Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

December 14, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
876339 - T-Mobile Site ID: CT11032D
782 Old Clinton Road, Westbrook, CT 06498
Latitude: 41° 17′ 25.70″ / Longitude: -72° 28′ 7.90″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 142-foot mount on the existing 160-foot Monopole Tower, located at 782 Old Clinton Road, Westbrook, CT. The tower is owned by Crown Castle and the property is owned by Catherine A. Wade. T-Mobile now intends to replace six (6) existing antennas with three (3) new 1900/2100 MHz antennas and three (3) new 600/700 MHz antennas. Three of the new antennas will be capable of providing 5G service. The new antennas will be installed at the 142-ft level of the tower. T-Mobile is also proposing tower mount modifications, as shown on the enclosed Mount Analysis.

Planned Modifications:
Tower:

Remove and Replace:
(3) LNX 6515DS-A1M Antenna **(REMOVE)** - (3) RFS-APXVAARR24_43-U-NA20 **5G** Antenna 600/700 MHz **(REPLACE)**

(3) AIR21 KRC118023-1_B2P_B4A Antenna **(REMOVE)** – (3) AIR32_B66A_B2A Antenna 1900/2100 MHz **(REPLACE)**

(3) RRUS11 B12 **(REMOVE) –** (3) Radio 4449 B71/B12 **(REPLACE)**

Install New:
(3) 1 5/8" Hybrid Fiber Line

Existing to Remain:
(6) 1 5/8" Coax
(1) Fiber line
(3) AIR21 KRC118023-1_B2A_B4P Antenna 1900/2100 MHz
(3) TMA

Ground:
Upgrade to existing ground cabinet. (Internally)

The facility was first acted upon by the Connecticut Siting Council in Petition No. 511 on July 11, 2001. This approval was given without conditions. The original tower approval for the monopole could not be located despite diligent efforts.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Noel Bishop, First Selectman for the Town of Westbrook, Eric Knapp, Planning & Zoning Development Coordinator, Crown Castle as the tower owner, and Catherine A. Wade, the property owner.

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

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

3. The proposed modification 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 Communication 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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba
Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments

cc:
The Honorable Noel Bishop, First Selectman (*via email only to nbishop@westbrookct.us*)
Town of Westbrook

866 Boston Post Road
Westbrook, CT 06498

Eric Knapp, Planning & Zoning Development Coordinator (*via email only to eknapp@westbrookct.us*)
Town of Westbrook
866 Boston Post Road
Westbrook, CT 06498

Catherine A. Wade, Property Owner
782 Old Clinton Road
Westbrook, CT 06498

Crown Castle, Tower Owner

ORIGIN ID:SCHA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE

GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 14DEC20
ACTWGT: 1.00 LB
CAD: 104924194/INET4280

BILL SENDER

TO **CATHERINE A. WADE**

782 OLD CLINTON ROAD

WESTBROOK CT 06498

(201) 236-9224
INV:
PO:
REF: 1734.7680
DEPT:

J202020071401uv

FedEx Express

56BJ2/9196/B766

TRK# 0201 **7723 6068 3141**

TUE - 15 DEC 12:00P

PRIORITY OVERNIGHT

EB RSPA

06498
BDL
CT-US

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

From: Zsamba, Anne Marie
To: eknapp@westbrookct.us
Subject: Notice of Exempt Modification - T-Mobile - 782 Old Clinton Rd, Westbrook - 876339
Date: Monday, December 14, 2020 1:49:00 PM
Attachments: EM-T-MOBILE_782 OLD CLINTON ROAD WESTBROOK_876339_CT11032D_NOTICE.pdf

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Dear Mr. Knapp:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council today, December 14, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Site Acquisition Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

From:	Zsamba, Anne Marie
To:	nbishop@westbrookct.us
Subject:	Notice of Exempt Modification - T-Mobile - 782 Old Clinton Rd, Westbrook - 876339
Date:	Monday, December 14, 2020 1:49:00 PM
Attachments:	EM-T-MOBILE_782 OLD CLINTON ROAD WESTBROOK_876339_CT11032D_NOTICE.pdf

Dear First Selectman Bishop:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council today, December 14, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

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T: (201) 236-9224
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CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

Exhibit A

Original Facility Approval

Petition No. 511
Sprint Sites USA
Westbrook, Connecticut
Staff Report
July 11, 2001

On May 24, 2000, Connecticut Siting Council (Council) member William H. Smith and Council Staff Paul M. Aresta met representatives for Sprint Sites USA (SSUSA) and Julie Cashin for an inspection of an existing 160-foot tall monopole tower located at 782 Old Clinton Road, in Westbrook, Connecticut. SSUSA seeks a declaratory ruling that the proposed expansion of the existing compound, modification of the existing access road, co-location of three addition telecommunications carriers, and reinforcement of the existing tower would not have a substantial adverse environmental effect, and that no Certificate of Environmental Compatibility and Public Need (Certificate) would be required.

The existing 160-foot tall monopole tower was approved by the Town of Westbrook on May 26, 1998. The Council approved the shared use of this tower by Omnipoint Communication at a centerline height of 145 feet above ground level (AGL) on June 16, 1999, and Nextel Communication at a centerline height of 130 feet AGL on September 16, 1999. SSUSA contends that the existing tower currently supports antennas for Sprint at the 160 feet AGL, Voicestream's (formerly Omnipoint) at 142.5 AGL, and Nextel at 150 feet AGL. SSUSA request that the Council amend the previous approvals to acknowledge the existing antennas at their current heights.

AT&T Wireless Services (AT&T) proposes to place up to twelve panel antennas on a platform at the 130-foot level; Verizon proposes to place up to fifteen panel antennas on a platform at the 120-foot level; and Springwich Cellular proposes to place up to twelve panel antennas on a platform at the 110-foot level of the existing tower.

The existing tower and foundation would require reinforcing to support all of the proposed equipment. SSUSA has included two proposals to reinforce the existing structure. SSUSA would either construct a structural support consisting of three approximately 125-feet tall columns with eleven cross-braces around the existing monopole structure. The proposed columns would each be constructed of eight-inch diameter pipe filled with post-tensioned concrete. Alternately, SSUSA could install a collar type reinforcement around the existing monopole tower up to 109 feet AGL. The collar would be bolted together around the existing tower. The reinforcement would involve removing the antennas below the 110-foot height on the tower; installing 20-foot deep rock anchors through the existing foundation at each corner; installing the steel sleeve; and reinstalling the existing antennas. The exterior finish on the collar reinforcement would be galvanized steel.

SSUSA proposes to expand the existing fenced compound from 34 feet by 28 feet to 50 feet by 90 feet to accommodate three 12-foot by 20-foot telecommunications equipment buildings. The existing fence would be removed and a new approximately six-foot tall chain link fence with three strands of barbed wire would be constructed around the expanded compound. All vegetation within the existing compound would be removed. Evergreen landscaping would be installed around the perimeter of the expanded site compound and approximately six eight-foot white pines would be installed approximately 35 feet southwest of the expanded site compound. A vehicle turnaround would be constructed on the west side of the expanded compound, and a portion of the existing ten-foot wide gravel access road would be re-routed, at the request of the landowner. Utilities are available within the existing site compound. Verizon would install a 40-kW emergency diesel generator.

The worst case power density for the existing and proposed telecommunications operations at the site would be approximately 79 percent of the applicable ANSI standard at the base of the tower. SSUSA contends that the proposed expansion of the compound, tower reinforcement, and addition of the three telecommunications entities would not cause a significant change to the physical or environmental characteristics of this site.

Exhibit B

Property Card

782 OLD CLINTON RD

Location	782 OLD CLINTON RD	**Mblu**	169/ / 018/ /
Acct#	E0110900	**Owner**	WADE CATHERINE A
Assessment	$487,700	**Appraisal**	$697,730
PID	1175	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$582,990	$114,740	$697,730

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$413,390	$74,310	$487,700

Owner of Record

Owner	WADE CATHERINE A	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	782 OLD CLINTON RD WESTBROOK, CT 06498	**Book & Page**	162/83
		Sale Date	11/10/1993
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WADE CATHERINE A	$0		162/83	25	11/10/1993

Building Information

Building 1 : Section 1

Year Built:	1946
Living Area:	3,142
Replacement Cost:	$281,163
Building Percent Good:	58
Replacement Cost Less Depreciation:	$163,070

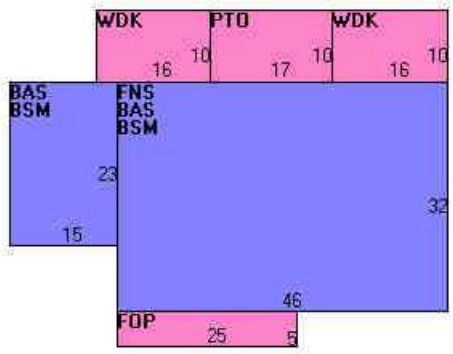
Building Attributes

Field	Description
Style	Colonial
Model	Residential
Grade:	C+
Stories	1.9
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gambrel
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	7
Full Bthrms:	3
Half Baths:	0
Extra Fixtures	3
Total Rooms:	10
Bath Style:	Modern
Kitchen Style:	Average
Extra Kitchens	0
Fireplace(s)	1
Usrfld 103	1
Gas Fireplace(s)	0
Stacks	1
Bsmt Garage(s)	0
Usrfld 107	Poured Conc
Callback	
Fireplaces	
Fin Bsmnt	0.00
Fin Bsmnt Qual	
Bsmt Heat	
Int Vs Ext	Same
Usrfld 300	
Usrfld 301	

Building Photo

(http://images.vgsi.com/photos2/WestbrookCTPhotos//\00\00\50\97.jpg)

Building Layout



(http://images.vgsi.com/photos2/WestbrookCTPhotos//Sketches/1175_117

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,817	1,817
FNS	Finished 90% Story	1,472	1,325
BSM	Basement	1,817	0
FOP	Open Porch	125	0
PTO	Patio	170	0
WDK	Deck	320	0
		5,721	3,142

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Res Dwelling
Zone	RR
Neighborhood	0045
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	5
Depth	
Assessed Value	$74,310
Appraised Value	$114,740

Special Land			
Land Use Code	**Land Use Description**	**Units**	**Unit Type**
712	490 Tillable C	2	AC

Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**	**Comment**
FGR1	Garage			868.00 S.F.	$10,850	1	
TCB	Telecomm Bldg			216.00 UNITS	$59,400	1	
TCS	Telecomm Site			700.00 UNITS	$269,500	1	
SHD1	Shed			180.00 S.F.	$1,800	1	
BRN1	1 Story Barn			360.00 S.F.	$5,400	1	
STB	Stable			310.00 S.F.	$6,980	1	
LNT	Lean To			264.00 S.F.	$660	1	
SHD1	Shed			140.00 S.F.	$1,400	1	
GAZ	Gazebo			77.00 S.F.	$770	1	
TCM	Telecomm			100.00 S.F.&HGT	$2,450	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			3.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			0.00 S.F.&HGT	$10,710	1	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$582,990	$114,740	$697,730

2018	$587,600	$114,740	$702,340
2017	$566,890	$114,740	$681,630

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$413,390	$74,310	$487,700
2018	$416,620	$74,310	$490,930
2017	$402,120	$74,310	$476,430

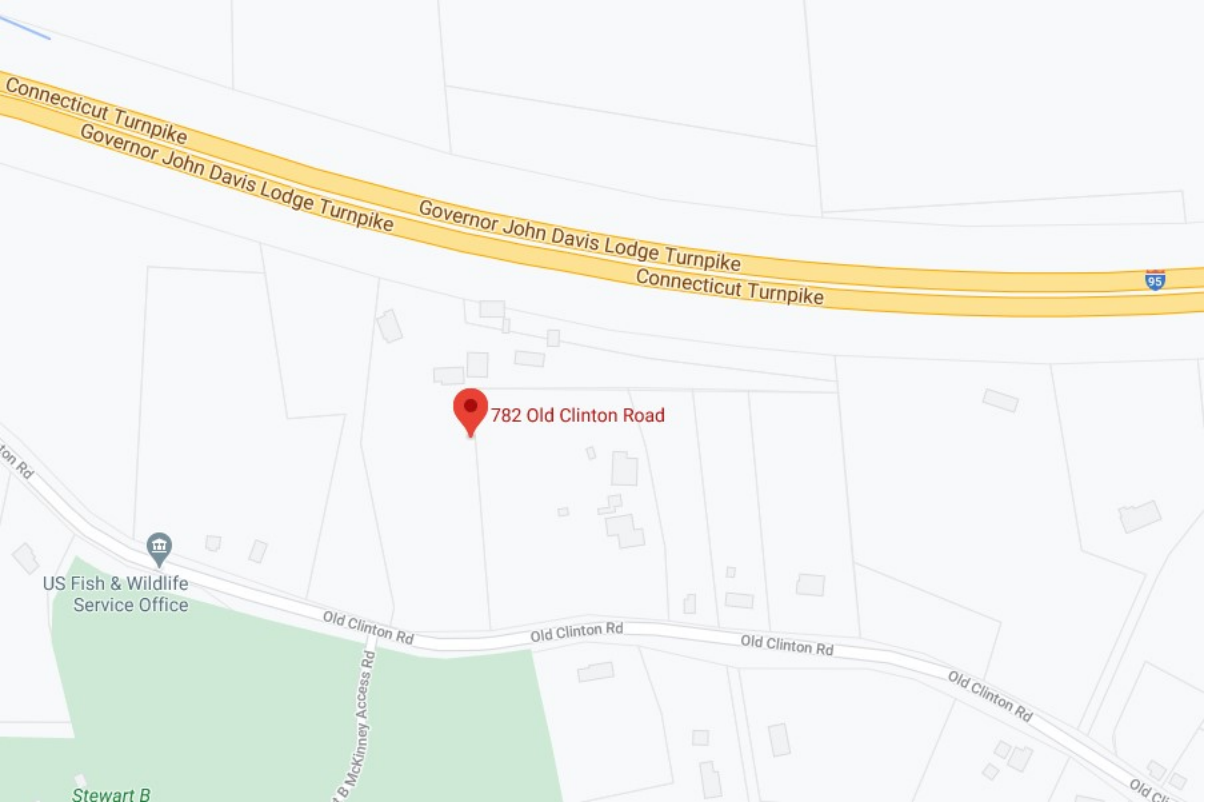

Connecticut Turnpike
Governor John Davis Lodge Turnpike
Governor John Davis Lodge Turnpike
Connecticut Turnpike
95
782 Old Clinton Road
US Fish & Wildlife Service Office
Old Clinton Rd
Old Clinton Rd
Old Clinton Rd
Old Clinton Rd
B McKinney Access Rd
Stewart B

Exhibit C

Construction Drawings

T-MOBILE SITE NAME:

WESTBROOK/I-95/X64/CH1

T-MOBILE SITE NUMBER:

CT11032D

CROWN BU: 876339 / APP#: 479798

67D92DB CONFIGURATION

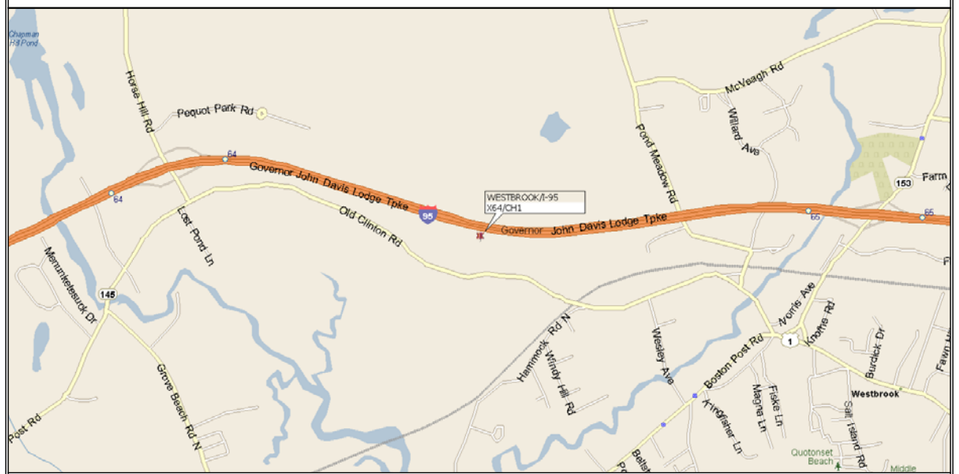
782 OLD CLINTON ROAD
WESTBROOK, CT 06498

EXISTING 160'-0" MONOPOLE

PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	782 OLD CLINTON ROAD WESTBROOK, CT 06498
JURISDICTION:	MIDDLESEX COUNTY
NAD83	
LATITUDE:	41.290491° N
LONGITUDE:	72.468843° W
TOWER OWNER:	CROWN CASTLE 3200 HORIZON DRIVE, SUITE 150 KING OF PRUSSIA, PA 19406 JASON SMITH (610) 635-3225
CUSTOMER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054 (973) 397-4800
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



NO SCALE

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	2
A-1	OVERALL SITE PLAN	2
A-2	ANTENNA/CABLE SCHEDULE AND AZIMUTH PLANS	2
A-3	TOWER ELEVATION	2
A-4	ANTENNA AND RRU DETAILS	2
A-4.1	ANTENNA AND RRU DETAILS	2
E-1	PANEL SCEHDULE AND ONE-LINE DIAGRAM	2
S1	MOUNT MOD	0
S2	MOUNT MOD	0

CONTACT INFORMATION

A&E FIRM:	B+T GROUP 1717 S. BOULDER, STE. 300 TULSA, OK 74119	ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. 203-499-5973
CONTACT:	MIKE OAKES	TELCO PROVIDER:	COMCAST PHONE 800-934-6489
PHONE:	(918) 587-4630		

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 (RIGHT) ONTO I-91 [RICHARD P HORAN MEMORIAL HWY]. AT EXIT 22S, TAKE RAMP (LEFT) ONTO CT-9. KEEP STRAIGHT ONTO CT-17 [CT-9]. AT EXIT 13, ROAD NAME CHANGES TO CT-9. TAKE RAMP (RIGHT) ONTO I-95 [US-1]. AT EXIT 64, TURN RIGHT ONTO RAMP. TURN LEFT ONTO CT-145 [HORSE HILL RD]. TURN LEFT ONTO OLD CLINTON RD. TURN LEFT ONTO LOCAL ROAD(S) AND ARRIVE AT WESTBROOK/I-95/X64/CH1.

