750 West Center Street, Floor 3 / Suite 301
West Bridgewater, MA 02379 *Corporate Headquarters*
781.713.4725
617.249.0819

Centerline Communications
Mark Appleby
750 West Center Street, Floor 3
West Bridgewater, MA 02379
860-209-4694
mappleby@clinellc.com

July 12, 2022

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

Notice of Exempt Modification
17 Pilgrim Drive Tolland CT 06084
Latitude: 41 ’52 28.89” N
Longitude: -72.’23 38.38” W
T-Mobile Site#: CT11141A_L600

Dear Ms. Bachman:

T-Mobile currently maintains Three (3) antennas at the 130-foot level of the existing 130-foot guyed tower at 17 Pilgrim Drive Tolland Connecticut 06070. The 130-foot lattice tower is owned by the 17 Mile Real Estate Company T-Mobile Now intends to remove the existing antennas at the 130- foot level and replace new antennas at the 127-foot level. The proposed upgrades will make this site available for 5G deployment in the future.

Planned Modifications:

Remove 130 Ft Level:
(3) Existing EMS-RR9017 XXDP Antennas **(Remove)** (3) Existing TMA’s **(Remove)**

Install New: 127 Ft level
(3) RFS APXVAARR24_43-U-NA20 Antennas
(3) RFS 6419-B41 Antennas
(3) RRU 4460 B25 B66A Radios Antenna Level
(3) RRU 4480 B71 B85 Radios Antenna Level

There are structural modifications to be done to this tower they are included in the drawings also attached passing structural analysis also attached is a passing Mount Analysis

Remove (6) 1-5/8” Coax Replace with (3) Fiber Cables

Ground: Install (2) New Cabinets

CENTERLINE COMMUNICATIONS

750 West Center Street, Floor 3 / Suite 301
West Bridgewater, MA 02379 *Corporate Headquarters*
781.713.4725
617.249.0819

T-Mobile originally were approved to locate on this tower by the Town of Tolland I have attached documentation in regard to the approval of this tower see attached. This existing tower is 130 Ft, and we are not extending the height of the existing tower or expanding the compound.

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 Brian Foley Town Manager, David Corcoran Director of Planning, 17 Mile Real Estate the Tower Owner, Raphael Chavez Landowner

The planning 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,

Mark Appleby

Mobile: 860-209-4694
Fax: 508-819-3017
Office: 750 W. Center Street Suite 301
West Bridgewater, MA 02379
Email: mappleby@clinellc.com

Attachments
cc: Town of Tolland Town Manager Brian Foley
Town of Tolland Town Planner David Corcoran
17 Mile Real Estate Tower Owner
Raphael Chavez Landowner

Exhibit A

Original Facility Approval

17 Pilgrim Tower Study

Stanley Miliauskas

2007 - Town staff prepared list of towers + submitted to Siting Council. T-Mobile listed as being on a ham tower. 140' in height.

10/1/1995 - ~~district separ~~ Coverage added.

"Cordless Tech Trans Inc.
Omnipoint Communications Inc,
T-Mobile Northeast LLC
} owners.

ZONING PERMIT APPLICATION

TOWN OF TOLLAND, CONNECTICUT

No. 73-125

Application of Stanley N. Hilinski III

Address 17 Pilgrim Dr. Phone 8726197

To Erect [X] or Alter [ ]

Location —

Development _____ Road _____ Section _____ Lot No. _____

Town Map Reference _____ Zone _____

Size of Lot _____ x _____ Ft. Total Area _____ Sq. Ft.

~~Type of Building~~ Tower 60 feet Stories _____

Size of Building _____ Ft. x _____ Ft. Area _____ Sq. Ft.

Yards – Front 80+ Ft. Rear 80+ Ft. Side (L) 80+ Ft. Side (R) 100 Ft.

PLOT PLAN IS FURNISHED ON REVERSE SIDE OF APPLICATION AS REQUIRED.

Permit Fee -- $ 6.00

Dated at Tolland, Connecticut, this 30 day of June 19 73

Said permit shall expire one (1) year after issuance but may be renewed for a similiar period if substancial construction has been undertaken, upon payment of an amount equal to the original fee.

ARTICLE V, Sec 3, A(2) — Page 9, Tolland Zoning Regulations:

" – All applications for building permits shall be accompanied by a plan showing actual dimensions of the lot to be built upon, the size of the building to be erected, the location of the building upon the lot, the dimensions of all open spaces and such other information as may be necessary to provide for the enforcement of this ordinance."

Stanley N. Hilinski III

Applicant's Signature

I hereby certify that the above specifications comply with the Zoning Regulations for the Town of Tolland, Connecticut, and acknowledge the receipt of $ 6.00 permit fee.

_____

Agent for Zoning Commission

Heidi Samokar

From: Bachman, Melanie <Melanie.Bachman@ct.gov>
Sent: Wednesday, May 31, 2017 2:37 PM
To: Heidi Samokar
Subject: RE: Telecommunications Towers - Tolland, CT

At this time, yes, absolutely. At that time (early 2000s), when PCS technology emerged, the Siting Council determined it did not have jurisdiction over PCS because it was not used in a "cellular" system. Sprint sued us in federal court arguing that the Siting Council does have jurisdiction over PCS technology. They prevailed. We then took on jurisdiction over PCS.

Melanie A. Bachman
Staff Attorney/Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
860-827-2951

From: Heidi Samokar [mailto:hsamokar@tolland.org]
Sent: Wednesday, May 31, 2017 2:27 PM
To: Bachman, Melanie
Subject: RE: Telecommunications Towers - Tolland, CT

Thank you. Would they have required Siting Council approval?

Heidi Samokar, AICP
Director of Planning & Development
hsamokar@tolland.org
860.871.3601, Mon.-Thurs.

21 Tolland Green
Tolland, CT 06084

From: Bachman, Melanie [mailto:Melanie.Bachman@ct.gov]
Sent: Wednesday, May 31, 2017 2:12 PM
To: Heidi Samokar
Subject: FW: Telecommunications Towers - Tolland, CT

Good afternoon.

We searched our records of the 17 Pilgrim Drive tower and came up with a 2007 report and e-mail (attached and below) from Mr. Lowrey of the Town of Tolland (municipalities were required to report to us any non-tower antenna arrays approved by them on an annual basis, but this has since been repealed) that identified T-Mobile as being collocated on the HAM tower at

the 140 foot level. However, we don't have any record of a tower share request from T-Mobile. We also checked past reports from T-Mobile that did not indicate they installed antennas on the HAM tower as of 2005, but this tower is listed in their more recent reports.

Sorry we couldn't be more helpful.

Thanks. Have a nice afternoon.

Melanie

Melanie A. Bachman
Staff Attorney/Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
860-827-2951

From: Walsh, Christina
Sent: Wednesday, May 31, 2017 11:54 AM
To: Bachman, Melanie; Cunliffe, Fred
Subject: FW: Telecommunications Towers - Tolland, CT

This is where we got the information for the Tolland towers.

CHRISTINA WALSH
SUPERVISING SITING ANALYST
CONNECTICUT SITING COUNCIL
TEN FRANKLIN SQUARE
NEW BRITAIN, CT 06051
TEL: 860-827-2944

www.ct.gov/csc

From: Steve Lowrey [mailto:slowrey@tolland.org]
Sent: Tuesday, September 25, 2007 3:24 PM
To: Lepage, Christina
Subject: Telecommunications Towers - Tolland, CT

Here is Tolland's tower inventory. The last two towers (in red) were approved by the PZC last night and have not been erected yet, though I expect that they will be up within a couple on months. They are for Tolland Fire Dept. communications.

Stephen Lowrey, CZEO
Zoning/Wetlands Agent
21 Tolland Green

Tolland, CT 06084
Phone (860) 871-3605
Fax (860) 871-3628

Mark Appleby

From: Cunliffe, Fred <Fred.Cunliffe@ct.gov>
Sent: Tuesday, June 28, 2022 8:57 AM
To: Mark Appleby
Subject: Re: CT11141A T-Mobile CSC Exempt Mod App 17 Pilgrim Drive Tolland

Good morning Mark,

Sorry for the delay.

The documents you shared will suffice as the original facility approval.

Regards,

Fred Cunliffe
Supervising Siting Analyst
Connecticut Siting Council
Ten Franklin Square
New Britain, Connecticut 06051
office - 860-827-2935
desk - 860-827-2939
office email - siting.council@ct.gov
email - Fred.Cunliffe@ct.gov

From: Mark Appleby <mappleby@clinellc.com>
Sent: Tuesday, June 21, 2022 3:24 PM
To: Cunliffe, Fred <Fred.Cunliffe@ct.gov>
Subject: CT11141A T-Mobile CSC Exempt Mod App 17 Pilgrim Drive Tolland

Fred,

Per our recent conversation T-Mobile is currently located on this tower and looking to file an exempt mod for the tower. The tower is listed on the comprehensive site data base. This tower was originally approved by local zoning see attached correspondence.
We are not looking to increase the height of the tower can you let me know if we can do this on an exempt mod and do you need the attached correspondence include in the exempt mod application.
Please advise.

Mark Appleby | Site Acquisition Consultant
750 W Center St, Suite 301 | West Bridgewater, MA 02379
Mobile: 860.209.4694 | Fax: 508.819.3017
mappleby@clinellc.com |
https://link.edgepilot.com/s/ca390d89/YqiuwEgnb0uiegScbjlfHg?u=http://www.centerlinecommunications.com/

Exhibit B

Property Card

17 PILGRIM DRIVE

Location	17 PILGRIM DRIVE	**Mblu**	13/ L/ 8/00 /
Acct#	1549	**Owner**	OROZCO RAFAEL CHAVEZ & CHAVEZ DAISY
Assessment	$311,300	**Appraisal**	$444,700
PID	1794	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$115,500	$329,200	$444,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$80,800	$230,500	$311,300

Owner of Record

Owner	OROZCO RAFAEL CHAVEZ & CHAVEZ DAISY	**Sale Price**	$175,000
Co-Owner		**Certificate**	
Address	17 PILGRIM DRIVE TOLLAND, CT 06084	**Book & Page**	1444/0202
		Sale Date	11/16/2017
		Instrument	08

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
OROZCO RAFAEL CHAVEZ & CHAVEZ DAISY	$175,000		1444/0202	08	11/16/2017
17 MILE REAL ESTATE LLC	$0		1437/0215		08/16/2017
17 MILE REAL ESTATE LLC	$489,228		1429/0001	03	05/17/2017
17 MILE REAL ESTATE LLC	$305,100		1425/0090	22	03/30/2017
HILINSKI STANLEY W III & LINDA L	$0		0114/0276	29	01/02/1900

Building Information

Building 1 : Section 1

Building Photo

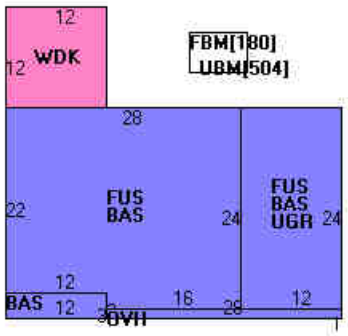
Year Built: 1973
Living Area: 1,936
Replacement Cost: $175,447
Building Percent Good: 60
Replacement Cost Less Depreciation: $105,300

Building Attributes	
Field	**Description**
Style	Colonial
Model	Residential
Grade:	Average +10
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	0
Total Rooms:	9 Rooms
Bath Style:	Modern
Kitchen Style:	Average
Num Kitchens	
Cndtn	
Func Code	
Econ Code	
Num Park	
Fireplaces	
Solar	
Solar Type	

Building Photo

(https://images.vgsi.com/photos/TollandCTPhotos/\00\01\05\61.jpg)

Building Layout



(https://images.vgsi.com/photos/TollandCTPhotos//Sketches/1794_1804.jp

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	Main Floor	972	972
FUS	Finished Upper Story	936	936
OVH	Overhang	28	28
FBM	Bsmt Finished	180	0
UBM	Basement	504	0
UGR	Garage Under	288	0
WDK	Wood Deck	144	0
		3,052	1,936

Extra Features

Extra Features	Legend

Code	Description	Size	Value	Bldg #
FPL2	FIREPLACE 1.5 ST	1.00 UNITS	$2,000	1

Land

Land Use

Use Code	101
Description	Single Fam
Zone	RDD
Neighborhood	R45
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.99
Frontage	382
Depth	
Assessed Value	$230,500
Appraised Value	$329,200

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR	GARAGE	1F	1Story Frame	528.00 S.F.	$6,900	1
SHD	SHED	1F	1 Stry Frame	128.00 S.F.	$1,300	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
4000	$115,500	$329,200	$444,700
2020	$115,500	$329,200	$444,700
2019	$115,500	$329,200	$444,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
4000	$80,800	$230,500	$311,300
2020	$80,800	$230,500	$311,300
2019	$80,800	$230,500	$311,300

bing maps

17 Pilgrim Dr, Tolland, CT 06084

Location: 41.874761, -72.393976

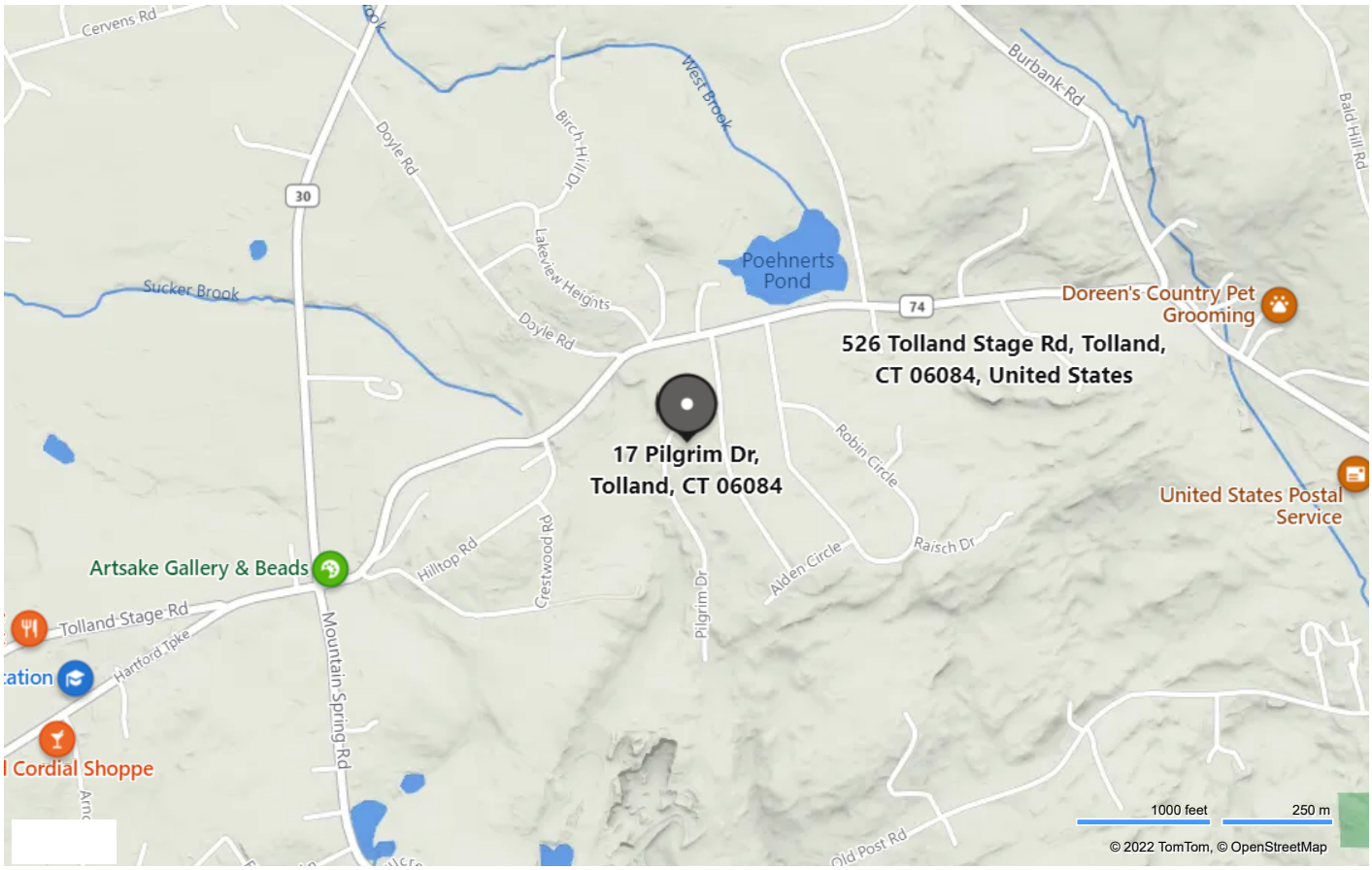


Exhibit C

Construction Drawings and Tower Modification Drawings

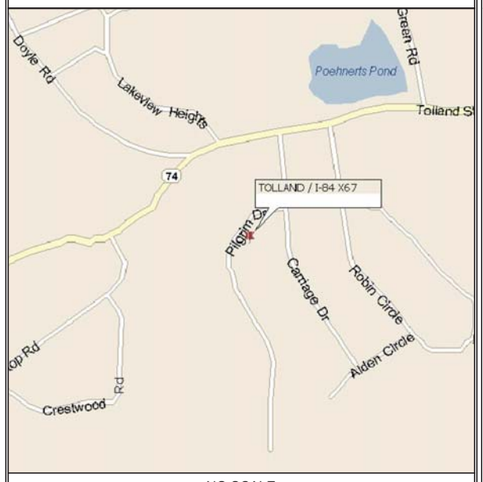
T-Mobile

SITE NAME:	**TOLLAND / I-84 X67_1**
SITE NUMBER:	**CT11141A**
SITE TYPE:	**GUYED TOWER**
PROJECT TYPE:	**L600**
JURISDICTION:	**CITY OF TOLLAND**
SITE ADDRESS:	**17 PILGRIM DR TOLLAND, CT 06084**

PROJECT SUMMARY

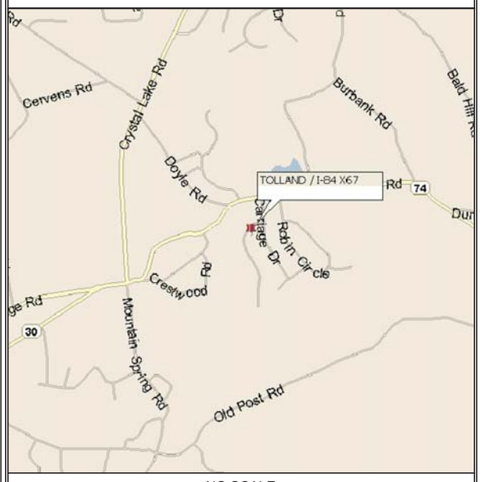
SITE NAME:	TOLLAND / I-84 X67_1
SITE NUMBER:	CT11141A
SITE ADDRESS:	17 PILGRIM DR TOLLAND, CT 06084
COUNTY:	TOLLAND COUNTY
JURISDICTION:	CITY OF TOLLAND
NAD83	
LATITUDE:	41.874691° N
LONGITUDE:	72.394051° W
GROUND ELEVATION:	995' AMSL
CUSTOMER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 (913) 402-6500
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

AREA MAP



NO SCALE

LOCATION MAP



NO SCALE

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	0
SP-1	SPECIFICATIONS	0
SP-2	SPECIFICATIONS	0
A-1	OVERALL SITE PLAN	0
A-2	ENLARGED SITE PLANS	0
A-3	TOWER ELEVATIONS	0
A-4	ANTENNA LAYOUTS	0
A-5	ANTENNA DETAIL AND SPECIFICATIONS	0
A-6	ANTENNA & RRU CONFIGURATION KEYS	0
A-7	ANTENNA & RRU MOUNT DETAILS	0
E-1	PANEL SCHEDULE & ONE-LINE DIAGRAM	0
E-2	UTILITY PLAN	0
G-1	GROUNDING RISER DIAGRAM AND DETAILS	0
S1 - S9	TOWER MODIFICATIONS	0

CONTACT INFORMATION

A&E FIRM:	B&T ENGINEERING, INC. 1717 S. BOULDER, STE. 300 TULSA, OK 74119	CONSTR. MANAGER:	T-MOBILE BRIAN PAUL Brian.Paul14@t-mobile.com (860) 550-5971
CONTACT:	MIKE PATTEN	PROJECT MANAGER:	T-MOBILE SARA NOVIN 12980 FOSTER ST. SUITE 200 OVERLAND PARK, KS 66213 Sara.Novin1@T-Mobile.com (913) 980-2443
PHONE:	(918) 587-4630		

CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING/DWELLING	2018 CONNECTICUT STATE BUILDING CODE
STRUCTURAL	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	NEC 2017

DRIVING DIRECTIONS

DEPART BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO CT-20 [BRADLEY FIELD CONNECTOR]. TAKE RAMP ONTO I-91 [RICHARD P HORAN MEMORIAL HWY]. AT EXIT 35A, TAKE RAMP ONTO I-291. TAKE RAMP ONTO I-84. AT EXIT 67, TURN RIGHT ONTO RAMP. TURN LEFT ONTO CT-31 [MILE HILL RD]. TURN RIGHT ONTO CT-30 [HARTFORD TPKE]. KEEP STRAIGHT ONTO CT-30 [CT-74]. BEAR LEFT ONTO CT-74 [TOLLAND STAGE RD]. TURN RIGHT ONTO CARRIAGE DR. TURN RIGHT ONTO PILGRIM DR. TURN LEFT ONTO ACCESS ROADS AND ARRIVE AT TOLLAND / I-84 X67.

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (3) EXISTING ANTENNAS
- REMOVE (3) EXISTING MOUNTS
- REMOVE (1) DUS41
- REMOVE (6) RUS01 B2
- REMOVE (3) EXISTING TMAS
- REMOVE ALL COAX CABLES
- REMOVE (1) 6201 CABINET
- REMOVE EXISING DISCONNECT SWITCH
- INSTALL (3) NEW MOUNT PIPES
- INSTALL (3) NEW ANTENNAS
- INSTALL (2) NEW RBS 6160 AND B160 CABINETS
- INSTALL (9) NEW REMOTE RADIO HEADS
- INSTALL (2) NEW 6x12 HCS
- INSTALL (1) PROPOSED METER GANG
- INSTALL (1) PROPOSED 200A-1ø PANEL
- MODIFY GUYED TOWER PER STRUCTURAL MODIFICATION REPORT BY B&T GROUP DATED 1/15/21

DO NOT SCALE DRAWINGS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SEE SHEETS SP-1 & SP-2 FOR ADDITIONAL CONSTRUCTION NOTES

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
T-MOBILE R.E. MGR.:		
T-MOBILE R.F. MGR.:		
T-MOBILE NetOps:		
T-MOBILE CONST. MGR.:		
INTERCONNECT:		
T-MOBILE SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		
1	ACCEPTED: WITH OR NO COMMENTS, CONSTRUCTION MAY PROCEED	
2	NOT ACCEPTED: RESOLVE COMMENTS AND RESUBMIT	

ACCEPTANCE DOES NOT CONSTITUTE APPROVAL OF DESIGN, CALCULATIONS, ANALYSIS, TEST METHODS OF MATERIALS DEVELOPED OR SELECTED BY THE SUBCONTRACTOR AND DOES NOT RELIEVE SUBCONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

811

B+T GRP

T-Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

SITE NAME:
TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

PROJECT NO:	135654.003.01
CHECKED BY:	FWP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
C	4/28/22	STH	PRELIMINARY REVIEW
D	5/5/22	RMC	PRELIMINARY REVIEW
E	5/18/22	YX	PRELIMINARY REVIEW
F	5/31/22	FWP	PRELIMINARY REVIEW
0	6/23/22	FWP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD TITLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
T-1	0

GENERAL REQUIREMENTS SECTION 01 10 00:

PART 1 GENERAL

1.1 INTENT:

A. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION. PLANS ARE NOT TO BE SCALED.

B. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY, HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.

C. THE INTENTION OF DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.

D. CONFLICTS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIAL OR DOING ANY WORK. NO COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND THOSE ON THE DOCUMENTS. ANY DISCREPANCY SHALL BE REPORTED TO THE OWNER OR HIS AGENT FOR CONSIDERATION.

1.2 LICENSING REQUIREMENTS:

THE CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND MAINTAINING OF ALL APPLICABLE LICENSES AND BONDS.

1.3 STORAGE:

ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION THAT DOES NOT OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

1.4 CLEAN UP:

THE CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH AT ALL TIMES. TRASH MUST BE REMOVED DAILY.

1.5 QUALITY ASSURANCE:

ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

PART 2 PRODUCTS – NOT APPLICABLE TO THIS SECTION

PART 3 EXECUTION – NOT APPLICABLE TO THIS SECTION

ELECTRICAL SECTION 16000:

PART 1 GENERAL

1.1 GENERAL CONDITIONS:

A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.

B. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION.

C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

1.3 REFERENCES:

A. THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE OF THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFIRM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
3. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
4. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
5. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
6. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
7. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
8. UL (UNDERWRITERS LABORATORIES, INC.)

1.4 SCOPE OF WORK:

A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL AND ASSOCIATED SERVICES REQUIRED TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED.

B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED AND ALIGNED BY THE CONTRACTOR.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL AND EXCESS DIRT.

D. THE CONTRACTOR SHALL FURNISH TO THE OWNER, CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.

PART 2 PRODUCTS

2.1 GENERAL:

A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.

B. ALL MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.

C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

1. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE HOT–DIP GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED, ZINC–COATED STEEL, PVC COATED FOR OUTDOOR APPLICATIONS.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION TYPE AND WATERTIGHT.
4. NON–METALLIC CONDUIT FITTINGS SHALL BE SCHEDULE 40 PVC, HEAVY–WALL RIGID WITH SOLVENT–CEMENT–TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. WIRE AND CABLE:

1. WIRE AND CABLE SHALL BE FLAME–RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN, 600 VOLT, SIZES AS INDICATED, #12 AWG MINIMUM.
2. #10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, PRESSURE–TYPE CONNECTORS CONSTRUCTED OF HIGH–STRENGTH, NON–CORRODIBLE, TIN–PLATED COPPER DESIGNED TO FURNISH HIGH–PULLOUT STRENGTH AND HIGH CONDUCTIVITY JOINTS SHALL BE USED.
4. SUPPORT GRIPS SHALL BE SINGLE WEAVE, CLOSED MESH, HIGH–GRADE, NON–MAGNETIC, TIN–COATED BRONZE, CAPABLE OF SUPPORTING TEN TIMES THE CABLE DEAD WEIGHT, HUBBELL KELLEMS OR APPROVED EQUAL.

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD–FRONT, QUICK–MAKE, QUICK–BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCKED WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE D CLASS 3110 OR APPROVED EQUAL.

D. SYSTEM GROUNDING:

1. GROUNDING CONDUCTOR SHALL BE BARE, SOLID TINNED COPPER, SIZE AS INDICATED, EXCEPT ABOVE GROUND GROUNDING CONDUCTORS SHALL BE INSULATED.
2. GROUND BUSSES SHALL BE BARE ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION.
3. CONNECTORS SHALL BE HIGH–CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO–HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE COPPER–CLAD STEEL WITH HIGH–STRENGTH STEEL CORE AND ELECTROLYTIC–GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 3/4"x10'–0".

E. OTHER MATERIALS:

1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.

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CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

SITE NAME:
TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

PROJECT NO:	135654.003.01
CHECKED BY:	FWP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
C	4/28/22	STH	PRELIMINARY REVIEW
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD TITLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

SHEET NUMBER:	REVISION:
SP-1	0

135654_CT11141A_Tolland I-84 X67_1.dwg – Sheet:SP-1 – User: fperkins – Jun 23, 2022 – 8:22am

PART 3 EXECUTION

3.1 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE W/ THE MANUFACTURER'S RECOMMENDATION

B. EQUIPMENT SHALL BE TIGHTLY COVER AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORK:

A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE DONE BY EXPERIENCED MECHANICS OF THE PROPER TRADES.

B. ALL ELECTRICAL EQUIPMENT FURNISHED SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.

C. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER–FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH NOMINAL SIZE SHALL BE USED.
2. PROVIDE RGS CONDUIT FOR ALL EXPOSED, EXTERIOR CONDUIT.
3. PROVIDE SCHEDULE 40 PVC OR RGS CONDUIT BELOW GRADE, 1" MINIMUM, UNLESS NOTED OTHERWISE. ALL 90 DEGREE BENDS TO ABOVE GRADE SHALL BE RGS, MINIMUM BURIAL DEPTH SHALL BE 30" CLEAR TO TOP OF CONDUIT, UNLESS NOTED OTHERWISE.
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION IS NOT DESIRABLE FOR REASONS EQUIPMENT MOVEMENT, VIBRATION OR FOR EASE OF MAINTENANCE. USE LIQUIDTIGHT, PVC COATED FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS.
5. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS TO ALLOW FOR EXPANSION AND CONTRACTION.
6. A RUN OF CONDUIT BETWEEN BOXES OR FITTINGS SHALL NOT CONTAIN MORE THE EQUIVALENT OF FOUR QURATER–BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE BOX OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW.
7. WHERE CONDUIT HAS TO BE CUT IN THE FIELD, IT SHALL BE CUT SQUARE WITH A PIPE CUTTER USING CUTTING KNIVES.
8. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF WIRE OR CABLE. CLEAR ALL BLOCKAGES AND REMOVE BURRS, DIRT AND DEBRIS.
9. INSTALL MULE TAPE IN ALL EMPTY CONDUIT IDENTIFY PULL STRINGS AT EACH END WITH ITS DESTINATION.
10. PROVIDE INSULATED GROUNDING BUSHINGS OR ALL CONDUITS STUBBED INTO EQUIPMENT ENCLOSURES OR STUBBED OUT FOR FUTURE USE BY OTHERS.
11. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUIT CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
12. INSTALL 3" RED METALLIC LOCATOR TAPE 12" ABOVE ALL UNDERGROUND CONDUIT AND WIRE.
13. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.

B. WIRE AND CABLE:

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS

DESCRIPTION	120/270V	208Y/120V	480Y/277V
PHASE A	BLACK	BLACK	BROWN
PHASE B	RED	RED	ORANGE
PHASE C		BLUE	YELLOW
NEUTRAL	WHITE	WHITE	GRAY
GROUND	GREEN	GREEN	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES OR ACCESSIBLE RACEWAYS WITH PRESSURE–TYPE CONNECTORS.
3. PULLING LUBRICANT SHALL BE SOAPSTONE POWDER, POWDERED TALC OR A COMMERCIAL PULLING COMPOUND. NO SOAP SUDS, SOAP FLAKES, OIL OR GREASE SHALL BE USED, AS THESE MAY BE HARMFUL TO CABLE INSULATION. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CABLE TO AVOID SCORING THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES, EQUIPMENT. ETC. TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS AND SHALL BE PROTECTED FROM MECHANICAL INJURY AND FROM MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACE AT THE CONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHED LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUND AS INDICATED.

D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRIC CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEMS INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURE'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
5. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION.
6. ALL GROUND CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC–WELDED CONNECTIONS SHALL BE APPROVED BY THE CONSTRUCTION INSPECTOR BEFORE BEING PERMANENTLY CONCEALED.
7. APPLY CORROSION–RESISTANT FINISH TO FIELD CONNECTION AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATING HAVE BEEN DESTROYED. USE COPPER–BASED "NO–OX" OR APPROVED EQUAL.
8. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRACH CIRCUITS.
9. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS OR GROUNDING LUG IN ENCLOSURE.
10. DIRECT BURIED GROUND CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" BELOW GRADE, UNLESS NOTED OTHERWISE.
11. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSULATED OR INSTALLED IN PVC CONDUIT.
12. INSTALL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES, INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
13. DRIVE GROUND RODS UNTIL TOPS ARE 30" BELOW FINAL GRADE.
14. GROUNDING CONDUCTOR TO EQUIP[MENT GROUND LUGS:
    1) BOLTED TO EQUIPMENT HOUSING WITH STAINLESS STEEL BOLTS AND LOCK WASHERS.
    2) ALL EQUIPMENT TO BE GROUNDED SHALL BE FREE OF PAINT OR ANY OTHER MATERIAL COVERING BARE METAL AT THE POINT OF CONNECTION.

3.5 ACCEPTANCE TESTING:

1. PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS AND SUBMIT TEST REPORTS UPON COMPLETE OF TESTS.
2. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON–COMPLYING ITEMS SHALL BE REMOVED FROM THE JOBSITE AND REPLACED WITH THE ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE OF SUCH NON–COMPLIANCE.

A. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE THEIR INSULATION TESTED AFTER INSTALLATION, BUT BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE, USING 1000V DC. INVESTIGATE ANY VALUES LESS THAN 50 MEGOHMS.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AN BETWEEN PHASE WIRE AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUND TEST TO MEASURE GROUND RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3–POINT "FALL–OF–POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

END OF SECTION

END OF SPECIFICATION

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SITE NUMBER:
CT11141A

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TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

PROJECT NO:	135654.003.01
CHECKED BY:	FWP

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REV	DATE	DRWN	DESCRIPTION
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D	5/5/22	RMC	PRELIMINARY REVIEW
E	5/18/22	YX	PRELIMINARY REVIEW
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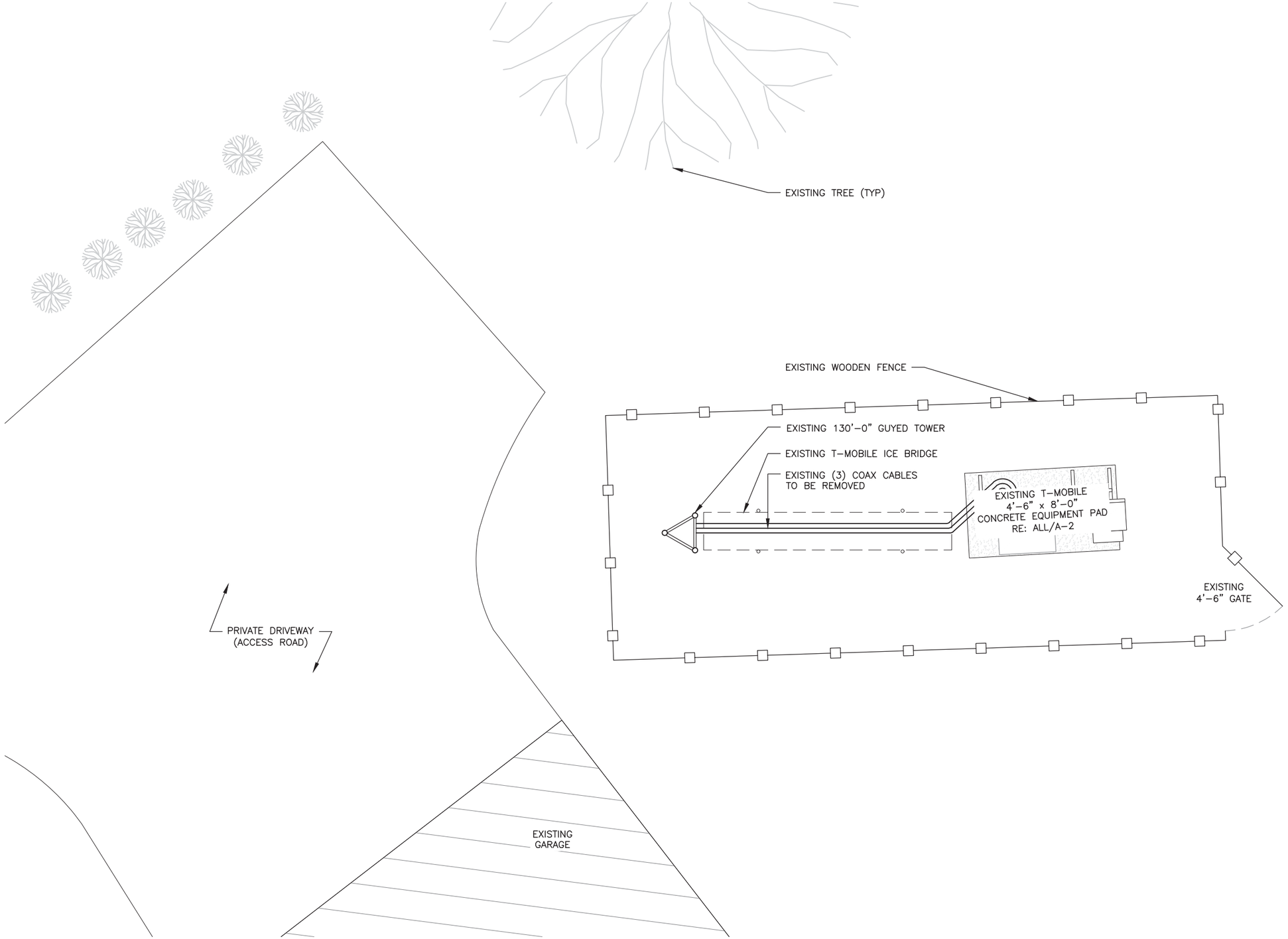
0	6/23/22	FWP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD C. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

SHEET NUMBER: SP-2

REVISION: 0



1 OVERALL SITE PLAN

SCALE: 0' 1' 4' 8' 16'

N

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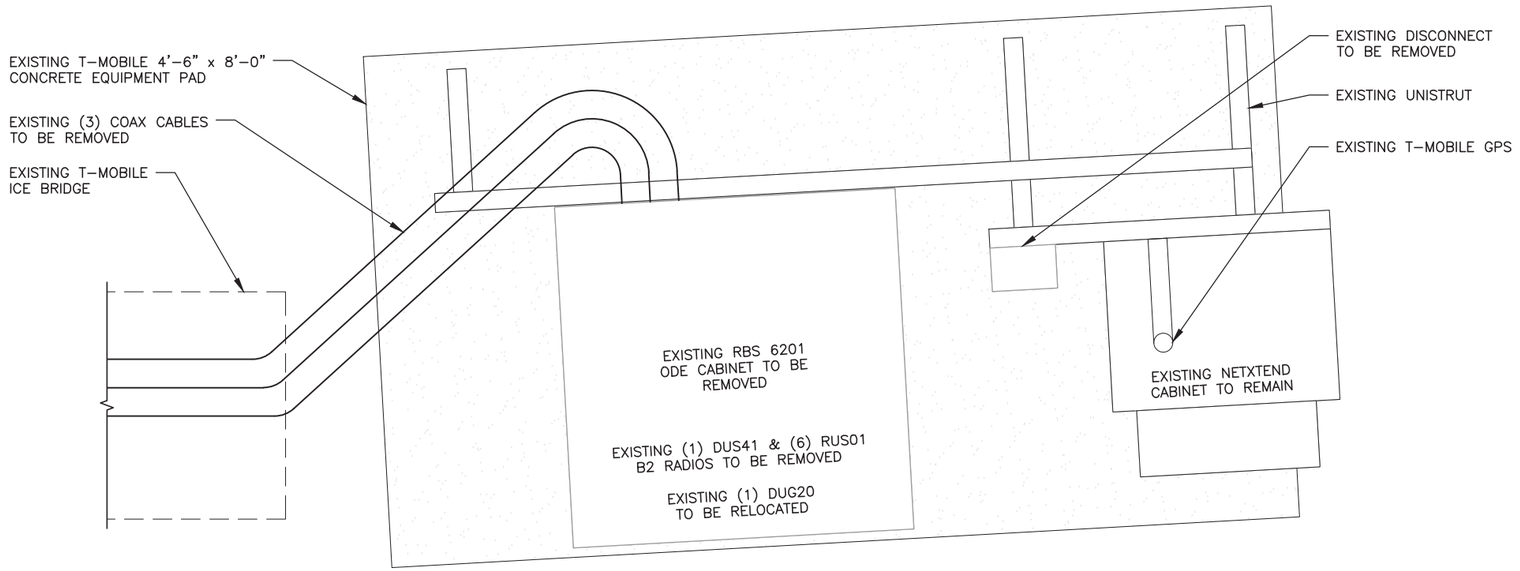
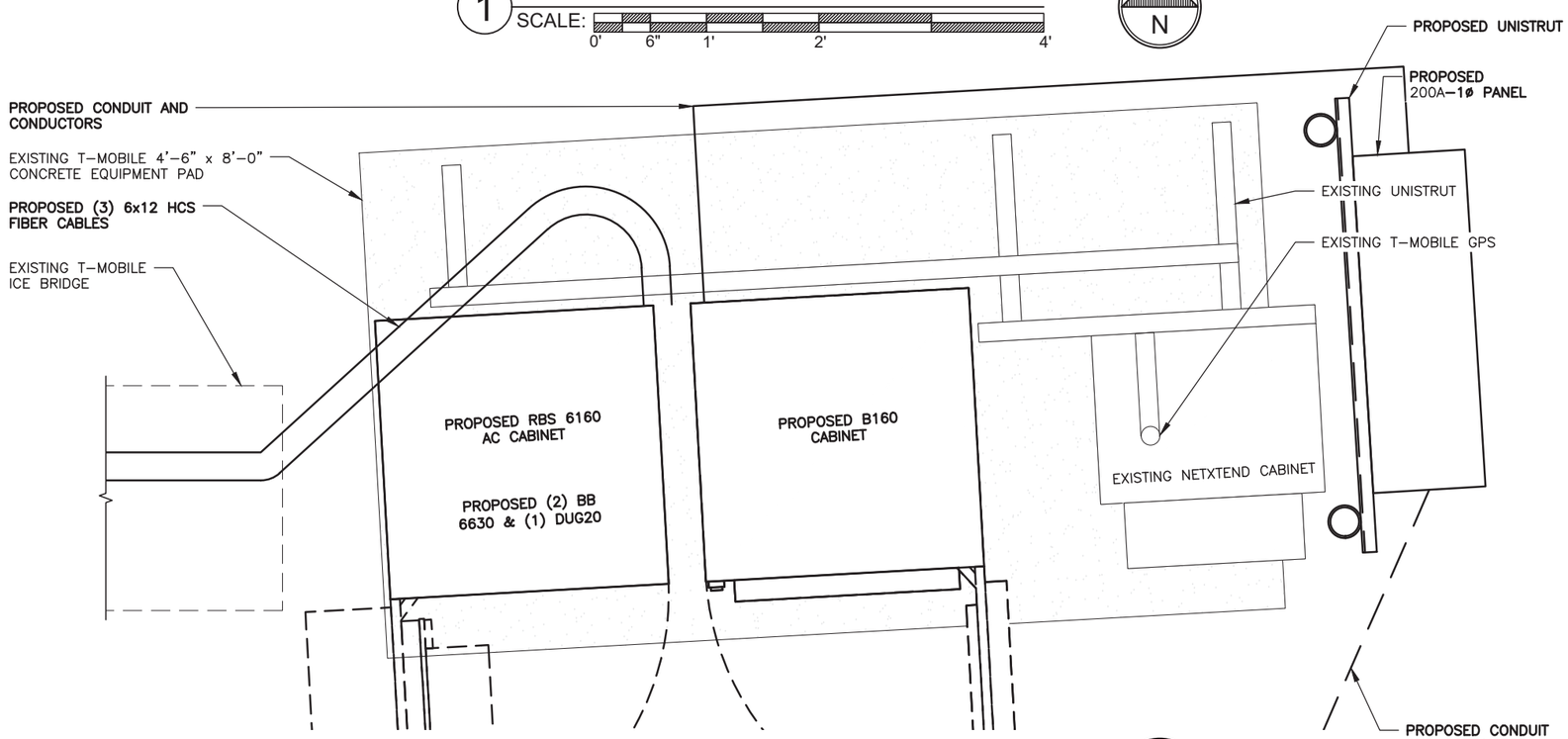
SHEET NUMBER:	REVISION:
A-1	0



1 EXISTING ENLARGED SITE PLAN

SCALE: 0' 6" 1' 2' 4'

N



2 PROPOSED ENLARGED SITE PLAN

SCALE: 0' 6" 1' 2' 4'

N

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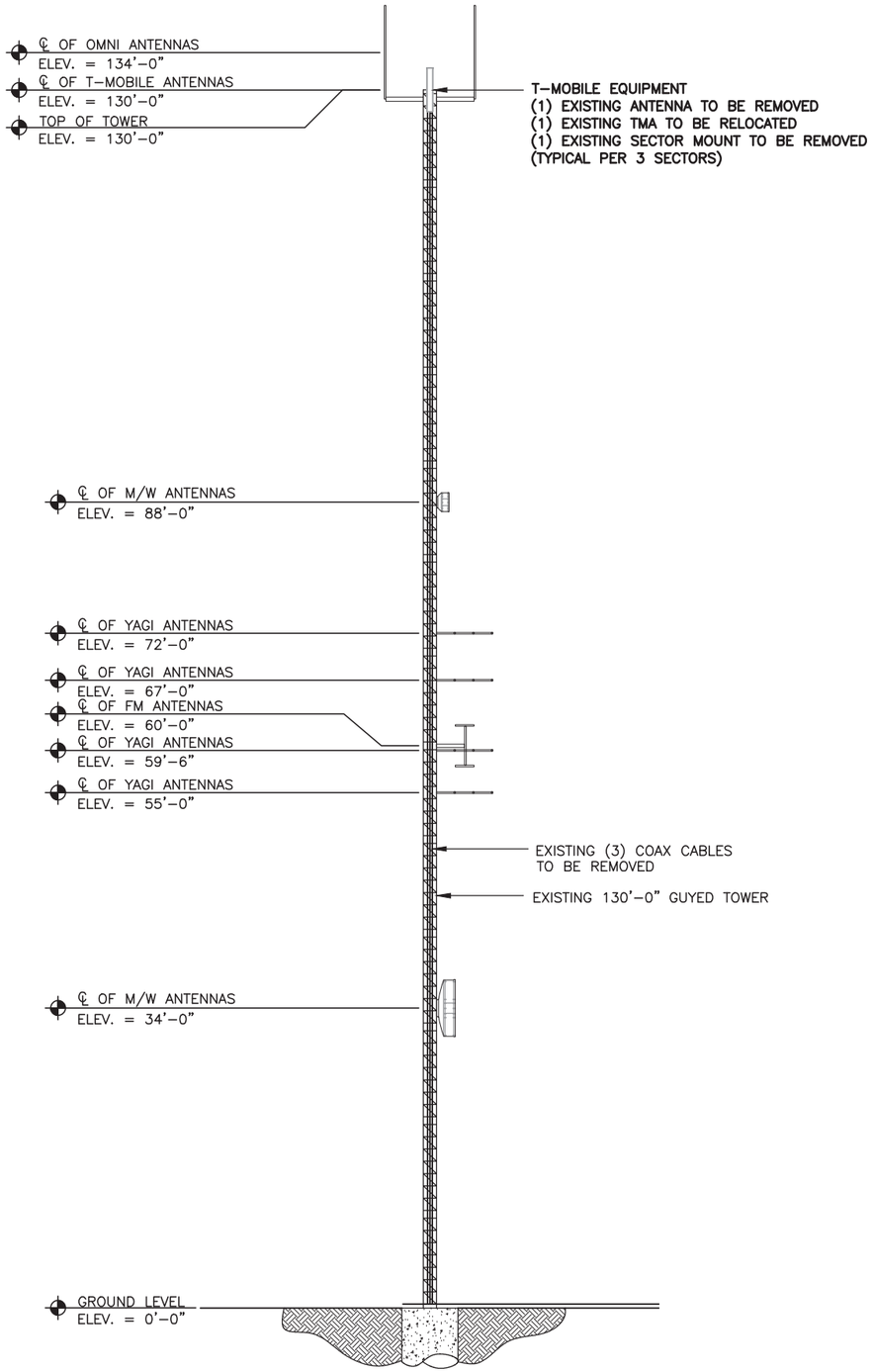
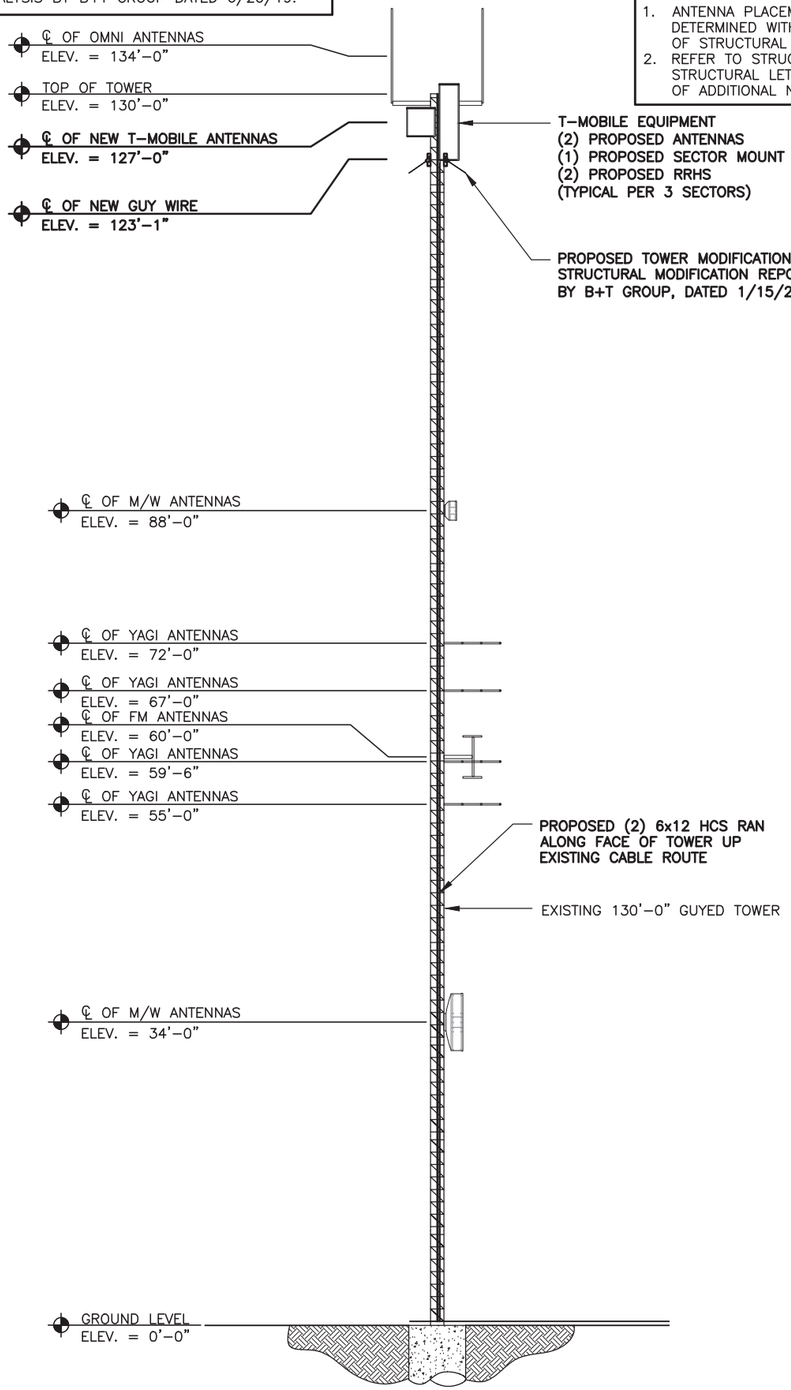


1 EXISTING TOWER ELEVATION

SCALE: N.T.S.

EXISTING MOUNT TO BE REMOVED AND REPLACED PER MOUNT ANALYSIS BY B+T GROUP DATED 6/20/19.



2 PROPOSED TOWER ELEVATION

SCALE: N.T.S.

STRUCTURAL ANALYSIS NOTES:

1. ANTENNA PLACEMENT WAS DETERMINED WITHOUT VERIFICATION OF STRUCTURAL ANALYSIS.
2. REFER TO STRUCTURAL ANALYSIS OR STRUCTURAL LETTER FOR APPROVAL OF ADDITIONAL NEW APPURTENANCES.

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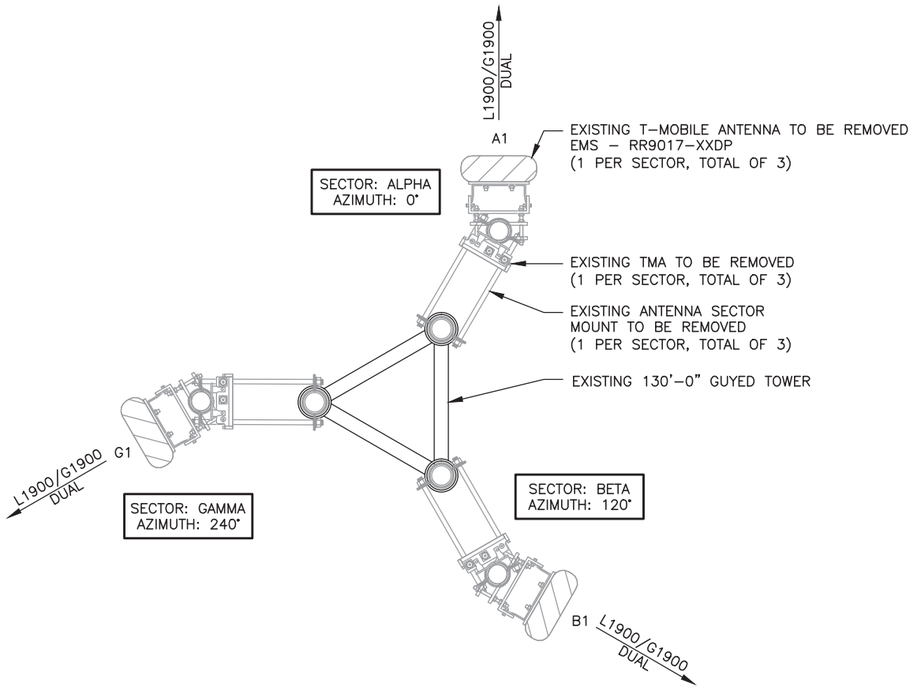
A-3	0



LEGEND:

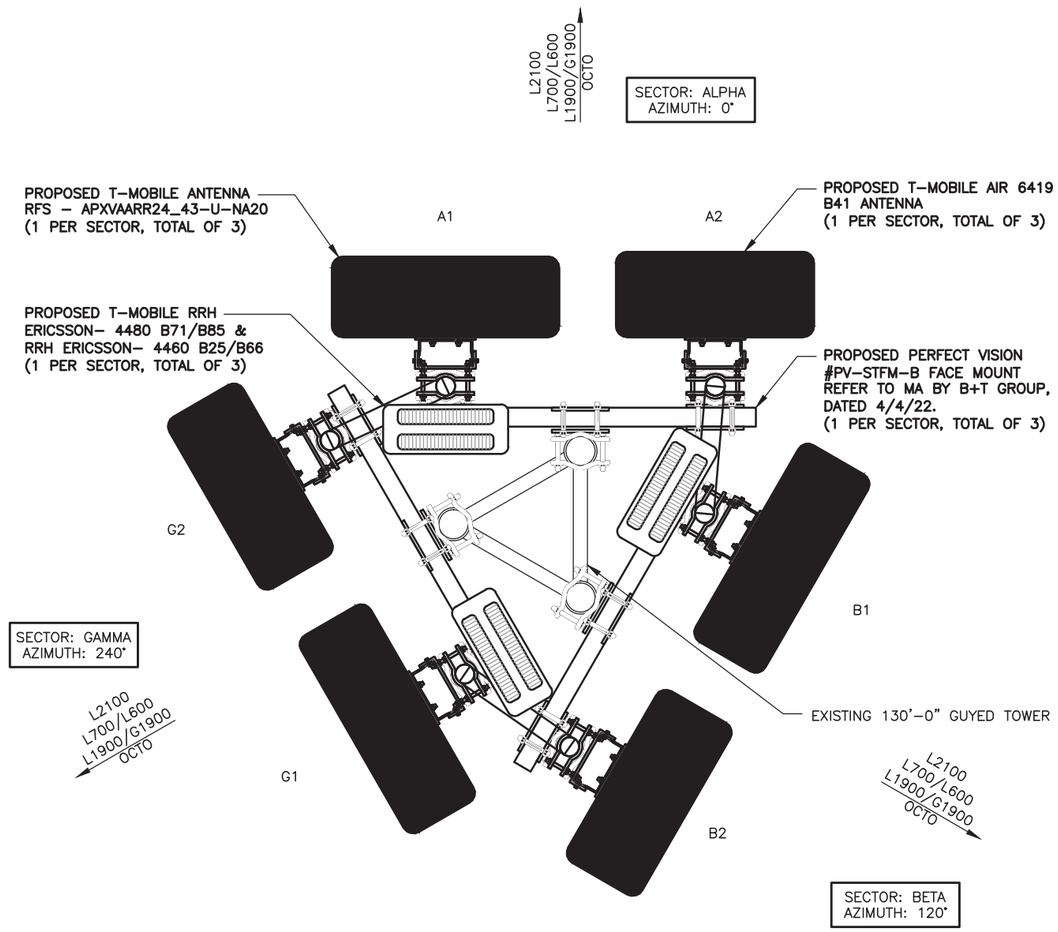
NEW

EXISTING

1 EXISTING ANTENNA AZIMUTH PLAN

SCALE: N.T.S.

N



LEGEND:

NEW

EXISTING

2 PROPOSED ANTENNA AZIMUTH PLAN

SCALE: N.T.S.

