0.820	0.046
(16.5x13.4x5.9)			0.000			1/2" Ice	2.012	0.943	0.060
(AT&T)			0.000			1" Ice	2.190	1.075	0.077
Ericsson 4449 (18x13.2x9.4)	A	From Leg	4.000	0.0000	165.000	No Ice	1.980	1.410	0.070
(AT&T)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
Ericsson 4449 (18x13.2x9.4)	B	From Leg	4.000	0.0000	165.000	No Ice	1.980	1.410	0.070
(AT&T)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
Ericsson 4449 (18x13.2x9.4)	C	From Leg	4.000	0.0000	165.000	No Ice	1.980	1.410	0.070
(AT&T)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
CCI HPA65R-BU8A	A	From Leg	4.000	0.0000	165.000	No Ice	11.233	8.044	0.054
(96x11.7x7.6)			0.000			1/2" Ice	11.848	8.637	0.121
(AT&T)			0.000			1" Ice	12.471	9.238	0.195
CCI HPA65R-BU8A	B	From Leg	4.000	0.0000	165.000	No Ice	11.233	8.044	0.054
(96x11.7x7.6)			0.000			1/2" Ice	11.848	8.637	0.121
(AT&T)			0.000			1" Ice	12.471	9.238	0.195
CCI HPA65R-BU8A	C	From Leg	4.000	0.0000	165.000	No Ice	11.233	8.044	0.054
(96x11.7x7.6)			0.000			1/2" Ice	11.848	8.637	0.121
(AT&T)			0.000			1" Ice	12.471	9.238	0.195
Ericsson RRUS-4483	A	From Leg	4.000	0.0000	165.000	No Ice	1.650	1.125	0.072
(15x13.2x9)			0.000			1/2" Ice	1.810	1.262	0.088
(AT&T)			0.000			1" Ice	1.978	1.406	0.106
Ericsson RRUS-4483	B	From Leg	4.000	0.0000	165.000	No Ice	1.650	1.125	0.072
(15x13.2x9)			0.000			1/2" Ice	1.810	1.262	0.088
(AT&T)			0.000			1" Ice	1.978	1.406	0.106
Ericsson RRUS-4483	C	From Leg	4.000	0.0000	165.000	No Ice	1.650	1.125	0.072
(15x13.2x9)			0.000			1/2" Ice	1.810	1.262	0.088
(AT&T)			0.000			1" Ice	1.978	1.406	0.106

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Raycap DC6-48-60-0-8C-EV	A	From Leg	1.000	0.0000	165.000	No Ice	4.783	2.736	0.026
(31.4x18.28x10.24)			0.000			1/2" Ice	5.063	2.962	0.063
(AT&T)			0.000			1" Ice	5.350	3.195	0.104
Raycap DC6-48-60-0-8C-EV	B	From Leg	1.000	0.0000	165.000	No Ice	4.783	2.736	0.026
(31.4x18.28x10.24)			0.000			1/2" Ice	5.063	2.962	0.063
(AT&T)			0.000			1" Ice	5.350	3.195	0.104
Raycap DC6-48-60-0-8C-EV	C	From Leg	1.000	0.0000	165.000	No Ice	4.783	2.736	0.026
(31.4x18.28x10.24)			0.000			1/2" Ice	5.063	2.962	0.063
(AT&T)			0.000			1" Ice	5.350	3.195	0.104
Ice Bridge (2'x2')	C	From Leg	1.000	0.0000	165.000	No Ice	2.850	3.000	0.030
(AT&T)			0.000			1/2" Ice	3.500	4.000	0.045
			0.000			1" Ice	4.150	5.000	0.060
KRY 112 89/4	A	From Leg	4.000	0.0000	280.000	No Ice	0.559	0.362	0.015
(T-Mobile)			0.000			1/2" Ice	0.658	0.445	0.020
			0.000			1" Ice	0.764	0.538	0.027
KRY 112 89/4	B	From Leg	4.000	0.0000	280.000	No Ice	0.559	0.362	0.015
(T-Mobile)			0.000			1/2" Ice	0.658	0.445	0.020
			0.000			1" Ice	0.764	0.538	0.027
KRY 112 89/4	C	From Leg	4.000	0.0000	280.000	No Ice	0.559	0.362	0.015
(T-Mobile)			0.000			1/2" Ice	0.658	0.445	0.020
			0.000			1" Ice	0.764	0.538	0.027
Sector Frames	C	None		0.0000	280.000	No Ice	25.000	25.000	1.000
(T-Mobile)						1/2" Ice	30.000	30.000	1.250
						1" Ice	35.000	35.000	1.500
KRY 112 144/1	A	From Leg	4.000	0.0000	280.000	No Ice	0.350	0.175	0.011
(T-Mobile)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	B	From Leg	4.000	0.0000	280.000	No Ice	0.350	0.175	0.011
(T-Mobile)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	C	From Leg	4.000	0.0000	280.000	No Ice	0.350	0.175	0.011
(T-Mobile)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
RFS	A	From Leg	4.000	0.0000	280.000	No Ice	6.586	2.150	0.041
APX16DWV-16DWV-S-E-A			0.000			1/2" Ice	6.962	2.490	0.074
20 (55.9x13.3x3.15)			0.000			1" Ice	7.344	2.837	0.113
(T-Mobile)									
RFS	B	From Leg	4.000	0.0000	280.000	No Ice	6.586	2.150	0.041
APX16DWV-16DWV-S-E-A			0.000			1/2" Ice	6.962	2.490	0.074
20 (55.9x13.3x3.15)			0.000			1" Ice	7.344	2.837	0.113
(T-Mobile)									
RFS	C	From Leg	4.000	0.0000	280.000	No Ice	6.586	2.150	0.041
APX16DWV-16DWV-S-E-A			0.000			1/2" Ice	6.962	2.490	0.074
20 (55.9x13.3x3.15)			0.000			1" Ice	7.344	2.837	0.113
(T-Mobile)									
RFS	A	From Leg	4.000	0.0000	280.000	No Ice	20.267	8.744	0.101
APXVAARR24_43-U-NA20			0.000			1/2" Ice	20.915	9.342	0.213
(95.9x24x8.7)			0.000			1" Ice	21.570	9.947	0.334
(T-Mobile)									
RFS	B	From Leg	4.000	0.0000	280.000	No Ice	20.267	8.744	0.101
APXVAARR24_43-U-NA20			0.000			1/2" Ice	20.915	9.342	0.213
(95.9x24x8.7)			0.000			1" Ice	21.570	9.947	0.334
(T-Mobile)									
RFS	C	From Leg	4.000	0.0000	280.000	No Ice	20.267	8.744	0.101
APXVAARR24_43-U-NA20			0.000			1/2" Ice	20.915	9.342	0.213
(95.9x24x8.7)			0.000			1" Ice	21.570	9.947	0.334
(T-Mobile)									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Ericsson RRU 4449 B71B12	A	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.291	0.074
(14.9x13.2x10.4)			0.000			1/2" Ice	1.799	1.436	0.091
(T-Mobile)			0.000			1" Ice	1.966	1.587	0.111
Ericsson RRU 4449 B71B12	B	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.291	0.074
(14.9x13.2x10.4)			0.000			1/2" Ice	1.799	1.436	0.091
(T-Mobile)			0.000			1" Ice	1.966	1.587	0.111
Ericsson RRU 4449 B71B12	C	From Leg	4.000	0.0000	280.000	No Ice	1.639	1.291	0.074
(14.9x13.2x10.4)			0.000			1/2" Ice	1.799	1.436	0.091
(T-Mobile)			0.000			1" Ice	1.966	1.587	0.111
Ericsson AIR6488 2.5GHz	A	From Leg	4.000	0.0000	280.000	No Ice	5.945	2.268	0.128
(34.8x20.5x7.2)			0.000			1/2" Ice	6.256	2.498	0.166
(T-Mobile)			0.000			1" Ice	6.574	2.735	0.208
Ericsson AIR6488 2.5GHz	B	From Leg	4.000	0.0000	280.000	No Ice	5.945	2.268	0.128
(34.8x20.5x7.2)			0.000			1/2" Ice	6.256	2.498	0.166
(T-Mobile)			0.000			1" Ice	6.574	2.735	0.208
Ericsson AIR6488 2.5GHz	C	From Leg	4.000	0.0000	280.000	No Ice	5.945	2.268	0.128
(34.8x20.5x7.2)			0.000			1/2" Ice	6.256	2.498	0.166
(T-Mobile)			0.000			1" Ice	6.574	2.735	0.208
Ericsson AIR 32	A	From Leg	4.000	0.0000	280.000	No Ice	6.510	4.712	0.132
(T-Mobile)			0.000			1/2" Ice	6.887	5.068	0.178
			0.000			1" Ice	7.271	5.431	0.229
Ericsson AIR 32	B	From Leg	4.000	0.0000	280.000	No Ice	6.510	4.712	0.132
(T-Mobile)			0.000			1/2" Ice	6.887	5.068	0.178
			0.000			1" Ice	7.271	5.431	0.229
Ericsson AIR 32	C	From Leg	4.000	0.0000	280.000	No Ice	6.510	4.712	0.132
(T-Mobile)			0.000			1/2" Ice	6.887	5.068	0.178
			0.000			1" Ice	7.271	5.431	0.229
Ericsson 4415 B25	A	From Leg	4.000	0.0000	280.000	No Ice	1.650	0.682	0.000
(15x13.2x5.4)			0.000			1/2" Ice	1.810	0.794	0.013
(T-Mobile)			0.000			1" Ice	1.978	0.916	0.027
Ericsson 4415 B25	B	From Leg	4.000	0.0000	280.000	No Ice	1.650	0.682	0.000
(15x13.2x5.4)			0.000			1/2" Ice	1.810	0.794	0.013
(T-Mobile)			0.000			1" Ice	1.978	0.916	0.027
Ericsson 4415 B25	C	From Leg	4.000	0.0000	280.000	No Ice	1.650	0.682	0.000
(15x13.2x5.4)			0.000			1/2" Ice	1.810	0.794	0.013
(T-Mobile)			0.000			1" Ice	1.978	0.916	0.027

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
8' Grid Dish (140lbs	B	Grid	From	1.000	0.0000		239.000	8.000	No Ice	20.106	0.140
20.1CaAa)			Leg	0.000					1/2" Ice	23.000	0.320
				0.000					1" Ice	25.894	0.590
8' Grid Dish (140lbs	C	Grid	From	1.000	0.0000		247.000	8.000	No Ice	20.106	0.140
20.1CaAa)			Leg	0.000					1/2" Ice	23.000	0.320
				0.000					1" Ice	25.894	0.590
3' Grid Dish	A	Grid	From	1.000	0.0000		339.000	3.000	No Ice	2.830	0.030

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 ft²	Weight K
			Leg	0.000					1/2" Ice	7.467	0.068
				0.000					1" Ice	12.103	0.107
3' Dish w/ Radomes	B	Paraboloid w/Radome	From Leg	1.000 0.000	0.0000		351.000	3.000	No Ice 1/2" Ice	7.069 7.467	0.035 0.073
				0.000					1" Ice	7.865	0.112
6' Grid Dish	C	Grid	From Leg	1.000 0.000	0.0000		435.000	6.000	No Ice 1/2" Ice	11.000 14.000	0.250 0.399
				0.000					1" Ice	18.000	0.548

Tower Pressures - No Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg % %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	484.500	1.764	0.049	10.781	A	0.000	10.781	10.781	100.00	0.000	0.000
492.000-477.0					B	0.000	10.781		100.00	0.000	0.000
00					C	0.000	10.781		100.00	0.000	0.000
L2	467.000	1.751	0.049	14.375	A	0.000	14.375	14.375	100.00	0.000	0.000
477.000-457.0					B	0.000	14.375		100.00	0.000	0.000
00					C	0.000	14.375		100.00	0.000	0.000
T1	454.500	1.741	0.049	20.938	A	4.045	1.875	1.875	31.67	0.260	0.000
457.000-452.0					B	4.045	1.875		31.67	0.000	0.000
00					C	4.045	1.875		31.67	0.000	0.000
T2	447.000	1.735	0.049	41.875	A	4.388	3.750	3.750	46.08	0.865	0.000
452.000-442.0					B	4.388	3.750		46.08	0.000	0.000
00					C	4.388	3.750		46.08	0.132	0.000
T3	432.000	1.722	0.048	83.750	A	7.829	7.500	7.500	48.93	4.564	0.000
442.000-422.0					B	7.829	7.500		48.93	5.346	0.000
00					C	7.829	7.500		48.93	3.692	0.000
T4	412.000	1.705	0.048	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
422.000-402.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T5	392.000	1.687	0.047	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
402.000-382.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T6	372.000	1.669	0.047	83.750	A	7.829	7.500	7.500	48.93	6.090	0.000
382.000-362.0					B	7.829	7.500		48.93	8.224	0.000
00					C	7.829	7.500		48.93	6.456	0.000
T7	352.000	1.65	0.046	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
362.000-342.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	7.235	0.000
T8	332.000	1.629	0.046	83.750	A	7.670	7.500	7.500	49.44	7.943	0.000
342.000-322.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	8.186	0.000
T9	312.000	1.608	0.045	84.167	A	7.228	8.333	8.333	53.55	8.270	0.000
322.000-302.0					B	7.228	8.333		53.55	8.224	0.000
00					C	7.228	8.333		53.55	8.186	0.000
T10	292.000	1.586	0.044	84.167	A	7.628	8.333	8.333	52.21	11.370	0.000
302.000-282.0					B	7.628	8.333		52.21	8.224	0.000
00					C	7.628	8.333		52.21	8.627	0.000
T11	272.000	1.562	0.044	84.583	A	8.697	9.167	9.167	51.31	43.914	0.000
282.000-262.0					B	8.697	9.167		51.31	29.608	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	8.697	9.167		51.31	13.010	0.000
T12	252.000	1.537	0.043	84.583	A	7.743	9.167	9.167	54.21	48.075	0.000
262.000-242.0					B	7.743	9.167		54.21	31.984	0.000
00					C	7.743	9.167		54.21	22.706	0.000
T13	232.000	1.511	0.042	84.583	A	7.586	9.167	9.167	54.72	51.563	0.000
242.000-222.0					B	7.586	9.167		54.72	31.984	0.000
00					C	7.586	9.167		54.72	25.806	0.000
T14	212.000	1.483	0.042	85.000	A	8.806	10.000	10.000	53.18	51.890	0.000
222.000-202.0					B	8.806	10.000		53.18	31.984	0.000
00					C	8.806	10.000		53.18	25.806	0.000
T15	192.000	1.452	0.041	85.000	A	7.544	10.000	10.000	57.00	51.890	0.000
202.000-182.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	25.806	0.000
T16	172.000	1.419	0.040	85.000	A	7.544	10.000	10.000	57.00	51.890	0.000
182.000-162.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	27.627	0.000
T17	152.000	1.382	0.039	85.000	A	7.701	10.000	10.000	56.50	51.890	0.000
162.000-142.0					B	7.701	10.000		56.50	31.984	0.000
00					C	7.701	10.000		56.50	37.946	0.000
T18	132.000	1.342	0.038	85.000	A	7.544	10.000	10.000	57.00	53.852	0.000
142.000-122.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	37.946	0.000
T19	117.000	1.308	0.037	42.500	A	4.316	5.000	5.000	53.67	28.125	0.000
122.000-112.0					B	4.316	5.000		53.67	15.992	0.000
00					C	4.316	5.000		53.67	18.973	0.000
T20	107.000	1.284	0.036	42.500	A	4.319	5.000	5.000	53.65	28.779	0.000
112.000-102.0					B	4.319	5.000		53.65	15.992	0.000
00					C	4.319	5.000		53.65	18.973	0.000
T21	92.000	1.244	0.035	85.000	A	7.701	10.000	10.000	56.50	58.430	0.000
102.000-82.00					B	7.701	10.000		56.50	31.984	0.000
0					C	7.701	10.000		56.50	37.946	0.000
T22	72.000	1.181	0.033	85.000	A	7.544	10.000	10.000	57.00	58.430	0.000
82.000-62.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T23	52.000	1.103	0.031	85.000	A	7.701	10.000	10.000	56.50	58.430	0.000
62.000-42.000					B	7.701	10.000		56.50	31.984	0.000
					C	7.701	10.000		56.50	37.946	0.000
T24	32.000	0.996	0.028	85.000	A	7.544	10.000	10.000	57.00	58.430	0.000
42.000-22.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T25	12.000	0.85	0.024	85.000	A	8.169	10.000	10.000	55.04	40.901	0.000
22.000-2.000					B	8.169	10.000		55.04	22.389	0.000
					C	8.169	10.000		55.04	26.562	0.000

Tower Pressure - With Ice

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	484.500	1.764	0.009	1.3082	14.052	A	0.000	14.052	14.052	100.00	0.000	0.000
492.000-477.000						B	0.000	14.052		100.00	0.000	0.000
						C	0.000	14.052		100.00	0.000	0.000
L2	467.000	1.751	0.009	1.3034	18.720	A	0.000	18.720	18.720	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
477.000-457.000						B	0.000	18.720		100.00	0.000	0.000
						C	0.000	18.720		100.00	0.000	0.000
T1	454.500	1.741	0.009	1.2999	22.021	A	4.045	7.091	4.041	36.29	1.039	0.000
457.000-452.000						B	4.045	7.091		36.29	0.000	0.000
						C	4.045	7.091		36.29	0.000	0.000
T2	447.000	1.735	0.009	1.2977	44.038	A	4.388	13.770	8.076	44.48	3.460	0.000
452.000-442.000						B	4.388	13.770		44.48	0.000	0.000
						C	4.388	13.770		44.48	0.911	0.000
T3	432.000	1.722	0.009	1.2933	88.061	A	7.829	26.042	16.122	47.60	16.462	0.000
442.000-422.000						B	7.829	26.042		47.60	12.071	0.000
						C	7.829	26.042		47.60	14.297	0.000
T4	412.000	1.705	0.009	1.2872	88.041	A	7.670	25.954	16.081	47.83	21.536	0.000
422.000-402.000						B	7.670	25.954		47.83	18.521	0.000
						C	7.670	25.954		47.83	21.902	0.000
T5	392.000	1.687	0.009	1.2808	88.019	A	7.670	25.862	16.039	47.83	21.459	0.000
402.000-382.000						B	7.670	25.862		47.83	18.470	0.000
						C	7.670	25.862		47.83	21.825	0.000
T6	372.000	1.669	0.009	1.2741	87.997	A	7.829	25.767	15.994	47.61	21.379	0.000
382.000-362.000						B	7.829	25.767		47.61	18.417	0.000
						C	7.829	25.767		47.61	21.745	0.000
T7	352.000	1.65	0.009	1.2671	87.974	A	7.670	25.666	15.947	47.84	21.295	0.000
362.000-342.000						B	7.670	25.666		47.84	18.361	0.000
						C	7.670	25.666		47.84	24.720	0.000
T8	332.000	1.629	0.009	1.2597	87.949	A	7.670	25.560	15.898	47.84	27.342	0.000
342.000-322.000						B	7.670	25.560		47.84	18.301	0.000
						C	7.670	25.560		47.84	28.341	0.000
T9	312.000	1.608	0.009	1.2519	88.340	A	7.228	26.229	16.679	49.85	28.300	0.000
322.000-302.000						B	7.228	26.229		49.85	18.239	0.000
						C	7.228	26.229		49.85	28.216	0.000
T10	292.000	1.586	0.008	1.2436	88.312	A	7.628	26.111	16.624	49.27	36.242	0.000
302.000-282.000						B	7.628	26.111		49.27	18.173	0.000
						C	7.628	26.111		49.27	30.266	0.000
T11	272.000	1.562	0.008	1.2348	88.699	A	8.697	26.767	17.399	49.06	81.386	0.000
282.000-262.000						B	8.697	26.767		49.06	41.921	0.000
						C	8.697	26.767		49.06	42.152	0.000
T12	252.000	1.537	0.008	1.2254	88.668	A	7.743	26.633	17.336	50.43	87.876	0.000
262.000-242.000						B	7.743	26.633		50.43	44.427	0.000
						C	7.743	26.633		50.43	64.100	0.000
T13	232.000	1.511	0.008	1.2153	88.634	A	7.586	26.489	17.269	50.68	98.793	0.000
242.000-222.000						B	7.586	26.489		50.68	44.275	0.000
						C	7.586	26.489		50.68	70.843	0.000
T14	212.000	1.483	0.008	1.2044	89.015	A	8.806	27.116	18.030	50.19	99.395	0.000
222.000-202.000						B	8.806	27.116		50.19	44.111	0.000
						C	8.806	27.116		50.19	70.463	0.000
T15	192.000	1.452	0.008	1.1926	88.975	A	7.544	26.948	17.950	52.04	98.900	0.000
202.000-182.000						B	7.544	26.948		52.04	43.933	0.000
						C	7.544	26.948		52.04	70.050	0.000
T16	172.000	1.419	0.008	1.1795	88.932	A	7.544	26.762	17.863	52.07	98.357	0.000
182.000-162.000						B	7.544	26.762		52.07	43.737	0.000
						C	7.544	26.762		52.07	73.610	0.000
T17	152.000	1.382	0.007	1.1650	88.883	A	7.701	26.556	17.767	51.86	97.754	0.000
162.000-142.000						B	7.701	26.556		51.86	43.520	0.000
						C	7.701	26.556		51.86	95.648	0.000
T18	132.000	1.342	0.007	1.1487	88.829	A	7.544	26.324	17.658	52.14	103.172	0.000
142.000-122.000						B	7.544	26.324		52.14	43.275	0.000
						C	7.544	26.324		52.14	94.850	0.000
T19	117.000	1.308	0.007	1.1349	44.392	A	4.316	13.681	8.783	48.80	54.970	0.000
122.000-112.000						B	4.316	13.681		48.80	21.534	0.000
						C	4.316	13.681		48.80	47.089	0.000
T20	107.000	1.284	0.007	1.1248	44.375	A	6.150	10.858	8.749	51.44	56.724	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
112.000-102.000						B	6.150	10.858		51.44	21.458	0.000
						C	6.150	10.858		51.44	46.842	0.000
T21	92.000	1.244	0.007	1.1080	88.693	A	7.701	25.745	17.386	51.98	115.215	0.000
102.000-82.000						B	7.701	25.745		51.98	42.664	0.000
						C	7.701	25.745		51.98	92.860	0.000
T22	72.000	1.181	0.006	1.0811	88.604	A	7.544	25.364	17.208	52.29	113.777	0.000
82.000-62.000						B	7.544	25.364		52.29	42.261	0.000
						C	7.544	25.364		52.29	91.548	0.000
T23	52.000	1.103	0.006	1.0465	88.488	A	7.701	24.872	16.977	52.12	111.922	0.000
62.000-42.000						B	7.701	24.872		52.12	41.742	0.000
						C	7.701	24.872		52.12	89.857	0.000
T24	32.000	0.996	0.005	0.9969	88.323	A	7.544	24.167	16.646	52.49	109.264	0.000
42.000-22.000						B	7.544	24.167		52.49	40.998	0.000
						C	7.544	24.167		52.49	87.434	0.000
T25	12.000	0.85	0.005	0.9038	88.013	A	8.169	23.409	16.025	50.75	72.993	0.000
22.000-2.000						B	8.169	23.409		50.75	27.721	0.000
						C	8.169	23.409		50.75	58.020	0.000

Tower Pressure - Service

G_H = 0.850 (base tower), 1.350 (upper structure)