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
T-MOBILE PROP:		
T-MOBILE R.F. MGR.:		
T-MOBILE NetOps:		
T-MOBILE CONST. MGR.:		
INTERCONNECT:		
T-MOBILE SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

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 CT STATE BLDG CODE
STRUCTURAL	2018 CT STATE BLDG CODE
MECHANICAL	2018 CT STATE BLDG CODE
ELECTRICAL	NEC 2017

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (6) EXISTING ANTENNAS AT 145'-0".
- REMOVE (3) RRUS AT 145'-0".
- REMOVE (1) DUS41 & (1) XMU
- INSTALL (6) NEW ANTENNAS AT 145'-0".
- INSTALL (3) NEW RRUS AT 145'-0".
- INSTALL (3) NEW 6x12 HCS FIBER.
- INSTALL (2) BB 6630s
- MODIFY EXISTING MOUNTS PER MOUNT ANALYSIS BY PAUL J. FORD & COMPANY DATED 6/6/19.

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.

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

B+T GRP

CROWN CASTLE

T-Mobile

CT11032D
BU #: 876339
WESTBROOK/I-95/X64/CH1
782 OLD CLINTON ROAD
WESTBROOK, CT 06498
EXISTING 160'-0" MONOPOLE

PROJECT NO:	077937.005.01
CHECKED BY:	GEH

ISSUED FOR:

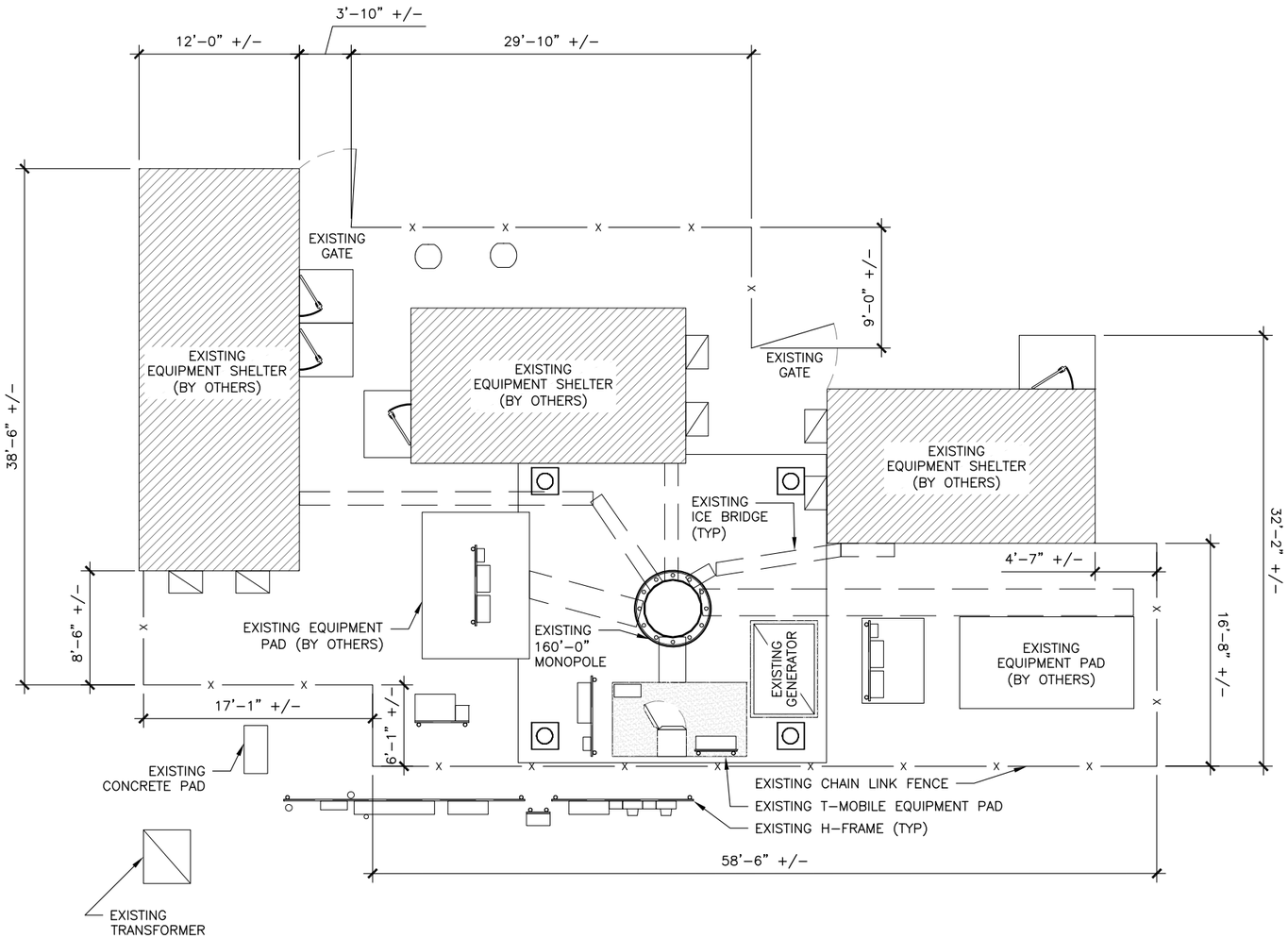
REV	DATE	DRWN	DESCRIPTION
0	7/31/19	RFC	CONSTRUCTION
1	9/25/19	RFC	CONSTRUCTION
2	12/10/20	MC	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER

12/10/20

SHEET NUMBER: T-1
REVISION: 2



1 OVERALL SITE PLAN

SCALE: 0' 4' 8' 16' 32'

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS SITUATED AT 782 OLD CLINTON ROAD, WESTBROOK, CT 06498.
2. APPLICANT: T-MOBILE
   A DELAWARE LIMITED LIABILITY COMPANY
   4 SYLVAN WAY
   PARSIPPANY, NEW JERSEY 07054
   (973) 397-4800

   TOWER OWNER: CROWN CASTLE INTERNATIONAL

- THE APPLICANT IS TO UPDATE THEIR NETWORK BY INSTALLING SIX (6) NEW PANEL ANTENNAS, THREE (3) RRUS, AND THREE (3) ADDITIONAL CABLES MOUNTED ON AN EXISTING MONOPOLE.

3. THIS FACILITY SHALL BE VISITED ON THE AVERAGE OF ONCE A MONTH FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.
4. THE EXISTING SITE IS LOCATED AT LATITUDE OF 41.290491° N± AND LONGITUDE OF 72.468843° W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).
5. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION"
6. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:

   6.A. CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   6.B. CURRENT PREVAILING UTILITY COMPANY AUTHORITY SPECIFICATIONS, STANDARDS AND REQUIREMENTS.

7. THE CONTRACTOR SHALL NOTIFY B+T GROUP, P.A. IMMEDIATELY IF ANY FIELD-CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE AND/OR INEFFECTIVE.
8. THE CONTRACTOR IS RESPONSIBLE TO PROTECT, REPAIR AND/OR REPLACE ANY DAMAGED STRUCTURES, UTILITIES OR LANDSCAPED AREA WHICH MAY BE DISTURBED DURING THE CONSTRUCTION OF THIS FACILITY.
9. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
10. SITE INFORMATION SHOWN TAKEN FROM CROWN CASTLE SITE PLANS AND FROM CROWN CASTLE INSPECTION PHOTOS.
11. NO GUARANTEE IS MADE NOR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE HORIZONTAL OR VERTICAL LOCATIONS. ALL PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN PRIOR TO CONSTRUCTION ACTIVITIES.
12. ALL IMPROVEMENTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE TOWNSHIP ENGINEER WHO WILL BE GIVEN PROPER NOTIFICATION PRIOR TO THE START OF ANY CONSTRUCTION.

B+T GRP

CROWN CASTLE

T-Mobile

CT11032D
BU #: 876339

WESTBROOK/I-95/X64/CH1

782 OLD CLINTON ROAD
WESTBROOK, CT 06498

EXISTING 160'-0" MONOPOLE

PROJECT NO:	077937.005.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/31/19	RFC	CONSTRUCTION
1	9/25/19	RFC	CONSTRUCTION
2	12/10/20	MC	CONSTRUCTION

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12/10/20

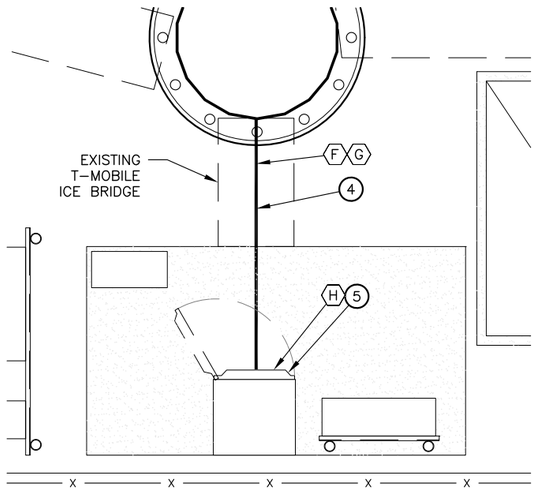
SHEET NUMBER:	REVISION:
A-1	2

LEGEND

EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO REMAIN (TOTAL OF 3)	2	INSTALL ERICSSON-AIR32 KRD901146-1_B66A_B2A ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING ERICSSON AIR21 KRC118023-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	4	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING RRUS11 B12 TO BE REMOVED (TOTAL OF 3)	5	INSTALL (2) BB 6630s
F	EXISTING 9X18 HCS FIBER TO REMAIN (TOTAL OF 1)		
G	EXISTING 1 5/8" COAX TO REMAIN (TOTAL OF 6)		
H	REMOVE (1) DUS41 & (1) XMU		

ANTENNA AND CABLE SCHEDULE

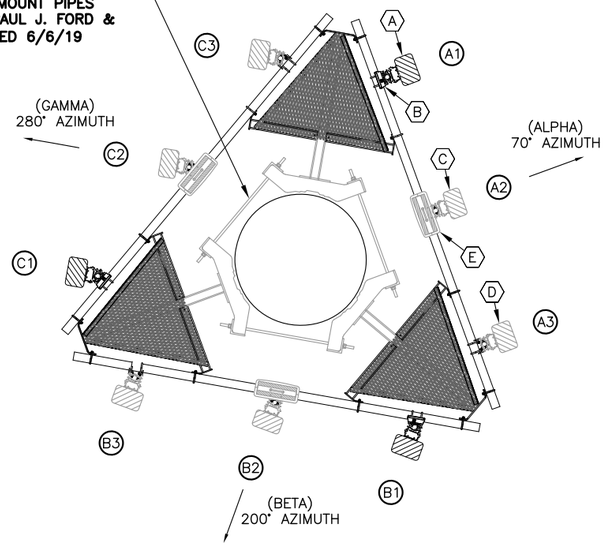
SECTOR	POSITION	EXISTING ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
70° - ALPHA	A1	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	-	2°/2°	-	145'-0"	1/0	(2) 1 5/8" COAX **(3) 6x12 HCS FIBER**	(2) FIBER	195'-0"
	A2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**SHARED FIBER**	**(4) COAX (1) FIBER**	**195'-0"**
	A3	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	-	**2°/2°**	-		**0/0**	**(1) 9x18 HCS FIBER**	**(2) FIBER**	**195'-0"**
200° - BETA	B1	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	-	2°/2°	-	145'-0"	1/0	(2) 1 5/8" COAX	(2) FIBER	195'-0"
	B2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**SHARED FIBER**	**(4) COAX (1) FIBER**	**195'-0"**
	B3	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	-	**2°/2°**	-		**0/0**	**SHARED FIBER**	**(2) FIBER**	**195'-0"**
280° - GAMMA	C1	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	-	2°/2°	-	145'-0"	1/0	(2) 1 5/8" COAX	(2) FIBER	195'-0"
	C2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**SHARED FIBER**	**(4) COAX (1) FIBER**	**195'-0"**
	C3	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	-	**2°/2°**	-		**0/0**	**SHARED FIBER**	**(2) FIBER**	**195'-0"**



1 ENLARGED AREA PLAN

SCALE: 0' 1' 2' 4' 10'

MODIFY ANTENNA MOUNT SITEPRO1 P/N: PRK-1245L & P2.5 STD MOUNT PIPES PER MA BY PAUL J. FORD & COMPANY DATED 6/6/19

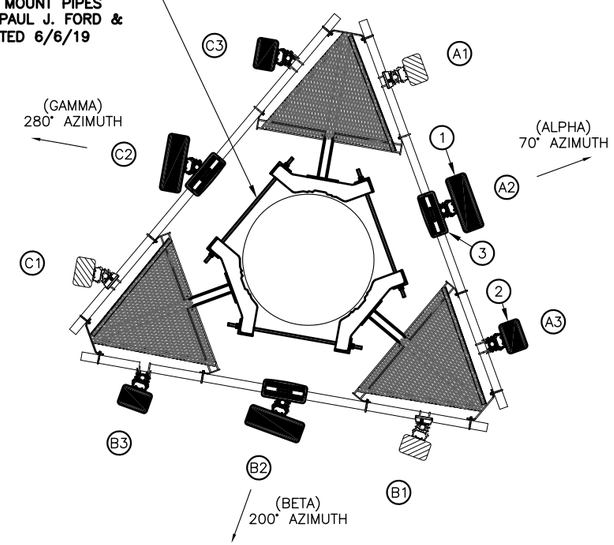


2 EXISTING ANTENNA ORIENTATION

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

N

MODIFY ANTENNA MOUNT SITEPRO1 P/N: PRK-1245L & P2.5 STD MOUNT PIPES PER MA BY PAUL J. FORD & COMPANY DATED 6/6/19



3 PROPOSED ANTENNA ORIENTATION

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

N

B+T GRP

CROWN CASTLE

T-Mobile

CT11032D
BU #: 876339
WESTBROOK/I-95/X64/CH1
782 OLD CLINTON ROAD
WESTBROOK, CT 06498
EXISTING 160'-0" MONOPOLE

PROJECT NO:	077937.005.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/31/19	RFC	CONSTRUCTION
1	9/25/19	RFC	CONSTRUCTION
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12/10/20

SHEET NUMBER: A-2

REVISION: 2

LEGEND

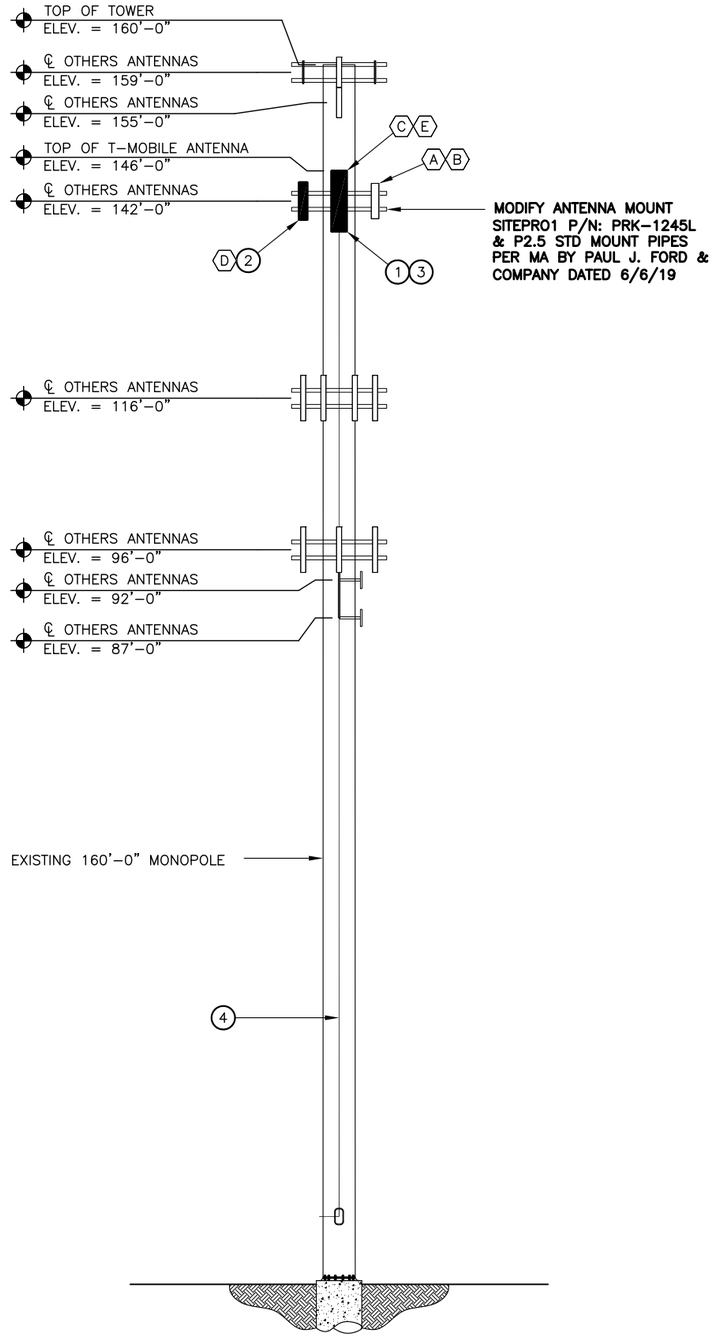
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO REMAIN (TOTAL OF 3)	2	INSTALL ERICSSON-AIR32 KRD901146-1_B66A_B2A ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING ERICSSON AIR21 KRC118023-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	4	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING RRUS11 B12 TO BE REMOVED (TOTAL OF 3)		
F	EXISTING 9X18 HCS FIBER TO REMAIN (TOTAL OF 1)		
G	EXISTING 1 5/8" COAX TO REMAIN (TOTAL OF 6)		

EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY CROWN CASTLE DATED 11/24/20.

EXISTING MOUNT TO BE MODIFIED PER MOUNT MODIFICATION BY PAUL J. FORD & COMPANY DATED 6/6/19.