N

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CENTERLINE COMMUNICATIONS

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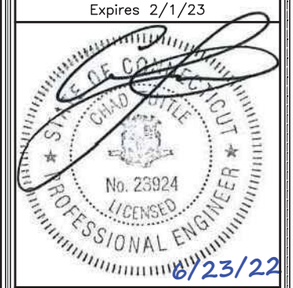

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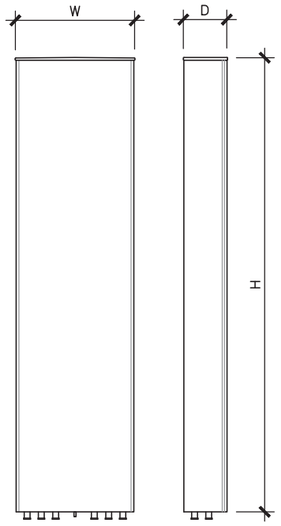
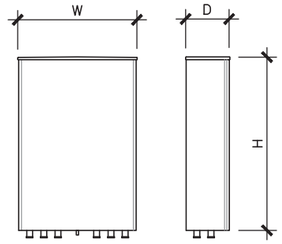
A-4	0



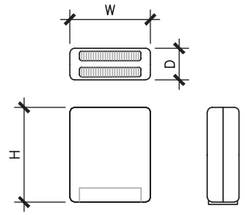
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.0"
DEPTH	8.7"
HEIGHT	95.9"
WEIGHT	128.0 LBS

1 ANTENNA DETAIL
SCALE: N.T.S.



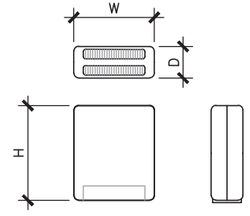
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	AIR 6419 B41
WIDTH	20.91"
DEPTH	9.02"
HEIGHT	36.25"

2 ANTENNA DETAIL
SCALE: N.T.S.



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4480 B71/B85
WIDTH	13.4"
DEPTH	5.9"
HEIGHT	16.5"
WEIGHT	46 LBS

3 RRH DETAIL
SCALE: N.T.S.

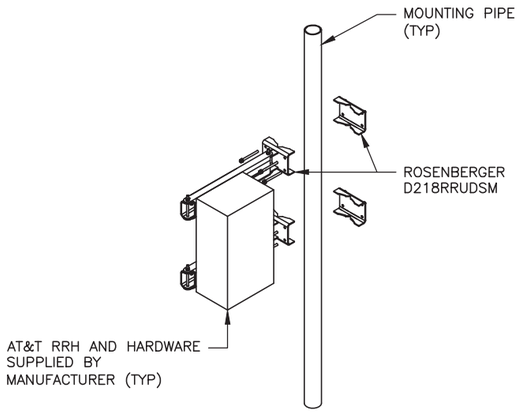


RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4460 B25/B66
WIDTH	13.4"
DEPTH	5.9"
HEIGHT	16.5"
WEIGHT	46 LBS

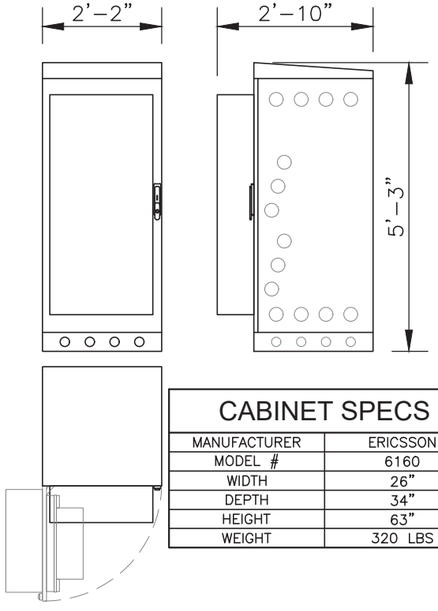
4 RRH DETAIL
SCALE: N.T.S.

NOTE:

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
DO NOT OPEN RRH PACKAGES IN THE RAIN.

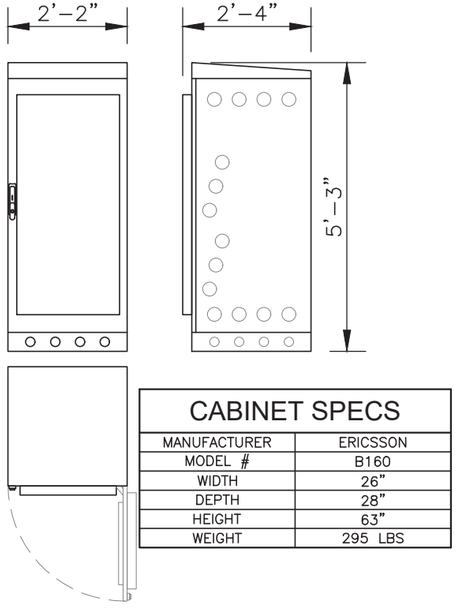


5 RRH DUAL BRACKET MOUNT DETAIL
SCALE: N.T.S.



CABINET SPECS	
MANUFACTURER	ERICSSON
MODEL #	6160
WIDTH	26"
DEPTH	34"
HEIGHT	63"
WEIGHT	320 LBS

6 CABINET DETAIL
SCALE: N.T.S.



CABINET SPECS	
MANUFACTURER	ERICSSON
MODEL #	B160
WIDTH	26"
DEPTH	28"
HEIGHT	63"
WEIGHT	295 LBS

7 BASEBAND 6630 DETAIL
SCALE: N.T.S.

ERICSSON – BBU 6630
DIMENSIONS: 19" WIDE x 1RU HIGH

8 BASEBAND 6630 DETAIL
SCALE: N.T.S.

B+T GRP

T···Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

SITE NAME:
TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

PROJECT NO:	135654.003.01
CHECKED BY:	FWP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
C	4/28/22	STH	PRELIMINARY REVIEW
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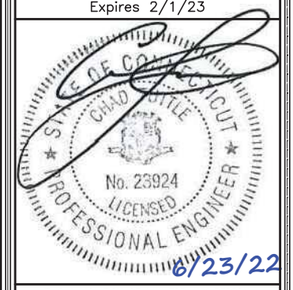
F	5/31/22	FWP	PRELIMINARY REVIEW
0	6/23/22	FWP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23



SHEET NUMBER:	REVISION:
A-5	0

ANTENNA NOTES:

1. ANTENNA CONTRACTOR SHALL INSURE THAT ALL ANTENNA MOUNTING PIPES ARE PLUMB.

2. COAXIAL FEEDER & FIBER LENGTHS INDICATED ARE APPROXIMATE.

3. ANTENNA COAXIAL FEEDERS & ANTENNA JUMPERS SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS. IN ADDITION TO THE COLOR CODE IN THE ANTENNA KEY THE FOLLOWING CHECKER STRIPE SHALL BE ADDED TO EACH ANTENNA COAXIAL FEEDER & ANTENNA JUMPER.

   LTE L600 – WHITE-SOLID STRIPE
   LTE 700 – RED-BLACK CHECKER STRIPE
   LTE PCS – RED-GREEN CHECKER STRIPE
   LTE AWS – YELLOW-BLACK CHECKER STRIPE
   UMTS PCS – RED-WHITE CHECKER STRIPE
   UMTS AWS – GREEN-WHITE CHECKER STRIPE
   GSM PCS – BLACK-WHITE CHECKER STRIPE

4. UMTS AWS LINE 1 & 2 TO HAVE TMA, MOUNTED ON PIPE BEHIND ANTENNA POSITION #2.

5. MULTI-PORTS ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY. JUMPERS FROM TMAS MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR,

6. CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS REGARDING THE INSTALLATION OF COAXIAL CABLES, CONNECTORS & ANTENNAS.

7. MINIMUM BEND RADIUS:

   LDF4-50A (1/2" HARD LINE) = 5"
   FSJ4-50B (1/2" SUPER FLEX) = 1 1/4"
   AVA5-50A (7/8" HARD LINE) = 10"
   AVA7-50A (1 5/8 HARD LINE) = 15"
   LDF7-50A (1 5/8" HARD LINE) = 20"

8. CONTRACTOR SHALL RECORD THE SERIAL, SECTOR & POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND FURNISH THE INFORMATION TO T-MOBILE.

9. WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF-AMALGAMATING TAPE.

10. ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT. CONTRACTOR SHALL SUBMIT A COMPLETED HEIGHT VERIFICATION FORM TO THE CONSTRUCTION MANAGER.

11. ALL FIBER RUNS TO BE CONTAINED IN (1) NOKIA HYBRID DC-FIBER CABLE (P/N: ASU9325TYP01) FROM LOWER COVP TO UPPER COVP. HYBRID CABLE SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS.

ANTENNA KEY

SECTOR	STATUS	ANTENNA NUMBER	TYPE	COLOR CODE	ANTENNA VENDOR	MODEL #	AZIMUTH	ELEC. TILT	MECH TILT	RAD CENTER	COAXIAL FEEDER		HYBRID CABLE FEEDER	
											SIZE	LENGTH	SIZE	LENGTH
ALPHA	NEW	A-1	L7/L6/N6 L21/L19/G19	–	RFS	APXVAALL24_43-U-NA20	0°	2°/2°/2° /2°	0°	127'-0"	–	–	(1) 6x12 HCS	160'
		A-2	L2500 N2500	–	ERICSSON	AIR 6419 B41	0°	2°/2°	0°	127'-0"	–	–	(1) 6x12 HCS	160'
BETA	NEW	B-1	L7/L6/N6 L21/L19/G19	–	RFS	APXVAALL24_43-U-NA20	120°	2°/2°/2° /2°	0°	127'-0"	–	–	(1) 6x12 HCS	160'
		B-2	L2500 N2500	–	ERICSSON	AIR 6419 B41	120°	2°/2°	0°	127'-0"	–	–	(1) 6x12 HCS	160'
GAMMA	NEW	G-1	L7/L6/N6 L21/L19/G19	–	RFS	APXVAALL24_43-U-NA20	240°	2°/2°/2° /2°	0°	127'-0"	–	–	(1) 6x12 HCS	160'
		G-2	L2500 N2500	–	ERICSSON	AIR 6419 B41	240°	2°/2°	0°	127'-0"	–	–	(1) 6x12 HCS	160'

RRU KEY – ON BUILDING

SECTOR	VENDOR	EQUIPMENT	MODEL #	ELEVATION	QUANTITY	STATUS
MULTI	ERICSSON	RRU	4480 B71+B85	127'-0"	3	NEW
MULTI	ERICSSON	RRU	4460 B25+B66	127'-0"	3	NEW

1 ANTENNA, RRU & TMA SCHEDULE
SCALE: N.T.S.

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T-Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

SITE NAME:
TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

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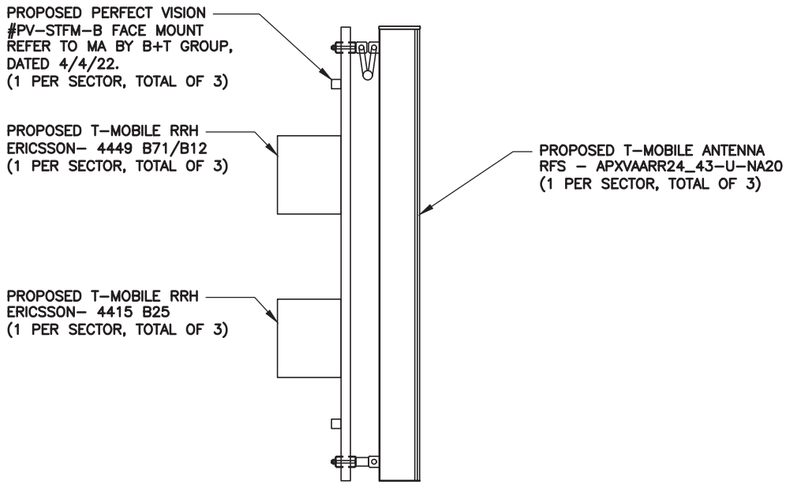
0	6/23/22	FWP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

SHEET NUMBER: A-6
REVISION: 0



1 ANTENNA, RRU MOUNT DETAIL
SCALE: N.T.S.

B+T GRP

T···Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

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TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

SHEET NUMBER:	REVISION:
A-7	0

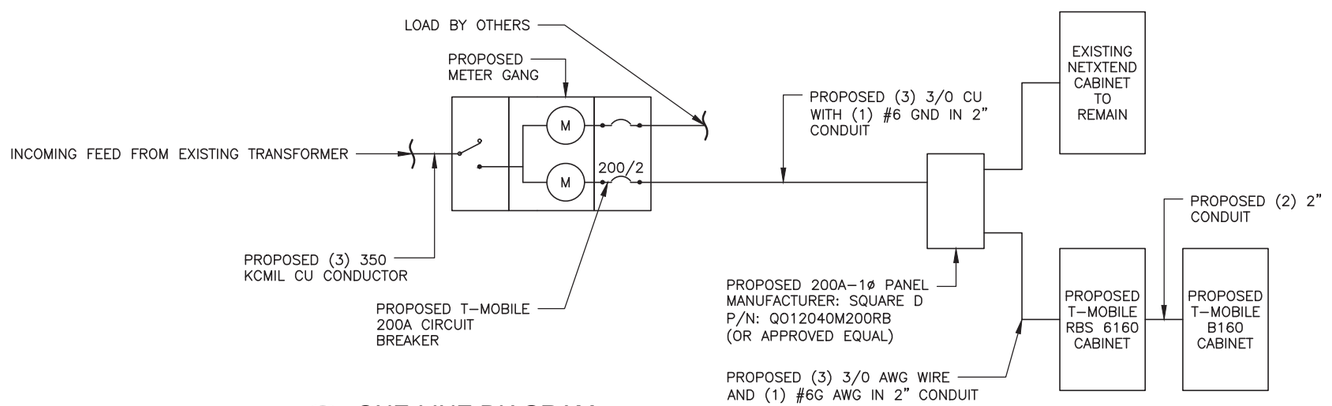
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
RBS 6160	2	200A	1	2	20A	1	NEXTEND CABINET
			3	4			
			5	6			
			7	8			
			9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

RATED VOLTAGE: ■120/240 □_____. 1 PHASE, 3 WIRE		BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_____.		CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
□MAIN LUGS ONLY	MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
□FUSED ■CIRCUIT BREAKER	BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS / GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL			

INSTALL 200A BREAKER IN METER DISCONNECT
INSTALL (1) 200A 2P BREAKER INSIDE PROPOSED 200A–1ø PANEL
INSTALL (1) 20A 1P BREAKER INSIDE PROPOSED 200A–1ø PANEL
INSTALL NEW WIRES FOR NEW RBS 6160 CABINET WITH (3) 3/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 3"
UPGRADE FEEDER WIRES TO MEET AMPACITY.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.



2 ONE-LINE DIAGRAM

SCALE: N.T.S.

B+T GRP

T-Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

SITE NAME:
TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

PROJECT NO:	135654.003.01
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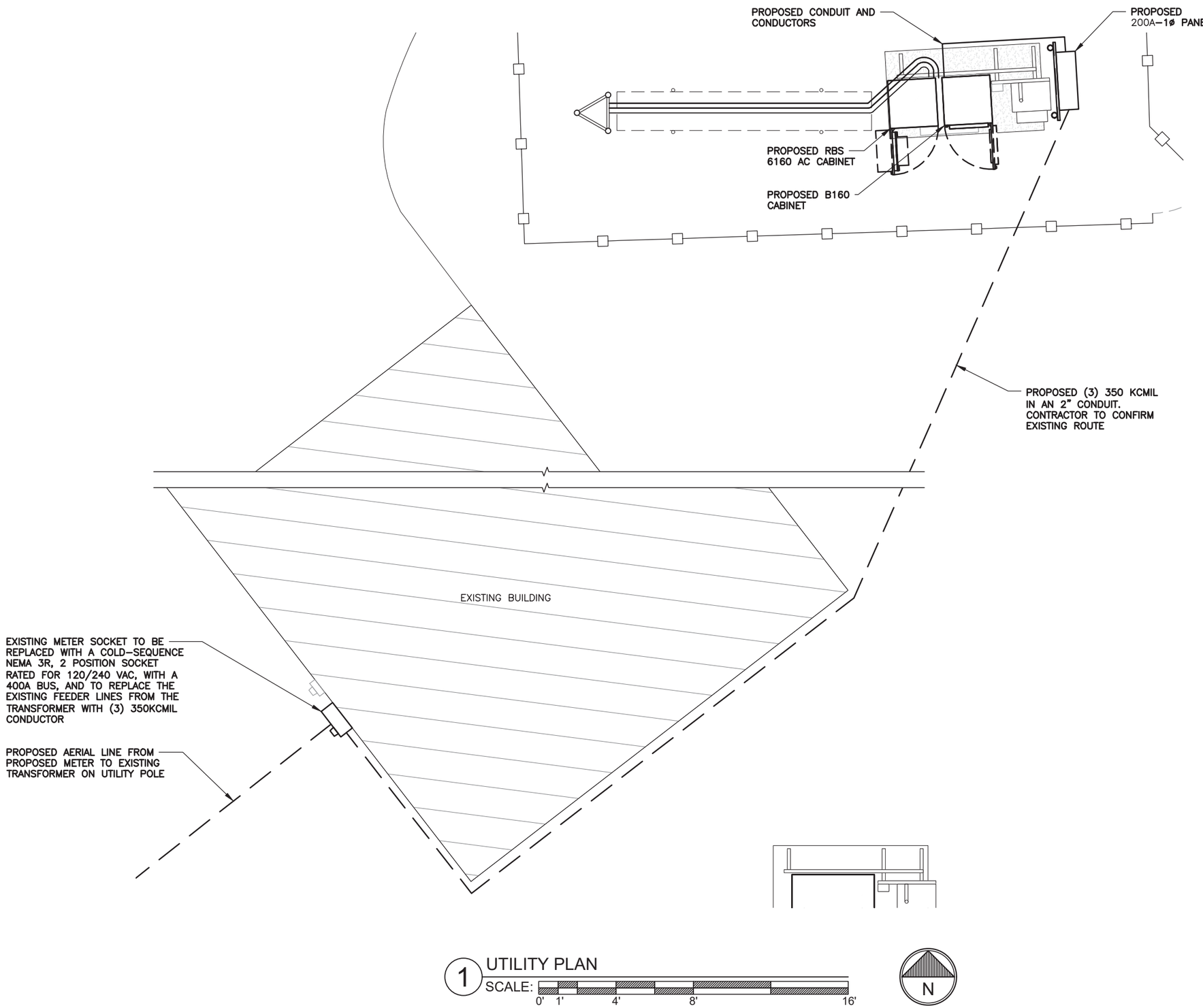
0	6/23/22	FWP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD C. LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

SHEET NUMBER:	REVISION:
E-1	0



1 UTILITY PLAN

SCALE: 0' 1' 4' 8' 16'

B+T GRP

T···Mobile

CENTERLINE COMMUNICATIONS

SITE NUMBER:
CT11141A

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TOLLAND / I-84 X67_1

SITE ADDRESS:
17 PILGRIM DR
TOLLAND, CT 06084

PROJECT NO:	135654.003.01
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0	6/23/22	FWP	CONSTRUCTION

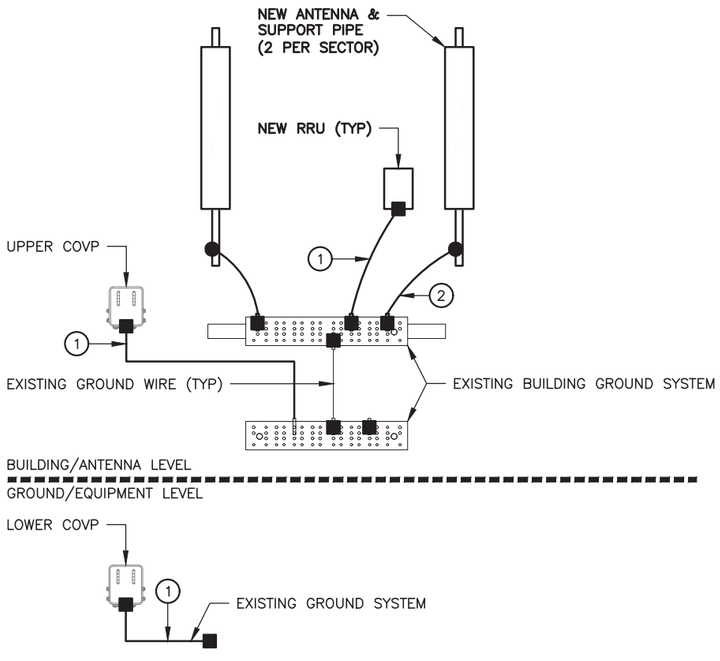
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

STATE OF CONNECTICUT
CHAD WHITE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/23/22

SHEET NUMBER:	REVISION:
E-2	0

LEGEND	
●	EXOTHERMIC CONNECTION
■	MECHANICAL CONNECTION
①	#2 AWG STRANDED INSULATED COPPER GROUND WIRE
②	#2 SOLID TINNED, BARE COPPER GROUND WIRE

TYPICAL SECTOR



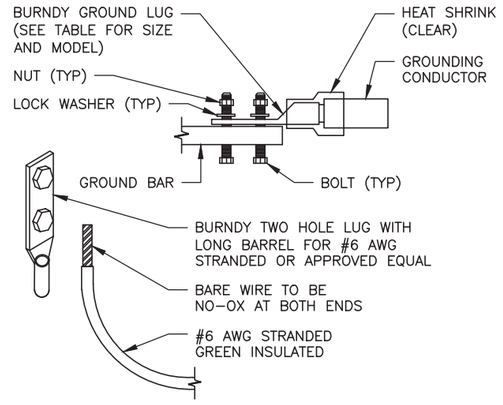
1 ANTENNA GROUND DIAGRAM

SCALE: N.T.S.

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6A-2TC38	3/8" – 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3A-2TC38	3/8" – 16 NC S 2 BOLT
#2 AWG STRANDED	YA2A-2TC38	3/8" – 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" – 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" – 16 NC S 2 BOLT

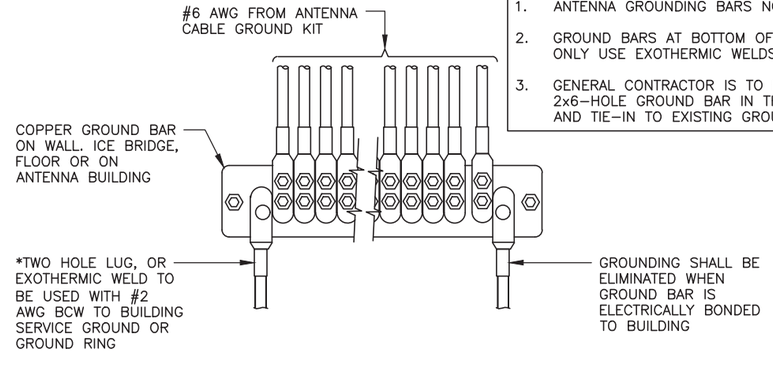
NOTES:

1. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.
2. COPPER SHIELD, ANTIOX, CR NO-OX OR APPROVED EQUAL SHALL BE PLACE WHERE ALL DISSIMILAR METALS CONNECT.
3. ALL LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



2 MECHANICAL LUG CONNECTION

SCALE: N.T.S.



NOTES:

1. ANTENNA GROUNDING BARS NOT TO USE INSULATORS.
2. GROUND BARS AT BOTTOM OF BUILDINGS SHALL ONLY USE EXOTHERMIC WELDS.
3. GENERAL CONTRACTOR IS TO FURNISH AND INSTALL A 2x6-HOLE GROUND BAR IN THE GBF OF THE RBS AND TIE-IN TO EXISTING GROUND RING.

3 GROUNDWIRE INSTALLATION

SCALE: N.T.S.

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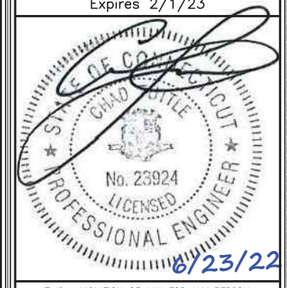
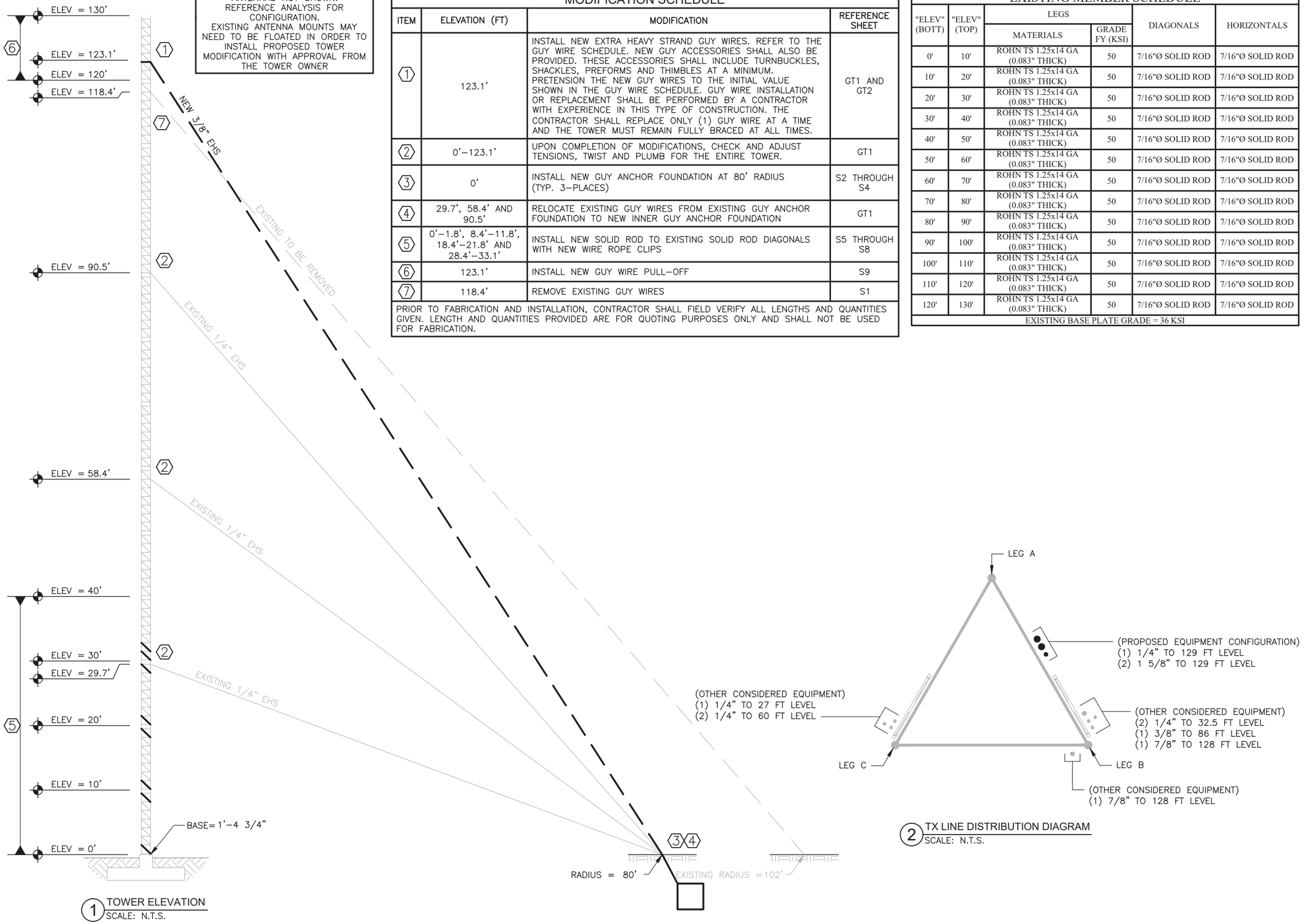


SHEET NUMBER:	REVISION:
G-1	0



1 TOWER ELEVATION
SCALE: N.T.S.

ANTENNAS NOT SHOWN.
REFERENCE ANALYSIS FOR CONFIGURATION.
EXISTING ANTENNA MOUNTS MAY NEED TO BE FLOATED IN ORDER TO INSTALL PROPOSED TOWER MODIFICATION WITH APPROVAL FROM THE TOWER OWNER

MODIFICATION SCHEDULE

ITEM	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
1	123.1'	INSTALL NEW EXTRA HEAVY STRAND GUY WIRES. REFER TO THE GUY WIRE SCHEDULE. NEW GUY ACCESSORIES SHALL ALSO BE PROVIDED. THESE ACCESSORIES SHALL INCLUDE TURNBUCKLES, SHACKLES, PREFORMS AND THIMBLES AT A MINIMUM. PRETENSION THE NEW GUY WIRES TO THE INITIAL VALUE SHOWN IN THE GUY WIRE SCHEDULE. GUY WIRE INSTALLATION OR REPLACEMENT SHALL BE PERFORMED BY A CONTRACTOR WITH EXPERIENCE IN THIS TYPE OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE ONLY (1) GUY WIRE AT A TIME AND THE TOWER MUST REMAIN FULLY BRACED AT ALL TIMES.	GT1 AND GT2
2	0'–123.1'	UPON COMPLETION OF MODIFICATIONS, CHECK AND ADJUST TENSIONS, TWIST AND PLUMB FOR THE ENTIRE TOWER.	GT1
3	0'	INSTALL NEW GUY ANCHOR FOUNDATION AT 80' RADIUS (TYP. 3–PLACES)	S2 THROUGH S4
4	29.7', 58.4' AND 90.5'	RELOCATE EXISTING GUY WIRES FROM EXISTING GUY ANCHOR FOUNDATION TO NEW INNER GUY ANCHOR FOUNDATION	GT1
5	0'–1.8', 8.4'–11.8', 18.4'–21.8' AND 28.4'–33.1'	INSTALL NEW SOLID ROD TO EXISTING SOLID ROD DIAGONALS WITH NEW WIRE ROPE CLIPS	S5 THROUGH S8
6	123.1'	INSTALL NEW GUY WIRE PULL–OFF	S9
7	118.4'	REMOVE EXISTING GUY WIRES	S1

PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.

EXISTING MEMBER SCHEDULE

"ELEV" (BOTT)	"ELEV" (TOP)	LEGS		DIAGONALS	HORIZONTALS
		MATERIALS	GRADE FY (KSI)		
0'	10'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
10'	20'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
20'	30'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
30'	40'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
40'	50'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
50'	60'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
60'	70'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
70'	80'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
80'	90'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
90'	100'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
100'	110'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
110'	120'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD
120'	130'	ROHN TS 1.25x14 GA (0.083" THICK)	50	7/16"Ø SOLID ROD	7/16"Ø SOLID ROD

EXISTING BASE PLATE GRADE = 36 KSI

2 TX LINE DISTRIBUTION DIAGRAM
SCALE: N.T.S.

B+T GRP
1717 S. BOULDER AVE.
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

CENTERLINE COMMUNICATIONS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	01/15/21	ISSUED FOR CONSTRUCTION

PROJECT NO:	135654.009.01
PROJECT ENG:	BRADEN TABB
DRAWN BY:	RA
CHECKED BY:	VKP / ASP

B+T ENGINEERING, INC.
PEC.0001564
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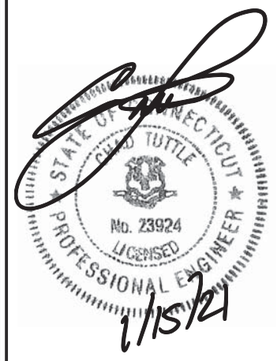


TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

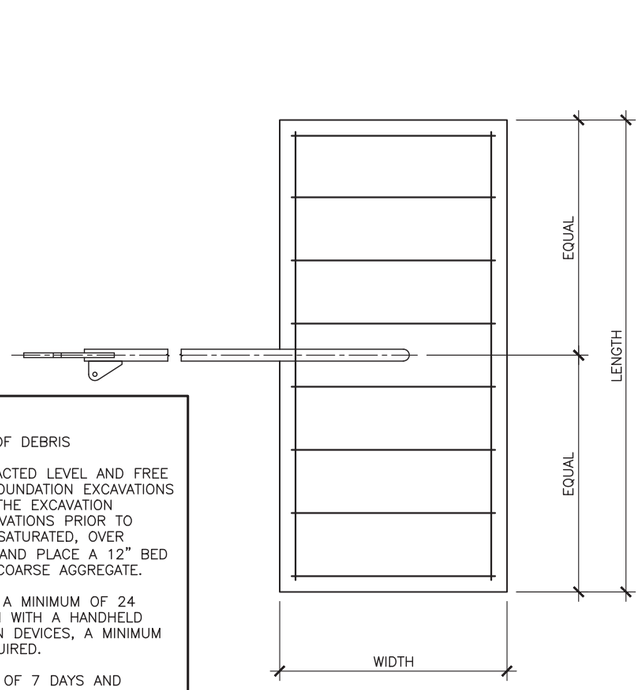
SHEET TITLE
TOWER ELEVATION, SCHEDULES AND TX LINE DISTRIBUTION DIAGRAM

SHEET NUMBER:	REVISION:
S1	0

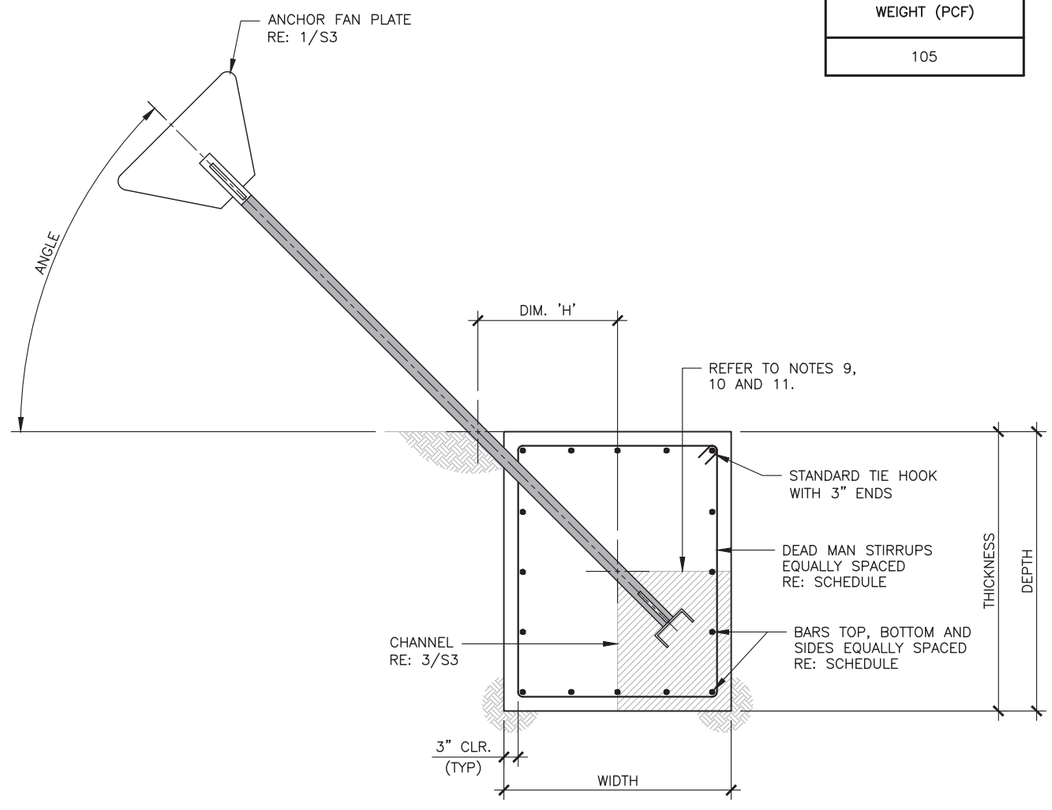
GUY ANCHOR SCHEDULE

ANCHOR PATH	PROPOSED ANCHOR RADIUS	ANGLE	'H' HORIZONTAL OFFSET FROM PROPOSED RADIUS	DEPTH	WIDTH	THICKNESS	LENGTH	CONCRETE VOLUME PER BLOCK	#7 HORIZONTAL BARS QTY AND LENGTH				#4 STIRRUP QTY	ANCHOR ASSEMBLY LENGTH	ANCHOR HEAD HOLE QTY AND DIAMETER	ANCHOR HEAD THICKNESS	ROD SIZE DIAMETER x LENGTH	UNFACTORED DESIGN REACTIONS		
									TOP	BOTTOM	FRONT	BACK						VERTICAL	HORIZONTAL	RESULTANT
A	80'	45°	2'-3"	4'-6"	4'-6"	4'-6"	6'-0"	4.5 CU. YDS	(5) 5'-6"	(3) 5'-6"	(4) 5'-6"	(4) 5'-6"	(8)	9'-0 1/2"	(6) 1 1/4"	3/4"	3"øx8'-0"	6 K	6 K	9 K
B	80'	45°	2'-3"	4'-6"	4'-6"	4'-6"	6'-0"	4.5 CU. YDS	(5) 5'-6"	(3) 5'-6"	(4) 5'-6"	(4) 5'-6"	(8)	9'-0 1/2"	(6) 1 1/4"	3/4"	3"øx8'-0"	6 K	6 K	9 K
C	80'	45°	2'-3"	4'-6"	4'-6"	4'-6"	6'-0"	4.5 CU. YDS	(5) 5'-6"	(3) 5'-6"	(4) 5'-6"	(4) 5'-6"	(8)	9'-0 1/2"	(6) 1 1/4"	3/4"	3"øx8'-0"	6 K	6 K	9 K

MIN. BACKFILL UNIT WEIGHT (PCF)
105



1 NEW GUY ANCHOR PLAN
SCALE: N.T.S.



2 GUY ANCHOR SECTION
SCALE: N.T.S.

NOTES:

1. SIDES OF EXCAVATED AREA MUST BE CLEAN OF DEBRIS
2. BOTTOM OF EXCAVATED AREA MUST BE COMPACTED LEVEL AND FREE OF STANDING WATER. ADEQUATELY PROTECT FOUNDATION EXCAVATIONS TO PREVENT WATER FROM ACCUMULATING IN THE EXCAVATION BOTTOMS. PUMP STANDING WATER FROM EXCAVATIONS PRIOR TO CONCRETE PLACEMENT. IF THE SUBGRADE IS SATURATED, OVER EXCAVATE THE BOTTOM OF THE FOOTING 12" AND PLACE A 12" BED OF COMPACTED ASTM C33 SIZE NUMBER 57 COARSE AGGREGATE.
3. CONCRETE SHALL BE ALLOWED TO CURE FOR A MINIMUM OF 24 HOURS BEFORE BACKFILLING AND COMPACTION WITH A HANDHELD VIBRATORY EQUIPMENT. FOR LARGER VIBRATION DEVICES, A MINIMUM OF 3 DAYS OF CONCRETE CURE TIME IS REQUIRED.
4. ONCE THE CONCRETE HAS CURED A MINIMUM OF 7 DAYS AND REACHED 70% COMPRESSIVE STRENGTH (3150 PSI), EXISTING GUY WIRES SHALL BE RELOCATED TO THE PROPOSED ANCHOR FAN PLATE.
5. BACKFILL IS TO BE MADE IN LIFTS NOT TO EXCEED 8 INCHES. EACH LIFT IS TO BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 SPECIFICATIONS. EXCAVATED AREA TO HAVE A MINIMUM 6 INCHES MOUND ABOVE NATURAL GROUND SURFACE WHEN COMPLETED. NO FROZEN MATERIAL, LARGE ROCKS OR ORGANIC MATERIAL IS TO BE USED FOR BACKFILL.
6. REFER TO EXCAVATION NOTES ON SHEET FN FOR ADDITIONAL EXCAVATIONS NOTES.
7. REFER TO CONCRETE NOTES ON SHEET FN FOR ADDITIONAL CONCRETE AND REBAR NOTES.
8. CONSTRUCTION PRICE SHALL INCLUDE INSTALLATION OF NEW FENCING AROUND THE NEW GUY ANCHOR FOUNDATIONS.
9. THE ANCHOR SHAFT BASE ASSEMBLY SHALL BE INSTALLED WITHIN THIS QUADRANT, U.N.O.
10. THE ANCHOR SHAFT CAN BE POSITIONED ANYWHERE ALONG THE LONGITUDINAL AXIS OF THE SHAFT WITHIN THE SHADED AREA TO PROVIDE CLEARANCE FOR THE FAN PLATE TO BE OFF THE GROUND.
11. THE INSTALLATION ANGLE SHALL BE MAINTAINED.
12. HOLES IN THE FAN PLATE AND LUG SHALL BE DRILLED. THERMAL CUTTING OF PUNCHING IS PROHIBITED OF THESE HOLES. STIFFENER POSITIONING HOLES MAY BE THERMALLY CUT.

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CENTERLINE COMMUNICATIONS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	01/15/21	ISSUED FOR CONSTRUCTION

PROJECT NO:	135654.009.01
PROJECT ENG:	BRADEN TABB
DRAWN BY:	RA
CHECKED BY:	VKP / ASP

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/21

STATE OF CONNECTICUT
CHRISTOPHER TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
1/15/21

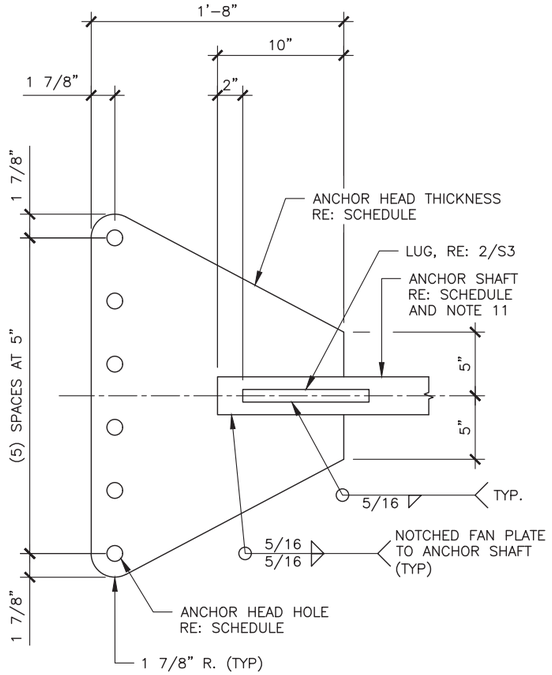
TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

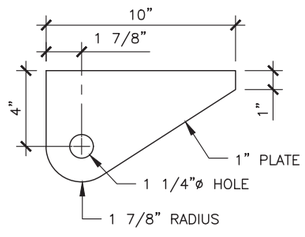
EXISTING 130' GUYED TOWER

SHEET TITLE
NEW GUY ANCHOR DETAILS AND SCHEDULE (OPTION - 1)

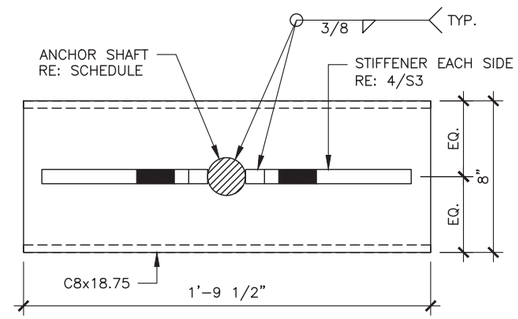
SHEET NUMBER:	REVISION:
S2	0



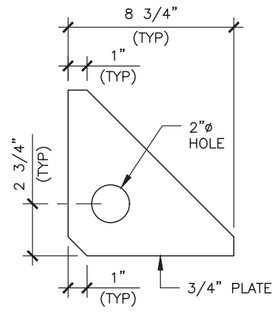
1 ANCHOR FAN PLATE
SCALE: N.T.S.



2 LUG DETAIL
SCALE: N.T.S.



3 CHANNEL CONNECTION
SCALE: N.T.S.



4 STIFFENER DETAIL
SCALE: N.T.S.

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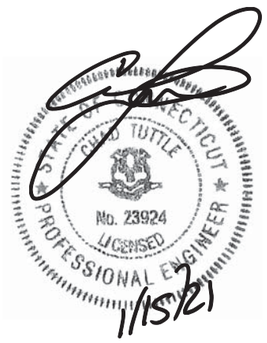


TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

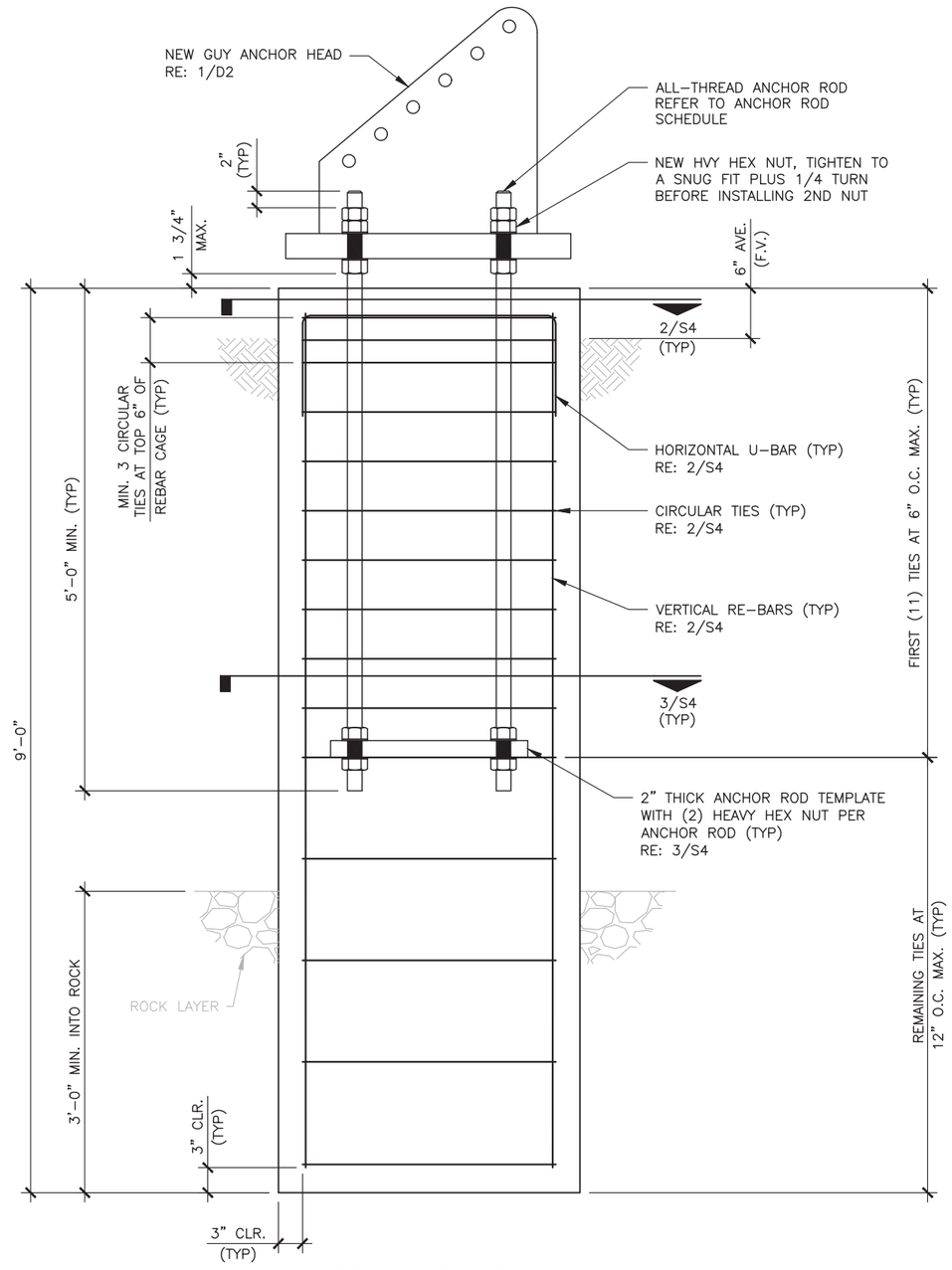
SHEET TITLE

NEW GUY ANCHOR DETAILS

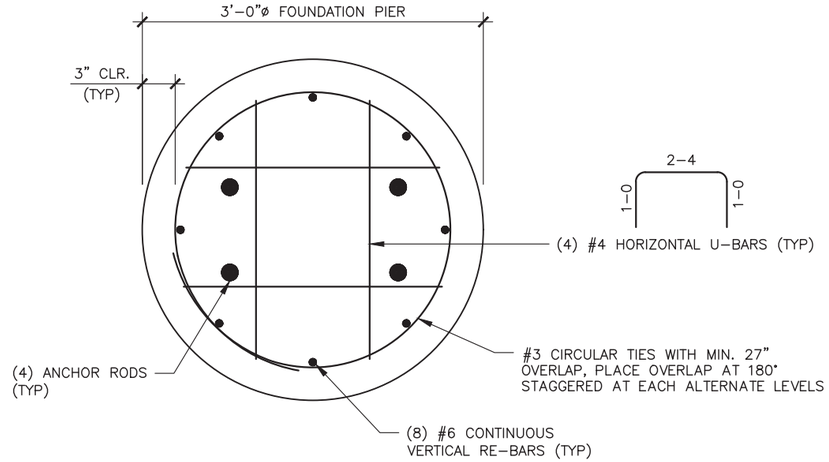
SHEET NUMBER:	REVISION:
S3	0

REFER TO FN SHEET FOR FOUNDATION NOTES.

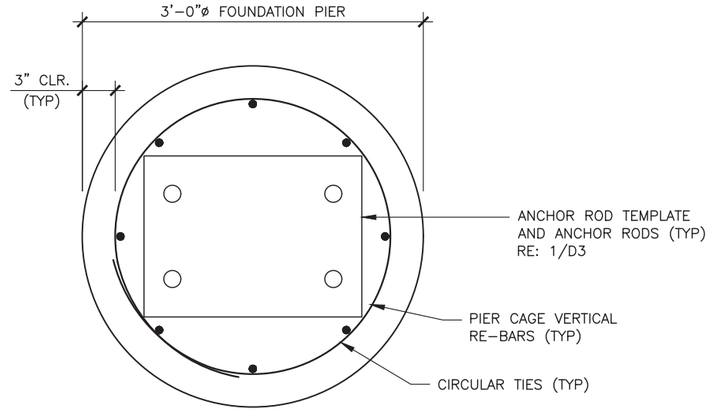
ANCHOR ROD SCHEDULE				
PART NUMBER	DIAMETER	MATERIALS	EMBEDMENT DEPTH	INSTALLED LENGTH
---	1 3/4"	A193-B7	5'-0"	6'-0"



1 FOUNDATION DETAILS
SCALE: N.T.S.



2 FOUNDATION SECTION
SCALE: N.T.S.



3 FOUNDATION SECTION
SCALE: N.T.S.

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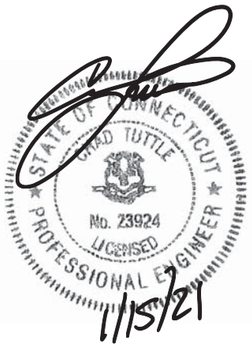


TOLLAND I-84 X67_1
CT11141A

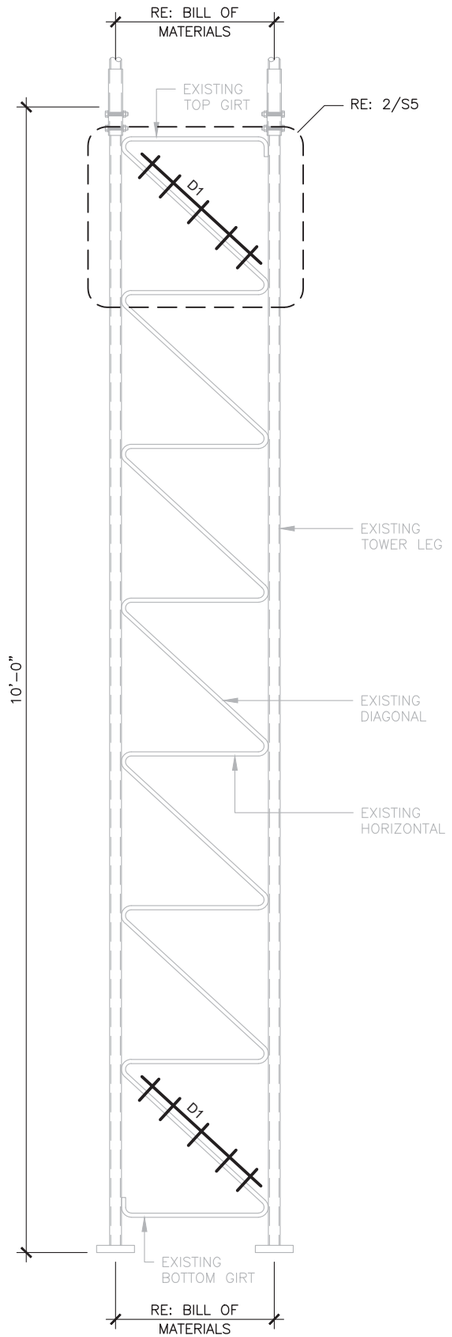
17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

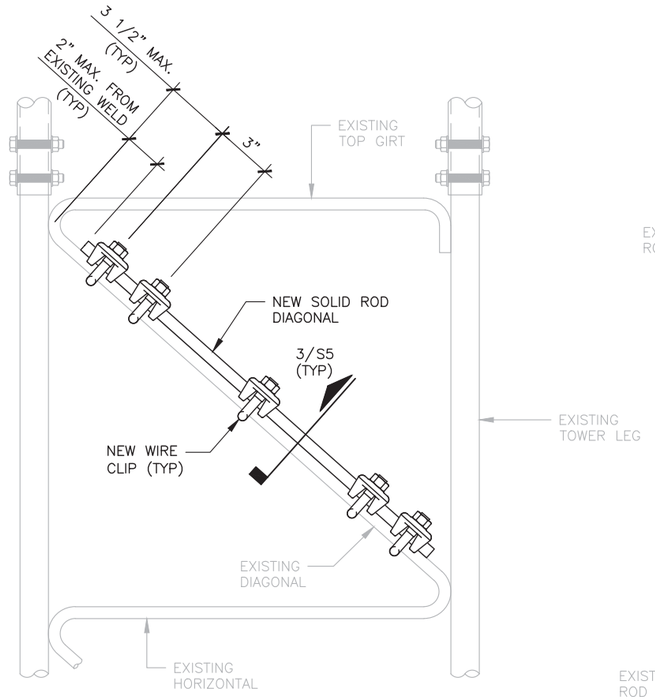
SHEET TITLE
FOUNDATION SECTION AND DETAILS (OPTION - 2)

SHEET NUMBER: S4

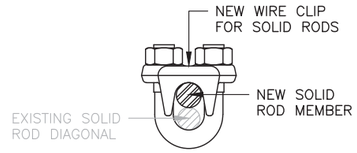
REVISION: 0



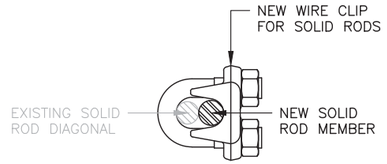
1 TOWER SECTION (0'-10')
SCALE: N.T.S.



2 GENERIC SOLID ROD INSTALLATION DETAIL
SCALE: N.T.S.



3 DEFAULT WIRE CLIP DETAIL
SCALE: N.T.S.



4 ALTERNATIVE WIRE CLIP DETAIL
SCALE: N.T.S.

BILL OF MATERIALS

ELEVATION	BOTTOM	TOP	PC MARK	QTY	DESCRIPTION	CUT LENGTH	DETAIL	MATERIAL	HARDWARE
0'–10'	1'–4 3/4"	1'–4 3/4"	D1	6	DIAGONAL	1'–11"	2/S5	1/2"ø SOLID ROD	(30) WIRE ROPE CLIPS

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TOLLAND I-84 X67_1
CT11141A

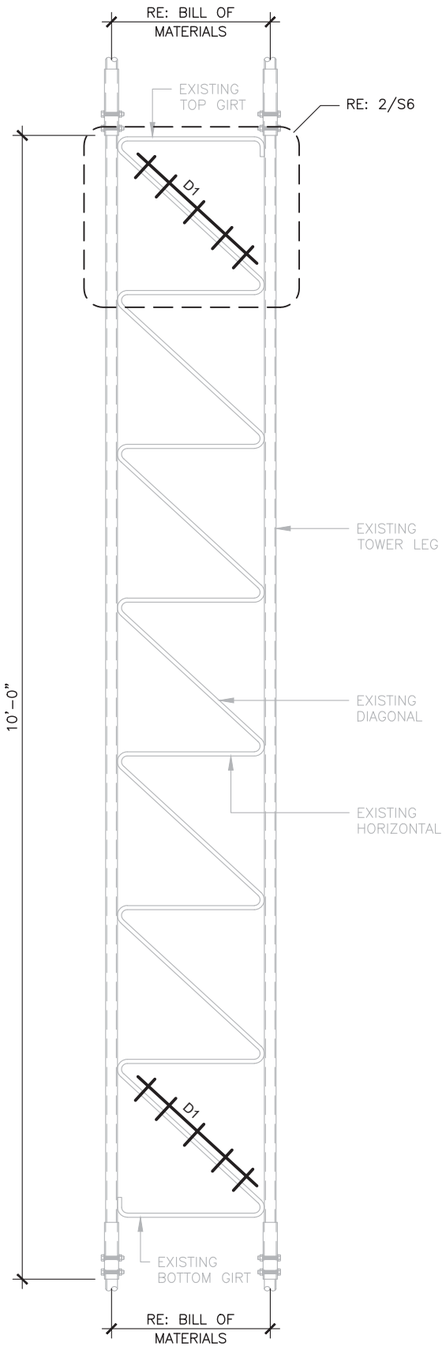
17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

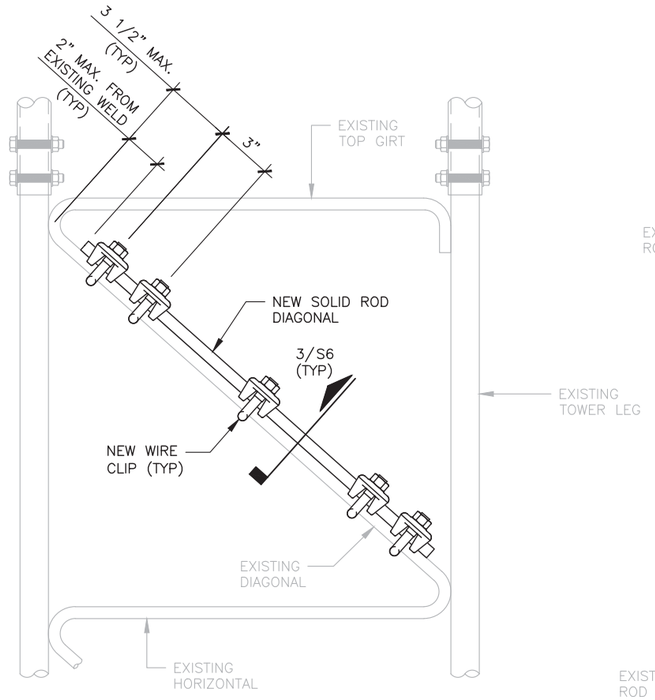
SHEET TITLE
TOWER SECTION
0'-10'

SHEET NUMBER: S5

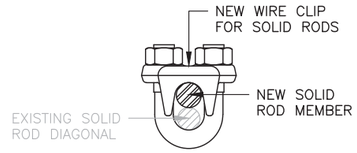
REVISION: 0



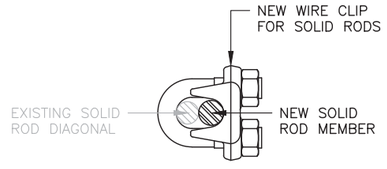
1 TOWER SECTION (10'-20')
SCALE: N.T.S.