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	484.500	1.764	0.013	10.781	A	0.000	10.781	10.781	100.00	0.000	0.000
492.000-477.0					B	0.000	10.781		100.00	0.000	0.000
00					C	0.000	10.781		100.00	0.000	0.000
L2	467.000	1.751	0.013	14.375	A	0.000	14.375	14.375	100.00	0.000	0.000
477.000-457.0					B	0.000	14.375		100.00	0.000	0.000
00					C	0.000	14.375		100.00	0.000	0.000
T1	454.500	1.741	0.013	20.938	A	4.045	1.875	1.875	31.67	0.260	0.000
457.000-452.0					B	4.045	1.875		31.67	0.000	0.000
00					C	4.045	1.875		31.67	0.000	0.000
T2	447.000	1.735	0.013	41.875	A	4.388	3.750	3.750	46.08	0.865	0.000
452.000-442.0					B	4.388	3.750		46.08	0.000	0.000
00					C	4.388	3.750		46.08	0.132	0.000
T3	432.000	1.722	0.013	83.750	A	7.829	7.500	7.500	48.93	4.564	0.000
442.000-422.0					B	7.829	7.500		48.93	5.346	0.000
00					C	7.829	7.500		48.93	3.692	0.000
T4	412.000	1.705	0.013	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
422.000-402.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T5	392.000	1.687	0.013	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
402.000-382.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	6.456	0.000
T6	372.000	1.669	0.013	83.750	A	7.829	7.500	7.500	48.93	6.090	0.000
382.000-362.0					B	7.829	7.500		48.93	8.224	0.000
00					C	7.829	7.500		48.93	6.456	0.000
T7	352.000	1.65	0.013	83.750	A	7.670	7.500	7.500	49.44	6.090	0.000
362.000-342.0					B	7.670	7.500		49.44	8.224	0.000
00					C	7.670	7.500		49.44	7.235	0.000
T8	332.000	1.629	0.012	83.750	A	7.670	7.500	7.500	49.44	7.943	0.000
342.000-322.0					B	7.670	7.500		49.44	8.224	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
00					C	7.670	7.500		49.44	8.186	0.000
T9	312.000	1.608	0.012	84.167	A	7.228	8.333	8.333	53.55	8.270	0.000
322.000-302.0					B	7.228	8.333		53.55	8.224	0.000
00					C	7.228	8.333		53.55	8.186	0.000
T10	292.000	1.586	0.012	84.167	A	7.628	8.333	8.333	52.21	11.370	0.000
302.000-282.0					B	7.628	8.333		52.21	8.224	0.000
00					C	7.628	8.333		52.21	8.627	0.000
T11	272.000	1.562	0.012	84.583	A	8.697	9.167	9.167	51.31	43.914	0.000
282.000-262.0					B	8.697	9.167		51.31	29.608	0.000
00					C	8.697	9.167		51.31	13.010	0.000
T12	252.000	1.537	0.012	84.583	A	7.743	9.167	9.167	54.21	48.075	0.000
262.000-242.0					B	7.743	9.167		54.21	31.984	0.000
00					C	7.743	9.167		54.21	22.706	0.000
T13	232.000	1.511	0.012	84.583	A	7.586	9.167	9.167	54.72	51.563	0.000
242.000-222.0					B	7.586	9.167		54.72	31.984	0.000
00					C	7.586	9.167		54.72	25.806	0.000
T14	212.000	1.483	0.011	85.000	A	8.806	10.000	10.000	53.18	51.890	0.000
222.000-202.0					B	8.806	10.000		53.18	31.984	0.000
00					C	8.806	10.000		53.18	25.806	0.000
T15	192.000	1.452	0.011	85.000	A	7.544	10.000	10.000	57.00	51.890	0.000
202.000-182.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	25.806	0.000
T16	172.000	1.419	0.011	85.000	A	7.544	10.000	10.000	57.00	51.890	0.000
182.000-162.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	27.627	0.000
T17	152.000	1.382	0.011	85.000	A	7.701	10.000	10.000	56.50	51.890	0.000
162.000-142.0					B	7.701	10.000		56.50	31.984	0.000
00					C	7.701	10.000		56.50	37.946	0.000
T18	132.000	1.342	0.010	85.000	A	7.544	10.000	10.000	57.00	53.852	0.000
142.000-122.0					B	7.544	10.000		57.00	31.984	0.000
00					C	7.544	10.000		57.00	37.946	0.000
T19	117.000	1.308	0.010	42.500	A	4.316	5.000	5.000	53.67	28.125	0.000
122.000-112.0					B	4.316	5.000		53.67	15.992	0.000
00					C	4.316	5.000		53.67	18.973	0.000
T20	107.000	1.284	0.010	42.500	A	4.319	5.000	5.000	53.65	28.779	0.000
112.000-102.0					B	4.319	5.000		53.65	15.992	0.000
00					C	4.319	5.000		53.65	18.973	0.000
T21	92.000	1.244	0.009	85.000	A	7.701	10.000	10.000	56.50	58.430	0.000
102.000-82.00					B	7.701	10.000		56.50	31.984	0.000
0					C	7.701	10.000		56.50	37.946	0.000
T22	72.000	1.181	0.009	85.000	A	7.544	10.000	10.000	57.00	58.430	0.000
82.000-62.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T23	52.000	1.103	0.008	85.000	A	7.701	10.000	10.000	56.50	58.430	0.000
62.000-42.000					B	7.701	10.000		56.50	31.984	0.000
					C	7.701	10.000		56.50	37.946	0.000
T24	32.000	0.996	0.008	85.000	A	7.544	10.000	10.000	57.00	58.430	0.000
42.000-22.000					B	7.544	10.000		57.00	31.984	0.000
					C	7.544	10.000		57.00	37.946	0.000
T25	12.000	0.85	0.006	85.000	A	8.169	10.000	10.000	55.04	40.901	0.000
22.000-2.000					B	8.169	10.000		55.04	22.389	0.000
					C	8.169	10.000		55.04	26.562	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.6	0.049	1	1	10.781	0.432	0.029	C
492.000-477.0			B	1	0.6		1	1	10.781			
00			C	1	0.6		1	1	10.781			
L2	0.000	0.713	A	1	0.6	0.049	1	1	14.375	0.572	0.029	C
477.000-457.0			B	1	0.6		1	1	14.375			
00			C	1	0.6		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.049	1	1	5.158	0.508	0.102	C
457.000-452.0			B	0.283	2.343		1	1	5.158			
00			C	0.283	2.343		1	1	5.158			
T2	0.002	0.643	A	0.194	2.615	0.049	1	1	6.538	0.732	0.073	C
452.000-442.0			B	0.194	2.615		1	1	6.538			
00			C	0.194	2.615		1	1	6.538			
T3	0.055	1.341	A	0.183	2.654	0.048	1	1	12.117	1.719	0.086	C
442.000-422.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T4	0.089	1.229	A	0.181	2.66	0.048	1	1	11.956	1.897	0.095	C
422.000-402.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T5	0.089	1.229	A	0.181	2.66	0.047	1	1	11.956	1.877	0.094	C
402.000-382.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T6	0.089	1.341	A	0.183	2.654	0.047	1	1	12.117	1.870	0.094	C
382.000-362.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T7	0.091	1.229	A	0.181	2.66	0.046	1	1	11.956	1.853	0.093	C
362.000-342.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T8	0.098	1.229	A	0.181	2.66	0.046	1	1	11.956	1.896	0.095	C
342.000-322.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T9	0.099	1.440	A	0.185	2.647	0.045	1	1	11.994	1.877	0.094	C
322.000-302.0			B	0.185	2.647		1	1	11.994			
00			C	0.185	2.647		1	1	11.994			
T10	0.113	1.419	A	0.19	2.631	0.044	1	1	12.401	1.964	0.098	C
302.000-282.0			B	0.19	2.631		1	1	12.401			
00			C	0.19	2.631		1	1	12.401			
T11	0.354	1.858	A	0.211	2.559	0.044	1	1	13.982	2.922	0.146	A
282.000-262.0			B	0.211	2.559		1	1	13.982			
00			C	0.211	2.559		1	1	13.982			
T12	0.422	1.742	A	0.2	2.596	0.043	1	1	13.009	3.054	0.153	A
262.000-242.0			B	0.2	2.596		1	1	13.009			
00			C	0.2	2.596		1	1	13.009			
T13	0.446	1.629	A	0.198	2.602	0.042	1	1	12.849	3.113	0.156	A
242.000-222.0			B	0.198	2.602		1	1	12.849			
00			C	0.198	2.602		1	1	12.849			
T14	0.447	2.201	A	0.221	2.527	0.042	1	1	14.591	3.182	0.159	A
222.000-202.0			B	0.221	2.527		1	1	14.591			
00			C	0.221	2.527		1	1	14.591			
T15	0.447	1.860	A	0.206	2.575	0.041	1	1	13.301	3.026	0.151	A
202.000-182.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T16	0.450	1.860	A	0.206	2.575	0.040	1	1	13.301	2.976	0.149	A
182.000-162.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T17	0.468	1.972	A	0.208	2.569	0.039	1	1	13.460	3.015	0.151	A
162.000-142.0			B	0.208	2.569		1	1	13.460			
00			C	0.208	2.569		1	1	13.460			
T18	0.474	1.860	A	0.206	2.575	0.038	1	1	13.301	2.954	0.148	A
142.000-122.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T19	0.241	0.959	A	0.219	2.533	0.037	1	1	7.206	1.498	0.150	A
122.000-112.0			B	0.219	2.533		1	1	7.206			
00			C	0.219	2.533		1	1	7.206			
T20	0.243	1.060	A	0.219	2.533	0.036	1	1	7.210	1.482	0.148	A
112.000-102.0			B	0.219	2.533		1	1	7.210			
00			C	0.219	2.533		1	1	7.210			
T21	0.488	1.972	A	0.208	2.569	0.035	1	1	13.460	2.829	0.141	A
102.000-82.00			B	0.208	2.569		1	1	13.460			
0			C	0.208	2.569		1	1	13.460			
T22	0.488	1.860	A	0.206	2.575	0.033	1	1	13.301	2.610	0.130	A
82.000-62.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T23	0.488	1.972	A	0.208	2.569	0.031	1	1	13.460	2.446	0.122	A
62.000-42.000			B	0.208	2.569		1	1	13.460			
			C	0.208	2.569		1	1	13.460			
T24	0.488	1.860	A	0.206	2.575	0.028	1	1	13.301	2.200	0.110	A
42.000-22.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T25	0.342	1.889	A	0.214	2.551	0.024	1	1	13.940	1.549	0.077	A
22.000-2.000			B	0.214	2.551		1	1	13.940			
			C	0.214	2.551		1	1	13.940			
Sum Weight:	7.012	39.321								56.053		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.6	0.049	1	1	10.781	0.432	0.029	C
492.000-477.0			B	1	0.6		1	1	10.781			
00			C	1	0.6		1	1	10.781			
L2	0.000	0.713	A	1	0.6	0.049	1	1	14.375	0.572	0.029	C
477.000-457.0			B	1	0.6		1	1	14.375			
00			C	1	0.6		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.049	0.8	1	4.349	0.429	0.086	C
457.000-452.0			B	0.283	2.343		0.8	1	4.349			
00			C	0.283	2.343		0.8	1	4.349			
T2	0.002	0.643	A	0.194	2.615	0.049	0.8	1	5.661	0.637	0.064	C
452.000-442.0			B	0.194	2.615		0.8	1	5.661			
00			C	0.194	2.615		0.8	1	5.661			
T3	0.055	1.341	A	0.183	2.654	0.048	0.8	1	10.551	1.548	0.077	C
442.000-422.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T4	0.089	1.229	A	0.181	2.66	0.048	0.8	1	10.422	1.731	0.087	C
422.000-402.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T5	0.089	1.229	A	0.181	2.66	0.047	0.8	1	10.422	1.713	0.086	C
402.000-382.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T6	0.089	1.341	A	0.183	2.654	0.047	0.8	1	10.551	1.705	0.085	C
382.000-362.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T7	0.091	1.229	A	0.181	2.66	0.046	0.8	1	10.422	1.693	0.085	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
362.000-342.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T8	0.098	1.229	A	0.181	2.66	0.046	0.8	1	10.422	1.738	0.087	C
342.000-322.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T9	0.099	1.440	A	0.185	2.647	0.045	0.8	1	10.549	1.730	0.087	C
322.000-302.0			B	0.185	2.647		0.8	1	10.549			
00			C	0.185	2.647		0.8	1	10.549			
T10	0.113	1.419	A	0.19	2.631	0.044	0.8	1	10.875	1.813	0.091	C
302.000-282.0			B	0.19	2.631		0.8	1	10.875			
00			C	0.19	2.631		0.8	1	10.875			
T11	0.354	1.858	A	0.211	2.559	0.044	0.8	1	12.243	2.757	0.138	B
282.000-262.0			B	0.211	2.559		0.8	1	12.243			
00			C	0.211	2.559		0.8	1	12.243			
T12	0.422	1.742	A	0.2	2.596	0.043	0.8	1	11.461	2.907	0.145	B
262.000-242.0			B	0.2	2.596		0.8	1	11.461			
00			C	0.2	2.596		0.8	1	11.461			
T13	0.446	1.629	A	0.198	2.602	0.042	0.8	1	11.332	2.971	0.149	B
242.000-222.0			B	0.198	2.602		0.8	1	11.332			
00			C	0.198	2.602		0.8	1	11.332			
T14	0.447	2.201	A	0.221	2.527	0.042	0.8	1	12.830	3.025	0.151	B
222.000-202.0			B	0.221	2.527		0.8	1	12.830			
00			C	0.221	2.527		0.8	1	12.830			
T15	0.447	1.860	A	0.206	2.575	0.041	0.8	1	11.792	2.892	0.145	B
202.000-182.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T16	0.450	1.860	A	0.206	2.575	0.040	0.8	1	11.792	2.845	0.142	B
182.000-162.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T17	0.468	1.972	A	0.208	2.569	0.039	0.8	1	11.920	2.885	0.144	B
162.000-142.0			B	0.208	2.569		0.8	1	11.920			
00			C	0.208	2.569		0.8	1	11.920			
T18	0.474	1.860	A	0.206	2.575	0.038	0.8	1	11.792	2.830	0.141	B
142.000-122.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T19	0.241	0.959	A	0.219	2.533	0.037	0.8	1	6.343	1.430	0.143	B
122.000-112.0			B	0.219	2.533		0.8	1	6.343			
00			C	0.219	2.533		0.8	1	6.343			
T20	0.243	1.060	A	0.219	2.533	0.036	0.8	1	6.346	1.415	0.142	B
112.000-102.0			B	0.219	2.533		0.8	1	6.346			
00			C	0.219	2.533		0.8	1	6.346			
T21	0.488	1.972	A	0.208	2.569	0.035	0.8	1	11.920	2.712	0.136	B
102.000-82.00			B	0.208	2.569		0.8	1	11.920			
0			C	0.208	2.569		0.8	1	11.920			
T22	0.488	1.860	A	0.206	2.575	0.033	0.8	1	11.792	2.500	0.125	B
82.000-62.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T23	0.488	1.972	A	0.208	2.569	0.031	0.8	1	11.920	2.342	0.117	B
62.000-42.000			B	0.208	2.569		0.8	1	11.920			
			C	0.208	2.569		0.8	1	11.920			
T24	0.488	1.860	A	0.206	2.575	0.028	0.8	1	11.792	2.108	0.105	B
42.000-22.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T25	0.342	1.889	A	0.214	2.551	0.024	0.8	1	12.306	1.465	0.073	B
22.000-2.000			B	0.214	2.551		0.8	1	12.306			
			C	0.214	2.551		0.8	1	12.306			
Sum Weight:	7.012	39.321								52.822		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.6	0.049	1	1	10.781	0.432	0.029	C
492.000-477.0			B	1	0.6		1	1	10.781			
00			C	1	0.6		1	1	10.781			
L2	0.000	0.713	A	1	0.6	0.049	1	1	14.375	0.572	0.029	C
477.000-457.0			B	1	0.6		1	1	14.375			
00			C	1	0.6		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.049	0.85	1	4.551	0.449	0.090	C
457.000-452.0			B	0.283	2.343		0.85	1	4.551			
00			C	0.283	2.343		0.85	1	4.551			
T2	0.002	0.643	A	0.194	2.615	0.049	0.85	1	5.880	0.660	0.066	C
452.000-442.0			B	0.194	2.615		0.85	1	5.880			
00			C	0.194	2.615		0.85	1	5.880			
T3	0.055	1.341	A	0.183	2.654	0.048	0.85	1	10.943	1.591	0.080	C
442.000-422.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T4	0.089	1.229	A	0.181	2.66	0.048	0.85	1	10.805	1.772	0.089	C
422.000-402.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T5	0.089	1.229	A	0.181	2.66	0.047	0.85	1	10.805	1.754	0.088	C
402.000-382.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T6	0.089	1.341	A	0.183	2.654	0.047	0.85	1	10.943	1.746	0.087	C
382.000-362.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T7	0.091	1.229	A	0.181	2.66	0.046	0.85	1	10.805	1.733	0.087	C
362.000-342.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T8	0.098	1.229	A	0.181	2.66	0.046	0.85	1	10.805	1.777	0.089	C
342.000-322.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T9	0.099	1.440	A	0.185	2.647	0.045	0.85	1	10.910	1.767	0.088	C
322.000-302.0			B	0.185	2.647		0.85	1	10.910			
00			C	0.185	2.647		0.85	1	10.910			
T10	0.113	1.419	A	0.19	2.631	0.044	0.85	1	11.257	1.850	0.093	C
302.000-282.0			B	0.19	2.631		0.85	1	11.257			
00			C	0.19	2.631		0.85	1	11.257			
T11	0.354	1.858	A	0.211	2.559	0.044	0.85	1	12.678	2.823	0.141	C
282.000-262.0			B	0.211	2.559		0.85	1	12.678			
00			C	0.211	2.559		0.85	1	12.678			
T12	0.422	1.742	A	0.2	2.596	0.043	0.85	1	11.848	2.947	0.147	B
262.000-242.0			B	0.2	2.596		0.85	1	11.848			
00			C	0.2	2.596		0.85	1	11.848			
T13	0.446	1.629	A	0.198	2.602	0.042	0.85	1	11.711	3.028	0.151	B
242.000-222.0			B	0.198	2.602		0.85	1	11.711			
00			C	0.198	2.602		0.85	1	11.711			
T14	0.447	2.201	A	0.221	2.527	0.042	0.85	1	13.270	3.086	0.154	B
222.000-202.0			B	0.221	2.527		0.85	1	13.270			
00			C	0.221	2.527		0.85	1	13.270			
T15	0.447	1.860	A	0.206	2.575	0.041	0.85	1	12.169	2.946	0.147	B
202.000-182.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T16	0.450	1.860	A	0.206	2.575	0.040	0.85	1	12.169	2.902	0.145	B
182.000-162.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T17	0.468	1.972	A	0.208	2.569	0.039	0.85	1	12.305	2.966	0.148	B
162.000-142.0			B	0.208	2.569		0.85	1	12.305			
00			C	0.208	2.569		0.85	1	12.305			
T18	0.474	1.860	A	0.206	2.575	0.038	0.85	1	12.169	2.908	0.145	B
142.000-122.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T19	0.241	0.959	A	0.219	2.533	0.037	0.85	1	6.559	1.470	0.147	B
122.000-112.0			B	0.219	2.533		0.85	1	6.559			
00			C	0.219	2.533		0.85	1	6.559			
T20	0.243	1.060	A	0.219	2.533	0.036	0.85	1	6.562	1.455	0.145	B
112.000-102.0			B	0.219	2.533		0.85	1	6.562			
00			C	0.219	2.533		0.85	1	6.562			
T21	0.488	1.972	A	0.208	2.569	0.035	0.85	1	12.305	2.785	0.139	B
102.000-82.00			B	0.208	2.569		0.85	1	12.305			
0			C	0.208	2.569		0.85	1	12.305			
T22	0.488	1.860	A	0.206	2.575	0.033	0.85	1	12.169	2.569	0.128	B
82.000-62.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T23	0.488	1.972	A	0.208	2.569	0.031	0.85	1	12.305	2.407	0.120	B
62.000-42.000			B	0.208	2.569		0.85	1	12.305			
			C	0.208	2.569		0.85	1	12.305			
T24	0.488	1.860	A	0.206	2.575	0.028	0.85	1	12.169	2.166	0.108	B
42.000-22.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T25	0.342	1.889	A	0.214	2.551	0.024	0.85	1	12.714	1.507	0.075	B
22.000-2.000			B	0.214	2.551		0.85	1	12.714			
			C	0.214	2.551		0.85	1	12.714			
Sum Weight:	7.012	39.321								54.071		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.773	A	1	1.2	0.009	1	1	14.052	0.213	0.014	C
492.000-477.0			B	1	1.2		1	1	14.052			
00			C	1	1.2		1	1	14.052			
L2	0.000	1.030	A	1	1.2	0.009	1	1	18.720	0.281	0.014	C
477.000-457.0			B	1	1.2		1	1	18.720			
00			C	1	1.2		1	1	18.720			
T1	0.011	0.879	A	0.506	1.893	0.009	1	1	8.925	0.137	0.027	C
457.000-452.0			B	0.506	1.893		1	1	8.925			
00			C	0.506	1.893		1	1	8.925			
T2	0.044	1.354	A	0.412	2.04	0.009	1	1	13.223	0.231	0.023	C
452.000-442.0			B	0.412	2.04		1	1	13.223			
00			C	0.412	2.04		1	1	13.223			
T3	0.501	2.666	A	0.385	2.095	0.009	1	1	24.228	0.593	0.030	C
442.000-422.0			B	0.385	2.095		1	1	24.228			
00			C	0.385	2.095		1	1	24.228			
T4	0.740	2.500	A	0.382	2.101	0.009	1	1	23.985	0.673	0.034	C
422.000-402.0			B	0.382	2.101		1	1	23.985			
00			C	0.382	2.101		1	1	23.985			
T5	0.735	2.491	A	0.381	2.103	0.009	1	1	23.917	0.664	0.033	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
402.000-382.0			B	0.381	2.103		1	1	23.917			
00			C	0.381	2.103		1	1	23.917			
T6	0.730	2.640	A	0.382	2.101	0.009	1	1	24.024	0.657	0.033	C
382.000-362.0			B	0.382	2.101		1	1	24.024			
00			C	0.382	2.101		1	1	24.024			
T7	0.756	2.474	A	0.379	2.107	0.009	1	1	23.772	0.659	0.033	C
362.000-342.0			B	0.379	2.107		1	1	23.772			
00			C	0.379	2.107		1	1	23.772			
T8	0.855	2.464	A	0.378	2.11	0.009	1	1	23.694	0.693	0.035	C
342.000-322.0			B	0.378	2.11		1	1	23.694			
00			C	0.378	2.11		1	1	23.694			
T9	0.859	2.687	A	0.379	2.108	0.009	1	1	23.681	0.687	0.034	C
322.000-302.0			B	0.379	2.108		1	1	23.681			
00			C	0.379	2.108		1	1	23.681			
T10	0.971	2.656	A	0.382	2.101	0.008	1	1	24.043	0.724	0.036	C
302.000-282.0			B	0.382	2.101		1	1	24.043			
00			C	0.382	2.101		1	1	24.043			
T11	1.933	3.197	A	0.4	2.064	0.008	1	1	25.725	1.009	0.050	A
282.000-262.0			B	0.4	2.064		1	1	25.725			
00			C	0.4	2.064		1	1	25.725			
T12	2.253	3.022	A	0.388	2.089	0.008	1	1	24.549	1.076	0.054	A
262.000-242.0			B	0.388	2.089		1	1	24.549			
00			C	0.388	2.089		1	1	24.549			
T13	2.425	2.852	A	0.384	2.096	0.008	1	1	24.265	1.117	0.056	A
242.000-222.0			B	0.384	2.096		1	1	24.265			
00			C	0.384	2.096		1	1	24.265			
T14	2.412	3.563	A	0.404	2.057	0.008	1	1	26.100	1.111	0.056	A
222.000-202.0			B	0.404	2.057		1	1	26.100			
00			C	0.404	2.057		1	1	26.100			
T15	2.387	3.075	A	0.388	2.089	0.008	1	1	24.548	1.073	0.054	A
202.000-182.0			B	0.388	2.089		1	1	24.548			
00			C	0.388	2.089		1	1	24.548			
T16	2.387	3.058	A	0.386	2.093	0.008	1	1	24.410	1.053	0.053	A
182.000-162.0			B	0.386	2.093		1	1	24.410			
00			C	0.386	2.093		1	1	24.410			
T17	2.515	3.193	A	0.385	2.094	0.007	1	1	24.432	1.079	0.054	A
162.000-142.0			B	0.385	2.094		1	1	24.432			
00			C	0.385	2.094		1	1	24.432			
T18	2.540	3.018	A	0.381	2.102	0.007	1	1	24.085	1.061	0.053	A
142.000-122.0			B	0.381	2.102		1	1	24.085			
00			C	0.381	2.102		1	1	24.085			
T19	1.291	1.586	A	0.405	2.053	0.007	1	1	13.052	0.533	0.053	A
122.000-112.0			B	0.405	2.053		1	1	13.052			
00			C	0.405	2.053		1	1	13.052			
T20	1.299	1.590	A	0.383	2.098	0.007	1	1	12.981	0.534	0.053	A
112.000-102.0			B	0.383	2.098		1	1	12.981			
00			C	0.383	2.098		1	1	12.981			
T21	2.583	3.117	A	0.377	2.111	0.007	1	1	23.834	1.015	0.051	A
102.000-82.00			B	0.377	2.111		1	1	23.834			
0			C	0.377	2.111		1	1	23.834			
T22	2.517	2.931	A	0.371	2.123	0.006	1	1	23.380	0.951	0.048	A
82.000-62.000			B	0.371	2.123		1	1	23.380			
			C	0.371	2.123		1	1	23.380			
T23	2.433	3.038	A	0.368	2.131	0.006	1	1	23.197	0.876	0.044	A
62.000-42.000			B	0.368	2.131		1	1	23.197			
			C	0.368	2.131		1	1	23.197			
T24	2.315	2.827	A	0.359	2.151	0.005	1	1	22.516	0.772	0.039	A
42.000-22.000			B	0.359	2.151		1	1	22.516			
			C	0.359	2.151		1	1	22.516			
T25	1.471	2.794	A	0.359	2.151	0.005	1	1	22.669	0.503	0.025	A