LEGEND:

- **NEW**
- EXISTING
- FUTURE



1 TOWER ELEVATION

SCALE: 1"=20'

0' 10' 20' 30' 40'

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CROWN CASTLE

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CT11032D
BU #: 876339
WESTBROOK/I-95/X64/CH1
782 OLD CLINTON ROAD
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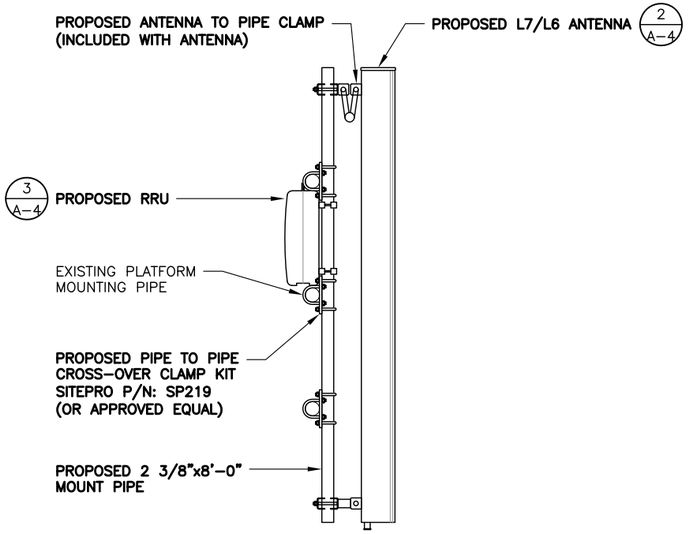
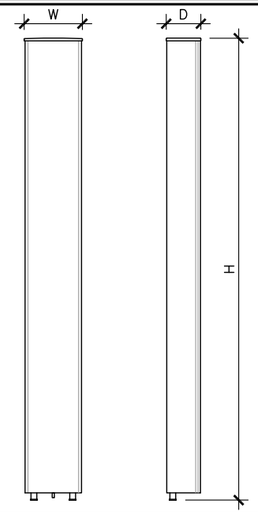
SHEET NUMBER:	REVISION:
A-3	2



1 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL

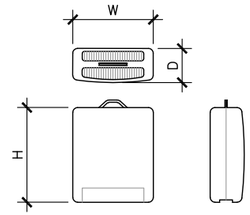
SCALE: 3/8" = 1'-0"



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

2 L7/L6 ANTENNA DETAIL

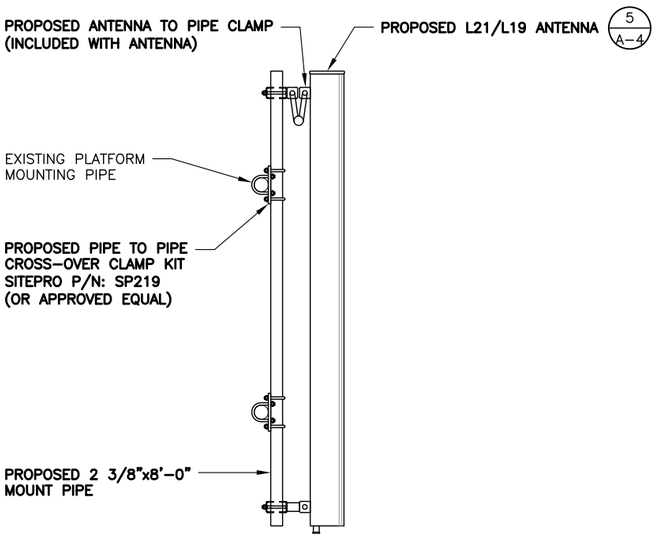
SCALE: 3/8" = 1'-0"



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4449
WIDTH	13.2"
DEPTH	9.3"
HEIGHT	14.9"
WEIGHT	75 LBS

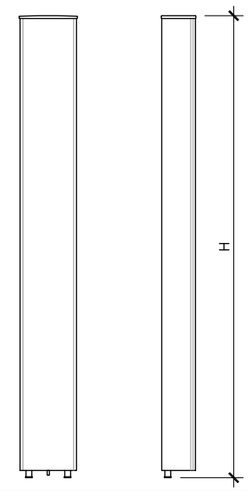
3 REMOTE RADIO UNIT (RRU)

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



4 PROPOSED L21/L19 ANTENNA MOUNTING DETAIL

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



ANTENNA SPECS	
MANUFACTURER	ERICSSON AIR32
MODEL #	KRD901146-1_B66A_B2A
WIDTH	12.9"
DEPTH	8.7"
HEIGHT	59.3"
WEIGHT	143.0 LBS

5 L21/L19 ANTENNA DETAIL

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

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CROWN CASTLE

T···Mobile

CT11032D
BU #: 876339

WESTBROOK/I-95/X64/CH1

782 OLD CLINTON ROAD
WESTBROOK, CT 06498

EXISTING 160'-0" MONOPOLE

PROJECT NO:	077937.005.01
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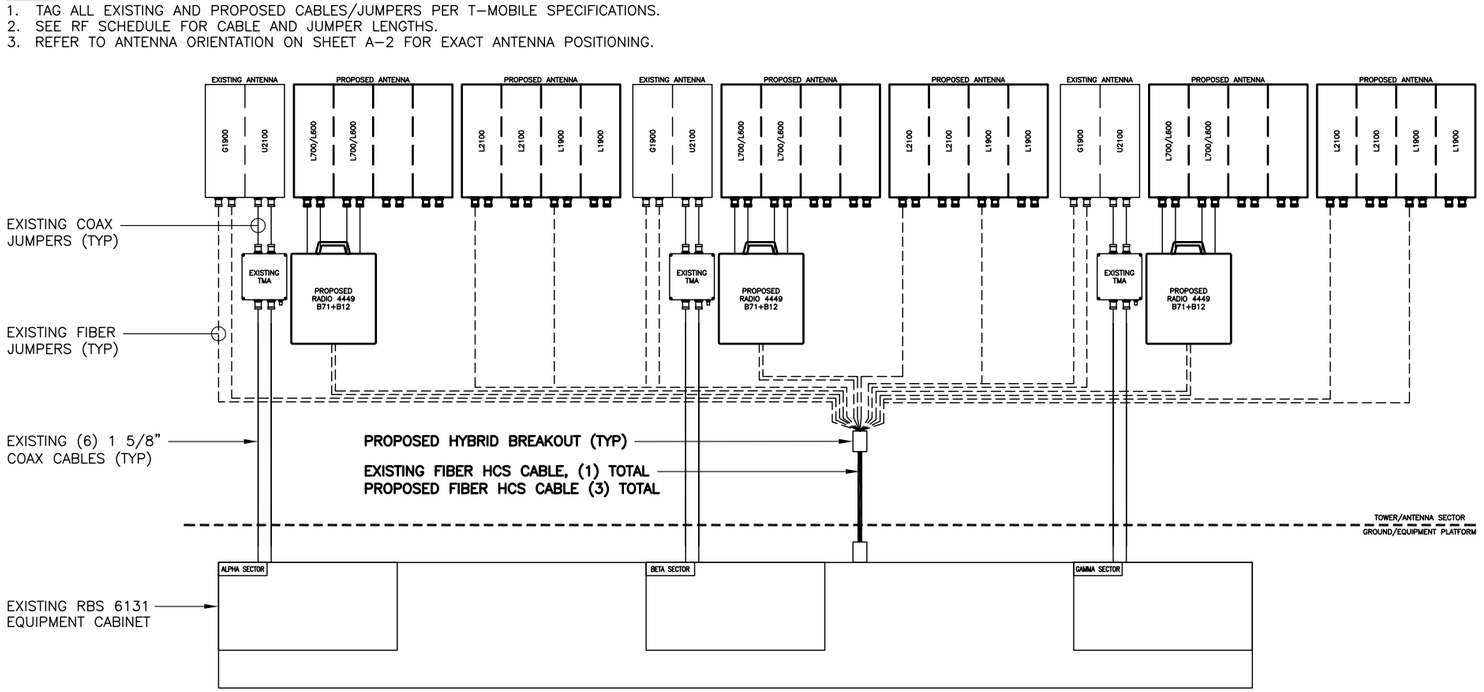
SHEET NUMBER:	REVISION:
A-4	2

NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T–MOBILE SPECIFICATIONS.
2. SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
3. REFER TO ANTENNA ORIENTATION ON SHEET A–2 FOR EXACT ANTENNA POSITIONING.



1 ANTENNA & CABLING SCHEMATIC
SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T···Mobile

CT11032D
BU #: 876339
WESTBROOK/I-95/X64/CH1
782 OLD CLINTON ROAD
WESTBROOK, CT 06498
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SHEET NUMBER: A-4.1
REVISION: 2

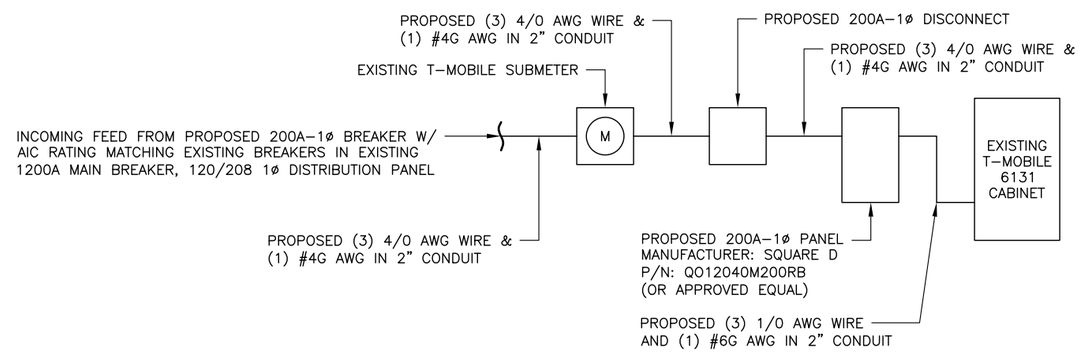
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
GFI	1	20	1	2	20	1	FIBER
			3	4	**125A**	2	RBS 6131
			5	6			

RATED VOLTAGE: ■120/240 □_____. 1 PHASE, 3 WIRE		BRANCH POLES: ■16 □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			

EXISTING 100A BREAKER PANEL TO BE REPLACED W/ NEW 200A BREAKER PANEL. SQUARE D P/N: QO12040M200RB (OR APPROVED EQUAL)
REPLACE EXISTING BREAKERS W/ NEW BREAKERS OF SAME AMPERAGE INSIDE NEW PANEL
REPLACE EXISTING WIRES FOR EXISTING 6131 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2"
UPGRADE FEEDER WIRES TO MEET AMPACITY.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.



2 ONE-LINE DIAGRAM

SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T···Mobile

CT11032D
BU #: 876339
WESTBROOK/I-95/X64/CH1
782 OLD CLINTON ROAD
WESTBROOK, CT 06498
EXISTING 160'-0" MONOPOLE

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12/10/20

SHEET NUMBER:	REVISION:
E-1	2

Exhibit D

Structural Analysis Report

Date: **November 24, 2020**

Denice Nicholson
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11032D
	Carrier Site Name:	Westbrook/ I-95/ X64/ Ch1
Crown Castle Designation:	**Crown Castle BU Number:**	876339
	Crown Castle Site Name:	POND MEADOW RD. STABLE
	Crown Castle JDE Job Number:	559326
	Crown Castle Work Order Number:	1901226
	Crown Castle Order Number:	479798 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1901226
Site Data:	**782 Old Clinton Road, WESTBROOK, Middlesex County, CT** **Latitude *41° 17' 25.7"*, Longitude *-72° 28' 7.9"*** **160 Foot - Monopole Tower**	

Dear Denice Nicholson,

Crown Castle is pleased to submit this **"Structural Analysis 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:

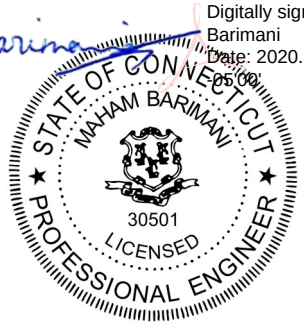
LC7: Proposed Equipment Configuration **Sufficient Capacity – 73.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Matthew Hussak

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2020.11.24 15:58:02 -05'00'



Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration
Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE
Table 3 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 4 - Section Capacity (Summary)
Table 5 - Tower Component Stresses vs. Capacity - LC7
4.1) Recommendations

5) APPENDIX A
tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by VALMONT. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135
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)
142.0	145.0	3	ericsson	AIR 32 B2A B66AA w/ Mount Pipe	10	1-5/8
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	142.0	1	tower mounts	(1) 13' Platform		
		1	sitepro1	PRK-1245L		

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)
159.0	160.0	3	alcatel lucent	TD-RRH8X20-25	4	1-1/4
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe		
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	159.0	1	tower mounts	Platform Mount [LP 602-1]		
155.0	155.0	1	tower mounts	Side Arm Mount [SO 102-3]	-	-
	154.0	3	alcatel lucent	800MHZ 2X50W RRH W/FILTER		
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ		
118.0	118.0	4	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe	8	1-5/8
		1	antel	LPA-80080-4CF-EDIN-0 w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	antel	LPA-80080/4CF w/ Mount Pipe		
		3	commscope	CBC78T-DS-43-2X		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		1	tower mounts	Platform Mount [LP 303-1_HR-1]		
96.0	103.0	1	gps	GPS_A	12 2 1 1 2	1-5/8 3/4 1/2 3/8 2" conduit
	98.0	3	ericsson	RRUS 11		
		3	ericsson	RRUS 12 B2		
		3	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe		
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	TT19-08BP111-001		
		1	raycap	DC6-48-60-18-8F		
	96.0	1	tower mounts	T-Arm Mount [TA 602-3]		
92.0	93.0	1	lucent	KS24019-L112A	1	1/2
	92.0	1	tower mounts	Side Arm Mount [SO 701-1]		
87.0	87.0	2	tower mounts	Side Arm Mount [SO 701-1]	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	1532966	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Semaan	1533020	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont	1531985	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF	2884023	CCISITES
4-POST-MODIFICATION INSPECTION	TEP	2923975	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF	3366474	CCISITES
4-POST-MODIFICATION INSPECTION	TEP	3633208	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF	3678375	CCISITES
4-POST-MODIFICATION INSPECTION	PJF	3682462	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF	3682464	CCISITES
4-POST-MODIFICATION INSPECTION	TEP	4023333	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), 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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

1) 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. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 156	Pole	TP23.11x22.35x0.2188	Pole	2.8%	Pass
156 - 152	Pole	TP23.871x23.11x0.2188	Pole	6.2%	Pass
152 - 148	Pole	TP24.631x23.871x0.2188	Pole	9.7%	Pass
148 - 144	Pole	TP25.391x24.631x0.2188	Pole	13.2%	Pass
144 - 140	Pole	TP26.151x25.391x0.2188	Pole	19.8%	Pass
140 - 136	Pole	TP26.912x26.151x0.2188	Pole	26.0%	Pass
136 - 132	Pole	TP27.672x26.912x0.2188	Pole	32.0%	Pass
132 - 128	Pole	TP28.432x27.672x0.2188	Pole	37.7%	Pass
128 - 124	Pole	TP29.192x28.432x0.2188	Pole	43.3%	Pass
124 - 122	Pole	TP30.46x29.192x0.2188	Pole	46.0%	Pass
122 - 116.33	Pole	TP30.212x29.135x0.2813	Pole	38.5%	Pass
116.33 - 112.33	Pole	TP30.972x30.212x0.2813	Pole	43.4%	Pass
112.33 - 108.33	Pole	TP31.732x30.972x0.2813	Pole	48.1%	Pass
108.33 - 104.33	Pole	TP32.492x31.732x0.2813	Pole	52.7%	Pass
104.33 - 100.33	Pole	TP33.252x32.492x0.2813	Pole	57.2%	Pass
100.33 - 96.33	Pole	TP34.012x33.252x0.2813	Pole	61.7%	Pass
96.33 - 94	Pole	TP34.455x34.012x0.2813	Pole	65.1%	Pass
94 - 93.75	Pole	TP34.502x34.455x0.2813	Pole	65.5%	Pass
93.75 - 89.75	Pole	TP35.262x34.502x0.2813	Pole	70.7%	Pass
89.75 - 88	Pole	TP36.64x35.262x0.2813	Pole	72.9%	Pass

88 - 81.5	Pole	TP36.273x35.032x0.375	Pole	55.2%	Pass
81.5 - 77.5	Pole	TP37.036x36.273x0.375	Pole	58.3%	Pass
77.5 - 73.5	Pole	TP37.799x37.036x0.375	Pole	61.3%	Pass
73.5 - 72.25	Pole	TP38.038x37.799x0.375	Pole	62.2%	Pass
72.25 - 72	Pole + Reinf.	TP38.085x38.038x0.4875	Reinf. 5 Tension Rupture	58.7%	Pass
72 - 68	Pole + Reinf.	TP38.849x38.085x0.4813	Reinf. 5 Tension Rupture	61.2%	Pass
68 - 64	Pole + Reinf.	TP39.612x38.849x0.475	Reinf. 5 Tension Rupture	63.5%	Pass
64 - 60	Pole + Reinf.	TP40.375x39.612x0.475	Reinf. 5 Tension Rupture	65.7%	Pass
60 - 56	Pole + Reinf.	TP41.138x40.375x0.475	Reinf. 5 Tension Rupture	67.9%	Pass
56 - 53.75	Pole + Reinf.	TP41.568x41.138x0.475	Reinf. 5 Tension Rupture	69.0%	Pass
53.75 - 53.5	Pole + Reinf.	TP41.615x41.568x0.6375	Reinf. 4 Tension Rupture	64.5%	Pass
53.5 - 49.5	Pole + Reinf.	TP42.379x41.615x0.6375	Reinf. 4 Tension Rupture	66.6%	Pass
49.5 - 47	Pole + Reinf.	TP44.08x42.379x0.625	Reinf. 4 Tension Rupture	67.8%	Pass
47 - 39.58	Pole + Reinf.	TP43.509x42.106x0.7	Reinf. 7 Compression	69.7%	Pass
39.58 - 35.58	Pole + Reinf.	TP44.266x43.509x0.7	Reinf. 7 Compression	71.4%	Pass
35.58 - 31.48	Pole + Reinf.	TP45.042x44.266x0.7375	Reinf. 7 Compression	68.6%	Pass
31.48 - 31.25	Pole + Reinf.	TP45.086x45.042x0.7375	Reinf. 7 Compression	68.7%	Pass
31.25 - 28.75	Pole + Reinf.	TP45.559x45.086x0.7375	Reinf. 7 Compression	69.7%	Pass
28.75 - 28.5	Pole + Reinf.	TP45.607x45.559x0.6375	Reinf. 3 Tension Rupture	70.8%	Pass
28.5 - 24.5	Pole + Reinf.	TP46.364x45.607x0.625	Reinf. 3 Tension Rupture	72.3%	Pass
24.5 - 20.5	Pole + Reinf.	TP47.121x46.364x0.625	Reinf. 3 Tension Rupture	73.6%	Pass
20.5 - 16.5	Pole + Reinf.	TP47.877x47.121x0.625	Reinf. 3 Tension Rupture	74.9%	Pass
16.5 - 12.5	Pole + Reinf.	TP48.634x47.877x0.625	Reinf. 3 Tension Rupture	76.1%	Pass
12.5 - 11	Pole + Reinf.	TP48.918x48.634x0.6125	Reinf. 3 Tension Rupture	76.6%	Pass
11 - 10.75	Pole + Reinf.	TP48.966x48.918x0.7125	Reinf. 3 Tension Rupture	67.9%	Pass
10.75 - 6.75	Pole + Reinf.	TP49.723x48.966x0.7125	Reinf. 3 Tension Rupture	69.1%	Pass
6.75 - 6.25	Pole + Reinf.	TP49.817x49.723x0.7125	Reinf. 3 Tension Rupture	69.2%	Pass
6.25 - 6	Pole + Reinf.	TP49.865x49.817x0.6625	Reinf. 6 Tension Rupture	74.5%	Pass
6 - 5	Pole + Reinf.	TP50.054x49.865x0.6625	Reinf. 6 Tension Rupture	74.8%	Pass
5 - 4.75	Pole + Reinf.	TP50.101x50.054x0.5625	Reinf. 3 Tension Rupture	79.8%	Pass
4.75 - 0.75	Pole + Reinf.	TP50.858x50.101x0.5625	Reinf. 3 Tension Rupture	80.8%	Pass
0.75 - 0	Pole + Reinf.	TP51x50.858x0.5625	Reinf. 3 Tension Rupture	81.0%	Pass
				Summary	
			Pole	72.9%	Pass
			Reinforcement	81.0%	Pass
			Overall	81.0%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	45.3	Pass
1	Base Plate	0	44.1	Pass
1	Base Foundation (Structure)	0	47.7	Pass
1	Base Foundation (Soil Interaction)	0	72.5	Pass