2 GENERIC SOLID ROD INSTALLATION DETAIL
SCALE: N.T.S.



3 DEFAULT WIRE CLIP DETAIL
SCALE: N.T.S.



4 ALTERNATIVE WIRE CLIP DETAIL
SCALE: N.T.S.

BILL OF MATERIALS

ELEVATION	BOTTOM	TOP	PC MARK	QTY	DESCRIPTION	CUT LENGTH	DETAIL	MATERIAL	HARDWARE
10'–20'	1'–4 3/4"	1'–4 3/4"	D1	6	DIAGONAL	1'–11"	2/S6	1/2"ø SOLID ROD	(30) WIRE ROPE CLIPS

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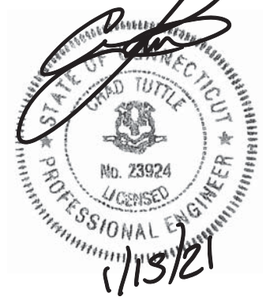


TOLLAND I-84 X67_1
CT11141A

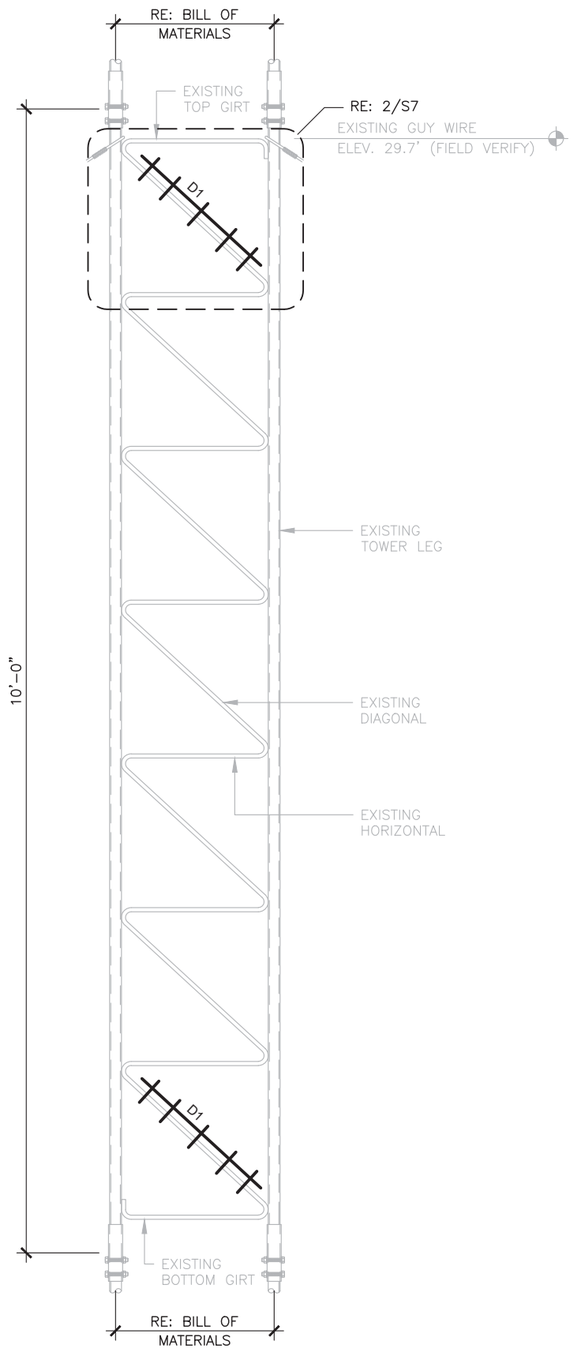
17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

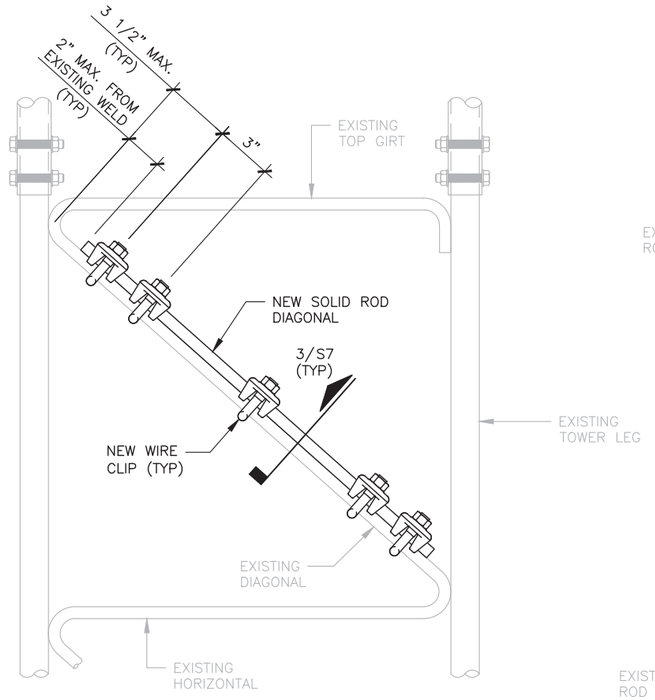
SHEET TITLE
TOWER SECTION
10'-20'

SHEET NUMBER: S6

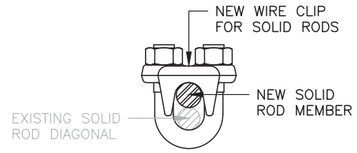
REVISION: 0



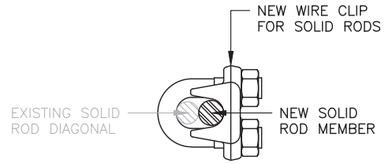
1 TOWER SECTION (20'-30')
SCALE: N.T.S.



2 GENERIC SOLID ROD INSTALLATION DETAIL
SCALE: N.T.S.



3 DEFAULT WIRE CLIP DETAIL
SCALE: N.T.S.



4 ALTERNATIVE WIRE CLIP DETAIL
SCALE: N.T.S.

CONTRACTOR NOTE:

1. EXISTING GUY WIRES NOT SHOWN FOR CLARITY IN DETAIL 2.

BILL OF MATERIALS

ELEVATION	BOTTOM	TOP	PC MARK	QTY	DESCRIPTION	CUT LENGTH	DETAIL	MATERIAL	HARDWARE
20'–30'	1'–4 3/4"	1'–4 3/4"	D1	6	DIAGONAL	1'–11"	2/S7	1/2"ø SOLID ROD	(30) WIRE ROPE CLIPS

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TOLLAND I-84 X67_1
CT11141A

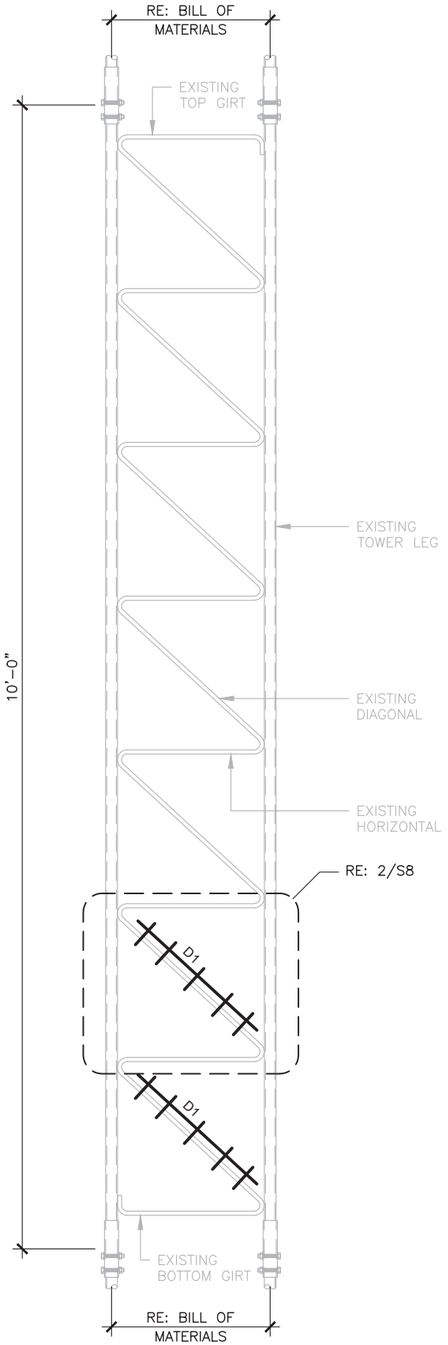
17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

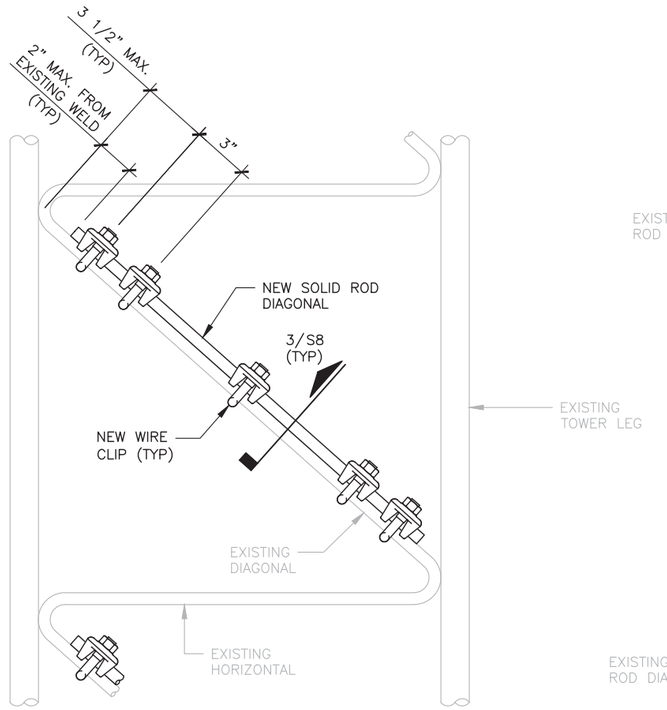
SHEET TITLE
TOWER SECTION
20'-30'

SHEET NUMBER: S7

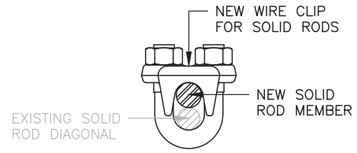
REVISION: 0



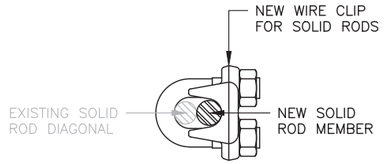
1 TOWER SECTION (30'-40')
SCALE: N.T.S.



2 GENERIC SOLID ROD INSTALLATION DETAIL
SCALE: N.T.S.



3 DEFAULT WIRE CLIP DETAIL
SCALE: N.T.S.



4 ALTERNATIVE WIRE CLIP DETAIL
SCALE: N.T.S.

BILL OF MATERIALS

ELEVATION	BOTTOM	TOP	PC MARK	QTY	DESCRIPTION	CUT LENGTH	DETAIL	MATERIAL	HARDWARE
30'–40'	1'–4 3/4"	1'–4 3/4"	D1	6	DIAGONAL	1'–11"	2/S8	1/2"ø SOLID ROD	(30) WIRE ROPE CLIPS

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ISSUED FOR:

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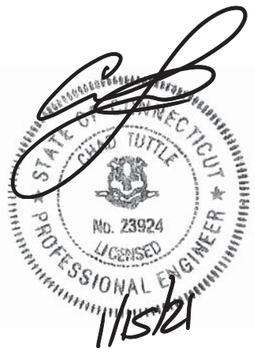
PEC.0001564
Expires 02/10/21



TOLLAND I-84 X67_1
CT11141A

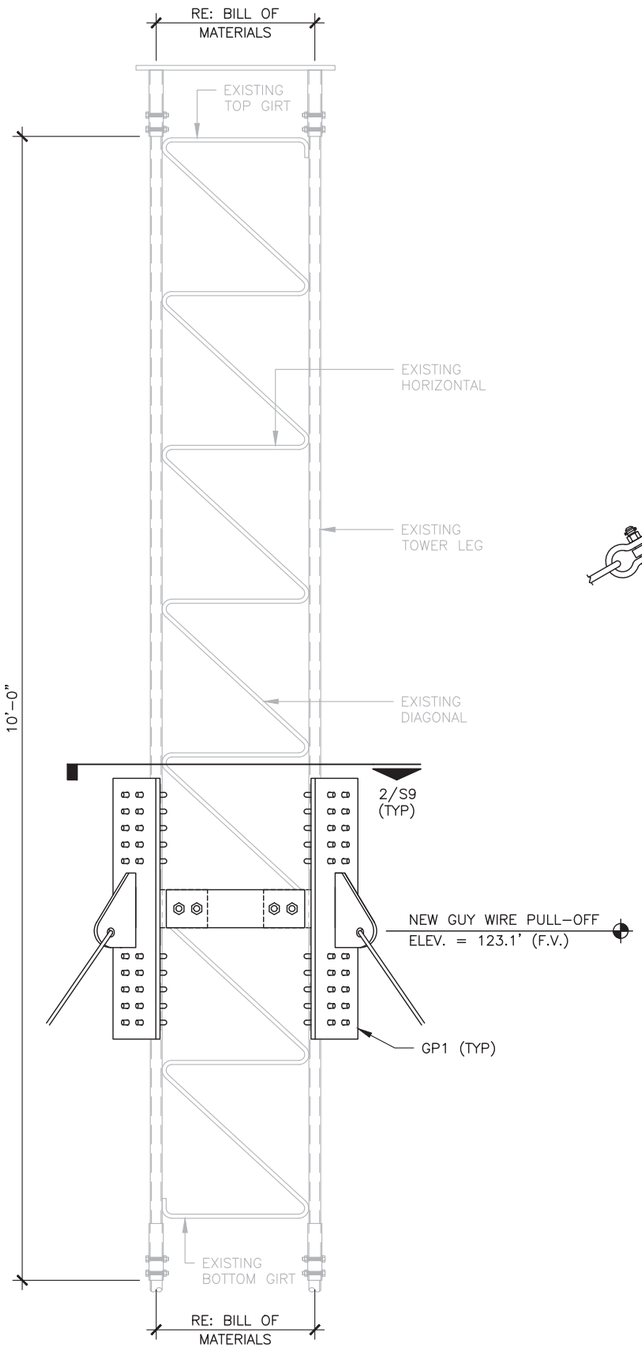
17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

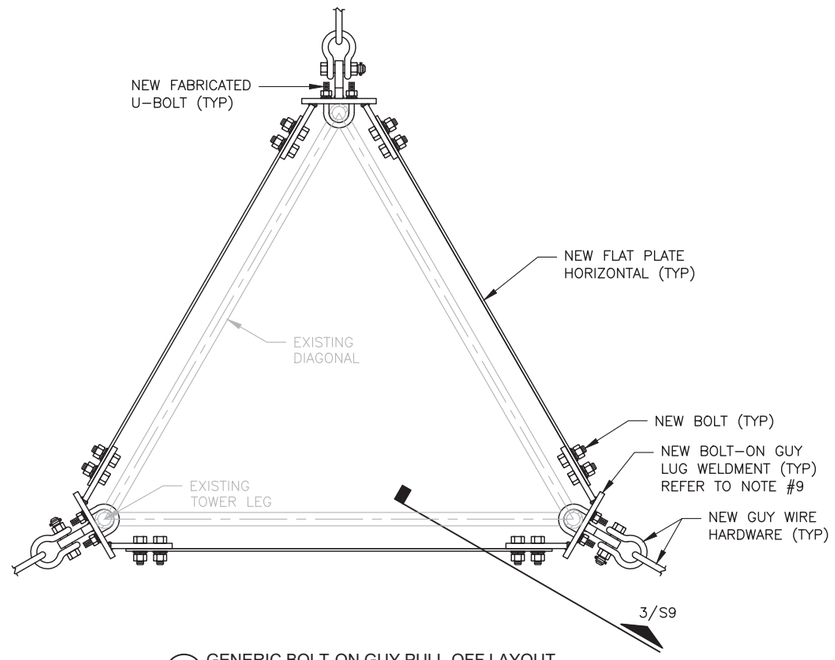
SHEET TITLE
TOWER SECTION
30'-40'

SHEET NUMBER: S8

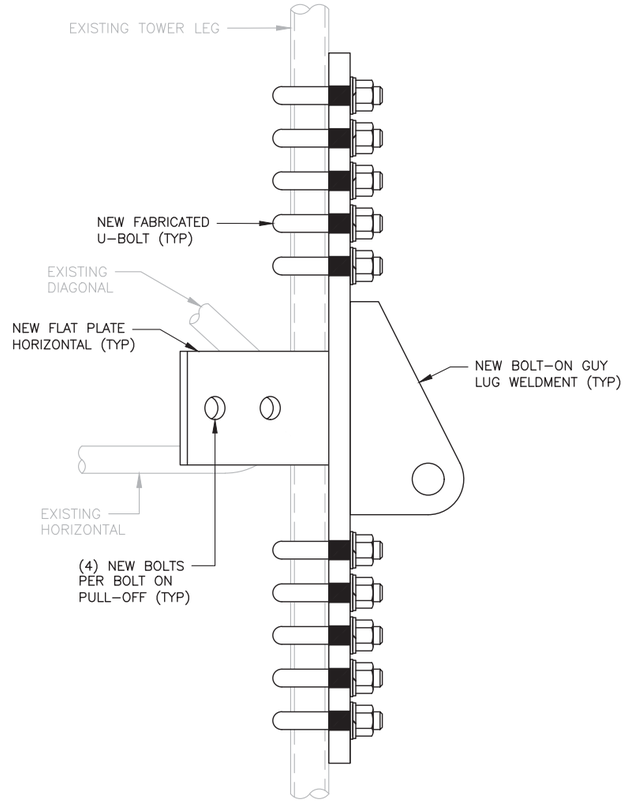
REVISION: 0



1 TOWER SECTION (120'-130')
SCALE: N.T.S.



2 GENERIC BOLT-ON GUY PULL-OFF LAYOUT
SCALE: N.T.S.



3 GENERIC BRACKET INSTALLATION
SCALE: N.T.S.

NOTES:

1. ALL HOLES TO BE SHOP FABRICATED, UNLESS NOTED OTHERWISE.
2. TOLERANCES, UNLESS NOTED OTHERWISE:
   FRACTIONS ± 1/16"
   ANGLES ± 1/2 DEGREE
   DECIMALS ± .010"
3. U-BOLTS SHALL MEET REQUIREMENTS OF ASME B18.31.5-2011 BENT BOLTS.
4. U-BOLTS TO BE ASTM A307.
5. U-BOLT ASSEMBLY, COMPLETE WITH NUTS (ASTM A563), WASHERS (ASTM F436), AND LOCK WASHERS.
6. ALL PLATES TO BE A572 GRADE 50.
7. FULL ASSEMBLY TO BE HOT-DIP GALVANIZED PER ASTM A153 / A153M OR A123, AS APPLICABLE.
8. NO FIELD FABRICATION PERMITTED ON THE PART.
9. STANDARD 13/16"ø HOLES IN PLACE OF SLOTTED HORIZONTAL HOLES ON THE BOLT-ON LUG WELDMENT ARE PERMITTED.

BILL OF MATERIALS

ELEVATION	BOTTOM	TOP	PC MARK	QTY	DESCRIPTION	CUT LENGTH	DETAIL	MATERIAL	HARDWARE
120'-130'	1'-4 3/4"	1'-4 3/4"	GP1	3	BOLT ON GUY PULL-OFF	---	RE: D1	RE: D1	(30) 5/8"ø U-BOLTS
			H1	3	HORIZONTAL	1'-4 3/4"	RE: D1	3/8"x3" PLATE	(12) 3/4"ø A325N BOLTS

B+T GRP
1717 S. BOULDER AVE.
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

CENTERLINE COMMUNICATIONS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	01/15/21	ISSUED FOR CONSTRUCTION

PROJECT NO:	135654.009.01
PROJECT ENG:	BRADEN TABB
DRAWN BY:	RA
CHECKED BY:	VKP / ASP

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/21

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
11/5/21

TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

SHEET TITLE
TOWER SECTION
120'-130'

SHEET NUMBER: S9

REVISION: 0

Exhibit D

Structural & Mount Analysis Report

Date: **May 13, 2022**

Mark Appleby
Centerline Communications
750 W Center St, Suite 301
West Bridgewater, MA 02379
(860) 209-4694

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject:	**Structural Modification Report**	
Carrier Designation:	***Ericsson* Co-Locate**	
	Site Number:	CT11141A
	Site Name:	Tolland/ I-84 X67_1
Centerline Comm. Designation:	**Site Number:**	CT11141A
	Site Name:	Tolland/ I-84 X67_1
Engineering Firm Designation:	**B+T Group Project Number:**	135654.011.01
Site Data:	**17 Pilgrim Drive, Tolland, Tolland County, CT** **Latitude *41° 52' 28.89"*, Longitude *-72° 23' 38.58"*** **130 Foot - Guyed Tower**	

Dear Mr. Appleby,

B+T Group is pleased to submit this **"Structural Modification Report"** to determine the structural integrity of the above-mentioned tower.

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

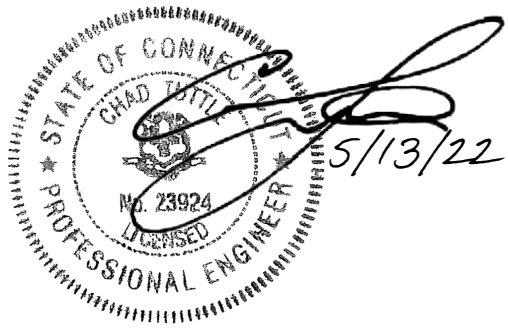
Modified Structure w/ Proposed Equipment Configuration **Sufficient Capacity**

The jurisdiction has adopted the 2015 International Building Code. This analysis has been performed in accordance with the TIA-222-H Standard.

Structural modification prepared by: Matthew Williams

Respectfully submitted by: B+T Engineering, Inc.

COA: PEC.0001564; Expires: 02/01/2023



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

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1) INTRODUCTION

This tower is a 130 ft Guyed tower designed by Rohn and mapped by B+T Group in July of 2019. This tower has been modified by B+T group in January of 2021 and those modifications are incorporated in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
127.0	127.0	3	Ericsson	AIR 6419 B41	3	6X24 HCS
		3	Ericsson	Radio 4460 B25+B66		
		3	Ericsson	Radio 4480 B71+B85		
		3	Rfs Celwave	APXVAALL24_43-U-NA20		
		3	Perfect Vision	PV-STFM-B face mounts		
		6	Perfect Vision	PV-XP-U		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
128.0	134.0	2	Generic	10 ft x 1" Omni	2	7/8
	128.0	1	--	Standoff 4'3" x 5.5"		
86.0	88.0	1	Generic	1’ dish	1	3/8
	86.0	1	--	Standoff		
72.0	72.0	1	Generic	6' x3.5" Yagi	--	--
67.0	67.0	1	Generic	6' x3.5" Yagi	--	--
60.0	60.0	1	Generic	4'-2"x11.5" FM	2	1/4
		1	--	Standoff		
59.5	59.5	1	Generic	6' x3.5" Yagi	--	--
		1	Pelican	10"x9"x6" TME		
55.0	55.0	1	Generic	6' x3.5" Yagi	--	--
32.5	34.0	1	Generic	6' Dish	2	1/4
	32.5	1	--	Standoff		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Data	Tower Mapping by B+T Group, Project No. 135654.007.01	Date: 07/24/2019	On File
Mount Analysis	B+T Group, Project No: 135654.010.01	Date: 04/04/2022	On File
Modification Data	Modification Drawing by B+T Group, Project No: 135654.009.01	Date: 01/15/2021	On File
Foundation Data	Foundation Mapping by Delta Oaks Group, Project No. BG119-04760-03	Date: 07/24/2019	On File
Soil Properties	Geotech Report by Delta Oaks Group, Project No. GEO19-04760-03	Date: 07/30/2019	On File
Existing Loading	Tower Mapping by B+T Group, Project No. 135654.007.01	Date: 07/24/2019	On File
Proposed Loading	CT11141A_Anchor_5_draft	Date: 02/16/2022	On File

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) The tower and structures were maintained in accordance with the - TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	130 - 120	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	2	-7.054	12.932	54.5	Pass
T2	120 - 110	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	50	-6.599	12.932	51.0	Pass
T3	110 - 100	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	98	-6.708	12.932	51.9	Pass
T4	100 - 90	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	147	-8.419	12.932	65.1	Pass
T5	90 - 80	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	195	-8.289	12.932	64.1	Pass
T6	80 - 70	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	241	-7.663	12.932	59.3	Pass
T7	70 - 60	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	289	-7.484	12.932	57.9	Pass
T8	60 - 50	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	339	-8.988	12.932	69.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T9	50 - 40	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	387	-9.493	12.932	73.4	Pass
T10	40 - 38.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	435	-9.194	12.932	71.1	Pass
T11	38.375 - 37.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	447	-9.383	12.932	72.6	Pass
T12	37.0625 - 35.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	456	-9.268	12.932	71.7	Pass
T13	35.75 - 34.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	465	-9.196	12.932	71.1	Pass
T14	34.4375 - 33.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	472	-9.290	12.932	71.8	Pass
T15	33.125 - 31.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	481	-9.717	12.932	75.1	Pass
T16	31.8125 - 30	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	490	-9.812	12.932	75.9	Pass
T17	30 - 28.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	499	-10.442	12.932	80.7	Pass
T18	28.375 - 27.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	511	-10.666	12.932	82.5	Pass
T19	27.0625 - 25.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	520	-10.558	12.932	81.6	Pass
T20	25.75 - 24.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	529	-10.533	12.932	81.4	Pass
T21	24.4375 - 23.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	538	-10.476	12.932	81.0	Pass
T22	23.125 - 21.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	547	-10.510	12.932	81.3	Pass
T23	21.8125 - 20	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	556	-10.195	12.932	78.8	Pass
T24	20 - 18.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	565	-10.164	12.932	78.6	Pass
T25	18.375 - 17.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	577	-10.430	12.932	80.7	Pass
T26	17.0625 - 15.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	586	-10.361	12.932	80.1	Pass
T27	15.75 - 14.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	595	-10.381	12.932	80.3	Pass
T28	14.4375 - 13.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	604	-10.370	12.932	80.2	Pass
T29	13.125 - 11.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	613	-10.451	12.932	80.8	Pass
T30	11.8125 - 10	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	623	-10.323	12.932	79.8	Pass
T31	10 - 8.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	632	-10.484	12.932	81.1	Pass
T32	8.375 - 7.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	644	-10.810	12.932	83.6	Pass
T33	7.0625 - 5.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	653	-10.881	12.932	84.1	Pass
T34	5.75 - 4.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	662	-11.017	12.932	85.2	Pass
T35	4.4375 - 3.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	671	-11.128	12.932	86.0	Pass
T36	3.125 - 1.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	680	-11.308	12.932	87.4	Pass
T37	1.8125 - 0	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	689	-11.195	12.932	86.6	Pass
T1	130 - 120	Diagonal	7/16	28	-1.913	1.923	99.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T2	120 - 110	Diagonal	7/16	95	-0.633	1.923	32.9	Pass
T3	110 - 100	Diagonal	7/16	106	-0.651	1.923	33.8	Pass
T4	100 - 90	Diagonal	7/16	190	-0.675	1.923	35.1	Pass
T5	90 - 80	Diagonal	7/16	240	-1.087	1.923	56.5	Pass
T6	80 - 70	Diagonal	7/16	288	-0.885	1.923	46.0	Pass
T7	70 - 60	Diagonal	7/16	298	-0.940	1.923	48.9	Pass
T8	60 - 50	Diagonal	7/16	346	-1.278	1.923	66.4	Pass
T9	50 - 40	Diagonal	7/16	430	-1.258	1.923	65.4	Pass
T10	40 - 38.375	Diagonal	7/16	443	-1.132	1.923	58.9	Pass
T11	38.375 - 37.0625	Diagonal	7/16	452	-0.745	1.923	38.7	Pass
T12	37.0625 - 35.75	Diagonal	7/16	461	-0.844	1.923	43.9	Pass
T13	35.75 - 34.4375	Diagonal	7/16	470	-0.910	1.923	47.3	Pass
T14	34.4375 - 33.125	Diagonal	7/16	480	-1.580	1.923	82.1	Pass
T15	33.125 - 31.8125	Diagonal	1/2" on 7/16" SR with Crosby	489	-2.188	3.502	62.5	Pass
T16	31.8125 - 30	Diagonal	1/2" on 7/16" SR with Crosby	498	-3.237	3.502	92.4	Pass
T17	30 - 28.375	Diagonal	1/2" on 7/16" SR with Crosby	510	-2.260	3.502	64.5	Pass
T18	28.375 - 27.0625	Diagonal	7/16	517	-1.345	1.923	69.9	Pass
T19	27.0625 - 25.75	Diagonal	7/16	526	-1.462	1.923	76.0	Pass
T20	25.75 - 24.4375	Diagonal	7/16	535	-1.404	1.923	73.0	Pass
T21	24.4375 - 23.125	Diagonal	7/16	544	-1.428	1.923	74.2	Pass
T22	23.125 - 21.8125	Diagonal	7/16	553	-1.246	1.923	64.8	Pass
T23	21.8125 - 20	Diagonal	1/2" on 7/16" SR with Crosby	564	-1.945	3.502	55.6	Pass
T24	20 - 18.375	Diagonal	1/2" on 7/16" SR with Crosby	576	-1.964	3.502	56.1	Pass
T25	18.375 - 17.0625	Diagonal	7/16	585	-1.256	1.923	65.3	Pass
T26	17.0625 - 15.75	Diagonal	7/16	594	-1.436	1.923	74.7	Pass
T27	15.75 - 14.4375	Diagonal	7/16	603	-1.400	1.923	72.8	Pass
T28	14.4375 - 13.125	Diagonal	7/16	612	-1.463	1.923	76.1	Pass
T29	13.125 - 11.8125	Diagonal	7/16	621	-1.293	1.923	67.2	Pass
T30	11.8125 - 10	Diagonal	1/2" on 7/16" SR with Crosby	630	-2.084	3.502	59.5	Pass
T31	10 - 8.375	Diagonal	1/2" on 7/16" SR with Crosby	642	-2.095	3.502	59.8	Pass
T32	8.375 - 7.0625	Diagonal	7/16	651	-1.330	1.923	69.2	Pass
T33	7.0625 - 5.75	Diagonal	7/16	660	-1.520	1.923	79.0	Pass
T34	5.75 - 4.4375	Diagonal	7/16	669	-1.473	1.923	76.6	Pass
T35	4.4375 - 3.125	Diagonal	7/16	678	-1.547	1.923	80.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T36	3.125 - 1.8125	Diagonal	7/16	687	-1.308	1.923	68.0	Pass
T37	1.8125 - 0	Diagonal	1/2" on 7/16" SR with Crosby	696	-2.370	3.502	67.7	Pass
T1	130 - 120	Horizontal	7/16	25	-1.378	3.046	45.2	Pass
T2	120 - 110	Horizontal	7/16	92	0.393	5.114	7.7	Pass
T3	110 - 100	Horizontal	7/16	109	0.368	5.114	7.2	Pass
T4	100 - 90	Horizontal	7/16	157	-0.279	3.046	9.1	Pass
T5	90 - 80	Horizontal	7/16	237	-0.399	3.046	13.1	Pass
T6	80 - 70	Horizontal	7/16	285	-0.311	3.046	10.2	Pass
T7	70 - 60	Horizontal	7/16	301	-0.394	3.046	12.9	Pass
T8	60 - 50	Horizontal	7/16	349	0.773	5.114	15.1	Pass
T9	50 - 40	Horizontal	7/16	427	0.726	5.114	14.2	Pass
T1	130 - 120	Top Girt	7/16	5	-0.006	3.046	0.2	Pass
T2	120 - 110	Top Girt	7/16	54	-0.185	3.046	6.1	Pass
T3	110 - 100	Top Girt	7/16	100	-0.122	3.046	4.0	Pass
T4	100 - 90	Top Girt	7/16	148	-0.151	3.046	5.0	Pass
T5	90 - 80	Top Girt	7/16	198	-0.305	3.046	10.0	Pass
T6	80 - 70	Top Girt	7/16	246	-0.222	3.046	7.3	Pass
T7	70 - 60	Top Girt	7/16	292	0.291	5.114	5.7	Pass
T8	60 - 50	Top Girt	7/16	341	0.518	5.114	10.1	Pass
T9	50 - 40	Top Girt	7/16	388	0.485	5.114	9.5	Pass
T10	40 - 38.375	Top Girt	7/16	438	0.415	5.114	8.1	Pass
T11	38.375 - 37.0625	Top Girt	7/16	440	0.683	5.114	13.4	Pass
T12	37.0625 - 35.75	Top Girt	7/16	449	0.577	5.114	11.3	Pass
T13	35.75 - 34.4375	Top Girt	7/16	458	0.636	5.114	12.4	Pass
T14	34.4375 - 33.125	Top Girt	7/16	467	0.499	5.114	9.8	Pass
T15	33.125 - 31.8125	Top Girt	7/16	477	1.364	5.114	26.7	Pass
T16	31.8125 - 30	Top Girt	7/16	486	1.961	5.114	38.4	Pass
T17	30 - 28.375	Top Girt	7/16	502	1.588	5.114	31.1	Pass
T18	28.375 - 27.0625	Top Girt	7/16	507	1.227	5.114	24.0	Pass
T19	27.0625 - 25.75	Top Girt	7/16	514	1.042	5.114	20.4	Pass
T20	25.75 - 24.4375	Top Girt	7/16	523	1.042	5.114	20.4	Pass
T21	24.4375 - 23.125	Top Girt	7/16	532	1.034	5.114	20.2	Pass
T22	23.125 - 21.8125	Top Girt	7/16	541	0.975	5.114	19.1	Pass
T23	21.8125 - 20	Top Girt	7/16	550	1.164	5.114	22.8	Pass
T24	20 - 18.375	Top Girt	7/16	568	0.712	5.114	13.9	Pass
T25	18.375 - 17.0625	Top Girt	7/16	573	1.179	5.114	23.1	Pass
T26	17.0625 - 15.75	Top Girt	7/16	582	0.982	5.114	19.2	Pass
T27	15.75 -	Top Girt	7/16	591	1.035	5.114	20.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
	14.4375							
T28	14.4375 - 13.125	Top Girt	7/16	600	1.044	5.114	20.4	Pass
T29	13.125 - 11.8125	Top Girt	7/16	609	1.006	5.114	19.7	Pass
T30	11.8125 - 10	Top Girt	7/16	618	1.236	5.114	24.2	Pass
T31	10 - 8.375	Top Girt	7/16	636	0.759	5.114	14.8	Pass
T32	8.375 - 7.0625	Top Girt	7/16	639	1.242	5.114	24.3	Pass
T33	7.0625 - 5.75	Top Girt	7/16	648	1.043	5.114	20.4	Pass
T34	5.75 - 4.4375	Top Girt	7/16	657	1.090	5.114	21.3	Pass
T35	4.4375 - 3.125	Top Girt	7/16	666	1.102	5.114	21.5	Pass
T36	3.125 - 1.8125	Top Girt	7/16	675	1.035	5.114	20.2	Pass
T37	1.8125 - 0	Top Girt	7/16	684	1.371	5.114	26.8	Pass
T1	130 - 120	Bottom Girt	7/16	8	0.280	5.114	5.5	Pass
T2	120 - 110	Bottom Girt	7/16	55	-0.119	3.046	3.9	Pass
T3	110 - 100	Bottom Girt	7/16	103	0.262	5.114	5.1	Pass
T4	100 - 90	Bottom Girt	7/16	151	-0.151	3.046	5.0	Pass
T5	90 - 80	Bottom Girt	7/16	201	-0.186	3.046	6.1	Pass
T6	80 - 70	Bottom Girt	7/16	247	0.282	5.114	5.5	Pass
T7	70 - 60	Bottom Girt	7/16	295	-0.297	3.046	9.7	Pass
T8	60 - 50	Bottom Girt	7/16	345	0.463	5.114	9.0	Pass
T9	50 - 40	Bottom Girt	7/16	393	0.416	5.114	8.1	Pass
T16	31.8125 - 30	Bottom Girt	7/16	495	1.240	5.114	24.2	Pass
T23	21.8125 - 20	Bottom Girt	7/16	561	0.729	5.114	14.3	Pass
T30	11.8125 - 10	Bottom Girt	7/16	627	0.764	5.114	14.9	Pass
T37	1.8125 - 0	Bottom Girt	7/16	693	0.853	5.114	16.7	Pass
T1	130 - 120	Guy A@123.125	3/8	717	5.129	9.702	52.9	Pass
T4	100 - 90	Guy A@90.5	1/4	711	1.922	4.189	45.9	Pass
T8	60 - 50	Guy A@58.375	1/4	705	1.868	4.189	44.6	Pass
T17	30 - 28.375	Guy A@29.6875	1/4	699	1.655	4.189	39.5	Pass
T1	130 - 120	Guy B@123.125	3/8	716	5.333	9.702	55.0	Pass
T4	100 - 90	Guy B@90.5	1/4	710	1.991	4.189	47.5	Pass
T8	60 - 50	Guy B@58.375	1/4	704	1.848	4.189	44.1	Pass
T17	30 - 28.375	Guy B@29.6875	1/4	698	1.595	4.189	38.1	Pass
T1	130 - 120	Guy C@123.125	3/8	712	5.345	9.702	55.1	Pass
T4	100 - 90	Guy C@90.5	1/4	706	2.014	4.189	48.1	Pass
T8	60 - 50	Guy C@58.375	1/4	700	1.874	4.189	44.7	Pass
T17	30 - 28.375	Guy C@29.6875	1/4	697	1.610	4.189	38.4	Pass
T1	130 - 120	Top Guy Pull-Off@123.125	3 x 3/8	714	1.462	36.397	4.0	Pass
T4	100 - 90	Top Guy Pull-Off@90.5	1 1/2x3/8	708	0.713	19.136	3.7	Pass
T8	60 - 50	Top Guy Pull-Off@58.375	1 1/2x3/8	703	0.955	19.136	5.0	Pass
							Summary	
						Leg (T36)	87.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Diagonal (T1)	99.5	Pass
						Horizontal (T1)	45.2	Pass
						Top Girt (T16)	38.4	Pass
						Bottom Girt (T16)	24.2	Pass
						Guy A (T1)	52.9	Pass
						Guy B (T1)	55.0	Pass
						Guy C (T1)	55.1	Pass
						Top Guy Pull-Off (T8)	5.0	Pass
						Bolt Checks	80.3	Pass
						Rating =	99.5	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Guy Anchor Foundation (Anchor Block)	Base	46.2	Pass
1	Guy Anchor Foundation (Drilled Pier)	Base	43.6	Pass
1	Base Foundation	Base	9.6	Pass

Structure Rating (max from all components) =	99.5%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H Section 15.5.

4.1) Recommendations

The tower and its base and anchor foundations have sufficient capacity to carry the proposed load configuration so long as the modifications listed in the Structural Modification Report prepared by B+T Group, dated 01-15-2021, are installed.

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31	T32	T33	T34	T35	T36	T37
Legs	ROHN TS 1.25 x 14GA (0.083" Thick)																																				
Leg Grade	A572-50																																				
Diagonals	A	SR 7/16	A	SR 7/16	A	SR 7/16	A																														
Diagonal Grade	A36																																				
Top Girts	SR 7/16																																				
Bottom Girts	B	N.A.	B	N.A.	B	N.A.	B	N.A.																													
Horizontals	N.A.																																				
Top Guy Pull-Offs	N.A.							1 1/2x3/8																													
Face Width (ft)	1.39583																																				
# Panels @ (ft)	100 @ 1.3125																																				
Weight (K)	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

130.0 ft
123.1 ft
120.0 ft
110.0 ft
100.0 ft
90.0 ft
80.0 ft
70.0 ft
60.0 ft
58.4 ft
50.0 ft
40.0 ft
38.4 ft
35.8 ft
33.1 ft
30.0 ft
28.4 ft
25.8 ft
23.1 ft
20.0 ft
18.4 ft
15.8 ft
13.1 ft
10.0 ft
8.4 ft
5.8 ft
3.1 ft
0.0 ft

3/8 EHS LC=146\4-3/4" IT=10%
1/4 EHS LC=120\3-3/32" IT=10%
1/4 EHS LC=98\4-1...
1/4 EHS LC=R.../32" IT=10%

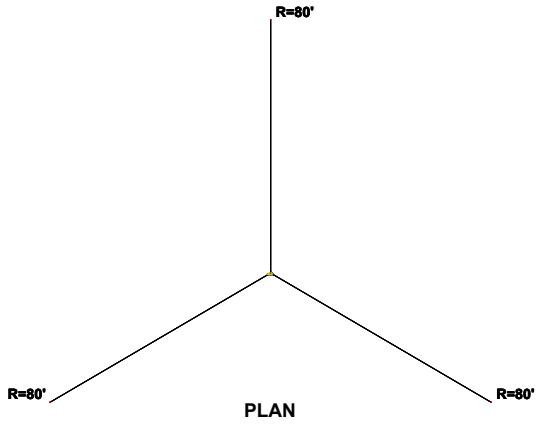
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 12 K
SHEAR: 0 K

UPLIFT: 0 K
SHEAR: 0 K

AXIAL 32 K
SHEAR 0 K
MOMENT 2 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 1.500 in ICE

AXIAL 18 K
SHEAR 0 K
MOMENT 5 kip-ft
TORQUE 1 kip-ft
REACTIONS - 118 mph WIND



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1/2" on 7/16" SR with Crosby	B	SR 7/16

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 Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 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'
8. TIA-222-H Annex S
9. TOWER RATING: 99.5%

7 K
10 K
7 K
R=80'

ALL REACTIONS ARE FACTORED

B+T Group
1717 S. Boulder, Suite 300
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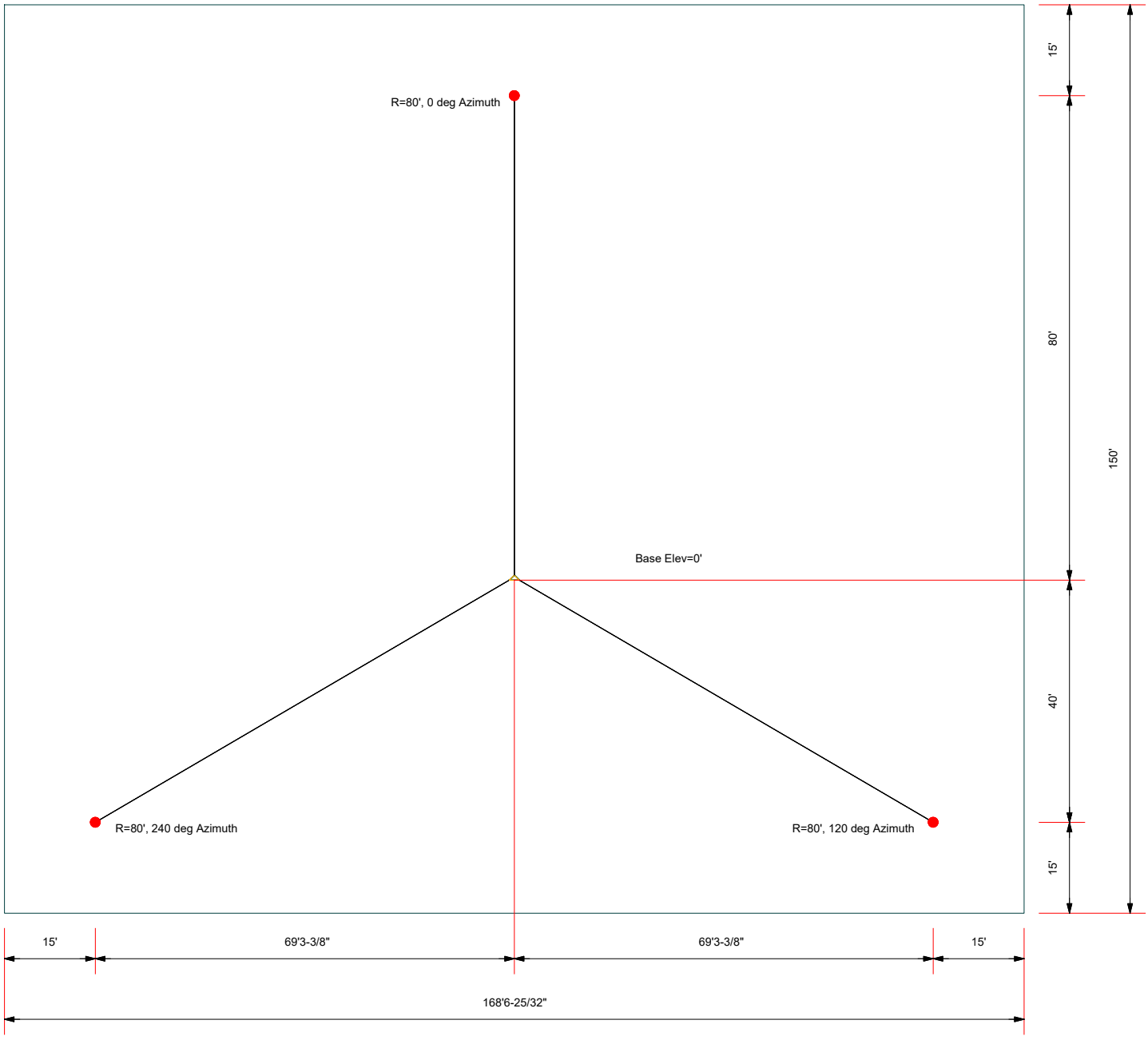
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 135654.011.01 - Tolland I-84 X67_1, CT (Site# CT11141A			
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-1	

Plot Plan
Total Area - 0.58 Acres



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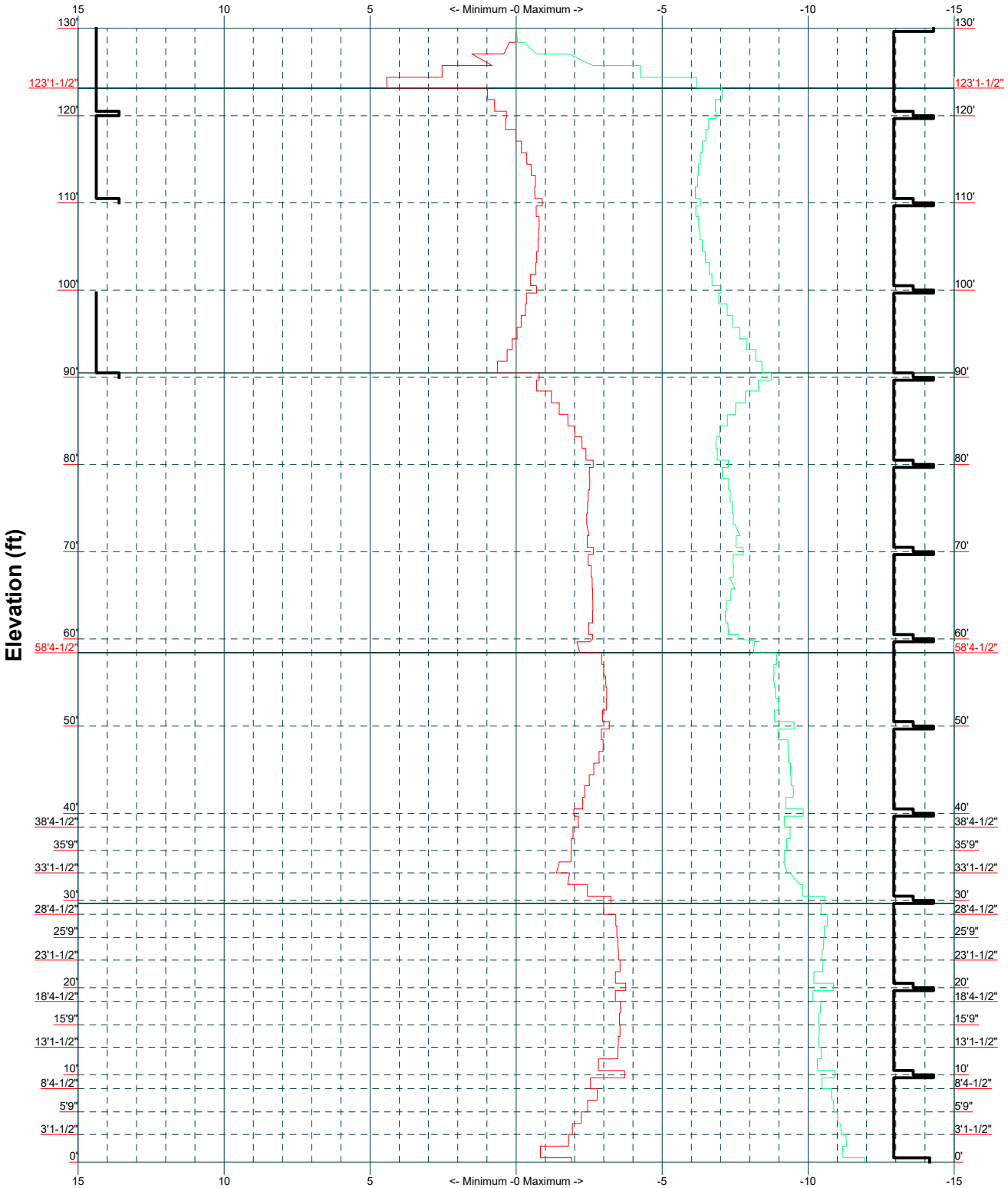
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-2	

TIA-222-H - 118 mph/50 mph 1.500 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



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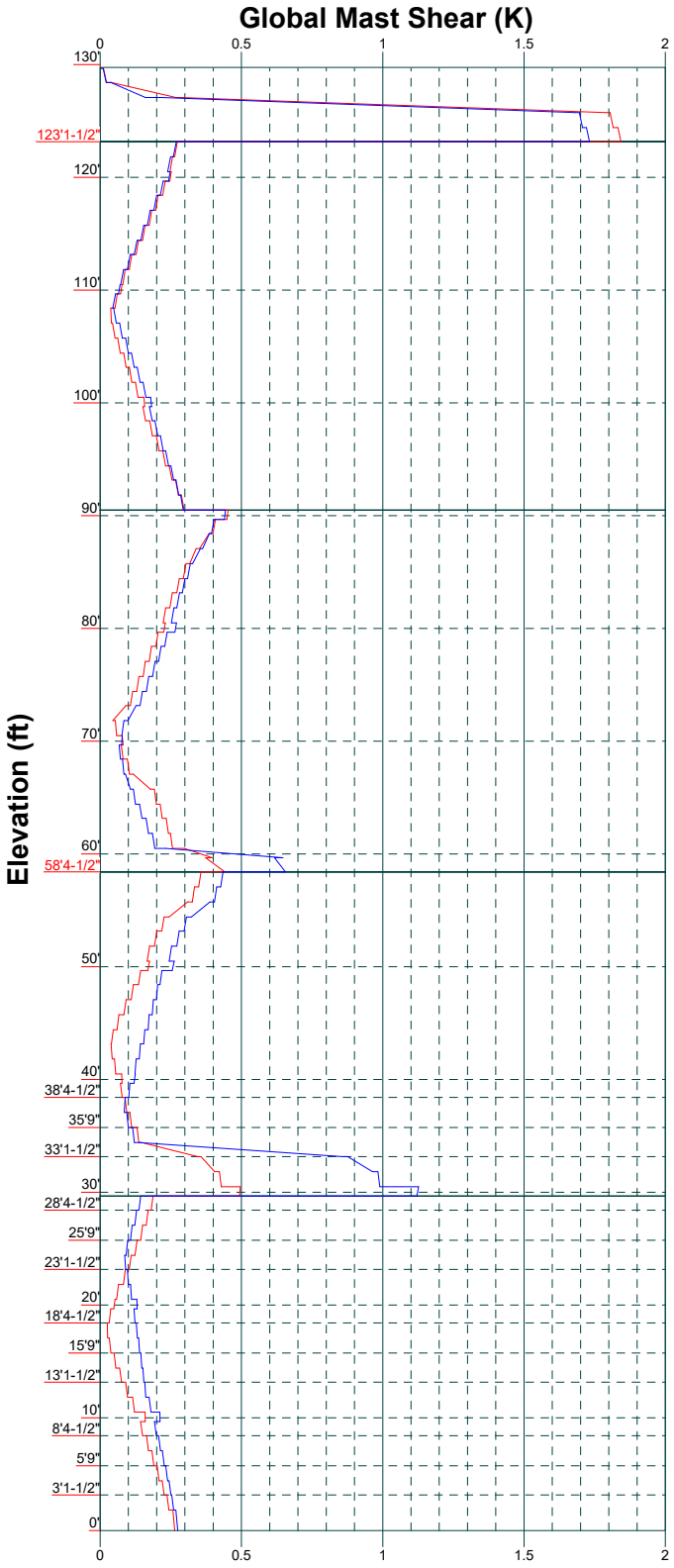
Job: *135654.011.01 - Tolland I-84 X67_1, CT (Site# CT11141A*			
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-3	

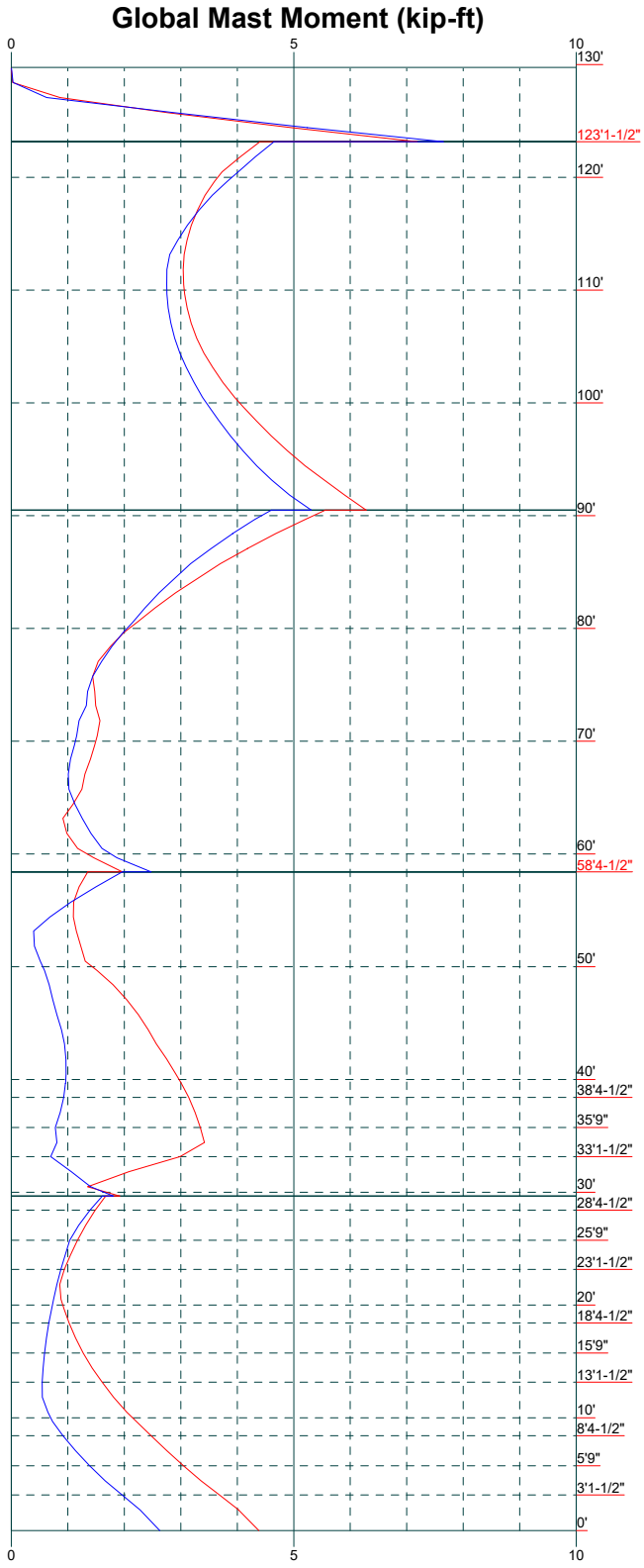
TIA-222-H - 118 mph/50 mph 1.500 in Ice Exposure B