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
22.000-2.000			B	0.359	2.151		1	1	22.669			
			C	0.359	2.151		1	1	22.669			
Sum Weight:	38.962	67.476								19.975		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.773	A	1	1.2	0.009	1	1	14.052	0.213	0.014	C
492.000-477.0			B	1	1.2		1	1	14.052			
00			C	1	1.2		1	1	14.052			
L2	0.000	1.030	A	1	1.2	0.009	1	1	18.720	0.281	0.014	C
477.000-457.0			B	1	1.2		1	1	18.720			
00			C	1	1.2		1	1	18.720			
T1	0.011	0.879	A	0.506	1.893	0.009	0.8	1	8.116	0.124	0.025	C
457.000-452.0			B	0.506	1.893		0.8	1	8.116			
00			C	0.506	1.893		0.8	1	8.116			
T2	0.044	1.354	A	0.412	2.04	0.009	0.8	1	12.345	0.217	0.022	C
452.000-442.0			B	0.412	2.04		0.8	1	12.345			
00			C	0.412	2.04		0.8	1	12.345			
T3	0.501	2.666	A	0.385	2.095	0.009	0.8	1	22.662	0.568	0.028	C
442.000-422.0			B	0.385	2.095		0.8	1	22.662			
00			C	0.385	2.095		0.8	1	22.662			
T4	0.740	2.500	A	0.382	2.101	0.009	0.8	1	22.451	0.648	0.032	C
422.000-402.0			B	0.382	2.101		0.8	1	22.451			
00			C	0.382	2.101		0.8	1	22.451			
T5	0.735	2.491	A	0.381	2.103	0.009	0.8	1	22.383	0.640	0.032	C
402.000-382.0			B	0.381	2.103		0.8	1	22.383			
00			C	0.381	2.103		0.8	1	22.383			
T6	0.730	2.640	A	0.382	2.101	0.009	0.8	1	22.459	0.632	0.032	C
382.000-362.0			B	0.382	2.101		0.8	1	22.459			
00			C	0.382	2.101		0.8	1	22.459			
T7	0.756	2.474	A	0.379	2.107	0.009	0.8	1	22.238	0.635	0.032	C
362.000-342.0			B	0.379	2.107		0.8	1	22.238			
00			C	0.379	2.107		0.8	1	22.238			
T8	0.855	2.464	A	0.378	2.11	0.009	0.8	1	22.160	0.669	0.033	C
342.000-322.0			B	0.378	2.11		0.8	1	22.160			
00			C	0.378	2.11		0.8	1	22.160			
T9	0.859	2.687	A	0.379	2.108	0.009	0.8	1	22.235	0.665	0.033	C
322.000-302.0			B	0.379	2.108		0.8	1	22.235			
00			C	0.379	2.108		0.8	1	22.235			
T10	0.971	2.656	A	0.382	2.101	0.008	0.8	1	22.517	0.701	0.035	C
302.000-282.0			B	0.382	2.101		0.8	1	22.517			
00			C	0.382	2.101		0.8	1	22.517			
T11	1.933	3.197	A	0.4	2.064	0.008	0.8	1	23.986	0.983	0.049	B
282.000-262.0			B	0.4	2.064		0.8	1	23.986			
00			C	0.4	2.064		0.8	1	23.986			
T12	2.253	3.022	A	0.388	2.089	0.008	0.8	1	23.000	1.053	0.053	B
262.000-242.0			B	0.388	2.089		0.8	1	23.000			
00			C	0.388	2.089		0.8	1	23.000			
T13	2.425	2.852	A	0.384	2.096	0.008	0.8	1	22.748	1.096	0.055	B
242.000-222.0			B	0.384	2.096		0.8	1	22.748			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
00			C	0.384	2.096		0.8	1	22.748			
T14	2.412	3.563	A	0.404	2.057	0.008	0.8	1	24.339	1.087	0.054	B
222.000-202.0			B	0.404	2.057		0.8	1	24.339			
00			C	0.404	2.057		0.8	1	24.339			
T15	2.387	3.075	A	0.388	2.089	0.008	0.8	1	23.039	1.052	0.053	B
202.000-182.0			B	0.388	2.089		0.8	1	23.039			
00			C	0.388	2.089		0.8	1	23.039			
T16	2.387	3.058	A	0.386	2.093	0.008	0.8	1	22.901	1.033	0.052	B
182.000-162.0			B	0.386	2.093		0.8	1	22.901			
00			C	0.386	2.093		0.8	1	22.901			
T17	2.515	3.193	A	0.385	2.094	0.007	0.8	1	22.892	1.059	0.053	B
162.000-142.0			B	0.385	2.094		0.8	1	22.892			
00			C	0.385	2.094		0.8	1	22.892			
T18	2.540	3.018	A	0.381	2.102	0.007	0.8	1	22.576	1.042	0.052	B
142.000-122.0			B	0.381	2.102		0.8	1	22.576			
00			C	0.381	2.102		0.8	1	22.576			
T19	1.291	1.586	A	0.405	2.053	0.007	0.8	1	12.189	0.523	0.052	B
122.000-112.0			B	0.405	2.053		0.8	1	12.189			
00			C	0.405	2.053		0.8	1	12.189			
T20	1.299	1.590	A	0.383	2.098	0.007	0.8	1	11.751	0.519	0.052	B
112.000-102.0			B	0.383	2.098		0.8	1	11.751			
00			C	0.383	2.098		0.8	1	11.751			
T21	2.583	3.117	A	0.377	2.111	0.007	0.8	1	22.293	0.996	0.050	B
102.000-82.00			B	0.377	2.111		0.8	1	22.293			
0			C	0.377	2.111		0.8	1	22.293			
T22	2.517	2.931	A	0.371	2.123	0.006	0.8	1	21.871	0.934	0.047	B
82.000-62.000			B	0.371	2.123		0.8	1	21.871			
			C	0.371	2.123		0.8	1	21.871			
T23	2.433	3.038	A	0.368	2.131	0.006	0.8	1	21.657	0.860	0.043	B
62.000-42.000			B	0.368	2.131		0.8	1	21.657			
			C	0.368	2.131		0.8	1	21.657			
T24	2.315	2.827	A	0.359	2.151	0.005	0.8	1	21.007	0.758	0.038	B
42.000-22.000			B	0.359	2.151		0.8	1	21.007			
			C	0.359	2.151		0.8	1	21.007			
T25	1.471	2.794	A	0.359	2.151	0.005	0.8	1	21.035	0.489	0.024	B
22.000-2.000			B	0.359	2.151		0.8	1	21.035			
			C	0.359	2.151		0.8	1	21.035			
Sum Weight:	38.962	67.476								19.478		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.773	A	1	1.2	0.009	1	1	14.052	0.213	0.014	C
492.000-477.0			B	1	1.2		1	1	14.052			
00			C	1	1.2		1	1	14.052			
L2	0.000	1.030	A	1	1.2	0.009	1	1	18.720	0.281	0.014	C
477.000-457.0			B	1	1.2		1	1	18.720			
00			C	1	1.2		1	1	18.720			
T1	0.011	0.879	A	0.506	1.893	0.009	0.85	1	8.318	0.127	0.025	C
457.000-452.0			B	0.506	1.893		0.85	1	8.318			
00			C	0.506	1.893		0.85	1	8.318			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T2	0.044	1.354	A	0.412	2.04	0.009	0.85	1	12.565	0.220	0.022	C
452.000-442.0			B	0.412	2.04		0.85	1	12.565			
00			C	0.412	2.04		0.85	1	12.565			
T3	0.501	2.666	A	0.385	2.095	0.009	0.85	1	23.054	0.574	0.029	C
442.000-422.0			B	0.385	2.095		0.85	1	23.054			
00			C	0.385	2.095		0.85	1	23.054			
T4	0.740	2.500	A	0.382	2.101	0.009	0.85	1	22.834	0.654	0.033	C
422.000-402.0			B	0.382	2.101		0.85	1	22.834			
00			C	0.382	2.101		0.85	1	22.834			
T5	0.735	2.491	A	0.381	2.103	0.009	0.85	1	22.767	0.646	0.032	C
402.000-382.0			B	0.381	2.103		0.85	1	22.767			
00			C	0.381	2.103		0.85	1	22.767			
T6	0.730	2.640	A	0.382	2.101	0.009	0.85	1	22.850	0.639	0.032	C
382.000-362.0			B	0.382	2.101		0.85	1	22.850			
00			C	0.382	2.101		0.85	1	22.850			
T7	0.756	2.474	A	0.379	2.107	0.009	0.85	1	22.622	0.641	0.032	C
362.000-342.0			B	0.379	2.107		0.85	1	22.622			
00			C	0.379	2.107		0.85	1	22.622			
T8	0.855	2.464	A	0.378	2.11	0.009	0.85	1	22.544	0.675	0.034	C
342.000-322.0			B	0.378	2.11		0.85	1	22.544			
00			C	0.378	2.11		0.85	1	22.544			
T9	0.859	2.687	A	0.379	2.108	0.009	0.85	1	22.597	0.670	0.034	C
322.000-302.0			B	0.379	2.108		0.85	1	22.597			
00			C	0.379	2.108		0.85	1	22.597			
T10	0.971	2.656	A	0.382	2.101	0.008	0.85	1	22.899	0.707	0.035	C
302.000-282.0			B	0.382	2.101		0.85	1	22.899			
00			C	0.382	2.101		0.85	1	22.899			
T11	1.933	3.197	A	0.4	2.064	0.008	0.85	1	24.421	0.983	0.049	C
282.000-262.0			B	0.4	2.064		0.85	1	24.421			
00			C	0.4	2.064		0.85	1	24.421			
T12	2.253	3.022	A	0.388	2.089	0.008	0.85	1	23.387	1.048	0.052	B
262.000-242.0			B	0.388	2.089		0.85	1	23.387			
00			C	0.388	2.089		0.85	1	23.387			
T13	2.425	2.852	A	0.384	2.096	0.008	0.85	1	23.127	1.095	0.055	B
242.000-222.0			B	0.384	2.096		0.85	1	23.127			
00			C	0.384	2.096		0.85	1	23.127			
T14	2.412	3.563	A	0.404	2.057	0.008	0.85	1	24.779	1.087	0.054	B
222.000-202.0			B	0.404	2.057		0.85	1	24.779			
00			C	0.404	2.057		0.85	1	24.779			
T15	2.387	3.075	A	0.388	2.089	0.008	0.85	1	23.416	1.052	0.053	B
202.000-182.0			B	0.388	2.089		0.85	1	23.416			
00			C	0.388	2.089		0.85	1	23.416			
T16	2.387	3.058	A	0.386	2.093	0.008	0.85	1	23.278	1.033	0.052	B
182.000-162.0			B	0.386	2.093		0.85	1	23.278			
00			C	0.386	2.093		0.85	1	23.278			
T17	2.515	3.193	A	0.385	2.094	0.007	0.85	1	23.277	1.064	0.053	B
162.000-142.0			B	0.385	2.094		0.85	1	23.277			
00			C	0.385	2.094		0.85	1	23.277			
T18	2.540	3.018	A	0.381	2.102	0.007	0.85	1	22.953	1.047	0.052	B
142.000-122.0			B	0.381	2.102		0.85	1	22.953			
00			C	0.381	2.102		0.85	1	22.953			
T19	1.291	1.586	A	0.405	2.053	0.007	0.85	1	12.405	0.526	0.053	B
122.000-112.0			B	0.405	2.053		0.85	1	12.405			
00			C	0.405	2.053		0.85	1	12.405			
T20	1.299	1.590	A	0.383	2.098	0.007	0.85	1	12.059	0.523	0.052	B
112.000-102.0			B	0.383	2.098		0.85	1	12.059			
00			C	0.383	2.098		0.85	1	12.059			
T21	2.583	3.117	A	0.377	2.111	0.007	0.85	1	22.678	1.001	0.050	B
102.000-82.00			B	0.377	2.111		0.85	1	22.678			
0			C	0.377	2.111		0.85	1	22.678			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T22	2.517	2.931	A	0.371	2.123	0.006	0.85	1	22.249	0.939	0.047	B
82.000-62.000			B	0.371	2.123		0.85	1	22.249			
			C	0.371	2.123		0.85	1	22.249			
T23	2.433	3.038	A	0.368	2.131	0.006	0.85	1	22.042	0.864	0.043	B
62.000-42.000			B	0.368	2.131		0.85	1	22.042			
			C	0.368	2.131		0.85	1	22.042			
T24	2.315	2.827	A	0.359	2.151	0.005	0.85	1	21.384	0.762	0.038	B
42.000-22.000			B	0.359	2.151		0.85	1	21.384			
			C	0.359	2.151		0.85	1	21.384			
T25	1.471	2.794	A	0.359	2.151	0.005	0.85	1	21.443	0.493	0.025	B
22.000-2.000			B	0.359	2.151		0.85	1	21.443			
			C	0.359	2.151		0.85	1	21.443			
Sum Weight:	38.962	67.476								19.566		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.828	0.013	1	1	10.781	0.162	0.011	C
492.000-477.0			B	1	0.828		1	1	10.781			
00			C	1	0.828		1	1	10.781			
L2	0.000	0.713	A	1	0.831	0.013	1	1	14.375	0.215	0.011	C
477.000-457.0			B	1	0.831		1	1	14.375			
00			C	1	0.831		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.013	1	1	5.158	0.138	0.028	C
457.000-452.0			B	0.283	2.343		1	1	5.158			
00			C	0.283	2.343		1	1	5.158			
T2	0.002	0.643	A	0.194	2.615	0.013	1	1	6.538	0.199	0.020	C
452.000-442.0			B	0.194	2.615		1	1	6.538			
00			C	0.194	2.615		1	1	6.538			
T3	0.055	1.341	A	0.183	2.654	0.013	1	1	12.117	0.468	0.023	C
442.000-422.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T4	0.089	1.229	A	0.181	2.66	0.013	1	1	11.956	0.516	0.026	C
422.000-402.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T5	0.089	1.229	A	0.181	2.66	0.013	1	1	11.956	0.511	0.026	C
402.000-382.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T6	0.089	1.341	A	0.183	2.654	0.013	1	1	12.117	0.509	0.025	C
382.000-362.0			B	0.183	2.654		1	1	12.117			
00			C	0.183	2.654		1	1	12.117			
T7	0.091	1.229	A	0.181	2.66	0.013	1	1	11.956	0.505	0.025	C
362.000-342.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T8	0.098	1.229	A	0.181	2.66	0.012	1	1	11.956	0.516	0.026	C
342.000-322.0			B	0.181	2.66		1	1	11.956			
00			C	0.181	2.66		1	1	11.956			
T9	0.099	1.440	A	0.185	2.647	0.012	1	1	11.994	0.511	0.026	C
322.000-302.0			B	0.185	2.647		1	1	11.994			
00			C	0.185	2.647		1	1	11.994			
T10	0.113	1.419	A	0.19	2.631	0.012	1	1	12.401	0.535	0.027	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
302.000-282.0			B	0.19	2.631		1	1	12.401			
00			C	0.19	2.631		1	1	12.401			
T11	0.354	1.858	A	0.211	2.559	0.012	1	1	13.982	0.796	0.040	A
282.000-262.0			B	0.211	2.559		1	1	13.982			
00			C	0.211	2.559		1	1	13.982			
T12	0.422	1.742	A	0.2	2.596	0.012	1	1	13.009	0.831	0.042	A
262.000-242.0			B	0.2	2.596		1	1	13.009			
00			C	0.2	2.596		1	1	13.009			
T13	0.446	1.629	A	0.198	2.602	0.012	1	1	12.849	0.847	0.042	A
242.000-222.0			B	0.198	2.602		1	1	12.849			
00			C	0.198	2.602		1	1	12.849			
T14	0.447	2.201	A	0.221	2.527	0.011	1	1	14.591	0.866	0.043	A
222.000-202.0			B	0.221	2.527		1	1	14.591			
00			C	0.221	2.527		1	1	14.591			
T15	0.447	1.860	A	0.206	2.575	0.011	1	1	13.301	0.824	0.041	A
202.000-182.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T16	0.450	1.860	A	0.206	2.575	0.011	1	1	13.301	0.810	0.041	A
182.000-162.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T17	0.468	1.972	A	0.208	2.569	0.011	1	1	13.460	0.821	0.041	A
162.000-142.0			B	0.208	2.569		1	1	13.460			
00			C	0.208	2.569		1	1	13.460			
T18	0.474	1.860	A	0.206	2.575	0.010	1	1	13.301	0.804	0.040	A
142.000-122.0			B	0.206	2.575		1	1	13.301			
00			C	0.206	2.575		1	1	13.301			
T19	0.241	0.959	A	0.219	2.533	0.010	1	1	7.206	0.408	0.041	A
122.000-112.0			B	0.219	2.533		1	1	7.206			
00			C	0.219	2.533		1	1	7.206			
T20	0.243	1.060	A	0.219	2.533	0.010	1	1	7.210	0.403	0.040	A
112.000-102.0			B	0.219	2.533		1	1	7.210			
00			C	0.219	2.533		1	1	7.210			
T21	0.488	1.972	A	0.208	2.569	0.009	1	1	13.460	0.770	0.039	A
102.000-82.00			B	0.208	2.569		1	1	13.460			
0			C	0.208	2.569		1	1	13.460			
T22	0.488	1.860	A	0.206	2.575	0.009	1	1	13.301	0.710	0.036	A
82.000-62.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T23	0.488	1.972	A	0.208	2.569	0.008	1	1	13.460	0.666	0.033	A
62.000-42.000			B	0.208	2.569		1	1	13.460			
			C	0.208	2.569		1	1	13.460			
T24	0.488	1.860	A	0.206	2.575	0.008	1	1	13.301	0.599	0.030	A
42.000-22.000			B	0.206	2.575		1	1	13.301			
			C	0.206	2.575		1	1	13.301			
T25	0.342	1.889	A	0.214	2.551	0.006	1	1	13.940	0.422	0.021	A
22.000-2.000			B	0.214	2.551		1	1	13.940			
			C	0.214	2.551		1	1	13.940			
Sum Weight:	7.012	39.321								15.363		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.828	0.013	1	1	10.781	0.162	0.011	C
492.000-477.0			B	1	0.828		1	1	10.781			
00			C	1	0.828		1	1	10.781			
L2	0.000	0.713	A	1	0.831	0.013	1	1	14.375	0.215	0.011	C
477.000-457.0			B	1	0.831		1	1	14.375			
00			C	1	0.831		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.013	0.8	1	4.349	0.117	0.023	C
457.000-452.0			B	0.283	2.343		0.8	1	4.349			
00			C	0.283	2.343		0.8	1	4.349			
T2	0.002	0.643	A	0.194	2.615	0.013	0.8	1	5.661	0.173	0.017	C
452.000-442.0			B	0.194	2.615		0.8	1	5.661			
00			C	0.194	2.615		0.8	1	5.661			
T3	0.055	1.341	A	0.183	2.654	0.013	0.8	1	10.551	0.422	0.021	C
442.000-422.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T4	0.089	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.471	0.024	C
422.000-402.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T5	0.089	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.466	0.023	C
402.000-382.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T6	0.089	1.341	A	0.183	2.654	0.013	0.8	1	10.551	0.464	0.023	C
382.000-362.0			B	0.183	2.654		0.8	1	10.551			
00			C	0.183	2.654		0.8	1	10.551			
T7	0.091	1.229	A	0.181	2.66	0.013	0.8	1	10.422	0.461	0.023	C
362.000-342.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T8	0.098	1.229	A	0.181	2.66	0.012	0.8	1	10.422	0.473	0.024	C
342.000-322.0			B	0.181	2.66		0.8	1	10.422			
00			C	0.181	2.66		0.8	1	10.422			
T9	0.099	1.440	A	0.185	2.647	0.012	0.8	1	10.549	0.471	0.024	C
322.000-302.0			B	0.185	2.647		0.8	1	10.549			
00			C	0.185	2.647		0.8	1	10.549			
T10	0.113	1.419	A	0.19	2.631	0.012	0.8	1	10.875	0.493	0.025	C
302.000-282.0			B	0.19	2.631		0.8	1	10.875			
00			C	0.19	2.631		0.8	1	10.875			
T11	0.354	1.858	A	0.211	2.559	0.012	0.8	1	12.243	0.750	0.038	B
282.000-262.0			B	0.211	2.559		0.8	1	12.243			
00			C	0.211	2.559		0.8	1	12.243			
T12	0.422	1.742	A	0.2	2.596	0.012	0.8	1	11.461	0.791	0.040	B
262.000-242.0			B	0.2	2.596		0.8	1	11.461			
00			C	0.2	2.596		0.8	1	11.461			
T13	0.446	1.629	A	0.198	2.602	0.012	0.8	1	11.332	0.809	0.040	B
242.000-222.0			B	0.198	2.602		0.8	1	11.332			
00			C	0.198	2.602		0.8	1	11.332			
T14	0.447	2.201	A	0.221	2.527	0.011	0.8	1	12.830	0.824	0.041	B
222.000-202.0			B	0.221	2.527		0.8	1	12.830			
00			C	0.221	2.527		0.8	1	12.830			
T15	0.447	1.860	A	0.206	2.575	0.011	0.8	1	11.792	0.787	0.039	B
202.000-182.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T16	0.450	1.860	A	0.206	2.575	0.011	0.8	1	11.792	0.774	0.039	B
182.000-162.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			
T17	0.468	1.972	A	0.208	2.569	0.011	0.8	1	11.920	0.785	0.039	B
162.000-142.0			B	0.208	2.569		0.8	1	11.920			
00			C	0.208	2.569		0.8	1	11.920			
T18	0.474	1.860	A	0.206	2.575	0.010	0.8	1	11.792	0.770	0.039	B
142.000-122.0			B	0.206	2.575		0.8	1	11.792			
00			C	0.206	2.575		0.8	1	11.792			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
T19	0.241	0.959	A	0.219	2.533	0.010	0.8	1	6.343	0.389	0.039	B
122.000-112.0			B	0.219	2.533		0.8	1	6.343			
00			C	0.219	2.533		0.8	1	6.343			
T20	0.243	1.060	A	0.219	2.533	0.010	0.8	1	6.346	0.385	0.039	B
112.000-102.0			B	0.219	2.533		0.8	1	6.346			
00			C	0.219	2.533		0.8	1	6.346			
T21	0.488	1.972	A	0.208	2.569	0.009	0.8	1	11.920	0.738	0.037	B
102.000-82.00			B	0.208	2.569		0.8	1	11.920			
0			C	0.208	2.569		0.8	1	11.920			
T22	0.488	1.860	A	0.206	2.575	0.009	0.8	1	11.792	0.681	0.034	B
82.000-62.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T23	0.488	1.972	A	0.208	2.569	0.008	0.8	1	11.920	0.637	0.032	B
62.000-42.000			B	0.208	2.569		0.8	1	11.920			
			C	0.208	2.569		0.8	1	11.920			
T24	0.488	1.860	A	0.206	2.575	0.008	0.8	1	11.792	0.574	0.029	B
42.000-22.000			B	0.206	2.575		0.8	1	11.792			
			C	0.206	2.575		0.8	1	11.792			
T25	0.342	1.889	A	0.214	2.551	0.006	0.8	1	12.306	0.399	0.020	B
22.000-2.000			B	0.214	2.551		0.8	1	12.306			
			C	0.214	2.551		0.8	1	12.306			
Sum Weight:	7.012	39.321								14.483		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.000	0.535	A	1	0.828	0.013	1	1	10.781	0.162	0.011	C
492.000-477.0			B	1	0.828		1	1	10.781			
00			C	1	0.828		1	1	10.781			
L2	0.000	0.713	A	1	0.831	0.013	1	1	14.375	0.215	0.011	C
477.000-457.0			B	1	0.831		1	1	14.375			
00			C	1	0.831		1	1	14.375			
T1	0.000	0.418	A	0.283	2.343	0.013	0.85	1	4.551	0.122	0.024	C
457.000-452.0			B	0.283	2.343		0.85	1	4.551			
00			C	0.283	2.343		0.85	1	4.551			
T2	0.002	0.643	A	0.194	2.615	0.013	0.85	1	5.880	0.180	0.018	C
452.000-442.0			B	0.194	2.615		0.85	1	5.880			
00			C	0.194	2.615		0.85	1	5.880			
T3	0.055	1.341	A	0.183	2.654	0.013	0.85	1	10.943	0.433	0.022	C
442.000-422.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T4	0.089	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.482	0.024	C
422.000-402.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T5	0.089	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.477	0.024	C
402.000-382.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T6	0.089	1.341	A	0.183	2.654	0.013	0.85	1	10.943	0.475	0.024	C
382.000-362.0			B	0.183	2.654		0.85	1	10.943			
00			C	0.183	2.654		0.85	1	10.943			
T7	0.091	1.229	A	0.181	2.66	0.013	0.85	1	10.805	0.472	0.024	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
362.000-342.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T8	0.098	1.229	A	0.181	2.66	0.012	0.85	1	10.805	0.484	0.024	C
342.000-322.0			B	0.181	2.66		0.85	1	10.805			
00			C	0.181	2.66		0.85	1	10.805			
T9	0.099	1.440	A	0.185	2.647	0.012	0.85	1	10.910	0.481	0.024	C
322.000-302.0			B	0.185	2.647		0.85	1	10.910			
00			C	0.185	2.647		0.85	1	10.910			
T10	0.113	1.419	A	0.19	2.631	0.012	0.85	1	11.257	0.504	0.025	C
302.000-282.0			B	0.19	2.631		0.85	1	11.257			
00			C	0.19	2.631		0.85	1	11.257			
T11	0.354	1.858	A	0.211	2.559	0.012	0.85	1	12.678	0.768	0.038	C
282.000-262.0			B	0.211	2.559		0.85	1	12.678			
00			C	0.211	2.559		0.85	1	12.678			
T12	0.422	1.742	A	0.2	2.596	0.012	0.85	1	11.848	0.802	0.040	B
262.000-242.0			B	0.2	2.596		0.85	1	11.848			
00			C	0.2	2.596		0.85	1	11.848			
T13	0.446	1.629	A	0.198	2.602	0.012	0.85	1	11.711	0.824	0.041	B
242.000-222.0			B	0.198	2.602		0.85	1	11.711			
00			C	0.198	2.602		0.85	1	11.711			
T14	0.447	2.201	A	0.221	2.527	0.011	0.85	1	13.270	0.840	0.042	B
222.000-202.0			B	0.221	2.527		0.85	1	13.270			
00			C	0.221	2.527		0.85	1	13.270			
T15	0.447	1.860	A	0.206	2.575	0.011	0.85	1	12.169	0.802	0.040	B
202.000-182.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T16	0.450	1.860	A	0.206	2.575	0.011	0.85	1	12.169	0.790	0.040	B
182.000-162.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T17	0.468	1.972	A	0.208	2.569	0.011	0.85	1	12.305	0.807	0.040	B
162.000-142.0			B	0.208	2.569		0.85	1	12.305			
00			C	0.208	2.569		0.85	1	12.305			
T18	0.474	1.860	A	0.206	2.575	0.010	0.85	1	12.169	0.792	0.040	B
142.000-122.0			B	0.206	2.575		0.85	1	12.169			
00			C	0.206	2.575		0.85	1	12.169			
T19	0.241	0.959	A	0.219	2.533	0.010	0.85	1	6.559	0.400	0.040	B
122.000-112.0			B	0.219	2.533		0.85	1	6.559			
00			C	0.219	2.533		0.85	1	6.559			
T20	0.243	1.060	A	0.219	2.533	0.010	0.85	1	6.562	0.396	0.040	B
112.000-102.0			B	0.219	2.533		0.85	1	6.562			
00			C	0.219	2.533		0.85	1	6.562			
T21	0.488	1.972	A	0.208	2.569	0.009	0.85	1	12.305	0.758	0.038	B
102.000-82.00			B	0.208	2.569		0.85	1	12.305			
0			C	0.208	2.569		0.85	1	12.305			
T22	0.488	1.860	A	0.206	2.575	0.009	0.85	1	12.169	0.699	0.035	B
82.000-62.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T23	0.488	1.972	A	0.208	2.569	0.008	0.85	1	12.305	0.655	0.033	B
62.000-42.000			B	0.208	2.569		0.85	1	12.305			
			C	0.208	2.569		0.85	1	12.305			
T24	0.488	1.860	A	0.206	2.575	0.008	0.85	1	12.169	0.590	0.029	B
42.000-22.000			B	0.206	2.575		0.85	1	12.169			
			C	0.206	2.575		0.85	1	12.169			
T25	0.342	1.889	A	0.214	2.551	0.006	0.85	1	12.714	0.410	0.021	B
22.000-2.000			B	0.214	2.551		0.85	1	12.714			
			C	0.214	2.551		0.85	1	12.714			
Sum Weight:	7.012	39.321								14.823		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	28.245			
Bracing Weight	11.075			
Total Member Self-Weight	39.321			
Guy Weight	10.784			
Total Weight	65.550			
Wind 0 deg - No Ice		0.058	-67.542	-4.483
Wind 30 deg - No Ice		32.407	-55.995	-12.405
Wind 60 deg - No Ice		55.763	-32.166	-19.039
Wind 90 deg - No Ice		66.458	-0.051	-23.599
Wind 120 deg - No Ice		59.792	34.400	-18.223
Wind 150 deg - No Ice		33.323	57.785	-6.505
Wind 180 deg - No Ice		-0.111	64.255	4.481
Wind 210 deg - No Ice		-32.442	55.974	12.298
Wind 240 deg - No Ice		-58.686	33.828	19.014
Wind 270 deg - No Ice		-66.535	0.100	23.651
Wind 300 deg - No Ice		-57.027	-32.767	18.250
Wind 330 deg - No Ice		-33.443	-57.805	6.560
Member Ice	28.156			
Guy Ice	19.068			
Total Weight Ice	156.105			
Wind 0 deg - Ice		0.205	-23.399	-2.385
Wind 30 deg - Ice		11.628	-19.604	-4.930
Wind 60 deg - Ice		19.763	-11.405	-7.276
Wind 90 deg - Ice		23.118	-0.277	-8.276
Wind 120 deg - Ice		20.660	11.573	-6.222
Wind 150 deg - Ice		11.431	19.973	-1.503
Wind 180 deg - Ice		-0.042	22.726	2.702
Wind 210 deg - Ice		-11.294	19.673	5.563
Wind 240 deg - Ice		-20.215	11.552	7.599
Wind 270 deg - Ice		-23.065	-0.121	7.931
Wind 300 deg - Ice		-20.031	-11.511	5.582
Wind 330 deg - Ice		-11.657	-19.904	1.215
Total Weight	65.550			
Wind 0 deg - Service		0.016	-18.490	-1.220
Wind 30 deg - Service		8.874	-15.333	-3.377
Wind 60 deg - Service		15.270	-8.808	-5.183
Wind 90 deg - Service		18.195	-0.014	-6.424
Wind 120 deg - Service		16.367	9.416	-4.960
Wind 150 deg - Service		9.123	15.820	-1.771
Wind 180 deg - Service		-0.030	17.596	1.220
Wind 210 deg - Service		-8.883	15.327	3.348
Wind 240 deg - Service		-16.066	9.261	5.176
Wind 270 deg - Service		-18.216	0.027	6.438
Wind 300 deg - Service		-15.614	-8.972	4.968
Wind 330 deg - Service		-9.156	-15.826	1.786

Load Combinations

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

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 148 ft Elev -7 ft Azimuth 240 deg	Max. Vert	10	-13.168	-2.834	1.637
	Max. H_x	10	-13.168	-2.834	1.637
	Max. H_z	3	-108.948	-41.335	25.754
	Min. Vert	5	-110.336	-43.556	23.318
	Min. H_x	5	-110.336	-43.556	23.318
	Min. H_z	9	-17.169	-5.024	1.532
Guy B @ 146 ft Elev -4 ft Azimuth 120 deg	Max. Vert	6	-13.214	2.818	1.627
	Max. H_x	11	-111.048	43.552	23.313
	Max. H_z	13	-109.925	41.545	25.870
	Min. Vert	11	-111.048	43.552	23.313
	Min. H_x	6	-13.214	2.818	1.627