Structure Rating (max from all components) =	81.0%

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

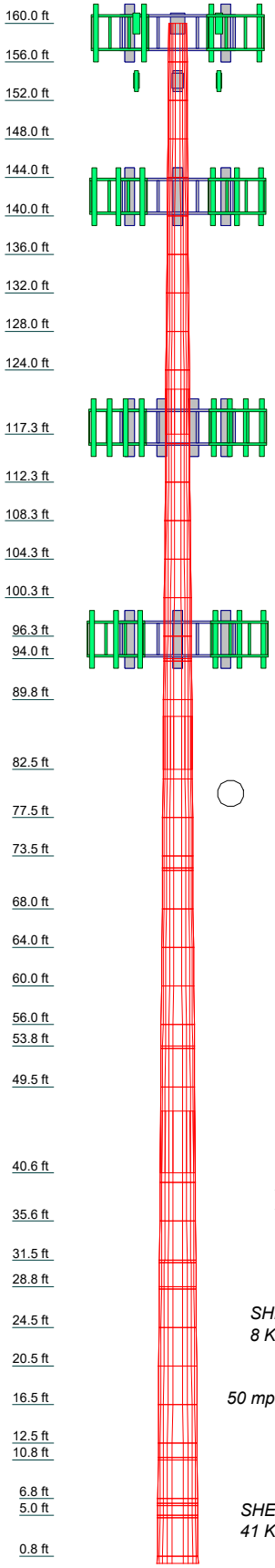
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Length (ft)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	5.67	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	5.33	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	7.92	4.00	4.00	4.10	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	0.75
Number of Sides	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.2188	0.2188	0.2188	0.2188	0.2188	0.2188	0.2188	0.2188	0.2188	0.2188	0.2813	0.2813	0.2813	0.2813	0.2813	0.2813	0.2813	0.2813	0.2813	0.2813	0.3750	0.3750	0.3750	0.3750	0.3750	0.4750	0.4750	0.4750	0.4750	0.4750	0.4750	0.6250	0.6250	0.7000	0.7000	0.7500	0.7500	0.7500	0.7500	0.7500	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.5625
Socket Length (ft)	4.67																			5.50														6.42																							
Top Dia (in)	2.3500	3.1102	3.8700	4.6300	5.3900	6.1525	6.9125	7.6725	8.4325	9.1923	9.9523	10.7123	11.4723	12.2323	12.9923	13.7523	14.5123	15.2723	16.0323	16.7925	17.5525	18.3125	19.0725	19.8325	20.5925	21.3525	22.1125	22.8725	23.6325	24.3925	25.1525	25.9125	26.6725	27.4325	28.1925	28.9525	29.7125	30.4725	31.2325	31.9925	32.7525	33.5125	34.2725	35.0325	35.7925	36.5525	37.3125	38.0725	38.8325	39.5925	40.3525	41.1125	41.8725
Bot Dia (in)	3.1102	3.8700	4.6300	5.3900	6.1525	6.9125	7.6725	8.4325	9.1923	9.9523	10.7123	11.4723	12.2323	12.9923	13.7523	14.5123	15.2723	16.0323	16.7925	17.5525	18.3125	19.0725	19.8325	20.5925	21.3525	22.1125	22.8725	23.6325	24.3925	25.1525	25.9125	26.6725	27.4325	28.1925	28.9525	29.7125	30.4725	31.2325	31.9925	32.7525	33.5125	34.2725	35.0325	35.7925	36.5525	37.3125	38.0725	38.8325	39.5925	40.3525	41.1125	41.8725
Grade	A572-65																																																							
Weight (K)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.2	0.4	0.4	0.8	0.9	0.6	0.6	0.2	0.8	0.8	0.8	0.8	0.8	0.5	1.10	0.8	2.5	2.3	1.3	1.4	0.1	0.9	1.20	1.2	1.3	1.3	0.5	1.50	0.2	1.3	0.2	0.2	0.2	0.2	0.2	0.1



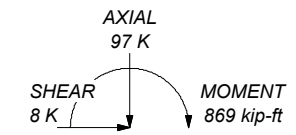
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

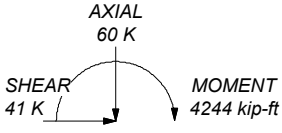
TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 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 0.00 ft
8. TOWER RATING: 81.0%

ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE



TORQUE 1 kip-ft
REACTIONS - 135 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: ***BU# 876339***			
Project:			
Client: Crown Castle	Drawn by: Matt Hussak		App'd:
Code: TIA-222-H	Date: 11/24/20		Scale: NTS
Path: C:\Users\mhussak\Documents\WIP\876339\WO 1901226 - SA\Prod\876339_RPA Reinforced.er			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in Middlesex County, Connecticut.
2) Tower base elevation above sea level: 95.00 ft.
3) Basic wind speed of 135 mph.
4) Risk Category II.
5) Exposure Category B.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height: 0.00 ft.
9) Nominal ice thickness of 1.5000 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.00 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) TOWER RATING: 76.0%.
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in pole design is 1.05.
19) Tower analysis based on target reliabilities in accordance with Annex S.
20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
21) 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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	160.00-156.00	4.00	0.00	12	22.3500	23.1103	0.2188	0.8750	A572-65 (65 ksi)
L2	156.00-152.00	4.00	0.00	12	23.1103	23.8705	0.2188	0.8750	A572-65 (65 ksi)
L3	152.00-148.00	4.00	0.00	12	23.8705	24.6308	0.2188	0.8750	A572-65 (65 ksi)
L4	148.00-144.00	4.00	0.00	12	24.6308	25.3910	0.2188	0.8750	A572-65 (65 ksi)
L5	144.00-140.00	4.00	0.00	12	25.3910	26.1513	0.2188	0.8750	A572-65 (65 ksi)
L6	140.00-136.00	4.00	0.00	12	26.1513	26.9115	0.2188	0.8750	A572-65 (65 ksi)
L7	136.00-132.00	4.00	0.00	12	26.9115	27.6718	0.2188	0.8750	A572-65 (65 ksi)
L8	132.00-128.00	4.00	0.00	12	27.6718	28.4320	0.2188	0.8750	A572-65 (65 ksi)
L9	128.00-124.00	4.00	0.00	12	28.4320	29.1923	0.2188	0.8750	A572-65 (65 ksi)
L10	124.00-117.33	6.67	4.67	12	29.1923	30.4600	0.2188	0.8750	A572-65 (65 ksi)
L11	117.33-116.33	5.67	0.00	12	29.1349	30.2122	0.2813	1.1250	A572-65 (65 ksi)
L12	116.33-112.33	4.00	0.00	12	30.2122	30.9722	0.2813	1.1250	A572-65 (65 ksi)
L13	112.33-108.33	4.00	0.00	12	30.9722	31.7322	0.2813	1.1250	A572-65 (65 ksi)
L14	108.33-104.33	4.00	0.00	12	31.7322	32.4922	0.2813	1.1250	A572-65 (65 ksi)
L15	104.33-100.33	4.00	0.00	12	32.4922	33.2523	0.2813	1.1250	A572-65 (65 ksi)
L16	100.33-96.33	4.00	0.00	12	33.2523	34.0123	0.2813	1.1250	A572-65 (65 ksi)
L17	96.33-94.00	2.33	0.00	12	34.0123	34.4550	0.2813	1.1250	A572-65 (65 ksi)
L18	94.00-93.75	0.25	0.00	12	34.4550	34.5025	0.2813	1.1250	A572-65 (65 ksi)
L19	93.75-89.75	4.00	0.00	12	34.5025	35.2625	0.2813	1.1250	A572-65 (65 ksi)
L20	89.75-82.50	7.25	5.50	12	35.2625	36.6400	0.2813	1.1250	A572-65 (65 ksi)
L21	82.50-81.50	6.50	0.00	12	35.0325	36.2727	0.3750	1.5000	A572-65 (65 ksi)
L22	81.50-77.50	4.00	0.00	12	36.2727	37.0360	0.3750	1.5000	A572-65 (65 ksi)
L23	77.50-73.50	4.00	0.00	12	37.0360	37.7992	0.3750	1.5000	A572-65 (65 ksi)
L24	73.50-72.25	1.25	0.00	12	37.7992	38.0377	0.3750	1.5000	A572-65 (65 ksi)
L25	72.25-72.00	0.25	0.00	12	38.0377	38.0854	0.4875	1.9500	A572-65 (65 ksi)
L26	72.00-68.00	4.00	0.00	12	38.0854	38.8486	0.4813	1.9250	A572-65 (65 ksi)
L27	68.00-64.00	4.00	0.00	12	38.8486	39.6119	0.4750	1.9000	A572-65 (65 ksi)
L28	64.00-60.00	4.00	0.00	12	39.6119	40.3751	0.4750	1.9000	A572-65 (65 ksi)
L29	60.00-56.00	4.00	0.00	12	40.3751	41.1383	0.4750	1.9000	A572-65 (65 ksi)
L30	56.00-53.75	2.25	0.00	12	41.1383	41.5676	0.4750	1.9000	A572-65 (65 ksi)
L31	53.75-53.50	0.25	0.00	12	41.5676	41.6153	0.6375	2.5500	A572-65 (65 ksi)
L32	53.50-49.50	4.00	0.00	12	41.6153	42.3786	0.6375	2.5500	A572-65 (65 ksi)
L33	49.50-40.58	8.92	6.42	12	42.3786	44.0800	0.6250	2.5000	A572-65 (65 ksi)
L34	40.58-39.58	7.42	0.00	12	42.1056	43.5092	0.7000	2.8000	A572-65 (65 ksi)
L35	39.58-35.58	4.00	0.00	12	43.5092	44.2662	0.7000	2.8000	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
									(65 ksi)
L36	35.58-31.48	4.10	0.00	12	44.2662	45.0421	0.7375	2.9500	A572-65 (65 ksi)
L37	31.48-31.25	0.23	0.00	12	45.0421	45.0862	0.7375	2.9500	A572-65 (65 ksi)
L38	31.25-28.75	2.50	0.00	12	45.0862	45.5593	0.7375	2.9500	A572-65 (65 ksi)
L39	28.75-28.50	0.25	0.00	12	45.5593	45.6066	0.6375	2.5500	A572-65 (65 ksi)
L40	28.50-24.50	4.00	0.00	12	45.6066	46.3636	0.6250	2.5000	A572-65 (65 ksi)
L41	24.50-20.50	4.00	0.00	12	46.3636	47.1205	0.6250	2.5000	A572-65 (65 ksi)
L42	20.50-16.50	4.00	0.00	12	47.1205	47.8775	0.6250	2.5000	A572-65 (65 ksi)
L43	16.50-12.50	4.00	0.00	12	47.8775	48.6345	0.6250	2.5000	A572-65 (65 ksi)
L44	12.50-11.00	1.50	0.00	12	48.6345	48.9183	0.6125	2.4500	A572-65 (65 ksi)
L45	11.00-10.75	0.25	0.00	12	48.9183	48.9656	0.7125	2.8500	A572-65 (65 ksi)
L46	10.75-6.75	4.00	0.00	12	48.9656	49.7226	0.7125	2.8500	A572-65 (65 ksi)
L47	6.75-6.25	0.50	0.00	12	49.7226	49.8172	0.7125	2.8500	A572-65 (65 ksi)
L48	6.25-6.00	0.25	0.00	12	49.8172	49.8645	0.6625	2.6500	A572-65 (65 ksi)
L49	6.00-5.00	1.00	0.00	12	49.8645	50.0538	0.6625	2.6500	A572-65 (65 ksi)
L50	5.00-4.75	0.25	0.00	12	50.0538	50.1011	0.5625	2.2500	A572-65 (65 ksi)
L51	4.75-0.75	4.00	0.00	12	50.1011	50.8581	0.5625	2.2500	A572-65 (65 ksi)
L52	0.75-0.00	0.75		12	50.8581	51.0000	0.5625	2.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.0613	15.5887	974.5581	7.9230	11.5773	84.1784	1974.7188	7.6723	5.4036	24.702
	23.8483	16.1242	1078.4818	8.1952	11.9711	90.0904	2185.2965	7.9358	5.6073	25.633
L2	23.8483	16.1242	1078.4818	8.1952	11.9711	90.0904	2185.2965	7.9358	5.6073	25.633
	24.6354	16.6597	1189.5427	8.4673	12.3649	96.2030	2410.3361	8.1994	5.8110	26.565
L3	24.6354	16.6597	1189.5427	8.4673	12.3649	96.2030	2410.3361	8.1994	5.8110	26.565
	25.4225	17.1952	1307.9780	8.7395	12.7587	102.5163	2650.3181	8.4630	6.0148	27.496
L4	25.4225	17.1952	1307.9780	8.7395	12.7587	102.5163	2650.3181	8.4630	6.0148	27.496
	26.2095	17.7307	1434.0246	9.0117	13.1525	109.0302	2905.7227	8.7265	6.2185	28.428
L5	26.2095	17.7307	1434.0246	9.0117	13.1525	109.0302	2905.7227	8.7265	6.2185	28.428
	26.9966	18.2662	1567.9198	9.2838	13.5464	115.7448	3177.0306	8.9901	6.4223	29.359
L6	26.9966	18.2662	1567.9198	9.2838	13.5464	115.7448	3177.0306	8.9901	6.4223	29.359
	27.7837	18.8017	1709.9002	9.5560	13.9402	122.6600	3464.7214	9.2536	6.6260	30.29
L7	27.7837	18.8017	1709.9002	9.5560	13.9402	122.6600	3464.7214	9.2536	6.6260	30.29
	28.5708	19.3372	1860.2031	9.8282	14.3340	129.7758	3769.2758	9.5172	6.8298	31.222
L8	28.5708	19.3372	1860.2031	9.8282	14.3340	129.7758	3769.2758	9.5172	6.8298	31.222
	29.3578	19.8727	2019.0654	10.1004	14.7278	137.0922	4091.1739	9.7808	7.0335	32.153
L9	29.3578	19.8727	2019.0654	10.1004	14.7278	137.0922	4091.1739	9.7808	7.0335	32.153
	30.1449	20.4082	2186.7243	10.3725	15.1216	144.6093	4430.8962	10.0443	7.2373	33.085
L10	30.1449	20.4082	2186.7243	10.3725	15.1216	144.6093	4430.8962	10.0443	7.2373	33.085
	31.4573	21.3012	2486.5036	10.8264	15.7783	157.5903	5038.3305	10.4838	7.5770	34.638
L11	30.9821	26.1306	2776.7505	10.3296	15.0919	183.9897	5626.4493	12.8607	7.0544	25.082
	31.1788	27.1062	3099.5357	10.7153	15.6499	198.0543	6280.4996	13.3409	7.3431	26.109
L12	31.1788	27.1062	3099.5357	10.7153	15.6499	198.0543	6280.4996	13.3409	7.3431	26.109
	31.9656	27.7945	3341.6929	10.9874	16.0436	208.2880	6771.1758	13.6796	7.5468	26.833
L13	31.9656	27.7945	3341.6929	10.9874	16.0436	208.2880	6771.1758	13.6796	7.5468	26.833