Vx Vz

Maximum Values

Mx Mz





B+T GRP

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FAX: (918) 295-0265

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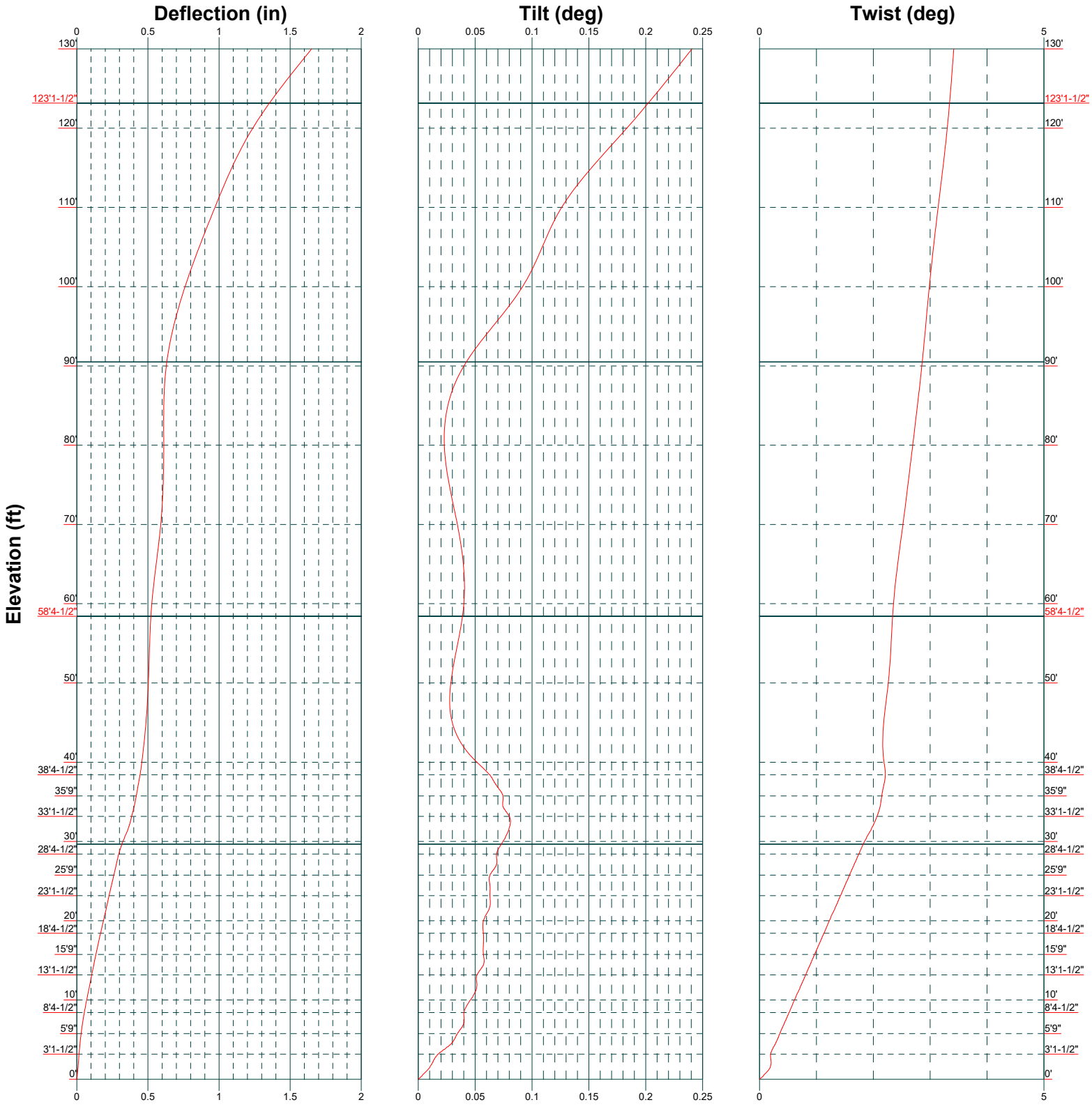
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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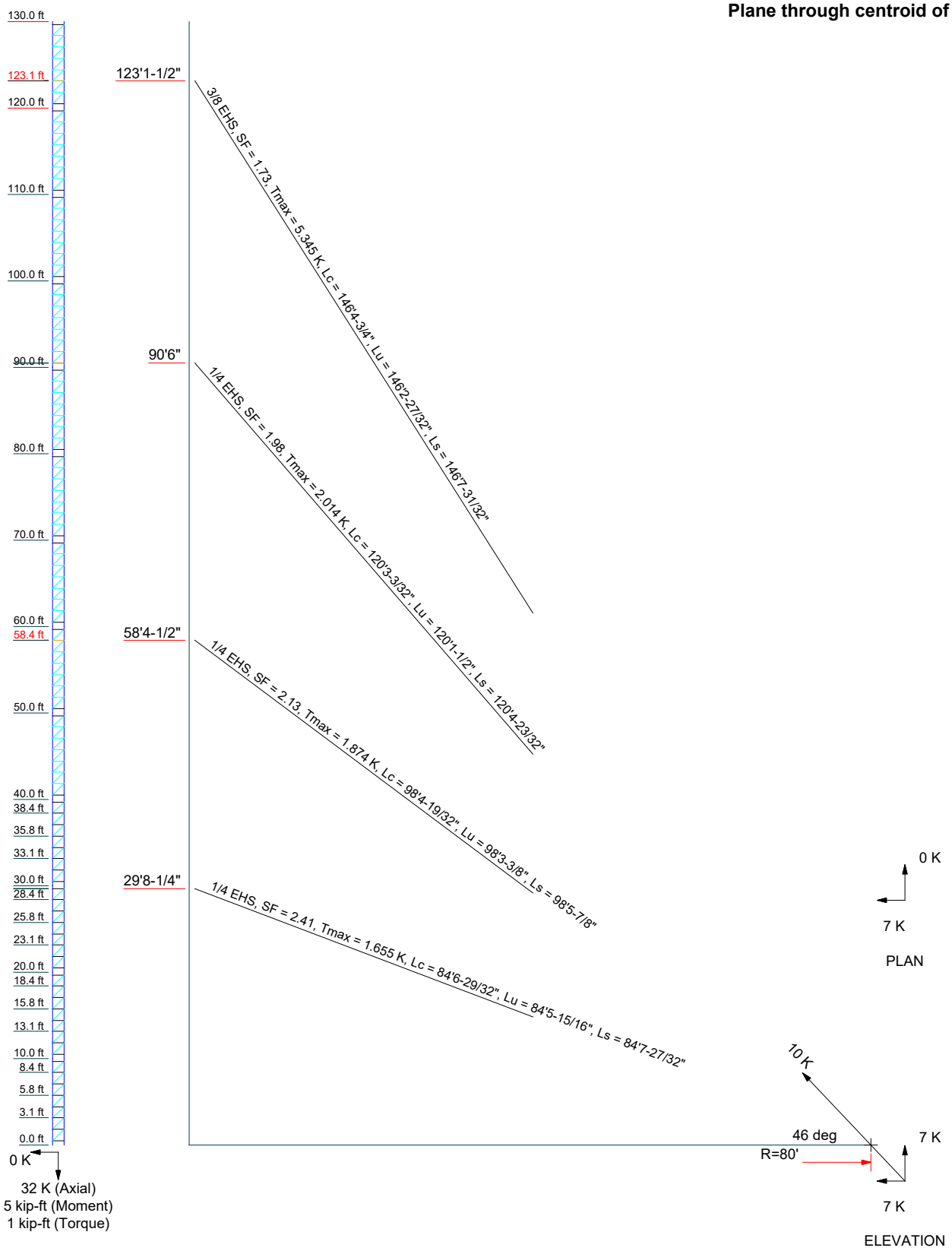
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-5	

Guy Tensions and Tower Reactions

TIA-222-H - 118 mph/50 mph 1.500 in Ice Exposure B

Maximum Values
Anchor 'C'@80 ft Azimuth 240 deg Elev 0 ft
Plane through centroid of tower



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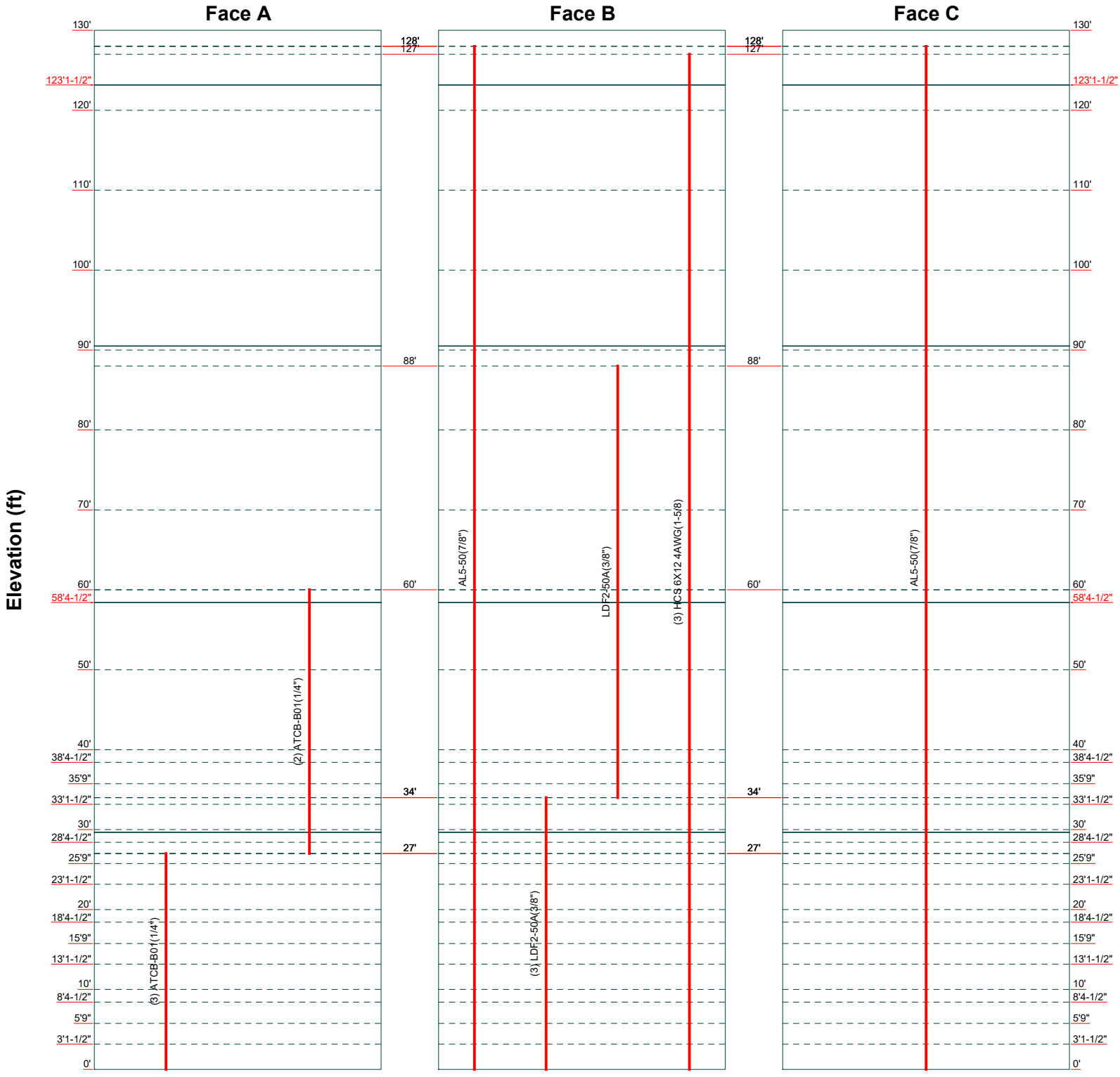
Job: *135654.011.01 - Tolland I-84 X67_1, CT (Site# CT11141A*			
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-6	

Feed Line Distribution Chart
0' - 130'

Round | Flat | App In Face | App Out Face | Truss Leg



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Job: *135654.011.01 - Tolland I-84 X67_1, CT (Site# CT11141A*			
Project:			
Client: Centerline Communications	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 05/04/22	Scale: NTS	
Path:		Dwg No. E-7	

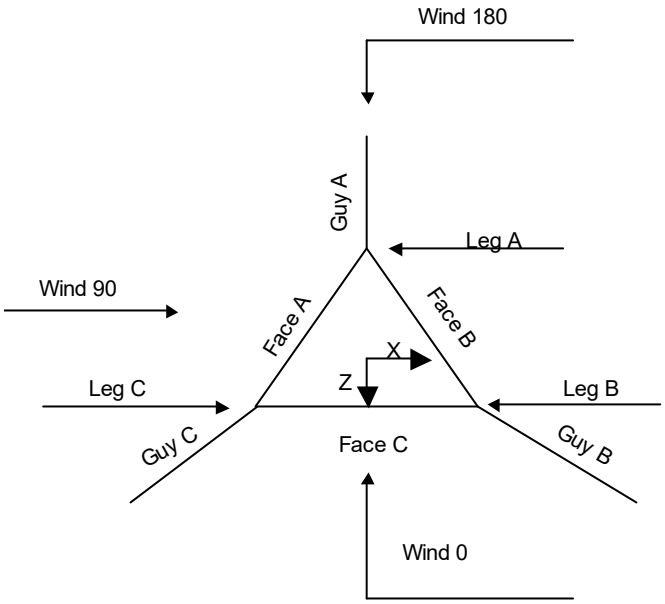
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 130' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 1'4-3/4" at the top and 1'4-3/4" at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Tolland County, Connecticut.
Tower base elevation above sea level: 919'.
Basic wind speed of 118 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0'.
Nominal ice thickness of 1.500 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.
TIA-222-H Annex S.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Safety factor used in guy design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
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

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	130'-120'			1'4-3/4"	1	10'
T2	120'-110'			1'4-3/4"	1	10'
T3	110'-100'			1'4-3/4"	1	10'
T4	100'-90'			1'4-3/4"	1	10'
T5	90'-80'			1'4-3/4"	1	10'
T6	80'-70'			1'4-3/4"	1	10'
T7	70'-60'			1'4-3/4"	1	10'
T8	60'-50'			1'4-3/4"	1	10'
T9	50'-40'			1'4-3/4"	1	10'
T10	40'-38'4-1/2"			1'4-3/4"	1	1'7-1/2"
T11	38'4-1/2"-37'3/4"			1'4-3/4"	1	1'3-3/4"
T12	37'3/4"-35'9"			1'4-3/4"	1	1'3-3/4"
T13	35'9"-34'5-1/4"			1'4-3/4"	1	1'3-3/4"
T14	34'5-1/4"-33'1-1/2"			1'4-3/4"	1	1'3-3/4"
T15	33'1-1/2"-31'9-3/4"			1'4-3/4"	1	1'3-3/4"
T16	31'9-3/4"-30'			1'4-3/4"	1	1'9-3/4"
T17	30'-28'4-1/2"			1'4-3/4"	1	1'7-1/2"
T18	28'4-1/2"-27'3/4"			1'4-3/4"	1	1'3-3/4"

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T19	27'3/4"-25'9"			1'4-3/4"	1	1'3-3/4"
T20	25'9"-24'5-1/4"			1'4-3/4"	1	1'3-3/4"
T21	24'5-1/4"-23'1-1/2"			1'4-3/4"	1	1'3-3/4"
T22	23'1-1/2"-21'9-3/4"			1'4-3/4"	1	1'3-3/4"
T23	21'9-3/4"-20'			1'4-3/4"	1	1'9-3/4"
T24	20'-18'4-1/2"			1'4-3/4"	1	1'7-1/2"
T25	18'4-1/2"-17'3/4"			1'4-3/4"	1	1'3-3/4"
T26	17'3/4"-15'9"			1'4-3/4"	1	1'3-3/4"
T27	15'9"-14'5-1/4"			1'4-3/4"	1	1'3-3/4"
T28	14'5-1/4"-13'1-1/2"			1'4-3/4"	1	1'3-3/4"
T29	13'1-1/2"-11'9-3/4"			1'4-3/4"	1	1'3-3/4"
T30	11'9-3/4"-10'			1'4-3/4"	1	1'9-3/4"
T31	10'-8'4-1/2"			1'4-3/4"	1	1'7-1/2"
T32	8'4-1/2"-7'3/4"			1'4-3/4"	1	1'3-3/4"
T33	7'3/4"-5'9"			1'4-3/4"	1	1'3-3/4"
T34	5'9"-4'5-1/4"			1'4-3/4"	1	1'3-3/4"
T35	4'5-1/4"-3'1-1/2"			1'4-3/4"	1	1'3-3/4"
T36	3'1-1/2"-1'9-3/4"			1'4-3/4"	1	1'3-3/4"
T37	1'9-3/4"-0'			1'4-3/4"	1	1'9-3/4"

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	130'-120'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T2	120'-110'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T3	110'-100'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T4	100'-90'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T5	90'-80'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T6	80'-70'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T7	70'-60'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T8	60'-50'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T9	50'-40'	1'3-3/4"	Z Brace	No	Yes	3.750	6.000
T10	40'-38'4-1/2"	1'3-3/4"	Z Brace	No	Yes	3.750	0.000
T11	38'4-1/2"-37'3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T12	37'3/4"-35'9"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T13	35'9"-34'5-1/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T14	34'5-1/4"-33'1-1/2"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T15	33'1-1/2"-31'9-3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T16	31'9-3/4"-30'	1'3-3/4"	Z Brace	No	Yes	0.000	6.000
T17	30'-28'4-1/2"	1'3-3/4"	Z Brace	No	Yes	3.750	0.000
T18	28'4-1/2"-27'3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T19	27'3/4"-25'9"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T20	25'9"-24'5-1/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T21	24'5-1/4"-23'1-1/2"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T22	23'1-1/2"-21'9-3/	1'3-3/4"	Z Brace	No	Yes	0.000	0.000

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
T23	21'9-3/4"-20'	1'3-3/4"	Z Brace	No	Yes	0.000	6.000
T24	20'-18'4-1/2"	1'3-3/4"	Z Brace	No	Yes	3.750	0.000
T25	18'4-1/2"-17'3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T26	17'3/4"-15'9"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T27	15'9"-14'5-1/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T28	14'5-1/4"-13'1-1/2"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T29	13'1-1/2"-11'9-3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T30	11'9-3/4"-10'	1'3-3/4"	Z Brace	No	Yes	0.000	6.000
T31	10'-8'4-1/2"	1'3-3/4"	Z Brace	No	Yes	3.750	0.000
T32	8'4-1/2"-7'3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T33	7'3/4"-5'9"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T34	5'9"-4'5-1/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T35	4'5-1/4"-3'1-1/2"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T36	3'1-1/2"-1'9-3/4"	1'3-3/4"	Z Brace	No	Yes	0.000	0.000
T37	1'9-3/4"-0'	1'3-3/4"	Z Brace	No	Yes	0.000	6.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 130'-120'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T2 120'-110'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T3 110'-100'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T4 100'-90'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T5 90'-80'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T6 80'-70'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T7 70'-60'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T8 60'-50'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T9 50'-40'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T10 40'-38'4-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T11 38'4-1/2"-37'3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T12 37'3/4"-35'9"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T13 35'9"-34'5-1/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T14 34'5-1/4"-33'1-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T15 33'1-1/2"-31'9-3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T16 31'9-3/4"-30'	Pipe	ROHN TS 1.25 x 14GA	A572-50	Solid Round	1/2" on 7/16" SR with Crosby	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
		(0.083" Thick)	(50 ksi)			(36 ksi)
T17 30'-28'4-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T18 28'4-1/2"-27'3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T19 27'3/4"-25'9"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T20 25'9"-24'5-1/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T21 24'5-1/4"-23'1-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T22 23'1-1/2"-21'9-3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T23 21'9-3/4"-20'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T24 20'-18'4-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T25 18'4-1/2"-17'3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T26 17'3/4"-15'9"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T27 15'9"-14'5-1/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T28 14'5-1/4"-13'1-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T29 13'1-1/2"-11'9-3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T30 11'9-3/4"-10'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T31 10'-8'4-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T32 8'4-1/2"-7'3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T33 7'3/4"-5'9"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T34 5'9"-4'5-1/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T35 4'5-1/4"-3'1-1/2"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T36 3'1-1/2"-1'9-3/4"	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	7/16	A36 (36 ksi)
T37 1'9-3/4"-0'	Pipe	ROHN TS 1.25 x 14GA (0.083" Thick)	A572-50 (50 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 130'-120'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T2 120'-110'	Solid Round	7/16	A36	Solid Round	7/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 110'-100'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T4 100'-90'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T5 90'-80'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T6 80'-70'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T7 70'-60'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T8 60'-50'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T9 50'-40'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T10 40'-38'4-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T11 38'4-1/2"-37'3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T12 37'3/4"-35'9"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T13 35'9"-34'5-1/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T14 34'5-1/4"-33'1-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T15 33'1-1/2"-31'9-3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T16 31'9-3/4"-30'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T17 30'-28'4-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T18 28'4-1/2"-27'3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T19 27'3/4"-25'9"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T20 25'9"-24'5-1/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T21 24'5-1/4"-23'1-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T22 23'1-1/2"-21'9-3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T23 21'9-3/4"-20'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T24 20'-18'4-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T25 18'4-1/2"-17'3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T26 17'3/4"-15'9"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T27 15'9"-14'5-1/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T28 14'5-1/4"-13'1-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T29 13'1-1/2"-11'9-3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T30 11'9-3/4"-10'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T31 10'-8'4-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T32 8'4-1/2"-7'3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T33 7'3/4"-5'9"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T34 5'9"-4'5-1/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T35 4'5-1/4"-3'1-1/2"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T36 3'1-1/2"-1'9-3/4"	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T37 1'9-3/4"-0'	Solid Round	7/16	A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 130'-120'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T2 120'-110'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T3 110'-100'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T4 100'-90'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T5 90'-80'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T6 80'-70'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T7 70'-60'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T8 60'-50'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T9 50'-40'	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T10 40'-38'4-1/2"	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T11 38'4-1/2"-37'3/4"	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T12 37'3/4"-35'9"	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T13 35'9"-34'5-1/4"	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T14 34'5-1/4"-33'1-1/2"	None	Flat Bar		A36 (36 ksi)	Solid Round	7/16	A36 (36 ksi)
T15 33'1-1/2"-31'9-3/4"	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" on 7/16" SR with Crosby	A36 (36 ksi)
T16 31'9-3/4"-30'	None	Flat Bar		A36	Solid Round	1/2" on 7/16" SR with	A36

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T17 30'-28'4-1/2"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	Crosby 1/2" on 7/16" SR with Crosby	(36 ksi) A36 (36 ksi)
T18 28'4-1/2"-27'3/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T19 27'3/4"-25'9"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T20 25'9"-24'5-1/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T21 24'5-1/4"-23'1-1/2"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T22 23'1-1/2"-21'9-3/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T23 21'9-3/4"-20'	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	Crosby 1/2" on 7/16" SR with Crosby	(36 ksi) A36 (36 ksi)
T24 20'-18'4-1/2"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	Crosby 1/2" on 7/16" SR with Crosby	(36 ksi) A36 (36 ksi)
T25 18'4-1/2"-17'3/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T26 17'3/4"-15'9"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T27 15'9"-14'5-1/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T28 14'5-1/4"-13'1-1/2"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T29 13'1-1/2"-11'9-3/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T30 11'9-3/4"-10'	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	Crosby 1/2" on 7/16" SR with Crosby	(36 ksi) A36 (36 ksi)
T31 10'-8'4-1/2"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	Crosby 1/2" on 7/16" SR with Crosby	(36 ksi) A36 (36 ksi)
T32 8'4-1/2"-7'3/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T33 7'3/4"-5'9"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T34 5'9"-4'5-1/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T35 4'5-1/4"-3'1-1/2"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T36 3'1-1/2"-1'9-3/4"	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	7/16	(36 ksi) A36 (36 ksi)
T37 1'9-3/4"-0'	None	Flat Bar		(36 ksi) A36 (36 ksi)	Solid Round	Crosby 1/2" on 7/16" SR with Crosby	(36 ksi) 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

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 130'-120'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T2 120'-110'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T3 110'-100'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T4 100'-90'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T5 90'-80'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T6 80'-70'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T7 70'-60'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T8 60'-50'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T9 50'-40'	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T10 40'-38'4-1/2"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T11 38'4-1/2"-37'3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T12 37'3/4"-35'9"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T13 35'9"-34'5-1/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T14 34'5-1/4"-33'1-1/2"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T15 33'1-1/2"-31'9-3/4"	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T16 31'9-3/4"-30'	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T17 30'-28'4-1/2"	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T18 28'4-1/2"-27'3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T19 27'3/4"-25'9"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T20 25'9"-24'5-1/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T21 24'5-1/4"-23'1-1/2"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T22 23'1-1/2"-21'9-3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T23 21'9-3/4"-20'	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T24 20'-18'4-1/2"	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T25 18'4-1/2"-17'3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T26 17'3/4"-15'9"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt

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
T27 15'9"-14'5-1/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T28 14'5-1/4"-13'1-1/2"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T29 13'1-1/2"-11'9-3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T30 11'9-3/4"-10'	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T31 10'-8'4-1/2"	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T32 8'4-1/2"-7'3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T33 7'3/4"-5'9"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T34 5'9"-4'5-1/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T35 4'5-1/4"-3'1-1/2"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T36 3'1-1/2"-1'9-3/4"	0.000	0.000	A36 (36 ksi)	1	1	1.03	Mid-Pt	Mid-Pt	Mid-Pt
T37 1'9-3/4"-0'	0.000	0.000	A36 (36 ksi)	1	1.03	1.03	Mid-Pt	Mid-Pt	Mid-Pt

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 130'-120'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T2 120'-110'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T3 110'-100'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T4 100'-90'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T5 90'-80'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T6 80'-70'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T7 70'-60'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T8 60'-50'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T9 50'-40'	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1
T10 40'-38'4-1/2"	No	Yes	1	1	1	1	1	1	0.7	1
				1	1	1	1	1	0.7	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T11	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
38'4-1/2"-37'3/4"				1	1	1	1	1	1	1	1	0.7	1	1	1
T12	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
37'3/4"-35'9"				1	1	1	1	1	1	1	1	0.7	1	1	1
T13	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
35'9"-34'5-1/4"				1	1	1	1	1	1	1	1	0.7	1	1	1
T14	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
34'5-1/4"-33'1-1/2"				1	1	1	1	1	1	1	1	0.7	1	1	1
T15	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
33'1-1/2"-31'9-3/4"				1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
T16	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
31'9-3/4"-30'				1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
T17	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
30'-28'4-1/2"				1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
T18	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
28'4-1/2"-27'3/4"				1	1	1	1	1	1	1	1	0.7	1	1	1
T19	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
27'3/4"-25'9"				1	1	1	1	1	1	1	1	0.7	1	1	1
T20	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
25'9"-24'5-1/4"				1	1	1	1	1	1	1	1	0.7	1	1	1
T21	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
24'5-1/4"-23'1-1/2"				1	1	1	1	1	1	1	1	0.7	1	1	1
T22	No	Yes	1	1	1	1	1	1	1	1	1	0.7	1	1	1
23'1-1/2"-21'9-3/4"				1	1	1	1	1	1	1	1	0.7	1	1	1
T23	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
21'9-3/4"-20'				1	1	0.436	0.436	0.7	0.7	0.7	0.7	0.7	0.7	1	1
T24	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	1	1	1	1
20'-18'4-1/2"				1	1	0.436	0.436	0.7	0.7	0.7	0.7	1	1	1	1
T25	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
18'4-1/2"-17'3/4"				1	1	1	1	1	1	1	1	1	1	1	1
T26	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
17'3/4"-15'9"				1	1	1	1	1	1	1	1	1	1	1	1
T27	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
15'9"-14'5-1/4"				1	1	1	1	1	1	1	1	1	1	1	1
T28	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
14'5-1/4"-13'1-1/2"				1	1	1	1	1	1	1	1	1	1	1	1
T29	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
13'1-1/2"-11'9-3/4"				1	1	1	1	1	1	1	1	1	1	1	1
T30	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	1	1	1	1
11'9-3/4"-10'				1	1	0.436	0.436	0.7	0.7	0.7	0.7	1	1	1	1
T31	No	No	1	1	1	0.436	0.436	0.7	0.7	0.7	0.7	1	1	1	1
10'-8'4-1/2"				1	1	0.436	0.436	0.7	0.7	0.7	0.7	1	1	1	1
T32	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
8'4-1/2"-7'3/4"				1	1	1	1	1	1	1	1	1	1	1	1
T33	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
7'3/4"-5'9"				1	1	1	1	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
T34 5'9"-4'5-1/4"	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T35 4'5-1/4"-3'1-1/2"	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T36 3'1-1/2"-1'9-3/4"	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T37 1'9-3/4"-0'	No	No	1	1 1	1 1	0.436 0.436	0.7 0.7	0.7 0.7	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 Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 130'-120'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T2 120'-110'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T3 110'-100'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T4 100'-90'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T5 90'-80'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T6 80'-70'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T7 70'-60'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T8 60'-50'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T9 50'-40'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T10 40'-38'4-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T11 38'4-1/2"-37'3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T12 37'3/4"-35'9"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T13 35'9"-34'5-1/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T14 34'5-1/4"-33'1-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T15 33'1-1/2"-31'9-3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T16 31'9-3/4"-30'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T17 30'-28'4-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T18 28'4-1/2"-27'3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	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
T19 27'3/4"-25'9"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T20 25'9"-24'5-1/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T21 24'5-1/4"-23'1-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T22 23'1-1/2"-21'9-3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T23 21'9-3/4"-20'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T24 20'-18'4-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T25 18'4-1/2"-17'3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T26 17'3/4"-15'9"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T27 15'9"-14'5-1/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T28 14'5-1/4"-13'1-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T29 13'1-1/2"-11'9-3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T30 11'9-3/4"-10'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T31 10'-8'4-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T32 8'4-1/2"-7'3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T33 7'3/4"-5'9"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T34 5'9"-4'5-1/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T35 4'5-1/4"-3'1-1/2"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T36 3'1-1/2"-1'9-3/4"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T37 1'9-3/4"-0'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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 130'-120'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 120'-110'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 110'-100'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 100'-90'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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
T5 90'-80'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80'-70'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 70'-60'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 60'-50'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 50'-40'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 40'-38'4-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 38'4-1/2"-37'3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 37'3/4"-35'9"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T13 35'9"-34'5-1/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T14 34'5-1/4"-33'1-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T15 33'1-1/2"-31'9-3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T16 31'9-3/4"-30'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T17 30'-28'4-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T18 28'4-1/2"-27'3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T19 27'3/4"-25'9"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T20 25'9"-24'5-1/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T21 24'5-1/4"-23'1-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T22 23'1-1/2"-21'9-3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T23 21'9-3/4"-20'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T24 20'-18'4-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T25 18'4-1/2"-17'3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T26 17'3/4"-15'9"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T27 15'9"-14'5-1/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T28 14'5-1/4"-13'1-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T29 13'1-1/2"-11'9-3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T30 11'9-3/4"-10'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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
T31 10'-8'4-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T32 8'4-1/2"-7'3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T33 7'3/4"-5'9"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T34 5'9"-4'5-1/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T35 4'5-1/4"-3'1-1/2"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T36 3'1-1/2"-1'9-3/4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T37 1'9-3/4"-0'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 130'-120'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 120'-110'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 110'-100'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 100'-90'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T5 90'-80'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T6 80'-70'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T7 70'-60'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T8 60'-50'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T9 50'-40'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T10 40'-38'4-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T11 38'4-1/2"-37'3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T12 37'3/4"-35'9"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T13 35'9"-34'5-1/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T14 34'5-1/4"-33'1-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 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.
T15 33'1-1/2"-31'9-3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T16 31'9-3/4"-30'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T17 30'-28'4-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T18 28'4-1/2"-27'3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T19 27'3/4"-25'9"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T20 25'9"-24'5-1/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T21 24'5-1/4"-23'1-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T22 23'1-1/2"-21'9-3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T23 21'9-3/4"-20'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T24 20'-18'4-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T25 18'4-1/2"-17'3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T26 17'3/4"-15'9"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T27 15'9"-14'5-1/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T28 14'5-1/4"-13'1-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T29 13'1-1/2"-11'9-3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T30 11'9-3/4"-10'	Sleeve DS	0.313 SAEGR-5	4	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T31 10'-8'4-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T32 8'4-1/2"-7'3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T33 7'3/4"-5'9"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T34 5'9"-4'5-1/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T35 4'5-1/4"-3'1-1/2"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T36 3'1-1/2"-1'9-3/4"	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T37 1'9-3/4"-0'	Sleeve DS	0.000 SAEGR-5	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 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 %
29.6875	EHS	A	1/4	0.665	10%	21000.000	0.121	84'6"	80'	0.000	0'	100%
		B	1/4	0.665	10%	21000.000	0.121	84'6"	80'	0.000	0'	100%
		C	1/4	0.665	10%	21000.000	0.121	84'6"	80'	0.000	0'	100%
58.375	EHS	A	1/4	0.665	10%	21000.000	0.121	98'3-9/16"	80'	0.000	0'	100%
		B	1/4	0.665	10%	21000.000	0.121	98'3-9/16"	80'	0.000	0'	100%
		C	1/4	0.665	10%	21000.000	0.121	98'3-9/16"	80'	0.000	0'	100%
90.5	EHS	A	1/4	0.665	10%	21000.000	0.121	120'1-13/16"	80'	0.000	0'	100%
		B	1/4	0.665	10%	21000.000	0.121	120'1-13/16"	80'	0.000	0'	100%
		C	1/4	0.665	10%	21000.000	0.121	120'1-13/16"	80'	0.000	0'	100%
123.125	EHS	A	3/8	1.540	10%	23000.000	0.273	146'3-1/4"	80'	0.000	0'	100%
		B	3/8	1.540	10%	23000.000	0.273	146'3-1/4"	80'	0.000	0'	100%
		C	3/8	1.540	10%	23000.000	0.273	146'3-1/4"	80'	0.000	0'	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
29.6875	Corner						
58.375	Corner						
90.5	Corner						
123.125	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
29'8-1/4"	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
58'4-1/2"	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	1 1/2x3/8
90'6"	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	1 1/2x3/8
123'1-1/2"	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3 x 3/8

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
29.6875	0.010	0.010	0.010		7-25/32" 1.4 sec/pulse	7-25/32" 1.4 sec/pulse	7-25/32" 1.4 sec/pulse	
58.375	0.012	0.012	0.012		10-1/2" 1.6 sec/pulse	10-1/2" 1.6 sec/pulse	10-1/2" 1.6 sec/pulse	
90.5	0.015	0.015	0.015		1'3-21/32" 2.0 sec/pulse	1'3-21/32" 2.0 sec/pulse	1'3-21/32" 2.0 sec/pulse	
123.125	0.040	0.040	0.040		1'10-17/32" 2.4 sec/pulse	1'10-17/32" 2.4 sec/pulse	1'10-17/32" 2.4 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
29.6875	No	No			1	1	1	1
58.375	No	No			1	1	1	1
90.5	No	No			1	1	1	1
123.125	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
29.6875	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1
58.375	0.625 A325N	0	0.000	0.75	0.000 A325N	1	0.000	1	0.000 A325N	0	0.000	1
90.5	0.625 A325N	0	0.000	0.75	0.000 A325N	1	0.000	1	0.000 A325N	0	0.000	1
123.125	0.625 A325N	0	0.000	0.75	0.750 A325N	2	0.000	1	0.000 A325N	0	0.000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
29.6875	A	14'10-1/8"	0.019	0.003	1.177
	B	14'10-1/8"	0.019	0.003	1.177
	C	14'10-1/8"	0.019	0.003	1.177
58.375	A	29'2-1/4"	0.019	0.003	1.259
	B	29'2-1/4"	0.019	0.003	1.259
	C	29'2-1/4"	0.019	0.003	1.259
90.5	A	45'3"	0.022	0.004	1.316
	B	45'3"	0.022	0.004	1.316

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
	C	45'3"	0.022	0.004	1.316
123.125	A	61'6-3/4"	0.024	0.004	1.357
	B	61'6-3/4"	0.024	0.004	1.357
	C	61'6-3/4"	0.024	0.004	1.357

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
29.6875	A	20.550	0.669 / 0.665	0.000	0.239	-0.624	-0.193	0.000	0.000
	B	20.550	0.669 / 0.665	0.541	0.239	0.312	0.096	0.000	-0.167
	C	20.550	0.669 / 0.665	-0.541	0.239	0.312	0.096	0.000	0.167
			Sum:	0.000	0.717	0.000	0.000	0.000	0.000
58.375	A	36.394	0.672 / 0.665	0.000	0.403	-0.538	-0.324	0.000	0.000
	B	36.394	0.672 / 0.665	0.466	0.403	0.269	0.162	0.000	-0.281
	C	36.394	0.672 / 0.665	-0.466	0.403	0.269	0.162	0.000	0.281
			Sum:	0.000	1.208	0.000	0.000	0.000	0.000
90.5	A	48.812	0.676 / 0.665	0.000	0.512	-0.442	-0.412	0.000	0.000
	B	48.812	0.676 / 0.665	0.382	0.512	0.221	0.206	0.000	-0.357
	C	48.812	0.676 / 0.665	-0.382	0.512	0.221	0.206	0.000	0.357
			Sum:	0.000	1.535	0.000	0.000	0.000	0.000
123.125	A	57.251	1.574 / 1.540	0.000	1.329	-0.842	-1.071	0.000	0.000
	B	57.251	1.574 / 1.540	0.729	1.329	0.421	0.536	0.000	-0.928
	C	57.251	1.574 / 1.540	-0.729	1.329	0.421	0.536	0.000	0.928
			Sum:	0.000	3.988	0.000	0.000	0.000	0.000

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
29.6875	A	20.550	1.411 / 1.347	0.000	0.576	-1.289	-0.464	0.000	0.000
	B	20.550	1.411 / 1.347	1.116	0.576	0.644	0.232	0.000	-0.402
	C	20.550	1.411	-1.116	0.576	0.644	0.232	0.000	0.402

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			1.347						
			Sum:	0.000	1.727	0.000	0.000	0.000	0.000
58.375	A	36.394	1.524	0.000	0.982	-1.166	-0.791	0.000	0.000
			1.382						
	B	36.394	1.524	1.010	0.982	0.583	0.396	0.000	-0.685
			1.382						
	C	36.394	1.524	-1.010	0.982	0.583	0.396	0.000	0.685
			1.382						
			Sum:	0.000	2.945	0.000	0.000	0.000	0.000
90.5	A	48.812	1.624	0.000	1.290	-0.987	-1.040	0.000	0.000
			1.386						
	B	48.812	1.624	0.855	1.290	0.493	0.520	0.000	-0.901
			1.386						
	C	48.812	1.624	-0.855	1.290	0.493	0.520	0.000	0.901
			1.386						
			Sum:	0.000	3.871	0.000	0.000	0.000	0.000
123.125	A	57.251	2.952	0.000	2.549	-1.488	-2.054	0.000	0.000
			2.565						
	B	57.251	2.952	1.289	2.549	0.744	1.027	0.000	-1.779
			2.565						
	C	57.251	2.952	-1.289	2.549	0.744	1.027	0.000	1.779
			2.565						
			Sum:	0.000	7.648	0.000	0.000	0.000	0.000

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
29.6875	A	20.550	0.669	0.000	0.239	-0.624	-0.193	0.000	0.000
			0.665						
	B	20.550	0.669	0.541	0.239	0.312	0.096	0.000	-0.167
			0.665						
	C	20.550	0.669	-0.541	0.239	0.312	0.096	0.000	0.167
			0.665						
			Sum:	0.000	0.717	0.000	0.000	0.000	0.000
58.375	A	36.394	0.672	0.000	0.403	-0.538	-0.324	0.000	0.000
			0.665						
	B	36.394	0.672	0.466	0.403	0.269	0.162	0.000	-0.281
			0.665						
	C	36.394	0.672	-0.466	0.403	0.269	0.162	0.000	0.281
			0.665						
			Sum:	0.000	1.208	0.000	0.000	0.000	0.000
90.5	A	48.812	0.676	0.000	0.512	-0.442	-0.412	0.000	0.000
			0.665						
	B	48.812	0.676	0.382	0.512	0.221	0.206	0.000	-0.357
			0.665						
	C	48.812	0.676	-0.382	0.512	0.221	0.206	0.000	0.357
			0.665						
			Sum:	0.000	1.535	0.000	0.000	0.000	0.000
123.125	A	57.251	1.574	0.000	1.329	-0.842	-1.071	0.000	0.000
			1.540						

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
	B	57.251	1.574 1.540	0.729	1.329	0.421	0.536	0.000	-0.928
	C	57.251	1.574 1.540	-0.729	1.329	0.421	0.536	0.000	0.928
			Sum:	0.000	3.988	0.000	0.000	0.000	0.000

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept ft
29.6875	A	79.19	29.69	0.915	0.47	0.831	0.52	0.748	0.58	0.665	0.65	0.583	0.74	0.501	0.86	0.422	1.02
	B	79.19	29.69	0.915	0.47	0.831	0.52	0.748	0.58	0.665	0.65	0.583	0.74	0.501	0.86	0.422	1.02
	C	79.19	29.69	0.915	0.47	0.831	0.52	0.748	0.58	0.665	0.65	0.583	0.74	0.501	0.86	0.422	1.02
58.375	A	79.19	58.38	0.850	0.69	0.788	0.74	0.726	0.80	0.665	0.88	0.604	0.96	0.544	1.07	0.484	1.20
	B	79.19	58.38	0.850	0.69	0.788	0.74	0.726	0.80	0.665	0.88	0.604	0.96	0.544	1.07	0.484	1.20
	C	79.19	58.38	0.850	0.69	0.788	0.74	0.726	0.80	0.665	0.88	0.604	0.96	0.544	1.07	0.484	1.20
90.5	A	79.19	90.50	0.788	1.10	0.747	1.16	0.706	1.23	0.665	1.30	0.624	1.39	0.583	1.48	0.543	1.59
	B	79.19	90.50	0.788	1.10	0.747	1.16	0.706	1.23	0.665	1.30	0.624	1.39	0.583	1.48	0.543	1.59
	C	79.19	90.50	0.788	1.10	0.747	1.16	0.706	1.23	0.665	1.30	0.624	1.39	0.583	1.48	0.543	1.59
123.125	A	79.19	123.13	1.745	1.66	1.677	1.73	1.608	1.80	1.540	1.88	1.472	1.96	1.404	2.06	1.337	2.16
	B	79.19	123.13	1.745	1.66	1.677	1.73	1.608	1.80	1.540	1.88	1.472	1.96	1.404	2.06	1.337	2.16
	C	79.19	123.13	1.745	1.66	1.677	1.73	1.608	1.80	1.540	1.88	1.472	1.96	1.404	2.06	1.337	2.16

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
ATCB-B01(1/4")	A	No	No	Ar (CaAa)	27' - 0'	0.000	-0.5	3	2	0.500	0.315		0.000
ATCB-B01(1/4") *	A	No	No	Ar (CaAa)	60' - 27'	0.000	-0.5	2	2	0.500	0.315		0.000
AL5-50(7/8")	B	No	No	Ar (CaAa)	128' - 0'	0.000	0.4	1	1	0.500	1.100		0.000
AL5-50(7/8") *	C	No	No	Ar (CaAa)	128' - 0'	0.000	-0.45	1	1	0.500	1.100		0.000
LDF2-50A(3/8")	B	No	No	Ar (CaAa)	34' - 0'	0.000	0.5	3	2	0.500	0.440		0.000
LDF2-50A(3/8") *	B	No	No	Ar (CaAa)	88' - 34'	0.000	0.5	1	1	0.500	0.440		0.000
HCS 6X12 4AWG(1-5/8) * *	B	No	No	Ar (CaAa)	127' - 0'	0.000	0.01	3	3	0.750	1.660		0.002

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	130'-120'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.366	0.000	0.052
		C	0.000	0.000	0.880	0.000	0.002
T2	120'-110'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.080	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T3	110'-100'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.080	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T4	100'-90'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.080	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T5	90'-80'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.432	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T6	80'-70'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.520	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T7	70'-60'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.520	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T8	60'-50'	A	0.000	0.000	0.630	0.000	0.002
		B	0.000	0.000	6.520	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T9	50'-40'	A	0.000	0.000	0.630	0.000	0.002
		B	0.000	0.000	6.520	0.000	0.075
		C	0.000	0.000	1.100	0.000	0.003
T10	40'-38'4-1/2"	A	0.000	0.000	0.102	0.000	0.000
		B	0.000	0.000	1.060	0.000	0.012
		C	0.000	0.000	0.179	0.000	0.000
T11	38'4-1/2"-37'3/4"	A	0.000	0.000	0.083	0.000	0.000
		B	0.000	0.000	0.856	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T12	37'3/4"-35'9"	A	0.000	0.000	0.083	0.000	0.000
		B	0.000	0.000	0.856	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T13	35'9"-34'5-1/4"	A	0.000	0.000	0.083	0.000	0.000
		B	0.000	0.000	0.856	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T14	34'5-1/4"-33'1-1/2"	A	0.000	0.000	0.083	0.000	0.000
		B	0.000	0.000	0.933	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T15	33'1-1/2"-31'9-3/4"	A	0.000	0.000	0.083	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010

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	0.144	0.000	0.000
T16	31'9-3/4"-30'	A	0.000	0.000	0.114	0.000	0.000
		B	0.000	0.000	1.341	0.000	0.014
		C	0.000	0.000	0.199	0.000	0.000
T17	30'-28'4-1/2"	A	0.000	0.000	0.102	0.000	0.000
		B	0.000	0.000	1.202	0.000	0.013
		C	0.000	0.000	0.179	0.000	0.000
T18	28'4-1/2"-27'3/4"	A	0.000	0.000	0.083	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T19	27'3/4"-25'9"	A	0.000	0.000	0.122	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T20	25'9"-24'5-1/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T21	24'5-1/4"-23'1-1/2"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T22	23'1-1/2"-21'9-3/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T23	21'9-3/4"-20'	A	0.000	0.000	0.171	0.000	0.000
		B	0.000	0.000	1.341	0.000	0.014
		C	0.000	0.000	0.199	0.000	0.000
T24	20'-18'4-1/2"	A	0.000	0.000	0.154	0.000	0.000
		B	0.000	0.000	1.202	0.000	0.013
		C	0.000	0.000	0.179	0.000	0.000
T25	18'4-1/2"-17'3/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T26	17'3/4"-15'9"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T27	15'9"-14'5-1/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T28	14'5-1/4"-13'1-1/2"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T29	13'1-1/2"-11'9-3/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T30	11'9-3/4"-10'	A	0.000	0.000	0.171	0.000	0.000
		B	0.000	0.000	1.341	0.000	0.014
		C	0.000	0.000	0.199	0.000	0.000
T31	10'-8'4-1/2"	A	0.000	0.000	0.154	0.000	0.000
		B	0.000	0.000	1.202	0.000	0.013
		C	0.000	0.000	0.179	0.000	0.000
T32	8'4-1/2"-7'3/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T33	7'3/4"-5'9"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T34	5'9"-4'5-1/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T35	4'5-1/4"-3'1-1/2"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	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
T36	3'1-1/2"-1'9-3/4"	A	0.000	0.000	0.124	0.000	0.000
		B	0.000	0.000	0.971	0.000	0.010
		C	0.000	0.000	0.144	0.000	0.000
T37	1'9-3/4"-0'	A	0.000	0.000	0.171	0.000	0.000
		B	0.000	0.000	1.341	0.000	0.014
		C	0.000	0.000	0.199	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	130'-120'	A	1.457	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	12.352	0.000	0.176
		C		0.000	0.000	3.211	0.000	0.038
T2	120'-110'	A	1.445	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	17.008	0.000	0.243
		C		0.000	0.000	3.989	0.000	0.048
T3	110'-100'	A	1.431	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	16.938	0.000	0.241
		C		0.000	0.000	3.963	0.000	0.047
T4	100'-90'	A	1.417	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	16.862	0.000	0.239
		C		0.000	0.000	3.934	0.000	0.046
T5	90'-80'	A	1.402	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	19.373	0.000	0.263
		C		0.000	0.000	3.903	0.000	0.045
T6	80'-70'	A	1.384	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	19.893	0.000	0.266
		C		0.000	0.000	3.868	0.000	0.045
T7	70'-60'	A	1.364	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	19.749	0.000	0.262
		C		0.000	0.000	3.829	0.000	0.044
T8	60'-50'	A	1.342	0.000	0.000	6.064	0.000	0.038
		B		0.000	0.000	19.584	0.000	0.258
		C		0.000	0.000	3.784	0.000	0.043
T9	50'-40'	A	1.315	0.000	0.000	5.971	0.000	0.037
		B		0.000	0.000	19.388	0.000	0.254
		C		0.000	0.000	3.730	0.000	0.041
T10	40'-38'4-1/2"	A	1.297	0.000	0.000	0.960	0.000	0.006
		B		0.000	0.000	3.129	0.000	0.041
		C		0.000	0.000	0.600	0.000	0.007
T11	38'4-1/2"-37'3/4"	A	1.292	0.000	0.000	0.773	0.000	0.005
		B		0.000	0.000	2.523	0.000	0.033
		C		0.000	0.000	0.484	0.000	0.005
T12	37'3/4"-35'9"	A	1.288	0.000	0.000	0.771	0.000	0.005
		B		0.000	0.000	2.518	0.000	0.033
		C		0.000	0.000	0.482	0.000	0.005
T13	35'9"-34'5-1/4"	A	1.283	0.000	0.000	0.769	0.000	0.005
		B		0.000	0.000	2.514	0.000	0.033
		C		0.000	0.000	0.481	0.000	0.005
T14	34'5-1/4"-33'1-1/2"	A	1.278	0.000	0.000	0.767	0.000	0.005
		B		0.000	0.000	2.856	0.000	0.034
		C		0.000	0.000	0.480	0.000	0.005
T15	33'1-1/2"-31'9-3/4"	A	1.273	0.000	0.000	0.764	0.000	0.005
		B		0.000	0.000	3.023	0.000	0.035
		C		0.000	0.000	0.479	0.000	0.005
T16	31'9-3/4"-30'	A	1.267	0.000	0.000	1.051	0.000	0.006

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	4.165	0.000	0.048
		C		0.000	0.000	0.659	0.000	0.007
T17	30'-28'4-1/2"	A	1.259	0.000	0.000	0.938	0.000	0.006
		B		0.000	0.000	3.723	0.000	0.043
		C		0.000	0.000	0.588	0.000	0.006
T18	28'4-1/2"-27'3/4"	A	1.253	0.000	0.000	0.755	0.000	0.004
		B		0.000	0.000	3.000	0.000	0.035
		C		0.000	0.000	0.473	0.000	0.005
T19	27'3/4"-25'9"	A	1.247	0.000	0.000	0.837	0.000	0.005
		B		0.000	0.000	2.993	0.000	0.034
		C		0.000	0.000	0.472	0.000	0.005
T20	25'9"-24'5-1/4"	A	1.241	0.000	0.000	0.838	0.000	0.005
		B		0.000	0.000	2.985	0.000	0.034
		C		0.000	0.000	0.470	0.000	0.005
T21	24'5-1/4"-23'1-1/2"	A	1.234	0.000	0.000	0.835	0.000	0.005
		B		0.000	0.000	2.978	0.000	0.034
		C		0.000	0.000	0.468	0.000	0.005
T22	23'1-1/2"-21'9-3/4"	A	1.227	0.000	0.000	0.832	0.000	0.005
		B		0.000	0.000	2.970	0.000	0.034
		C		0.000	0.000	0.466	0.000	0.005
T23	21'9-3/4"-20'	A	1.218	0.000	0.000	1.143	0.000	0.007
		B		0.000	0.000	4.087	0.000	0.047
		C		0.000	0.000	0.641	0.000	0.007
T24	20'-18'4-1/2"	A	1.208	0.000	0.000	1.018	0.000	0.006
		B		0.000	0.000	3.649	0.000	0.041
		C		0.000	0.000	0.571	0.000	0.006
T25	18'4-1/2"-17'3/4"	A	1.198	0.000	0.000	0.818	0.000	0.005
		B		0.000	0.000	2.936	0.000	0.033
		C		0.000	0.000	0.459	0.000	0.005
T26	17'3/4"-15'9"	A	1.189	0.000	0.000	0.814	0.000	0.005
		B		0.000	0.000	2.925	0.000	0.033
		C		0.000	0.000	0.456	0.000	0.005
T27	15'9"-14'5-1/4"	A	1.179	0.000	0.000	0.809	0.000	0.005
		B		0.000	0.000	2.914	0.000	0.033
		C		0.000	0.000	0.454	0.000	0.005
T28	14'5-1/4"-13'1-1/2"	A	1.168	0.000	0.000	0.804	0.000	0.005
		B		0.000	0.000	2.902	0.000	0.033
		C		0.000	0.000	0.451	0.000	0.005
T29	13'1-1/2"-11'9-3/4"	A	1.157	0.000	0.000	0.799	0.000	0.005
		B		0.000	0.000	2.888	0.000	0.032
		C		0.000	0.000	0.448	0.000	0.005
T30	11'9-3/4"-10'	A	1.141	0.000	0.000	1.093	0.000	0.007
		B		0.000	0.000	3.964	0.000	0.044
		C		0.000	0.000	0.613	0.000	0.006
T31	10'-8'4-1/2"	A	1.122	0.000	0.000	0.969	0.000	0.006
		B		0.000	0.000	3.526	0.000	0.039
		C		0.000	0.000	0.543	0.000	0.005
T32	8'4-1/2"-7'3/4"	A	1.103	0.000	0.000	0.774	0.000	0.005
		B		0.000	0.000	2.825	0.000	0.031
		C		0.000	0.000	0.434	0.000	0.004
T33	7'3/4"-5'9"	A	1.082	0.000	0.000	0.764	0.000	0.005
		B		0.000	0.000	2.802	0.000	0.031
		C		0.000	0.000	0.428	0.000	0.004
T34	5'9"-4'5-1/4"	A	1.058	0.000	0.000	0.753	0.000	0.004
		B		0.000	0.000	2.773	0.000	0.030
		C		0.000	0.000	0.422	0.000	0.004
T35	4'5-1/4"-3'1-1/2"	A	1.027	0.000	0.000	0.739	0.000	0.004
		B		0.000	0.000	2.737	0.000	0.029
		C		0.000	0.000	0.414	0.000	0.004
T36	3'1-1/2"-1'9-3/4"	A	0.984	0.000	0.000	0.719	0.000	0.004
		B		0.000	0.000	2.688	0.000	0.029

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.403	0.000	0.004
T37	1'9-3/4"-0'	A	0.890	0.000	0.000	0.932	0.000	0.005
		B		0.000	0.000	3.562	0.000	0.037
		C		0.000	0.000	0.522	0.000	0.004

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	130'-120'	2.052	-0.140	0.610	0.064
T2	120'-110'	2.678	-0.279	0.991	0.063
T3	110'-100'	2.678	-0.279	1.012	0.064
T4	100'-90'	2.557	-0.270	0.886	0.055
T5	90'-80'	2.832	-0.160	1.268	0.190
T6	80'-70'	2.870	-0.132	1.351	0.224
T7	70'-60'	2.870	-0.132	1.387	0.227
T8	60'-50'	2.263	0.065	0.861	0.403
T9	50'-40'	2.362	0.067	1.011	0.465
T10	40'-38'4-1/2"	2.411	0.068	1.289	0.583
T11	38'4-1/2"-37'3/4"	2.355	0.067	1.001	0.457
T12	37'3/4"-35'9"	2.355	0.067	1.007	0.459
T13	35'9"-34'5-1/4"	2.355	0.067	1.013	0.461
T14	34'5-1/4"-33'1-1/2"	2.626	0.223	1.152	0.517
T15	33'1-1/2"-31'9-3/4"	2.722	0.294	1.115	0.499
T16	31'9-3/4"-30'	2.712	0.293	1.073	0.480
T17	30'-28'4-1/2"	2.783	0.300	1.479	0.652
T18	28'4-1/2"-27'3/4"	2.753	0.297	1.255	0.556
T19	27'3/4"-25'9"	2.513	0.366	1.157	0.561
T20	25'9"-24'5-1/4"	2.501	0.369	1.160	0.564
T21	24'5-1/4"-23'1-1/2"	2.501	0.369	1.169	0.567
T22	23'1-1/2"-21'9-3/4"	2.501	0.369	1.178	0.570
T23	21'9-3/4"-20'	2.464	0.364	1.049	0.509
T24	20'-18'4-1/2"	2.528	0.373	1.406	0.673
T25	18'4-1/2"-17'3/4"	2.501	0.369	1.216	0.584
T26	17'3/4"-15'9"	2.501	0.369	1.229	0.588
T27	15'9"-14'5-1/4"	2.501	0.369	1.242	0.593
T28	14'5-1/4"-13'1-1/2"	2.501	0.369	1.256	0.597
T29	13'1-1/2"-11'9-3/4"	2.501	0.369	1.271	0.603
T30	11'9-3/4"-10'	2.464	0.364	1.158	0.548
T31	10'-8'4-1/2"	2.528	0.373	1.505	0.701
T32	8'4-1/2"-7'3/4"	2.501	0.369	1.342	0.625
T33	7'3/4"-5'9"	2.501	0.369	1.369	0.633
T34	5'9"-4'5-1/4"	2.501	0.369	1.400	0.642
T35	4'5-1/4"-3'1-1/2"	2.501	0.369	1.440	0.652
T36	3'1-1/2"-1'9-3/4"	2.501	0.369	1.494	0.666
T37	1'9-3/4"-0'	2.464	0.364	1.501	0.646

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	AL5-50(7/8")	120.00 - 128.00	0.6000	0.2009
T1	5	AL5-50(7/8")	120.00 - 128.00	0.6000	0.2009
T1	12	HCS 6X12 4AWG(1-5/8)	120.00 - 127.00	0.6000	0.2009
T2	4	AL5-50(7/8")	110.00 - 120.00	0.6000	0.2415
T2	5	AL5-50(7/8")	110.00 - 120.00	0.6000	0.2415
T2	12	HCS 6X12 4AWG(1-5/8)	110.00 - 120.00	0.6000	0.2415
T3	4	AL5-50(7/8")	100.00 - 110.00	0.6000	0.2459
T3	5	AL5-50(7/8")	100.00 - 110.00	0.6000	0.2459
T3	12	HCS 6X12 4AWG(1-5/8)	100.00 - 110.00	0.6000	0.2459
T4	4	AL5-50(7/8")	90.00 - 100.00	0.6000	0.2239
T4	5	AL5-50(7/8")	90.00 - 100.00	0.6000	0.2239
T4	12	HCS 6X12 4AWG(1-5/8)	90.00 - 100.00	0.6000	0.2239
T5	4	AL5-50(7/8")	80.00 - 90.00	0.6000	0.2560
T5	5	AL5-50(7/8")	80.00 - 90.00	0.6000	0.2560
T5	9	LDF2-50A(3/8")	80.00 - 88.00	0.6000	0.2560
T5	12	HCS 6X12 4AWG(1-5/8)	80.00 - 90.00	0.6000	0.2560
T6	4	AL5-50(7/8")	70.00 - 80.00	0.6000	0.2620
T6	5	AL5-50(7/8")	70.00 - 80.00	0.6000	0.2620
T6	9	LDF2-50A(3/8")	70.00 - 80.00	0.6000	0.2620
T6	12	HCS 6X12 4AWG(1-5/8)	70.00 - 80.00	0.6000	0.2620
T7	4	AL5-50(7/8")	60.00 - 70.00	0.6000	0.2687
T7	5	AL5-50(7/8")	60.00 - 70.00	0.6000	0.2687
T7	9	LDF2-50A(3/8")	60.00 - 70.00	0.6000	0.2687
T7	12	HCS 6X12 4AWG(1-5/8)	60.00 - 70.00	0.6000	0.2687
T8	2	ATCB-B01(1/4")	50.00 - 60.00	0.6000	0.2503
T8	4	AL5-50(7/8")	50.00 - 60.00	0.6000	0.2503
T8	5	AL5-50(7/8")	50.00 - 60.00	0.6000	0.2503
T8	9	LDF2-50A(3/8")	50.00 - 60.00	0.6000	0.2503
T8	12	HCS 6X12 4AWG(1-5/8)	50.00 - 60.00	0.6000	0.2503
T9	2	ATCB-B01(1/4")	40.00 - 50.00	0.6000	0.2856
T9	4	AL5-50(7/8")	40.00 - 50.00	0.6000	0.2856
T9	5	AL5-50(7/8")	40.00 - 50.00	0.6000	0.2856
T9	9	LDF2-50A(3/8")	40.00 - 50.00	0.6000	0.2856
T9	12	HCS 6X12 4AWG(1-5/8)	40.00 - 50.00	0.6000	0.2856
T10	2	ATCB-B01(1/4")	38.38 - 40.00	0.6000	0.3490
T10	4	AL5-50(7/8")	38.38 - 40.00	0.6000	0.3490
T10	5	AL5-50(7/8")	38.38 - 40.00	0.6000	0.3490
T10	9	LDF2-50A(3/8")	38.38 - 40.00	0.6000	0.3490
T10	12	HCS 6X12 4AWG(1-5/8)	38.38 - 40.00	0.6000	0.3490
T11	2	ATCB-B01(1/4")	37.06 - 38.38	0.6000	0.2847
T11	4	AL5-50(7/8")	37.06 - 38.38	0.6000	0.2847
T11	5	AL5-50(7/8")	37.06 - 38.38	0.6000	0.2847
T11	9	LDF2-50A(3/8")	37.06 - 38.38	0.6000	0.2847
T11	12	HCS 6X12 4AWG(1-5/8)	37.06 - 38.38	0.6000	0.2847
T12	2	ATCB-B01(1/4")	35.75 - 37.06	0.6000	0.2863
T12	4	AL5-50(7/8")	35.75 - 37.06	0.6000	0.2863
T12	5	AL5-50(7/8")	35.75 - 37.06	0.6000	0.2863
T12	9	LDF2-50A(3/8")	35.75 - 37.06	0.6000	0.2863
T12	12	HCS 6X12 4AWG(1-5/8)	35.75 - 37.06	0.6000	0.2863
T13	2	ATCB-B01(1/4")	34.44 - 35.75	0.6000	0.2879
T13	4	AL5-50(7/8")	34.44 - 35.75	0.6000	0.2879
T13	5	AL5-50(7/8")	34.44 - 35.75	0.6000	0.2879
T13	9	LDF2-50A(3/8")	34.44 - 35.75	0.6000	0.2879