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_z	7	-17.246	4.997	1.525
Guy A @ 149 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-12.226	-0.000	-3.096
	Max. H_x	11	-61.369	2.844	-26.978
	Max. H_z	2	-12.226	-0.000	-3.096
	Min. Vert	8	-106.595	0.012	-49.083
	Min. H_x	5	-61.034	-2.839	-26.842
	Min. H_z	8	-106.595	0.012	-49.083
Guy C @ 117.5 ft Elev -5 ft Azimuth 240 deg	Max. Vert	10	-1.317	-0.535	0.308
	Max. H_x	10	-1.317	-0.535	0.308
	Max. H_z	3	-57.797	-40.680	24.228
	Min. Vert	5	-59.831	-42.680	23.920
	Min. H_x	5	-59.831	-42.680	23.920
	Min. H_z	10	-1.317	-0.535	0.308
Guy B @ 117.5 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-1.168	0.486	0.281
	Max. H_x	11	-58.036	42.633	23.912
	Max. H_z	13	-58.404	42.458	25.290
	Min. Vert	13	-58.404	42.458	25.290
	Min. H_x	6	-1.168	0.486	0.281
	Min. H_z	6	-1.168	0.486	0.281
Guy A @ 123 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-1.081	-0.000	-0.565
	Max. H_x	10	-47.861	0.994	-42.211
	Max. H_z	2	-1.081	-0.000	-0.565
	Min. Vert	7	-55.744	-0.645	-49.257
	Min. H_x	6	-49.164	-1.041	-43.453
	Min. H_z	7	-55.744	-0.645	-49.257
Mast	Max. Vert	6	384.152	3.357	1.664
	Max. H_x	6	384.152	3.357	1.664
	Max. H_z	6	384.152	3.357	1.664
	Max. M_x	1	0.000	0.001	-0.030
	Max. M_z	1	0.000	0.001	-0.030
	Max. Torsion	5	11.589	2.753	0.954
	Min. Vert	1	225.460	0.001	-0.030
	Min. H_x	10	380.372	-3.032	1.607
	Min. H_z	2	383.769	0.121	-3.747
	Min. M_x	1	0.000	0.001	-0.030
	Min. M_z	1	0.000	0.001	-0.030
	Min. Torsion	11	-11.302	-2.558	0.986

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	225.460	-0.001	0.030	0.000	0.000	-0.059
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	383.769	-0.121	3.747	0.000	0.000	-2.369
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	352.814	-0.467	2.766	0.000	0.000	-5.391
1.2 Dead+1.0 Wind 60 deg - No	311.676	-1.053	0.596	0.000	0.000	-9.684

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
Ice+1.0 Guy						
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	355.358	-2.753	-0.954	0.000	0.000	-11.589
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	384.152	-3.357	-1.664	0.000	0.000	-8.118
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	352.302	-2.191	-1.445	0.000	0.000	-2.406
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	308.715	0.035	-0.837	0.000	0.000	2.336
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	348.326	1.988	-1.362	0.000	0.000	5.059
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	380.372	3.032	-1.607	0.000	0.000	8.068
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	354.798	2.558	-0.986	0.000	0.000	11.302
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	312.712	0.960	0.518	0.000	0.000	9.170
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	356.488	0.299	2.876	0.000	0.000	2.098
1.2 Dead+1.0 Ice+1.0 Temp+Guy	335.896	0.015	0.093	0.000	0.000	-0.103
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	344.240	0.000	0.400	0.000	0.000	-1.477
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	347.693	-0.170	0.369	0.000	0.000	-2.554
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	350.351	-0.303	0.266	0.000	0.000	-3.980
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	347.837	-0.341	0.108	0.000	0.000	-4.767
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	344.296	-0.270	-0.026	0.000	0.000	-3.437
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	347.680	-0.148	-0.145	0.000	0.000	-0.655
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	350.093	0.028	-0.192	0.000	0.000	1.335
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	347.404	0.181	-0.141	0.000	0.000	2.574
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	343.852	0.277	-0.024	0.000	0.000	3.941
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	347.788	0.350	0.090	0.000	0.000	4.426
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	350.607	0.313	0.246	0.000	0.000	2.925
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	347.976	0.171	0.368	0.000	0.000	0.284
Dead+Wind 0 deg - Service+Guy	227.432	-0.011	0.010	0.000	0.000	-0.819
Dead+Wind 30 deg - Service+Guy	227.958	-0.032	0.035	0.000	0.000	-1.907
Dead+Wind 60 deg - Service+Guy	228.555	-0.051	0.045	0.000	0.000	-3.065
Dead+Wind 90 deg - Service+Guy	228.287	-0.044	0.040	0.000	0.000	-3.964
Dead+Wind 120 deg - Service+Guy	227.943	-0.011	0.046	0.000	0.000	-2.972
Dead+Wind 150 deg - Service+Guy	228.647	-0.007	0.034	0.000	0.000	-0.920
Dead+Wind 180 deg - Service+Guy	229.174	0.008	0.020	0.000	0.000	0.692
Dead+Wind 210 deg - Service+Guy	228.724	0.021	0.024	0.000	0.000	1.761

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
Dead+Wind 240 deg - Service+Guy	228.122	0.017	0.034	0.000	0.000	2.937
Dead+Wind 270 deg - Service+Guy	228.575	0.039	0.027	0.000	0.000	3.842
Dead+Wind 300 deg - Service+Guy	228.862	0.036	0.031	0.000	0.000	2.851
Dead+Wind 330 deg - Service+Guy	228.176	0.011	0.026	0.000	0.000	0.813

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-65.547	0.000	0.000	65.547	-0.013	0.020%
2	0.059	-76.685	-83.778	-0.059	76.684	83.706	0.063%
3	40.554	-76.494	-70.057	-40.562	76.493	69.999	0.053%
4	69.898	-76.306	-40.291	-69.871	76.306	40.260	0.037%
5	82.787	-76.522	-0.050	-82.741	76.522	0.085	0.052%
6	73.930	-76.733	42.525	-73.869	76.732	-42.491	0.061%
7	41.471	-76.529	71.846	-41.418	76.528	-71.827	0.049%
8	-0.112	-76.316	80.491	0.103	76.315	-80.454	0.035%
9	-40.590	-76.507	70.037	40.539	76.506	-70.017	0.049%
10	-72.821	-76.695	41.953	72.760	76.693	-41.919	0.061%
11	-82.864	-76.479	0.098	82.818	76.478	-0.063	0.052%
12	-71.165	-76.268	-40.893	71.131	76.268	40.867	0.037%
13	-41.591	-76.473	-71.866	41.600	76.472	71.808	0.052%
14	0.000	-167.051	0.000	-0.009	167.051	-0.037	0.023%
15	0.208	-167.195	-34.457	-0.204	167.195	34.465	0.005%
16	17.185	-167.045	-29.190	-17.172	167.045	29.185	0.008%
17	29.405	-166.901	-16.945	-29.392	166.901	16.936	0.009%
18	34.256	-167.065	-0.277	-34.246	167.065	0.268	0.008%
19	30.302	-167.226	17.110	-30.304	167.226	-17.121	0.007%
20	16.986	-167.071	29.556	-16.988	167.071	-29.543	0.007%
21	-0.045	-166.911	33.793	0.043	166.911	-33.779	0.008%
22	-16.851	-167.057	29.260	16.850	167.057	-29.247	0.007%
23	-29.857	-167.201	17.093	29.857	167.201	-17.104	0.006%
24	-34.203	-167.037	-0.121	34.192	167.037	0.113	0.008%
25	-29.673	-166.876	-17.048	29.659	166.876	17.040	0.009%
26	-17.211	-167.031	-29.487	17.198	167.031	29.482	0.008%
27	0.016	-65.596	-22.914	-0.017	65.596	22.906	0.012%
28	11.092	-65.546	-19.161	-11.085	65.546	19.156	0.012%
29	19.117	-65.495	-11.020	-19.110	65.495	11.015	0.013%
30	22.640	-65.553	-0.014	-22.632	65.553	0.010	0.012%
31	20.211	-65.613	11.626	-20.204	65.613	-11.622	0.011%
32	11.341	-65.555	19.648	-11.340	65.555	-19.640	0.011%
33	-0.031	-65.497	22.015	0.030	65.497	-22.008	0.011%
34	-11.101	-65.549	19.155	11.100	65.549	-19.148	0.011%
35	-19.910	-65.602	11.471	19.903	65.602	-11.468	0.012%
36	-22.661	-65.542	0.027	22.653	65.542	-0.030	0.012%
37	-19.462	-65.484	-11.184	19.455	65.484	11.179	0.013%
38	-11.374	-65.540	-19.653	11.367	65.540	19.648	0.012%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	22	0.00020000	0.00001044
2	Yes	158	0.00019683	0.00007239
3	Yes	144	0.00019791	0.00006348
4	Yes	66	0.00019246	0.00006473
5	Yes	136	0.00019610	0.00006374
6	Yes	150	0.00019691	0.00007177
7	Yes	135	0.00019877	0.00006058
8	Yes	62	0.00019847	0.00005967
9	Yes	141	0.00019538	0.00006063
10	Yes	154	0.00019604	0.00007218
11	Yes	139	0.00019596	0.00006406
12	Yes	65	0.00019767	0.00006697
13	Yes	142	0.00019593	0.00006215
14	Yes	16	0.00020000	0.00002753
15	Yes	38	0.00019866	0.00001627
16	Yes	79	0.00019565	0.00002000
17	Yes	86	0.00019846	0.00002298
18	Yes	80	0.00019463	0.00002025
19	Yes	42	0.00019824	0.00001507
20	Yes	76	0.00019769	0.00001829
21	Yes	84	0.00019687	0.00002047
22	Yes	76	0.00019731	0.00001889
23	Yes	33	0.00019486	0.00001638
24	Yes	80	0.00019249	0.00002026
25	Yes	86	0.00019897	0.00002301
26	Yes	79	0.00019683	0.00001996
27	Yes	28	0.00019520	0.00001917
28	Yes	41	0.00019608	0.00001845
29	Yes	46	0.00019885	0.00001959
30	Yes	40	0.00019540	0.00001849
31	Yes	28	0.00019061	0.00001938
32	Yes	41	0.00019050	0.00001648
33	Yes	47	0.00019284	0.00001697
34	Yes	42	0.00019053	0.00001678
35	Yes	30	0.00019629	0.00001904
36	Yes	41	0.00019695	0.00001899
37	Yes	47	0.00019419	0.00001935
38	Yes	41	0.00019887	0.00001870

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	492 - 477	7.811	37	0.4469	0.8574
L2	477 - 457	6.433	37	0.4161	0.8574
T1	457 - 452	5.190	37	0.0948	0.8450
T2	452 - 442	5.090	37	0.0922	0.8427
T3	442 - 422	4.901	37	0.0825	0.8362
T4	422 - 402	4.568	37	0.0779	0.8479
T5	402 - 382	4.249	37	0.0703	0.8454
T6	382 - 362	3.980	37	0.0486	0.8464
T7	362 - 342	3.806	37	0.0391	0.8729
T8	342 - 322	3.652	37	0.0334	0.8631
T9	322 - 302	3.528	37	0.0181	0.8780
T10	302 - 282	3.474	37	0.0194	0.8802

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T11	282 - 262	3.376	37	0.0304	0.8989
T12	262 - 242	3.226	37	0.0312	0.8716
T13	242 - 222	3.108	29	0.0347	0.8854
T14	222 - 202	2.972	29	0.0337	0.8300
T15	202 - 182	2.874	30	0.0246	0.8349
T16	182 - 162	2.797	30	0.0346	0.7781
T17	162 - 142	2.629	30	0.0543	0.7525
T18	142 - 122	2.368	30	0.0692	0.6760
T19	122 - 112	2.041	30	0.0828	0.6312
T20	112 - 102	1.859	27	0.0850	0.5655
T21	102 - 82	1.686	27	0.0823	0.5761
T22	82 - 62	1.373	27	0.0803	0.4548
T23	62 - 42	1.036	27	0.0816	0.3912
T24	42 - 22	0.690	27	0.0788	0.2453
T25	22 - 2	0.369	27	0.0787	0.1707

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
490.000	Beacon (.075k 2.250CAAA)	37	7.621	0.4525	0.8577	29251
471.000	2 Bay FM Antenna	37	5.946	0.3173	0.8544	5301
453.000	3' Yagi(.03k,2.08CAAA)	37	5.107	0.0913	0.8432	13733
442.000	Guy	37	4.901	0.0825	0.8362	44268
435.000	6' Grid Dish	37	4.776	0.0771	0.8316	53778
382.000	Guy	37	3.980	0.0486	0.8464	37822
358.000	Obstruction Light(.01k,.8CAAA)	37	3.775	0.0385	0.8691	402961
351.000	3' Dish w/ Radomes	37	3.721	0.0371	0.8505	382381
339.000	3' Grid Dish	37	3.629	0.0313	0.8604	121643
322.000	Guy	37	3.528	0.0181	0.8780	41195
302.000	6' Omni	37	3.474	0.0194	0.8802	67328
300.000	Kathrein CA5-FM/CP/RM	37	3.468	0.0205	0.8798	62094
280.000	KRY 112 89/4	37	3.362	0.0309	0.8982	84106
262.000	Guy	37	3.226	0.0312	0.8716	74164
257.000	SM 408-3	37	3.193	0.0317	0.8625	117770
247.000	8' Grid Dish (140lbs 20.1CaAa)	29	3.136	0.0336	0.8846	94538
239.000	8' Grid Dish (140lbs 20.1CaAa)	29	3.089	0.0352	0.8785	71041
237.000	Beacon (.075k 2.250CAAA)	29	3.076	0.0354	0.8714	91308
210.000	Guy	29	2.906	0.0273	0.8284	88485
165.000	Sector Frames	30	2.660	0.0515	0.7581	50003
154.000	Guy	30	2.534	0.0606	0.7125	60631
138.000	10' Dipole	30	2.308	0.0722	0.6557	73740
125.000	10' Dipole	30	2.094	0.0812	0.6439	65980
124.000	Beacon (.075k 2.250CAAA)	30	2.076	0.0818	0.6407	66266
116.000	Obstruction Light(.01k,.8CAAA)	30	1.930	0.0848	0.5867	139204
108.000	10' Dipole	27	1.789	0.0842	0.5662	105237
102.000	Guy	27	1.686	0.0823	0.5761	54968
46.000	Guy	27	0.757	0.0794	0.2615	109615

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	492 - 477	45.767	10	1.4326	2.3212
L2	477 - 457	41.388	2	1.3399	2.3213
T1	457 - 452	37.355	2	0.4132	2.2763
T2	452 - 442	36.961	2	0.4055	2.2677
T3	442 - 422	36.201	2	0.3768	2.2478
T4	422 - 402	34.807	2	0.3716	2.2813
T5	402 - 382	33.407	2	0.3530	2.2786
T6	382 - 362	32.148	2	0.2753	2.2818
T7	362 - 342	31.229	2	0.2391	2.3363
T8	342 - 322	30.361	2	0.2154	2.3432
T9	322 - 302	29.599	2	0.1540	2.3645
T10	302 - 282	29.105	2	0.1563	2.4246
T11	282 - 262	28.422	2	0.1994	2.4599
T12	262 - 242	27.527	2	0.2049	2.4258
T13	242 - 222	26.705	6	0.2316	2.4292
T14	222 - 202	25.805	6	0.2505	2.3244
T15	202 - 182	24.907	6	0.2418	2.3042
T16	182 - 162	23.914	6	0.3204	2.2019
T17	162 - 142	22.374	6	0.4439	2.0960
T18	142 - 122	20.269	6	0.5508	1.9328
T19	122 - 112	17.700	6	0.6485	1.7708
T20	112 - 102	16.266	6	0.6764	1.6209
T21	102 - 82	14.805	6	0.6815	1.6041
T22	82 - 62	11.957	6	0.6957	1.3245
T23	62 - 42	8.982	6	0.7111	1.0869
T24	42 - 22	5.993	6	0.6920	0.7195
T25	22 - 2	3.156	6	0.6831	0.4386

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
490.000	Beacon (.075k 2.250CAAA)	10	45.161	1.4481	2.3224	9826
471.000	2 Bay FM Antenna	2	39.847	1.0546	2.3105	1817
453.000	3' Yagi(.03k,2.08CAAA)	2	37.031	0.4029	2.2694	4748
442.000	Guy	2	36.201	0.3768	2.2478	15436
435.000	6' Grid Dish	2	35.693	0.3628	2.2468	19514
382.000	Guy	2	32.148	0.2753	2.2818	10116
358.000	Obstruction Light(.01k,.8CAAA)	2	31.057	0.2362	2.3355	130688
351.000	3' Dish w/ Radomes	2	30.752	0.2304	2.3154	99346
339.000	3' Grid Dish	2	30.233	0.2071	2.3396	30752
322.000	Guy	2	29.599	0.1540	2.3645	10748
302.000	6' Omni	2	29.105	0.1563	2.4246	16319
300.000	Kathrein CA5-FM/CP/RM	2	29.051	0.1603	2.4278	15090
280.000	KRY 112 89/4	2	28.337	0.2015	2.4591	19672
262.000	Guy	2	27.527	0.2049	2.4258	18950
257.000	SM 408-3	2	27.317	0.2089	2.4083	30056
247.000	8' Grid Dish (140lbs 20.1CaAa)	2	26.903	0.2232	2.4331	17390
239.000	8' Grid Dish (140lbs 20.1CaAa)	6	26.585	0.2365	2.4150	13337
237.000	Beacon (.075k 2.250CAAA)	6	26.500	0.2395	2.4014	15634
210.000	Guy	6	25.260	0.2409	2.3019	22395
165.000	Sector Frames	6	22.644	0.4257	2.1134	8211
154.000	Guy	6	21.593	0.4887	2.0106	9249
138.000	10' Dipole	6	19.790	0.5715	1.8876	10848
125.000	10' Dipole	6	18.113	0.6362	1.8046	11083
124.000	Beacon (.075k 2.250CAAA)	6	17.977	0.6405	1.7950	11202

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
116.000	Obstruction Light(.01k,.8CAAA)	6	16.847	0.6682	1.6718	20086
108.000	10' Dipole	6	15.680	0.6802	1.6081	28633
102.000	Guy	6	14.805	0.6815	1.6041	14936
46.000	Guy	6	6.579	0.6875	0.7756	22321

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	457	Diagonal	A325N	0.6250	1	1.788	9.914	0.180 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.000	13.806	0.000 ✔	1	Bolt Shear
T2	452	Diagonal	A325N	0.6250	1	2.352	10.500	0.224 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.291	7.875	0.037 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.814	7.875	0.103 ✔	1	Member Block Shear
T3	442	Diagonal	A325N	0.6250	1	1.157	10.500	0.110 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.405	7.875	0.051 ✔	1	Member Block Shear
		Top Guy Pull-Off@442	A325N	0.7500	2	2.940	32.477	0.091 ✔	1	Member Block Shear
T4	422	Diagonal	A325N	0.6250	1	2.046	10.500	0.195 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.514	7.875	0.065 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.240	7.875	0.031 ✔	1	Member Block Shear
T5	402	Diagonal	A325N	0.6250	1	3.635	10.500	0.346 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.838	7.875	0.106 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.248	7.875	0.032 ✔	1	Member Block Shear
T6	382	Diagonal	A325N	0.6250	1	1.994	10.500	0.190 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	0.935	7.875	0.119 ✔	1	Member Block Shear
		Top Guy Pull-Off@382	A325N	0.7500	2	3.485	32.477	0.107 ✔	1	Member Block Shear
T7	362	Diagonal	A325N	0.6250	1	1.770	13.806	0.128 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	0.860	7.875	0.109 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.323	7.875	0.041 ✔	1	Member Block Shear
T8	342	Diagonal	A325N	0.6250	1	2.539	10.500	0.242 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1.099	7.875	0.140 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.333	7.875	0.042 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T9	322	Diagonal	A325N	0.6250	1	3.368	6.855	0.491 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1.137	7.875	0.144 ✔	1	Member Block Shear
		Top Guy Pull-Off@322	A325N	0.7500	2	3.484	32.477	0.107 ✔	1	Member Block Shear
T10	302	Diagonal	A325N	0.6250	1	2.265	13.806	0.164 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.182	7.875	0.150 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.569	7.875	0.072 ✔	1	Member Block Shear
T11	282	Diagonal	A325N	0.6250	1	6.707	13.806	0.486 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.476	7.875	0.187 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.319	7.875	0.167 ✔	1	Member Block Shear
T12	262	Diagonal	A325N	0.6250	1	4.003	10.500	0.381 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1.552	7.875	0.197 ✔	1	Member Block Shear
		Top Guy Pull-Off@262	A325N	0.7500	2	4.948	32.477	0.152 ✔	1	Member Block Shear
T13	242	Diagonal	A325N	0.6250	1	4.898	13.806	0.355 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.534	7.875	0.195 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.762	7.875	0.097 ✔	1	Member Block Shear
T14	222	Diagonal	A325N	0.6250	1	8.249	13.806	0.598 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	1.943	7.875	0.247 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.828	7.875	0.105 ✔	1	Member Block Shear
		Top Guy Pull-Off@210	A325N	0.7500	2	5.501	32.477	0.169 ✔	1	Member Block Shear
T15	202	Diagonal	A325N	0.6250	1	7.462	13.806	0.541 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.186	7.875	0.278 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.038	7.875	0.132 ✔	1	Member Block Shear
T16	182	Diagonal	A325N	0.6250	1	5.556	13.806	0.402 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.438	7.875	0.310 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.035	7.875	0.131 ✔	1	Member Block Shear
T17	162	Diagonal	A325N	0.6250	1	7.545	13.806	0.547 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.394	7.875	0.304 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.527	7.875	0.194 ✔	1	Member Block Shear
		Top Guy Pull-Off@154	A325N	0.7500	2	3.359	32.477	0.103 ✔	1	Member Block Shear
T18	142	Diagonal	A325N	0.6250	1	6.396	13.806	0.463 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.380	7.875	0.302 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.086	7.875	0.138 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T19	122	Diagonal	A325N	0.6250	1	7.785	13.806	0.564 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.207	7.875	0.280 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.151	7.875	0.146 ✔	1	Member Block Shear
T20	112	Diagonal	A325N	0.6250	1	9.036	13.806	0.655 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.106	7.875	0.267 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.173	7.875	0.149 ✔	1	Member Block Shear
T21	102	Diagonal	A325N	0.6250	1	6.410	13.806	0.464 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.198	7.875	0.279 ✔	1	Member Block Shear
		Top Guy Pull-Off@102	A325N	0.7500	2	4.254	32.477	0.131 ✔	1	Member Block Shear
T22	82	Diagonal	A325N	0.6250	1	6.340	13.806	0.459 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.227	7.875	0.283 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.041	7.875	0.132 ✔	1	Member Block Shear
T23	62	Diagonal	A325N	0.6250	1	8.330	13.806	0.603 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.407	7.875	0.306 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	1.016	7.875	0.129 ✔	1	Member Block Shear
		Top Guy Pull-Off@46	A325N	0.7500	2	3.031	32.477	0.093 ✔	1	Member Block Shear
T24	42	Diagonal	A325N	0.6250	1	8.122	13.806	0.588 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.360	7.875	0.300 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.955	7.875	0.121 ✔	1	Member Block Shear
T25	22	Diagonal	A325N	0.6250	1	6.643	13.806	0.481 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	2.262	7.875	0.287 ✔	1	Member Block Shear
		Top Girt	A325N	0.6250	1	0.998	7.875	0.127 ✔	1	Member Block Shear

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T3	442.000 (A) (776)	1 BS	12.200	122.000	32.171	73.200	1.000	2.275 ✔
	442.000 (B) (775)	1 BS	12.200	122.000	32.763	73.200	1.000	2.234 ✔
	442.000 (C) (774)	1 BS	12.200	122.000	32.637	73.200	1.000	2.243 ✔
T6	382.000 (A) (779)	1 BS	12.200	122.000	32.272	73.200	1.000	2.268 ✔

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	382.000 (B) (778)	1 BS	12.200	122.000	33.237	73.200	1.000	2.202 ✔
	382.000 (C) (777)	1 BS	12.200	122.000	32.980	73.200	1.000	2.220 ✔
T9	322.000 (A) (782)	7/8 BS	9.200	92.000	26.398	55.200	1.000	2.091 ✔
	322.000 (B) (781)	7/8 BS	9.200	92.000	27.582	55.200	1.000	2.001 ✔
	322.000 (C) (780)	7/8 BS	9.200	92.000	27.407	55.200	1.000	2.014 ✔
T12	262.000 (A) (785)	7/8 BS	9.200	92.000	31.118	55.200	1.000	1.774 ✔
	262.000 (B) (784)	7/8 BS	9.200	92.000	32.299	55.200	1.000	1.709 ✔
	262.000 (C) (783)	7/8 BS	9.200	92.000	32.535	55.200	1.000	1.697 ✔
T14	210.000 (A) (788)	7/8 BS	9.200	92.000	34.207	55.200	1.000	1.614 ✔
	210.000 (B) (787)	7/8 BS	9.200	92.000	35.404	55.200	1.000	1.559 ✔
	210.000 (C) (786)	7/8 BS	9.200	92.000	35.630	55.200	1.000	1.549 ✔
T17	154.000 (A) (791)	9/16 EHS	3.500	35.000	16.110	21.000	1.000	1.304 ✔
	154.000 (B) (790)	9/16 EHS	3.500	35.000	16.511	21.000	1.000	1.272 ✔
	154.000 (C) (789)	9/16 EHS	3.500	35.000	16.658	21.000	1.000	1.261 ✔
T21	102.000 (A) (794)	9/16 EHS	3.500	35.000	16.905	21.000	1.000	1.242 ✔
	102.000 (B) (793)	9/16 EHS	3.500	35.000	17.294	21.000	1.000	1.214 ✔
	102.000 (C) (792)	9/16 EHS	3.500	35.000	17.427	21.000	1.000	1.205 ✔
T23	46.000 (A) (797)	1/2 EHS	2.690	26.900	9.635	16.140	1.000	1.675 ✔
	46.000 (B) (796)	1/2 EHS	2.690	26.900	9.878	16.140	1.000	1.634 ✔
	46.000 (C) (795)	1/2 EHS	2.690	26.900	9.984	16.140	1.000	1.617 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	492 - 477 (1)	P8x.406	15.000	35.000	144.4	10.4832	-0.720	113.643	0.006
L2	477 - 457 (2)	P8x.406	20.000	35.000	144.4	10.4832	-1.638	113.643	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	492 - 477 (1)	P8x.406	5.284	72.052	0.073	0.000	72.052	0.000
L2	477 - 457 (2)	P8x.406	27.352	72.052	0.380	0.000	72.052	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	492 - 477 (1)	P8x.406	0.691	99.067	0.007	0.000	71.586	0.000
L2	477 - 457 (2)	P8x.406	1.451	99.067	0.015	0.384	71.586	0.005