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	32.7524	28.4828	3596.1453	11.2595	16.4373	218.7796	7286.7654	14.0184	7.7505	27.557
L14	32.7524	28.4828	3596.1453	11.2595	16.4373	218.7796	7286.7654	14.0184	7.7505	27.557
	33.5392	29.1711	3863.1970	11.5315	16.8310	229.5289	7827.8845	14.3571	7.9542	28.282
L15	33.5392	29.1711	3863.1970	11.5315	16.8310	229.5289	7827.8845	14.3571	7.9542	28.282
	34.3261	29.8594	4143.1532	11.8036	17.2247	240.5360	8395.1516	14.6959	8.1579	29.006
L16	34.3261	29.8594	4143.1532	11.8036	17.2247	240.5360	8395.1516	14.6959	8.1579	29.006
	35.1129	30.5477	4436.3179	12.0757	17.6184	251.8009	8989.1828	15.0346	8.3615	29.73
L17	35.1129	30.5477	4436.3179	12.0757	17.6184	251.8009	8989.1828	15.0346	8.3615	29.73
	35.5712	30.9486	4613.2947	12.2342	17.8477	258.4815	9347.7858	15.2319	8.4802	30.152
L18	35.5712	30.9486	4613.2947	12.2342	17.8477	258.4815	9347.7858	15.2319	8.4802	30.152
	35.6204	30.9916	4632.5587	12.2512	17.8723	259.2036	9386.8199	15.2531	8.4929	30.197
L19	35.6204	30.9916	4632.5587	12.2512	17.8723	259.2036	9386.8199	15.2531	8.4929	30.197
	36.4072	31.6799	4948.1135	12.5233	18.2660	270.8925	10026.2195	15.5919	8.6966	30.921
L20	36.4072	31.6799	4948.1135	12.5233	18.2660	270.8925	10026.2195	15.5919	8.6966	30.921
	37.8333	32.9274	5555.9865	13.0164	18.9795	292.7359	11257.9350	16.2059	9.0658	32.234
L21	37.2225	41.8489	6415.9991	12.4074	18.1468	353.5604	13000.5537	20.5968	8.3837	22.357
	37.4200	43.3465	7129.7488	12.8514	18.7893	379.4584	14446.8041	21.3338	8.7161	23.243
L22	37.4200	43.3465	7129.7488	12.8514	18.7893	379.4584	14446.8041	21.3338	8.7161	23.243
	38.2102	44.2681	7594.2472	13.1246	19.1846	395.8506	15388.0038	21.7874	8.9206	23.788
L23	38.2102	44.2681	7594.2472	13.1246	19.1846	395.8506	15388.0038	21.7874	8.9206	23.788
	39.0003	45.1897	8078.4949	13.3979	19.5800	412.5895	16369.2209	22.2410	9.1252	24.334
L24	39.0003	45.1897	8078.4949	13.3979	19.5800	412.5895	16369.2209	22.2410	9.1252	24.334
	39.2472	45.4777	8233.9371	13.4832	19.7035	417.8915	16684.1889	22.3827	9.1891	24.504
L25	39.2076	58.9444	10608.4836	13.4430	19.7035	538.4052	21495.6639	29.0107	8.8876	18.231
	39.2569	59.0193	10648.9645	13.4600	19.7282	539.7828	21577.6892	29.0475	8.9004	18.257
L26	39.2591	58.2723	10517.6827	13.4623	19.7282	533.1283	21311.6767	28.6799	8.9171	18.529
	40.0493	59.4551	11171.1821	13.7355	20.1236	555.1286	22635.8436	29.2620	9.1217	18.954
L27	40.0515	58.6925	11031.4911	13.7378	20.1236	548.1870	22352.7917	28.8866	9.1384	19.239
	40.8417	59.8598	11702.9002	14.0110	20.5189	570.3461	23713.2486	29.4612	9.3430	19.669
L28	40.8417	59.8598	11702.9002	14.0110	20.5189	570.3461	23713.2486	29.4612	9.3430	19.669
	41.6318	61.0272	12401.0128	14.2842	20.9143	592.9442	25127.8140	30.0357	9.5475	20.1
L29	41.6318	61.0272	12401.0128	14.2842	20.9143	592.9442	25127.8140	30.0357	9.5475	20.1
	42.4220	62.1946	13126.3515	14.5575	21.3097	615.9815	26597.5469	30.6103	9.7521	20.531
L30	42.4220	62.1946	13126.3515	14.5575	21.3097	615.9815	26597.5469	30.6103	9.7521	20.531
	42.8664	62.8512	13546.5134	14.7112	21.5320	629.1329	27448.9087	30.9334	9.8671	20.773
L31	42.8091	84.0193	17966.0113	14.6530	21.5320	834.3851	36404.0098	41.3518	9.4316	14.795
	42.8585	84.1173	18028.9000	14.6701	21.5567	836.3461	36531.4393	41.4000	9.4444	14.815
L32	42.8585	84.1173	18028.9000	14.6701	21.5567	836.3461	36531.4393	41.4000	9.4444	14.815
	43.6486	85.6840	19055.1677	14.9433	21.9521	868.0339	38610.9359	42.1711	9.6490	15.136
L33	43.6530	84.0291	18698.3254	14.9478	21.9521	851.7784	37887.8766	41.3565	9.6825	15.492
	45.4145	87.4532	21078.5679	15.5569	22.8334	923.1446	42710.8933	43.0418	10.1384	16.222

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L34	44.6012	93.3282	20422.8695	14.8232	21.8107	936.3695	41382.2706	45.9333	9.4083	13.44
	44.7971	96.4919	22571.0254	15.3257	22.5378	1001.4757	45735.0167	47.4904	9.7845	13.978
L35	44.7971	96.4919	22571.0254	15.3257	22.5378	1001.4757	45735.0167	47.4904	9.7845	13.978
	45.5808	98.1982	23789.6541	15.5967	22.9299	1037.4959	48204.2888	48.3301	9.9873	14.268
L36	45.5676	103.3697	24999.4330	15.5833	22.9299	1090.2558	50655.6290	50.8754	9.8868	13.406
	46.3708	105.2123	26360.2421	15.8610	23.3318	1129.7993	53412.9971	51.7823	10.0948	13.688
L37	46.3708	105.2123	26360.2421	15.8610	23.3318	1129.7993	53412.9971	51.7823	10.0948	13.688
	46.4165	105.3170	26439.0253	15.8768	23.3546	1132.0677	53572.6333	51.8338	10.1066	13.704
L38	46.4165	105.3170	26439.0253	15.8768	23.3546	1132.0677	53572.6333	51.8338	10.1066	13.704
	46.9063	106.4405	27294.2305	16.0462	23.5997	1156.5498	55305.5108	52.3868	10.2334	13.876
L39	46.9415	92.2132	23751.5847	16.0820	23.5997	1006.4358	48127.1500	45.3845	10.5014	16.473
	46.9905	92.3103	23826.7083	16.0989	23.6242	1008.5717	48279.3707	45.4323	10.5141	16.493
L40	46.9949	90.5254	23379.0030	16.1034	23.6242	989.6206	47372.1984	44.5539	10.5476	16.876
	47.7786	92.0488	24579.2753	16.3744	24.0163	1023.4405	49804.2755	45.3036	10.7504	17.201
L41	47.7786	92.0488	24579.2753	16.3744	24.0163	1023.4405	49804.2755	45.3036	10.7504	17.201
	48.5623	93.5722	25819.9413	16.6454	24.4084	1057.8288	52318.2012	46.0534	10.9533	17.525
L42	48.5623	93.5722	25819.9413	16.6454	24.4084	1057.8288	52318.2012	46.0534	10.9533	17.525
	49.3460	95.0956	27101.6696	16.9164	24.8005	1092.7854	54915.3302	46.8032	11.1562	17.85
L43	49.3460	95.0956	27101.6696	16.9164	24.8005	1092.7854	54915.3302	46.8032	11.1562	17.85
	50.1296	96.6190	28425.1286	17.1874	25.1927	1128.3103	57597.0170	47.5530	11.3590	18.174
L44	50.1340	94.7113	27878.3904	17.1919	25.1927	1106.6080	56489.1772	46.6140	11.3925	18.6
	50.4279	95.2712	28375.6967	17.2935	25.3397	1119.8121	57496.8546	46.8896	11.4686	18.724
L45	50.3926	110.5962	32803.8908	17.2577	25.3397	1294.5654	66469.5764	54.4321	11.2006	15.72
	50.4416	110.7048	32900.5706	17.2746	25.3642	1297.1262	66665.4757	54.4855	11.2133	15.738
L46	50.4416	110.7048	32900.5706	17.2746	25.3642	1297.1262	66665.4757	54.4855	11.2133	15.738
	51.2253	112.4414	34473.3707	17.5456	25.7563	1338.4436	69852.3951	55.3403	11.4162	16.023
L47	51.2253	112.4414	34473.3707	17.5456	25.7563	1338.4436	69852.3951	55.3403	11.4162	16.023
	51.3233	112.6585	34673.4258	17.5795	25.8053	1343.6538	70257.7610	55.4471	11.4415	16.058
L48	51.3409	104.8593	32338.7872	17.5974	25.8053	1253.1826	65527.1504	51.6086	11.5755	17.472
	51.3899	104.9603	32432.2525	17.6143	25.8298	1255.6122	65716.5365	51.6582	11.5882	17.492
L49	51.3899	104.9603	32432.2525	17.6143	25.8298	1255.6122	65716.5365	51.6582	11.5882	17.492
	51.5858	105.3640	32807.9207	17.6821	25.9279	1265.3539	66477.7420	51.8569	11.6389	17.568
L50	51.6211	89.6411	28025.3190	17.7179	25.9279	1080.8959	56786.8944	44.1186	11.9069	21.168
	51.6700	89.7268	28105.7680	17.7348	25.9524	1082.9751	56949.9058	44.1608	11.9196	21.19
L51	51.6700	89.7268	28105.7680	17.7348	25.9524	1082.9751	56949.9058	44.1608	11.9196	21.19

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	52.4537	91.0978	29413.9602	18.0058	26.3445	1116.5133	59600.6578	44.8356	12.1225	21.551
L52	52.4537	91.0978	29413.9602	18.0058	26.3445	1116.5133	59600.6578	44.8356	12.1225	21.551
	52.6007	91.3549	29663.6785	18.0566	26.4180	1122.8586	60106.6548	44.9621	12.1605	21.619

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
L1 160.00-156.00				1	1	1			
L2 156.00-152.00				1	1	1			
L3 152.00-148.00				1	1	1			
L4 148.00-144.00				1	1	1			
L5 144.00-140.00				1	1	1			
L6 140.00-136.00				1	1	1			
L7 136.00-132.00				1	1	1			
L8 132.00-128.00				1	1	1			
L9 128.00-124.00				1	1	1			
L10 124.00-117.33				1	1	1			
L11 117.33-116.33				1	1	1			
L12 116.33-112.33				1	1	1			
L13 112.33-108.33				1	1	1			
L14 108.33-104.33				1	1	1			
L15 104.33-100.33				1	1	1			
L16 100.33-96.33				1	1	1			
L17 96.33-94.00				1	1	1			
L18 94.00-93.75				1	1	1			
L19 93.75-89.75				1	1	1			
L20 89.75-82.50				1	1	1			
L21 82.50-81.50				1	1	1			
L22 81.50-77.50				1	1	1			
L23 77.50-73.50				1	1	1			
L24 73.50-72.25				1	1	1			
L25 72.25-72.00				1	1	0.975147			
L26 72.00-68.00				1	1	0.983501			
L27 68.00-64.00				1	1	0.992247			
L28 64.00-60.00				1	1	0.988368			
L29 60.00-				1	1	0.984635			

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
56.00									
L30 56.00-53.75				1	1	0.982596			
L31 53.75-53.50				1	1	0.96925			
L32 53.50-49.50				1	1	0.962283			
L33 49.50-40.58				1	1	0.976929			
L34 40.58-39.58				1	1	0.973266			
L35 39.58-35.58				1	1	0.967215			
L36 35.58-31.48				1	1	0.971125			
L37 31.48-31.25				1	1	0.970749			
L38 31.25-28.75				1	1	0.966764			
L39 28.75-28.50				1	1	0.969016			
L40 28.50-24.50				1	1	0.983353			
L41 24.50-20.50				1	1	0.97874			
L42 20.50-16.50				1	1	0.974275			
L43 16.50-12.50				1	1	0.96995			
L44 12.50-11.00				1	1	0.98787			
L45 11.00-10.75				1	1	1.01358			
L46 10.75-6.75				1	1	1.00741			
L47 6.75-6.25				1	1	1.00665			
L48 6.25-6.00				1	1	1.07366			
L49 6.00-5.00				1	1	1.07208			
L50 5.00-4.75				1	1	1.05876			
L51 4.75-0.75				1	1	1.05453			
L52 0.75-0.00				1	1	1.05376			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
6.25 x 1.25	B	No	Surface Af (CaAa)	7.00 - 0.00	1	1	0.292 0.292	6.2500	15.0000	0.00
6.875 x 1.25	C	No	Surface Af (CaAa)	29.25 - 3.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
6.875 x 1.25	A	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
6.875 x 1.25	B	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
5.25 x 1.25	A	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
5.25 x 1.25	C	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
5.25 x 1.25	B	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
*										

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
4 x 1	A	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
4 x 1	C	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
4 x 1	B	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
*										
6 x 1	A	No	Surface Af (CaAa)	13.00 - 3.00	1	1	-0.208 -0.208	6.0000	14.0000	0.00
6 x 1	C	No	Surface Af (CaAa)	13.00 - 3.00	1	1	0.042 0.042	6.0000	14.0000	0.00
6 x 1	B	No	Surface Af (CaAa)	13.00 - 3.00	1	1	0.042 0.042	6.0000	14.0000	0.00
4.5 x 1	A	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	B	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	96.50 - 86.50	1	1	0.292 0.292	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	96.50 - 86.50	1	1	-0.458 -0.458	4.5000	11.0000	0.00
4.5 x 1	B	No	Surface Af (CaAa)	96.50 - 86.50	1	1	-0.208 -0.208	4.5000	11.0000	0.00
*										
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.208 -0.208	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.042 0.042	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.208 -0.208	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.292 0.292	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.042 0.042	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.292 0.292	4.5000	18.0000	13.91
*										
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	80.00 - 74.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	80.00 - 74.00	1	1	0.292 0.292	4.5000	18.0000	13.91
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	96.00 - 0.00	12	6	-0.500 -0.252	1.9800		0.82
2" (Nominal) Conduit	B	No	Surface Ar (CaAa)	96.00 - 0.00	1	1	-0.429 -0.429	2.3750		0.72
***										
LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	92.00 - 0.00	1	1	0.391 0.391	0.6300		0.15
***										

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 plf
***									
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	159.00 - 0.00	3	No Ice 1/2" Ice	0.00 0.00	1.08 1.08

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1" Ice	0.00	1.08
							2" Ice	0.00	1.08
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	159.00 - 0.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
							2" Ice	0.00	1.07
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	3	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	118.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	118.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30
***									
LDF4-50A(1/2)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	96.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
2" (Nominal) Conduit	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.72
							1/2" Ice	0.00	0.72
							1" Ice	0.00	0.72
							2" Ice	0.00	0.72
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.00-156.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L2	156.00-152.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	152.00-148.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L4	148.00-144.00	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L5	144.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L6	140.00-136.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L7	136.00-132.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L8	132.00-128.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L9	128.00-124.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L10	124.00-117.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.12
L11	117.33-116.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L12	116.33-112.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.10
L13	112.33-108.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.10
L14	108.33-104.33	A	0.000	0.000	8.258	0.000	0.15
		B	0.000	0.000	8.258	0.000	0.15
		C	0.000	0.000	5.505	0.000	0.20
L15	104.33-100.33	A	0.000	0.000	9.000	0.000	0.17
		B	0.000	0.000	9.000	0.000	0.17
		C	0.000	0.000	6.000	0.000	0.21
L16	100.33-96.33	A	0.000	0.000	9.000	0.000	0.17
		B	0.000	0.000	9.127	0.000	0.17
		C	0.000	0.000	6.255	0.000	0.21
L17	96.33-94.00	A	0.000	0.000	5.242	0.000	0.10
		B	0.000	0.000	9.841	0.000	0.12
		C	0.000	0.000	6.990	0.000	0.13
L18	94.00-93.75	A	0.000	0.000	0.563	0.000	0.01
		B	0.000	0.000	1.106	0.000	0.01
		C	0.000	0.000	0.750	0.000	0.01
L19	93.75-89.75	A	0.000	0.000	9.142	0.000	0.17
		B	0.000	0.000	17.702	0.000	0.21
		C	0.000	0.000	12.000	0.000	0.22
L20	89.75-82.50	A	0.000	0.000	4.394	0.000	0.07
		B	0.000	0.000	16.710	0.000	0.15
		C	0.000	0.000	7.500	0.000	0.25
L21	82.50-81.50	A	0.000	0.000	0.063	0.000	0.00
		B	0.000	0.000	1.426	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.03
L22	81.50-77.50	A	0.000	0.000	1.699	0.000	0.04
		B	0.000	0.000	5.702	0.000	0.04
		C	0.000	0.000	1.447	0.000	0.14
L23	77.50-73.50	A	0.000	0.000	2.612	0.000	0.05
		B	0.000	0.000	6.035	0.000	0.04
		C	0.000	0.000	2.360	0.000	0.16
L24	73.50-72.25	A	0.000	0.000	0.912	0.000	0.00
		B	0.000	0.000	2.615	0.000	0.01
		C	0.000	0.000	0.833	0.000	0.03
L25	72.25-72.00	A	0.000	0.000	0.182	0.000	0.00
		B	0.000	0.000	0.523	0.000	0.00
		C	0.000	0.000	0.167	0.000	0.01
L26	72.00-68.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	8.369	0.000	0.04
		C	0.000	0.000	2.667	0.000	0.11
L27	68.00-64.00	A	0.000	0.000	2.919	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	8.369	0.000	0.04
		C	0.000	0.000	2.667	0.000	0.11
L28	64.00-60.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	8.369	0.000	0.04
		C	0.000	0.000	2.667	0.000	0.11
L29	60.00-56.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	8.369	0.000	0.04
		C	0.000	0.000	2.667	0.000	0.11
L30	56.00-53.75	A	0.000	0.000	3.611	0.000	0.00
		B	0.000	0.000	6.676	0.000	0.02
		C	0.000	0.000	3.469	0.000	0.06
L31	53.75-53.50	A	0.000	0.000	0.401	0.000	0.00
		B	0.000	0.000	0.742	0.000	0.00
		C	0.000	0.000	0.385	0.000	0.01
L32	53.50-49.50	A	0.000	0.000	6.419	0.000	0.00
		B	0.000	0.000	11.869	0.000	0.04
		C	0.000	0.000	6.167	0.000	0.11
L33	49.50-40.58	A	0.000	0.000	13.281	0.000	0.00
		B	0.000	0.000	25.430	0.000	0.09
		C	0.000	0.000	12.719	0.000	0.24
L34	40.58-39.58	A	0.000	0.000	1.688	0.000	0.00
		B	0.000	0.000	3.051	0.000	0.01
		C	0.000	0.000	1.625	0.000	0.03
L35	39.58-35.58	A	0.000	0.000	6.752	0.000	0.00
		B	0.000	0.000	12.202	0.000	0.04
		C	0.000	0.000	6.500	0.000	0.11
L36	35.58-31.48	A	0.000	0.000	6.921	0.000	0.00
		B	0.000	0.000	12.507	0.000	0.04
		C	0.000	0.000	6.662	0.000	0.11
L37	31.48-31.25	A	0.000	0.000	0.393	0.000	0.00
		B	0.000	0.000	0.711	0.000	0.00
		C	0.000	0.000	0.379	0.000	0.01
L38	31.25-28.75	A	0.000	0.000	4.285	0.000	0.00
		B	0.000	0.000	7.692	0.000	0.03
		C	0.000	0.000	4.128	0.000	0.07
L39	28.75-28.50	A	0.000	0.000	0.490	0.000	0.00
		B	0.000	0.000	0.830	0.000	0.00
		C	0.000	0.000	0.474	0.000	0.01
L40	28.50-24.50	A	0.000	0.000	5.773	0.000	0.00
		B	0.000	0.000	11.223	0.000	0.04
		C	0.000	0.000	5.521	0.000	0.11
L41	24.50-20.50	A	0.000	0.000	4.835	0.000	0.00
		B	0.000	0.000	10.285	0.000	0.04
		C	0.000	0.000	4.583	0.000	0.11
L42	20.50-16.50	A	0.000	0.000	4.835	0.000	0.00
		B	0.000	0.000	10.285	0.000	0.04
		C	0.000	0.000	4.583	0.000	0.11
L43	16.50-12.50	A	0.000	0.000	5.291	0.000	0.00
		B	0.000	0.000	10.741	0.000	0.04
		C	0.000	0.000	5.039	0.000	0.11
L44	12.50-11.00	A	0.000	0.000	3.181	0.000	0.00
		B	0.000	0.000	5.225	0.000	0.02
		C	0.000	0.000	3.087	0.000	0.04
L45	11.00-10.75	A	0.000	0.000	0.530	0.000	0.00
		B	0.000	0.000	0.871	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
L46	10.75-6.75	A	0.000	0.000	8.484	0.000	0.00
		B	0.000	0.000	14.143	0.000	0.04
		C	0.000	0.000	8.232	0.000	0.11
L47	6.75-6.25	A	0.000	0.000	1.060	0.000	0.00
		B	0.000	0.000	2.160	0.000	0.01
		C	0.000	0.000	1.029	0.000	0.01
L48	6.25-6.00	A	0.000	0.000	0.530	0.000	0.00
		B	0.000	0.000	1.080	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
L49	6.00-5.00	A	0.000	0.000	2.121	0.000	0.00
		B	0.000	0.000	4.320	0.000	0.01
		C	0.000	0.000	2.058	0.000	0.03
L50	5.00-4.75	A	0.000	0.000	0.530	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	1.080	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
L51	4.75-0.75	A	0.000	0.000	6.432	0.000	0.00
		B	0.000	0.000	15.227	0.000	0.04
		C	0.000	0.000	3.601	0.000	0.11
L52	0.75-0.00	A	0.000	0.000	0.907	0.000	0.00
		B	0.000	0.000	2.556	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.00-156.00	A	1.491	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L2	156.00-152.00	A	1.487	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L3	152.00-148.00	A	1.483	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L4	148.00-144.00	A	1.479	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L5	144.00-140.00	A	1.475	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L6	140.00-136.00	A	1.471	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L7	136.00-132.00	A	1.467	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L8	132.00-128.00	A	1.462	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L9	128.00-124.00	A	1.458	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L10	124.00-117.33	A	1.451	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.12
L11	117.33-116.33	A	1.447	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L12	116.33-112.33	A	1.444	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.10
L13	112.33-108.33	A	1.439	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.10
L14	108.33-104.33	A	1.433	0.000	0.000	11.414	0.000	0.30
		B		0.000	0.000	11.414	0.000	0.30
		C		0.000	0.000	7.609	0.000	0.30
L15	104.33-100.33	A	1.428	0.000	0.000	12.427	0.000	0.32
		B		0.000	0.000	12.427	0.000	0.32
		C		0.000	0.000	8.284	0.000	0.32
L16	100.33-96.33	A	1.422	0.000	0.000	12.413	0.000	0.32
		B		0.000	0.000	12.568	0.000	0.32
		C		0.000	0.000	8.585	0.000	0.32
L17	96.33-94.00	A	1.417	0.000	0.000	7.224	0.000	0.19
		B		0.000	0.000	14.067	0.000	0.29
		C		0.000	0.000	9.060	0.000	0.23
L18	94.00-93.75	A	1.416	0.000	0.000	0.775	0.000	0.02