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	12	HCS 6X12 4AWG(1-5/8)	34.44 - 35.75	0.6000	0.2879
T14	2	ATCB-B01(1/4")	33.13 - 34.44	0.6000	0.2897
T14	4	AL5-50(7/8")	33.13 - 34.44	0.6000	0.2897
T14	5	AL5-50(7/8")	33.13 - 34.44	0.6000	0.2897
T14	8	LDF2-50A(3/8")	33.13 - 34.00	0.6000	0.2897
T14	9	LDF2-50A(3/8")	34.00 - 34.44	0.6000	0.2897
T14	12	HCS 6X12 4AWG(1-5/8)	33.13 - 34.44	0.6000	0.2897
T15	2	ATCB-B01(1/4")	31.81 - 33.13	0.6000	0.2702
T15	4	AL5-50(7/8")	31.81 - 33.13	0.6000	0.2702
T15	5	AL5-50(7/8")	31.81 - 33.13	0.6000	0.2702
T15	8	LDF2-50A(3/8")	31.81 - 33.13	0.6000	0.2702
T15	12	HCS 6X12 4AWG(1-5/8)	31.81 - 33.13	0.6000	0.2702
T16	2	ATCB-B01(1/4")	30.00 - 31.81	0.6000	0.2623
T16	4	AL5-50(7/8")	30.00 - 31.81	0.6000	0.2623
T16	5	AL5-50(7/8")	30.00 - 31.81	0.6000	0.2623
T16	8	LDF2-50A(3/8")	30.00 - 31.81	0.6000	0.2623
T16	12	HCS 6X12 4AWG(1-5/8)	30.00 - 31.81	0.6000	0.2623
T17	2	ATCB-B01(1/4")	28.38 - 30.00	0.6000	0.3417
T17	4	AL5-50(7/8")	28.38 - 30.00	0.6000	0.3417
T17	5	AL5-50(7/8")	28.38 - 30.00	0.6000	0.3417
T17	8	LDF2-50A(3/8")	28.38 - 30.00	0.6000	0.3417
T17	12	HCS 6X12 4AWG(1-5/8)	28.38 - 30.00	0.6000	0.3417
T18	2	ATCB-B01(1/4")	27.06 - 28.38	0.6000	0.2985
T18	4	AL5-50(7/8")	27.06 - 28.38	0.6000	0.2985
T18	5	AL5-50(7/8")	27.06 - 28.38	0.6000	0.2985
T18	8	LDF2-50A(3/8")	27.06 - 28.38	0.6000	0.2985
T18	12	HCS 6X12 4AWG(1-5/8)	27.06 - 28.38	0.6000	0.2985
T19	1	ATCB-B01(1/4")	25.75 - 27.00	0.6000	0.3007
T19	2	ATCB-B01(1/4")	27.00 - 27.06	0.6000	0.3007
T19	4	AL5-50(7/8")	25.75 - 27.06	0.6000	0.3007
T19	5	AL5-50(7/8")	25.75 - 27.06	0.6000	0.3007
T19	8	LDF2-50A(3/8")	25.75 - 27.06	0.6000	0.3007
T19	12	HCS 6X12 4AWG(1-5/8)	25.75 - 27.06	0.6000	0.3007
T20	1	ATCB-B01(1/4")	24.44 - 25.75	0.6000	0.3029
T20	4	AL5-50(7/8")	24.44 - 25.75	0.6000	0.3029
T20	5	AL5-50(7/8")	24.44 - 25.75	0.6000	0.3029
T20	8	LDF2-50A(3/8")	24.44 - 25.75	0.6000	0.3029
T20	12	HCS 6X12 4AWG(1-5/8)	24.44 - 25.75	0.6000	0.3029
T21	1	ATCB-B01(1/4")	23.13 - 24.44	0.6000	0.3053
T21	4	AL5-50(7/8")	23.13 - 24.44	0.6000	0.3053
T21	5	AL5-50(7/8")	23.13 - 24.44	0.6000	0.3053
T21	8	LDF2-50A(3/8")	23.13 - 24.44	0.6000	0.3053
T21	12	HCS 6X12 4AWG(1-5/8)	23.13 - 24.44	0.6000	0.3053
T22	1	ATCB-B01(1/4")	21.81 - 23.13	0.6000	0.3078
T22	4	AL5-50(7/8")	21.81 - 23.13	0.6000	0.3078
T22	5	AL5-50(7/8")	21.81 - 23.13	0.6000	0.3078
T22	8	LDF2-50A(3/8")	21.81 - 23.13	0.6000	0.3078
T22	12	HCS 6X12 4AWG(1-5/8)	21.81 - 23.13	0.6000	0.3078
T23	1	ATCB-B01(1/4")	20.00 - 21.81	0.6000	0.2803
T23	4	AL5-50(7/8")	20.00 - 21.81	0.6000	0.2803
T23	5	AL5-50(7/8")	20.00 - 21.81	0.6000	0.2803
T23	8	LDF2-50A(3/8")	20.00 - 21.81	0.6000	0.2803
T23	12	HCS 6X12 4AWG(1-5/8)	20.00 - 21.81	0.6000	0.2803
T24	1	ATCB-B01(1/4")	18.38 - 20.00	0.6000	0.3587
T24	4	AL5-50(7/8")	18.38 - 20.00	0.6000	0.3587
T24	5	AL5-50(7/8")	18.38 - 20.00	0.6000	0.3587
T24	8	LDF2-50A(3/8")	18.38 - 20.00	0.6000	0.3587
T24	12	HCS 6X12 4AWG(1-5/8)	18.38 - 20.00	0.6000	0.3587
T25	1	ATCB-B01(1/4")	17.06 - 18.38	0.6000	0.3180
T25	4	AL5-50(7/8")	17.06 - 18.38	0.6000	0.3180
T25	5	AL5-50(7/8")	17.06 - 18.38	0.6000	0.3180
T25	8	LDF2-50A(3/8")	17.06 - 18.38	0.6000	0.3180

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T25	12	HCS 6X12 4AWG(1-5/8)	17.06 - 18.38	0.6000	0.3180
T26	1	ATCB-B01(1/4")	15.75 - 17.06	0.6000	0.3213
T26	4	AL5-50(7/8")	15.75 - 17.06	0.6000	0.3213
T26	5	AL5-50(7/8")	15.75 - 17.06	0.6000	0.3213
T26	8	LDF2-50A(3/8")	15.75 - 17.06	0.6000	0.3213
T26	12	HCS 6X12 4AWG(1-5/8)	15.75 - 17.06	0.6000	0.3213
T27	1	ATCB-B01(1/4")	14.44 - 15.75	0.6000	0.3249
T27	4	AL5-50(7/8")	14.44 - 15.75	0.6000	0.3249
T27	5	AL5-50(7/8")	14.44 - 15.75	0.6000	0.3249
T27	8	LDF2-50A(3/8")	14.44 - 15.75	0.6000	0.3249
T27	12	HCS 6X12 4AWG(1-5/8)	14.44 - 15.75	0.6000	0.3249
T28	1	ATCB-B01(1/4")	13.13 - 14.44	0.6000	0.3287
T28	4	AL5-50(7/8")	13.13 - 14.44	0.6000	0.3287
T28	5	AL5-50(7/8")	13.13 - 14.44	0.6000	0.3287
T28	8	LDF2-50A(3/8")	13.13 - 14.44	0.6000	0.3287
T28	12	HCS 6X12 4AWG(1-5/8)	13.13 - 14.44	0.6000	0.3287
T29	1	ATCB-B01(1/4")	11.81 - 13.13	0.6000	0.3329
T29	4	AL5-50(7/8")	11.81 - 13.13	0.6000	0.3329
T29	5	AL5-50(7/8")	11.81 - 13.13	0.6000	0.3329
T29	8	LDF2-50A(3/8")	11.81 - 13.13	0.6000	0.3329
T29	12	HCS 6X12 4AWG(1-5/8)	11.81 - 13.13	0.6000	0.3329
T30	1	ATCB-B01(1/4")	10.00 - 11.81	0.6000	0.3092
T30	4	AL5-50(7/8")	10.00 - 11.81	0.6000	0.3092
T30	5	AL5-50(7/8")	10.00 - 11.81	0.6000	0.3092
T30	8	LDF2-50A(3/8")	10.00 - 11.81	0.6000	0.3092
T30	12	HCS 6X12 4AWG(1-5/8)	10.00 - 11.81	0.6000	0.3092
T31	1	ATCB-B01(1/4")	8.38 - 10.00	0.6000	0.3872
T31	4	AL5-50(7/8")	8.38 - 10.00	0.6000	0.3872
T31	5	AL5-50(7/8")	8.38 - 10.00	0.6000	0.3872
T31	8	LDF2-50A(3/8")	8.38 - 10.00	0.6000	0.3872
T31	12	HCS 6X12 4AWG(1-5/8)	8.38 - 10.00	0.6000	0.3872
T32	1	ATCB-B01(1/4")	7.06 - 8.38	0.6000	0.3526
T32	4	AL5-50(7/8")	7.06 - 8.38	0.6000	0.3526
T32	5	AL5-50(7/8")	7.06 - 8.38	0.6000	0.3526
T32	8	LDF2-50A(3/8")	7.06 - 8.38	0.6000	0.3526
T32	12	HCS 6X12 4AWG(1-5/8)	7.06 - 8.38	0.6000	0.3526
T33	1	ATCB-B01(1/4")	5.75 - 7.06	0.6000	0.3600
T33	4	AL5-50(7/8")	5.75 - 7.06	0.6000	0.3600
T33	5	AL5-50(7/8")	5.75 - 7.06	0.6000	0.3600
T33	8	LDF2-50A(3/8")	5.75 - 7.06	0.6000	0.3600
T33	12	HCS 6X12 4AWG(1-5/8)	5.75 - 7.06	0.6000	0.3600
T34	1	ATCB-B01(1/4")	4.44 - 5.75	0.6000	0.3691
T34	4	AL5-50(7/8")	4.44 - 5.75	0.6000	0.3691
T34	5	AL5-50(7/8")	4.44 - 5.75	0.6000	0.3691
T34	8	LDF2-50A(3/8")	4.44 - 5.75	0.6000	0.3691
T34	12	HCS 6X12 4AWG(1-5/8)	4.44 - 5.75	0.6000	0.3691
T35	1	ATCB-B01(1/4")	3.13 - 4.44	0.6000	0.3805
T35	4	AL5-50(7/8")	3.13 - 4.44	0.6000	0.3805
T35	5	AL5-50(7/8")	3.13 - 4.44	0.6000	0.3805
T35	8	LDF2-50A(3/8")	3.13 - 4.44	0.6000	0.3805
T35	12	HCS 6X12 4AWG(1-5/8)	3.13 - 4.44	0.6000	0.3805
T36	1	ATCB-B01(1/4")	1.81 - 3.13	0.6000	0.3965
T36	4	AL5-50(7/8")	1.81 - 3.13	0.6000	0.3965
T36	5	AL5-50(7/8")	1.81 - 3.13	0.6000	0.3965
T36	8	LDF2-50A(3/8")	1.81 - 3.13	0.6000	0.3965
T36	12	HCS 6X12 4AWG(1-5/8)	1.81 - 3.13	0.6000	0.3965
T37	1	ATCB-B01(1/4")	0.00 - 1.81	0.6000	0.4069
T37	4	AL5-50(7/8")	0.00 - 1.81	0.6000	0.4069
T37	5	AL5-50(7/8")	0.00 - 1.81	0.6000	0.4069
T37	8	LDF2-50A(3/8")	0.00 - 1.81	0.6000	0.4069
T37	12	HCS 6X12 4AWG(1-5/8)	0.00 - 1.81	0.6000	0.4069

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
(2) 10 ft x 1" Omni	C	From Face	1.000 0' 6'	0.000	128'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 2.017 3.050 5.148	1.000 2.017 3.050 5.148	0.015 0.024 0.040 0.091
(2) 3' x 2" Pipe Mount	C	From Leg	1.000 0' 0'	0.000	128'	No Ice 1/2" Ice 1" Ice 2" Ice	0.583 0.770 0.967 1.388	0.583 0.770 0.967 1.388	0.011 0.017 0.024 0.047
Standoff 4'3" x 5.5"	C	From Face	0.500 0' 0'	0.000	128'	No Ice 1/2" Ice 1" Ice 2" Ice	1.080 1.630 2.210 3.440	5.310 7.570 9.930 15.190	0.115 0.158 0.217 0.379
*									
APXVAALL24_43-U-NA20 _TIA w/ Mount Pipe	A	From Leg	1.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	20.480 21.231 21.990 23.444	10.869 12.393 13.942 16.291	0.183 0.318 0.465 0.794
APXVAALL24_43-U-NA20 _TIA w/ Mount Pipe	B	From Leg	1.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	20.480 21.231 21.990 23.444	10.869 12.393 13.942 16.291	0.183 0.318 0.465 0.794
APXVAALL24_43-U-NA20 _TIA w/ Mount Pipe	C	From Leg	1.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	20.480 21.231 21.990 23.444	10.869 12.393 13.942 16.291	0.183 0.318 0.465 0.794
AIR 6419 B41_TMO_TIA w/ Mount Pipe	A	From Leg	1.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	6.533 6.916 7.308 8.122	3.750 4.243 4.752 5.819	0.111 0.165 0.225 0.365
AIR 6419 B41_TMO_TIA w/ Mount Pipe	B	From Leg	1.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	6.533 6.916 7.308 8.122	3.750 4.243 4.752 5.819	0.111 0.165 0.225 0.365
AIR 6419 B41_TMO_TIA w/ Mount Pipe	C	From Leg	1.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	6.533 6.916 7.308 8.122	3.750 4.243 4.752 5.819	0.111 0.165 0.225 0.365
Radio 4480 B71+B85	A	From Leg	0.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.383 1.543 1.710 2.073	0.093 0.114 0.139 0.199
Radio 4480 B71+B85	B	From Leg	0.000 0' 0'	0.000	127'	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.383 1.543 1.710 2.073	0.093 0.114 0.139 0.199
Radio 4480 B71+B85	C	From Leg	0.000 0'	0.000	127'	No Ice 1/2" Ice	0.000 0.000	1.383 1.543	0.093 0.114

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	0.000	1.710	0.139
						2" Ice	0.000	2.073	0.199
Radio 4460 B25+B66	A	From Leg	0.000	0.000	127'	No Ice	0.000	1.686	0.109
			0'			1/2" Ice	0.000	1.850	0.131
			0'			1" Ice	0.000	2.022	0.156
						2" Ice	0.000	2.387	0.217
Radio 4460 B25+B66	B	From Leg	0.000	0.000	127'	No Ice	0.000	1.686	0.109
			0'			1/2" Ice	0.000	1.850	0.131
			0'			1" Ice	0.000	2.022	0.156
						2" Ice	0.000	2.387	0.217
Radio 4460 B25+B66	C	From Leg	0.000	0.000	127'	No Ice	0.000	1.686	0.109
			0'			1/2" Ice	0.000	1.850	0.131
			0'			1" Ice	0.000	2.022	0.156
						2" Ice	0.000	2.387	0.217
2' x 2" Pipe Mount	A	From Leg	0.000	0.000	127'	No Ice	0.023	0.023	0.007
			0'			1/2" Ice	0.049	0.049	0.008
			0'			1" Ice	0.085	0.085	0.009
						2" Ice	0.186	0.186	0.013
2' x 2" Pipe Mount	B	From Leg	0.000	0.000	127'	No Ice	0.023	0.023	0.007
			0'			1/2" Ice	0.049	0.049	0.008
			0'			1" Ice	0.085	0.085	0.009
						2" Ice	0.186	0.186	0.013
2' x 2" Pipe Mount	C	From Leg	0.000	0.000	127'	No Ice	0.023	0.023	0.007
			0'			1/2" Ice	0.049	0.049	0.008
			0'			1" Ice	0.085	0.085	0.009
						2" Ice	0.186	0.186	0.013
3.25' Horizontal HSS 2.5" x 2.5"x3/18 Tube	A	From Leg	0.000	0.000	127'	No Ice	1.700	0.040	0.042
			0'			1/2" Ice	1.910	0.100	0.054
			2'			1" Ice	2.140	0.170	0.069
						2" Ice	2.650	0.370	0.108
3.25' Horizontal HSS 2.5" x 2.5"x3/18 Tube	B	From Leg	0.000	0.000	127'	No Ice	1.700	0.040	0.042
			0'			1/2" Ice	1.910	0.100	0.054
			2'			1" Ice	2.140	0.170	0.069
						2" Ice	2.650	0.370	0.108
3.25' Horizontal HSS 2.5" x 2.5"x3/18 Tube	C	From Leg	0.000	0.000	127'	No Ice	1.700	0.040	0.042
			0'			1/2" Ice	1.910	0.100	0.054
			2'			1" Ice	2.140	0.170	0.069
						2" Ice	2.650	0.370	0.108
3.25' Horizontal HSS 2.5" x 2.5"x3/18 Tube	A	From Leg	0.000	0.000	127'	No Ice	1.700	0.040	0.042
			0'			1/2" Ice	1.910	0.100	0.054
			-2'			1" Ice	2.140	0.170	0.069
						2" Ice	2.650	0.370	0.108
3.25' Horizontal HSS 2.5" x 2.5"x3/18 Tube	B	From Leg	0.000	0.000	127'	No Ice	1.700	0.040	0.042
			0'			1/2" Ice	1.910	0.100	0.054
			-2'			1" Ice	2.140	0.170	0.069
						2" Ice	2.650	0.370	0.108
3.25' Horizontal HSS 2.5" x 2.5"x3/18 Tube	C	From Leg	0.000	0.000	127'	No Ice	1.700	0.040	0.042
			0'			1/2" Ice	1.910	0.100	0.054
			-2'			1" Ice	2.140	0.170	0.069
						2" Ice	2.650	0.370	0.108
*									
Side Arm Mount [SO 301-1]	C	From Leg	1.000	0.000	86'	No Ice	0.460	0.910	0.023
			0'			1/2" Ice	0.650	1.300	0.033
			0'			1" Ice	0.870	1.710	0.047
						2" Ice	1.410	2.620	0.091
*									
6' x3.5" Yagi (5 elements)	C	From Leg	0.500	0.000	72'	No Ice	2.928	0.274	0.053

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	5.355	0.621	0.077
			0'			1" Ice	7.782	0.968	0.101
						2" Ice	12.636	1.662	0.149
*									
6' x3.5" Yagi (5 elements)	C	From Leg	0.500	0.000	67'	No Ice	2.928	0.274	0.053
			0'			1/2" Ice	5.355	0.621	0.077
			0'			1" Ice	7.782	0.968	0.101
						2" Ice	12.636	1.662	0.149
*									
4'-2"x11.5" FM	A	From Leg	3.000	0.000	60'	No Ice	19.200	3.732	0.035
			0'			1/2" Ice	19.737	4.287	0.142
			0'			1" Ice	20.281	4.852	0.257
						2" Ice	21.393	6.014	0.515
Side Arm Mount [SO 701-1]	A	From Leg	1.500	0.000	60'	No Ice	0.850	1.670	0.065
			0'			1/2" Ice	1.140	2.340	0.079
			0'			1" Ice	1.430	3.010	0.093
						2" Ice	2.010	4.350	0.121
*									
6' x3.5" Yagi (5 elements)	C	From Leg	0.500	0.000	59'6"	No Ice	2.928	0.274	0.053
			0'			1/2" Ice	5.355	0.621	0.077
			0'			1" Ice	7.782	0.968	0.101
						2" Ice	12.636	1.662	0.149
Pelican (10"x9"x6")	C	From Leg	0.500	0.000	59'6"	No Ice	0.750	0.500	0.002
			0'			1/2" Ice	0.859	0.593	0.009
			0'			1" Ice	0.976	0.693	0.019
						2" Ice	1.231	0.915	0.043
*									
6' x3.5" Yagi (5 elements)	C	None		0.000	55'	No Ice	2.928	0.274	0.053
						1/2" Ice	5.355	0.621	0.077
						1" Ice	7.782	0.968	0.101
						2" Ice	12.636	1.662	0.149
*									
Side Arm Mount [SO 302-1]	C	From Leg	0.500	0.000	32'6"	No Ice	0.810	3.310	0.055
			0'			1/2" Ice	1.300	5.000	0.083
			0'			1" Ice	1.810	6.800	0.122
						2" Ice	2.910	10.990	0.233
10' horizontal x 2" Pipe Mount	C	From Face	0.500	0.000	32'6"	No Ice	2.000	2.000	0.100
			0'			1/2" Ice	3.025	3.025	0.116
			0'			1" Ice	4.067	4.067	0.137
						2" Ice	5.702	5.702	0.201
*									

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
1' dish	C	Paraboloid w/Shroud (HP)	From Leg	2.000 0'	20.000		86'	1.000	No Ice 1/2" Ice	1.070 1.230	0.010 0.020

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
				2'					1" Ice	1.390	0.030
									2" Ice	1.700	0.050
*											
6' Dish	C	Paraboloid w/o Radome	From Leg	1.000 0' 1'6"	-60.000		32'6"	6.000	No Ice 1/2" Ice 1" Ice 2" Ice	28.274 29.065 29.856 31.438	0.200 0.349 0.498 0.797
*											

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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	130 - 120	Leg	Max Tension	12	4.434	0.004	0.001
			Max. Compression	6	-7.054	0.005	-0.003
			Max. Mx	11	-2.630	0.087	0.002
			Max. My	9	-5.895	-0.002	-0.062
			Max. Vy	11	0.480	0.013	-0.004
			Max. Vx	2	0.476	-0.003	0.008
		Diagonal	Max Tension	5	1.909	0.000	0.000
			Max. Compression	11	-1.913	0.000	0.000
			Max. Mx	22	0.338	0.001	0.000
			Max. My	19	-0.004	0.000	-0.000
			Max. Vy	22	-0.003	0.000	0.000
			Max. Vx	19	0.000	0.000	0.000
		Horizontal	Max Tension	11	1.376	0.000	0.000
			Max. Compression	5	-1.378	0.000	0.000
			Max. Mx	26	-0.246	0.001	0.000
			Max. My	20	0.006	0.000	-0.000
			Max. Vy	26	-0.003	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.006	0.000	0.000
			Max. Compression	12	-0.006	0.000	0.000
			Max. Mx	26	-0.003	0.001	0.000
			Max. My	20	0.003	0.000	-0.000
			Max. Vy	26	-0.003	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Bottom Girt	Max Tension	11	0.280	0.000	0.000
			Max. Compression	4	-0.137	0.000	0.000
			Max. Mx	25	0.237	0.001	0.000
			Max. My	6	-0.009	0.000	-0.000
			Max. Vy	25	-0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Guy A	Bottom Tension	9	5.096		
			Top Tension	9	5.129		
			Top Cable Vert	9	4.330		
			Top Cable Norm	9	2.749		
			Top Cable Tan	9	0.006		
			Bot Cable Vert	9	-4.251		
			Bot Cable Norm	9	2.810		
			Bot Cable Tan	9	0.044		
		Guy B	Bottom Tension	11	5.300		
			Top Tension	11	5.333		
			Top Cable Vert	11	4.501		
			Top Cable Norm	11	2.861		
			Top Cable Tan	11	0.005		
			Bot Cable Vert	11	-4.422		
			Bot Cable Norm	11	2.922		
			Bot Cable Tan	11	0.044		
		Guy C	Bottom Tension	5	5.312		
			Top Tension	5	5.345		
			Top Cable Vert	5	4.511		
			Top Cable Norm	5	2.868		
			Top Cable Tan	5	0.002		
			Bot Cable Vert	5	-4.432		
			Bot Cable Norm	5	2.928		
			Bot Cable Tan	5	0.047		
		Top Guy Pull-Off	Max Tension	10	1.462	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	25	0.801	0.003	0.000
			Max. My	6	0.891	0.000	-0.000
			Max. Vy	25	0.009	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	120 - 110	Leg	Max Tension	12	0.367	-0.008	-0.045
			Max. Compression	6	-6.844	0.025	-0.014
			Max. Mx	11	-2.593	-0.077	-0.003
			Max. My	26	-3.903	0.012	-0.058
			Max. Vy	11	0.201	-0.014	-0.001
			Max. Vx	26	0.142	0.003	-0.014
		Diagonal	Max Tension	4	0.413	0.000	0.000
			Max. Compression	11	-0.633	0.000	0.000
			Max. Mx	22	-0.571	0.001	0.000
			Max. My	19	-0.295	0.000	-0.000
			Max. Vy	22	-0.003	0.000	0.000
			Max. Vx	19	-0.000	0.000	0.000
		Horizontal	Max Tension	11	0.393	0.000	0.000
			Max. Compression	4	-0.223	0.000	0.000
			Max. Mx	25	0.353	0.001	0.000
			Max. My	6	0.034	0.000	-0.000
			Max. Vy	25	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.254	0.000	0.000
			Max. Compression	4	-0.185	0.000	0.000
			Max. Mx	25	0.204	0.001	0.000
			Max. My	6	0.034	0.000	-0.000
			Max. Vy	25	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	11	0.194	0.000	0.000
			Max. Compression	4	-0.097	0.000	0.000
			Max. Mx	24	0.185	0.001	0.000
			Max. My	6	0.090	0.000	-0.000
			Max. Vy	24	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T3	110 - 100	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-7.019	-0.006	-0.013
			Max. Mx	24	-3.943	-0.057	0.003
			Max. My	10	-1.971	-0.044	0.055
			Max. Vy	24	0.139	-0.013	0.000
			Max. Vx	10	0.142	0.015	-0.016
		Diagonal	Max Tension	4	0.327	0.000	0.000
			Max. Compression	10	-0.651	0.000	0.000
			Max. Mx	17	-0.164	0.001	0.000
			Max. My	19	-0.293	0.000	-0.000
			Max. Vy	17	-0.003	0.000	0.000
			Max. Vx	19	-0.000	0.000	0.000
		Horizontal	Max Tension	10	0.368	0.000	0.000
			Max. Compression	4	-0.175	0.000	0.000
			Max. Mx	18	0.149	0.001	0.000
			Max. My	6	0.165	0.000	-0.000
			Max. Vy	18	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.182	0.000	0.000
			Max. Compression	4	-0.099	0.000	0.000
			Max. Mx	24	0.171	0.001	0.000
			Max. My	6	0.093	0.000	-0.000
			Max. Vy	24	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	10	0.262	0.000	0.000
			Max. Compression	4	-0.136	0.000	0.000
			Max. Mx	15	0.101	0.001	0.000
			Max. My	6	0.183	0.000	-0.000
			Max. Vy	15	-0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T4	100 - 90	Leg	Max Tension	8	0.639	-0.015	0.009

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	6	-8.733	0.009	-0.011
			Max. Mx	10	-0.930	0.123	-0.040
			Max. My	9	-7.466	0.010	-0.114
			Max. Vy	10	0.285	0.123	-0.040
			Max. Vx	9	-0.266	0.010	-0.114
		Diagonal	Max Tension	4	0.385	0.000	0.000
			Max. Compression	10	-0.675	0.000	0.000
			Max. Mx	17	-0.078	0.001	0.000
			Max. My	19	-0.292	0.000	-0.000
			Max. Vy	17	-0.003	0.000	0.000
			Max. Vx	19	0.000	0.000	0.000
		Horizontal	Max Tension	10	0.453	0.000	0.000
			Max. Compression	4	-0.279	0.000	0.000
			Max. Mx	24	0.206	0.001	0.000
			Max. My	6	0.288	0.000	-0.000
			Max. Vy	24	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.224	0.000	0.000
			Max. Compression	4	-0.123	0.000	0.000
			Max. Mx	15	0.149	0.001	0.000
			Max. My	6	0.146	0.000	-0.000
			Max. Vy	15	-0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	23	0.191	0.000	0.000
			Max. Compression	4	-0.012	0.000	0.000
			Max. Mx	14	0.137	0.001	0.000
			Max. My	6	0.071	0.000	-0.000
			Max. Vy	14	0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Guy A	Bottom Tension	21	1.684		
			Top Tension	21	1.922		
			Top Cable Vert	21	1.533		
			Top Cable Norm	21	1.159		
			Top Cable Tan	21	0.001		
			Bot Cable Vert	21	-1.173		
			Bot Cable Norm	21	1.208		
			Bot Cable Tan	21	0.001		
		Guy B	Bottom Tension	25	1.753		
			Top Tension	25	1.991		
			Top Cable Vert	25	1.585		
			Top Cable Norm	25	1.205		
			Top Cable Tan	25	0.001		
			Bot Cable Vert	25	-1.225		
			Bot Cable Norm	25	1.255		
			Bot Cable Tan	25	0.001		
		Guy C	Bottom Tension	17	1.777		
			Top Tension	17	2.014		
			Top Cable Vert	17	1.603		
			Top Cable Norm	17	1.220		
			Top Cable Tan	17	0.000		
			Bot Cable Vert	17	-1.242		
			Bot Cable Norm	17	1.270		
			Bot Cable Tan	17	0.000		
		Top Guy Pull-Off	Max Tension	23	0.713	0.000	0.000
			Max. Compression	4	-0.046	0.000	0.000
			Max. Mx	14	0.511	0.002	0.000
			Max. My	6	0.264	0.000	-0.000
			Max. Vy	14	-0.005	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T5	90 - 80	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-8.734	0.068	-0.031

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	10	-2.278	-0.109	0.031
			Max. My	9	-7.464	0.001	0.101
			Max. Vy	10	0.284	-0.020	0.004
			Max. Vx	9	-0.265	0.004	0.019
		Diagonal	Max Tension	4	0.715	0.000	0.000
			Max. Compression	9	-1.087	0.000	0.000
			Max. Mx	25	-0.728	0.001	0.000
			Max. My	20	-0.700	0.000	-0.000
			Max. Vy	25	-0.003	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Horizontal	Max Tension	9	0.633	0.000	0.000
			Max. Compression	4	-0.399	0.000	0.000
			Max. Mx	14	0.268	0.001	0.000
			Max. My	6	0.021	0.000	-0.000
			Max. Vy	14	-0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Top Girt	Max Tension	10	0.440	0.000	0.000
			Max. Compression	4	-0.305	0.000	0.000
			Max. Mx	14	0.203	0.001	0.000
			Max. My	6	0.072	0.000	-0.000
			Max. Vy	14	-0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
		Bottom Girt	Max Tension	9	0.311	0.000	0.000
			Max. Compression	4	-0.186	0.000	0.000
			Max. Mx	22	0.271	0.001	0.000
			Max. My	6	0.031	0.000	-0.000
			Max. Vy	22	-0.003	0.000	0.000
			Max. Vx	6	0.000	0.000	0.000
T6	80 - 70	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-7.768	-0.016	-0.049
			Max. Mx	10	-3.340	-0.098	0.021
			Max. My	9	-5.049	0.013	0.083
			Max. Vy	10	0.245	-0.022	0.004
			Max. Vx	9	-0.207	0.004	0.018
		Diagonal	Max Tension	4	0.554	0.000	0.000
			Max. Compression	10	-0.885	0.000	0.000
			Max. Mx	25	-0.585	0.001	0.000
			Max. My	20	-0.594	0.000	-0.000
			Max. Vy	25	-0.003	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Horizontal	Max Tension	10	0.505	0.000	0.000
			Max. Compression	4	-0.311	0.000	0.000
			Max. Mx	17	0.211	0.001	0.000
			Max. My	18	0.321	0.000	-0.000
			Max. Vy	17	0.003	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
		Top Girt	Max Tension	10	0.355	0.000	0.000
			Max. Compression	4	-0.222	0.000	0.000
			Max. Mx	22	0.281	0.001	0.000
			Max. My	18	0.145	0.000	-0.000
			Max. Vy	22	0.003	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
		Bottom Girt	Max Tension	23	0.282	0.000	0.000
			Max. Compression	4	-0.165	0.000	0.000
			Max. Mx	14	0.212	0.001	0.000
			Max. My	18	0.187	0.000	-0.000
			Max. Vy	14	-0.003	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
T7	70 - 60	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-7.765	0.005	0.009
			Max. Mx	18	-6.459	0.093	-0.011

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	8	-3.582	-0.036	0.108
			Max. Vy	18	0.215	-0.014	0.002
			Max. Vx	9	0.240	0.018	-0.018
		Diagonal	Max Tension	4	0.698	0.000	0.000
			Max. Compression	24	-0.940	0.000	0.000
			Max. Mx	26	-0.381	0.001	0.000
			Max. My	20	-0.525	0.000	-0.000
			Max. Vy	26	-0.003	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Horizontal	Max Tension	24	0.551	0.000	0.000
			Max. Compression	4	-0.394	0.000	0.000
			Max. Mx	22	0.376	0.001	0.000
			Max. My	18	0.405	0.000	-0.000
			Max. Vy	22	0.003	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
		Top Girt	Max Tension	24	0.291	0.000	0.000
			Max. Compression	4	-0.163	0.000	0.000
			Max. Mx	14	0.211	0.001	0.000
			Max. My	18	0.218	0.000	-0.000
			Max. Vy	14	0.003	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
		Bottom Girt	Max Tension	23	0.365	0.000	0.000
			Max. Compression	4	-0.297	0.000	0.000
			Max. Mx	21	0.267	0.001	0.000
			Max. My	18	0.212	0.000	-0.000
			Max. Vy	14	0.003	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
T8	60 - 50	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	20	-9.517	-0.026	0.006
			Max. Mx	21	-8.806	0.111	-0.015
			Max. My	8	-3.584	0.037	-0.120
			Max. Vy	6	0.346	-0.106	-0.018
			Max. Vx	8	0.365	0.037	-0.120
		Diagonal	Max Tension	12	0.620	0.000	0.000
			Max. Compression	6	-1.278	0.000	0.000
			Max. Mx	26	-0.244	0.001	0.000
			Max. My	20	-0.551	0.000	-0.000
			Max. Vy	26	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Horizontal	Max Tension	6	0.773	0.000	0.000
			Max. Compression	12	-0.324	0.000	0.000
			Max. Mx	21	0.351	0.001	0.000
			Max. My	18	0.255	0.000	-0.000
			Max. Vy	21	-0.002	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
		Top Girt	Max Tension	8	0.518	0.000	0.000
			Max. Compression	3	-0.271	0.000	0.000
			Max. Mx	14	0.213	0.001	0.000
			Max. My	18	0.352	0.000	-0.000
			Max. Vy	14	-0.002	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
		Bottom Girt	Max Tension	6	0.463	0.000	0.000
			Max. Compression	12	-0.229	0.000	0.000
			Max. Mx	25	0.202	0.001	0.000
			Max. My	18	0.336	0.000	-0.000
			Max. Vy	14	-0.002	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
		Guy A	Bottom Tension	21	1.726		
			Top Tension	21	1.868		
			Top Cable Vert	21	1.195		
			Top Cable Norm	21	1.436		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Tan	21	0.001		
			Bot Cable Vert	21	-0.932		
			Bot Cable Norm	21	1.453		
			Bot Cable Tan	21	0.001		
		Guy B	Bottom Tension	25	1.706		
			Top Tension	25	1.848		
			Top Cable Vert	25	1.183		
			Top Cable Norm	25	1.420		
			Top Cable Tan	25	0.001		
			Bot Cable Vert	25	-0.920		
			Bot Cable Norm	25	1.437		
			Bot Cable Tan	25	0.001		
		Guy C	Bottom Tension	17	1.732		
			Top Tension	17	1.874		
			Top Cable Vert	17	1.199		
			Top Cable Norm	17	1.441		
			Top Cable Tan	17	0.000		
			Bot Cable Vert	17	-0.936		
			Bot Cable Norm	17	1.458		
			Bot Cable Tan	17	0.000		
		Top Guy Pull-Off	Max Tension	18	0.955	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	14	0.786	0.002	0.000
			Max. My	18	0.955	0.000	-0.000
			Max. Vy	14	-0.005	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
T9	50 - 40	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	21	-9.832	-0.027	0.001
			Max. Mx	6	-6.113	0.133	-0.010
			Max. My	6	-4.098	0.092	0.121
			Max. Vy	6	0.327	-0.030	0.005
			Max. Vx	6	-0.295	0.022	0.029
		Diagonal	Max Tension	12	0.462	0.000	0.000
			Max. Compression	6	-1.258	0.000	0.000
			Max. Mx	22	-0.754	0.001	0.000
			Max. My	20	-0.965	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Horizontal	Max Tension	6	0.726	0.000	0.000
			Max. Compression	12	-0.299	0.000	0.000
			Max. Mx	14	0.384	0.001	0.000
			Max. My	21	0.504	0.000	0.000
			Max. Vy	14	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.485	0.000	0.000
			Max. Compression	12	-0.222	0.000	0.000
			Max. Mx	14	0.273	0.001	0.000
			Max. My	18	0.314	0.000	-0.000
			Max. Vy	14	0.002	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
		Bottom Girt	Max Tension	6	0.416	0.000	0.000
			Max. Compression	12	-0.177	0.000	0.000
			Max. Mx	17	0.278	0.001	0.000
			Max. My	21	0.304	0.000	0.000
			Max. Vy	17	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
T10	40 - 38.375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	21	-9.833	-0.112	-0.002
			Max. Mx	6	-6.115	-0.131	0.014
			Max. My	6	-3.424	0.054	-0.114
			Max. Vy	6	0.325	-0.131	0.014

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	6	0.283	0.054	-0.114
		Diagonal	Max Tension	12	0.447	0.000	0.000
			Max. Compression	6	-1.132	0.000	0.000
			Max. Mx	22	-0.734	0.001	0.000
			Max. My	20	-0.859	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.415	0.000	0.000
			Max. Compression	12	-0.158	0.000	0.000
			Max. Mx	17	0.262	0.001	0.000
			Max. My	21	0.306	0.000	0.000
			Max. Vy	17	-0.002	0.000	0.000
			Max. Vx	21	-0.000	0.000	0.000
T11	38.375 - 37.0625	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	21	-9.383	-0.006	0.001
			Max. Mx	6	-5.620	0.030	-0.002
			Max. My	6	-3.745	-0.010	0.027
			Max. Vy	6	0.028	-0.005	0.002
			Max. Vx	6	0.025	0.001	-0.004
		Diagonal	Max Tension	12	0.293	0.000	0.000
			Max. Compression	6	-0.745	0.000	0.000
			Max. Mx	22	-0.427	0.001	0.000
			Max. My	20	-0.507	0.000	-0.000
			Max. Vy	22	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Top Girt	Max Tension	6	0.683	0.000	0.000
			Max. Compression	12	-0.278	0.000	0.000
			Max. Mx	17	0.433	0.001	0.000
			Max. My	21	0.473	0.000	0.000
			Max. Vy	17	-0.002	0.000	0.000
			Max. Vx	21	-0.000	0.000	0.000
T12	37.0625 - 35.75	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	21	-9.268	-0.000	0.002
			Max. Mx	4	-2.038	0.012	-0.010
			Max. My	4	-5.697	-0.004	-0.021
			Max. Vy	4	-0.012	-0.002	-0.003
			Max. Vx	4	0.015	0.000	-0.001
		Diagonal	Max Tension	12	0.284	0.000	0.000
			Max. Compression	6	-0.844	0.000	0.000
			Max. Mx	22	-0.478	0.001	0.000
			Max. My	20	-0.570	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.577	0.000	0.000
			Max. Compression	12	-0.218	0.000	0.000
			Max. Mx	17	0.347	0.001	0.000
			Max. My	21	0.376	0.000	0.000
			Max. Vy	17	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
T13	35.75 - 34.4375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	21	-9.196	0.003	-0.003
			Max. Mx	4	-2.095	-0.053	0.025
			Max. My	4	-5.751	0.020	0.064
			Max. Vy	4	0.050	-0.053	0.025
			Max. Vx	4	-0.065	0.020	0.064
		Diagonal	Max Tension	12	0.461	0.000	0.000
			Max. Compression	6	-0.910	0.000	0.000
			Max. Mx	22	-0.458	0.001	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	20	-0.568	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.636	0.000	0.000
			Max. Compression	12	-0.266	0.000	0.000
			Max. Mx	20	0.434	0.001	0.000
			Max. My	21	0.392	0.000	0.000
			Max. Vy	20	-0.002	0.000	0.000
			Max. Vx	21	-0.000	0.000	0.000
T14	34.4375 - 33.125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-9.290	0.001	0.002
			Max. Mx	4	-1.495	0.136	0.025
			Max. My	4	-4.454	0.020	-0.173
			Max. Vy	4	-0.434	-0.053	0.025
			Max. Vx	4	0.542	0.020	0.064
		Diagonal	Max Tension	8	0.418	0.000	0.000
			Max. Compression	4	-1.580	0.000	0.000
			Max. Mx	22	-0.385	0.001	0.000
			Max. My	20	-0.359	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	21	0.499	0.000	0.000
			Max. Compression	12	-0.066	0.000	0.000
			Max. Mx	20	0.349	0.001	0.000
			Max. My	21	0.330	0.000	0.000
			Max. Vy	20	0.002	0.000	0.000
			Max. Vx	21	-0.000	0.000	0.000
T15	33.125 - 31.8125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-9.717	0.021	0.015
			Max. Mx	4	-1.807	-0.058	0.020
			Max. My	2	-4.929	0.015	0.072
			Max. Vy	12	-0.041	0.039	-0.006
			Max. Vx	13	-0.059	0.021	0.067
		Diagonal	Max Tension	8	0.905	0.000	0.000
			Max. Compression	4	-2.188	0.000	0.000
			Max. Mx	22	-0.276	0.001	0.000
			Max. My	20	-0.176	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.364	0.000	0.000
			Max. Compression	8	-0.459	0.000	0.000
			Max. Mx	20	0.220	0.001	0.000
			Max. My	21	0.193	0.000	0.000
			Max. Vy	20	-0.002	0.000	0.000
			Max. Vx	21	-0.000	0.000	0.000
T16	31.8125 - 30	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.571	-0.082	-0.072
			Max. Mx	4	-2.441	0.288	-0.108
			Max. My	3	-4.428	-0.076	-0.342
			Max. Vy	4	0.724	-0.074	0.030
			Max. Vx	3	-0.857	0.017	0.086
		Diagonal	Max Tension	8	1.405	0.000	0.000
			Max. Compression	4	-3.237	0.000	0.000
			Max. Mx	22	-0.439	0.001	0.000
			Max. My	20	-0.275	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.961	0.000	0.000
			Max. Compression	8	-0.802	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	0.168	0.001	0.000
			Max. My	21	0.172	0.000	0.000
			Max. Vy	20	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
		Bottom Girt	Max Tension	4	1.240	0.000	0.000
			Max. Compression	7	-0.633	0.000	0.000
			Max. Mx	20	0.194	0.001	0.000
			Max. My	21	0.066	0.000	0.000
			Max. Vy	20	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
T17	30 - 28.375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.569	0.021	0.014
			Max. Mx	4	-3.624	-0.298	0.115
			Max. My	3	-4.427	0.074	0.352
			Max. Vy	4	0.719	-0.298	0.115
			Max. Vx	3	-0.851	0.074	0.352
		Diagonal	Max Tension	7	0.831	0.000	0.000
			Max. Compression	4	-2.260	0.000	0.000
			Max. Mx	22	-0.824	0.001	0.000
			Max. My	20	-0.561	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	3	1.588	0.000	0.000
			Max. Compression	7	-0.208	0.000	0.000
			Max. Mx	25	1.022	0.001	0.000
			Max. My	21	1.046	0.000	0.000
			Max. Vy	25	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
		Guy A	Bottom Tension	21	1.591		
			Top Tension	21	1.655		
			Top Cable Vert	21	0.664		
			Top Cable Norm	21	1.516		
			Top Cable Tan	21	0.000		
			Bot Cable Vert	21	-0.473		
			Bot Cable Norm	21	1.519		
			Bot Cable Tan	21	0.000		
		Guy B	Bottom Tension	25	1.531		
			Top Tension	25	1.595		
			Top Cable Vert	25	0.643		
			Top Cable Norm	25	1.460		
			Top Cable Tan	25	0.000		
			Bot Cable Vert	25	-0.452		
			Bot Cable Norm	25	1.463		
			Bot Cable Tan	25	0.000		
		Guy C	Bottom Tension	17	1.546		
			Top Tension	17	1.610		
			Top Cable Vert	17	0.648		
			Top Cable Norm	17	1.474		
			Top Cable Tan	17	0.000		
			Bot Cable Vert	17	-0.457		
			Bot Cable Norm	17	1.476		
			Bot Cable Tan	17	0.000		
T18	28.375 - 27.0625	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.666	-0.016	-0.015
			Max. Mx	4	-4.382	0.066	-0.029
			Max. My	4	-3.634	-0.009	-0.079
			Max. Vy	4	0.063	-0.017	0.008
			Max. Vx	3	-0.075	0.003	0.020
		Diagonal	Max Tension	7	0.557	0.000	0.000
			Max. Compression	4	-1.345	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	22	-0.661	0.001	0.000
			Max. My	20	-0.466	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.227	0.000	0.000
			Max. Compression	7	-0.456	0.000	0.000
			Max. Mx	25	0.734	0.001	0.000
			Max. My	21	0.422	0.000	0.000
			Max. Vy	25	0.002	0.000	0.000
			Max. Vx	21	0.000	0.000	0.000
T19	27.0625 - 25.75	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.558	0.006	0.002
			Max. Mx	4	-4.251	-0.017	0.008
			Max. My	3	-4.125	0.003	0.020
			Max. Vy	4	-0.016	-0.017	0.008
			Max. Vx	3	0.018	0.003	0.020
		Diagonal	Max Tension	7	0.535	0.000	0.000
			Max. Compression	4	-1.462	0.000	0.000
			Max. Mx	22	-0.688	0.001	0.000
			Max. My	20	-0.479	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.042	0.000	0.000
			Max. Compression	7	-0.396	0.000	0.000
			Max. Mx	25	0.563	0.001	0.000
			Max. My	20	0.289	0.000	-0.000
			Max. Vy	25	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
T20	25.75 - 24.4375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.533	0.000	-0.002
			Max. Mx	4	-4.350	-0.004	0.001
			Max. My	4	-3.750	-0.001	-0.004
			Max. Vy	4	0.006	-0.004	0.001
			Max. Vx	4	-0.006	0.000	0.004
		Diagonal	Max Tension	7	0.517	0.000	0.000
			Max. Compression	4	-1.404	0.000	0.000
			Max. Mx	22	-0.674	0.001	0.000
			Max. My	20	-0.472	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.042	0.000	0.000
			Max. Compression	7	-0.384	0.000	0.000
			Max. Mx	25	0.601	0.001	0.000
			Max. My	20	0.313	0.000	-0.000
			Max. Vy	25	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
T21	24.4375 - 23.125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.476	0.002	0.001
			Max. Mx	4	-4.380	0.011	0.001
			Max. My	4	-3.779	-0.005	-0.011
			Max. Vy	4	-0.012	-0.004	0.001
			Max. Vx	4	0.012	0.000	0.004
		Diagonal	Max Tension	7	0.511	0.000	0.000
			Max. Compression	4	-1.428	0.000	0.000
			Max. Mx	22	-0.693	0.001	0.000
			Max. My	20	-0.486	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max Tension	4	1.034	0.000	0.000
			Max. Compression	7	-0.374	0.000	0.000
			Max. Mx	15	0.573	0.001	0.000
			Max. My	20	0.317	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
T22	23.125 - 21.8125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.510	-0.002	-0.007
			Max. Mx	4	-4.561	-0.049	0.000
			Max. My	4	-3.935	0.021	0.048
			Max. Vy	4	0.046	-0.049	0.000
			Max. Vx	4	-0.045	0.021	0.048
		Diagonal	Max Tension	7	0.440	0.000	0.000
			Max. Compression	4	-1.246	0.000	0.000
			Max. Mx	22	-0.598	0.001	0.000
			Max. My	20	-0.420	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	0.975	0.000	0.000
			Max. Compression	7	-0.347	0.000	0.000
			Max. Mx	15	0.542	0.001	0.000
			Max. My	20	0.307	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
T23	21.8125 - 20	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.870	-0.059	-0.115
			Max. Mx	4	-4.197	0.215	-0.002
			Max. My	4	-3.460	-0.101	-0.207
			Max. Vy	4	0.530	-0.050	0.003
			Max. Vx	4	-0.511	-0.101	-0.207
		Diagonal	Max Tension	7	0.658	0.000	0.000
			Max. Compression	4	-1.945	0.000	0.000
			Max. Mx	22	-0.999	0.001	0.000
			Max. My	20	-0.705	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.164	0.000	0.000
			Max. Compression	7	-0.400	0.000	0.000
			Max. Mx	15	0.674	0.001	0.000
			Max. My	4	1.143	0.000	0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Bottom Girt	Max Tension	4	0.729	0.000	0.000
			Max. Compression	7	-0.242	0.000	0.000
			Max. Mx	14	0.323	0.001	0.000
			Max. My	4	0.729	0.000	0.000
			Max. Vy	14	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
T24	20 - 18.375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.868	0.016	0.026
			Max. Mx	4	-4.343	-0.215	0.006
			Max. My	4	-4.773	0.103	0.207
			Max. Vy	4	0.527	-0.215	0.006
			Max. Vx	4	-0.508	0.025	0.048
		Diagonal	Max Tension	7	0.655	0.000	0.000
			Max. Compression	4	-1.964	0.000	0.000
			Max. Mx	22	-0.994	0.001	0.000
			Max. My	20	-0.703	0.000	-0.000
			Max. Vy	22	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max Tension	4	0.712	0.000	0.000
			Max. Compression	7	-0.239	0.000	0.000
			Max. Mx	14	0.328	0.001	0.000
			Max. My	20	0.243	0.000	-0.000
			Max. Vy	14	0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
T25	18.375 - 17.0625	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.430	-0.013	-0.026
			Max. Mx	4	-4.946	0.049	-0.002
			Max. My	4	-3.879	-0.025	-0.045
			Max. Vy	4	0.046	-0.012	0.002
			Max. Vx	4	-0.044	0.006	0.012
		Diagonal	Max Tension	7	0.418	0.000	0.000
			Max. Compression	4	-1.256	0.000	0.000
			Max. Mx	22	-0.584	0.001	0.000
			Max. My	20	-0.416	0.000	-0.000
			Max. Vy	22	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.179	0.000	0.000
			Max. Compression	7	-0.394	0.000	0.000
			Max. Mx	21	0.432	0.001	0.000
			Max. My	20	0.402	0.000	-0.000
			Max. Vy	21	-0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
T26	17.0625 - 15.75	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.361	0.004	0.005
			Max. Mx	4	-4.963	-0.012	0.002
			Max. My	4	-3.701	0.006	0.012
			Max. Vy	4	-0.012	-0.012	0.002
			Max. Vx	3	-0.011	-0.002	0.004
		Diagonal	Max Tension	7	0.479	0.000	0.000
			Max. Compression	4	-1.436	0.000	0.000
			Max. Mx	22	-0.673	0.001	0.000
			Max. My	20	-0.480	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	0.982	0.000	0.000
			Max. Compression	7	-0.330	0.000	0.000
			Max. Mx	21	0.349	0.001	0.000
			Max. My	20	0.329	0.000	-0.000
			Max. Vy	21	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
T27	15.75 - 14.4375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.380	-0.000	-0.002
			Max. Mx	4	-5.137	-0.004	0.002
			Max. My	3	-4.207	0.001	0.005
			Max. Vy	4	0.006	-0.004	0.002
			Max. Vx	3	0.005	-0.002	0.004
		Diagonal	Max Tension	7	0.468	0.000	0.000
			Max. Compression	4	-1.400	0.000	0.000
			Max. Mx	22	-0.643	0.001	0.000
			Max. My	20	-0.460	0.000	-0.000
			Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.035	0.000	0.000
			Max. Compression	7	-0.348	0.000	0.000
			Max. Mx	14	0.463	0.001	0.000
			Max. My	4	1.035	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	14	0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
T28	14.4375 - 13.125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.370	0.002	0.001
			Max. Mx	4	-5.256	0.012	0.001
			Max. My	4	-3.497	-0.004	-0.010
			Max. Vy	4	-0.012	-0.004	0.002
			Max. Vx	4	0.011	0.001	0.005
		Diagonal	Max Tension	7	0.491	0.000	0.000
			Max. Compression	4	-1.463	0.000	0.000
			Max. Mx	25	-0.744	0.001	0.000
			Max. My	20	-0.477	0.000	-0.000
			Max. Vy	25	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.044	0.000	0.000
			Max. Compression	7	-0.353	0.000	0.000
			Max. Mx	14	0.464	0.001	0.000
			Max. My	4	1.044	0.000	0.000
			Max. Vy	14	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
T29	13.125 - 11.8125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.450	-0.002	-0.007
			Max. Mx	4	-5.521	-0.054	0.005
			Max. My	4	-3.482	0.016	0.051
			Max. Vy	4	0.050	-0.054	0.005
			Max. Vx	4	-0.047	0.016	0.051
		Diagonal	Max Tension	7	0.434	0.000	0.000
			Max. Compression	4	-1.293	0.000	0.000
			Max. Mx	25	-0.640	0.001	0.000
			Max. My	20	-0.411	0.000	-0.000
			Max. Vy	25	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.006	0.000	0.000
			Max. Compression	7	-0.338	0.000	0.000
			Max. Mx	14	0.442	0.001	0.000
			Max. My	4	1.006	0.000	0.000
			Max. Vy	14	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
T30	11.8125 - 10	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.913	-0.068	-0.114
			Max. Mx	4	-5.229	0.234	-0.014
			Max. My	4	-2.816	-0.080	-0.209
			Max. Vy	4	0.580	-0.056	0.008
			Max. Vx	4	-0.519	-0.080	-0.209
		Diagonal	Max Tension	7	0.709	0.000	0.000
			Max. Compression	4	-2.084	0.000	0.000
			Max. Mx	18	-0.737	0.001	0.000
			Max. My	20	-0.691	0.000	-0.000
			Max. Vy	18	-0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.236	0.000	0.000
			Max. Compression	7	-0.428	0.000	0.000
			Max. Mx	14	0.550	0.001	0.000
			Max. My	4	1.236	0.000	0.000
			Max. Vy	14	0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Bottom Girt	Max Tension	4	0.764	0.000	0.000
			Max. Compression	7	-0.274	0.000	0.000
			Max. Mx	14	0.344	0.001	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	14	0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
T31	10 - 8.375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-10.911	0.017	0.026
			Max. Mx	4	-5.477	-0.236	0.021
			Max. My	4	-3.971	0.080	0.212
			Max. Vy	4	0.575	-0.236	0.021
			Max. Vx	4	-0.516	0.080	0.212
		Diagonal	Max Tension	7	0.716	0.000	0.000
			Max. Compression	4	-2.095	0.000	0.000
			Max. Mx	18	-0.727	0.001	0.000
			Max. My	20	-0.689	0.000	-0.000
			Max. Vy	18	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	0.759	0.000	0.000
			Max. Compression	7	-0.290	0.000	0.000
			Max. Mx	19	0.292	0.001	0.000
			Max. Vy	19	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
T32	8.375 - 7.0625	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-10.810	0.000	-0.005
			Max. Mx	4	-6.177	0.053	-0.004
			Max. My	4	-2.777	-0.020	-0.045
			Max. Vy	4	0.051	-0.014	0.005
			Max. Vx	4	-0.044	0.003	0.014
		Diagonal	Max Tension	7	0.454	0.000	0.000
			Max. Compression	4	-1.330	0.000	0.000
			Max. Mx	18	-0.421	0.001	0.000
			Max. My	20	-0.407	0.000	-0.000
			Max. Vy	18	0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.242	0.000	0.000
			Max. Compression	7	-0.418	0.000	0.000
			Max. Mx	19	0.432	0.001	0.000
			Max. Vy	19	0.002	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
T33	7.0625 - 5.75	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-10.881	-0.001	0.001
			Max. Mx	4	-6.251	-0.014	0.005
			Max. My	4	-2.447	0.003	0.014
			Max. Vy	4	-0.013	-0.014	0.005
			Max. Vx	4	0.011	0.003	0.014
		Diagonal	Max Tension	7	0.522	0.000	0.000
			Max. Compression	4	-1.520	0.000	0.000
			Max. Mx	18	-0.482	0.001	0.000
			Max. My	20	-0.470	0.000	-0.000
			Max. Vy	18	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.043	0.000	0.000
			Max. Compression	7	-0.361	0.000	0.000
			Max. Mx	19	0.356	0.001	0.000
			Max. Vy	19	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
T34	5.75 - 4.4375	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-11.017	-0.001	-0.002
			Max. Mx	4	-6.488	-0.007	0.004
			Max. My	2	-3.714	0.001	0.008
			Max. Vy	4	0.007	-0.007	0.004
			Max. Vx	2	-0.006	0.001	0.008
		Diagonal	Max Tension	7	0.507	0.000	0.000
			Max. Compression	4	-1.473	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	18	-0.458	0.001	0.000
			Max. My	20	-0.450	0.000	-0.000
			Max. Vy	18	-0.002	0.000	0.000
			Max. Vx	20	0.000	0.000	0.000
		Top Girt	Max Tension	4	1.090	0.000	0.000
			Max. Compression	7	-0.376	0.000	0.000
			Max. Mx	19	0.371	0.001	0.000
			Max. Vy	19	0.002	0.000	0.000
T35	4.4375 - 3.125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-11.128	-0.004	0.005
			Max. Mx	4	-6.653	0.015	0.002
			Max. My	4	-4.147	-0.006	0.014
			Max. Vy	4	-0.017	-0.007	0.004
			Max. Vx	4	0.014	-0.001	0.008
		Diagonal	Max Tension	7	0.536	0.000	0.000
			Max. Compression	4	-1.547	0.000	0.000
			Max. Mx	19	-0.415	0.001	0.000
			Max. My	4	-1.245	0.000	0.000
			Max. Vy	19	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.102	0.000	0.000
			Max. Compression	7	-0.383	0.000	0.000
			Max. Mx	23	0.496	0.001	0.000
			Max. Vy	23	0.002	0.000	0.000
T36	3.125 - 1.8125	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-11.308	0.009	-0.025
			Max. Mx	4	-7.004	-0.078	0.012
			Max. My	3	-2.764	0.015	0.066
			Max. Vy	4	0.071	-0.078	0.012
			Max. Vx	4	-0.059	0.011	0.065
		Diagonal	Max Tension	7	0.451	0.000	0.000
			Max. Compression	4	-1.308	0.000	0.000
			Max. Mx	19	-0.341	0.001	0.000
			Max. My	25	-0.687	0.000	0.000
			Max. Vy	19	-0.002	0.000	0.000
			Max. Vx	25	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.035	0.000	0.000
			Max. Compression	7	-0.356	0.000	0.000
			Max. Mx	19	0.348	0.001	0.000
			Max. Vy	19	-0.002	0.000	0.000
T37	1.8125 - 0	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	15	-11.932	-0.000	-0.000
			Max. Mx	4	-8.219	0.330	-0.034
			Max. My	4	-0.831	-0.075	-0.261
			Max. Vy	4	0.659	-0.000	-0.000
			Max. Vx	4	-0.523	-0.075	-0.261
		Diagonal	Max Tension	7	0.839	0.000	0.000
			Max. Compression	4	-2.370	0.000	0.000
			Max. Mx	19	-0.665	0.001	0.000
			Max. My	25	-1.375	0.000	0.000
			Max. Vy	19	-0.001	0.000	0.000
			Max. Vx	25	-0.000	0.000	0.000
		Top Girt	Max Tension	4	1.371	0.000	0.000
			Max. Compression	7	-0.497	0.000	0.000
			Max. Mx	14	0.535	0.001	0.000
			Max. Vy	14	0.001	0.000	0.000
		Bottom Girt	Max Tension	4	0.853	0.000	0.000
			Max. Compression	7	-0.336	0.000	0.000
			Max. Mx	14	0.381	0.001	0.000
			Max. Vy	14	0.001	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	23	11.342	0.138	0.228
	Max. H_x	12	5.057	0.238	0.393
	Max. H_z	4	1.916	0.141	0.493
	Min. Vert	4	1.916	0.141	0.493
	Min. H_x	6	4.610	-0.131	-0.117
	Min. H_z	7	5.367	-0.120	-0.176
Leg B	Max. Vert	19	11.835	0.077	-0.163
	Max. H_x	12	2.008	0.259	-0.266
	Max. H_z	7	7.540	-0.107	0.055
	Min. Vert	12	2.008	0.259	-0.266
	Min. H_x	6	8.093	-0.110	0.037
	Min. H_z	4	5.320	0.125	-0.350
Leg A	Max. Vert	15	11.935	-0.282	0.020
	Max. H_x	7	3.395	0.102	-0.065
	Max. H_z	2	9.591	-0.361	0.082
	Min. Vert	8	2.323	0.047	-0.091
	Min. H_x	4	8.231	-0.502	0.047
	Min. H_z	8	2.323	0.047	-0.091
Guy C @ 80 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.345	-0.259	0.149
	Max. H_x	10	-0.345	-0.259	0.149
	Max. H_z	3	-6.890	-5.607	3.321
	Min. Vert	4	-6.911	-5.740	3.316
	Min. H_x	4	-6.911	-5.740	3.316
	Min. H_z	10	-0.345	-0.259	0.149
Guy B @ 80 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.392	0.319	0.184
	Max. H_x	12	-6.670	5.508	3.180
	Max. H_z	12	-6.670	5.508	3.180
	Min. Vert	11	-6.749	5.306	2.981
	Min. H_x	6	-0.392	0.319	0.184
	Min. H_z	6	-0.392	0.319	0.184
Guy A @ 80 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-0.329	0.000	-0.226
	Max. H_x	24	-3.646	0.217	-4.533
	Max. H_z	2	-0.329	0.000	-0.226
	Min. Vert	9	-6.841	0.073	-6.412
	Min. H_x	18	-3.608	-0.212	-4.478
	Min. H_z	9	-6.841	0.073	-6.412