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	492 - 477 (1)	0.006	0.073	0.000	0.007	0.000	0.080 ✔	1.000	4.8.2 ✔
L2	477 - 457 (2)	0.014	0.380	0.000	0.015	0.005	0.394 ✔	1.000	4.8.2 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 452	2 1/4	5.000	5.000	106.7 K=1.00	3.9761	1.00	-7.837	77.870	0.101 [1]
T2	452 - 442	2 1/4	10.000	3.333	71.1 K=1.00	3.9761	1.00	-16.787	123.621	0.136 [1]
T3	442 - 422	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-23.369	105.060	0.222 [1]
T4	422 - 402	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-29.666	105.060	0.282 [1]
T5	402 - 382	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-48.369	105.060	0.460 [1]
T6	382 - 362	2 1/4	20.000	4.000	85.3 K=1.00	3.9761	1.00	-53.975	105.060	0.514 [1]
T7	362 - 342	2 1/4	20.000	4.000	85.3	3.9761	1.00	-49.660	105.060	0.473 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	342 - 322	2 1/4	20.000	4.000	K=1.00 85.3	3.9761	1.00	-63.432	105.060	0.604 [1]
T9	322 - 302	2 1/2	20.000	4.000	K=1.00 76.8	4.9087	1.00	-65.638	143.512	0.457 [1]
T10	302 - 282	2 1/2	20.000	4.000	K=1.00 76.8	4.9087	1.00	-68.222	143.512	0.475 [1]
T11	282 - 262	2 3/4	20.000	4.000	K=1.00 69.8	5.9396	1.00	-72.502	187.145	0.387 [1]
T12	262 - 242	2 3/4	20.000	4.000	K=1.00 69.8	5.9396	1.00	-88.770	187.145	0.474 [1]
T13	242 - 222	2 3/4	20.000	4.000	K=1.00 69.8	5.9396	1.00	-88.576	187.145	0.473 [1]
T14	222 - 202	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-112.190	235.765	0.476 [1]
T15	202 - 182	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-126.183	235.765	0.535 [1]
T16	182 - 162	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-135.004	235.765	0.573 [1]
T17	162 - 142	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-138.208	235.765	0.586 [1]
T18	142 - 122	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-137.418	235.765	0.583 [1]
T19	122 - 112	3	10.000	3.333	K=1.00 53.3	7.0686	1.00	-127.409	258.358	0.493 [1]
T20	112 - 102	3	10.000	3.333	K=1.00 53.3	7.0686	1.00	-121.613	258.358	0.471 [1]
T21	102 - 82	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-126.922	235.765	0.538 [1]
T22	82 - 62	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-128.590	235.765	0.545 [1]
T23	62 - 42	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-138.956	235.765	0.589 [1]
T24	42 - 22	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-136.263	235.765	0.578 [1]
T25	22 - 2	3	20.000	4.000	K=1.00 64.0	7.0686	1.00	-130.589	235.765	0.554 [1]
					K=1.00					

[1] $P_u / \phi P_n$ controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	457 - 452	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T2	452 - 442	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T3	442 - 422	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T4	422 - 402	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T5	402 - 382	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T6	382 - 362	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T7	362 - 342	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T8	342 - 322	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T9	322 - 302	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T10	302 - 282	2 1/2	0.000	9.766	0.000	0.000	9.766	0.000
T11	282 - 262	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T12	262 - 242	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T13	242 - 222	2 3/4	0.000	12.998	0.000	0.000	12.998	0.000
T14	222 - 202	3	0.000	16.875	0.000	0.000	16.875	0.000
T15	202 - 182	3	0.000	16.875	0.000	0.000	16.875	0.000
T16	182 - 162	3	0.000	16.875	0.000	0.000	16.875	0.000
T17	162 - 142	3	0.000	16.875	0.000	0.000	16.875	0.000
T18	142 - 122	3	0.000	16.875	0.000	0.000	16.875	0.000
T19	122 - 112	3	0.000	16.875	0.000	0.000	16.875	0.000
T20	112 - 102	3	0.000	16.875	0.000	0.000	16.875	0.000
T21	102 - 82	3	0.000	16.875	0.000	0.000	16.875	0.000
T22	82 - 62	3	0.000	16.875	0.000	0.000	16.875	0.000
T23	62 - 42	3	0.000	16.875	0.000	0.000	16.875	0.000
T24	42 - 22	3	0.000	16.875	0.000	0.000	16.875	0.000
T25	22 - 2	3	0.000	16.875	0.000	0.000	16.875	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	457 - 452	2 1/4	0.101	0.000	0.000	0.101 [1] ✔	1.000	4.8.1 ✔
T2	452 - 442	2 1/4	0.136	0.000	0.000	0.136 [1] ✔	1.000	4.8.1 ✔
T3	442 - 422	2 1/4	0.222	0.000	0.000	0.222 [1] ✔	1.000	4.8.1 ✔
T4	422 - 402	2 1/4	0.282	0.000	0.000	0.282 [1] ✔	1.000	4.8.1 ✔
T5	402 - 382	2 1/4	0.460	0.000	0.000	0.460 [1] ✔	1.000	4.8.1 ✔
T6	382 - 362	2 1/4	0.514	0.000	0.000	0.514 [1] ✔	1.000	4.8.1 ✔
T7	362 - 342	2 1/4	0.473	0.000	0.000	0.473 [1] ✔	1.000	4.8.1 ✔
T8	342 - 322	2 1/4	0.604	0.000	0.000	0.604 [1] ✔	1.000	4.8.1 ✔
T9	322 - 302	2 1/2	0.457	0.000	0.000	0.457 [1] ✔	1.000	4.8.1 ✔
T10	302 - 282	2 1/2	0.475	0.000	0.000	0.475 [1] ✔	1.000	4.8.1 ✔
T11	282 - 262	2 3/4	0.387	0.000	0.000	0.387 [1] ✔	1.000	4.8.1 ✔
T12	262 - 242	2 3/4	0.474	0.000	0.000	0.474 [1] ✔	1.000	4.8.1 ✔
T13	242 - 222	2 3/4	0.473	0.000	0.000	0.473 [1] ✔	1.000	4.8.1 ✔
T14	222 - 202	3	0.476	0.000	0.000	0.476 [1] ✔	1.000	4.8.1 ✔
T15	202 - 182	3	0.535	0.000	0.000	0.535 [1] ✔	1.000	4.8.1 ✔
T16	182 - 162	3	0.573	0.000	0.000	0.573 [1]	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T17	162 - 142	3	0.586	0.000	0.000	0.586 [1]	1.000	4.8.1
T18	142 - 122	3	0.583	0.000	0.000	0.583 [1]	1.000	4.8.1
T19	122 - 112	3	0.493	0.000	0.000	0.493 [1]	1.000	4.8.1
T20	112 - 102	3	0.471	0.000	0.000	0.471 [1]	1.000	4.8.1
T21	102 - 82	3	0.538	0.000	0.000	0.538 [1]	1.000	4.8.1
T22	82 - 62	3	0.545	0.000	0.000	0.545 [1]	1.000	4.8.1
T23	62 - 42	3	0.589	0.000	0.000	0.589 [1]	1.000	4.8.1
T24	42 - 22	3	0.578	0.000	0.000	0.578 [1]	1.000	4.8.1
T25	22 - 2	3	0.554	0.000	0.000	0.554 [1]	1.000	4.8.1

[1] P_u / ϕP_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	457 - 452	L2 1/2x2x3/16	5.385	4.841	136.0 K=1.00	0.8090	-1.957	12.510	0.156 [1]
T2	452 - 442	L2x2x1/4	5.207	4.671	143.4 K=1.00	0.9380	-2.459	13.063	0.188 [1]
T3	442 - 422	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-1.374	10.958	0.125 [1]
T4	422 - 402	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-2.309	10.958	0.211 [1]
T5	402 - 382	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-4.078	10.958	0.372 [1]
T6	382 - 362	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-2.423	10.958	0.221 [1]
T7	362 - 342	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-1.770	10.958	0.162 [1]
T8	342 - 322	L2x2x1/4	5.657	5.100	156.5 K=1.00	0.9380	-3.199	10.958	0.292 [1]
T9	322 - 302	L1 3/4x1 3/4x3/16	5.657	5.071	177.2 K=1.00	0.6211	-3.997	5.664	0.706 [1]
T10	302 - 282	L2x2x1/4	5.657	5.071	155.6 K=1.00	0.9380	-2.265	11.086	0.204 [1]
T11	282 - 262	L2 1/2x2 1/2x3/8	5.657	5.041	124.2 K=1.00	1.7300	-6.707	32.063	0.209 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	262 - 242	L2x2x1/4	5.657	5.041	154.7 K=1.00	0.9380	-5.256	11.216	0.469 [1] ✔
T13	242 - 222	L2x2x1/4	5.657	5.041	154.7 K=1.00	0.9380	-4.898	11.216	0.437 [1] ✔
T14	222 - 202	L2 1/2x2 1/2x3/8	5.657	5.012	123.5 K=1.00	1.7300	-8.249	32.415	0.254 [1] ✔
T15	202 - 182	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-7.462	11.348	0.658 [1] ✔
T16	182 - 162	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-5.556	11.348	0.490 [1] ✔
T17	162 - 142	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-7.545	11.348	0.665 [1] ✔
T18	142 - 122	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.396	11.348	0.564 [1] ✔
T19	122 - 112	L2x2x1/4	5.207	4.590	140.9 K=1.00	0.9380	-7.785	13.531	0.575 [1] ✔
T20	112 - 102	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	5.207	4.881	99.8 K=1.00	1.5710	-9.036	30.133	0.300 [1] ✔
T21	102 - 82	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.410	11.348	0.565 [1] ✔
T22	82 - 62	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.340	11.348	0.559 [1] ✔
T23	62 - 42	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-8.330	11.348	0.734 [1] ✔
T24	42 - 22	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-8.122	11.348	0.716 [1] ✔
T25	22 - 2	L2x2x1/4	5.657	5.012	153.8 K=1.00	0.9380	-6.643	11.348	0.585 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	452 - 442	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.291	15.292	0.019 [1] ✔
T3	442 - 422	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.405	15.292	0.026 [1] ✔
T4	422 - 402	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.514	15.292	0.034 [1] ✔
T5	402 - 382	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.838	15.292	0.055 [1] ✔
T6	382 - 362	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.935	15.292	0.061 [1] ✔
T7	362 - 342	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.860	15.292	0.056 [1] ✔
T8	342 - 322	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-1.099	15.292	0.072 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	322 - 302	L2x2x3/16	4.000	3.500	113.3 K=1.06	0.7150	-1.137	15.350	0.074 [1]
T10	302 - 282	L2x2x3/16	4.000	3.500	113.3 K=1.06	0.7150	-1.182	15.350	0.077 [1]
T11	282 - 262	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-1.256	15.408	0.081 [1]
T12	262 - 242	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-1.538	15.408	0.100 [1]
T13	242 - 222	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-1.534	15.408	0.100 [1]
T14	222 - 202	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-1.943	15.466	0.126 [1]
T15	202 - 182	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.186	15.466	0.141 [1]
T16	182 - 162	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.338	15.466	0.151 [1]
T17	162 - 142	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.394	15.466	0.155 [1]
T18	142 - 122	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.380	15.466	0.154 [1]
T19	122 - 112	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.207	15.466	0.143 [1]
T20	112 - 102	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.106	15.466	0.136 [1]
T21	102 - 82	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.198	15.466	0.142 [1]
T22	82 - 62	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.227	15.466	0.144 [1]
T23	62 - 42	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.407	15.466	0.156 [1]
T24	42 - 22	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.360	15.466	0.153 [1]
T25	22 - 2	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-2.262	15.466	0.146 [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	457 - 452	C6x10.5	4.000	2.859	64.9 K=1.00	3.0900	-0.000	80.226	0.000 [1]
T2	452 - 442	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.744	15.292	0.049 [1]
T4	422 - 402	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.037	15.292	0.002 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T5	402 - 382	L2x2x3/16	4.000	3.521	113.6 K=1.06	0.7150	-0.037	15.292	0.002 [1] ✔
T11	282 - 262	L2x2x3/16	4.000	3.479	113.0 K=1.07	0.7150	-0.611	15.408	0.040 [1] ✔
T17	162 - 142	L2x2x3/16	4.000	3.458	112.7 K=1.07	0.7150	-0.124	15.466	0.008 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	457 - 452	2 1/4	5.000	5.000	106.7	3.9761	6.867	178.924	0.038 [1]
T2	452 - 442	2 1/4	10.000	3.333	71.1	3.9761	14.902	178.924	0.083 [1]
T5	402 - 382	2 1/4	20.000	4.000	85.3	3.9761	4.448	178.924	0.025 [1]

[1] $P_u / \phi P_n$ controls

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	457 - 452	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T2	452 - 442	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000
T5	402 - 382	2 1/4	0.000	7.119	0.000	0.000	7.119	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	457 - 452	2 1/4	0.038	0.000	0.000	0.038 [1] ✔	1.000	4.8.1 ✔
T2	452 - 442	2 1/4	0.083	0.000	0.000	0.083 [1] ✔	1.000	4.8.1 ✔
T5	402 - 382	2 1/4	0.025	0.000	0.000	0.025 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_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	457 - 452	L2 1/2x2x3/16	5.385	4.841	102.7	0.5013	1.788	21.806	0.082 [1] ✔
T2	452 - 442	L2x2x1/4	5.207	4.671	97.8	0.5629	2.352	24.485	0.096 [1] ✔
T3	442 - 422	L2x2x1/4	5.657	5.100	106.2	0.5629	1.157	24.485	0.047 [1] ✔
T4	422 - 402	L2x2x1/4	5.657	5.100	106.2	0.5629	2.046	24.485	0.084 [1] ✔
T5	402 - 382	L2x2x1/4	5.657	5.100	106.2	0.5629	3.635	24.485	0.148 [1] ✔
T6	382 - 362	L2x2x1/4	5.657	5.100	106.2	0.5629	1.994	24.485	0.081 [1] ✔
T7	362 - 342	L2x2x1/4	5.657	5.100	106.2	0.5629	1.230	24.485	0.050 [1] ✔
T8	342 - 322	L2x2x1/4	5.657	5.100	106.2	0.5629	2.539	24.485	0.104 [1] ✔
T9	322 - 302	L1 3/4x1 3/4x3/16	5.657	5.071	119.8	0.3604	3.368	15.675	0.215 [1] ✔
T10	302 - 282	L2x2x1/4	5.657	5.071	105.7	0.5629	1.342	24.485	0.055 [1] ✔
T11	282 - 262	L2 1/2x2 1/2x3/8	5.657	5.041	85.0	1.0866	5.505	47.266	0.116 [1] ✔
T12	262 - 242	L2x2x1/4	5.657	5.041	105.1	0.5629	4.003	24.485	0.163 [1] ✔
T13	242 - 222	L2x2x1/4	5.657	5.041	105.1	0.5629	3.630	24.485	0.148 [1] ✔
T14	222 - 202	L2 1/2x2 1/2x3/8	5.657	5.012	84.5	1.0866	6.232	47.266	0.132 [1] ✔
T15	202 - 182	L2x2x1/4	5.657	5.012	104.5	0.5629	5.380	24.485	0.220 [1] ✔
T16	182 - 162	L2x2x1/4	5.657	5.012	104.5	0.5629	3.803	24.485	0.155 [1] ✔
T17	162 - 142	L2x2x1/4	5.657	5.012	104.5	0.5629	5.716	24.485	0.233 [1] ✔
T18	142 - 122	L2x2x1/4	5.657	5.012	104.5	0.5629	4.488	24.485	0.183 [1] ✔
T19	122 - 112	L2x2x1/4	5.207	4.590	96.2	0.5629	5.211	24.485	0.213 [1] ✔
T20	112 - 102	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	5.207	4.881	99.8	1.5710	6.576	50.900	0.129 [1] ✔
T21	102 - 82	L2x2x1/4	5.657	5.012	104.5	0.5629	4.234	24.485	0.173 [1] ✔
T22	82 - 62	L2x2x1/4	5.657	5.012	104.5	0.5629	4.128	24.485	0.169 [1] ✔
T23	62 - 42	L2x2x1/4	5.657	5.012	104.5	0.5629	5.869	24.485	0.240 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T24	42 - 22	L2x2x1/4	5.657	5.012	104.5	0.5629	5.837	24.485	0.238 [1]
T25	22 - 2	L2x2x1/4	5.657	5.012	104.5	0.5629	4.152	24.485	0.170 [1]

[1] P_u / ϕP_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 $\frac{P_u}{\phi P_n}$
T2	452 - 442	L2x2x3/16	4.000	3.521	74.1	0.4308	0.291	18.739	0.016 [1]
T3	442 - 422	L2x2x3/16	4.000	3.521	74.1	0.4308	0.405	18.739	0.022 [1]
T4	422 - 402	L2x2x3/16	4.000	3.521	74.1	0.4308	0.514	18.739	0.027 [1]
T5	402 - 382	L2x2x3/16	4.000	3.521	74.1	0.4308	0.838	18.739	0.045 [1]
T6	382 - 362	L2x2x3/16	4.000	3.521	74.1	0.4308	0.935	18.739	0.050 [1]
T7	362 - 342	L2x2x3/16	4.000	3.521	74.1	0.4308	0.860	18.739	0.046 [1]
T8	342 - 322	L2x2x3/16	4.000	3.521	74.1	0.4308	1.099	18.739	0.059 [1]
T9	322 - 302	L2x2x3/16	4.000	3.500	73.7	0.4308	1.137	18.739	0.061 [1]
T10	302 - 282	L2x2x3/16	4.000	3.500	73.7	0.4308	1.182	18.739	0.063 [1]
T11	282 - 262	L2x2x3/16	4.000	3.479	73.3	0.4308	1.476	18.739	0.079 [1]
T12	262 - 242	L2x2x3/16	4.000	3.479	73.3	0.4308	1.552	18.739	0.083 [1]
T13	242 - 222	L2x2x3/16	4.000	3.479	73.3	0.4308	1.534	18.739	0.082 [1]
T14	222 - 202	L2x2x3/16	4.000	3.458	72.9	0.4308	1.943	18.739	0.104 [1]
T15	202 - 182	L2x2x3/16	4.000	3.458	72.9	0.4308	2.186	18.739	0.117 [1]
T16	182 - 162	L2x2x3/16	4.000	3.458	72.9	0.4308	2.438	18.739	0.130 [1]
T17	162 - 142	L2x2x3/16	4.000	3.458	72.9	0.4308	2.394	18.739	0.128 [1]
T18	142 - 122	L2x2x3/16	4.000	3.458	72.9	0.4308	2.380	18.739	0.127 [1]
T19	122 - 112	L2x2x3/16	4.000	3.458	72.9	0.4308	2.207	18.739	0.118 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T20	112 - 102	L2x2x3/16	4.000	3.458	72.9	0.4308	2.106	18.739	0.112 [1] ✔
T21	102 - 82	L2x2x3/16	4.000	3.458	72.9	0.4308	2.198	18.739	0.117 [1] ✔
T22	82 - 62	L2x2x3/16	4.000	3.458	72.9	0.4308	2.227	18.739	0.119 [1] ✔
T23	62 - 42	L2x2x3/16	4.000	3.458	72.9	0.4308	2.407	18.739	0.128 [1] ✔
T24	42 - 22	L2x2x3/16	4.000	3.458	72.9	0.4308	2.360	18.739	0.126 [1] ✔
T25	22 - 2	L2x2x3/16	4.000	3.458	72.9	0.4308	2.262	18.739	0.121 [1] ✔

[1] P_u / ϕP_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	457 - 452	C6x10.5	4.000	2.859	64.9	2.1409	0.000	93.128	0.000 [1] ✔
T2	452 - 442	L2x2x3/16	4.000	3.521	74.1	0.4308	0.814	18.739	0.043 [1] ✔
T4	422 - 402	L2x2x3/16	4.000	3.521	74.1	0.4308	0.240	18.739	0.013 [1] ✔
T5	402 - 382	L2x2x3/16	4.000	3.521	74.1	0.4308	0.248	18.739	0.013 [1] ✔
T7	362 - 342	L2x2x3/16	4.000	3.521	74.1	0.4308	0.323	18.739	0.017 [1] ✔
T8	342 - 322	L2x2x3/16	4.000	3.521	74.1	0.4308	0.333	18.739	0.018 [1] ✔
T10	302 - 282	L2x2x3/16	4.000	3.500	73.7	0.4308	0.569	18.739	0.030 [1] ✔
T11	282 - 262	L2x2x3/16	4.000	3.479	73.3	0.4308	1.319	18.739	0.070 [1] ✔
T13	242 - 222	L2x2x3/16	4.000	3.479	73.3	0.4308	0.762	18.739	0.041 [1] ✔
T14	222 - 202	L2x2x3/16	4.000	3.458	72.9	0.4308	0.828	18.739	0.044 [1] ✔
T15	202 - 182	L2x2x3/16	4.000	3.458	72.9	0.4308	1.038	18.739	0.055 [1] ✔
T16	182 - 162	L2x2x3/16	4.000	3.458	72.9	0.4308	1.035	18.739	0.055 [1] ✔
T17	162 - 142	L2x2x3/16	4.000	3.458	72.9	0.4308	1.527	18.739	0.082 [1] ✔
T18	142 - 122	L2x2x3/16	4.000	3.458	72.9	0.4308	1.086	18.739	0.058 [1] ✔
T19	122 - 112	L2x2x3/16	4.000	3.458	72.9	0.4308	1.151	18.739	0.061 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T20	112 - 102	L2x2x3/16	4.000	3.458	72.9	0.4308	1.173	18.739	0.063 [1]
T22	82 - 62	L2x2x3/16	4.000	3.458	72.9	0.4308	1.041	18.739	0.056 [1]
T23	62 - 42	L2x2x3/16	4.000	3.458	72.9	0.4308	1.016	18.739	0.054 [1]
T24	42 - 22	L2x2x3/16	4.000	3.458	72.9	0.4308	0.955	18.739	0.051 [1]
T25	22 - 2	L2x2x3/16	4.000	3.458	72.9	0.4308	0.998	18.739	0.053 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T25	22 - 2	L2x2x3/16	4.000	3.750	72.9	0.7150	3.176	23.166	0.137 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	442 - 422	2L2 1/2x2 1/2x3/8x1/4	4.000	3.813	60.7	2.1094	5.880	91.758	0.064 [1]
T6	382 - 362	2L 'a' > 22.1987 in - 22 2L2 1/2x2 1/2x3/8x1/4	4.000	3.813	60.7	2.1094	6.970	91.758	0.076 [1]
T9	322 - 302	2L 'a' > 22.1987 in - 110 2L2 1/2x2 1/2x3/8x1/4	4.000	3.792	60.4	2.1094	6.969	91.758	0.076 [1]
T12	262 - 242	2L 'a' > 22.0773 in - 208 2L2 1/2x2 1/2x3/8x1/4	4.000	3.771	60.1	2.1094	9.897	91.758	0.108 [1]
T14	222 - 202	2L 'a' > 21.9560 in - 308 2L2 1/2x2 1/2x3/8x1/4	4.000	3.750	59.7	2.1094	11.002	91.758	0.120 [1]
T17	162 - 142	2L 'a' > 21.8347 in - 418 2L2 1/2x2 1/2x3/8x1/4	4.000	3.750	59.7	2.1094	6.719	91.758	0.073 [1]
		2L 'a' > 21.8347 in - 523							