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	1.592	0.000	0.03
		C		0.000	0.000	0.972	0.000	0.02
L19	93.75-89.75	A	1.412	0.000	0.000	13.167	0.000	0.33
		B		0.000	0.000	25.463	0.000	0.52
		C		0.000	0.000	15.542	0.000	0.39
L20	89.75-82.50	A	1.403	0.000	0.000	7.903	0.000	0.17
		B		0.000	0.000	25.433	0.000	0.45
		C		0.000	0.000	9.518	0.000	0.35
L21	82.50-81.50	A	1.396	0.000	0.000	0.344	0.000	0.00
		B		0.000	0.000	2.354	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.03
L22	81.50-77.50	A	1.392	0.000	0.000	3.219	0.000	0.08
		B		0.000	0.000	9.396	0.000	0.16
		C		0.000	0.000	1.854	0.000	0.18
L23	77.50-73.50	A	1.385	0.000	0.000	4.424	0.000	0.11
		B		0.000	0.000	9.855	0.000	0.16
		C		0.000	0.000	3.064	0.000	0.21
L24	73.50-72.25	A	1.380	0.000	0.000	1.602	0.000	0.01
		B		0.000	0.000	4.108	0.000	0.06
		C		0.000	0.000	1.178	0.000	0.04
L25	72.25-72.00	A	1.379	0.000	0.000	0.320	0.000	0.00
		B		0.000	0.000	0.821	0.000	0.01
		C		0.000	0.000	0.236	0.000	0.01
L26	72.00-68.00	A	1.375	0.000	0.000	5.118	0.000	0.05
		B		0.000	0.000	13.131	0.000	0.19
		C		0.000	0.000	3.766	0.000	0.14
L27	68.00-64.00	A	1.366	0.000	0.000	5.105	0.000	0.05
		B		0.000	0.000	13.110	0.000	0.19
		C		0.000	0.000	3.760	0.000	0.14
L28	64.00-60.00	A	1.358	0.000	0.000	5.091	0.000	0.05
		B		0.000	0.000	13.087	0.000	0.19
		C		0.000	0.000	3.753	0.000	0.14
L29	60.00-56.00	A	1.349	0.000	0.000	5.077	0.000	0.05
		B		0.000	0.000	13.064	0.000	0.18
		C		0.000	0.000	3.746	0.000	0.14
L30	56.00-53.75	A	1.342	0.000	0.000	5.422	0.000	0.05
		B		0.000	0.000	9.910	0.000	0.12
		C		0.000	0.000	4.676	0.000	0.10
L31	53.75-53.50	A	1.338	0.000	0.000	0.602	0.000	0.01
		B		0.000	0.000	1.100	0.000	0.01
		C		0.000	0.000	0.519	0.000	0.01
L32	53.50-49.50	A	1.333	0.000	0.000	9.618	0.000	0.08
		B		0.000	0.000	17.589	0.000	0.22
		C		0.000	0.000	8.299	0.000	0.18
L33	49.50-40.58	A	1.315	0.000	0.000	19.857	0.000	0.17
		B		0.000	0.000	37.587	0.000	0.47
		C		0.000	0.000	16.950	0.000	0.38
L34	40.58-39.58	A	1.300	0.000	0.000	2.477	0.000	0.02
		B		0.000	0.000	4.465	0.000	0.05
		C		0.000	0.000	2.151	0.000	0.04
L35	39.58-35.58	A	1.292	0.000	0.000	9.852	0.000	0.08
		B		0.000	0.000	17.782	0.000	0.22
		C		0.000	0.000	8.567	0.000	0.18
L36	35.58-31.48	A	1.277	0.000	0.000	10.062	0.000	0.08
		B		0.000	0.000	18.175	0.000	0.22
		C		0.000	0.000	8.757	0.000	0.18
L37	31.48-31.25	A	1.269	0.000	0.000	0.571	0.000	0.00
		B		0.000	0.000	1.031	0.000	0.01
		C		0.000	0.000	0.497	0.000	0.01
L38	31.25-28.75	A	1.263	0.000	0.000	6.160	0.000	0.05
		B		0.000	0.000	11.098	0.000	0.13
		C		0.000	0.000	5.371	0.000	0.11
L39	28.75-28.50	A	1.257	0.000	0.000	0.678	0.000	0.01
		B		0.000	0.000	1.172	0.000	0.01
		C		0.000	0.000	0.600	0.000	0.01
L40	28.50-24.50	A	1.247	0.000	0.000	8.080	0.000	0.06
		B		0.000	0.000	15.966	0.000	0.19
		C		0.000	0.000	6.831	0.000	0.16
L41	24.50-20.50	A	1.227	0.000	0.000	6.799	0.000	0.05

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	14.664	0.000	0.18
		C		0.000	0.000	5.565	0.000	0.15
L42	20.50-16.50	A	1.203	0.000	0.000	6.761	0.000	0.05
		B		0.000	0.000	14.602	0.000	0.18
		C		0.000	0.000	5.546	0.000	0.15
L43	16.50-12.50	A	1.174	0.000	0.000	7.233	0.000	0.05
		B		0.000	0.000	15.045	0.000	0.18
		C		0.000	0.000	6.042	0.000	0.15
L44	12.50-11.00	A	1.150	0.000	0.000	4.056	0.000	0.03
		B		0.000	0.000	6.976	0.000	0.08
		C		0.000	0.000	3.616	0.000	0.07
L45	11.00-10.75	A	1.141	0.000	0.000	0.675	0.000	0.00
		B		0.000	0.000	1.161	0.000	0.01
		C		0.000	0.000	0.602	0.000	0.01
L46	10.75-6.75	A	1.116	0.000	0.000	10.747	0.000	0.08
		B		0.000	0.000	18.741	0.000	0.20
		C		0.000	0.000	9.602	0.000	0.18
L47	6.75-6.25	A	1.084	0.000	0.000	1.335	0.000	0.01
		B		0.000	0.000	2.778	0.000	0.03
		C		0.000	0.000	1.195	0.000	0.02
L48	6.25-6.00	A	1.077	0.000	0.000	0.667	0.000	0.00
		B		0.000	0.000	1.387	0.000	0.01
		C		0.000	0.000	0.597	0.000	0.01
L49	6.00-5.00	A	1.066	0.000	0.000	2.661	0.000	0.02
		B		0.000	0.000	5.540	0.000	0.06
		C		0.000	0.000	2.385	0.000	0.04
L50	5.00-4.75	A	1.053	0.000	0.000	0.664	0.000	0.00
		B		0.000	0.000	1.382	0.000	0.01
		C		0.000	0.000	0.595	0.000	0.01
L51	4.75-0.75	A	0.994	0.000	0.000	8.209	0.000	0.05
		B		0.000	0.000	19.620	0.000	0.20
		C		0.000	0.000	4.136	0.000	0.13
L52	0.75-0.00	A	0.815	0.000	0.000	1.151	0.000	0.01
		B		0.000	0.000	3.243	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.02

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.00-156.00	0.0000	0.0000	0.0000	0.0000
L2	156.00-152.00	0.0000	0.0000	0.0000	0.0000
L3	152.00-148.00	0.0000	0.0000	0.0000	0.0000
L4	148.00-144.00	0.0000	0.0000	0.0000	0.0000
L5	144.00-140.00	0.0000	0.0000	0.0000	0.0000
L6	140.00-136.00	0.0000	0.0000	0.0000	0.0000
L7	136.00-132.00	0.0000	0.0000	0.0000	0.0000
L8	132.00-128.00	0.0000	0.0000	0.0000	0.0000
L9	128.00-124.00	0.0000	0.0000	0.0000	0.0000
L10	124.00-117.33	0.0000	0.0000	0.0000	0.0000
L11	117.33-116.33	0.0000	0.0000	0.0000	0.0000
L12	116.33-112.33	0.0000	0.0000	0.0000	0.0000
L13	112.33-108.33	0.0000	0.0000	0.0000	0.0000
L14	108.33-104.33	0.3078	1.7464	0.3347	1.8992
L15	104.33-100.33	0.3221	1.8277	0.3492	1.9815
L16	100.33-96.33	0.3547	1.7944	0.3813	1.9545
L17	96.33-94.00	1.2116	-1.0821	1.2595	-1.3867
L18	94.00-93.75	1.2681	-1.3511	1.3194	-1.7060
L19	93.75-89.75	1.2639	-1.4032	1.2728	-1.8882
L20	89.75-82.50	1.5343	-4.1348	1.3810	-4.8125
L21	82.50-81.50	1.4697	-6.4597	1.2993	-7.0679
L22	81.50-77.50	3.1869	-7.3323	2.7055	-7.7148
L23	77.50-73.50	3.6017	-7.3288	3.0790	-7.6798
L24	73.50-72.25	1.0345	-4.5490	0.9599	-5.2114

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L25	72.25-72.00	1.0367	-4.5587	0.9622	-5.2235
L26	72.00-68.00	1.0415	-4.5799	0.9677	-5.2516
L27	68.00-64.00	1.0503	-4.6194	0.9779	-5.3038
L28	64.00-60.00	1.0589	-4.6582	0.9881	-5.3549
L29	60.00-56.00	1.0674	-4.6963	0.9981	-5.4047
L30	56.00-53.75	0.7769	-3.4184	0.7595	-4.1101
L31	53.75-53.50	0.7798	-3.4312	0.7626	-4.1255
L32	53.50-49.50	0.7840	-3.4499	0.7673	-4.1487
L33	49.50-40.58	0.8262	-3.6364	0.8101	-4.3720
L34	40.58-39.58	0.7784	-3.4263	0.7701	-4.1565
L35	39.58-35.58	0.7831	-3.4473	0.7758	-4.1753
L36	35.58-31.48	0.7908	-3.4814	0.7845	-4.2150
L37	31.48-31.25	0.7948	-3.4992	0.7891	-4.2355
L38	31.25-28.75	0.7911	-3.4833	0.7891	-4.2323
L39	28.75-28.50	0.7399	-3.2581	0.7526	-4.0337
L40	28.50-24.50	0.8663	-3.8148	0.8745	-4.6815
L41	24.50-20.50	0.9440	-4.1572	0.9496	-5.0711
L42	20.50-16.50	0.9513	-4.1900	0.9583	-5.1018
L43	16.50-12.50	0.8432	-3.7707	0.8726	-4.7322
L44	12.50-11.00	0.2309	-1.3748	0.3491	-2.5272
L45	11.00-10.75	0.2313	-1.3775	0.3498	-2.5278
L46	10.75-6.75	0.3385	-1.3029	0.4425	-2.4522
L47	6.75-6.25	1.8258	-0.1853	1.7308	-1.4074
L48	6.25-6.00	1.8273	-0.1852	1.7324	-1.4046
L49	6.00-5.00	1.8300	-0.1851	1.7353	-1.3999
L50	5.00-4.75	1.8323	-0.1849	1.7378	-1.3941
L51	4.75-0.75	0.4216	-1.1872	0.4541	-2.4077
L52	0.75-0.00	-1.1672	-2.3151	-0.8949	-3.3933