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	12.059	0.004	-0.006	-0.060	-0.074	-0.187
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	17.478	0.001	-0.272	-4.552	-0.007	-0.930

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
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	16.929	0.131	-0.258	-4.402	-1.224	-0.988
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	15.467	0.235	-0.190	-3.718	-2.375	-1.100
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	16.771	0.268	-0.004	-0.168	-2.790	0.001
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	17.275	0.221	0.117	1.434	-2.431	0.220
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	16.302	0.126	0.185	2.465	-1.517	0.335
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	15.134	0.016	0.242	3.290	-0.243	0.116
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	16.835	-0.110	0.208	2.714	1.264	-0.392
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	17.692	-0.206	0.106	1.376	2.200	-0.557
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	16.811	-0.252	-0.022	-0.308	2.565	-0.598
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	15.289	-0.208	-0.199	-3.781	2.128	-0.894
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	16.358	-0.104	-0.237	-4.050	0.999	-0.895
1.2 Dead+1.0 Ice+1.0 Temp+Guy	31.076	0.013	-0.024	-0.103	-0.292	-0.564
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.536	0.008	-0.103	-1.720	-0.216	-0.691
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.551	0.050	-0.094	-1.525	-0.838	-0.676
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.571	0.086	-0.064	-1.174	-1.364	-0.698
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.555	0.097	-0.016	-0.076	-1.558	-0.513
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.543	0.085	0.022	0.669	-1.457	-0.460
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.530	0.058	0.046	1.135	-0.986	-0.444
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.541	0.021	0.055	1.353	-0.391	-0.507
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.545	-0.022	0.044	1.111	0.266	-0.610
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.560	-0.056	0.010	0.553	0.828	-0.636
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.545	-0.069	-0.033	-0.249	0.960	-0.643
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.539	-0.058	-0.075	-1.298	0.804	-0.713
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	31.521	-0.029	-0.097	-1.561	0.354	-0.710
Dead+Wind 0 deg - Service+Guy	12.104	0.003	-0.080	-1.059	-0.051	-0.365
Dead+Wind 30 deg - Service+Guy	12.113	0.039	-0.076	-1.015	-0.379	-0.385
Dead+Wind 60 deg - Service+Guy	12.127	0.068	-0.051	-0.813	-0.699	-0.429
Dead+Wind 90 deg - Service+Guy	12.113	0.079	-0.004	-0.057	-0.819	-0.100
Dead+Wind 120 deg - Service+Guy	12.104	0.065	0.031	0.363	-0.725	-0.032
Dead+Wind 150 deg - Service+Guy	12.115	0.037	0.050	0.618	-0.461	-0.007
Dead+Wind 180 deg -	12.123	0.005	0.065	0.816	-0.100	-0.082

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
Service+Guy						
Dead+Wind 210 deg - Service+Guy	12.114	-0.034	0.059	0.699	0.323	-0.218
Dead+Wind 240 deg - Service+Guy	12.103	-0.062	0.031	0.370	0.597	-0.258
Dead+Wind 270 deg - Service+Guy	12.113	-0.071	-0.007	-0.080	0.671	-0.274
Dead+Wind 300 deg - Service+Guy	12.126	-0.056	-0.051	-0.813	0.530	-0.371
Dead+Wind 330 deg - Service+Guy	12.115	-0.027	-0.067	-0.938	0.219	-0.365

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	-4.820	0.000	0.000	4.820	-0.000	0.002%
2	0.055	-5.762	-5.672	-0.055	5.762	5.672	0.011%
3	2.541	-5.738	-5.214	-2.541	5.738	5.213	0.012%
4	4.487	-5.714	-3.411	-4.487	5.714	3.411	0.003%
5	5.180	-5.738	-0.048	-5.180	5.738	0.049	0.011%
6	4.359	-5.762	2.632	-4.358	5.762	-2.631	0.011%
7	2.430	-5.738	4.397	-2.429	5.738	-4.397	0.011%
8	-0.057	-5.714	5.424	0.056	5.714	-5.424	0.010%
9	-2.740	-5.738	4.834	2.740	5.738	-4.833	0.011%
10	-4.592	-5.762	2.834	4.591	5.762	-2.834	0.010%
11	-5.174	-5.738	0.059	5.174	5.738	-0.058	0.009%
12	-4.242	-5.714	-3.206	4.242	5.714	3.207	0.007%
13	-2.222	-5.738	-4.779	2.222	5.738	4.778	0.010%
14	0.000	-20.666	0.000	-0.000	20.666	-0.001	0.004%
15	0.032	-20.710	-2.740	-0.032	20.710	2.740	0.004%
16	1.358	-20.666	-2.438	-1.358	20.666	2.437	0.003%
17	2.364	-20.622	-1.507	-2.364	20.622	1.507	0.004%
18	2.698	-20.666	-0.031	-2.697	20.666	0.031	0.003%
19	2.307	-20.710	1.313	-2.306	20.710	-1.313	0.004%
20	1.315	-20.666	2.286	-1.314	20.666	-2.285	0.004%
21	-0.033	-20.622	2.693	0.032	20.622	-2.693	0.004%
22	-1.397	-20.666	2.365	1.396	20.666	-2.364	0.003%
23	-2.384	-20.710	1.396	2.383	20.710	-1.396	0.004%
24	-2.696	-20.666	0.033	2.696	20.666	-0.033	0.004%
25	-2.285	-20.622	-1.424	2.284	20.622	1.423	0.003%
26	-1.275	-20.666	-2.359	1.275	20.666	2.358	0.004%
27	0.015	-4.826	-1.544	-0.015	4.826	1.544	0.001%
28	0.691	-4.820	-1.419	-0.691	4.820	1.419	0.001%
29	1.221	-4.814	-0.928	-1.221	4.814	0.928	0.000%
30	1.410	-4.820	-0.013	-1.410	4.820	0.013	0.001%
31	1.186	-4.826	0.716	-1.186	4.826	-0.716	0.001%
32	0.661	-4.820	1.197	-0.661	4.820	-1.197	0.001%
33	-0.015	-4.814	1.476	0.015	4.814	-1.476	0.001%
34	-0.746	-4.820	1.316	0.746	4.820	-1.316	0.001%
35	-1.250	-4.826	0.771	1.250	4.826	-0.771	0.001%
36	-1.408	-4.820	0.016	1.408	4.820	-0.016	0.001%
37	-1.155	-4.814	-0.873	1.155	4.814	0.873	0.001%
38	-0.605	-4.820	-1.301	0.605	4.820	1.301	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	17	0.00000001	0.00006508
2	Yes	34	0.00000001	0.00007758
3	Yes	33	0.00000001	0.00008365
4	Yes	24	0.00000001	0.00007526
5	Yes	32	0.00000001	0.00007794
6	Yes	33	0.00000001	0.00007093
7	Yes	30	0.00000001	0.00007425
8	Yes	21	0.00000001	0.00009244
9	Yes	33	0.00000001	0.00007986
10	Yes	35	0.00000001	0.00007171
11	Yes	33	0.00000001	0.00006910
12	Yes	24	0.00000001	0.00004687
13	Yes	31	0.00000001	0.00007013
14	Yes	20	0.00010000	0.00007826
15	Yes	29	0.00000001	0.00006455
16	Yes	29	0.00000001	0.00005625
17	Yes	26	0.00000001	0.00006605
18	Yes	26	0.00000001	0.00005616
19	Yes	27	0.00000001	0.00005917
20	Yes	25	0.00000001	0.00006806
21	Yes	24	0.00000001	0.00007520
22	Yes	28	0.00000001	0.00005667
23	Yes	29	0.00000001	0.00006017
24	Yes	27	0.00000001	0.00006555
25	Yes	25	0.00000001	0.00006447
26	Yes	27	0.00000001	0.00007120
27	Yes	17	0.00000001	0.00006016
28	Yes	17	0.00000001	0.00006102
29	Yes	17	0.00000001	0.00005165
30	Yes	17	0.00000001	0.00009758
31	Yes	18	0.00000001	0.00004698
32	Yes	18	0.00000001	0.00004774
33	Yes	17	0.00000001	0.00008984
34	Yes	17	0.00000001	0.00006528
35	Yes	17	0.00000001	0.00006269
36	Yes	17	0.00000001	0.00006277
37	Yes	17	0.00000001	0.00004866
38	Yes	17	0.00000001	0.00005133

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	130 - 120	1.651	30	0.238	3.417
T2	120 - 110	1.237	29	0.181	3.299
T3	110 - 100	0.971	29	0.126	3.139
T4	100 - 90	0.761	29	0.090	2.984
T5	90 - 80	0.629	29	0.043	2.854
T6	80 - 70	0.611	28	0.023	2.694
T7	70 - 60	0.590	28	0.036	2.523
T8	60 - 50	0.527	28	0.039	2.355
T9	50 - 40	0.503	33	0.027	2.261

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T10	40 - 38.375	0.457	27	0.054	2.188
T11	38.375 - 37.0625	0.444	27	0.061	2.214
T12	37.0625 - 35.75	0.431	27	0.066	2.182
T13	35.75 - 34.4375	0.418	27	0.072	2.151
T14	34.4375 - 33.125	0.403	27	0.077	2.121
T15	33.125 - 31.8125	0.385	27	0.079	2.060
T16	31.8125 - 30	0.365	27	0.080	1.980
T17	30 - 28.375	0.324	27	0.075	1.845
T18	28.375 - 27.0625	0.294	27	0.071	1.740
T19	27.0625 - 25.75	0.277	27	0.067	1.661
T20	25.75 - 24.4375	0.260	27	0.064	1.582
T21	24.4375 - 23.125	0.243	27	0.062	1.502
T22	23.125 - 21.8125	0.226	27	0.061	1.422
T23	21.8125 - 20	0.210	27	0.060	1.343
T24	20 - 18.375	0.187	27	0.059	1.228
T25	18.375 - 17.0625	0.166	27	0.059	1.127
T26	17.0625 - 15.75	0.150	27	0.058	1.047
T27	15.75 - 14.4375	0.134	28	0.056	0.967
T28	14.4375 - 13.125	0.119	28	0.055	0.887
T29	13.125 - 11.8125	0.104	28	0.053	0.807
T30	11.8125 - 10	0.090	28	0.050	0.727
T31	10 - 8.375	0.069	28	0.046	0.614
T32	8.375 - 7.0625	0.052	28	0.042	0.514
T33	7.0625 - 5.75	0.040	28	0.037	0.433
T34	5.75 - 4.4375	0.030	28	0.032	0.353
T35	4.4375 - 3.125	0.022	28	0.026	0.273
T36	3.125 - 1.8125	0.015	28	0.020	0.192
T37	1.8125 - 0	0.010	28	0.012	0.201

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
128'	(2) 10 ft x 1" Omni	30	1.560	0.227	3.397	10941
127'	APXVAALL24_43-U-NA20_TIA w/ Mount Pipe	30	1.515	0.221	3.387	10941
123'1-1/2"	Guy	29	1.349	0.199	3.343	8047
90'6"	Guy	29	0.633	0.045	2.861	9695
88'	1' dish	28	0.618	0.035	2.824	11390
86'	Side Arm Mount [SO 301-1]	28	0.613	0.030	2.793	15269
72'	6' x3.5" Yagi (5 elements)	28	0.599	0.033	2.559	19717
67'	6' x3.5" Yagi (5 elements)	28	0.572	0.038	2.467	40924
60'	4'-2"x11.5" FM	28	0.527	0.039	2.355	16669
59'6"	6' x3.5" Yagi (5 elements)	28	0.524	0.039	2.350	16730
58'4-1/2"	Guy	28	0.519	0.038	2.339	17835
55'	6' x3.5" Yagi (5 elements)	28	0.508	0.033	2.313	34956
34'	6' Dish	27	0.397	0.078	2.104	7313
32'6"	Side Arm Mount [SO 302-1]	27	0.376	0.080	2.024	8694
29'8-1/4"	Guy	27	0.318	0.074	1.823	11321

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	130 - 120	13.141	10	1.630	5.705
T2	120 - 110	10.109	10	1.428	5.472
T3	110 - 100	7.654	10	1.183	5.144
T4	100 - 90	5.619	10	0.934	4.783
T5	90 - 80	4.145	10	0.591	4.591
T6	80 - 70	3.438	3	0.335	4.536
T7	70 - 60	3.198	3	0.273	4.468
T8	60 - 50	2.901	3	0.221	4.441
T9	50 - 40	2.707	3	0.169	4.752
T10	40 - 38.375	2.366	3	0.251	5.160
T11	38.375 - 37.0625	2.279	3	0.275	5.324
T12	37.0625 - 35.75	2.200	3	0.296	5.320
T13	35.75 - 34.4375	2.118	2	0.317	5.321
T14	34.4375 - 33.125	2.031	2	0.338	5.326
T15	33.125 - 31.8125	1.932	2	0.356	5.218
T16	31.8125 - 30	1.825	2	0.368	5.045
T17	30 - 28.375	1.625	2	0.365	4.584
T18	28.375 - 27.0625	1.471	2	0.356	4.247
T19	27.0625 - 25.75	1.376	2	0.347	4.086
T20	25.75 - 24.4375	1.282	2	0.340	3.919
T21	24.4375 - 23.125	1.190	2	0.333	3.754
T22	23.125 - 21.8125	1.099	2	0.327	3.587
T23	21.8125 - 20	1.010	2	0.320	3.425
T24	20 - 18.375	0.887	2	0.310	3.037
T25	18.375 - 17.0625	0.780	2	0.300	2.730
T26	17.0625 - 15.75	0.698	2	0.291	2.569
T27	15.75 - 14.4375	0.619	2	0.281	2.403
T28	14.4375 - 13.125	0.542	2	0.269	2.239
T29	13.125 - 11.8125	0.468	2	0.256	2.074
T30	11.8125 - 10	0.399	2	0.241	1.935
T31	10 - 8.375	0.300	2	0.217	1.533
T32	8.375 - 7.0625	0.222	2	0.193	1.232
T33	7.0625 - 5.75	0.170	3	0.170	1.071
T34	5.75 - 4.4375	0.125	3	0.145	0.907
T35	4.4375 - 3.125	0.088	3	0.117	0.811
T36	3.125 - 1.8125	0.057	3	0.086	0.743
T37	1.8125 - 0	0.037	4	0.053	0.690

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
128'	(2) 10 ft x 1" Omni	10	12.509	1.592	5.662	2980
127'	APXVAALL24_43-U-NA20_TIA w/ Mount Pipe	10	12.195	1.573	5.641	2980
123'1-1/2"	Guy	10	11.008	1.496	5.553	2189
90'6"	Guy	10	4.201	0.607	4.592	1511
88'	1' dish	10	3.940	0.527	4.582	1652
86'	Side Arm Mount [SO 301-1]	10	3.762	0.470	4.572	1912
72'	6' x3.5" Yagi (5 elements)	3	3.251	0.279	4.487	4317
67'	6' x3.5" Yagi (5 elements)	3	3.108	0.262	4.435	6273
60'	4'-2"x11.5" FM	3	2.901	0.221	4.441	4061
59'6"	6' x3.5" Yagi (5 elements)	3	2.889	0.217	4.452	4139
58'4-1/2"	Guy	3	2.864	0.209	4.481	4572
55'	6' x3.5" Yagi (5 elements)	3	2.800	0.185	4.596	8194
34'	6' Dish	2	1.998	0.344	5.301	1647

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
32'6"	Side Arm Mount [SO 302-1]	2	1.884	0.363	5.150	1930
29'8-1/4"	Guy	2	1.592	0.363	4.506	3062

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	130	Leg	SAEGR-5	0.313	4	3.421	6.474	0.528 ✔	1.05	Bearing
		Top Guy Pull-Off@123.125	A325N	0.750	2	0.731	19.880	0.037 ✔	1.05	Bolt Shear
T2	120	Leg	SAEGR-5	0.313	4	3.157	6.474	0.488 ✔	1.05	Bearing
T3	110	Leg	SAEGR-5	0.313	4	3.510	6.474	0.542 ✔	1.05	Bearing
T4	100	Leg	SAEGR-5	0.313	4	4.367	6.474	0.674 ✔	1.05	Bearing
T5	90	Leg	SAEGR-5	0.313	4	3.635	6.474	0.561 ✔	1.05	Bearing
T6	80	Leg	SAEGR-5	0.313	4	3.884	6.474	0.600 ✔	1.05	Bearing
T7	70	Leg	SAEGR-5	0.313	4	3.814	6.474	0.589 ✔	1.05	Bearing
T8	60	Leg	SAEGR-5	0.313	4	4.758	6.474	0.735 ✔	1.05	Bearing
T9	50	Leg	SAEGR-5	0.313	4	4.916	6.474	0.759 ✔	1.05	Bearing
T16	31.8125	Leg	SAEGR-5	0.313	4	5.285	6.474	0.816 ✔	1.05	Bearing
T23	21.8125	Leg	SAEGR-5	0.313	4	5.435	6.474	0.840 ✔	1.05	Bearing
T30	11.8125	Leg	SAEGR-5	0.313	4	5.456	6.474	0.843 ✔	1.05	Bearing

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.
T1	123'1-1/2" (A) (717)	3/8 EHS	1.540	15.400	5.129	9.702	0.952	1.802 ✔
	123'1-1/2" (B) (716)	3/8 EHS	1.540	15.400	5.333	9.702	0.952	1.733 ✔
	123'1-1/2" (C) (712)	3/8 EHS	1.540	15.400	5.345	9.702	0.952	1.729 ✔
T4	90'6" (A) (711)	1/4 EHS	0.665	6.650	1.922	4.189	0.952	2.076 ✔
	90'6" (B) (710)	1/4 EHS	0.665	6.650	1.991	4.189	0.952	2.004 ✔
	90'6" (C) (706)	1/4 EHS	0.665	6.650	2.014	4.189	0.952	1.981 ✔
T8	58'4-1/2" (A) (705)	1/4 EHS	0.665	6.650	1.868	4.189	0.952	2.136 ✔
	58'4-1/2" (B) (704)	1/4 EHS	0.665	6.650	1.848	4.189	0.952	2.159 ✔

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.
T17	58'4-1/2" (C) (700)	1/4 EHS	0.665	6.650	1.874	4.189	0.952	2.129 ✔
	29'8-1/4" (A) (699)	1/4 EHS	0.665	6.650	1.655	4.189	0.952	2.410 ✔
	29'8-1/4" (B) (698)	1/4 EHS	0.665	6.650	1.595	4.189	0.952	2.501 ✔
	29'8-1/4" (C) (697)	1/4 EHS	0.665	6.650	1.610	4.189	0.952	2.479 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	130 - 120	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-7.054	12.316	0.573 [1] ✔
T2	120 - 110	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-6.599	12.316	0.536 [1] ✔
T3	110 - 100	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-6.708	12.316	0.545 [1] ✔
T4	100 - 90	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-8.419	12.316	0.684 [1] ✔
T5	90 - 80	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-8.289	12.316	0.673 [1] ✔
T6	80 - 70	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-7.663	12.316	0.622 [1] ✔
T7	70 - 60	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-7.484	12.316	0.608 [1] ✔
T8	60 - 50	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-8.988	12.316	0.730 [1] ✔
T9	50 - 40	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1 K=1.00	0.304	-9.493	12.316	0.771 [1] ✔
T10	40 - 38.375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'7-1/2"	1'3-3/4"	38.1 K=1.00	0.304	-9.194	12.316	0.747 [1] ✔
T11	38.375 - 37.0625	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-9.383	12.316	0.762 [1] ✔
T12	37.0625 - 35.75	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-9.268	12.316	0.753 [1] ✔
T13	35.75 - 34.4375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-9.196	12.316	0.747 [1] ✔
T14	34.4375 - 33.125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-9.290	12.316	0.754 [1] ✔
T15	33.125 - 31.8125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-9.717	12.316	0.789 [1] ✔
T16	31.8125 - 30	ROHN TS 1.25 x 14GA (0.083" Thick)	1'9-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-9.812	12.316	0.797 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T17	30 - 28.375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'7-1/2"	1'3-3/4"	38.1 K=1.00	0.304	-10.442	12.316	0.848 [1] ✔
T18	28.375 - 27.0625	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.666	12.316	0.866 [1] ✔
T19	27.0625 - 25.75	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.558	12.316	0.857 [1] ✔
T20	25.75 - 24.4375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.533	12.316	0.855 [1] ✔
T21	24.4375 - 23.125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.476	12.316	0.851 [1] ✔
T22	23.125 - 21.8125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.510	12.316	0.853 [1] ✔
T23	21.8125 - 20	ROHN TS 1.25 x 14GA (0.083" Thick)	1'9-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.195	12.316	0.828 [1] ✔
T24	20 - 18.375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'7-1/2"	1'3-3/4"	38.1 K=1.00	0.304	-10.164	12.316	0.825 [1] ✔
T25	18.375 - 17.0625	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.430	12.316	0.847 [1] ✔
T26	17.0625 - 15.75	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.361	12.316	0.841 [1] ✔
T27	15.75 - 14.4375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.381	12.316	0.843 [1] ✔
T28	14.4375 - 13.125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.370	12.316	0.842 [1] ✔
T29	13.125 - 11.8125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.451	12.316	0.849 [1] ✔
T30	11.8125 - 10	ROHN TS 1.25 x 14GA (0.083" Thick)	1'9-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.323	12.316	0.838 [1] ✔
T31	10 - 8.375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'7-1/2"	1'3-3/4"	38.1 K=1.00	0.304	-10.484	12.316	0.851 [1] ✔
T32	8.375 - 7.0625	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.810	12.316	0.878 [1] ✔
T33	7.0625 - 5.75	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-10.881	12.316	0.883 [1] ✔
T34	5.75 - 4.4375	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-11.017	12.316	0.895 [1] ✔
T35	4.4375 - 3.125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-11.128	12.316	0.904 [1] ✔
T36	3.125 - 1.8125	ROHN TS 1.25 x 14GA (0.083" Thick)	1'3-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-11.308	12.316	0.918 [1] ✔
T37	1.8125 - 0	ROHN TS 1.25 x 14GA (0.083" Thick)	1'9-3/4"	1'3-3/4"	38.1 K=1.00	0.304	-11.195	12.316	0.909 [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	130 - 120	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.913	1.832	1.045 [1] ✔
T2	120 - 110	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.633	1.832	0.346 [1] ✔
T3	110 - 100	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.651	1.832	0.355 [1] ✔
T4	100 - 90	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.675	1.832	0.369 [1] ✔
T5	90 - 80	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.087	1.832	0.593 [1] ✔
T6	80 - 70	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.885	1.832	0.483 [1] ✔
T7	70 - 60	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.940	1.832	0.513 [1] ✔
T8	60 - 50	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.278	1.832	0.698 [1] ✔
T9	50 - 40	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.258	1.832	0.687 [1] ✔
T10	40 - 38.375	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.132	1.832	0.618 [1] ✔
T11	38.375 - 37.0625	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.745	1.832	0.407 [1] ✔
T12	37.0625 - 35.75	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.844	1.832	0.461 [1] ✔
T13	35.75 - 34.4375	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-0.910	1.832	0.497 [1] ✔
T14	34.4375 - 33.125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.580	1.832	0.862 [1] ✔
T15	33.125 - 31.8125	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-2.188	3.335	0.656 [1] ✔
T16	31.8125 - 30	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-3.237	3.335	0.970 [1] ✔
T17	30 - 28.375	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-2.260	3.335	0.678 [1] ✔
T18	28.375 - 27.0625	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.345	1.832	0.734 [1] ✔
T19	27.0625 - 25.75	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.462	1.832	0.798 [1] ✔
T20	25.75 - 24.4375	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.404	1.832	0.766 [1] ✔
T21	24.4375 - 23.125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.428	1.832	0.779 [1] ✔
T22	23.125 - 21.8125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.246	1.832	0.680 [1] ✔
T23	21.8125 - 20	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-1.945	3.335	0.583 [1] ✔
T24	20 - 18.375	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-1.964	3.335	0.589 [1] ✔
T25	18.375 - 17.0625	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.256	1.832	0.686 [1] ✔
T26	17.0625 - 15.75	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.436	1.832	0.784 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T27	15.75 - 14.4375	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.400	1.832	0.764 [1] ✔
T28	14.4375 - 13.125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.463	1.832	0.799 [1] ✔
T29	13.125 - 11.8125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.293	1.832	0.706 [1] ✔
T30	11.8125 - 10	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-2.084	3.335	0.625 [1] ✔
T31	10 - 8.375	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-2.095	3.335	0.628 [1] ✔
T32	8.375 - 7.0625	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.330	1.832	0.726 [1] ✔
T33	7.0625 - 5.75	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.520	1.832	0.830 [1] ✔
T34	5.75 - 4.4375	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.473	1.832	0.804 [1] ✔
T35	4.4375 - 3.125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.547	1.832	0.845 [1] ✔
T36	3.125 - 1.8125	7/16	1'11"	1'9-9/32"	136.2 K=0.70	0.150	-1.308	1.832	0.714 [1] ✔
T37	1.8125 - 0	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	84.8 K=0.44	0.150	-2.370	3.335	0.710 [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 $\frac{P_u}{\phi P_n}$
T1	130 - 120	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-1.378	2.901	0.475 [1] ✔
T2	120 - 110	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.223	2.901	0.077 [1] ✔
T3	110 - 100	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.175	2.901	0.060 [1] ✔
T4	100 - 90	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.279	2.901	0.096 [1] ✔
T5	90 - 80	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.399	2.901	0.137 [1] ✔
T6	80 - 70	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.311	2.901	0.107 [1] ✔
T7	70 - 60	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.394	2.901	0.136 [1] ✔
T8	60 - 50	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.324	2.901	0.112 [1] ✔
T9	50 - 40	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.299	2.901	0.103 [1] ✔

[1] P_u / ϕP_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	130 - 120	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.006	2.901	0.002 [1] ✔
T2	120 - 110	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.185	2.901	0.064 [1] ✔
T3	110 - 100	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.122	2.901	0.042 [1] ✔
T4	100 - 90	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.151	2.901	0.052 [1] ✔
T5	90 - 80	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.305	2.901	0.105 [1] ✔
T6	80 - 70	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.222	2.901	0.076 [1] ✔
T7	70 - 60	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.163	2.901	0.056 [1] ✔
T8	60 - 50	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.271	2.901	0.093 [1] ✔
T9	50 - 40	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.222	2.901	0.076 [1] ✔
T10	40 - 38.375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.170	2.901	0.059 [1] ✔
T11	38.375 - 37.0625	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.278	2.901	0.096 [1] ✔
T12	37.0625 - 35.75	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.218	2.901	0.075 [1] ✔
T13	35.75 - 34.4375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.266	2.901	0.092 [1] ✔
T14	34.4375 - 33.125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.161	2.901	0.055 [1] ✔
T15	33.125 - 31.8125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.459	2.901	0.158 [1] ✔
T16	31.8125 - 30	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.802	2.901	0.276 [1] ✔
T17	30 - 28.375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.208	2.901	0.072 [1] ✔
T18	28.375 - 27.0625	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.456	2.901	0.157 [1] ✔
T19	27.0625 - 25.75	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.396	2.901	0.137 [1] ✔
T20	25.75 - 24.4375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.384	2.901	0.132 [1] ✔
T21	24.4375 - 23.125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.374	2.901	0.129 [1] ✔
T22	23.125 - 21.8125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.347	2.901	0.120 [1] ✔
T23	21.8125 - 20	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.400	2.901	0.138 [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	20 - 18.375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.239	2.901	0.082 [1]
T25	18.375 - 17.0625	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.394	2.901	0.136 [1]
T26	17.0625 - 15.75	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.330	2.901	0.114 [1]
T27	15.75 - 14.4375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.348	2.901	0.120 [1]
T28	14.4375 - 13.125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.353	2.901	0.122 [1]
T29	13.125 - 11.8125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.338	2.901	0.117 [1]
T30	11.8125 - 10	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.428	2.901	0.147 [1]
T31	10 - 8.375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.290	2.901	0.100 [1]
T32	8.375 - 7.0625	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.418	2.901	0.144 [1]
T33	7.0625 - 5.75	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.361	2.901	0.124 [1]
T34	5.75 - 4.4375	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.376	2.901	0.130 [1]
T35	4.4375 - 3.125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.383	2.901	0.132 [1]
T36	3.125 - 1.8125	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.356	2.901	0.123 [1]
T37	1.8125 - 0	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.497	2.901	0.171 [1]

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	130 - 120	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.137	2.901	0.047 [1]
T2	120 - 110	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.119	2.901	0.041 [1]
T3	110 - 100	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.136	2.901	0.047 [1]
T4	100 - 90	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.151	2.901	0.052 [1]
T5	90 - 80	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.186	2.901	0.064 [1]
T6	80 - 70	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.165	2.901	0.057 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	70 - 60	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.297	2.901	0.102 [1] ✔
T8	60 - 50	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.229	2.901	0.079 [1] ✔
T9	50 - 40	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.177	2.901	0.061 [1] ✔
T16	31.8125 - 30	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.633	2.901	0.218 [1] ✔
T23	21.8125 - 20	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.242	2.901	0.083 [1] ✔
T30	11.8125 - 10	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.274	2.901	0.094 [1] ✔
T37	1.8125 - 0	7/16	1'4-3/4"	1'3-1/2"	99.2 K=0.70	0.150	-0.336	2.901	0.116 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off 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 $\frac{P_u}{\phi P_n}$
T4	100 - 90	1 1/2x3/8	1'4-3/4"	1'3-1/2"	143.2 K=1.00	0.563	-0.046	6.198	0.007 [1] ✔

[1] P_u / ϕP_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	130 - 120	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1	0.304	4.434	13.693	0.324 [1] ✔
T2	120 - 110	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1	0.304	0.367	13.693	0.027 [1] ✔
T4	100 - 90	ROHN TS 1.25 x 14GA (0.083" Thick)	10'	1'3-3/4"	38.1	0.304	0.639	13.693	0.047 [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	130 - 120	7/16	1'11"	1'9-9/32"	194.5	0.150	1.909	4.871	0.392 [1] ✔
T2	120 - 110	7/16	1'11"	1'9-9/32"	194.5	0.150	0.413	4.871	0.085 [1] ✔
T3	110 - 100	7/16	1'11"	1'9-9/32"	194.5	0.150	0.327	4.871	0.067 [1] ✔
T4	100 - 90	7/16	1'11"	1'9-9/32"	194.5	0.150	0.385	4.871	0.079 [1] ✔
T5	90 - 80	7/16	1'11"	1'9-9/32"	194.5	0.150	0.715	4.871	0.147 [1] ✔
T6	80 - 70	7/16	1'11"	1'9-9/32"	194.5	0.150	0.554	4.871	0.114 [1] ✔
T7	70 - 60	7/16	1'11"	1'9-9/32"	194.5	0.150	0.698	4.871	0.143 [1] ✔
T8	60 - 50	7/16	1'11"	1'9-9/32"	194.5	0.150	0.620	4.871	0.127 [1] ✔
T9	50 - 40	7/16	1'11"	1'9-9/32"	194.5	0.150	0.462	4.871	0.095 [1] ✔
T10	40 - 38.375	7/16	1'11"	1'9-9/32"	194.5	0.150	0.447	4.871	0.092 [1] ✔
T11	38.375 - 37.0625	7/16	1'11"	1'9-9/32"	194.5	0.150	0.293	4.871	0.060 [1] ✔
T12	37.0625 - 35.75	7/16	1'11"	1'9-9/32"	194.5	0.150	0.284	4.871	0.058 [1] ✔
T13	35.75 - 34.4375	7/16	1'11"	1'9-9/32"	194.5	0.150	0.461	4.871	0.095 [1] ✔
T14	34.4375 - 33.125	7/16	1'11"	1'9-9/32"	194.5	0.150	0.418	4.871	0.086 [1] ✔
T15	33.125 - 31.8125	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	194.5	0.150	0.905	4.871	0.186 [1] ✔
T16	31.8125 - 30	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	194.5	0.150	1.405	4.871	0.289 [1] ✔
T17	30 - 28.375	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	194.5	0.150	0.831	4.871	0.171 [1] ✔
T18	28.375 - 27.0625	7/16	1'11"	1'9-9/32"	194.5	0.150	0.557	4.871	0.114 [1] ✔
T19	27.0625 - 25.75	7/16	1'11"	1'9-9/32"	194.5	0.150	0.535	4.871	0.110 [1] ✔
T20	25.75 - 24.4375	7/16	1'11"	1'9-9/32"	194.5	0.150	0.517	4.871	0.106 [1] ✔
T21	24.4375 - 23.125	7/16	1'11"	1'9-9/32"	194.5	0.150	0.511	4.871	0.105 [1] ✔
T22	23.125 - 21.8125	7/16	1'11"	1'9-9/32"	194.5	0.150	0.440	4.871	0.090 [1] ✔
T23	21.8125 - 20	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	194.5	0.150	0.658	4.871	0.135 [1] ✔
T24	20 - 18.375	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32"	194.5	0.150	0.655	4.871	0.135 [1] ✔
T25	18.375 -	7/16	1'11"	1'9-9/32"	194.5	0.150	0.418	4.871	0.086 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	17.0625			'					✔
T26	17.0625 - 15.75	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.479	4.871	0.098 [1] ✔
T27	15.75 - 14.4375	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.468	4.871	0.096 [1] ✔
T28	14.4375 - 13.125	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.491	4.871	0.101 [1] ✔
T29	13.125 - 11.8125	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.434	4.871	0.089 [1] ✔
T30	11.8125 - 10	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32" '	194.5	0.150	0.709	4.871	0.146 [1] ✔
T31	10 - 8.375	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32" '	194.5	0.150	0.716	4.871	0.147 [1] ✔
T32	8.375 - 7.0625	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.454	4.871	0.093 [1] ✔
T33	7.0625 - 5.75	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.522	4.871	0.107 [1] ✔
T34	5.75 - 4.4375	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.507	4.871	0.104 [1] ✔
T35	4.4375 - 3.125	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.536	4.871	0.110 [1] ✔
T36	3.125 - 1.8125	7/16	1'11"	1'9-9/32" '	194.5	0.150	0.451	4.871	0.093 [1] ✔
T37	1.8125 - 0	1/2" on 7/16" SR with Crosby	1'11"	1'9-9/32" '	194.5	0.150	0.839	4.871	0.172 [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 $\frac{P_u}{\phi P_n}$
T1	130 - 120	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.375	4.871	0.282 [1] ✔
T2	120 - 110	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.393	4.871	0.081 [1] ✔
T3	110 - 100	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.368	4.871	0.075 [1] ✔
T4	100 - 90	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.453	4.871	0.093 [1] ✔
T5	90 - 80	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.633	4.871	0.130 [1] ✔
T6	80 - 70	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.505	4.871	0.104 [1] ✔
T7	70 - 60	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.551	4.871	0.113 [1] ✔
T8	60 - 50	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.773	4.871	0.159 [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	50 - 40	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.726	4.871	0.149 [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	130 - 120	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.006	4.871	0.001 [1] ✔
T2	120 - 110	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.254	4.871	0.052 [1] ✔
T3	110 - 100	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.182	4.871	0.037 [1] ✔
T4	100 - 90	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.224	4.871	0.046 [1] ✔
T5	90 - 80	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.440	4.871	0.090 [1] ✔
T6	80 - 70	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.355	4.871	0.073 [1] ✔
T7	70 - 60	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.291	4.871	0.060 [1] ✔
T8	60 - 50	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.518	4.871	0.106 [1] ✔
T9	50 - 40	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.485	4.871	0.100 [1] ✔
T10	40 - 38.375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.415	4.871	0.085 [1] ✔
T11	38.375 - 37.0625	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.683	4.871	0.140 [1] ✔
T12	37.0625 - 35.75	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.577	4.871	0.119 [1] ✔
T13	35.75 - 34.4375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.636	4.871	0.130 [1] ✔
T14	34.4375 - 33.125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.499	4.871	0.103 [1] ✔
T15	33.125 - 31.8125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.364	4.871	0.280 [1] ✔
T16	31.8125 - 30	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.961	4.871	0.403 [1] ✔
T17	30 - 28.375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.588	4.871	0.326 [1] ✔
T18	28.375 - 27.0625	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.227	4.871	0.252 [1] ✔
T19	27.0625 - 25.75	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.042	4.871	0.214 [1] ✔
T20	25.75 - 24.4375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.042	4.871	0.214 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T21	24.4375 - 23.125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.034	4.871	0.212 [1]
T22	23.125 - 21.8125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.975	4.871	0.200 [1]
T23	21.8125 - 20	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.164	4.871	0.239 [1]
T24	20 - 18.375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.712	4.871	0.146 [1]
T25	18.375 - 17.0625	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.179	4.871	0.242 [1]
T26	17.0625 - 15.75	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.982	4.871	0.202 [1]
T27	15.75 - 14.4375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.035	4.871	0.212 [1]
T28	14.4375 - 13.125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.044	4.871	0.214 [1]
T29	13.125 - 11.8125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.006	4.871	0.207 [1]
T30	11.8125 - 10	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.236	4.871	0.254 [1]
T31	10 - 8.375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.759	4.871	0.156 [1]
T32	8.375 - 7.0625	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.242	4.871	0.255 [1]
T33	7.0625 - 5.75	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.043	4.871	0.214 [1]
T34	5.75 - 4.4375	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.090	4.871	0.224 [1]
T35	4.4375 - 3.125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.102	4.871	0.226 [1]
T36	3.125 - 1.8125	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.035	4.871	0.213 [1]
T37	1.8125 - 0	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.371	4.871	0.281 [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 $\frac{P_u}{\phi P_n}$
T1	130 - 120	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.280	4.871	0.057 [1]
T2	120 - 110	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.194	4.871	0.040 [1]
T3	110 - 100	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.262	4.871	0.054 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	100 - 90	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.191	4.871	0.039 [1] ✔
T5	90 - 80	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.311	4.871	0.064 [1] ✔
T6	80 - 70	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.282	4.871	0.058 [1] ✔
T7	70 - 60	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.365	4.871	0.075 [1] ✔
T8	60 - 50	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.463	4.871	0.095 [1] ✔
T9	50 - 40	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.416	4.871	0.085 [1] ✔
T16	31.8125 - 30	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	1.240	4.871	0.255 [1] ✔
T23	21.8125 - 20	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.729	4.871	0.150 [1] ✔
T30	11.8125 - 10	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.764	4.871	0.157 [1] ✔
T37	1.8125 - 0	7/16	1'4-3/4"	1'3-1/2"	141.7	0.150	0.853	4.871	0.175 [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 $\frac{P_u}{\phi P_n}$
T1	130 - 120	3 x 3/8	1'4-3/4"	1'3-1/2"	143.2	0.797	1.462	34.664	0.042 [1] ✔
T4	100 - 90	1 1/2x3/8	1'4-3/4"	1'3-1/2"	143.2	0.563	0.713	18.225	0.039 [1] ✔
T8	60 - 50	1 1/2x3/8	1'4-3/4"	1'3-1/2"	143.2	0.563	0.955	18.225	0.052 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	130 - 120	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	2	-7.054	12.932	54.5	Pass
T2	120 - 110	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	50	-6.599	12.932	51.0	Pass
T3	110 - 100	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	98	-6.708	12.932	51.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T4	100 - 90	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	147	-8.419	12.932	65.1	Pass
T5	90 - 80	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	195	-8.289	12.932	64.1	Pass
T6	80 - 70	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	241	-7.663	12.932	59.3	Pass
T7	70 - 60	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	289	-7.484	12.932	57.9	Pass
T8	60 - 50	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	339	-8.988	12.932	69.5	Pass
T9	50 - 40	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	387	-9.493	12.932	73.4	Pass
T10	40 - 38.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	435	-9.194	12.932	71.1	Pass
T11	38.375 - 37.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	447	-9.383	12.932	72.6	Pass
T12	37.0625 - 35.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	456	-9.268	12.932	71.7	Pass
T13	35.75 - 34.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	465	-9.196	12.932	71.1	Pass
T14	34.4375 - 33.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	472	-9.290	12.932	71.8	Pass
T15	33.125 - 31.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	481	-9.717	12.932	75.1	Pass
T16	31.8125 - 30	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	490	-9.812	12.932	75.9	Pass
T17	30 - 28.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	499	-10.442	12.932	80.7	Pass
T18	28.375 - 27.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	511	-10.666	12.932	82.5	Pass
T19	27.0625 - 25.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	520	-10.558	12.932	81.6	Pass
T20	25.75 - 24.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	529	-10.533	12.932	81.4	Pass
T21	24.4375 - 23.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	538	-10.476	12.932	81.0	Pass
T22	23.125 - 21.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	547	-10.510	12.932	81.3	Pass
T23	21.8125 - 20	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	556	-10.195	12.932	78.8	Pass
T24	20 - 18.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	565	-10.164	12.932	78.6	Pass
T25	18.375 - 17.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	577	-10.430	12.932	80.7	Pass
T26	17.0625 - 15.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	586	-10.361	12.932	80.1	Pass
T27	15.75 - 14.4375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	595	-10.381	12.932	80.3	Pass
T28	14.4375 - 13.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	604	-10.370	12.932	80.2	Pass
T29	13.125 - 11.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	613	-10.451	12.932	80.8	Pass
T30	11.8125 - 10	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	623	-10.323	12.932	79.8	Pass
T31	10 - 8.375	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	632	-10.484	12.932	81.1	Pass
T32	8.375 - 7.0625	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	644	-10.810	12.932	83.6	Pass
T33	7.0625 - 5.75	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	653	-10.881	12.932	84.1	Pass
T34	5.75 - 4.4375	Leg	ROHN TS 1.25 x 14GA (0.083"	662	-11.017	12.932	85.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
			Thick)					
T35	4.4375 - 3.125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	671	-11.128	12.932	86.0	Pass
T36	3.125 - 1.8125	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	680	-11.308	12.932	87.4	Pass
T37	1.8125 - 0	Leg	ROHN TS 1.25 x 14GA (0.083" Thick)	689	-11.195	12.932	86.6	Pass
T1	130 - 120	Diagonal	7/16	28	-1.913	1.923	99.5	Pass
T2	120 - 110	Diagonal	7/16	95	-0.633	1.923	32.9	Pass
T3	110 - 100	Diagonal	7/16	106	-0.651	1.923	33.8	Pass
T4	100 - 90	Diagonal	7/16	190	-0.675	1.923	35.1	Pass
T5	90 - 80	Diagonal	7/16	240	-1.087	1.923	56.5	Pass
T6	80 - 70	Diagonal	7/16	288	-0.885	1.923	46.0	Pass
T7	70 - 60	Diagonal	7/16	298	-0.940	1.923	48.9	Pass
T8	60 - 50	Diagonal	7/16	346	-1.278	1.923	66.4	Pass
T9	50 - 40	Diagonal	7/16	430	-1.258	1.923	65.4	Pass
T10	40 - 38.375	Diagonal	7/16	443	-1.132	1.923	58.9	Pass
T11	38.375 - 37.0625	Diagonal	7/16	452	-0.745	1.923	38.7	Pass
T12	37.0625 - 35.75	Diagonal	7/16	461	-0.844	1.923	43.9	Pass
T13	35.75 - 34.4375	Diagonal	7/16	470	-0.910	1.923	47.3	Pass
T14	34.4375 - 33.125	Diagonal	7/16	480	-1.580	1.923	82.1	Pass
T15	33.125 - 31.8125	Diagonal	1/2" on 7/16" SR with Crosby	489	-2.188	3.502	62.5	Pass
T16	31.8125 - 30	Diagonal	1/2" on 7/16" SR with Crosby	498	-3.237	3.502	92.4	Pass
T17	30 - 28.375	Diagonal	1/2" on 7/16" SR with Crosby	510	-2.260	3.502	64.5	Pass
T18	28.375 - 27.0625	Diagonal	7/16	517	-1.345	1.923	69.9	Pass
T19	27.0625 - 25.75	Diagonal	7/16	526	-1.462	1.923	76.0	Pass
T20	25.75 - 24.4375	Diagonal	7/16	535	-1.404	1.923	73.0	Pass
T21	24.4375 - 23.125	Diagonal	7/16	544	-1.428	1.923	74.2	Pass
T22	23.125 - 21.8125	Diagonal	7/16	553	-1.246	1.923	64.8	Pass
T23	21.8125 - 20	Diagonal	1/2" on 7/16" SR with Crosby	564	-1.945	3.502	55.6	Pass
T24	20 - 18.375	Diagonal	1/2" on 7/16" SR with Crosby	576	-1.964	3.502	56.1	Pass
T25	18.375 - 17.0625	Diagonal	7/16	585	-1.256	1.923	65.3	Pass
T26	17.0625 - 15.75	Diagonal	7/16	594	-1.436	1.923	74.7	Pass
T27	15.75 - 14.4375	Diagonal	7/16	603	-1.400	1.923	72.8	Pass
T28	14.4375 - 13.125	Diagonal	7/16	612	-1.463	1.923	76.1	Pass
T29	13.125 - 11.8125	Diagonal	7/16	621	-1.293	1.923	67.2	Pass
T30	11.8125 - 10	Diagonal	1/2" on 7/16" SR with Crosby	630	-2.084	3.502	59.5	Pass
T31	10 - 8.375	Diagonal	1/2" on 7/16" SR with Crosby	642	-2.095	3.502	59.8	Pass
T32	8.375 - 7.0625	Diagonal	7/16	651	-1.330	1.923	69.2	Pass
T33	7.0625 - 5.75	Diagonal	7/16	660	-1.520	1.923	79.0	Pass
T34	5.75 - 4.4375	Diagonal	7/16	669	-1.473	1.923	76.6	Pass
T35	4.4375 - 3.125	Diagonal	7/16	678	-1.547	1.923	80.5	Pass
T36	3.125 - 1.8125	Diagonal	7/16	687	-1.308	1.923	68.0	Pass
T37	1.8125 - 0	Diagonal	1/2" on 7/16" SR with Crosby	696	-2.370	3.502	67.7	Pass
T1	130 - 120	Horizontal	7/16	25	-1.378	3.046	45.2	Pass
T2	120 - 110	Horizontal	7/16	92	0.393	5.114	7.7	Pass
T3	110 - 100	Horizontal	7/16	109	0.368	5.114	7.2	Pass
T4	100 - 90	Horizontal	7/16	157	-0.279	3.046	9.1	Pass
T5	90 - 80	Horizontal	7/16	237	-0.399	3.046	13.1	Pass
T6	80 - 70	Horizontal	7/16	285	-0.311	3.046	10.2	Pass
T7	70 - 60	Horizontal	7/16	301	-0.394	3.046	12.9	Pass
T8	60 - 50	Horizontal	7/16	349	0.773	5.114	15.1	Pass
T9	50 - 40	Horizontal	7/16	427	0.726	5.114	14.2	Pass
T1	130 - 120	Top Girt	7/16	5	-0.006	3.046	0.2	Pass
T2	120 - 110	Top Girt	7/16	54	-0.185	3.046	6.1	Pass
T3	110 - 100	Top Girt	7/16	100	-0.122	3.046	4.0	Pass
T4	100 - 90	Top Girt	7/16	148	-0.151	3.046	5.0	Pass
T5	90 - 80	Top Girt	7/16	198	-0.305	3.046	10.0	Pass
T6	80 - 70	Top Girt	7/16	246	-0.222	3.046	7.3	Pass
T7	70 - 60	Top Girt	7/16	292	0.291	5.114	5.7	Pass
T8	60 - 50	Top Girt	7/16	341	0.518	5.114	10.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T9	50 - 40	Top Girt	7/16	388	0.485	5.114	9.5	Pass
T10	40 - 38.375	Top Girt	7/16	438	0.415	5.114	8.1	Pass
T11	38.375 - 37.0625	Top Girt	7/16	440	0.683	5.114	13.4	Pass
T12	37.0625 - 35.75	Top Girt	7/16	449	0.577	5.114	11.3	Pass
T13	35.75 - 34.4375	Top Girt	7/16	458	0.636	5.114	12.4	Pass
T14	34.4375 - 33.125	Top Girt	7/16	467	0.499	5.114	9.8	Pass
T15	33.125 - 31.8125	Top Girt	7/16	477	1.364	5.114	26.7	Pass
T16	31.8125 - 30	Top Girt	7/16	486	1.961	5.114	38.4	Pass
T17	30 - 28.375	Top Girt	7/16	502	1.588	5.114	31.1	Pass
T18	28.375 - 27.0625	Top Girt	7/16	507	1.227	5.114	24.0	Pass
T19	27.0625 - 25.75	Top Girt	7/16	514	1.042	5.114	20.4	Pass
T20	25.75 - 24.4375	Top Girt	7/16	523	1.042	5.114	20.4	Pass
T21	24.4375 - 23.125	Top Girt	7/16	532	1.034	5.114	20.2	Pass
T22	23.125 - 21.8125	Top Girt	7/16	541	0.975	5.114	19.1	Pass
T23	21.8125 - 20	Top Girt	7/16	550	1.164	5.114	22.8	Pass
T24	20 - 18.375	Top Girt	7/16	568	0.712	5.114	13.9	Pass
T25	18.375 - 17.0625	Top Girt	7/16	573	1.179	5.114	23.1	Pass
T26	17.0625 - 15.75	Top Girt	7/16	582	0.982	5.114	19.2	Pass
T27	15.75 - 14.4375	Top Girt	7/16	591	1.035	5.114	20.2	Pass
T28	14.4375 - 13.125	Top Girt	7/16	600	1.044	5.114	20.4	Pass
T29	13.125 - 11.8125	Top Girt	7/16	609	1.006	5.114	19.7	Pass
T30	11.8125 - 10	Top Girt	7/16	618	1.236	5.114	24.2	Pass
T31	10 - 8.375	Top Girt	7/16	636	0.759	5.114	14.8	Pass
T32	8.375 - 7.0625	Top Girt	7/16	639	1.242	5.114	24.3	Pass
T33	7.0625 - 5.75	Top Girt	7/16	648	1.043	5.114	20.4	Pass
T34	5.75 - 4.4375	Top Girt	7/16	657	1.090	5.114	21.3	Pass
T35	4.4375 - 3.125	Top Girt	7/16	666	1.102	5.114	21.5	Pass
T36	3.125 - 1.8125	Top Girt	7/16	675	1.035	5.114	20.2	Pass
T37	1.8125 - 0	Top Girt	7/16	684	1.371	5.114	26.8	Pass
T1	130 - 120	Bottom Girt	7/16	8	0.280	5.114	5.5	Pass
T2	120 - 110	Bottom Girt	7/16	55	-0.119	3.046	3.9	Pass
T3	110 - 100	Bottom Girt	7/16	103	0.262	5.114	5.1	Pass
T4	100 - 90	Bottom Girt	7/16	151	-0.151	3.046	5.0	Pass
T5	90 - 80	Bottom Girt	7/16	201	-0.186	3.046	6.1	Pass
T6	80 - 70	Bottom Girt	7/16	247	0.282	5.114	5.5	Pass
T7	70 - 60	Bottom Girt	7/16	295	-0.297	3.046	9.7	Pass
T8	60 - 50	Bottom Girt	7/16	345	0.463	5.114	9.0	Pass
T9	50 - 40	Bottom Girt	7/16	393	0.416	5.114	8.1	Pass
T16	31.8125 - 30	Bottom Girt	7/16	495	1.240	5.114	24.2	Pass
T23	21.8125 - 20	Bottom Girt	7/16	561	0.729	5.114	14.3	Pass
T30	11.8125 - 10	Bottom Girt	7/16	627	0.764	5.114	14.9	Pass
T37	1.8125 - 0	Bottom Girt	7/16	693	0.853	5.114	16.7	Pass
T1	130 - 120	Guy A@123.125	3/8	717	5.129	9.702	52.9	Pass
T4	100 - 90	Guy A@90.5	1/4	711	1.922	4.189	45.9	Pass
T8	60 - 50	Guy A@58.375	1/4	705	1.868	4.189	44.6	Pass
T17	30 - 28.375	Guy A@29.6875	1/4	699	1.655	4.189	39.5	Pass
T1	130 - 120	Guy B@123.125	3/8	716	5.333	9.702	55.0	Pass
T4	100 - 90	Guy B@90.5	1/4	710	1.991	4.189	47.5	Pass
T8	60 - 50	Guy B@58.375	1/4	704	1.848	4.189	44.1	Pass
T17	30 - 28.375	Guy B@29.6875	1/4	698	1.595	4.189	38.1	Pass
T1	130 - 120	Guy C@123.125	3/8	712	5.345	9.702	55.1	Pass
T4	100 - 90	Guy C@90.5	1/4	706	2.014	4.189	48.1	Pass
T8	60 - 50	Guy C@58.375	1/4	700	1.874	4.189	44.7	Pass
T17	30 - 28.375	Guy C@29.6875	1/4	697	1.610	4.189	38.4	Pass
T1	130 - 120	Top Guy Pull-Off@123.125	3 x 3/8	714	1.462	36.397	4.0	Pass
T4	100 - 90	Top Guy Pull-Off@90.5	1 1/2x3/8	708	0.713	19.136	3.7	Pass
T8	60 - 50	Top Guy Pull-Off@58.375	1 1/2x3/8	703	0.955	19.136	5.0	Pass