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T21	102 - 82	2L2 1/2x2 1/2x3/8x1/4 2L 'a' > 21.8347 in - 592	4.000	3.750	59.7	2.1094	8.508	91.758	0.093 [1] ✔
T23	62 - 42	2L2 1/2x2 1/2x3/8x1/4 2L 'a' > 21.8347 in - 685	4.000	3.750	59.7	2.1094	6.062	91.758	0.066 [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
L1	492 - 477	Pole	P8x.406	1	-0.720	113.643	8.0	Pass
L2	477 - 457	Pole	P8x.406	2	-1.638	113.643	39.4	Pass
T1	457 - 452	Leg	2 1/4	5	-7.837	77.870	10.1	Pass
T2	452 - 442	Leg	2 1/4	19	-16.787	123.621	13.6	Pass
T3	442 - 422	Leg	2 1/4	40	-23.369	105.060	22.2	Pass
T4	422 - 402	Leg	2 1/4	72	-29.666	105.060	28.2	Pass
T5	402 - 382	Leg	2 1/4	105	-48.369	105.060	46.0	Pass
T6	382 - 362	Leg	2 1/4	138	-53.975	105.060	51.4	Pass
T7	362 - 342	Leg	2 1/4	171	-49.660	105.060	47.3	Pass
T8	342 - 322	Leg	2 1/4	204	-63.432	105.060	60.4	Pass
T9	322 - 302	Leg	2 1/2	238	-65.638	143.512	45.7	Pass
T10	302 - 282	Leg	2 1/2	271	-68.222	143.512	47.5	Pass
T11	282 - 262	Leg	2 3/4	303	-72.502	187.145	38.7	Pass
T12	262 - 242	Leg	2 3/4	336	-88.770	187.145	47.4	Pass
T13	242 - 222	Leg	2 3/4	369	-88.576	187.145	47.3	Pass
T14	222 - 202	Leg	3	402	-112.190	235.765	47.6	Pass
T15	202 - 182	Leg	3	435	-126.183	235.765	53.5	Pass
T16	182 - 162	Leg	3	468	-135.004	235.765	57.3	Pass
T17	162 - 142	Leg	3	501	-138.208	235.765	58.6	Pass
T18	142 - 122	Leg	3	534	-137.418	235.765	58.3	Pass
T19	122 - 112	Leg	3	567	-127.409	258.358	49.3	Pass
T20	112 - 102	Leg	3	590	-121.613	258.358	47.1	Pass
T21	102 - 82	Leg	3	611	-126.922	235.765	53.8	Pass
T22	82 - 62	Leg	3	644	-128.590	235.765	54.5	Pass
T23	62 - 42	Leg	3	675	-138.956	235.765	58.9	Pass
T24	42 - 22	Leg	3	709	-136.263	235.765	57.8	Pass
T25	22 - 2	Leg	3	743	-130.589	235.765	55.4	Pass
T1	457 - 452	Diagonal	L2 1/2x2x3/16	14	-1.957	12.510	15.6 18.0 (b)	Pass
T2	452 - 442	Diagonal	L2x2x1/4	26	-2.459	13.063	18.8 22.4 (b)	Pass
T3	442 - 422	Diagonal	L2x2x1/4	71	-1.374	10.958	12.5	Pass
T4	422 - 402	Diagonal	L2x2x1/4	80	-2.309	10.958	21.1	Pass
T5	402 - 382	Diagonal	L2x2x1/4	113	-4.078	10.958	37.2	Pass
T6	382 - 362	Diagonal	L2x2x1/4	169	-2.423	10.958	22.1	Pass
T7	362 - 342	Diagonal	L2x2x1/4	177	-1.770	10.958	16.2	Pass
T8	342 - 322	Diagonal	L2x2x1/4	211	-3.199	10.958	29.2	Pass
T9	322 - 302	Diagonal	L1 3/4x1 3/4x3/16	269	-3.997	5.664	70.6	Pass
T10	302 - 282	Diagonal	L2x2x1/4	301	-2.265	11.086	20.4	Pass
T11	282 - 262	Diagonal	L2 1/2x2 1/2x3/8	311	-6.707	32.063	20.9 48.6 (b)	Pass
T12	262 - 242	Diagonal	L2x2x1/4	367	-5.256	11.216	46.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T13	242 - 222	Diagonal	L2x2x1/4	377	-4.898	11.216	43.7	Pass
T14	222 - 202	Diagonal	L2 1/2x2 1/2x3/8	414	-8.249	32.415	25.4	Pass
							59.8 (b)	
T15	202 - 182	Diagonal	L2x2x1/4	465	-7.462	11.348	65.8	Pass
T16	182 - 162	Diagonal	L2x2x1/4	475	-5.556	11.348	49.0	Pass
T17	162 - 142	Diagonal	L2x2x1/4	527	-7.545	11.348	66.5	Pass
T18	142 - 122	Diagonal	L2x2x1/4	542	-6.396	11.348	56.4	Pass
T19	122 - 112	Diagonal	L2x2x1/4	574	-7.785	13.531	57.5	Pass
T20	112 - 102	Diagonal	L1 3/4x1 3/4x3/16 w/ L2x2x1/4	596	-9.036	30.133	30.0	Pass
							65.5 (b)	
T21	102 - 82	Diagonal	L2x2x1/4	639	-6.410	11.348	56.5	Pass
T22	82 - 62	Diagonal	L2x2x1/4	650	-6.340	11.348	55.9	Pass
T23	62 - 42	Diagonal	L2x2x1/4	681	-8.330	11.348	73.4	Pass
T24	42 - 22	Diagonal	L2x2x1/4	738	-8.122	11.348	71.6	Pass
T25	22 - 2	Diagonal	L2x2x1/4	771	-6.643	11.348	58.5	Pass
T2	452 - 442	Horizontal	L2x2x3/16	27	-0.291	15.292	1.9	Pass
							3.7 (b)	
T3	442 - 422	Horizontal	L2x2x3/16	55	-0.405	15.292	2.6	Pass
							5.1 (b)	
T4	422 - 402	Horizontal	L2x2x3/16	81	-0.514	15.292	3.4	Pass
							6.5 (b)	
T5	402 - 382	Horizontal	L2x2x3/16	114	-0.838	15.292	5.5	Pass
							10.6 (b)	
T6	382 - 362	Horizontal	L2x2x3/16	153	-0.935	15.292	6.1	Pass
							11.9 (b)	
T7	362 - 342	Horizontal	L2x2x3/16	180	-0.860	15.292	5.6	Pass
							10.9 (b)	
T8	342 - 322	Horizontal	L2x2x3/16	215	-1.099	15.292	7.2	Pass
							14.0 (b)	
T9	322 - 302	Horizontal	L2x2x3/16	246	-1.137	15.350	7.4	Pass
							14.4 (b)	
T10	302 - 282	Horizontal	L2x2x3/16	285	-1.182	15.350	7.7	Pass
							15.0 (b)	
T11	282 - 262	Horizontal	L2x2x3/16	312	-1.256	15.408	8.1	Pass
							18.7 (b)	
T12	262 - 242	Horizontal	L2x2x3/16	345	-1.538	15.408	10.0	Pass
							19.7 (b)	
T13	242 - 222	Horizontal	L2x2x3/16	378	-1.534	15.408	10.0	Pass
							19.5 (b)	
T14	222 - 202	Horizontal	L2x2x3/16	423	-1.943	15.466	12.6	Pass
							24.7 (b)	
T15	202 - 182	Horizontal	L2x2x3/16	452	-2.186	15.466	14.1	Pass
							27.8 (b)	
T16	182 - 162	Horizontal	L2x2x3/16	483	-2.338	15.466	15.1	Pass
							31.0 (b)	
T17	162 - 142	Horizontal	L2x2x3/16	510	-2.394	15.466	15.5	Pass
							30.4 (b)	
T18	142 - 122	Horizontal	L2x2x3/16	551	-2.380	15.466	15.4	Pass
							30.2 (b)	
T19	122 - 112	Horizontal	L2x2x3/16	576	-2.207	15.466	14.3	Pass
							28.0 (b)	
T20	112 - 102	Horizontal	L2x2x3/16	598	-2.106	15.466	13.6	Pass
							26.7 (b)	
T21	102 - 82	Horizontal	L2x2x3/16	619	-2.198	15.466	14.2	Pass
							27.9 (b)	
T22	82 - 62	Horizontal	L2x2x3/16	652	-2.227	15.466	14.4	Pass
							28.3 (b)	
T23	62 - 42	Horizontal	L2x2x3/16	692	-2.407	15.466	15.6	Pass
							30.6 (b)	
T24	42 - 22	Horizontal	L2x2x3/16	717	-2.360	15.466	15.3	Pass
							30.0 (b)	

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T25	22 - 2	Horizontal	L2x2x3/16	757	-2.262	15.466	14.6 28.7 (b)	Pass
T1	457 - 452	Top Girt	C6x10.5	7	-0.000	80.226	1.6	Pass
T2	452 - 442	Top Girt	L2x2x3/16	11	-0.744	15.292	4.9 10.3 (b)	Pass
T4	422 - 402	Top Girt	L2x2x3/16	43	0.240	18.739	1.3 3.1 (b)	Pass
T5	402 - 382	Top Girt	L2x2x3/16	77	0.248	18.739	1.3 3.2 (b)	Pass
T7	362 - 342	Top Girt	L2x2x3/16	143	0.323	18.739	1.7 4.1 (b)	Pass
T8	342 - 322	Top Girt	L2x2x3/16	175	0.333	18.739	1.8 4.2 (b)	Pass
T10	302 - 282	Top Girt	L2x2x3/16	241	0.569	18.739	3.0 7.2 (b)	Pass
T11	282 - 262	Top Girt	L2x2x3/16	275	1.319	18.739	7.0 16.7 (b)	Pass
T13	242 - 222	Top Girt	L2x2x3/16	341	0.762	18.739	4.1 9.7 (b)	Pass
T14	222 - 202	Top Girt	L2x2x3/16	373	0.828	18.739	4.4 10.5 (b)	Pass
T15	202 - 182	Top Girt	L2x2x3/16	407	1.038	18.739	5.5 13.2 (b)	Pass
T16	182 - 162	Top Girt	L2x2x3/16	439	1.035	18.739	5.5 13.1 (b)	Pass
T17	162 - 142	Top Girt	L2x2x3/16	473	1.527	18.739	8.2 19.4 (b)	Pass
T18	142 - 122	Top Girt	L2x2x3/16	505	1.086	18.739	5.8 13.8 (b)	Pass
T19	122 - 112	Top Girt	L2x2x3/16	539	1.151	18.739	6.1 14.6 (b)	Pass
T20	112 - 102	Top Girt	L2x2x3/16	571	1.173	18.739	6.3 14.9 (b)	Pass
T22	82 - 62	Top Girt	L2x2x3/16	613	1.041	18.739	5.6 13.2 (b)	Pass
T23	62 - 42	Top Girt	L2x2x3/16	647	1.016	18.739	5.4 12.9 (b)	Pass
T24	42 - 22	Top Girt	L2x2x3/16	680	0.955	18.739	5.1 12.1 (b)	Pass
T25	22 - 2	Top Girt	L2x2x3/16	713	0.998	18.739	5.3 12.7 (b)	Pass
T25	22 - 2	Bottom Girt	L2x2x3/16	746	3.176	23.166	13.7	Pass
T3	442 - 422	Guy A@442	1	776	32.171	73.200	44.0	Pass
T6	382 - 362	Guy A@382	1	779	32.272	73.200	44.1	Pass
T9	322 - 302	Guy A@322	7/8	782	26.398	55.200	47.8	Pass
T12	262 - 242	Guy A@262	7/8	785	31.118	55.200	56.4	Pass
T14	222 - 202	Guy A@210	7/8	788	34.207	55.200	62.0	Pass
T17	162 - 142	Guy A@154	9/16	791	16.110	21.000	76.7	Pass
T21	102 - 82	Guy A@102	9/16	794	16.905	21.000	80.5	Pass
T23	62 - 42	Guy A@46	1/2	797	9.635	16.140	59.7	Pass
T3	442 - 422	Guy B@442	1	775	32.763	73.200	44.8	Pass
T6	382 - 362	Guy B@382	1	778	33.237	73.200	45.4	Pass
T9	322 - 302	Guy B@322	7/8	781	27.582	55.200	50.0	Pass
T12	262 - 242	Guy B@262	7/8	784	32.299	55.200	58.5	Pass
T14	222 - 202	Guy B@210	7/8	787	35.404	55.200	64.1	Pass
T17	162 - 142	Guy B@154	9/16	790	16.511	21.000	78.6	Pass
T21	102 - 82	Guy B@102	9/16	793	17.294	21.000	82.4	Pass
T23	62 - 42	Guy B@46	1/2	796	9.878	16.140	61.2	Pass
T3	442 - 422	Guy C@442	1	774	32.637	73.200	44.6	Pass
T6	382 - 362	Guy C@382	1	777	32.980	73.200	45.1	Pass
T9	322 - 302	Guy C@322	7/8	780	27.407	55.200	49.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T12	262 - 242	Guy C@262	7/8	783	32.535	55.200	58.9	Pass
T14	222 - 202	Guy C@210	7/8	786	35.630	55.200	64.5	Pass
T17	162 - 142	Guy C@154	9/16	789	16.658	21.000	79.3	Pass
T21	102 - 82	Guy C@102	9/16	792	17.427	21.000	83.0	Pass
T23	62 - 42	Guy C@46	1/2	795	9.984	16.140	61.9	Pass
T3	442 - 422	Top Guy Pull-Off@442	2L2 1/2x2 1/2x3/8x1/4	22	5.880	91.758	6.4 9.1 (b)	Pass
T6	382 - 362	Top Guy Pull-Off@382	2L2 1/2x2 1/2x3/8x1/4	110	6.970	91.758	7.6 10.7 (b)	Pass
T9	322 - 302	Top Guy Pull-Off@322	2L2 1/2x2 1/2x3/8x1/4	208	6.969	91.758	7.6 10.7 (b)	Pass
T12	262 - 242	Top Guy Pull-Off@262	2L2 1/2x2 1/2x3/8x1/4	308	9.897	91.758	10.8 15.2 (b)	Pass
T14	222 - 202	Top Guy Pull-Off@210	2L2 1/2x2 1/2x3/8x1/4	418	11.002	91.758	12.0 16.9 (b)	Pass
T17	162 - 142	Top Guy Pull-Off@154	2L2 1/2x2 1/2x3/8x1/4	523	6.719	91.758	7.3 10.3 (b)	Pass
T21	102 - 82	Top Guy Pull-Off@102	2L2 1/2x2 1/2x3/8x1/4	592	8.508	91.758	9.3 13.1 (b)	Pass
T23	62 - 42	Top Guy Pull-Off@46	2L2 1/2x2 1/2x3/8x1/4	685	6.062	91.758	6.6 9.3 (b)	Pass
						Summary		
						Pole (L2)	39.4	Pass
						Leg (T8)	60.4	Pass
						Diagonal (T23)	73.4	Pass
						Horizontal (T16)	31.0	Pass
						Top Girt (T17)	19.4	Pass
						Bottom Girt (T25)	13.7	Pass
						Guy A (T21)	80.5	Pass
						Guy B (T21)	82.4	Pass
						Guy C (T21)	83.0	Pass
						Top Guy Pull-Off (T14)	16.9	Pass
						Bolt Checks	65.5	Pass
						RATING =	**83.0**	**Pass**

PROJECT No:	**US-CT-5009**	**ENG:**	LM
PROJECT NAME:		**CHK:**	MD
	Vertical Bridge		
DATE:	**May 29, 2020**	**PAGE:**	**of**

TIA-222-G

TOWER BASE CHECKS - GUYED TOWER

Tower Reactions		*Factored Loads*			**Factored Resistance**		**% Capacity**	**Column Rebar**
◉TIA-G	Download	**384.00** kips	Bearing Capacity	**2847.10** kips	**pass**	13.5%		**PCA COL**
○EIA-F	Horizontal	**4.00** kips	Horizontal Capacity	**66.31** kips	**pass**	6.0%		**384.0 kips**
	Overturning Check (q_{max})	**3.46** ksf	Overturning Capacity	**14.53** ksf	**pass**	23.8%	[GOVERNS]	
	Punching Shear Check	**234.00** kips	2-way Capacity	**2277.43** kips	**pass**	10.3%		
	Flexural Shear Check	**34.29** kips	1-way Capacity	**455.49** kips	**pass**	7.5%		**26.0 k-ft** Max. Pier Moment @ 6.5 ft
	Pier Rebar Required	(minimum only, use PCACOL for total quantity)		#N/A				
	Mat Rebar Required	(checked rebar for 6" min to 24" max spacing)		#N/A		**SF=8.40**		

Soil Parameters	**Soils Report**	**Foundation Geometry**	**FDN Dwgs**
ϕ	**28** °	B (width)	**14.00** ft
water level	**8.00** ft (2.44 m)	T (thickness)	**3.00** ft
Soil Dry Density (γ_{dry})	**0.105** kcf (16.5 kN/m^3)	L (length)	**14.00** ft
Soil Sub Density (γ_{sub})	**0.050** kcf (7.85 kN/m^3)	D (depth to bottom surface)	**9.00** ft
Passive earth coefficient	**2.770**	ϕ (pier diameter)	**6.00** ft
Allowable bearing pressure	**12.105** ksf (579.6 kPa)	☑ **Check if Square Pier**	

Concrete parameters

f'c =	**3.000** ksi	(20.7 MPa)
Dry Density (γ_{dry})	0.150 kcf	
Sub Density (γ_{sub})	0.087 kcf	

Passive Earth pressure resistance

press. - top of concrete	1.74	--	ksf
press. - bottom of concr.	2.47	--	ksf
Total resistance =	**88.41**	--	kips
Horizontal resistance =	**66.31**	--	kips
	(x 0.75, Cl 9.4.1)		

Bearing capacity

contact area =	196.00	--	ft²
allowable net pressure =	12.105	--	ksf
Download resistance =	**2847.10**	--	kips
	(2 • 0.60, Cl 9.4)		

Overturning - Bearing

	Moment = Shear x Arm	28.000	--	k-ft
ORTHO	q_{max} = P/A + M/S *(S=b³/6)*	**3.432**	--	ksf
DIAG	q_{max} = P/A + M/S *(S=b³/6√2)*	**3.457**	--	ksf
		(not factored)		

Check for 2-Way Shear *d=33.000"*

Shear Area (b_o x d) =	96.25	--	ft²
Factored bearing stress =	1.959	--	ksf
Factored shear force =	234.00	--	kips
Factored shear resistance	**2277.4**	--	kips
Check for 2-way shear	**Pass**	--	

Check for 1-Way Shear *d=33.000"*

Shear Area (b x d) =	38.50	--	ft²
Factored bearing stress =	1.959	--	ksf
Factored shear force =	34.29	--	kips
Factored shear resistance	**455.5**	--	kips
Check for 2-way shear	**Pass**	--	

Volume of concrete **822.0 cuft (30.5 cuyd)**

Mat	d (dry)	2.00 ft	392.00
	d (sub)	1.00 ft	196.00
Pier	d (above)	**0.50** ft	18.00
	d (dry)	6.00 ft	216.00
	d (sub)	0.00 ft	0.00

Depth of Soil

d (overall)	6.00	2.D.Tanϕ	Area
d (dry)	6.00	6.381	415.37
d (submerged)	0.00	0.000	196.00
			196.00

Volume of Soil

Vol (total)	1577.4	ft^3	*Frustum Volume Method*
Vol (dry)	1577.4	ft^3	
Vol (submerged)	0.0	ft^3	

Concrete Reinforcing (Already Factored Loads)

			PIER
f'c	3.00	ksi	
fy	60	ksi	
Steel (Metric/ASTM)	**ASTM**		**ASTM**
Bar size	**0**	#	**0**
Bar area	#N/A	in²	#N/A

Wgt of Rebar **#N/A** **lbs**

Slab Reinforcing	Download		
w	1.96	ksf	
lv	4.0	ft	
Mu = ½ wL•lv²	219.43	kip-ft	
Ku	14.3925		
ρ	0.00027	choose larger of ρ or ρ min	
ρ min ≥ 0.0018	0.00180		
4/3•ρ if ρ < ρ min	0.00036		
As Required	9.9792	in²	
Number of bars	**#N/A**	bars	
spacing =	#N/A	in	

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	Vertical Bridge		
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TIA-222-G

GUY ANCHOR - DEADMAN CHECKS

Tower Reactions		*Factored Loads*			**Factored Resistance**		**% Capacity**	**SF=3.03**
◉ TIA-G	Uplift	**60.0**	kips	Uplift Capacity	**128.69** kips	**pass**	**46.6%**	
○ EIA-F	Horizontal	**49.0**	kips	Horizontal Capacity	**74.25** kips	**pass**	**66.0%**	**[GOVERNS]**

Soil Parameters *From Soils Report*

	Depth (ft)	ϕ (°)	c (psf)	γ (pcf)
Layer 1	**4.0**	**28.0**	**0.0**	**105.0**
Layer 2	**6.0**	**0.0**	**1250.0**	**110.0**
Layer 3	**8.0**	**0.0**	**400.0**	**105.0**
Layer 4	**9.5**	**0.0**	**750.0**	**105.0**
Layer 5				

All. Top Friction	**138**	psf *(FS=2)*
All. Side Friction	**138**	psf *(FS=2)*
Frost Depth	**4.00**	ft
Ignored Depth	**0.00**	ft

Depth is taken to bottom of layer

Dead-man geometry *From Fdn Dwgs*

B (width)	**4.50**	ft
T (thickness / height)	**2.50**	ft
L (length)	**15.00**	ft
D (depth to bottom surface)	**9.50**	ft
f'c (compressive strength)	**3.00**	ksi (20.7 MPa)
Water Table	**30.00**	ft (9.15 m)

Depth (ft)	Kp	½Cu (psf)	tan (⅔ϕ)	Ca (Kulhawy)	γ·d (psf)	Kp Pressure	Cu Pressure	Total Layer Pressure	Front of Block Area	½Cu Thickness	½Cu Area	½Cu Area
0.00	2.770	0.0	0.338	0.000	0.0	0.000	0.000	**0.000**	0.00	0.00	0.000	0.000
4.00					420.0	1.163	0.000	**1.163**				
4.00	1.000	625.0	0.000	0.582	420.0	0.420	2.500	**2.920**	0.00	2.00	78.000	48.750
6.00					640.0	0.640	2.500	**3.140**				
6.00	1.000	200.0	0.000	1.000	640.0	0.640	0.800	**1.440**	15.00	1.00	39.000	7.800
8.00					850.0	0.850	0.800	**1.650**				
8.00	1.000	375.0	0.000	0.763	850.0	0.850	1.500	**2.350**	22.50	0.00	0.000	0.000
9.50					1007.5	1.008	1.500	**2.508**				
9.50												

Uplift Resistance

		Factored		
Weight of concrete		**25.31** (x 0.90, Cl 2.3.2)	--	kips
Weight of soil (all layers)		**69.92** (x 0.75, Cl 9.4.1)	--	kips
½Cu Resistance		**56.55** (x 0.75, Cl 9.4.1)	--	kips
Total Side Friction	(2 x BT)	**4.39** (x 0.75, Cl 9.4.1)	--	kips
Total Front Friction	(T x L)	**10.35** (x 0.75, Cl 9.4.1)	--	kips
Total Uplift Resistance		**166.52**	--	kips
Factored Uplift Resistance		**128.69**	--	kips

Horizontal Pressure Resistance

Total Front Pressure	(P x L)	**75.98**	--	kips
Total Side Friction	(2 x BT)	**4.39**	--	kips
Total Top Friction	(B x L)	**18.63**	--	kips
Total Horiz Resistance		**99.01**	--	kips
Factored Horiz Resistance		**74.25** (x 0.75, Cl 9.4.1)	--	kips

Concrete Parameters

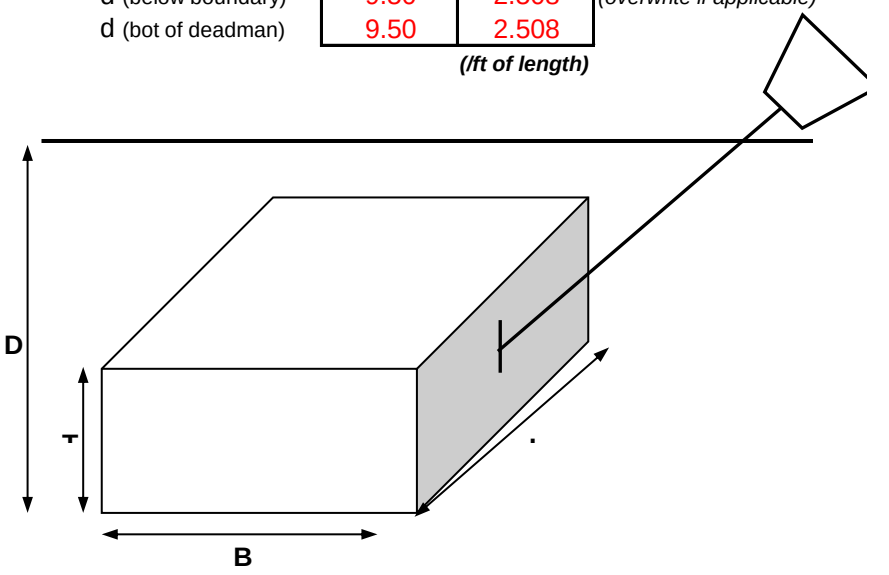
		Depth	*Weight*	*Volume*
Dry Density (γ_{dry})	**0.150**	2.50	25.31	168.75
Sub Density (γ_{sub})	**0.087**	0.00	0.00	0.00
			168.8 cuft (6.3 cuyd)	

Depth of Soil

		2 · D · Tan ϕ	*Area*	*Volume*
d (top of layer 1)	0.00	4.254	168.54	456.9
d (top of layer 2)	4.00	0.000	67.50	135.0
d (top of layer 3)	6.00	0.000	67.50	67.5
d (top of layer 4)		0.000	0.00	0.0
d (top of layer 5)		0.000	0.00	0.0
d (top of deadman)	7.00		67.50	**659.4**
			Frustum Volume Method	

Depth of Deadman

	Depth	*Pressure*	
d (top of deadman)	7.00	1.545	
d (above boundary)	7.00	1.545	*(overwrite if applicable)*
d (below boundary)	9.50	2.508	*(overwrite if applicable)*
d (bot of deadman)	9.50	2.508	
		(/ft of length)	



PROJECT No:	**US-CT-5009**	**ENG:**	LM
PROJECT NAME:		**CHK:**	MD
	Vertical Bridge		
DATE:	**May 29, 2020**	**PAGE:**	**of**

TIA-222-G

GUY ANCHOR - DEADMAN CHECKS

Tower Reactions		*Factored Loads*			**Factored Resistance**		**% Capacity**	**SF=9.23**
◉ TIA-G	Uplift	**111.0**	kips	Uplift Capacity	**512.45** kips	**pass**	**21.7% [GOVERNS]**	
○ EIA-F	Horizontal	**49.0**	kips	Horizontal Capacity	**279.65** kips	**pass**	**17.5%**	

Soil Parameters *From Soils Report*

	Depth (ft)	ϕ (°)	c (psf)	γ (pcf)
Layer 1	**4.0**	**28.0**	**0.0**	**105.0**
Layer 2	**6.0**	**0.0**	**1250.0**	**110.0**
Layer 3	**8.0**	**0.0**	**400.0**	**105.0**
Layer 4	**11.5**	**0.0**	**750.0**	**105.0**
Layer 5				

All. Top Friction	**138**	psf *(FS=2)*
All. Side Friction	**138**	psf *(FS=2)*
Frost Depth	**3.33**	ft
Ignored Depth	**0.00**	ft

Depth is taken to bottom of layer

Dead-man geometry *From Fdn Dwgs*

B (width)	**11.00**	ft
T (thickness / height)	**4.50**	ft
L (length)	**28.00**	ft
D (depth to bottom surface)	**11.50**	ft
f'c (compressive strength)	**3.00**	ksi (20.7 MPa)
Water Table	**30.00**	ft (9.15 m)

Depth (ft)	Kp	½Cu (psf)	tan (⅔ϕ)	Ca (Kulhawy)	γ·d (psf)	Kp Pressure	Cu Pressure	Total Layer Pressure	Front of Block Area	½Cu Thickness	½Cu Area	½Cu Area
0.00	2.770	0.0	0.338	0.000	0.0	0.000	0.000	**0.000**	0.00	0.67	52.260	0.000
4.00					420.0	1.163	0.000	**1.163**				
4.00	1.000	625.0	0.000	0.582	420.0	0.420	2.500	**2.920**	0.00	2.00	156.000	97.500
6.00					640.0	0.640	2.500	**3.140**				
6.00	1.000	200.0	0.000	1.000	640.0	0.640	0.800	**1.440**	28.00	1.00	78.000	15.600
8.00					850.0	0.850	0.800	**1.650**				
8.00	1.000	375.0	0.000	0.763	850.0	0.850	1.500	**2.350**	98.00	0.00	0.000	0.000
11.50					1217.5	1.218	1.500	**2.718**				
11.50												

Uplift Resistance

	Factored			
Weight of concrete	**207.90**	--	kips	
	(x 0.90, Cl 2.3.2)			
Weight of soil (all layers)	**266.60**	--	kips	
	(x 0.75, Cl 9.4.1)			
½Cu Resistance	**113.10**	--	kips	
	(x 0.75, Cl 9.4.1)			
Total Side Friction (2 x BT)	**19.32**	--	kips	
	(x 0.75, Cl 9.4.1)			
Total Front Friction (T x L)	**34.78**	--	kips	
	(x 0.75, Cl 9.4.1)			
Total Uplift Resistance	**641.69**	--	kips	
Factored Uplift Resistance	**512.45**	--	kips	

Horizontal Pressure Resistance

Total Front Pressure (P x L)	**268.54**	--	kips
Total Side Friction (2 x BT)	**19.32**	--	kips
Total Top Friction (B x L)	**85.01**	--	kips
Total Horiz Resistance	**372.87**	--	kips
Factored Horiz Resistance	**279.65**	--	kips
	(x 0.75, Cl 9.4.1)		

Concrete Parameters

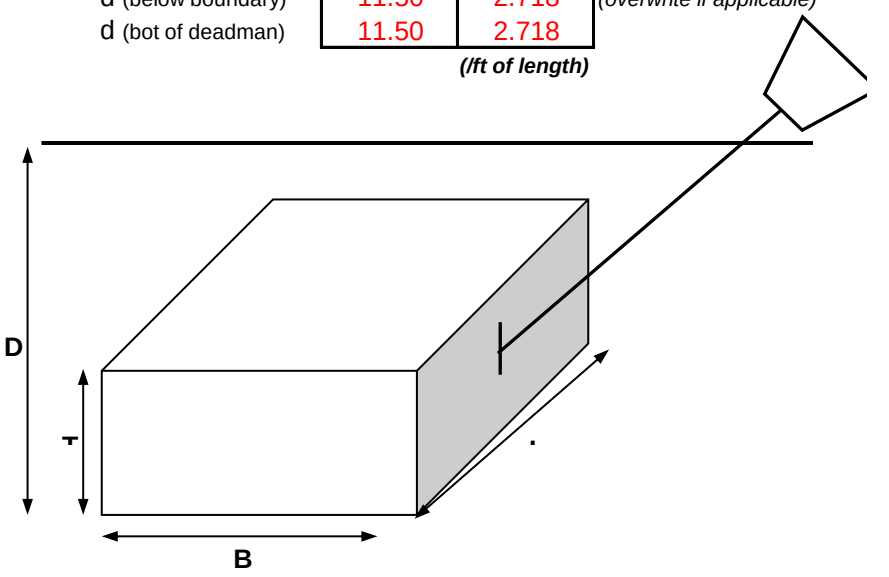
		Depth	*Weight*	*Volume*
Dry Density (γ_{dry})	**0.150**	4.50	207.90	1386.00
Sub Density (γ_{sub})	**0.087**	0.00	0.00	0.00
			1386.0 cuft (51.4 cuyd)	