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	23	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	24	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	25	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	26	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	27	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	28	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	29	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	30	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L15	23	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L15	24	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L15	25	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L15	26	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L15	27	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	28	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L15	29	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L15	30	HSS4.5x4.5x4	100.33 - 104.33	1.0000	1.0000
L16	19	4.5 x 1	96.33 - 96.50	1.0000	1.0000
L16	20	4.5 x 1	96.33 - 96.50	1.0000	1.0000
L16	21	4.5 x 1	96.33 - 96.50	1.0000	1.0000
L16	23	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	24	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	25	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	26	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	27	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	28	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	29	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L16	30	HSS4.5x4.5x4	96.33 - 100.33	1.0000	1.0000
L17	19	4.5 x 1	94.00 - 96.33	1.0000	1.0000
L17	20	4.5 x 1	94.00 - 96.33	1.0000	1.0000
L17	21	4.5 x 1	94.00 - 96.33	1.0000	1.0000
L17	23	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	24	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	25	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	26	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	27	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	28	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	29	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	30	HSS4.5x4.5x4	94.00 - 96.33	1.0000	1.0000
L17	49	LDF7-50A(1-5/8)	94.00 - 96.00	1.0000	1.0000
L17	50	2" (Nominal) Conduit	94.00 - 96.00	1.0000	1.0000
L18	19	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L18	20	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L18	21	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L18	23	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	24	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	25	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	26	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	27	HSS4.5x4.5x4	93.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L18	28	HSS4.5x4.5x4	94.00 93.75 - 94.00	1.0000	1.0000
L18	29	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	30	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	49	LDF7-50A(1-5/8)	93.75 - 94.00	1.0000	1.0000
L18	50	2" (Nominal) Conduit	93.75 - 94.00	1.0000	1.0000
L19	19	4.5 x 1	89.75 - 93.75	1.0000	1.0000
L19	20	4.5 x 1	89.75 - 93.75	1.0000	1.0000
L19	21	4.5 x 1	89.75 - 93.75	1.0000	1.0000
L19	23	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	24	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	25	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	26	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	27	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	28	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	29	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	30	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	49	LDF7-50A(1-5/8)	89.75 - 93.75	1.0000	1.0000
L19	50	2" (Nominal) Conduit	89.75 - 93.75	1.0000	1.0000
L19	53	LDF4-50A(1/2)	89.75 - 92.00	1.0000	1.0000
L20	19	4.5 x 1	86.50 - 89.75	1.0000	1.0000
L20	20	4.5 x 1	86.50 - 89.75	1.0000	1.0000
L20	21	4.5 x 1	86.50 - 89.75	1.0000	1.0000
L20	23	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	24	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	25	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	26	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	27	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	28	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	29	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	30	HSS4.5x4.5x4	88.00 - 89.75	1.0000	1.0000
L20	49	LDF7-50A(1-5/8)	82.50 - 89.75	1.0000	1.0000
L20	50	2" (Nominal) Conduit	82.50 - 89.75	1.0000	1.0000
L20	53	LDF4-50A(1/2)	82.50 - 89.75	1.0000	1.0000
L21	49	LDF7-50A(1-5/8)	81.50 - 82.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	50	2" (Nominal) Conduit	81.50 - 82.50	1.0000	1.0000
L21	53	LDF4-50A(1/2)	81.50 - 82.50	1.0000	1.0000
L22	32	HSS4.5x4.5x4	77.50 - 80.00	1.0000	1.0000
L22	33	HSS4.5x4.5x4	77.50 - 80.00	1.0000	1.0000
L22	49	LDF7-50A(1-5/8)	77.50 - 81.50	1.0000	1.0000
L22	50	2" (Nominal) Conduit	77.50 - 81.50	1.0000	1.0000
L22	53	LDF4-50A(1/2)	77.50 - 81.50	1.0000	1.0000
L23	9	4 x 1	73.50 - 74.00	1.0000	1.0000
L23	10	4 x 1	73.50 - 74.00	1.0000	1.0000
L23	11	4 x 1	73.50 - 74.00	1.0000	1.0000
L23	32	HSS4.5x4.5x4	74.00 - 77.50	1.0000	1.0000
L23	33	HSS4.5x4.5x4	74.00 - 77.50	1.0000	1.0000
L23	49	LDF7-50A(1-5/8)	73.50 - 77.50	1.0000	1.0000
L23	50	2" (Nominal) Conduit	73.50 - 77.50	1.0000	1.0000
L23	53	LDF4-50A(1/2)	73.50 - 77.50	1.0000	1.0000
L24	9	4 x 1	72.25 - 73.50	1.0000	1.0000
L24	10	4 x 1	72.25 - 73.50	1.0000	1.0000
L24	11	4 x 1	72.25 - 73.50	1.0000	1.0000
L24	49	LDF7-50A(1-5/8)	72.25 - 73.50	1.0000	1.0000
L24	50	2" (Nominal) Conduit	72.25 - 73.50	1.0000	1.0000
L24	53	LDF4-50A(1/2)	72.25 - 73.50	1.0000	1.0000
L25	9	4 x 1	72.00 - 72.25	1.0000	1.0000
L25	10	4 x 1	72.00 - 72.25	1.0000	1.0000
L25	11	4 x 1	72.00 - 72.25	1.0000	1.0000
L25	49	LDF7-50A(1-5/8)	72.00 - 72.25	1.0000	1.0000
L25	50	2" (Nominal) Conduit	72.00 - 72.25	1.0000	1.0000
L25	53	LDF4-50A(1/2)	72.00 - 72.25	1.0000	1.0000
L26	9	4 x 1	68.00 - 72.00	1.0000	1.0000
L26	10	4 x 1	68.00 - 72.00	1.0000	1.0000
L26	11	4 x 1	68.00 - 72.00	1.0000	1.0000
L26	49	LDF7-50A(1-5/8)	68.00 - 72.00	1.0000	1.0000
L26	50	2" (Nominal) Conduit	68.00 - 72.00	1.0000	1.0000
L26	53	LDF4-50A(1/2)	68.00 - 72.00	1.0000	1.0000
L27	9	4 x 1	64.00 - 68.00	1.0000	1.0000
L27	10	4 x 1	64.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	11	4 x 1	68.00 64.00 - 68.00	1.0000	1.0000
L27	49	LDF7-50A(1-5/8)	64.00 - 68.00	1.0000	1.0000
L27	50	2" (Nominal) Conduit	64.00 - 68.00	1.0000	1.0000
L27	53	LDF4-50A(1/2)	64.00 - 68.00	1.0000	1.0000
L28	9	4 x 1	60.00 - 64.00	1.0000	1.0000
L28	10	4 x 1	60.00 - 64.00	1.0000	1.0000
L28	11	4 x 1	60.00 - 64.00	1.0000	1.0000
L28	49	LDF7-50A(1-5/8)	60.00 - 64.00	1.0000	1.0000
L28	50	2" (Nominal) Conduit	60.00 - 64.00	1.0000	1.0000
L28	53	LDF4-50A(1/2)	60.00 - 64.00	1.0000	1.0000
L29	9	4 x 1	56.00 - 60.00	1.0000	1.0000
L29	10	4 x 1	56.00 - 60.00	1.0000	1.0000
L29	11	4 x 1	56.00 - 60.00	1.0000	1.0000
L29	49	LDF7-50A(1-5/8)	56.00 - 60.00	1.0000	1.0000
L29	50	2" (Nominal) Conduit	56.00 - 60.00	1.0000	1.0000
L29	53	LDF4-50A(1/2)	56.00 - 60.00	1.0000	1.0000
L30	5	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L30	6	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L30	7	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L30	9	4 x 1	53.75 - 56.00	1.0000	1.0000
L30	10	4 x 1	53.75 - 56.00	1.0000	1.0000
L30	11	4 x 1	53.75 - 56.00	1.0000	1.0000
L30	49	LDF7-50A(1-5/8)	53.75 - 56.00	1.0000	1.0000
L30	50	2" (Nominal) Conduit	53.75 - 56.00	1.0000	1.0000
L30	53	LDF4-50A(1/2)	53.75 - 56.00	1.0000	1.0000
L31	5	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L31	6	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L31	7	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L31	9	4 x 1	53.50 - 53.75	1.0000	1.0000
L31	10	4 x 1	53.50 - 53.75	1.0000	1.0000
L31	11	4 x 1	53.50 - 53.75	1.0000	1.0000
L31	49	LDF7-50A(1-5/8)	53.50 - 53.75	1.0000	1.0000
L31	50	2" (Nominal) Conduit	53.50 - 53.75	1.0000	1.0000
L31	53	LDF4-50A(1/2)	53.50 - 53.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	5	5.25 x 1.25	49.50 - 53.50	1.0000	1.0000
L32	6	5.25 x 1.25	49.50 - 53.50	1.0000	1.0000
L32	7	5.25 x 1.25	49.50 - 53.50	1.0000	1.0000
L32	9	4 x 1	49.50 - 53.50	1.0000	1.0000
L32	10	4 x 1	49.50 - 53.50	1.0000	1.0000
L32	11	4 x 1	49.50 - 53.50	1.0000	1.0000
L32	49	LDF7-50A(1-5/8)	49.50 - 53.50	1.0000	1.0000
L32	50	2" (Nominal) Conduit	49.50 - 53.50	1.0000	1.0000
L32	53	LDF4-50A(1/2)	49.50 - 53.50	1.0000	1.0000
L33	5	5.25 x 1.25	40.58 - 49.50	1.0000	1.0000
L33	6	5.25 x 1.25	40.58 - 49.50	1.0000	1.0000
L33	7	5.25 x 1.25	40.58 - 49.50	1.0000	1.0000
L33	9	4 x 1	44.00 - 49.50	1.0000	1.0000
L33	10	4 x 1	44.00 - 49.50	1.0000	1.0000
L33	11	4 x 1	44.00 - 49.50	1.0000	1.0000
L33	16	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L33	17	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L33	18	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L33	49	LDF7-50A(1-5/8)	40.58 - 49.50	1.0000	1.0000
L33	50	2" (Nominal) Conduit	40.58 - 49.50	1.0000	1.0000
L33	53	LDF4-50A(1/2)	40.58 - 49.50	1.0000	1.0000
L34	5	5.25 x 1.25	39.58 - 40.58	1.0000	1.0000
L34	6	5.25 x 1.25	39.58 - 40.58	1.0000	1.0000
L34	7	5.25 x 1.25	39.58 - 40.58	1.0000	1.0000
L34	16	4.5 x 1	39.58 - 40.58	1.0000	1.0000
L34	17	4.5 x 1	39.58 - 40.58	1.0000	1.0000
L34	18	4.5 x 1	39.58 - 40.58	1.0000	1.0000
L34	49	LDF7-50A(1-5/8)	39.58 - 40.58	1.0000	1.0000
L34	50	2" (Nominal) Conduit	39.58 - 40.58	1.0000	1.0000
L34	53	LDF4-50A(1/2)	39.58 - 40.58	1.0000	1.0000
L35	5	5.25 x 1.25	35.58 - 39.58	1.0000	1.0000
L35	6	5.25 x 1.25	35.58 - 39.58	1.0000	1.0000
L35	7	5.25 x 1.25	35.58 - 39.58	1.0000	1.0000
L35	16	4.5 x 1	35.58 - 39.58	1.0000	1.0000
L35	17	4.5 x 1	35.58 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	18	4.5 x 1	39.58 35.58 - 39.58	1.0000	1.0000
L35	49	LDF7-50A(1-5/8)	35.58 - 39.58	1.0000	1.0000
L35	50	2" (Nominal) Conduit	35.58 - 39.58	1.0000	1.0000
L35	53	LDF4-50A(1/2)	35.58 - 39.58	1.0000	1.0000
L36	5	5.25 x 1.25	31.48 - 35.58	1.0000	1.0000
L36	6	5.25 x 1.25	31.48 - 35.58	1.0000	1.0000
L36	7	5.25 x 1.25	31.48 - 35.58	1.0000	1.0000
L36	16	4.5 x 1	31.48 - 35.58	1.0000	1.0000
L36	17	4.5 x 1	31.48 - 35.58	1.0000	1.0000
L36	18	4.5 x 1	31.48 - 35.58	1.0000	1.0000
L36	49	LDF7-50A(1-5/8)	31.48 - 35.58	1.0000	1.0000
L36	50	2" (Nominal) Conduit	31.48 - 35.58	1.0000	1.0000
L36	53	LDF4-50A(1/2)	31.48 - 35.58	1.0000	1.0000
L37	5	5.25 x 1.25	31.25 - 31.48	1.0000	1.0000
L37	6	5.25 x 1.25	31.25 - 31.48	1.0000	1.0000
L37	7	5.25 x 1.25	31.25 - 31.48	1.0000	1.0000
L37	16	4.5 x 1	31.25 - 31.48	1.0000	1.0000
L37	17	4.5 x 1	31.25 - 31.48	1.0000	1.0000
L37	18	4.5 x 1	31.25 - 31.48	1.0000	1.0000
L37	49	LDF7-50A(1-5/8)	31.25 - 31.48	1.0000	1.0000
L37	50	2" (Nominal) Conduit	31.25 - 31.48	1.0000	1.0000
L37	53	LDF4-50A(1/2)	31.25 - 31.48	1.0000	1.0000
L38	2	6.875 x 1.25	28.75 - 29.25	1.0000	1.0000
L38	3	6.875 x 1.25	28.75 - 29.25	1.0000	1.0000
L38	4	6.875 x 1.25	28.75 - 29.25	1.0000	1.0000
L38	5	5.25 x 1.25	29.33 - 31.25	1.0000	1.0000
L38	6	5.25 x 1.25	29.33 - 31.25	1.0000	1.0000
L38	7	5.25 x 1.25	29.33 - 31.25	1.0000	1.0000
L38	16	4.5 x 1	28.75 - 31.25	1.0000	1.0000
L38	17	4.5 x 1	28.75 - 31.25	1.0000	1.0000
L38	18	4.5 x 1	28.75 - 31.25	1.0000	1.0000
L38	49	LDF7-50A(1-5/8)	28.75 - 31.25	1.0000	1.0000
L38	50	2" (Nominal) Conduit	28.75 - 31.25	1.0000	1.0000
L38	53	LDF4-50A(1/2)	28.75 - 31.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	2	6.875 x 1.25	28.50 - 28.75	1.0000	1.0000
L39	3	6.875 x 1.25	28.50 - 28.75	1.0000	1.0000
L39	4	6.875 x 1.25	28.50 - 28.75	1.0000	1.0000
L39	16	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L39	17	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L39	18	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L39	49	LDF7-50A(1-5/8)	28.50 - 28.75	1.0000	1.0000
L39	50	2" (Nominal) Conduit	28.50 - 28.75	1.0000	1.0000
L39	53	LDF4-50A(1/2)	28.50 - 28.75	1.0000	1.0000
L40	2	6.875 x 1.25	24.50 - 28.50	1.0000	1.0000
L40	3	6.875 x 1.25	24.50 - 28.50	1.0000	1.0000
L40	4	6.875 x 1.25	24.50 - 28.50	1.0000	1.0000
L40	16	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L40	17	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L40	18	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L40	49	LDF7-50A(1-5/8)	24.50 - 28.50	1.0000	1.0000
L40	50	2" (Nominal) Conduit	24.50 - 28.50	1.0000	1.0000
L40	53	LDF4-50A(1/2)	24.50 - 28.50	1.0000	1.0000
L41	2	6.875 x 1.25	20.50 - 24.50	1.0000	1.0000
L41	3	6.875 x 1.25	20.50 - 24.50	1.0000	1.0000
L41	4	6.875 x 1.25	20.50 - 24.50	1.0000	1.0000
L41	49	LDF7-50A(1-5/8)	20.50 - 24.50	1.0000	1.0000
L41	50	2" (Nominal) Conduit	20.50 - 24.50	1.0000	1.0000
L41	53	LDF4-50A(1/2)	20.50 - 24.50	1.0000	1.0000
L42	2	6.875 x 1.25	16.50 - 20.50	1.0000	1.0000
L42	3	6.875 x 1.25	16.50 - 20.50	1.0000	1.0000
L42	4	6.875 x 1.25	16.50 - 20.50	1.0000	1.0000
L42	49	LDF7-50A(1-5/8)	16.50 - 20.50	1.0000	1.0000
L42	50	2" (Nominal) Conduit	16.50 - 20.50	1.0000	1.0000
L42	53	LDF4-50A(1/2)	16.50 - 20.50	1.0000	1.0000
L43	2	6.875 x 1.25	12.50 - 16.50	1.0000	1.0000
L43	3	6.875 x 1.25	12.50 - 16.50	1.0000	1.0000
L43	4	6.875 x 1.25	12.50 - 16.50	1.0000	1.0000
L43	13	6 x 1	12.50 - 13.00	1.0000	1.0000
L43	14	6 x 1	12.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			13.00		
L43	15	6 x 1	12.50 - 13.00	1.0000	1.0000
L43	49	LDF7-50A(1-5/8)	12.50 - 16.50	1.0000	1.0000
L43	50	2" (Nominal) Conduit	12.50 - 16.50	1.0000	1.0000
L43	53	LDF4-50A(1/2)	12.50 - 16.50	1.0000	1.0000
L44	2	6.875 x 1.25	11.00 - 12.50	1.0000	1.0000
L44	3	6.875 x 1.25	11.00 - 12.50	1.0000	1.0000
L44	4	6.875 x 1.25	11.00 - 12.50	1.0000	1.0000
L44	13	6 x 1	11.00 - 12.50	1.0000	1.0000
L44	14	6 x 1	11.00 - 12.50	1.0000	1.0000
L44	15	6 x 1	11.00 - 12.50	1.0000	1.0000
L44	49	LDF7-50A(1-5/8)	11.00 - 12.50	1.0000	1.0000
L44	50	2" (Nominal) Conduit	11.00 - 12.50	1.0000	1.0000
L44	53	LDF4-50A(1/2)	11.00 - 12.50	1.0000	1.0000
L45	2	6.875 x 1.25	10.75 - 11.00	1.0000	1.0000
L45	3	6.875 x 1.25	10.75 - 11.00	1.0000	1.0000
L45	4	6.875 x 1.25	10.75 - 11.00	1.0000	1.0000
L45	13	6 x 1	10.75 - 11.00	1.0000	1.0000
L45	14	6 x 1	10.75 - 11.00	1.0000	1.0000
L45	15	6 x 1	10.75 - 11.00	1.0000	1.0000
L45	49	LDF7-50A(1-5/8)	10.75 - 11.00	1.0000	1.0000
L45	50	2" (Nominal) Conduit	10.75 - 11.00	1.0000	1.0000
L45	53	LDF4-50A(1/2)	10.75 - 11.00	1.0000	1.0000
L46	1	6.25 x 1.25	6.75 - 7.00	1.0000	1.0000
L46	2	6.875 x 1.25	6.75 - 10.75	1.0000	1.0000
L46	3	6.875 x 1.25	6.75 - 10.75	1.0000	1.0000
L46	4	6.875 x 1.25	6.75 - 10.75	1.0000	1.0000
L46	13	6 x 1	6.75 - 10.75	1.0000	1.0000
L46	14	6 x 1	6.75 - 10.75	1.0000	1.0000
L46	15	6 x 1	6.75 - 10.75	1.0000	1.0000
L46	49	LDF7-50A(1-5/8)	6.75 - 10.75	1.0000	1.0000
L46	50	2" (Nominal) Conduit	6.75 - 10.75	1.0000	1.0000
L46	53	LDF4-50A(1/2)	6.75 - 10.75	1.0000	1.0000
L47	1	6.25 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	2	6.875 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	3	6.875 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	4	6.875 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	13	6 x 1	6.25 - 6.75	1.0000	1.0000
L47	14	6 x 1	6.25 - 6.75	1.0000	1.0000
L47	15	6 x 1	6.25 - 6.75	1.0000	1.0000
L47	49	LDF7-50A(1-5/8)	6.25 - 6.75	1.0000	1.0000
L47	50	2" (Nominal) Conduit	6.25 - 6.75	1.0000	1.0000
L47	53	LDF4-50A(1/2)	6.25 - 6.75	1.0000	1.0000
L48	1	6.25 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	2	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	3	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	4	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L48	13	6 x 1	6.00 - 6.25	1.0000	1.0000
L48	14	6 x 1	6.00 - 6.25	1.0000	1.0000
L48	15	6 x 1	6.00 - 6.25	1.0000	1.0000