Summary

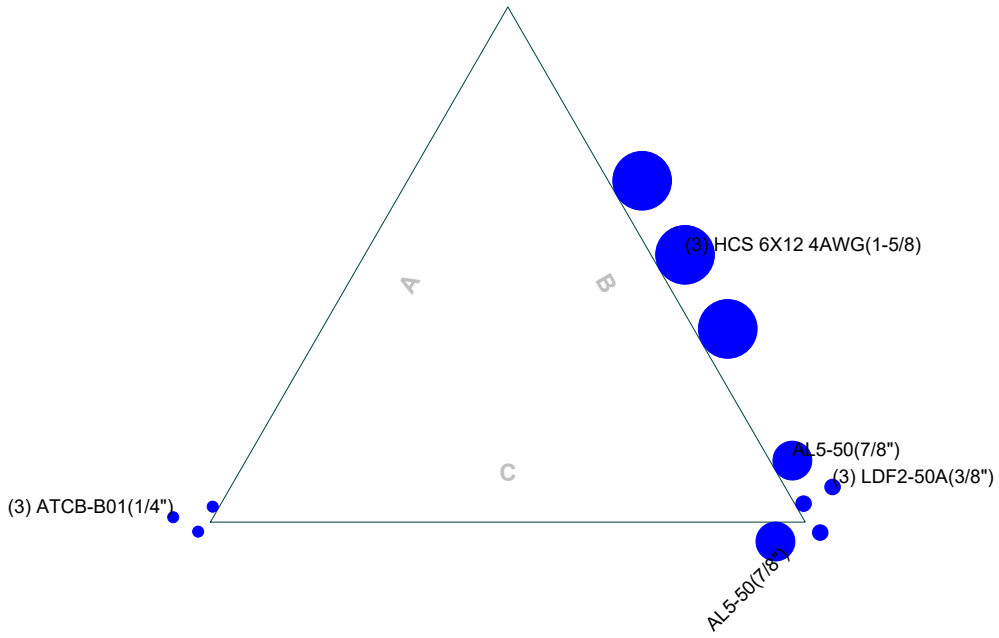
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Leg (T36)	87.4	Pass
						Diagonal (T1)	99.5	Pass
						Horizontal (T1)	45.2	Pass
						Top Girt (T16)	38.4	Pass
						Bottom Girt (T16)	24.2	Pass
						Guy A (T1)	52.9	Pass
						Guy B (T1)	55.0	Pass
						Guy C (T1)	55.1	Pass
						Top Guy Pull-Off (T8)	5.0	Pass
						Bolt Checks	80.3	Pass
						RATING =	**99.5**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

Feed Line Plan

Round Flat App In Face App Out Face



B+T GRP

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***135654.011.01 - Tolland I-84 X67_1, CT (Site# CT11141A***		
Project:			
Client: Centerline Communications		Drawn by: Shashank.S.Rao	App'd:
Code: TIA-222-H		Date: 05/04/22	Scale: NTS
Path:			Dwg No. E-7

APPENDIX C

ADDITIONAL CALCULATIONS

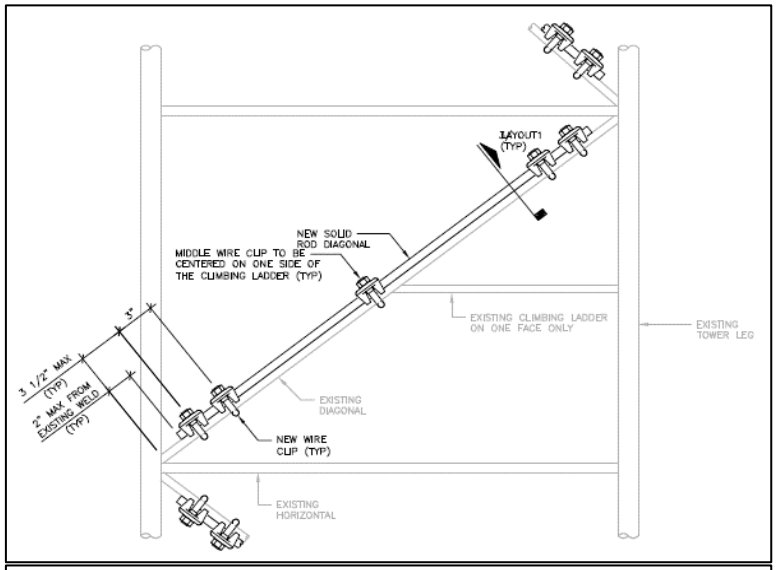
PROJECT	**135654.011.01 - Tolland/ I-84 X67_1, CT**
SUBJECT	**Solid Rod Bracing Reinforcement**
DATE	**05/04/22**

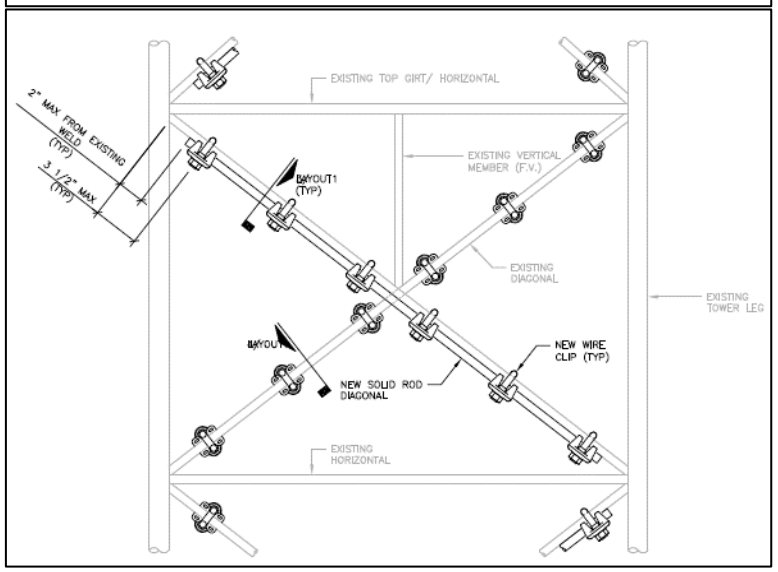
v2.2.4

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

		Elevation 1
Original SR Properties	Elevation	Multiple Elevations
	Compression, Pu	3.24 kips
	SR Diameter	7/16 in
	SR Yield Strength, Fy	36 ksi
	Unbraced Length	21.3 in
	Mbr Brace Type	K-Brace, Continuous
Reinf. Properties	Clip Spacing	6.0 in
	Reinforcement Shape	SR
	SR Diameter	1/2 in
	Allowable Max. Clip Spacing	9.3 in
	Clip Spacing Note	**Clip Spacing OK**
	Reinforcement Effectiveness	1.82
Key Values	Existing MOI, I_e	0.002 in^4
	Proposed MOI, I_p	0.003 in^2
	Reinforced MOI, I_m	0.005 in^2
	Existing Area, A_e	0.150 in^2
	Proposed Area, A_p	0.196 in^2
	Exist. Radius of Gyr., r_e	0.109 in
	Prop. Radius of Gyr., r_p	0.125 in
	Reinf. Radius of Gyr., r_m	0.180 in
	K_m	0.717
	KmL/rm	84.8
Summary Results	Unmodified Capacity, ϕPn	1.83
	Modified Capacity, ϕPn	3.335
	Rating	92.4%
	Equivalent K for tnx input	0.436
	(KL/r)eq	84.8

TIA-222 Rev.	H
Apply TIA-222-H Section 15.5?	Yes
# of Elevations:	1





Pier and Pad Foundation

Site # :	CT1114A
Site Name:	Tolland I-84 X67_1

TIA-222 Revision:	H
Tower Type:	Guyed

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	18	kips
Base Shear, Vu_comp:	0.302	kips
Moment, M_u:	5	ft-kips
Tower Height, **H**:	130	ft
BP Dist. Above Fdn, bp_{dist}:		in
Bolt Circle / Bearing Plate Width, **BC**:		in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	2.5	ft
Ext. Above Grade, **E**:	0	ft
Pier Rebar Size, **Sc**:	4	
Pier Rebar Quantity, **mc**:	3	
Pier Tie/Spiral Size, **St**:	3	
Pier Tie/Spiral Quantity, **mt**:	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	4	ft
Pad Width, W_1:	12	ft
Pad Thickness, **T**:	2	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	6	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	14	
Pad Clear Cover, cc_{pad}:	3	in

0.18% min steel assumed

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	110	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	29	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.35	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	22.69	0.30	**1.3%**	**Pass**
Bearing Pressure (ksf)	18.26	0.77	**4.0%**	**Pass**
*Overturning (kip*ft)*	494.72	6.21	**1.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	55.46	5.60	**9.6%**	**Pass**
Pier Compression (kip)	2983.50	20.25	**0.6%**	**Pass**
*Pad Flexure (kip*ft)*	536.98	19.63	**3.5%**	**Pass**
Pad Shear - 1-way (kips)	235.14	5.39	**2.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.004	**2.6%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	741.63	3.36	**0.4%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**9.6%**
Soil Rating*:	**4.0%**

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Site#:	CT11141A
Site Name:	Tolland I-84 X67_1, CT
Location:	*B1*

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	7.00	kips
Uplift, **Ua**:	7.00	kips
Resultant Force, **Rf**:	9.90	kips
Tower Height, **H**:	130.00	ft
Guy Anchor Radius, **R**:	80.00	ft
Resultant Angle to Horizontal, **θ**:	45.0	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	4.5	ft
Anchor Width, **Wa**:	4.5	ft
Anchor Thickness, **Ta**:	4.5	ft
Anchor Length, **La**:	6	ft
Concrete Volume, **Vc**:	4.5	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	7	
No. of Bars in Top of Block:	4	
Guyed Anchor Front Rebar Size, **Saf**:	7	
No. of Bars in Front of Block:	5	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	3	in
Anchor Shaft Quantity. **n**:	1	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	4	ksi
Wt. Avg.Concrete Density, **δx**:	0.150	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	14.42	7.00	**46.2%**	**Pass**
Uplift Capacity (kips):	21.06	7.00	**31.7%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	669.23	5.25	**0.7%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	536.44	5.25	**0.9%**	**Pass**
Anchor Shaft (kips):	203.58	9.90	**4.6%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Anchor Shaft Rating:	**4.6%**
Structural Rating:	**0.9%**
Soil Rating:	**46.2%**

Neglect Depth, **Neg**:	3.33	ft
Groundwater Level, **gw**:	None	ft

Soil Properties:			**No. of Soil Layers:**	4		
Layer	**φ, deg**	**cu, ksf**	**δ, pcf**		**Ultimate fs (ksf)**	**N (blows/ft)**
1	0	0.000	110	2.00	0.000	
2	0	0.000	125	3.33	0.000	
3	35	0.000	125	4.00		15
4	40	0.000	130	4.50		31

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Version 4.0.0

Drilled Pier Foundation

BU # :	CT11141A
Site Name:	Tolland I-84 X67_1, CT
Order Number:	
TIA-222 Revison:	H
Tower Type:	Guyed (Anchor)
Location:	

Applied Loads	Comp.	Uplift
Moment (kip-ft)		3.5
Axial Force (kips)		7
Shear Force (kips)		7

Material Properties			Rebar 2, Fy Override (ksi)	Rebar 3, Fy Override (ksi)
Concrete Strength, f'c:	4	ksi		
Rebar Strength, Fy:	60	ksi		
Tie Yield Strength, Fyt:	40	ksi		

Pier Design Data		
Depth	8.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 8.5' below grade		
Pier Diameter	3	ft
Rebar Quantity	8	
Rebar Size	6	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing	12	in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	-	5.19
Soil Safety Factor	-	2.91
Max Moment (kip-ft)	-	38.81
Rating*	-	*43.6%*
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	-	29.14
End Bearing (kips)	-	-
Weight of Concrete (kips)	-	8.59
Total Capacity (kips)	-	37.73
Axial (kips)	-	7.00
Rating*	-	*17.7%*
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	-	5.14
Critical Moment (kip-ft)	-	38.81
Critical Moment Capacity	-	242.88
Rating*	-	*15.2%*
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	-	7.42
Critical Shear (kip)	-	19.26
Critical Shear Capacity	-	174.26
Rating*	-	*10.5%*

Structural Foundation Rating*	**15.2%**
Soil Interaction Rating*	**43.6%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	N/A	# of Layers	3

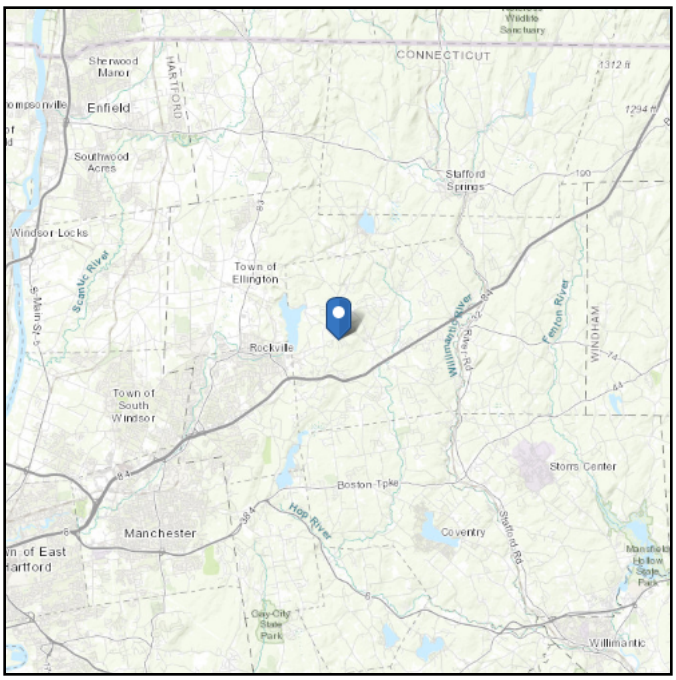
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.33	3.33	105	150	0	0	0.000	0.000					Cohesionless
2	3.33	4	0.67	125	150	0	35	0.486	0.486				31	Cohesionless
3	4	8.5	4.5	130	150	0	40	0.844	0.844				100	Cohesionless

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: 918.65 ft (NAVD 88)
Latitude: 41.874691
Longitude: -72.394051



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Tue Mar 01 2022

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 in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

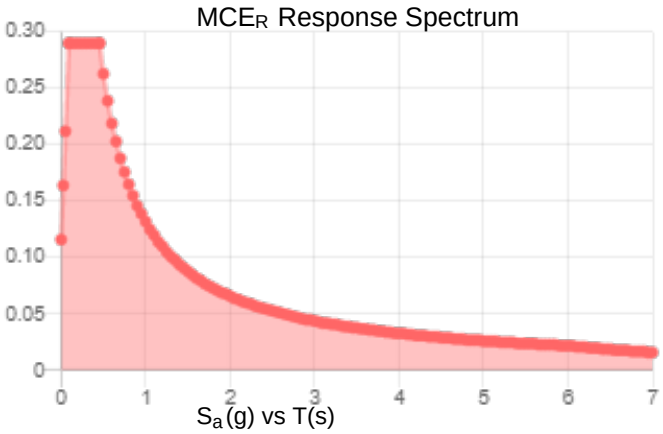
Seismic

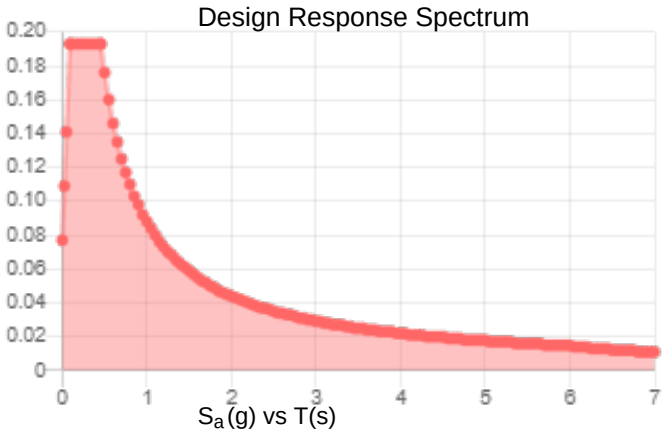
Site Soil Class: D - Default (see Section 11.4.3)

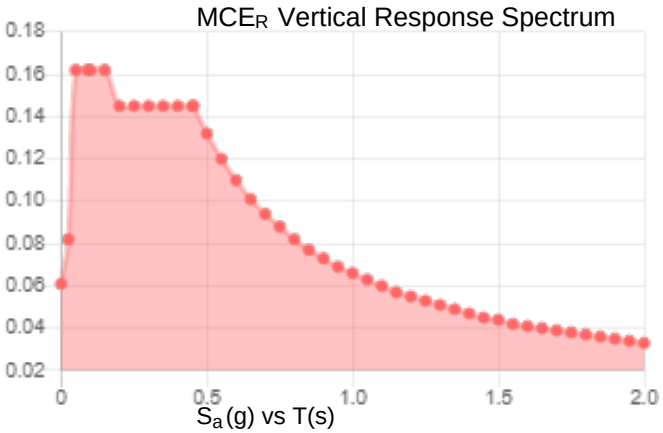
Results:

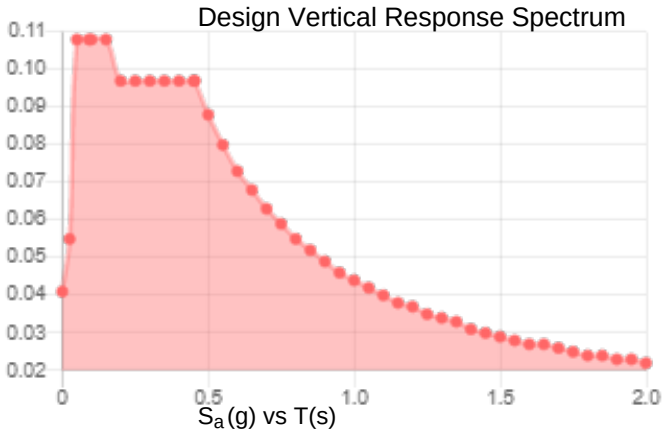
S_S :	0.181	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.097
F_v :	2.4	PGA_M :	0.155
S_{MS} :	0.29	F_{PGA} :	1.6
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.193	C_v :	0.7

Seismic Design Category B









Data Accessed: **Tue Mar 01 2022**

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:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 01 2022

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.

Exhibit D

Mount Analysis Report

April 4, 2022

Mark Appleby
Centerline Communications
750 W Center St, Suite 301
West Bridgewater, MA 02379
(860) 209-4694

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Replacement Analysis – Conditional Passing**	
Carrier Designation:	**Site Number:**	CT11141A
	Site Name:	Tolland/ I-84 X67_1
Engineering Firm Designation:	**B+T Group Project Number:**	135654.010.01
Site Data:	**17 Pilgrim Drive, Tolland, CT, 06084, Tolland County** **Latitude *41.87469*°, Longitude *-72.39405*°** **Guyed Tower** **(3) 3.25' Face Mount**	

Dear Mr. Appleby,

B+T Group is pleased to submit this **"Mount Replacement Analysis Report – Conditional Passing"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 47.4%)**

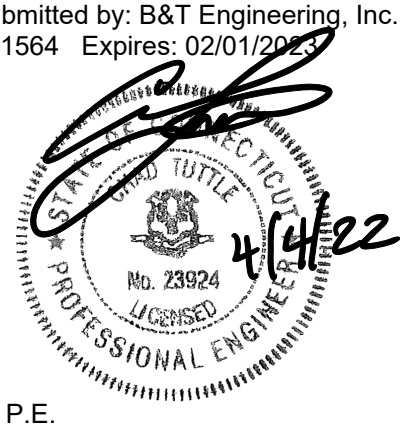
The jurisdiction has adopted the 2015 International Building Code. This analysis has been performed in accordance with the ANSI/TIA-222-H Standard.

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

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *Centerline Communications* If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Matthew Williams

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/01/2023



Chad E. Tuttle, P.E.

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1) INTRODUCTION

The appurtenance mount consists of Proposed Perfect Vision face mounts, (Part# PV-STFM-B) at 127 ft., attached to guyed tower at 17 Pilgrim Drive, Tolland, CT, 06084, Tolland County. The proposed antenna loading information was obtained from Centerline Communications. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 118 mph with no ice and 50 mph with 1.5 inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the face mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Manufacturer	Model / Type	Note
Proposed	127	1	3	RFS	APXVAALL24_43-U-NA20	1
		2	3	Ericsson	AIR 6419 B41	
		1	3	Ericsson	Radio 4480 B71+B85	2
			3	Ericsson	Radio 4460 B25+B66	

Note:
(1) Proposed Antenna to be installed on the Proposed Mount Pipe.
(2) Proposed Equipment to be installed directly behind the Antenna.

Table 2 – Documents Provided

Documents	Remarks	Reference	Source
RFDS	Existing Loading Proposed Loading	Date: 02/16/2022	Centerline Communications
Previous MA	B+T Group	Date: 06/20/2019	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

The following assumptions have been included in the analysis of the mount.

Component	Section	Length	Note
Proposed Mount Pipes	2" Std. Pipe	9'-0"	All Positions, All Sectors

6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
   a) Connection Bolts : ASTM A325
   b) Steel Pipe : ASTM A53 (GR. 35)
   c) HSS (Round) : ASTM 500 (GR. B-42)
   d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   e) Channel : ASTM A36 (GR. 36)
   f) Steel Solid Rod : ASTM A36 (GR. 36)
   g) Steel Plate : ASTM A36 (GR. 36)
   h) Steel Angle : ASTM A36 (GR. 36)
   i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

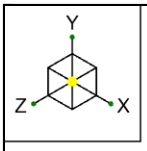
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	127	21.5	Pass
-	Mount Pipes	127	47.4	Pass
-	Connection Angles	127	4.2	Pass

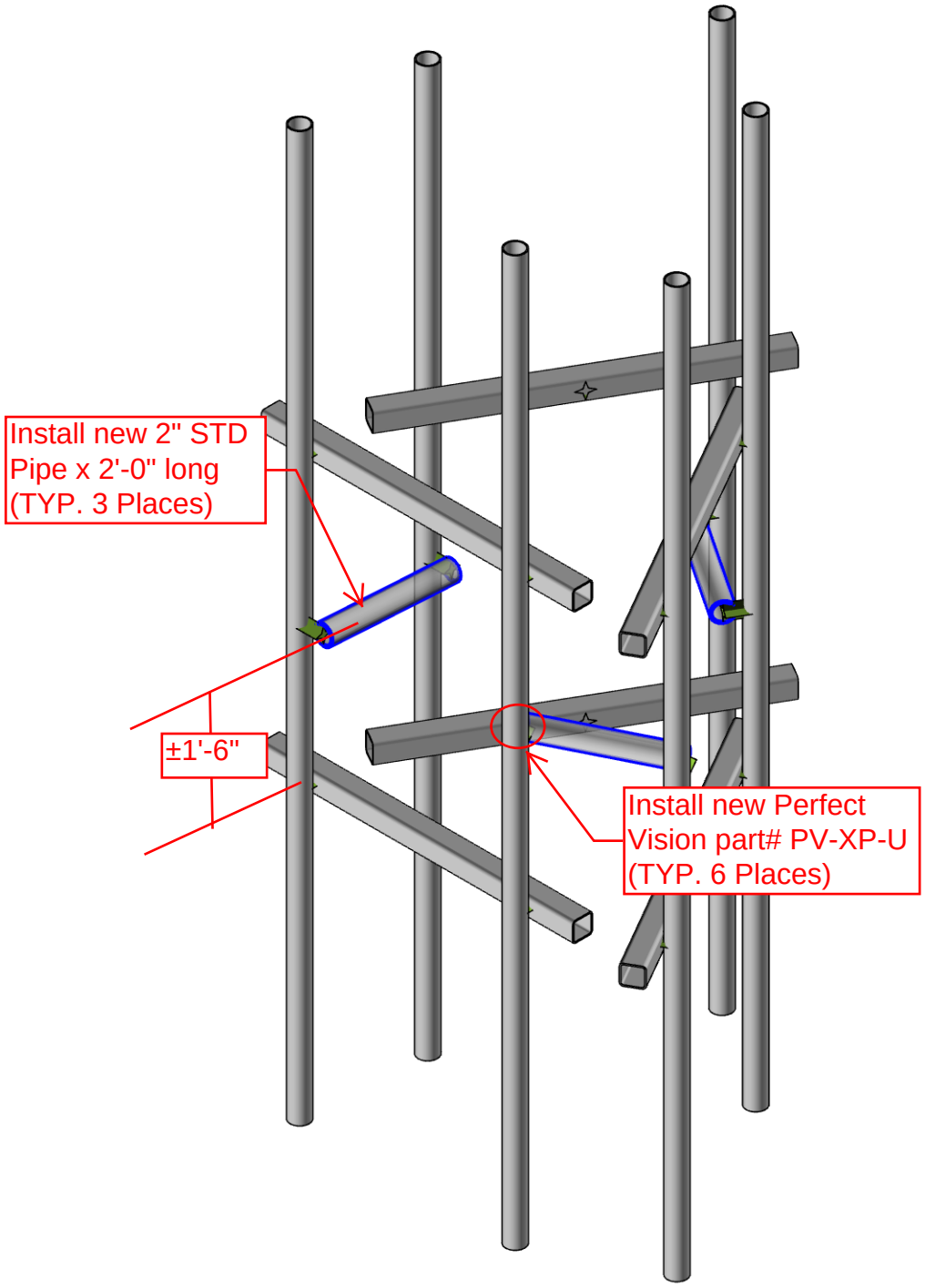
5) Recommendations

The Perfect Vision face mounts, (Part# PV-STFM-B) has sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed and existing loading. (Refer to the RISA output for the specific members). Go to Appendix A for the graphics drawing.

APPENDIX A

(RISA-3D Output)





Envelope Only Solution

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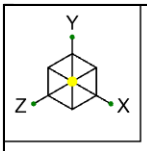

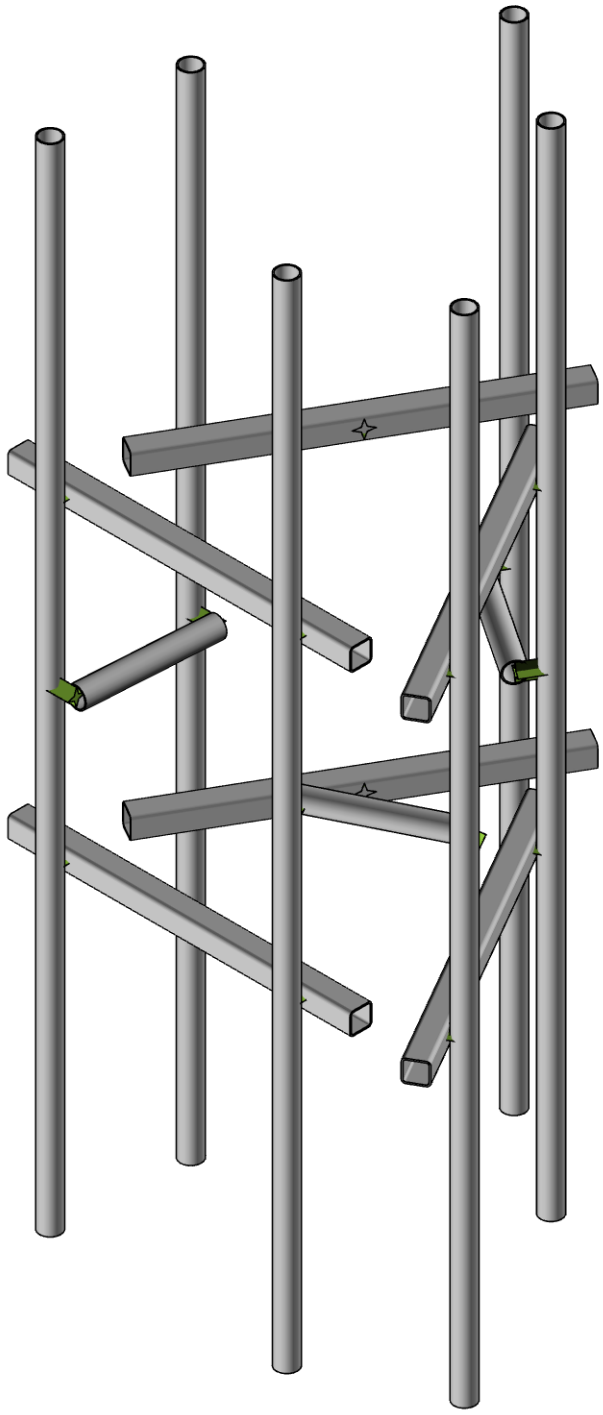

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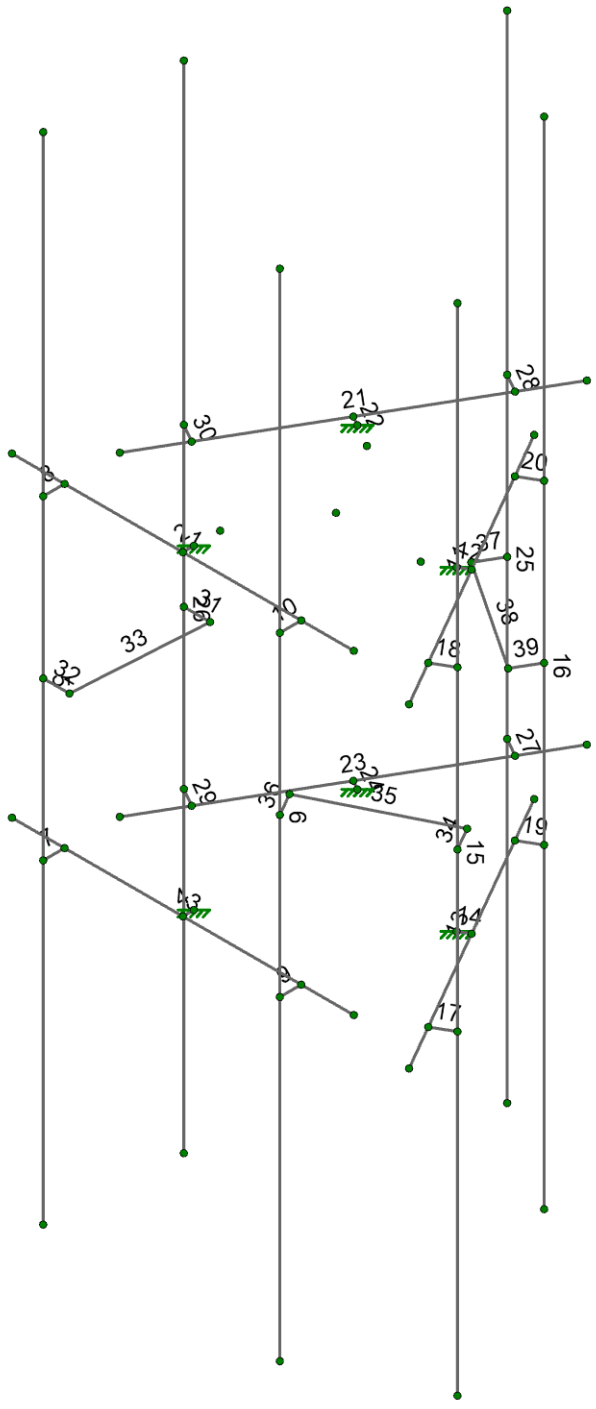

Envelope Only Solution

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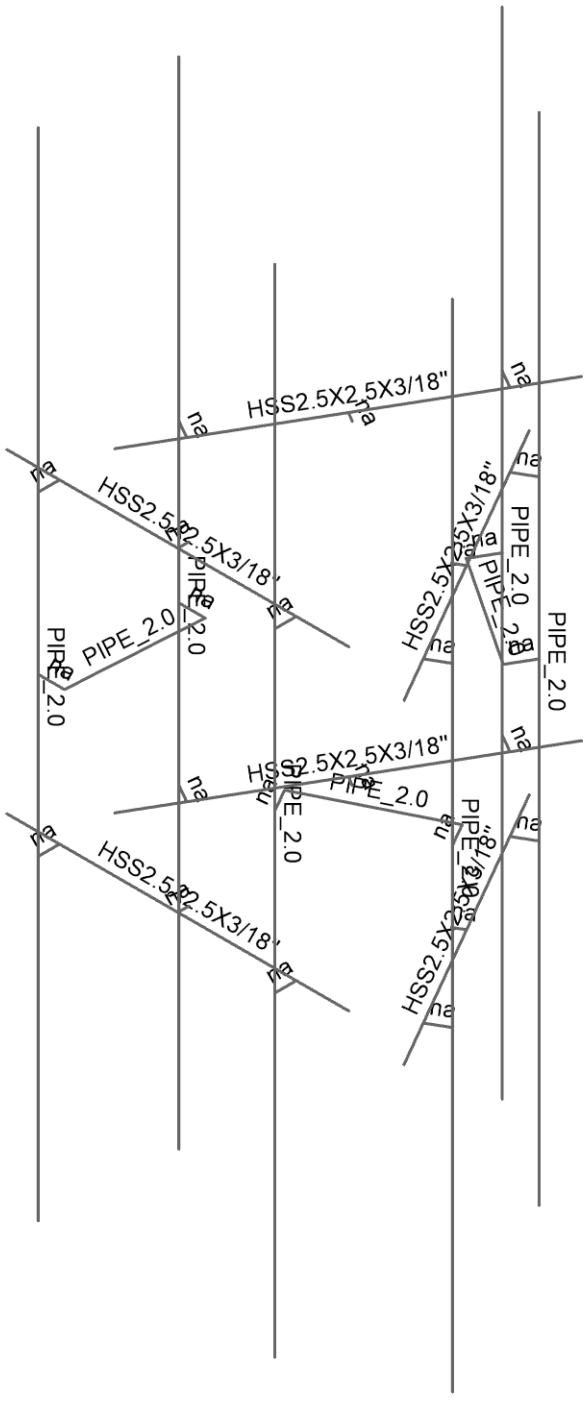

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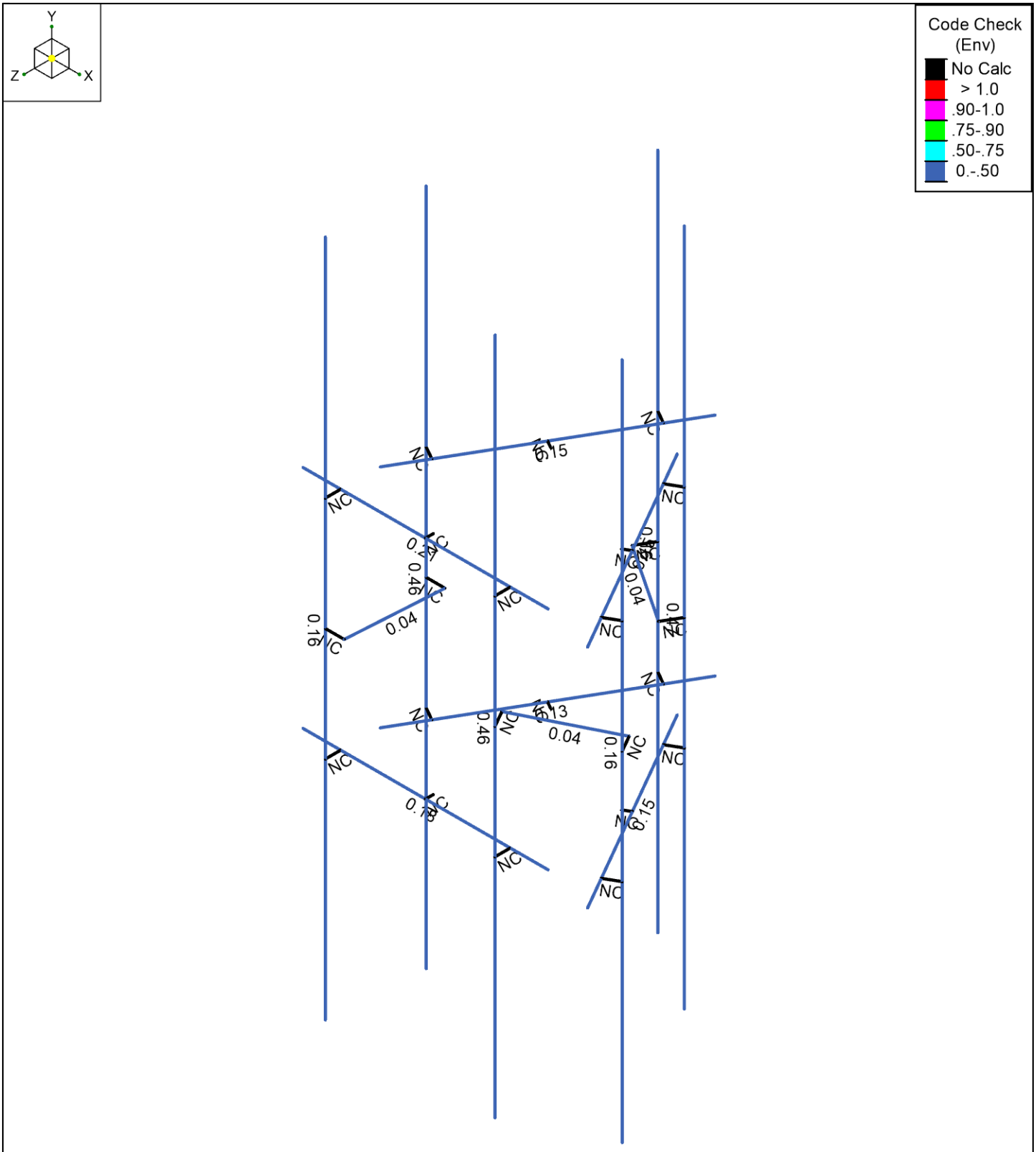

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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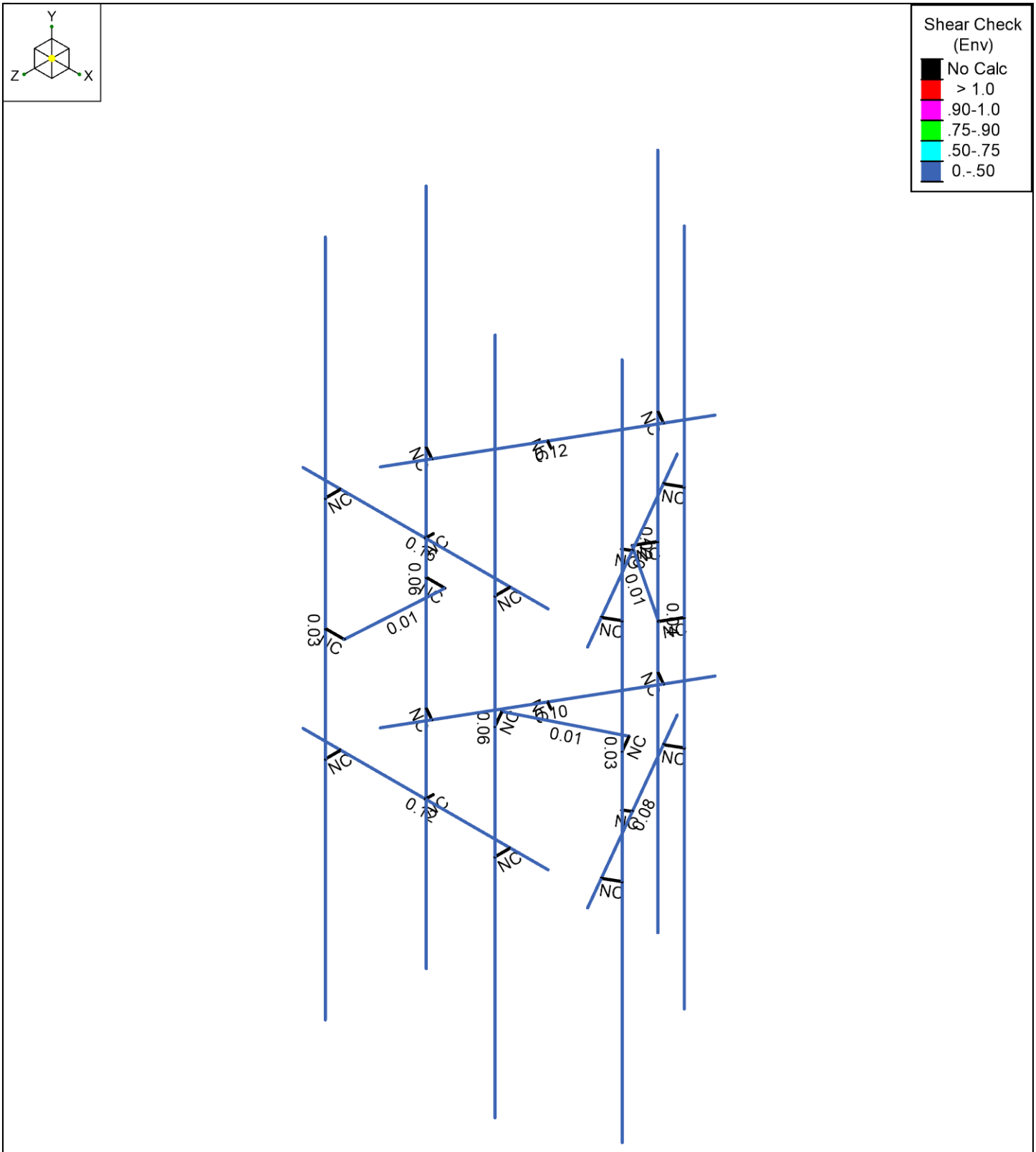

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-0.402941	0	0.697915	
2	2	0.805883	0	0	
3	3	-0.402941	0	-0.697915	
4	4	0	0	0	
5	5	-0.402941	0	0.947915	
6	6	-0.402941	0	1.052082	
7	7	-2.027941	0	1.052082	
8	8	1.222059	0	1.052082	
9	9	-1.527941	0	1.052082	
10	10	0.722059	0	1.052082	
11	11	-0.402941	-3	0.947915	
12	12	-0.402941	-3	1.052082	
13	13	-2.027941	-3	1.052082	
14	14	1.222059	-3	1.052082	
15	15	-1.527941	-3	1.052082	
16	16	0.722059	-3	1.052082	
17	17	-1.527941	0	1.255207	
18	18	0.722059	0	1.255207	
19	19	-1.527941	-3	1.255207	
20	20	0.722059	-3	1.255207	
21	21	-1.527941	3	1.255207	
22	22	0.722059	3	1.255207	
23	23	-1.527941	-6	1.255207	
24	24	0.722059	-6	1.255207	
25	25	1.022389	0	-0.125	
26	26	1.1126	0	-0.177084	
27	27	1.9251	0	1.230208	
28	28	0.3001	0	-1.584375	
29	29	1.6751	0	0.797195	
30	30	0.5501	0	-1.151362	
31	31	1.022389	-3	-0.125	
32	32	1.1126	-3	-0.177084	
33	33	1.9251	-3	1.230208	
34	34	0.3001	-3	-1.584375	
35	35	1.6751	-3	0.797195	
36	36	0.5501	-3	-1.151362	
37	37	1.851011	0	0.695632	
38	38	0.726011	0	-1.252925	
39	39	1.851011	-3	0.695632	
40	40	0.726011	-3	-1.252925	
41	41	1.851011	3	0.695632	
42	42	0.726011	3	-1.252925	
43	43	1.851011	-6	0.695632	
44	44	0.726011	-6	-1.252925	
45	45	-0.619448	0	-0.822915	
46	46	-0.709659	0	-0.874998	
47	47	0.102841	0	-2.282289	
48	48	-1.522159	0	0.532293	
49	49	-0.147159	0	-1.849277	
50	50	-1.272159	0	0.099281	
51	51	-0.619448	-3	-0.822915	
52	52	-0.709659	-3	-0.874998	
53	53	0.102841	-3	-2.282289	
54	54	-1.522159	-3	0.532293	
55	55	-0.147159	-3	-1.849277	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-1.272159	-3	0.099281	
57	57	-0.32307	0	-1.950839	
58	58	-1.44807	0	-0.002282	
59	59	-0.32307	-3	-1.950839	
60	60	-1.44807	-3	-0.002282	
61	61	-0.32307	3	-1.950839	
62	62	-1.44807	3	-0.002282	
63	63	-0.32307	-6	-1.950839	
64	64	-1.44807	-6	-0.002282	
65	N65	-1.527941	-1.5	1.255207	
66	N66	-1.277941	-1.5	1.255207	
67	N67	-1.197941	-1.5	-0.001793	
68	N68	-1.44807	-1.5	-0.002282	
69	N69	1.851011	-1.5	0.695632	
70	N70	1.726011	-1.5	0.479126	
71	N71	0.722059	-1.5	1.255207	
72	N72	0.597417	-1.5	1.038344	
73	N73	-0.32307	-1.5	-1.950839	
74	N74	-0.44807	-1.5	-1.734333	
75	N75	0.726011	-1.5	-1.252925	
76	N76	0.600524	-1.5	-1.036551	

Node Boundary Conditions

	Node 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	11	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	45	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	51	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Fu [ksi]
1	A36	29000	11154	0.3	0.65	0.49	36	58
2	A570 Gr.33	29500	11346	0.3	0.65	0.49	33	52
3	A607 C1 Gr.55	29500	11346	0.3	0.65	0.49	55	70

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-ST1	HSS2.5X2.5X3/18"	Beam	Tube	A500 Gr.B Rect	Typical	1.556	1.419	1.419	2.117
2	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	CA-Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	CF1	1.5ZU1.25X048	Beam	None	A36	Typical	0.179	0.059	0.069	0.000137

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	1	7	8	MF-ST1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	6	5	RIGID	None	None	RIGID	Typical
3	3	13	14	MF-ST1	Beam	Tube	A500 Gr.B Rect	Typical
4	4	12	11	RIGID	None	None	RIGID	Typical
5	5	21	23	MF-P1	Column	Pipe	A53 Gr.B	Typical
6	6	22	24	MF-P1	Column	Pipe	A53 Gr.B	Typical
7	7	19	15	RIGID	None	None	RIGID	Typical
8	8	17	9	RIGID	None	None	RIGID	Typical
9	9	20	16	RIGID	None	None	RIGID	Typical
10	10	18	10	RIGID	None	None	RIGID	Typical
11	11	27	28	MF-ST1	Beam	Tube	A500 Gr.B Rect	Typical
12	12	26	25	RIGID	None	None	RIGID	Typical
13	13	33	34	MF-ST1	Beam	Tube	A500 Gr.B Rect	Typical
14	14	32	31	RIGID	None	None	RIGID	Typical
15	15	41	43	MF-P1	Column	Pipe	A53 Gr.B	Typical
16	16	42	44	MF-P1	Column	Pipe	A53 Gr.B	Typical
17	17	39	35	RIGID	None	None	RIGID	Typical
18	18	37	29	RIGID	None	None	RIGID	Typical
19	19	40	36	RIGID	None	None	RIGID	Typical
20	20	38	30	RIGID	None	None	RIGID	Typical
21	21	47	48	MF-ST1	Beam	Tube	A500 Gr.B Rect	Typical
22	22	46	45	RIGID	None	None	RIGID	Typical
23	23	53	54	MF-ST1	Beam	Tube	A500 Gr.B Rect	Typical
24	24	52	51	RIGID	None	None	RIGID	Typical
25	25	61	63	MF-P1	Column	Pipe	A53 Gr.B	Typical
26	26	62	64	MF-P1	Column	Pipe	A53 Gr.B	Typical
27	27	59	55	RIGID	None	None	RIGID	Typical
28	28	57	49	RIGID	None	None	RIGID	Typical
29	29	60	56	RIGID	None	None	RIGID	Typical
30	30	58	50	RIGID	None	None	RIGID	Typical
31	31	N68	N67	RIGID	None	None	RIGID	Typical
32	32	N65	N66	RIGID	None	None	RIGID	Typical
33	33	N66	N67	CA-Pipe	Beam	Pipe	A53 Gr.B	Typical
34	34	N69	N70	RIGID	None	None	RIGID	Typical
35	35	N70	N72	CA-Pipe	Beam	Pipe	A53 Gr.B	Typical
36	36	N71	N72	RIGID	None	None	RIGID	Typical
37	37	N73	N74	RIGID	None	None	RIGID	Typical
38	38	N74	N76	CA-Pipe	Beam	Pipe	A53 Gr.B	Typical
39	39	N75	N76	RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	Physical	Deflection Ratio Options	Seismic DR
1	1	Yes	N/A	None
2	2	Yes	** NA **	None
3	3	Yes	N/A	None
4	4	Yes	** NA **	None
5	5	Yes	** NA **	None
6	6	Yes	** NA **	None
7	7	Yes	** NA **	None
8	8	Yes	** NA **	None
9	9	Yes	** NA **	None
10	10	Yes	** NA **	None
11	11	Yes	N/A	None
12	12	Yes	** NA **	None
13	13	Yes	N/A	None
14	14	Yes	** NA **	None
15	15	Yes	** NA **	None
16	16	Yes	** NA **	None
17	17	Yes	** NA **	None
18	18	Yes	** NA **	None
19	19	Yes	** NA **	None
20	20	Yes	** NA **	None
21	21	Yes	N/A	None
22	22	Yes	** NA **	None
23	23	Yes	N/A	None
24	24	Yes	** NA **	None
25	25	Yes	** NA **	None
26	26	Yes	** NA **	None
27	27	Yes	** NA **	None
28	28	Yes	** NA **	None
29	29	Yes	** NA **	None
30	30	Yes	** NA **	None
31	31	Yes	** NA **	None
32	32	Yes	** NA **	None
33	33	Yes	Default	None
34	34	Yes	** NA **	None
35	35	Yes	Default	None
36	36	Yes	** NA **	None
37	37	Yes	** NA **	None
38	38	Yes	Default	None
39	39	Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-ST1	3.25	Lbyy	Lateral
2	3	MF-ST1	3.25	Lbyy	Lateral
3	5	MF-P1	9	Lbyy	Lateral
4	6	MF-P1	9	Lbyy	Lateral
5	11	MF-ST1	3.25	Lbyy	Lateral
6	13	MF-ST1	3.25	Lbyy	Lateral
7	15	MF-P1	9	Lbyy	Lateral
8	16	MF-P1	9	Lbyy	Lateral
9	21	MF-ST1	3.25	Lbyy	Lateral
10	23	MF-ST1	3.25	Lbyy	Lateral
11	25	MF-P1	9	Lbyy	Lateral
12	26	MF-P1	9	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
13	33	CA-Pipe	1.26	Lbyy	Lateral
14	35	CA-Pipe	1.26	Lbyy	Lateral
15	38	CA-Pipe	1.26	Lbyy	Lateral

Cold Formed Steel Design Parameters

No Data to Print...