Depth of Soil

		2 · D · Tan ϕ	*Area*	*Volume*
d (top of layer 1)	0.00	4.254	491.99	1585.7
d (top of layer 2)	4.00	0.000	308.00	616.0
d (top of layer 3)	6.00	0.000	308.00	308.0
d (top of layer 4)		0.000	0.00	0.0
d (top of layer 5)		0.000	0.00	0.0
d (top of deadman)	7.00		308.00	**2509.7**
			Frustum Volume Method	

Depth of Deadman

	Depth	*Pressure*	
d (top of deadman)	7.00	1.545	
d (above boundary)	7.00	1.545	*(overwrite if applicable)*
d (below boundary)	11.50	2.718	*(overwrite if applicable)*
d (bot of deadman)	11.50	2.718	
		(/ft of length)	



BU:	US-CT-5009	Structure:	A
WO:			
Order:		Rev:	

Location

	Decimal Degrees		Deg	Min	Sec
Lat:	41.493439	+	41	29	36.38
Long:	-73.428817	-	73	25	43.74

Code and Site Parameters

Seismic Design Code:	TIA-222-H	
Site Soil:	D (Default)	Default
Risk Category:	II	

USGS Seismic Reference			
	S_S:	0.2100	g
	S_1:	0.0550	g
	T_L:	6	s

Seismic Design Category Determination

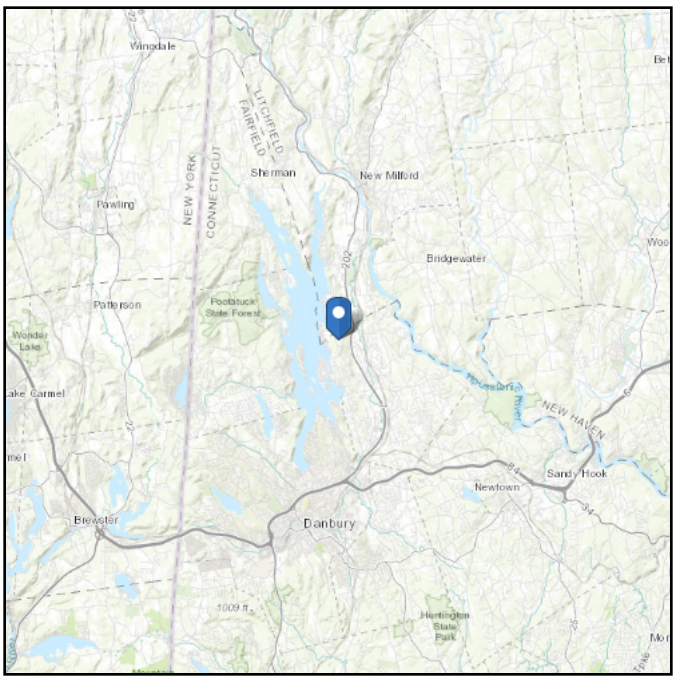
Importance Factor, I_e:	1	
Acceleration-based site coefficient, F_a:	1.6000	
Velocity-based site coefficient, F_v:	2.4000	
Design spectral response acceleration short period, S_{DS}:	0.2240	g
Design spectral response acceleration 1 s period, S_{D1}:	0.0880	g
Seismic Design Category Based on S_{DS}:	B	
Seismic Design Category Based on S_{D1}:	B	
Seismic Design Category Based on S_1:	N/A	
Controlling Seismic Design Category:	B	

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 718.96 ft (NAVD 88)
Latitude: 41.493439
Longitude: -73.428817



Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph
Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4
Date Accessed:	Fri May 29 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

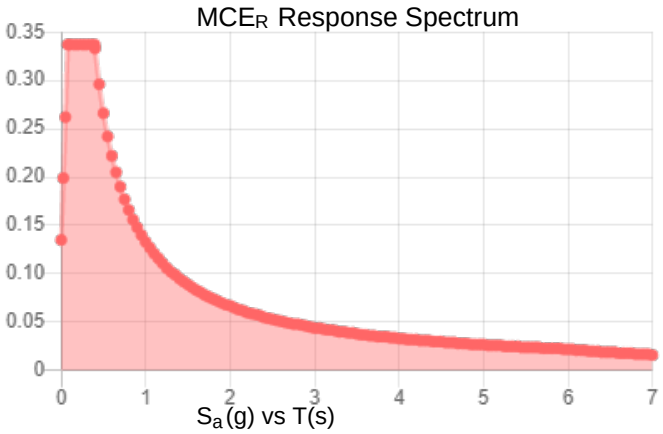
Seismic

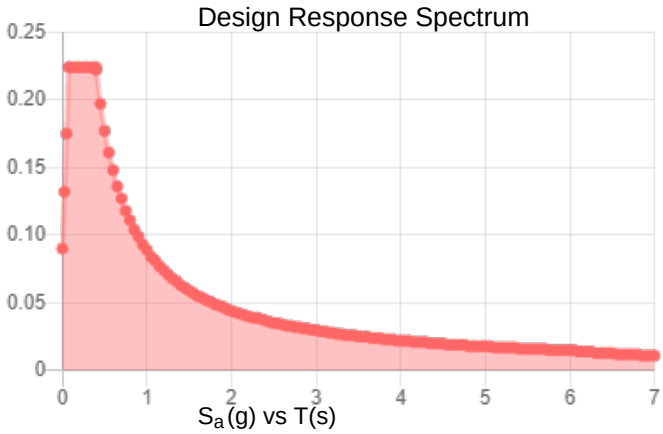
Site Soil Class: D - Default (see Section 11.4.3)

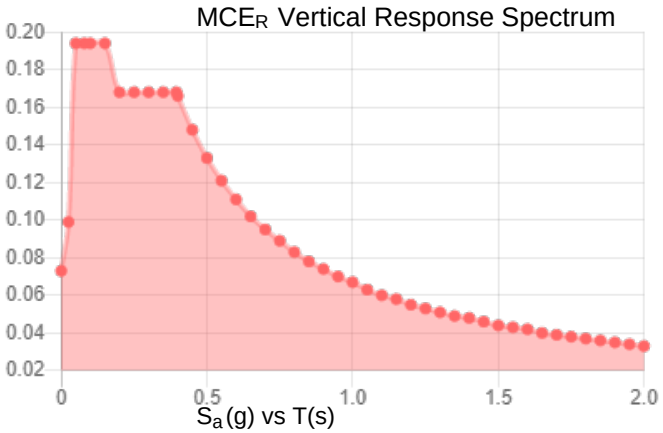
Results:

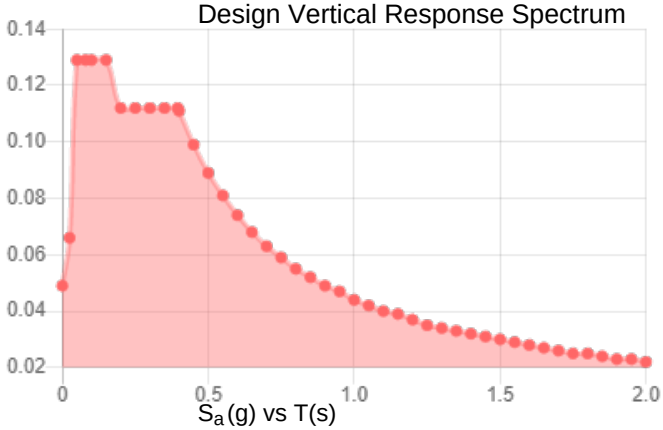
S_S :	0.21	S_{D1} :	0.089
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.119
F_v :	2.4	PGA_M :	0.186
S_{MS} :	0.337	F_{PGA} :	1.562
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.224	C_v :	0.721

Seismic Design Category B









Data Accessed: Fri May 29 2020

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri May 29 2020

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Attachment 2:
Collocation Application

verticalbridge

☐ NEW LEASE	☑ AMENDMENT TO EXISTING LEASE	☐ RECONTRACT	☐ BTS ANCHOR TENANT	INTERNAL USE ONLY	
				APP VERSION #	
				LEASE #	
				AMENDMENT #	

PLEASE RETURN THIS APPLICATION VIA EMAIL TO:			
Vertical Bridge 750 Park of Commerce Drive Suite 200 Boca Raton, FL 33487 Attn: Regional Leasing Manager	E-Mail:	VB Site Number:	**US-CT-5009**
		VB Site Name:	**WRKI-FM**
		Application Date:	5/21/2020
		Revision Dates:	
	Phone:	**RSM Approval:**	

APPLICANT / CARRIER INFORMATION			
Carrier Name:	**T-Mobile**	**Contact Name:**	**Kyle Richers**
Carrier Site Number:	**CT11196A**	**Contact Number:**	**908-447-4716**
Carrier Site Name:	**Brookfield/Junction Rd.**	**Contact Fax:**	
Carrier Legal Entity Name:	T-Mobile Northeast LLC	**Contact Address:**	10 Industrial Ave., Suite 3 Mahwah, NJ 07430
State of registration:	Delaware		
Type of entity (LP, LLC, Corp) d/b/a (If applicable)	LLC		
Notice Address for Lease:	T-Mobile USA 12920 SE 38th Street Bellevue, WA 98006 Attn: Lease Compliance, Site Number: CT11196A	**Contact E-mail:**	krichers@transcendwireless.com
With copies to:		**Additional E-mail:**	
Carrier Invoice Address:		**Other:**	
Carrier Invoice Contact - Name, Title, Phone No.		**Carrier NOC#**	888 662 4662

ADDITIONAL CONTACT INFORMATION	
Leasing Contact Name/Number:	
RF Contact Name/Number:	
Construction Contact Name/Number:	
Emergency Contact Name/Number:	

SITE INFORMATION – This information can be found and should match the information on www.verticalbridge.com				
Latitude:	**41.49343224**	**N**	**Existing Structure Type:**	**Guyed Tower**
Longitude:	**-73.4287345**	**W**	**Existing Structure Height:**	**455'**
Site Address:	**37 Carmen Hill Road Brookfield CT 06804**			

FREQUENCY/TECHNOLOGY INFORMATION		
Type of Technology for all equipment (i.e., 3G, LTE, CMDA, MW, WiFi, TV, etc.)		
TX Frequency (MHz)	Licensed	1935-1945, 2140-2155, 617-734 MHz and 2.5 GHz unlicensed.
RX Frequency (MHz)	Licensed	1855-1865, 2140-2155-1740-1755, 617-734 MHz and 2.5 GHz unlicensed
Tenants using an unlicensed band must provide exact Frequency Channels and Call Sign(s) to be utilized. (Providing the band range only will not be accepted.)		Need channel

PLEASE PROVIDE BRIEF DESCRIPTION OF GENERAL SCOPE OF WORK
Add (6) antennas, add (3) RRU's, and add (4) hybrids.

verticalbridge

EXISTING EQUIPMENT Applicant's Existing Equipment Configuration and Specifications										
Equipment Type (ex: panel, TMA, RRU)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Az**	**Remain**
Panel	280	280	T-Arms	3	RFS	APX16DWV-16DWV-S-E-ACU	53 x 13 x 3.15	39.6	10-130-250	Yes
Panel	280	280	T-Arms	3	RFS	APXVAARR24_43-U-NA20	95.9 x 24 x 8.7	153	10-130-250	Yes
TMA	280	280	T-Arms	3	Ericsson	KRY 112144	6.1" X 6.9" X 2.8	11.2	10-130-250	Yes
TMA	280	280	T-Arms	3	Ericsson	KRY 112 89-4	11.02" X 6.1" X 3	15.43	10-130-250	Yes
RRU	280	280	T-Arms	3	Ericsson	RRU 4449 B71B85	14.9" X 13.2" X 10.4"	74	10-130-250	Yes

EXISTING LINES Applicant's Existing Lines and Specifications					
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Remain**	**Comments:**
Coax	1-5/8"	12		Yes	Removing 6 coax from the 18 existing coax
Hybrid	1-5/8"	1		Yes	

verticalbridge

PROPOSED EQUIPMENT Applicant's Proposed Equipment Configuration and Specifications									
Equipment Type (ex: panel, TMA, RRU, ice shields)	**RAD (feet)**	**Mount Height (feet)**	**Mount Type**	**Equip Qty**	**Equipment Manufacturer**	**Equipment Model #**	**Equip Dim (HxWxD) (ft or in)**	**Equip Weight (lbs)**	**Azimuth**
Panel	280	280	Sector Frames	3	Ericsson	AIR6488 2.5GHz	34.8 x 20.5 x 7.2	128	10-130-250
Panel	280	280	Sector Frames	3	Ericsson	AIR 32	56.6" X 12.9" X 8.7"	132.2	10-130-250
RRU	280	280	Sector Frames	3	Ericsson	4415 B25	14.9 x 13.2 x 5.4	46.3	10-130-250

PROPOSED LINES Applicant's Proposed Lines and Specifications				
Line Type	**Line Size (Inches)**	**Total # of Lines**	**Coax interior or exterior (for monopoles)**	**Comments:**
Coax				
RET Home Run Cable				
Fiber	1-5/8"	4		
DC Power				

verticalbridge

PROPOSED FINAL CONFIGURATION TOTALS	
EQUIPMENT TYPE	TOTAL
Panel Antennas	12
Omni/Whip Antennas	
RRU	6
TMA	6
Diplexer / Triplexer	
Bias T	
Surge Suppressor	
MW Dish	
Ice Shield	
ODU	
Filter	
Combiner	
Junction Box	
RET	
Equipment Cabinets	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	
Other (Please specify)	

PROPOSED FINAL CONFIGURATION TOTALS	
LINE TYPE	TOTAL
Coax	12
Hybrid	5
CAT5	
DC/Power	
RET	
Fiber	

ADDITIONAL EQUIPMENT INFORMATION
• RRUs, TMAs and ODUs are required to be installed directly behind the antennas / MW dish. Otherwise there will be an additional charge. • All equipment lines are required to be installed inside the tower when space is available. Carriers will be charged an additional $25.00 per line per month if equipment lines are installed on the outside of the tower even though there is available space inside the tower. Vertical Bridge must approve any installation of lines on the outside of the tower. • All tenant equipment must be installed within one continuous 10 ft vertical envelope. Exceeding this vertical space will be subject to additional rent.

verticalbridge

GROUND / INTERIOR SPACE REQUIREMENTS						
Total Ground / Interior Area Dimensions: **L' x W' = Total Square Feet Required**	10 X 16	(Including all Equipment (i.e., Shelter, Equipment Platform or Pad, Generator Pad, Generator Fuel Tank Pad, Antenna Sleds, etc. – provide details below)				
Cabinet Area Dimensions (Pad/Platform)	X	Cabinet Installation Type	Ground Pad			
Shelter Pad Dimensions	X	Shelter Manufacturer				
Rooftop Antenna Total Area Required	X	Antenna Sled Dimensions (per sector)	X	Antenna Wall Mount Dimensions (per sector)	X	

EQUIPMENT CABINET REQUIREMENTS (Required for rooftops or Vertical Bridge interior space)					
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Number of Cabinets Required		Cabinet Dimensions (L' x W' x H')		Manufacturer:	
Equipment Cabinet Comments	Adding 2 cabinets in existing lease area.				

GENERATOR REQUIREMENTS					
Generator Required?:		Generator Fuel Type		Generator Size	
Generator Pad Dimensions			Generator Manufacturer		
Generator Fuel Tank Pad Dimensions			Fuel Tank Manufacturer		

AC POWER REQUIREMENTS			
Meter Type		Estimated Monthly Utility Usage Amount	
Voltage		Total Amperage	

FIBER / BACKHAUL					
Fiber Installation Status		Fiber Provider			
Cable Type		Number of Points of Entry		Conduit/Riser Size (in inches)	

STRUCTURAL ANALYSIS DETAILS			
Structural Hardcopies Required?	No	If wet seals required, please provide address:	

ADDITIONAL COMMENTS

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

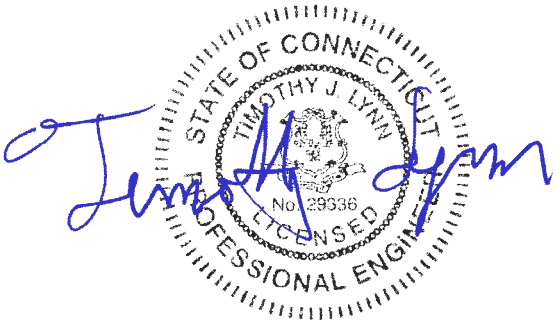
T-Mobile Site #: CT11196A

37 Carmen Hill Road
Danielson, CT

Centek Project No. 20074.01

~~Date: May 19, 2020~~
Rev 1: July 7, 2020

Max Stress Ratio = 64.4%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

July 7, 2020

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CT11196A
37 Carmen Hill Road
Brookfield, CT 06804

Centek Project No. 20074.01

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the proposed mount, consisting three (3) V - frame sector mounts (SitePro P/N: VFA14-HD) with stiff arms to support the proposed/existing equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- T-Mobile:
  V-Frames: Three (3) RFS APXVAARR24-43-NA20 panel antennas, three (3) RFS APX16DWV-16DWVS panel antennas, three (3) Ericsson AIR32 panel antennas, three (3) Ericsson AIR6488 panel antennas, six (6) TMAs, three (3) Ericsson 4449 remote radio units and three (3) Ericsson 4415 remote radio units mounted on three (3) V-Frames with a RAD center elevation of 280-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 93 mph for Brookfield as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the subject proposed replacement antenna frames have sufficient capacity to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	TIA-222-G Loads
Location:	Brookfield, CT
Rev. 1: 7/7/20	Prepared by: T.J.L. Checked by: C.A.G. Job No. 20074.01

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed: $V := 93$ mph (User Input - 2016 CSBC Appendix N)

Basic Wind Speed with Ice: $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = Structure_Type := Lattice (User Input)

Structure Category = $SC := II$ (User Input)

Exposure Category = $Exp := C$ (User Input)

Structure Height = $h := 499$ ft (User Input)

Height to Center of Antennas = $z_{Ant} := 280$ ft (User Input)

Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

Topograpic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H = 0.85$ (User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if Structure\_Type = Pole} \\ 0.85 & \text{if Structure\_Type = Lattice} \end{cases} = 0.85$$

(Per Table 2-2 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

(Per Table 2-3 of TIA-222-G)

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z_{Ant}}{33}\right)^{0.1} = 1.238$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.858$$

Velocity Pressure Coefficient Antennas =

$$Kz_{Ant} := 2.01\left(\left(\frac{z_{Ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.572$$

Velocity Pressure w/o Ice Antennas =

$$qz_{Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V^2 \cdot I_{Wind} = 29.585$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V_i^2 \cdot I_{Wind} = 8.551$$

CENTEK engineering
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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	TIA-222-G Loads
Location:	Brookfield, CT
Rev. 1: 7/7/20	Prepared by: T.J.L. Checked by: C.A.G. Job No. 20074.01

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVAARR24-43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 153$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 509$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 185$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 19.2$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 176$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 79$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 153$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 462$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 462$	lbs

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Subject:	TIA-222-G Loads
Location:	Brookfield, CT
Rev. 1: 7/7/20	Prepared by: T.J.L. Checked by: C.A.G. Job No. 20074.01

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPX16DWV-16DWVS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 13$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 41$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.3$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 162$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.2$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 39$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.9$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 64$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 2.8$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 26$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 41$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4552$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 148$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 148$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR32		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 56.6$	in	(User Input)
Antenna Width =	$W_{ant} := 12.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 132$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.4$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.1$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 164$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.4$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 110$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 7$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 65$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5.2$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 49$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 132$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6352$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 6090$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 197$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 197$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR6488		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 32$	in	(User Input)
Antenna Width =	$W_{ant} := 15.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.9$	in	(User Input)
Antenna Weight =	$WT_{ant} := 111$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 2.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.5$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 105$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.8$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 53$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 4.8$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 42$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 2.9$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 25$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 111$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3969$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4085$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 132$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 132$	lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Ericsson 4449 B71B12

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 14.9$ in (User Input)

RRUS Width = $W_{RRUS} := 13.2$ in (User Input)

RRUS Thickness = $T_{RRUS} := 10.4$ in (User Input)

RRUS Weight = $WT_{RRUS} := 74$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 41$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 32$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.2$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 19$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.8$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 16$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 74$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2045$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2399$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 78$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 78$ lbs

Development of Wind & Ice Load on RRUS

RRUS Data:

RRUS Model = Ericsson 4415 B25

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 14.9$ in (User Input)

RRUS Width = $W_{RRUS} := 13.2$ in (User Input)

RRUS Thickness = $T_{RRUS} := 5.4$ in (User Input)

RRUS Weight = $WT_{RRUS} := 47$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$ (User Input)

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 41$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 0.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz_{Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 17$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.2$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 19$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.2$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice.Ant} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 10$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 47$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 1062$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 1808$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 59$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 59$ lbs

Development of Wind & Ice Load on TMA

TMA Data:

TMA Model =	Ericsson KRY112 TMA		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 7.7$	in	(User Input)
TMA Width =	$W_{TMA} := 7.5$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3.4$	in	(User Input)
TMA Weight =	$WT_{TMA} := 11$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA =	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.4$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 12$	lbs
Surface Area for One TMA =	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.2$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 5$	lbs

Wind Load (with ice)

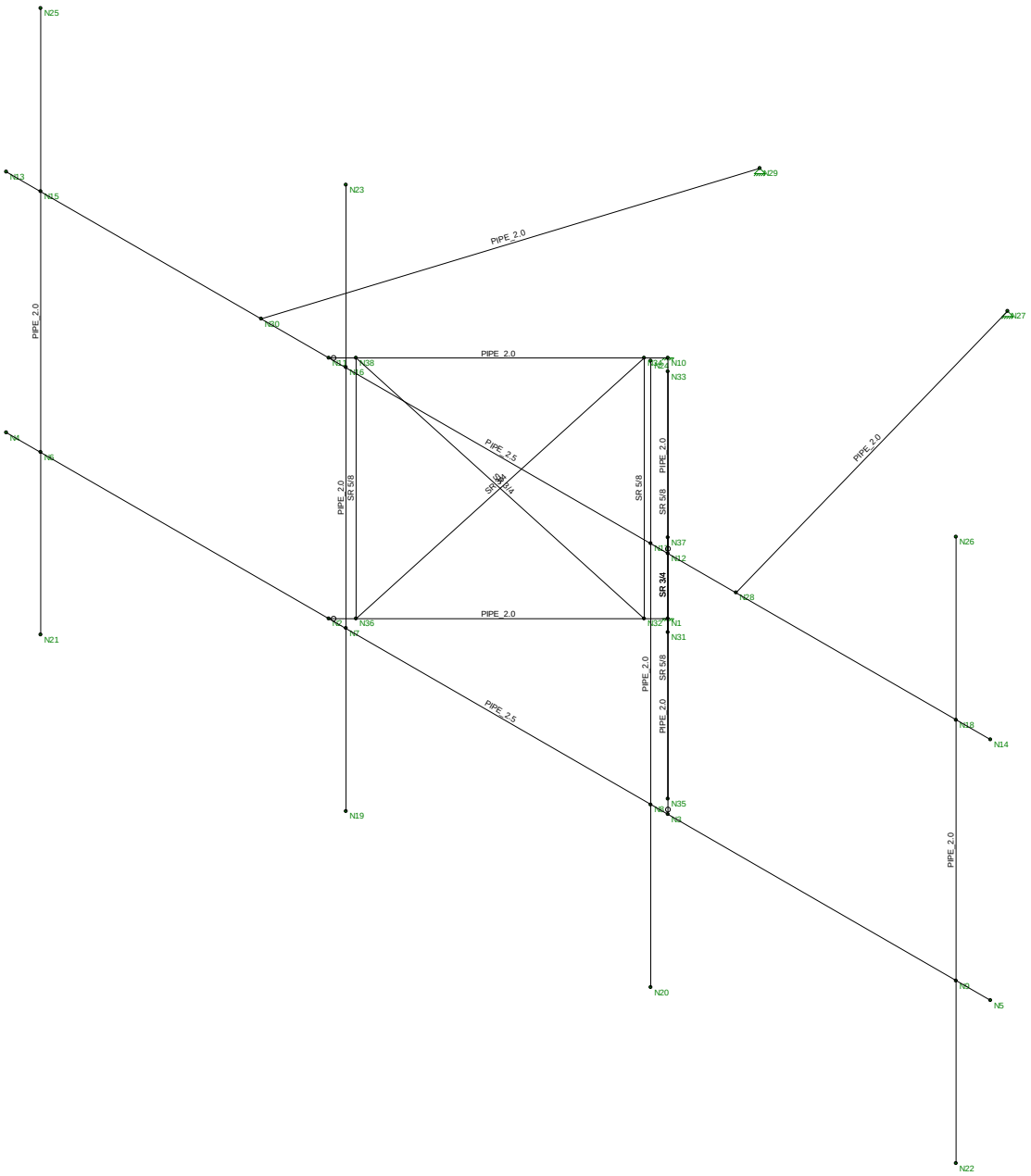
Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.9$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 8$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.6$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 5$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 11$	lbs

Gravity Loads (ice only)

Volume of Each TMA =	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 196$	cu in
Volume of Ice on Each TMA =	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz})(W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 715$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 23$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 23$	lbs



Envelope Only Solution

Centek		
TJL	CT11196A	July 7, 2020 at 9:48 AM
20074.01	Member Framing	Antenna Mount.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horz	PIPE 2.5	Beam	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89
2	Pipe 2.0	PIPE 2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
3	Antenna Mast	PIPE 2.0	Column	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	SR3/4	SR 3/4	HBrace	Pipe	A36 Gr.36	Typical	.442	.016	.016	.031
5	SR5/8	SR 5/8	HBrace	Pipe	A36 Gr.36	Typical	.307	.007	.007	.015