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.075	%5
2	6	Y	-0.075	%90
3	6	Y	-0.093	%15
4	6	Y	-0.109	%50
5	6	Y	0	0
6	5	Y	-0.048	%5
7	5	Y	-0.048	%35
8	5	Y	0	0
9	5	Y	0	0
10	5	Y	0	0
11	26	Y	-0.075	%5
12	26	Y	-0.075	%90
13	26	Y	-0.093	%15
14	26	Y	-0.109	%50
15	26	Y	0	0
16	25	Y	-0.048	%5
17	25	Y	-0.048	%35
18	25	Y	0	0
19	25	Y	0	0
20	25	Y	0	0
21	16	Y	-0.075	%5
22	16	Y	-0.075	%90
23	16	Y	-0.093	%15
24	16	Y	-0.109	%50
25	16	Y	0	0
26	15	Y	-0.048	%5
27	15	Y	-0.048	%35
28	15	Y	0	0
29	15	Y	0	0
30	15	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.254	%5
2	6	Z	-0.254	%90
3	6	Z	-0.089	%15
4	6	Z	-0.067	%50
5	6	Z	0	0
6	5	Z	-0.099	%5
7	5	Z	-0.099	%35
8	5	Z	0	0
9	5	Z	0	0
10	5	Z	0	0
11	26	Z	-0.254	%5

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
12	26	Z	-0.254	%90
13	26	Z	-0.089	%15
14	26	Z	-0.067	%50
15	26	Z	0	0
16	25	Z	-0.099	%5
17	25	Z	-0.099	%35
18	25	Z	0	0
19	25	Z	0	0
20	25	Z	0	0
21	16	Z	-0.254	%5
22	16	Z	-0.254	%90
23	16	Z	-0.089	%15
24	16	Z	-0.067	%50
25	16	Z	0	0
26	15	Z	-0.099	%5
27	15	Z	-0.099	%35
28	15	Z	0	0
29	15	Z	0	0
30	15	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.092	%5
2	6	X	-0.092	%90
3	6	X	-0.043	%15
4	6	X	-0.053	%50
5	6	X	0	0
6	5	X	-0.043	%5
7	5	X	-0.043	%35
8	5	X	0	0
9	5	X	0	0
10	5	X	0	0
11	26	X	-0.092	%5
12	26	X	-0.092	%90
13	26	X	-0.043	%15
14	26	X	-0.053	%50
15	26	X	0	0
16	25	X	-0.043	%5
17	25	X	-0.043	%35
18	25	X	0	0
19	25	X	0	0
20	25	X	0	0
21	16	X	-0.092	%5
22	16	X	-0.092	%90
23	16	X	-0.043	%15
24	16	X	-0.053	%50
25	16	X	0	0
26	15	X	-0.043	%5
27	15	X	-0.043	%35
28	15	X	0	0
29	15	X	0	0
30	15	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.053	%5
2	6	Z	-0.053	%90
3	6	Z	-0.016	%15
4	6	Z	-0.012	%50
5	6	Z	0	0
6	5	Z	-0.018	%5
7	5	Z	-0.018	%35
8	5	Z	0	0
9	5	Z	0	0
10	5	Z	0	0
11	26	Z	-0.053	%5
12	26	Z	-0.053	%90
13	26	Z	-0.016	%15
14	26	Z	-0.012	%50
15	26	Z	0	0
16	25	Z	-0.018	%5
17	25	Z	-0.018	%35
18	25	Z	0	0
19	25	Z	0	0
20	25	Z	0	0
21	16	Z	-0.053	%5
22	16	Z	-0.053	%90
23	16	Z	-0.016	%15
24	16	Z	-0.012	%50
25	16	Z	0	0
26	15	Z	-0.018	%5
27	15	Z	-0.018	%35
28	15	Z	0	0
29	15	Z	0	0
30	15	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.023	%5
2	6	X	-0.023	%90
3	6	X	-0.008	%15
4	6	X	-0.009	%50
5	6	X	0	0
6	5	X	-0.008	%5
7	5	X	-0.008	%35
8	5	X	0	0
9	5	X	0	0
10	5	X	0	0
11	26	X	-0.023	%5
12	26	X	-0.023	%90
13	26	X	-0.008	%15
14	26	X	-0.009	%50
15	26	X	0	0
16	25	X	-0.008	%5
17	25	X	-0.008	%35
18	25	X	0	0
19	25	X	0	0
20	25	X	0	0
21	16	X	-0.023	%5

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
22	16	X	-0.023	%90
23	16	X	-0.008	%15
24	16	X	-0.009	%50
25	16	X	0	0
26	15	X	-0.008	%5
27	15	X	-0.008	%35
28	15	X	0	0
29	15	X	0	0
30	15	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.016	%5
2	6	Z	-0.016	%90
3	6	Z	-0.006	%15
4	6	Z	-0.004	%50
5	6	Z	0	0
6	5	Z	-0.006	%5
7	5	Z	-0.006	%35
8	5	Z	0	0
9	5	Z	0	0
10	5	Z	0	0
11	26	Z	-0.016	%5
12	26	Z	-0.016	%90
13	26	Z	-0.006	%15
14	26	Z	-0.004	%50
15	26	Z	0	0
16	25	Z	-0.006	%5
17	25	Z	-0.006	%35
18	25	Z	0	0
19	25	Z	0	0
20	25	Z	0	0
21	16	Z	-0.016	%5
22	16	Z	-0.016	%90
23	16	Z	-0.006	%15
24	16	Z	-0.004	%50
25	16	Z	0	0
26	15	Z	-0.006	%5
27	15	Z	-0.006	%35
28	15	Z	0	0
29	15	Z	0	0
30	15	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.006	%5
2	6	X	-0.006	%90
3	6	X	-0.003	%15
4	6	X	-0.003	%50
5	6	X	0	0
6	5	X	-0.003	%5
7	5	X	-0.003	%35
8	5	X	0	0

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
9	5	X	0	0
10	5	X	0	0
11	26	X	-0.006	%5
12	26	X	-0.006	%90
13	26	X	-0.003	%15
14	26	X	-0.003	%50
15	26	X	0	0
16	25	X	-0.003	%5
17	25	X	-0.003	%35
18	25	X	0	0
19	25	X	0	0
20	25	X	0	0
21	16	X	-0.006	%5
22	16	X	-0.006	%90
23	16	X	-0.003	%15
24	16	X	-0.003	%50
25	16	X	0	0
26	15	X	-0.003	%5
27	15	X	-0.003	%35
28	15	X	0	0
29	15	X	0	0
30	15	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.258	%5
2	6	Y	-0.258	%90
3	6	Y	-0.073	%15
4	6	Y	-0.062	%50
5	6	Y	0	0
6	5	Y	-0.078	%5
7	5	Y	-0.078	%35
8	5	Y	0	0
9	5	Y	0	0
10	5	Y	0	0
11	26	Y	-0.258	%5
12	26	Y	-0.258	%90
13	26	Y	-0.073	%15
14	26	Y	-0.062	%50
15	26	Y	0	0
16	25	Y	-0.078	%5
17	25	Y	-0.078	%35
18	25	Y	0	0
19	25	Y	0	0
20	25	Y	0	0
21	16	Y	-0.258	%5
22	16	Y	-0.258	%90
23	16	Y	-0.073	%15
24	16	Y	-0.062	%50
25	16	Y	0	0
26	15	Y	-0.078	%5
27	15	Y	-0.078	%35
28	15	Y	0	0
29	15	Y	0	0
30	15	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.042	%5
2	6	Z	-0.042	%90
3	6	Z	-0.026	%15
4	6	Z	-0.031	%50
5	6	Z	0	0
6	5	Z	-0.027	%5
7	5	Z	-0.027	%35
8	5	Z	0	0
9	5	Z	0	0
10	5	Z	0	0
11	26	Z	-0.042	%5
12	26	Z	-0.042	%90
13	26	Z	-0.026	%15
14	26	Z	-0.031	%50
15	26	Z	0	0
16	25	Z	-0.027	%5
17	25	Z	-0.027	%35
18	25	Z	0	0
19	25	Z	0	0
20	25	Z	0	0
21	16	Z	-0.042	%5
22	16	Z	-0.042	%90
23	16	Z	-0.026	%15
24	16	Z	-0.031	%50
25	16	Z	0	0
26	15	Z	-0.027	%5
27	15	Z	-0.027	%35
28	15	Z	0	0
29	15	Z	0	0
30	15	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.042	%5
2	6	X	-0.042	%90
3	6	X	-0.026	%15
4	6	X	-0.031	%50
5	6	X	0	0
6	5	X	-0.027	%5
7	5	X	-0.027	%35
8	5	X	0	0
9	5	X	0	0
10	5	X	0	0
11	26	X	-0.042	%5
12	26	X	-0.042	%90
13	26	X	-0.026	%15
14	26	X	-0.031	%50
15	26	X	0	0
16	25	X	-0.027	%5
17	25	X	-0.027	%35
18	25	X	0	0
19	25	X	0	0
20	25	X	0	0
21	16	X	-0.042	%5

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
22	16	X	-0.042	%90
23	16	X	-0.026	%15
24	16	X	-0.031	%50
25	16	X	0	0
26	15	X	-0.027	%5
27	15	X	-0.027	%35
28	15	X	0	0
29	15	X	0	0
30	15	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	3	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	11	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	23	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	21	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	3	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	13	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	11	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	23	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	21	Y	-0.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.011	-0.011	0	%100
2	3	Z	-0.011	-0.011	0	%100
3	5	Z	-0.007	-0.007	0	%100
4	6	Z	-0.007	-0.007	0	%100
5	11	Z	-0.011	-0.011	0	%100
6	13	Z	-0.011	-0.011	0	%100
7	15	Z	-0.007	-0.007	0	%100
8	16	Z	-0.007	-0.007	0	%100
9	21	Z	-0.011	-0.011	0	%100
10	23	Z	-0.011	-0.011	0	%100
11	25	Z	-0.007	-0.007	0	%100
12	26	Z	-0.007	-0.007	0	%100
13	33	Z	-0.006	-0.006	0	%100
14	35	Z	-0.006	-0.006	0	%100
15	38	Z	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.011	-0.011	0	%100
2	3	X	-0.011	-0.011	0	%100
3	5	X	-0.007	-0.007	0	%100
4	6	X	-0.007	-0.007	0	%100
5	11	X	-0.011	-0.011	0	%100
6	13	X	-0.011	-0.011	0	%100
7	15	X	-0.007	-0.007	0	%100
8	16	X	-0.007	-0.007	0	%100
9	21	X	-0.011	-0.011	0	%100
10	23	X	-0.011	-0.011	0	%100
11	25	X	-0.007	-0.007	0	%100
12	26	X	-0.007	-0.007	0	%100
13	33	X	-0.006	-0.006	0	%100
14	35	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
15	38	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.005	-0.005	0	%100
2	3	Z	-0.005	-0.005	0	%100
3	5	Z	-0.002	-0.002	0	%100
4	6	Z	-0.002	-0.002	0	%100
5	11	Z	-0.005	-0.005	0	%100
6	13	Z	-0.005	-0.005	0	%100
7	15	Z	-0.002	-0.002	0	%100
8	16	Z	-0.002	-0.002	0	%100
9	21	Z	-0.005	-0.005	0	%100
10	23	Z	-0.005	-0.005	0	%100
11	25	Z	-0.002	-0.002	0	%100
12	26	Z	-0.002	-0.002	0	%100
13	33	Z	-0.002	-0.002	0	%100
14	35	Z	-0.002	-0.002	0	%100
15	38	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.005	-0.005	0	%100
2	3	X	-0.005	-0.005	0	%100
3	5	X	-0.002	-0.002	0	%100
4	6	X	-0.002	-0.002	0	%100
5	11	X	-0.005	-0.005	0	%100
6	13	X	-0.005	-0.005	0	%100
7	15	X	-0.002	-0.002	0	%100
8	16	X	-0.002	-0.002	0	%100
9	21	X	-0.005	-0.005	0	%100
10	23	X	-0.005	-0.005	0	%100
11	25	X	-0.002	-0.002	0	%100
12	26	X	-0.002	-0.002	0	%100
13	33	X	-0.002	-0.002	0	%100
14	35	X	-0.002	-0.002	0	%100
15	38	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0007	-0.0007	0	%100
2	3	Z	-0.0007	-0.0007	0	%100
3	5	Z	-0.0002	-0.0002	0	%100
4	6	Z	-0.0002	-0.0002	0	%100
5	11	Z	-0.0007	-0.0007	0	%100
6	13	Z	-0.0007	-0.0007	0	%100
7	15	Z	-0.0002	-0.0002	0	%100
8	16	Z	-0.0002	-0.0002	0	%100
9	21	Z	-0.0007	-0.0007	0	%100
10	23	Z	-0.0007	-0.0007	0	%100
11	25	Z	-0.0002	-0.0002	0	%100
12	26	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
13	33	Z	-0.0002	-0.0002	0	%100
14	35	Z	-0.0002	-0.0002	0	%100
15	38	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0007	-0.0007	0	%100
2	3	X	-0.0007	-0.0007	0	%100
3	5	X	-0.0002	-0.0002	0	%100
4	6	X	-0.0002	-0.0002	0	%100
5	11	X	-0.0007	-0.0007	0	%100
6	13	X	-0.0007	-0.0007	0	%100
7	15	X	-0.0002	-0.0002	0	%100
8	16	X	-0.0002	-0.0002	0	%100
9	21	X	-0.0007	-0.0007	0	%100
10	23	X	-0.0007	-0.0007	0	%100
11	25	X	-0.0002	-0.0002	0	%100
12	26	X	-0.0002	-0.0002	0	%100
13	33	X	-0.0002	-0.0002	0	%100
14	35	X	-0.0002	-0.0002	0	%100
15	38	X	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.011	-0.011	0	%100
2	3	Y	-0.011	-0.011	0	%100
3	5	Y	-0.009	-0.009	0	%100
4	6	Y	-0.009	-0.009	0	%100
5	11	Y	-0.011	-0.011	0	%100
6	13	Y	-0.011	-0.011	0	%100
7	15	Y	-0.009	-0.009	0	%100
8	16	Y	-0.009	-0.009	0	%100
9	21	Y	-0.011	-0.011	0	%100
10	23	Y	-0.011	-0.011	0	%100
11	25	Y	-0.009	-0.009	0	%100
12	26	Y	-0.009	-0.009	0	%100
13	33	Y	-0.009	-0.009	0	%100
14	35	Y	-0.009	-0.009	0	%100
15	38	Y	-0.009	-0.009	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	3	Z	-0.002	-0.002	0	%100
3	5	Z	-0.001	-0.001	0	%100
4	6	Z	-0.001	-0.001	0	%100
5	11	Z	-0.002	-0.002	0	%100
6	13	Z	-0.002	-0.002	0	%100
7	15	Z	-0.001	-0.001	0	%100
8	16	Z	-0.001	-0.001	0	%100
9	21	Z	-0.002	-0.002	0	%100
10	23	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
11	25	Z	-0.001	-0.001	0	%100
12	26	Z	-0.001	-0.001	0	%100
13	33	Z	-0.001	-0.001	0	%100
14	35	Z	-0.001	-0.001	0	%100
15	38	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	3	X	-0.002	-0.002	0	%100
3	5	X	-0.001	-0.001	0	%100
4	6	X	-0.001	-0.001	0	%100
5	11	X	-0.002	-0.002	0	%100
6	13	X	-0.002	-0.002	0	%100
7	15	X	-0.001	-0.001	0	%100
8	16	X	-0.001	-0.001	0	%100
9	21	X	-0.002	-0.002	0	%100
10	23	X	-0.002	-0.002	0	%100
11	25	X	-0.001	-0.001	0	%100
12	26	X	-0.001	-0.001	0	%100
13	33	X	-0.001	-0.001	0	%100
14	35	X	-0.001	-0.001	0	%100
15	38	X	-0.001	-0.001	0	%100

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		30	
2	0 Wind - No Ice	WLZ			30	15
3	90 Wind - No Ice	WLX			30	15
4	0 Wind - Ice	WLZ			30	15
5	90 Wind - Ice	WLX			30	15
6	0 Wind - Service	WLZ			30	15
7	90 Wind - Service	WLX			30	15
8	Ice	OL1			30	15
9	0 Seismic	ELZ			30	15
10	90 Seismic	ELX			30	15
11	Live Load a	LL		3		
12	Live Load b	LL		3		
13	Live Load c	LL				
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL			1	
22	Maint LL 8	LL			1	
23	Maint LL 9	LL			1	
24	Maint LL 10	LL			1	
25	Maint LL 11	LL			1	
26	Maint LL 12	LL			1	
27	Maint LL 13	LL				

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
28	Maint LL 14	LL				
29	Maint LL 15	LL				
30	Maint LL 16	LL				
31	Maint LL 17	LL				
32	Maint LL 18	LL				
33	Maint LL 19	LL				
34	Maint LL 20	LL				
35	Maint LL 21	LL				
36	Maint LL 22	LL				
37	Maint LL 23	LL				
38	Maint LL 24	LL				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	11	max	0.232	5	0.954	21	0.287	2	0.278	8	0.377	8	0.425	57
2		min	-0.184	11	-0.154	3	-0.248	8	-0.402	2	-0.408	2	-0.183	39
3	5	max	0.384	5	0.964	15	0.688	2	0.539	2	0.329	7	0.328	50
4		min	-0.433	11	-0.134	9	-0.727	8	-0.667	8	-0.297	13	-0.1	44
5	25	max	0.379	5	0.998	20	0.783	2	0.342	59	0.158	11	0.342	13
6		min	-0.388	11	-0.307	2	-0.721	8	-0.03	89	-0.127	5	-0.337	7
7	31	max	0.194	4	0.992	2	0.273	2	0.409	50	0.173	12	0.28	7
8		min	-0.184	10	-0.336	8	-0.334	8	-0.155	8	-0.204	6	-0.278	13
9	45	max	0.394	5	0.936	24	0.808	2	0.235	3	0.341	2	0.224	9
10		min	-0.336	11	0.024	6	-0.831	8	-0.354	9	-0.309	8	-0.439	3
11	51	max	0.143	5	0.926	18	0.376	2	0.191	47	0.27	3	0.195	2
12		min	-0.2	11	0.004	12	-0.354	8	-0.328	53	-0.301	9	-0.408	8
13	Totals:	max	1.724	5	5.139	14	3.214	2						
14		min	-1.724	11	1.987	8	-3.214	8						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	16	PIPE_2.0	0.473	3	2	0.042	3		9	12.144	32.13	1.872	1.872	2.014	H1-1b
2	26	PIPE_2.0	0.459	3	8	0.062	3		2	12.144	32.13	1.872	1.872	2.133	H1-1b
3	6	PIPE_2.0	0.458	3	8	0.06	3		8	12.144	32.13	1.872	1.872	3	H1-1b
4	1	HSS2.5X2.5X3/18"	0.215	1.625	2	0.16	1.625	z	8	57.567	64.401	4.704	4.704	1.833	H1-1b
5	3	HSS2.5X2.5X3/18"	0.178	1.625	8	0.118	1.625	y	8	57.567	64.401	4.704	4.704	1.855	H1-1b
6	25	PIPE_2.0	0.159	3	2	0.023	3		2	12.144	32.13	1.872	1.872	1.922	H1-1b
7	15	PIPE_2.0	0.157	3	8	0.028	4.5		8	12.144	32.13	1.872	1.872	1.923	H1-1b
8	5	PIPE_2.0	0.157	3	2	0.026	4.5		2	12.144	32.13	1.872	1.872	3	H1-1b
9	11	HSS2.5X2.5X3/18"	0.153	2.742	8	0.106	1.625	y	7	57.567	64.401	4.704	4.704	1.688	H1-1b
10	21	HSS2.5X2.5X3/18"	0.151	1.625	9	0.123	1.625	y	2	57.567	64.401	4.704	4.704	1.235	H1-1b
11	13	HSS2.5X2.5X3/18"	0.147	1.625	13	0.085	1.625	y	13	57.567	64.401	4.704	4.704	1.641	H1-1b
12	23	HSS2.5X2.5X3/18"	0.126	1.625	20	0.104	1.625	y	8	57.567	64.401	4.704	4.704	1.838	H1-1b
13	35	PIPE_2.0	0.042	0	50	0.011	0		50	31.525	32.13	1.872	1.872	2.217	H1-1b
14	33	PIPE_2.0	0.042	0	57	0.011	0		58	31.525	32.13	1.872	1.872	2.216	H1-1b
15	38	PIPE_2.0	0.042	0	54	0.011	0		55	31.525	32.13	1.872	1.872	2.217	H1-1b

Envelope NONE Member Cold Formed Steel Code Checks

No Data to Print...

APPENDIX B

(Additional Calculations)

PROJECT	**135654.010.01 - Tolland I-84 X67_1, C KSC**				
SUBJECT	**Face Mount Analysis**				
DATE	**04/04/22**	PAGE	1	OF	1

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	0.688	k
Vertical Shear	:	0.964	k
Horizontal Shear	:	0.384	k
Torsion	:	0.328	k.ft
Moment from Horizontal Forces	:	0.329	k.ft
Moment from Vertical Forces	:	0.539	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.04	k
Force from Horz. Moment	:	0.60	k
Force from Vert. Moment	:	0.98	k
Shear Load / Bolt	:	0.26	k
Tension Load / Bolt	:	0.17	k
Resultant from Moments / Bolt	:	0.57	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**3.59%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**3.90%**		**OKAY**
Unity Check, Combined	:	**7.49%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**0.75%**		**OKAY**

PROJECT	**135654.010.01 - Tolland I-84**		**KSC**
SUBJECT	**Face Mount Analysis**		
DATE	**04/04/22**	PAGE	OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Tower Type		:	Guyed		
Ground Elevation	z_s	:	919	ft	[ASCE7 Hazard Tool]
Tower Height		:	130.00	ft	
Mount Elevation		:	127.00	ft	
Antenna Elevation		:	127.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	118	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.50	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.18		
	S_1	:	0.06		
	S_{DS}	:	0.19		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.06		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.97		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.72	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.097		[Sec. 2.7.7.1]
Amplification	A_s	:	2.907692		[Sec. 16.7]

	q_z	:	34.66	psf

PROJECT	**135654.010.01 - Tolland I-84**		**KSC**
SUBJECT	**Face Mount Analysis**		
DATE	**04/04/22**	PAGE	OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

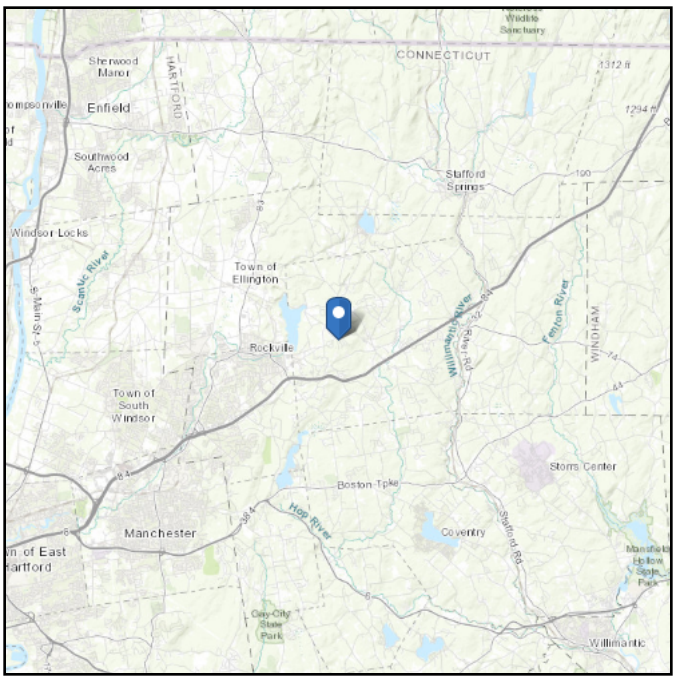
Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
RFS	APXVAALL24_43-U-NA20	0.5	4.00	1.27	7.34	2.66	8.51	3.69	0.25	0.09	0.05	0.02
RFS	APXVAALL24_43-U-NA20	0.5	4.00	1.27	7.34	2.66	8.51	3.69	0.25	0.09	0.05	0.02
ERICSSON	Radio 4480 B71+B85	1	1.39	1.20	2.38	1.14	3.35	1.92	0.09	0.04	0.02	0.01
ERICSSON	Radio 4460 B25+B66	1	1.13	1.20	1.78	1.40	2.63	2.18	0.07	0.05	0.01	0.01
ERICSSON	AIR 6419 B41	0.5	1.73	1.20	2.63	1.14	3.35	1.72	0.10	0.04	0.02	0.01
ERICSSON	AIR 6419 B41	0.5	1.73	1.20	2.63	1.14	3.35	1.72	0.10	0.04	0.02	0.01
RFS	APXVAALL24_43-U-NA20	0.5	4.00	1.27	7.34	2.66	8.51	3.69	0.25	0.09	0.05	0.02
RFS	APXVAALL24_43-U-NA20	0.5	4.00	1.27	7.34	2.66	8.51	3.69	0.25	0.09	0.05	0.02
ERICSSON	Radio 4480 B71+B85	1	1.39	1.20	2.38	1.14	3.35	1.92	0.09	0.04	0.02	0.01
ERICSSON	Radio 4460 B25+B66	1	1.13	1.20	1.78	1.40	2.63	2.18	0.07	0.05	0.01	0.01
ERICSSON	AIR 6419 B41	0.5	1.73	1.20	2.63	1.14	3.35	1.72	0.10	0.04	0.02	0.01
ERICSSON	AIR 6419 B41	0.5	1.73	1.20	2.63	1.14	3.35	1.72	0.10	0.04	0.02	0.01
RFS	APXVAALL24_43-U-NA20	0.5	4.00	1.27	7.34	2.66	8.51	3.69	0.25	0.09	0.05	0.02
RFS	APXVAALL24_43-U-NA20	0.5	4.00	1.27	7.34	2.66	8.51	3.69	0.25	0.09	0.05	0.02
ERICSSON	Radio 4480 B71+B85	1	1.39	1.20	2.38	1.14	3.35	1.92	0.09	0.04	0.02	0.01
ERICSSON	Radio 4460 B25+B66	1	1.13	1.20	1.78	1.40	2.63	2.18	0.07	0.05	0.01	0.01
ERICSSON	AIR 6419 B41	0.5	1.73	1.20	2.63	1.14	3.35	1.72	0.10	0.04	0.02	0.01
ERICSSON	AIR 6419 B41	0.5	1.73	1.20	2.63	1.14	3.35	1.72	0.10	0.04	0.02	0.01

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: 918.65 ft (NAVD 88)
Latitude: 41.874691
Longitude: -72.394051



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Feb 23 2022

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 in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

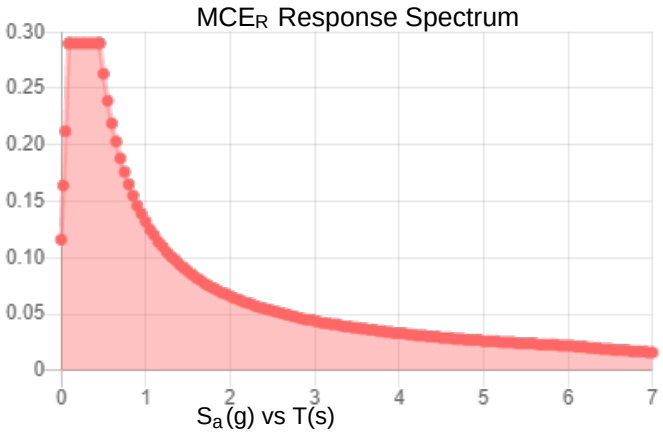
Seismic

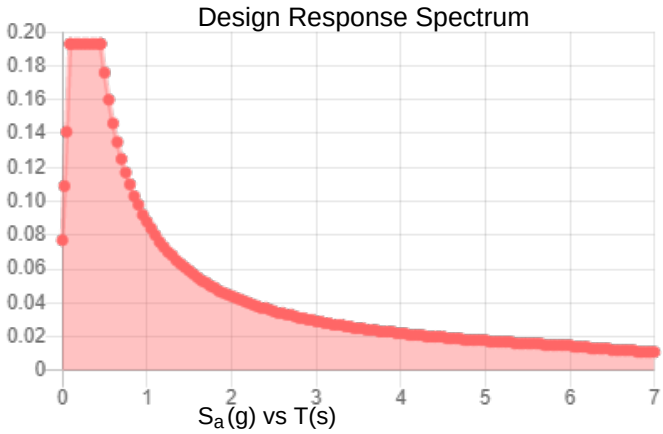
Site Soil Class: D - Default (see Section 11.4.3)

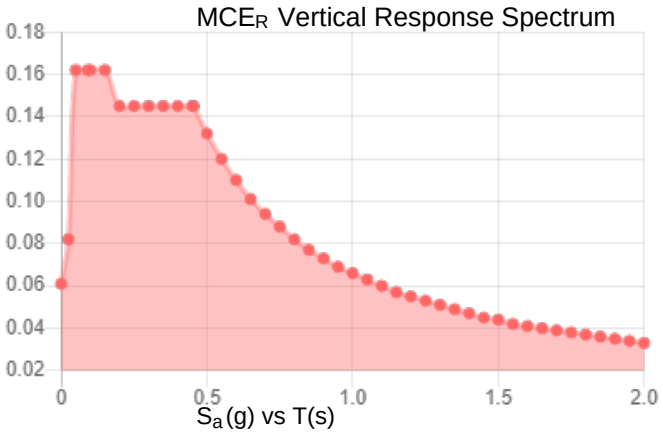
Results:

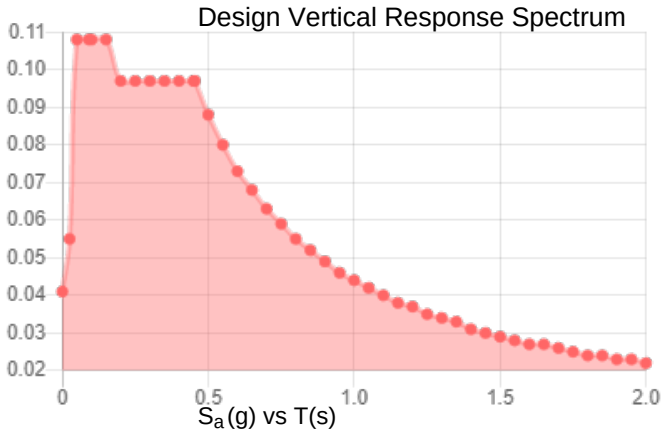
S_S :	0.181	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.097
F_v :	2.4	PGA_M :	0.155
S_{MS} :	0.29	F_{PGA} :	1.6
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.193	C_v :	0.7

Seismic Design Category B









Data Accessed: **Wed Feb 23 2022**

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.

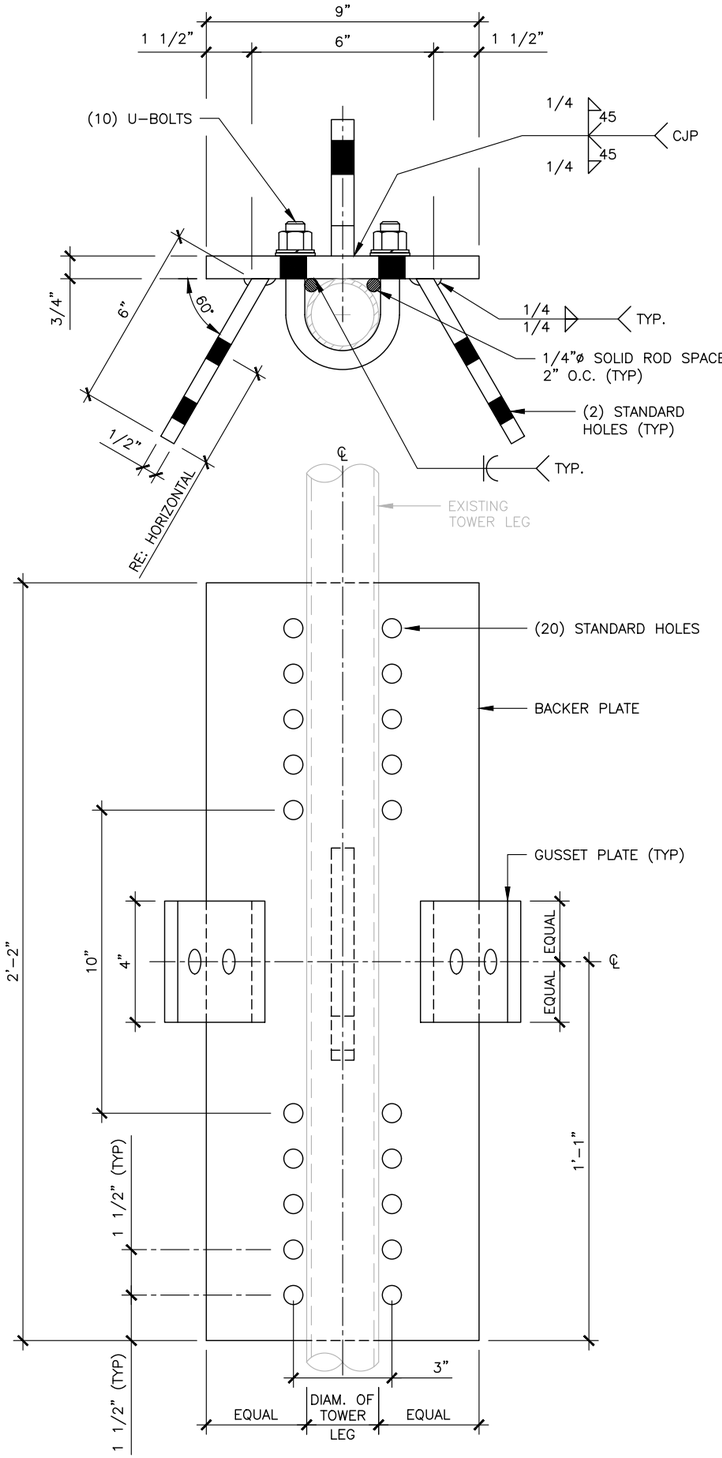
Ice

Results:

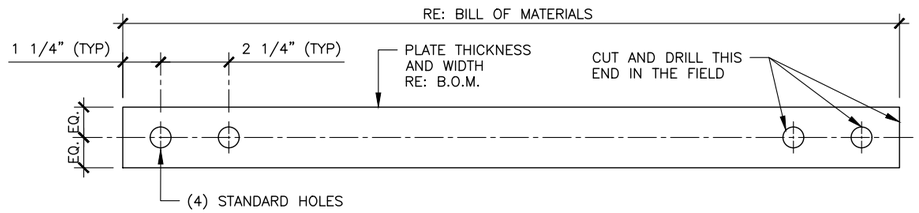
Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Feb 23 2022

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

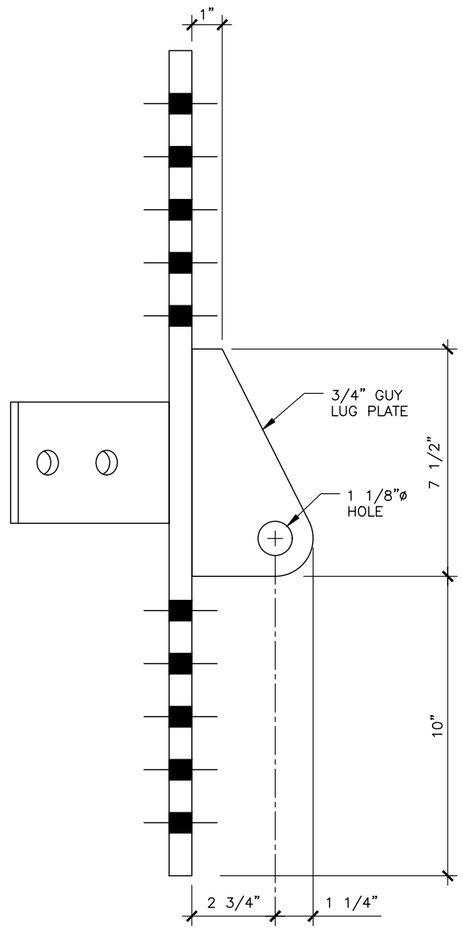
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from 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.



BOLT-ON GUY LUG



HORIZONTAL



B+T GRP
1717 S. BOULDER AVE.
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

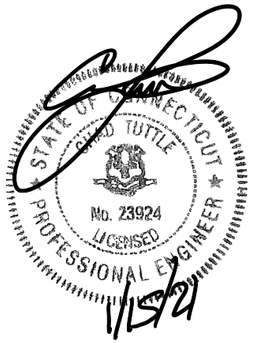
CENTERLINE COMMUNICATIONS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	01/15/21	ISSUED FOR CONSTRUCTION

PROJECT NO:	135654.009.01
PROJECT ENG:	BRADEN TABB
DRAWN BY:	RA
CHECKED BY:	VKP / ASP

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/21



TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

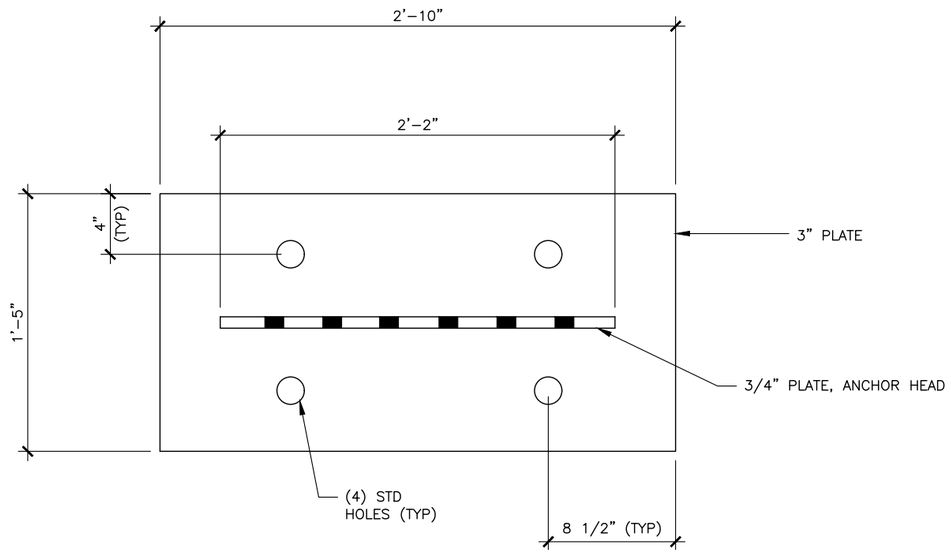
EXISTING 130' GUYED TOWER

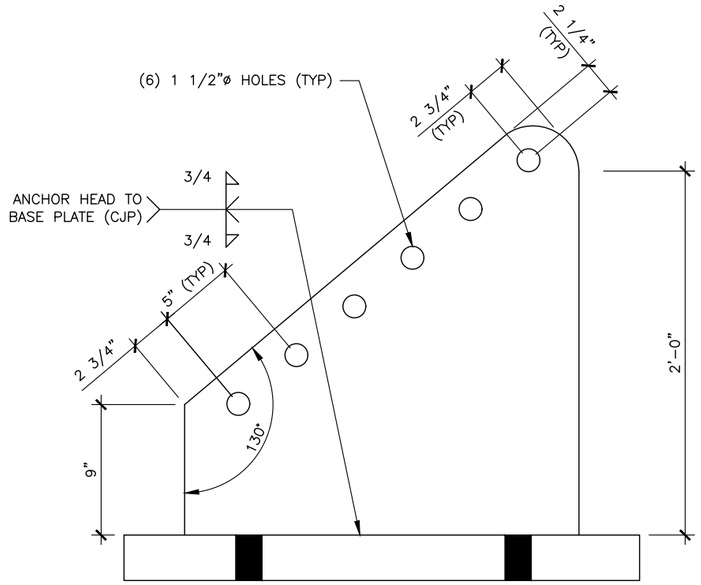
SHEET TITLE

GUY WIRE PULL-OFF DETAILS

SHEET NUMBER: D1

REVISION: 0





1 NEW GUY ANCHOR HEAD
SCALE: N.T.S.

B+T GRP
1717 S. BOULDER AVE.
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
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CENTERLINE COMMUNICATIONS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	01/15/21	ISSUED FOR CONSTRUCTION

PROJECT NO:	135654.009.01
PROJECT ENG:	BRADEN TABB
DRAWN BY:	RA
CHECKED BY:	VKP / ASP

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/21

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
1/15/21

TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

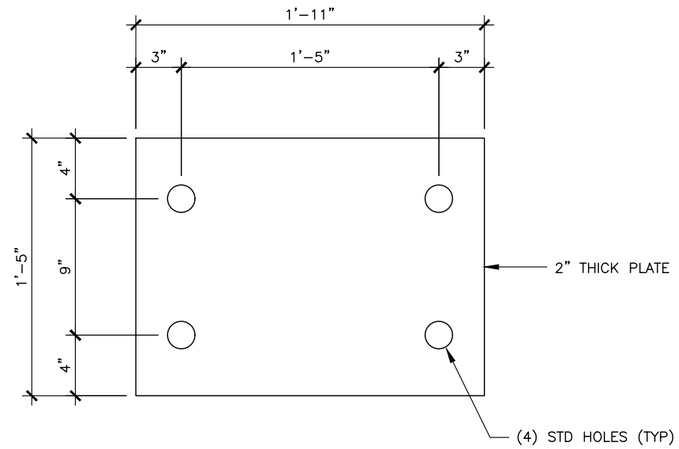
EXISTING 130' GUYED TOWER

SHEET TITLE

DETAILS

SHEET NUMBER: D2

REVISION: 0



1 ANCHOR ROD TEMPLATE
SCALE: N.T.S.

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TULSA, OK 74119
PH: (918) 587-4630
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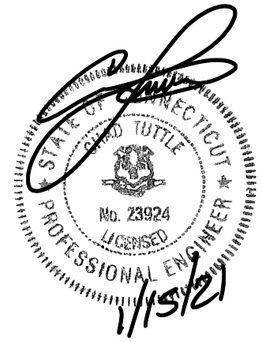
CENTERLINE COMMUNICATIONS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	01/15/21	ISSUED FOR CONSTRUCTION

PROJECT NO:	135654.009.01
PROJECT ENG:	BRADEN TABB
DRAWN BY:	RA
CHECKED BY:	VKP / ASP

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/21



TOLLAND I-84 X67_1
CT11141A

17 PILGRIM DRIVE
TOLLAND, CT

EXISTING 130' GUYED TOWER

SHEET TITLE

DETAILS

SHEET NUMBER: D3

REVISION: 0

Exhibit E

Power Density Report

Radio Frequency Exposure Analysis Report

July 8, 2022

Centerline on behalf of T-Mobile
Centerline Communications Project Number: N/A

T-Mobile Site Name: Tolland/ I-84 X67_1
Site Number: CT11141A

Site Address: 17 Pilgrim Drive, Tolland, CT 06084

Site Compliance Summary

T-Mobile Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	47.02557 µW/cm^2
Cumulative General Population % MPE (Ground Level):	4.7026199999999996%

750 West Center Street | Suite 301 | West Bridgewater | MA | 02379

July 8, 2022

Centerline
Attn: Jessica Meyer, Project Coordinator
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Tolland/ I-84 X67_1**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed T-Mobile facility at **17 Pilgrim Drive, Tolland, CT 06084** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.

Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

Data & Results

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

Maximum Calculated Cumulative Power Density (Location: approximately 370' southwest of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (µW/cm²)	General Population MPE Limit (µW/cm²)	General Population % MPE
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	700	13.65	127.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	127.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	127.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	1900	14.95	127.00	2.00	140.00	8753.02	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	2100	16.45	127.00	2.00	140.00	12363.97	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	1900	14.95	127.00	1.00	15.00	468.91	0.00000	1000.00	0.00000
T-Mobile A 2	ERICSSON AIR6419	2500	22.05	127.00	2.00	80.00	25651.93	0.13326	1000.00	0.01333
T-Mobile A 2	ERICSSON AIR6419	2500	22.05	127.00	2.00	80.00	25651.93	0.13326	1000.00	0.01333
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	700	13.65	127.00	2.00	40.00	1853.92	0.00000	466.67	0.00000
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	600	12.95	127.00	4.00	60.00	4733.81	0.00000	400.00	0.00000
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	600	12.95	127.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	1900	14.95	127.00	2.00	140.00	8753.02	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	2100	16.45	127.00	2.00	140.00	12363.97	0.00000	1000.00	0.00000
T-Mobile B 3	RFS APXVAALL24 43-U-NA20	1900	14.95	127.00	1.00	15.00	468.91	0.00000	1000.00	0.00000
T-Mobile B 4	ERICSSON AIR6419	2500	22.05	127.00	2.00	80.00	25651.93	0.04726	1000.00	0.00473
T-Mobile B 4	ERICSSON AIR6419	2500	22.05	127.00	2.00	80.00	25651.93	0.04726	1000.00	0.00473
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	700	13.65	127.00	2.00	40.00	1853.92	0.00009	466.67	0.00002
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	600	12.95	127.00	4.00	60.00	4733.81	0.00022	400.00	0.00006
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	600	12.95	127.00	2.00	40.00	1577.94	0.00008	400.00	0.00002
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	1900	14.95	127.00	2.00	140.00	8753.02	0.00031	1000.00	0.00003
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	2100	16.45	127.00	2.00	140.00	12363.97	0.00028	1000.00	0.00003
T-Mobile C 5	RFS APXVAALL24 43-U-NA20	1900	14.95	127.00	1.00	15.00	468.91	0.00002	1000.00	0.00000
T-Mobile C 6	ERICSSON AIR6419	2500	22.05	127.00	2.00	80.00	25651.93	23.33175	1000.00	2.33318
T-Mobile C 6	ERICSSON AIR6419	2500	22.05	127.00	2.00	80.00	25651.93	23.33175	1000.00	2.33318
Unknown 7	GENERIC OMNI 9.5FT	450	5.96	128.00	1.00	25.00	98.61	0.00001	300.00	0.00000
Unknown 8	GENERIC MICROWAVE 1FT	23000	38.55	88.00	1.00	0.10	716.14	0.00000	1000.00	0.00000
Unknown 9	GENERIC YAGI 6FT	150	9.10	72.00	1.00	5.00	40.64	0.00000	200.00	0.00000
Unknown 10	GENERIC YAGI 6FT	150	9.10	67.00	1.00	5.00	40.64	0.00000	200.00	0.00000
Unknown 11	GENERIC YAGI 6FT	150	9.10	59.50	1.00	5.00	40.64	0.00000	200.00	0.00000
Unknown 12	GENERIC YAGI 6FT	150	9.10	55.00	1.00	5.00	40.64	0.00002	200.00	0.00001
Unknown 13	GENERIC MICROWAVE 6FT	6000	38.65	34.00	1.00	0.10	732.82	0.00000	1000.00	0.00000
							Cumulative Power Density:	**47.02557 µW/cm²**	**Cumulative % MPE:**	**4.70262%**

Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

Exhibit F

Proof of Postage

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog 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 Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   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. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 1060
326 MAIN ST
SOUTHINGTON ,CT 06489

UPS Access Point™
MICHAELS STORE # 1279
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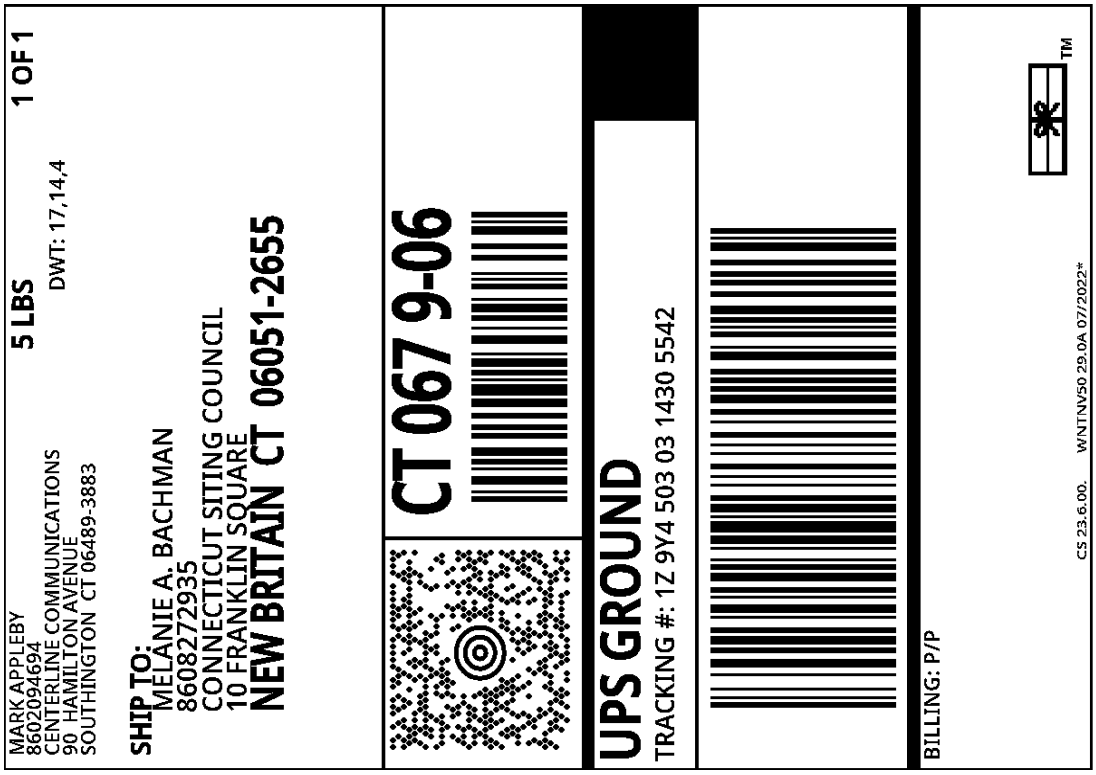
SOUTHINGTON ,CT 06489

UPS Access Point™
ADVANCE AUTO PARTS STORE 8525
151 QUEEN ST
SOUTHINGTON ,CT 06489

FOLD HERE



Shipment Receipt

Transaction Date: 12 Jul 2022 **Tracking Number:** 1Z9Y45030314305542

1 Address Information

Ship To:
Connecticut Siting Council
Melanie A. Bachman
10 Franklin Square
NEW BRITAIN CT 060512655
Telephone:8608272935

Ship From:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694
email:mappleby@clinellc.com
Residential

Return Address:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694 email:mappleby@clinellc.com
Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers	
1.	5.0 lbs (7.0 lbs billable)	17 x 14 x 4in. Other Packaging			

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Guaranteed By: End of Day Wednesday, Jul 13, 2022

Shipping Fees Subtotal: 14.14 USD

Transportation 11.98 USD

Fuel Surcharge 2.16 USD

Additional Shipping Options

Quantum View Notify E-mail Notifications: No Charge

1 mappleby@clinellc.com: Delivery

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	**14.14 USD**
Subtotal Shipping Charges:	**14.14 USD**
Total Charged:	**14.14 USD**

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({0}). To speak to a customer service representative, call 1-800-PICK-UPS for domest services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog 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 Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   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. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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UPS Access Point™
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151 QUEEN ST
SOUTHINGTON ,CT 06489

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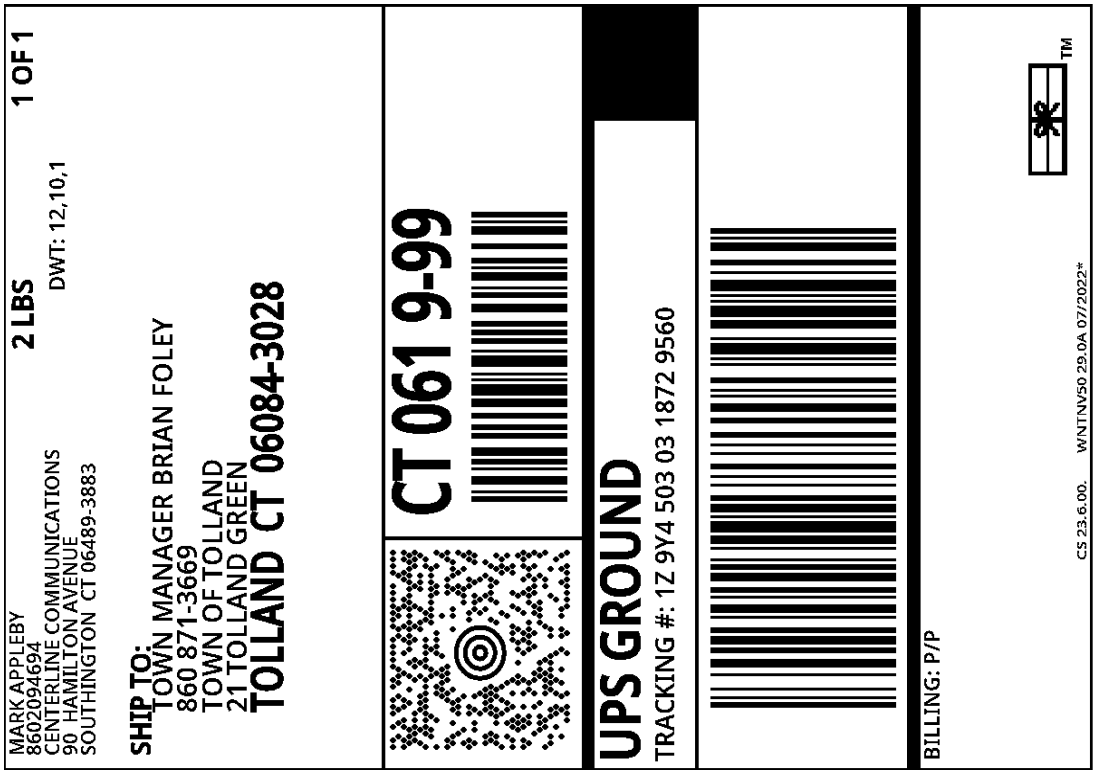

Shipment Receipt

Transaction Date: 12 Jul 2022 **Tracking Number:** 1Z9Y45030318729560

1 Address Information

Ship To:
Town of Tolland
Town Manager Brian Foley
21 Tolland Green
TOLLAND CT 060843028
Telephone:860 871-3669

Ship From:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694
email:mappleby@clinellc.com
Residential

Return Address:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694 email:mappleby@clinellc.com
Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers	
1.	1.5 lbs (2.0 lbs billable)	12 x 10 x 1in. Other Packaging			

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Guaranteed By: End of Day Wednesday, Jul 13, 2022

Shipping Fees Subtotal: 15.97 USD

Transportation 10.13 USD

Fuel Surcharge 2.44 USD

Delivery Area Surcharge 3.40 USD

Package 1

Additional Shipping Options

Quantum View Notify E-mail Notifications: No Charge

1 mappleby@clinellc.com: Delivery

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	**15.97 USD**
Subtotal Shipping Charges:	**15.97 USD**
Total Charged:	**15.97 USD**

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({0}). To speak to a customer service representative, call 1-800-PICK-UPS for domest services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog 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 Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   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. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
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SOUTHINGTON ,CT 06489

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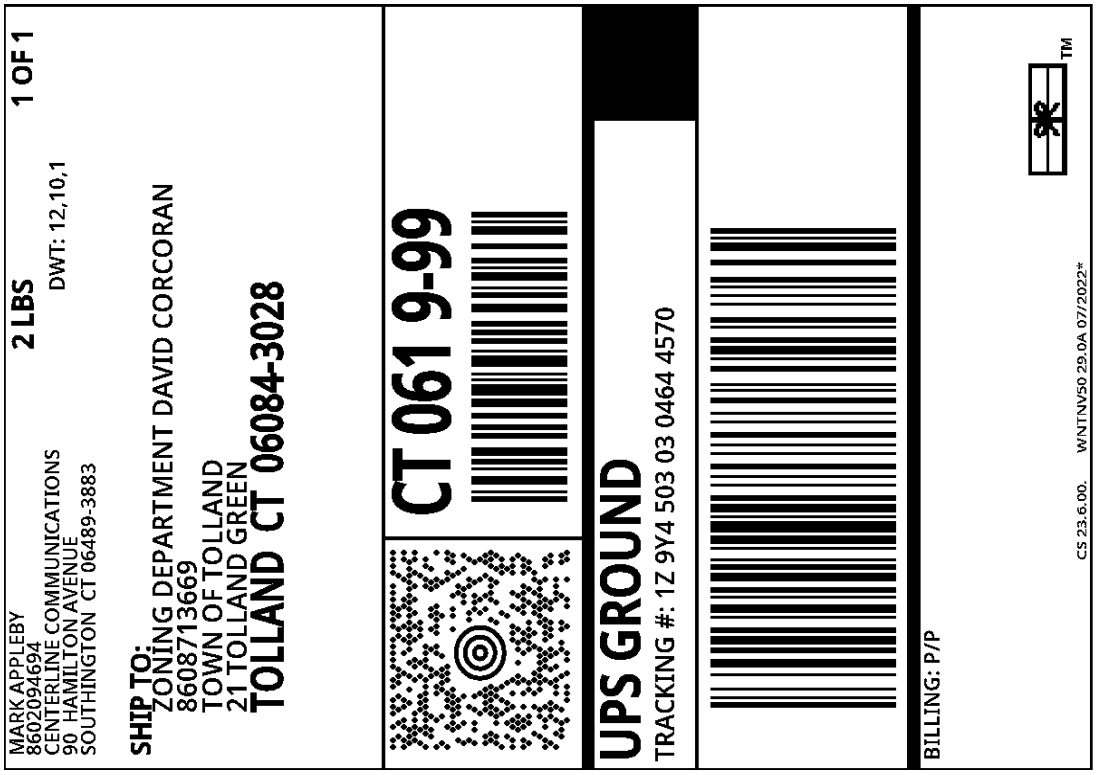

Shipment Receipt

Transaction Date: 12 Jul 2022 **Tracking Number:** 1Z9Y45030304644570

1 Address Information

Ship To:
Town of Tolland
Zoning Department David Corcoran
21 Tolland Green
TOLLAND CT 060843028
Telephone:8608713669

Ship From:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694
email:mappleby@clinellc.com
Residential

Return Address:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694 email:mappleby@clinellc.com
Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers	
1.	1.5 lbs (2.0 lbs billable)	12 x 10 x 1in. Other Packaging			

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Guaranteed By: End of Day Wednesday, Jul 13, 2022

Shipping Fees Subtotal: 15.97 USD

Transportation 10.13 USD

Fuel Surcharge 2.44 USD

Delivery Area Surcharge 3.40 USD

Package 1

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	**15.97 USD**
Subtotal Shipping Charges:	**15.97 USD**
Total Charged:	**15.97 USD**

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({0}). To speak to a customer service representative, call 1-800-PICK-UPS for domest services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog 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 Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   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. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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UPS Access Point™
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SOUTHINGTON ,CT 06489

UPS Access Point™
ADVANCE AUTO PARTS STORE 8525
151 QUEEN ST
SOUTHINGTON ,CT 06489

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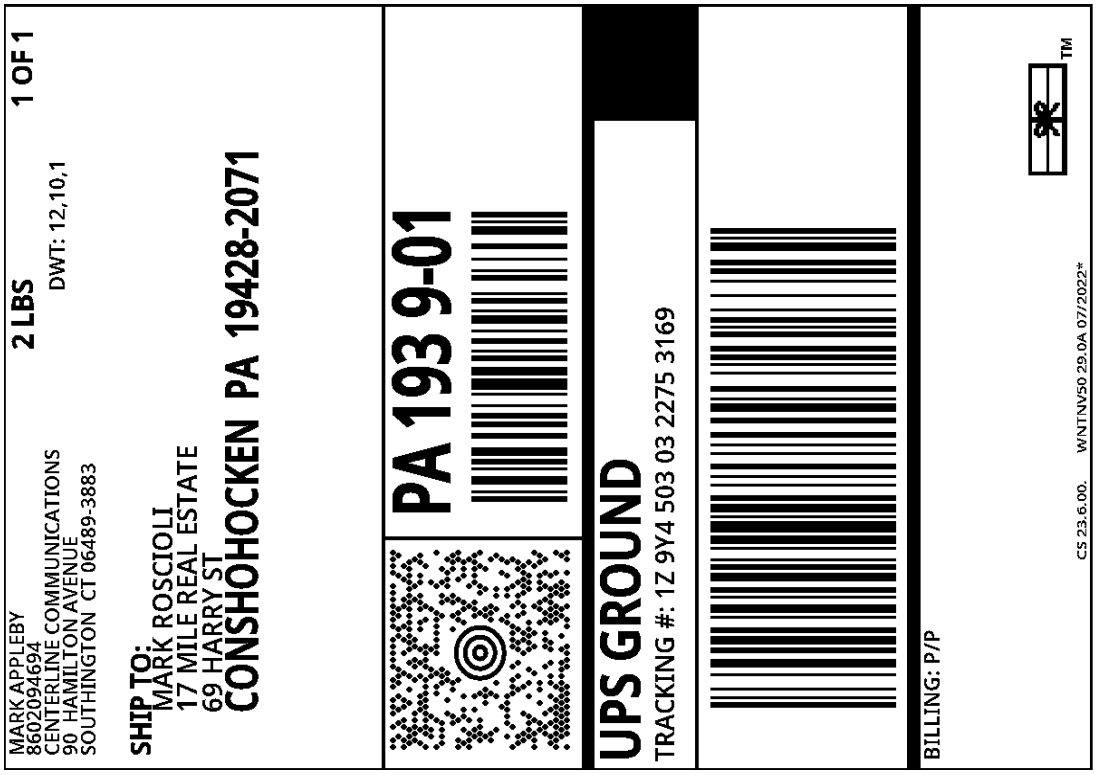

Shipment Receipt

Transaction Date: 12 Jul 2022 **Tracking Number:** 1Z9Y45030322753169

1 Address Information

Ship To:
17 Mile Real Estate
Mark Roscioli
69 Harry St
CONSHOHOCKEN PA 19428207
1
Residential

Ship From:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694
email:mappleby@clinellc.com
Residential

Return Address:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694 email:mappleby@clinellc.com
Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers	
1.	1.5 lbs (2.0 lbs billable)	12 x 10 x 1in. Other Packaging			

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Guaranteed By: End of Day Wednesday, Jul 13, 2022

Shipping Fees Subtotal: 17.68 USD

Transportation	10.13 USD
Fuel Surcharge	2.70 USD
Residential Surcharge	4.85 USD

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	**17.68 USD**
Subtotal Shipping Charges:	**17.68 USD**
Total Charged:	**17.68 USD**

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({0}). To speak to a customer service representative, call 1-800-PICK-UPS for domest services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog 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 Daily Pickup
   Your driver will pickup your shipment(s) as usual.

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SOUTHINGTON ,CT 06489

UPS Access Point™
ADVANCE AUTO PARTS STORE 8525
151 QUEEN ST
SOUTHINGTON ,CT 06489

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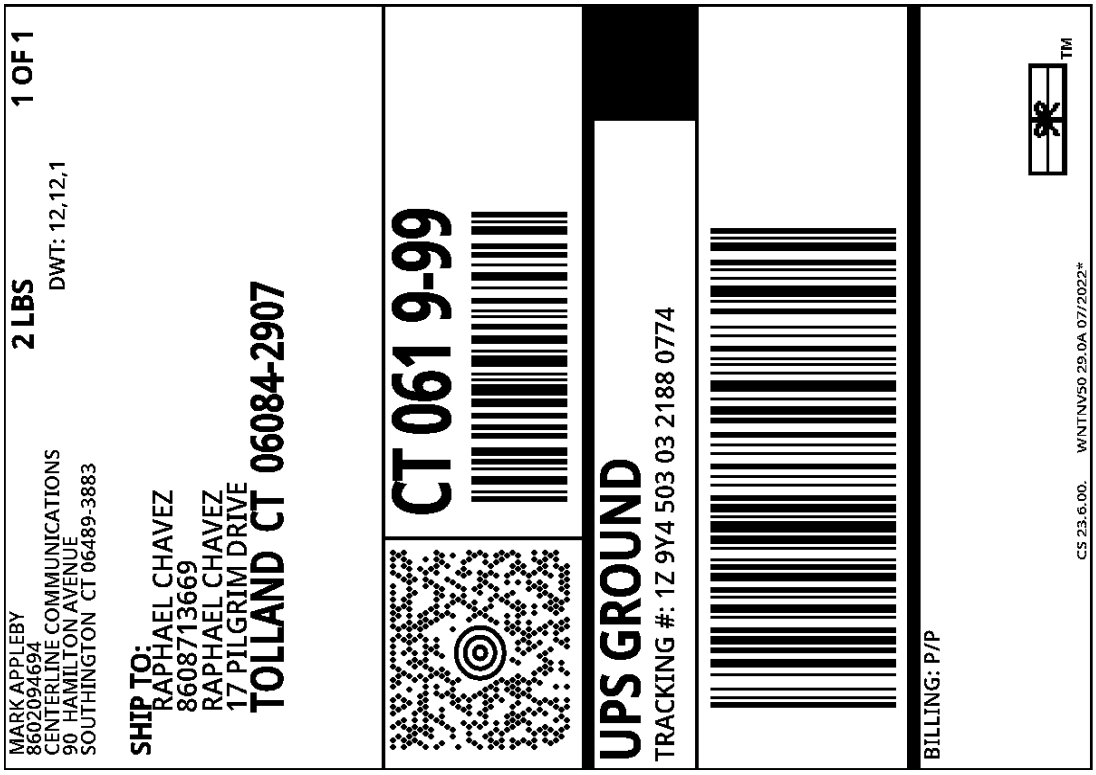

Shipment Receipt

Transaction Date: 12 Jul 2022 **Tracking Number:** 1Z9Y45030321880774

1 Address Information

Ship To:
Raphael Chavez
Raphael Chavez
17 Pilgrim Drive
TOLLAND CT 060842907
Telephone:8608713669
Residential

Ship From:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694
email:mappleby@clinellc.com
Residential

Return Address:
Centerline Communications
Mark Appleby
90 Hamilton Avenue
SOUTHINGTON CT 064893883
Telephone:8602094694 email:mappleby@clinellc.com
Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers	
1.	1.5 lbs (2.0 lbs billable)	12 x 12 x 1in. Other Packaging			

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Guaranteed By: End of Day Wednesday, Jul 13, 2022

Shipping Fees Subtotal: 23.34 USD

Transportation 10.13 USD
Fuel Surcharge 3.56 USD
Residential Surcharge 4.85 USD
Delivery Area Surcharge 4.80 USD

Package 1

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges: 23.34 USD

Subtotal Shipping Charges: 23.34 USD

Total Charged: 23.34 USD

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({0}). To speak to a customer service representative, call 1-800-PICK-UPS for domest services and 1-800-782-7892 for international services.