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Pipe 2.0	3.536			Lbyy						Lateral
2	M2	Pipe 2.0	3.536			Lbyy						Lateral
3	M3	Horz	14.5			Lbyy						Lateral
4	M4	Pipe 2.0	3.536			Lbyy						Lateral
5	M5	Pipe 2.0	3.536			Lbyy						Lateral
6	M6	Horz	14.5			Lbyy						Lateral
7	M7	Antenna Mast	8			Lbyy						Lateral
8	M8	Antenna Mast	8			Lbyy						Lateral
9	M9	Antenna Mast	8			Lbyy						Lateral
10	M10	Antenna Mast	8			Lbyy						Lateral
11	M11	Pipe 2.0	5.922			Lbyy						Lateral
12	M12	Pipe 2.0	5.922			Lbyy						Lateral
13	M13	SR5/8	3.333									Lateral
14	M14	SR5/8	3.333									Lateral
15	M15	SR5/8	3.333									Lateral
16	M16	SR5/8	3.333									Lateral
17	M17	SR3/4	4.484									Lateral
18	M18	SR3/4	4.484									Lateral
19	M19	SR3/4	4.484									Lateral
20	M20	SR3/4	4.484									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N3		270	Pipe 2.0	Beam	Pipe	A53 Gra...	Typical
2	M2	N1	N2			Pipe 2.0	Beam	Pipe	A53 Gra...	Typical
3	M3	N4	N5		180	Horz	Beam	Pipe	A53 Gra...	Typical
4	M4	N10	N12		180	Pipe 2.0	Beam	Pipe	A53 Gra...	Typical
5	M5	N10	N11		90	Pipe 2.0	Beam	Pipe	A53 Gra...	Typical
6	M6	N13	N14		270	Horz	Beam	Pipe	A53 Gra...	Typical
7	M7	N25	N21			Antenna Mast	Column	Pipe	A53 Gra...	Typical
8	M8	N19	N23			Antenna Mast	Column	Pipe	A53 Gra...	Typical
9	M9	N20	N24			Antenna Mast	Column	Pipe	A53 Gra...	Typical
10	M10	N26	N22			Antenna Mast	Column	Pipe	A53 Gra...	Typical
11	M11	N28	N27			Pipe 2.0	Beam	Pipe	A53 Gra...	Typical
12	M12	N30	N29			Pipe 2.0	Beam	Pipe	A53 Gra...	Typical
13	M13	N38	N36			SR5/8	HBrace	Pipe	A36 Gr.36	Typical
14	M14	N34	N32			SR5/8	HBrace	Pipe	A36 Gr.36	Typical
15	M15	N33	N31			SR5/8	HBrace	Pipe	A36 Gr.36	Typical
16	M16	N37	N35			SR5/8	HBrace	Pipe	A36 Gr.36	Typical
17	M17	N38	N32			SR3/4	HBrace	Pipe	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
18	M18	N34	N36			SR3/4	HBrace	Pipe	A36 Gr.36	Typical
19	M19	N33	N35			SR3/4	HBrace	Pipe	A36 Gr.36	Typical
20	M20	N31	N37			SR3/4	HBrace	Pipe	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	-2.5	0	2.5	0	
3	N3	2.5	0	2.5	0	
4	N4	-7.25	0	2.5	0	
5	N5	7.25	0	2.5	0	
6	N6	-6.75	0	2.5	0	
7	N7	-2.25	0	2.5	0	
8	N8	2.25	0	2.5	0	
9	N9	6.75	0	2.5	0	
10	N10	0	3.333	0	0	
11	N11	-2.5	3.333	2.5	0	
12	N12	2.5	3.333	2.5	0	
13	N13	-7.25	3.333	2.5	0	
14	N14	7.25	3.333	2.5	0	
15	N15	-6.75	3.333	2.5	0	
16	N16	-2.25	3.333	2.5	0	
17	N17	2.25	3.333	2.5	0	
18	N18	6.75	3.333	2.5	0	
19	N19	-2.25	-2.333	2.5	0	
20	N20	2.25	-2.333	2.5	0	
21	N21	-6.75	-2.333	2.5	0	
22	N22	6.75	-2.333	2.5	0	
23	N23	-2.25	5.667	2.5	0	
24	N24	2.25	5.667	2.5	0	
25	N25	-6.75	5.667	2.5	0	
26	N26	6.75	5.667	2.5	0	
27	N27	1.825	3.25	-3.18	0	
28	N28	3.5	3.333	2.5	0	
29	N29	-1.825	3.25	-3.18	0	
30	N30	-3.5	3.333	2.5	0	
31	N31	0.176777	0	0.176777	0	
32	N32	-0.176777	0	0.176777	0	
33	N33	0.176777	3.333	0.176777	0	
34	N34	-0.176777	3.333	0.176777	0	
35	N35	2.298097	0	2.298097	0	
36	N36	-2.298097	0	2.298097	0	
37	N37	2.298097	3.333	2.298097	0	
38	N38	-2.298097	3.333	2.298097	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N10	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N27	Reaction	Reaction	Reaction			
4	N29	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	Y	-.021	2
2	M10	Y	-.021	6
3	M9	Y	-.077	1
4	M9	Y	-.077	7
5	M8	Y	-.066	2
6	M8	Y	-.066	6
7	M7	Y	-.056	2.5
8	M7	Y	-.056	5.5
9	M10	Y	-.011	3.5
10	M10	Y	-.011	5
11	M9	Y	-.047	3
12	M9	Y	-.074	5.5

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	Y	-.074	2
2	M10	Y	-.074	6
3	M9	Y	-.231	1
4	M9	Y	-.231	7
5	M8	Y	-.099	2
6	M8	Y	-.099	6
7	M7	Y	-.066	2.5
8	M7	Y	-.066	5.5
9	M10	Y	-.023	3.5
10	M10	Y	-.023	5
11	M9	Y	-.059	3
12	M9	Y	-.078	5.5

Member Point Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	X	.013	2
2	M10	X	.013	6
3	M9	X	.04	1
4	M9	X	.04	7
5	M8	X	.025	2
6	M8	X	.025	6
7	M7	X	.013	2.5
8	M7	X	.013	5.5
9	M10	X	.005	3.5
10	M10	X	.005	5
11	M9	X	.01	3
12	M9	X	.016	5.5

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	X	.02	2
2	M10	X	.02	6
3	M9	X	.093	1
4	M9	X	.093	7
5	M8	X	.055	2
6	M8	X	.055	6
7	M7	X	.027	2.5
8	M7	X	.027	5.5
9	M10	X	.005	3.5
10	M10	X	.005	5
11	M9	X	.017	3
12	M9	X	.032	5.5

Member Point Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	Z	.032	2
2	M10	Z	.032	6
3	M9	Z	.088	1
4	M9	Z	.088	7
5	M8	Z	.033	2
6	M8	Z	.033	6
7	M7	Z	.021	2.5
8	M7	Z	.021	5.5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M10	Z	.081	2
2	M10	Z	.081	6
3	M9	Z	.255	1
4	M9	Z	.255	7
5	M8	Z	.082	2
6	M8	Z	.082	6
7	M7	Z	.053	2.5
8	M7	Z	.053	5.5

Member Distributed Loads

Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
No Data to Print ...					

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Dead Load	None					12			
3	Ice Load	None					12			
4	Wind with Ice X	None					12			
5	Wind X	None					12			
6	Wind with Ice Z	None					8			
7	Wind Z	None					8			

Load Combinations

	Description	Solve	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.2D + 1.6W (X-direc...	Yes	Y		1	1.2	2	1.2	5	1.6																
2	0.9D + 1.6W (X-direc...	Yes	Y		1	.9	2	.9	5	1.6																
3	1.2D + 1.0Di + 1.0Wi...	Yes	Y		1	1.2	2	1.2	3	1	4	1														
4	1.2D + 1.6W (Z-direc...	Yes	Y		1	1.2	2	1.2	7	1.6																
5	0.9D + 1.6W (Z-direc...	Yes	Y		1	.9	2	.9	7	1.6																
6	1.2D + 1.0Di + 1.0Wi...	Yes	Y		1	1.2	2	1.2	3	1	6	1														

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.372	6	.244	6	1.589	3	.089	4	.187	5	.05	5
2		min	-.332	2	.102	2	-.169	5	-.001	2	-.227	1	-.024	1
3	N10	max	.178	4	2.051	6	-.229	5	-.097	2	.038	4	.074	6
4		min	-.542	1	.769	2	-1.604	3	-.29	6	-.055	2	-.037	1
5	N27	max	.079	1	.01	1	.285	1	0	6	0	6	0	6
6		min	-.257	5	-.019	5	-.851	4	0	1	0	1	0	1
7	N29	max	.086	5	.009	1	-.071	6	0	6	0	6	0	6
8		min	.022	3	-.005	5	-.277	2	0	1	0	1	0	1
9	Totals:	max	0	6	2.304	6	0	3						
10		min	-.718	1	.886	2	-1.507	4						

Envelope Joint Displacements

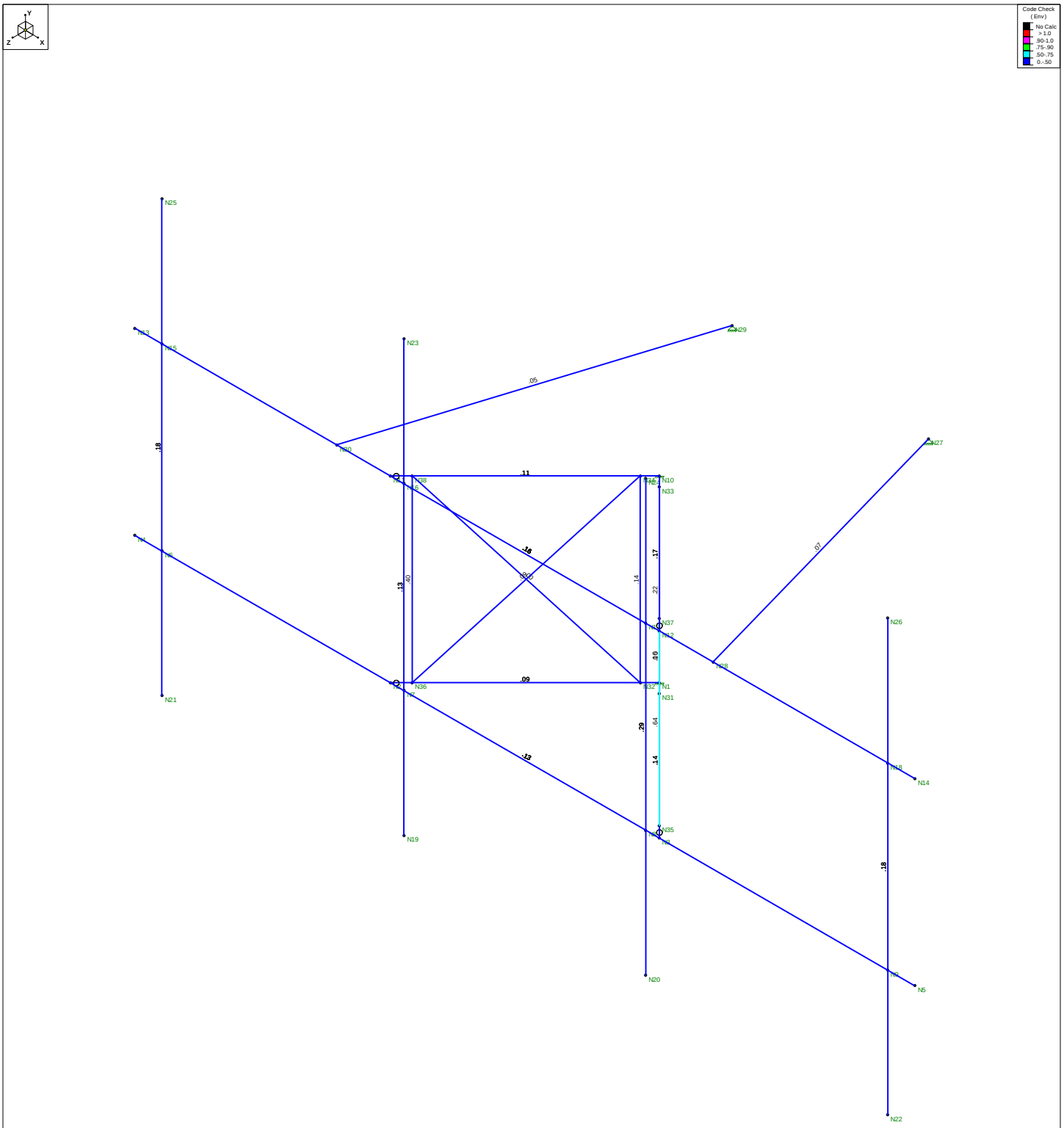
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
1	N1	max	0	6	0	6	0	6	0	6	0	6	0	6
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	.04	1	-.006	5	.038	1	6.128e-05	3	1.112e-03	4	1.303e-03	3
4		min	-.032	5	-.017	3	-.032	5	-1.179e-03	5	2.477e-04	3	2.536e-04	5
5	N3	max	.04	1	-.006	2	.033	5	6.362e-04	1	8.932e-04	1	1.511e-04	2
6		min	-.033	5	-.027	6	-.041	1	-4.685e-03	5	-2.946e-03	5	-1.345e-03	6
7	N4	max	.04	1	-.049	5	.14	4	-4.815e-05	6	3.74e-03	4	1.974e-03	3
8		min	-.032	5	-.17	3	.013	3	-1.14e-03	1	3.537e-05	3	3.078e-04	5
9	N5	max	.04	1	-.03	2	.313	5	1.259e-03	1	4.993e-05	1	-9.609e-05	2
10		min	-.033	5	-.186	6	-.057	1	-4.82e-03	5	-5.658e-03	5	-2.087e-03	6
11	N6	max	.04	1	-.047	5	.117	4	-4.815e-05	6	3.74e-03	4	1.974e-03	3
12		min	-.032	5	-.158	3	.013	3	-1.14e-03	1	3.537e-05	3	3.073e-04	5
13	N7	max	.04	1	-.005	5	.035	1	5.413e-05	3	1.023e-03	1	9.252e-04	3
14		min	-.032	5	-.014	3	-.035	5	-1.227e-03	5	2.042e-04	6	9.465e-05	5
15	N8	max	.04	1	-.007	2	.025	5	6.085e-04	1	9.852e-04	1	3.416e-04	2
16		min	-.033	5	-.024	6	-.038	1	-4.762e-03	5	-2.667e-03	5	-1.009e-03	6
17	N9	max	.04	1	-.029	2	.279	5	1.259e-03	1	4.993e-05	1	-9.565e-05	2
18		min	-.033	5	-.174	6	-.057	1	-4.82e-03	5	-5.658e-03	5	-2.087e-03	6
19	N10	max	0	6	0	6	0	6	0	6	0	6	0	6
20		min	0	1	0	1	0	1	0	1	0	1	0	1
21	N11	max	.01	2	-.006	5	.009	2	1.43e-03	5	1.765e-04	4	1.454e-03	3
22		min	-.007	4	-.018	3	-.007	4	-4.626e-04	1	-2.051e-04	2	4.551e-04	5
23	N12	max	.01	2	-.008	2	.006	4	2.833e-03	4	2.3e-04	5	-5.184e-04	2
24		min	-.007	4	-.029	6	-.009	2	1.684e-04	3	-2.474e-04	1	-1.603e-03	6
25	N13	max	.01	2	-.048	5	.118	4	7.132e-05	5	3.325e-03	4	1.91e-03	3
26		min	-.007	4	-.17	3	.002	3	-1.133e-03	1	4.182e-05	3	2.176e-04	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
27	N14	max	.01	2	-.028	2	.178	5	1.101e-03	1	1.031e-04	1	1.695e-04	2
28		min	-.007	4	-.186	6	-.002	1	-7.598e-04	5	-5.115e-03	5	-1.96e-03	6
29	N15	max	.01	2	-.047	5	.098	4	7.132e-05	5	3.325e-03	4	1.91e-03	3
30		min	-.007	4	-.158	3	.002	3	-1.133e-03	1	4.182e-05	3	2.172e-04	5
31	N16	max	.01	2	-.005	5	.009	2	1.573e-03	5	7.586e-05	4	1.08e-03	3
32		min	-.007	4	-.014	3	-.007	4	-4.531e-04	1	-3.836e-05	2	2.828e-04	5
33	N17	max	.01	2	-.007	2	.006	4	3.154e-03	4	8.262e-05	5	-4.895e-04	2
34		min	-.007	4	-.024	6	-.009	2	1.57e-04	3	-7.739e-05	1	-1.253e-03	6
35	N18	max	.01	2	-.029	2	.148	5	1.101e-03	1	1.031e-04	1	1.699e-04	2
36		min	-.007	4	-.174	6	-.001	1	-7.598e-04	5	-5.115e-03	5	-1.959e-03	6
37	N19	max	.064	1	-.005	5	.047	1	5.399e-05	3	1.023e-03	1	9.366e-04	3
38		min	-.029	5	-.014	3	-.008	6	-1.298e-03	5	2.042e-04	6	9.457e-05	5
39	N20	max	.078	2	-.007	2	.241	5	6.077e-04	1	9.852e-04	1	1.649e-03	2
40		min	-.047	4	-.024	6	-.055	1	-8.342e-03	5	-2.667e-03	5	-1.004e-03	6
41	N21	max	.089	1	-.047	5	.14	4	-4.814e-05	6	3.74e-03	4	1.973e-03	3
42		min	-.023	5	-.158	3	.018	3	-1.14e-03	1	3.537e-05	3	3.073e-04	5
43	N22	max	.037	2	-.029	2	.416	5	1.258e-03	1	4.993e-05	1	-7.805e-05	2
44		min	-.071	4	-.174	6	-.092	1	-4.889e-03	5	-5.658e-03	5	-2.084e-03	6
45	N23	max	-.011	2	-.005	5	.039	5	1.647e-03	5	7.586e-05	4	1.069e-03	3
46		min	-.028	6	-.014	3	-.004	1	-4.536e-04	1	-3.836e-05	2	2.831e-04	5
47	N24	max	.057	1	-.007	2	.177	4	6.756e-03	4	8.262e-05	5	-7.491e-04	5
48		min	.014	5	-.025	6	.001	3	1.577e-04	3	-7.739e-05	1	-1.922e-03	1
49	N25	max	-.013	5	-.047	5	.099	5	7.132e-05	5	3.325e-03	4	1.91e-03	3
50		min	-.051	3	-.158	3	-.028	1	-1.133e-03	1	4.182e-05	3	2.172e-04	5
51	N26	max	.054	6	-.029	2	.129	4	1.101e-03	1	1.031e-04	1	1.523e-04	2
52		min	.006	2	-.174	6	.012	3	-6.885e-04	5	-5.115e-03	5	-1.962e-03	6
53	N27	max	0	6	0	6	0	6	1.355e-04	3	4.124e-04	2	-4.775e-04	2
54		min	0	1	0	1	0	1	-5.325e-04	5	5.884e-05	6	-2.753e-03	6
55	N28	max	.01	2	-.015	2	.005	4	1.664e-03	5	-1.839e-04	3	-6.063e-04	2
56		min	-.007	4	-.056	6	-.004	2	1.255e-04	3	-7.877e-04	5	-2.836e-03	6
57	N29	max	0	6	0	6	0	6	2.333e-04	1	4.316e-04	2	2.775e-03	3
58		min	0	1	0	1	0	1	-2.795e-04	5	-6.159e-04	4	5.626e-04	5
59	N30	max	.01	2	-.015	5	.004	1	9.116e-04	5	9.871e-04	4	2.718e-03	3
60		min	-.007	4	-.044	3	0	5	-6.027e-04	1	-3.441e-04	2	8.907e-04	5
61	N31	max	0	2	0	6	0	5	3.497e-05	2	2.74e-04	1	1.771e-05	2
62		min	0	4	0	1	0	1	-1.986e-04	4	-2.296e-04	5	-1.728e-04	4
63	N32	max	0	1	0	3	0	2	-5.307e-05	5	2.673e-04	1	5.149e-05	4
64		min	0	5	0	4	0	4	-6.661e-05	3	-2.165e-04	5	1.997e-05	3
65	N33	max	0	3	0	2	0	6	1.698e-04	6	6.71e-05	2	-4.785e-06	5
66		min	0	5	-.001	6	0	2	4.656e-05	2	-3.79e-05	4	-2.418e-04	3
67	N34	max	0	2	0	5	0	3	1.014e-04	4	6.48e-05	2	1.873e-04	3
68		min	0	4	0	3	0	5	2.437e-05	2	-5.176e-05	4	1.645e-05	5
69	N35	max	.035	1	-.005	2	.029	5	1.259e-03	3	1.981e-03	1	4.043e-05	2
70		min	-.029	5	-.018	6	-.036	1	-1.824e-03	5	-1.612e-03	5	-3.144e-03	4
71	N36	max	.035	1	-.004	5	.034	1	5.004e-04	3	1.921e-03	1	1.632e-03	3
72		min	-.028	5	-.012	3	-.028	5	-2.982e-04	5	-1.583e-03	5	1.002e-03	5
73	N37	max	.009	2	-.006	2	.005	4	1.433e-03	4	4.727e-04	2	3.937e-04	5
74		min	-.006	4	-.022	6	-.008	2	4.155e-04	2	-3.085e-04	4	-1.894e-03	3
75	N38	max	.009	2	-.005	5	.008	2	7.487e-04	4	4.668e-04	2	1.494e-03	3
76		min	-.006	4	-.014	3	-.006	4	-2.336e-04	2	-3.428e-04	4	-1.538e-04	5

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Lo...	LC	She...	Lo...		phi*P...	phi*P...	phi*...	phi*...	Cb	Eqn
1	M1	PIPE_2.0	.140	3....	6	.112	3....	6	27.658	32.13	1.872	1.872	1.7...	H1-...
2	M2	PIPE_2.0	.090	3....	3	.069	3....	3	27.658	32.13	1.872	1.872	1.9...	H1-...
3	M3	PIPE_2.5	.125	9....	6	.058	9....	5	10.82	50.715	3.596	3.596	1.9...	H1-...
4	M4	PIPE_2.0	.167	0	6	.143	0	3	27.658	32.13	1.872	1.872	2.7...	H1-...
5	M5	PIPE_2.0	.107	0	3	.101	0	3	27.658	32.13	1.872	1.872	1.56	H1-...
6	M6	PIPE_2.5	.164	10...	5	.127	9....	4	10.82	50.715	3.596	3.596	1.7...	H1-...
7	M7	PIPE_2.0	.179	5....	6	.024	2....	4	14.916	32.13	1.872	1.872	4.9...	H1-...
8	M8	PIPE_2.0	.129	2....	4	.025	2....	4	14.916	32.13	1.872	1.872	4.7...	H1-...
9	M9	PIPE_2.0	.294	5....	4	.052	2....	5	14.916	32.13	1.872	1.872	2.8...	H1-...
10	M10	PIPE_2.0	.179	5....	3	.023	5....	4	14.916	32.13	1.872	1.872	4.8...	H1-...
11	M11	PIPE_2.0	.071	0	4	.003	0	4	21.099	32.13	1.872	1.872	2.0...	H1-...
12	M12	PIPE_2.0	.049	0	4	.003	0	4	21.099	32.13	1.872	1.872	2.4...	H1-...
13	M13	SR 5/8	.404	3....	3	.007	0	1	1.058	9.94	.104	.104	2.2...	H1-...
14	M14	SR 5/8	.135	3....	3	.001	0	1	1.058	9.94	.104	.104	2.1...	H1-...
15	M15	SR 5/8	.215	3....	6	.001	0	1	1.058	9.94	.104	.104	2.1...	H1-...
16	M16	SR 5/8	.644	3....	6	.007	0	1	1.058	9.94	.104	.104	2.2...	H1-...
17	M17	SR 3/4	.000	0	6	.000	0	6	1.212	14.314	.179	.179	1	H1-...
18	M18	SR 3/4	.092	0	3	.008	4....	4	1.212	14.314	.179	.179	3.0...	H1-...
19	M19	SR 3/4	.146	0	6	.005	4....	4	1.212	14.314	.179	.179	2.9...	H1-...
20	M20	SR 3/4	.000	0	6	.000	0	6	1.212	14.314	.179	.179	1	H1-...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek		
TJL	CT11196A	July 7, 2020 at 9:48 AM
20074.01	Unity Check	Antenna Mount.r3d

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11196A

Brookfield/Junction Rd.
37 Carmen Hill Road
Brookfield, Connecticut 06804

September 1, 2020

EBI Project Number: 6220003151

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.53%**

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

September 1, 2020

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11196A - Brookfield/Junction Rd.

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **37 Carmen Hill Road** in **Brookfield, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 37 Carmen Hill Road in Brookfield, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

8) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

9) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

10) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

11) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6488 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6488 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6488 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied

specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antenna mounting height centerline of the proposed antennas is 280 feet above ground level (AGL).

14) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

15) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd
Height (AGL):	280 feet	Height (AGL):	280 feet	Height (AGL):	280 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A1 MPE %:	**0.32%**	Antenna B1 MPE %:	**0.32%**	Antenna C1 MPE %:	**0.32%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 6488	Make / Model:	Ericsson AIR 6488	Make / Model:	Ericsson AIR 6488
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	14.75 dBd / 14.75 dBd	Gain:	14.75 dBd / 14.75 dBd	Gain:	14.75 dBd / 14.75 dBd
Height (AGL):	280 feet	Height (AGL):	280 feet	Height (AGL):	280 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	4,776.61	ERP (W):	4,776.61	ERP (W):	4,776.61
Antenna A2 MPE %:	**0.22%**	Antenna B2 MPE %:	**0.22%**	Antenna C2 MPE %:	**0.22%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	280 feet	Height (AGL):	280 feet	Height (AGL):	280 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A3 MPE %:	**0.40%**	Antenna B3 MPE %:	**0.40%**	Antenna C3 MPE %:	**0.40%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	280 feet	Height (AGL):	280 feet	Height (AGL):	280 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts
ERP (W):	8,466.41	ERP (W):	8,466.41	ERP (W):	8,466.41
Antenna A4 MPE %:	**0.65%**	Antenna B4 MPE %:	**0.65%**	Antenna C4 MPE %:	**0.65%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	1.59%
Verizon	4.17%
WRKI FM radio	2.65%
WINE AM radio	0.000002%
Town Fire Dept	0.12%
Town Police Dept	0.21%
Town PW Dept	0.57%
Sprint	0.88%
Clearwire	0.07%
AT&T	0.62%
Field Measurement	8.65%
Site Total MPE % :	19.53%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	1.59%
T-Mobile Sector B Total:	1.59%
T-Mobile Sector C Total:	1.59%
Site Total MPE % :	19.53%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1167.14	280.0	2.14	1900 MHz GSM	1000	0.21%
T-Mobile 2100 MHz UMTS	2	1167.14	280.0	1.07	2100 MHz UMTS	1000	0.11%
T-Mobile 2500 MHz LTE	2	1194.15	280.0	1.10	2500 MHz LTE	1000	0.11%
T-Mobile 2500 MHz NR	2	1194.15	280.0	1.10	2500 MHz NR	1000	0.11%
T-Mobile 1900 MHz LTE	2	2056.61	280.0	1.89	1900 MHz LTE	1000	0.19%
T-Mobile 2100 MHz LTE	2	2307.55	280.0	2.12	2100 MHz LTE	1000	0.21%
T-Mobile 600 MHz LTE	2	591.73	280.0	0.54	600 MHz LTE	400	0.14%
T-Mobile 600 MHz NR	1	1577.94	280.0	0.72	600 MHz NR	400	0.18%
T-Mobile 700 MHz LTE	2	648.82	280.0	0.60	700 MHz LTE	467	0.13%
T-Mobile 1900 MHz LTE	2	2203.69	280.0	2.02	1900 MHz LTE	1000	0.20%
						Total:	**1.59%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	1.59%
Sector B:	1.59%
Sector C:	1.59%
T-Mobile Maximum MPE % (Sector A):	1.59%
Site Total:	19.53%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.53%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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