L48	49	LDF7-50A(1-5/8)	6.00 - 6.25	1.0000	1.0000
L48	50	2" (Nominal) Conduit	6.00 - 6.25	1.0000	1.0000
L48	53	LDF4-50A(1/2)	6.00 - 6.25	1.0000	1.0000
L49	1	6.25 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	2	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	3	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	4	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	13	6 x 1	5.00 - 6.00	1.0000	1.0000
L49	14	6 x 1	5.00 - 6.00	1.0000	1.0000
L49	15	6 x 1	5.00 - 6.00	1.0000	1.0000
L49	49	LDF7-50A(1-5/8)	5.00 - 6.00	1.0000	1.0000
L49	50	2" (Nominal) Conduit	5.00 - 6.00	1.0000	1.0000
L49	53	LDF4-50A(1/2)	5.00 - 6.00	1.0000	1.0000
L50	1	6.25 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	2	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	3	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	4	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	13	6 x 1	4.75 - 5.00	1.0000	1.0000
L50	14	6 x 1	4.75 - 5.00	1.0000	1.0000
L50	15	6 x 1	4.75 - 5.00	1.0000	1.0000
L50	49	LDF7-50A(1-5/8)	4.75 - 5.00	1.0000	1.0000
L50	50	2" (Nominal) Conduit	4.75 - 5.00	1.0000	1.0000
L50	53	LDF4-50A(1/2)	4.75 - 5.00	1.0000	1.0000
L51	1	6.25 x 1.25	0.75 - 4.75	1.0000	1.0000
L51	2	6.875 x 1.25	3.00 - 4.75	1.0000	1.0000
L51	3	6.875 x 1.25	0.75 - 4.75	1.0000	1.0000
L51	4	6.875 x 1.25	0.75 - 4.75	1.0000	1.0000
L51	13	6 x 1	3.00 - 4.75	1.0000	1.0000
L51	14	6 x 1	3.00 - 4.75	1.0000	1.0000
L51	15	6 x 1	3.00 - 4.75	1.0000	1.0000
L51	49	LDF7-50A(1-5/8)	0.75 - 4.75	1.0000	1.0000
L51	50	2" (Nominal) Conduit	0.75 - 4.75	1.0000	1.0000
L51	53	LDF4-50A(1/2)	0.75 - 4.75	1.0000	1.0000
L52	1	6.25 x 1.25	0.00 - 0.75	1.0000	1.0000
L52	3	6.875 x 1.25	0.00 - 0.75	1.0000	1.0000
L52	4	6.875 x 1.25	0.00 - 0.75	1.0000	1.0000
L52	49	LDF7-50A(1-5/8)	0.00 - 0.75	1.0000	1.0000
L52	50	2" (Nominal) Conduit	0.00 - 0.75	1.0000	1.0000
L52	53	LDF4-50A(1/2)	0.00 - 0.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L14	23	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	24	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	25	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	26	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	27	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	28	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L14	29	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	30	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L15	23	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	24	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	25	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	26	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	27	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	28	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	29	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	30	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L16	19	4.5 x 1	96.33 - 96.50	Auto	0.0000
L16	20	4.5 x 1	96.33 - 96.50	Auto	0.0000
L16	21	4.5 x 1	96.33 - 96.50	Auto	0.0000
L16	23	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	24	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	25	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	26	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	27	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	28	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	29	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	30	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L17	19	4.5 x 1	94.00 - 96.33	Auto	0.0000
L17	20	4.5 x 1	94.00 - 96.33	Auto	0.0000
L17	21	4.5 x 1	94.00 - 96.33	Auto	0.0000
L17	23	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	24	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	25	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	26	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	27	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	28	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	29	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	30	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L18	19	4.5 x 1	93.75 - 94.00	Auto	0.0000
L18	20	4.5 x 1	93.75 - 94.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L18	21	4.5 x 1	93.75 - 94.00	Auto	0.0000
L18	23	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	24	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	25	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	26	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	27	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	28	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	29	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	30	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L19	19	4.5 x 1	89.75 - 93.75	Auto	0.0000
L19	20	4.5 x 1	89.75 - 93.75	Auto	0.0000
L19	21	4.5 x 1	89.75 - 93.75	Auto	0.0000
L19	23	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	24	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	25	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	26	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	27	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	28	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	29	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	30	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L20	19	4.5 x 1	86.50 - 89.75	Auto	0.0000
L20	20	4.5 x 1	86.50 - 89.75	Auto	0.0000
L20	21	4.5 x 1	86.50 - 89.75	Auto	0.0000
L20	23	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	24	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	25	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	26	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	27	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	28	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	29	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	30	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L22	32	HSS4.5x4.5x4	77.50 - 80.00	Auto	0.0000
L22	33	HSS4.5x4.5x4	77.50 - 80.00	Auto	0.0000
L23	9	4 x 1	73.50 - 74.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L23	10	4 x 1	73.50 - 74.00	Auto	0.0000
L23	11	4 x 1	73.50 - 74.00	Auto	0.0000
L23	32	HSS4.5x4.5x4	74.00 - 77.50	Auto	0.0000
L23	33	HSS4.5x4.5x4	74.00 - 77.50	Auto	0.0000
L24	9	4 x 1	72.25 - 73.50	Auto	0.0000
L24	10	4 x 1	72.25 - 73.50	Auto	0.0000
L24	11	4 x 1	72.25 - 73.50	Auto	0.0000
L25	9	4 x 1	72.00 - 72.25	Auto	0.0000
L25	10	4 x 1	72.00 - 72.25	Auto	0.0000
L25	11	4 x 1	72.00 - 72.25	Auto	0.0000
L26	9	4 x 1	68.00 - 72.00	Auto	0.0000
L26	10	4 x 1	68.00 - 72.00	Auto	0.0000
L26	11	4 x 1	68.00 - 72.00	Auto	0.0000
L27	9	4 x 1	64.00 - 68.00	Auto	0.0000
L27	10	4 x 1	64.00 - 68.00	Auto	0.0000
L27	11	4 x 1	64.00 - 68.00	Auto	0.0000
L28	9	4 x 1	60.00 - 64.00	Auto	0.0000
L28	10	4 x 1	60.00 - 64.00	Auto	0.0000
L28	11	4 x 1	60.00 - 64.00	Auto	0.0000
L29	9	4 x 1	56.00 - 60.00	Auto	0.0000
L29	10	4 x 1	56.00 - 60.00	Auto	0.0000
L29	11	4 x 1	56.00 - 60.00	Auto	0.0000
L30	5	5.25 x 1.25	53.75 - 56.00	Auto	0.0000
L30	6	5.25 x 1.25	53.75 - 56.00	Auto	0.0000
L30	7	5.25 x 1.25	53.75 - 56.00	Auto	0.0000
L30	9	4 x 1	53.75 - 56.00	Auto	0.0000
L30	10	4 x 1	53.75 - 56.00	Auto	0.0000
L30	11	4 x 1	53.75 - 56.00	Auto	0.0000
L31	5	5.25 x 1.25	53.50 - 53.75	Auto	0.0000
L31	6	5.25 x 1.25	53.50 - 53.75	Auto	0.0000
L31	7	5.25 x 1.25	53.50 - 53.75	Auto	0.0000
L31	9	4 x 1	53.50 - 53.75	Auto	0.0000
L31	10	4 x 1	53.50 - 53.75	Auto	0.0000
L31	11	4 x 1	53.50 - 53.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L32	5	5.25 x 1.25	49.50 - 53.50	Auto	0.0000
L32	6	5.25 x 1.25	49.50 - 53.50	Auto	0.0000
L32	7	5.25 x 1.25	49.50 - 53.50	Auto	0.0000
L32	9	4 x 1	49.50 - 53.50	Auto	0.0000
L32	10	4 x 1	49.50 - 53.50	Auto	0.0000
L32	11	4 x 1	49.50 - 53.50	Auto	0.0000
L33	5	5.25 x 1.25	40.58 - 49.50	Auto	0.0000
L33	6	5.25 x 1.25	40.58 - 49.50	Auto	0.0000
L33	7	5.25 x 1.25	40.58 - 49.50	Auto	0.0000
L33	9	4 x 1	44.00 - 49.50	Auto	0.0000
L33	10	4 x 1	44.00 - 49.50	Auto	0.0000
L33	11	4 x 1	44.00 - 49.50	Auto	0.0000
L33	16	4.5 x 1	40.58 - 42.25	Auto	0.0000
L33	17	4.5 x 1	40.58 - 42.25	Auto	0.0000
L33	18	4.5 x 1	40.58 - 42.25	Auto	0.0000
L34	5	5.25 x 1.25	39.58 - 40.58	Auto	0.0000
L34	6	5.25 x 1.25	39.58 - 40.58	Auto	0.0000
L34	7	5.25 x 1.25	39.58 - 40.58	Auto	0.0000
L34	16	4.5 x 1	39.58 - 40.58	Auto	0.0000
L34	17	4.5 x 1	39.58 - 40.58	Auto	0.0000
L34	18	4.5 x 1	39.58 - 40.58	Auto	0.0000
L35	5	5.25 x 1.25	35.58 - 39.58	Auto	0.0000
L35	6	5.25 x 1.25	35.58 - 39.58	Auto	0.0000
L35	7	5.25 x 1.25	35.58 - 39.58	Auto	0.0000
L35	16	4.5 x 1	35.58 - 39.58	Auto	0.0000
L35	17	4.5 x 1	35.58 - 39.58	Auto	0.0000
L35	18	4.5 x 1	35.58 - 39.58	Auto	0.0000
L36	5	5.25 x 1.25	31.48 - 35.58	Auto	0.0000
L36	6	5.25 x 1.25	31.48 - 35.58	Auto	0.0000
L36	7	5.25 x 1.25	31.48 - 35.58	Auto	0.0000
L36	16	4.5 x 1	31.48 - 35.58	Auto	0.0000
L36	17	4.5 x 1	31.48 - 35.58	Auto	0.0000
L36	18	4.5 x 1	31.48 - 35.58	Auto	0.0000
L37	5	5.25 x 1.25	31.25 - 31.48	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L37	6	5.25 x 1.25	31.25 - 31.48	Auto	0.0000
L37	7	5.25 x 1.25	31.25 - 31.48	Auto	0.0000
L37	16	4.5 x 1	31.25 - 31.48	Auto	0.0000
L37	17	4.5 x 1	31.25 - 31.48	Auto	0.0000
L37	18	4.5 x 1	31.25 - 31.48	Auto	0.0000
L38	2	6.875 x 1.25	28.75 - 29.25	Auto	0.0000
L38	3	6.875 x 1.25	28.75 - 29.25	Auto	0.0000
L38	4	6.875 x 1.25	28.75 - 29.25	Auto	0.0000
L38	5	5.25 x 1.25	29.33 - 31.25	Auto	0.0000
L38	6	5.25 x 1.25	29.33 - 31.25	Auto	0.0000
L38	7	5.25 x 1.25	29.33 - 31.25	Auto	0.0000
L38	16	4.5 x 1	28.75 - 31.25	Auto	0.0000
L38	17	4.5 x 1	28.75 - 31.25	Auto	0.0000
L38	18	4.5 x 1	28.75 - 31.25	Auto	0.0000
L39	2	6.875 x 1.25	28.50 - 28.75	Auto	0.0000
L39	3	6.875 x 1.25	28.50 - 28.75	Auto	0.0000
L39	4	6.875 x 1.25	28.50 - 28.75	Auto	0.0000
L39	16	4.5 x 1	28.50 - 28.75	Auto	0.0000
L39	17	4.5 x 1	28.50 - 28.75	Auto	0.0000
L39	18	4.5 x 1	28.50 - 28.75	Auto	0.0000
L40	2	6.875 x 1.25	24.50 - 28.50	Auto	0.0000
L40	3	6.875 x 1.25	24.50 - 28.50	Auto	0.0000
L40	4	6.875 x 1.25	24.50 - 28.50	Auto	0.0000
L40	16	4.5 x 1	27.25 - 28.50	Auto	0.0000
L40	17	4.5 x 1	27.25 - 28.50	Auto	0.0000
L40	18	4.5 x 1	27.25 - 28.50	Auto	0.0000
L41	2	6.875 x 1.25	20.50 - 24.50	Auto	0.0000
L41	3	6.875 x 1.25	20.50 - 24.50	Auto	0.0000
L41	4	6.875 x 1.25	20.50 - 24.50	Auto	0.0000
L42	2	6.875 x 1.25	16.50 - 20.50	Auto	0.0000
L42	3	6.875 x 1.25	16.50 - 20.50	Auto	0.0000
L42	4	6.875 x 1.25	16.50 - 20.50	Auto	0.0000
L43	2	6.875 x 1.25	12.50 - 16.50	Auto	0.0000
L43	3	6.875 x 1.25	12.50 - 16.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L43	4	6.875 x 1.25	12.50 - 16.50	Auto	0.0000
L43	13	6 x 1	12.50 - 13.00	Auto	0.0000
L43	14	6 x 1	12.50 - 13.00	Auto	0.0000
L43	15	6 x 1	12.50 - 13.00	Auto	0.0000
L44	2	6.875 x 1.25	11.00 - 12.50	Auto	0.0000
L44	3	6.875 x 1.25	11.00 - 12.50	Auto	0.0000
L44	4	6.875 x 1.25	11.00 - 12.50	Auto	0.0000
L44	13	6 x 1	11.00 - 12.50	Auto	0.0000
L44	14	6 x 1	11.00 - 12.50	Auto	0.0000
L44	15	6 x 1	11.00 - 12.50	Auto	0.0000
L45	2	6.875 x 1.25	10.75 - 11.00	Auto	0.0000
L45	3	6.875 x 1.25	10.75 - 11.00	Auto	0.0000
L45	4	6.875 x 1.25	10.75 - 11.00	Auto	0.0000
L45	13	6 x 1	10.75 - 11.00	Auto	0.0000
L45	14	6 x 1	10.75 - 11.00	Auto	0.0000
L45	15	6 x 1	10.75 - 11.00	Auto	0.0000
L46	1	6.25 x 1.25	6.75 - 7.00	Auto	0.0000
L46	2	6.875 x 1.25	6.75 - 10.75	Auto	0.0000
L46	3	6.875 x 1.25	6.75 - 10.75	Auto	0.0000
L46	4	6.875 x 1.25	6.75 - 10.75	Auto	0.0000
L46	13	6 x 1	6.75 - 10.75	Auto	0.0000
L46	14	6 x 1	6.75 - 10.75	Auto	0.0000
L46	15	6 x 1	6.75 - 10.75	Auto	0.0000
L47	1	6.25 x 1.25	6.25 - 6.75	Auto	0.0000
L47	2	6.875 x 1.25	6.25 - 6.75	Auto	0.0000
L47	3	6.875 x 1.25	6.25 - 6.75	Auto	0.0000
L47	4	6.875 x 1.25	6.25 - 6.75	Auto	0.0000
L47	13	6 x 1	6.25 - 6.75	Auto	0.0000
L47	14	6 x 1	6.25 - 6.75	Auto	0.0000
L47	15	6 x 1	6.25 - 6.75	Auto	0.0000
L48	1	6.25 x 1.25	6.00 - 6.25	Auto	0.0000
L48	2	6.875 x 1.25	6.00 - 6.25	Auto	0.0000
L48	3	6.875 x 1.25	6.00 - 6.25	Auto	0.0000
L48	4	6.875 x 1.25	6.00 - 6.25	Auto	0.0000
L48	13	6 x 1	6.00 - 6.25	Auto	0.0000
L48	14	6 x 1	6.00 - 6.25	Auto	0.0000
L48	15	6 x 1	6.00 - 6.25	Auto	0.0000
L49	1	6.25 x 1.25	5.00 - 6.00	Auto	0.0000
L49	2	6.875 x 1.25	5.00 - 6.00	Auto	0.0000
L49	3	6.875 x 1.25	5.00 - 6.00	Auto	0.0000
L49	4	6.875 x 1.25	5.00 - 6.00	Auto	0.0000
L49	13	6 x 1	5.00 - 6.00	Auto	0.0000
L49	14	6 x 1	5.00 - 6.00	Auto	0.0000
L49	15	6 x 1	5.00 - 6.00	Auto	0.0000
L50	1	6.25 x 1.25	4.75 - 5.00	Auto	0.0000
L50	2	6.875 x 1.25	4.75 - 5.00	Auto	0.0000
L50	3	6.875 x 1.25	4.75 - 5.00	Auto	0.0000
L50	4	6.875 x 1.25	4.75 - 5.00	Auto	0.0000
L50	13	6 x 1	4.75 - 5.00	Auto	0.0000
L50	14	6 x 1	4.75 - 5.00	Auto	0.0000
L50	15	6 x 1	4.75 - 5.00	Auto	0.0000
L51	1	6.25 x 1.25	0.75 - 4.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L51	2	6.875 x 1.25	3.00 - 4.75	Auto	0.0000
L51	3	6.875 x 1.25	0.75 - 4.75	Auto	0.0000
L51	4	6.875 x 1.25	0.75 - 4.75	Auto	0.0000
L51	13	6 x 1	3.00 - 4.75	Auto	0.0000
L51	14	6 x 1	3.00 - 4.75	Auto	0.0000
L51	15	6 x 1	3.00 - 4.75	Auto	0.0000
L52	1	6.25 x 1.25	0.00 - 0.75	Auto	0.0000
L52	3	6.875 x 1.25	0.00 - 0.75	Auto	0.0000
L52	4	6.875 x 1.25	0.00 - 0.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
TD-RRH8X20-25	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8X20-25	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8X20-25	C	From Leg	4.00 0.00	0.00	159.00	No Ice 1/2"	4.05 4.30	1.53 1.71	0.07 0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
Platform Mount [LP 602-1]	C	None		0.00	159.00	No Ice	31.07	31.07	1.34
						1/2" Ice	34.82	34.82	1.97
						1" Ice	38.48	38.48	2.67
						2" Ice	45.60	45.60	4.31
(2) 2.375" OD x 6' Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
(2) 2.375" OD x 6' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
(2) 2.375" OD x 6' Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
***									
800MHZ 2X50W RRH W/FILTER	A	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
800MHZ 2X50W RRH W/FILTER	B	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
800MHZ 2X50W RRH W/FILTER	C	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
Side Arm Mount [SO 102-3]	C	None		0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.18 4.75 5.90	3.60 4.18 4.75 5.90	0.07 0.11 0.14 0.20
***									
AIR 32 B2A B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.09 7.56 8.02 8.97	6.37 7.23 7.97 9.51	0.16 0.23 0.30 0.46

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
AIR 32 B2A B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.09 7.56 8.02 8.97	6.37 7.23 7.97 9.51	0.16 0.23 0.30 0.46
AIR 32 B2A B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.09 7.56 8.02 8.97	6.37 7.23 7.97 9.51	0.16 0.23 0.30 0.46
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	0.11 0.17 0.23 0.38
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
KRY 112 144/1	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
RADIO 4449 B12/B71	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16

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
RADIO 4449 B12/B71	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
Platform Mount [LP 602-1]	C	None		0.00	142.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.07 34.82 38.48 45.60	31.07 34.82 38.48 45.60	1.34 1.97 2.67 4.31
***									
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.50 5.97 6.45 7.44	4.38 4.84 5.30 6.26	0.10 0.17 0.25 0.46
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.50 5.97 6.45 7.44	4.38 4.84 5.30 6.26	0.10 0.17 0.25 0.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.50 5.97 6.45 7.44	4.38 4.84 5.30 6.26	0.10 0.17 0.25 0.46
LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.22 3.59 4.34	6.57 7.19 7.84 9.17	0.03 0.08 0.13 0.25
LPA-80080-4CF-EDIN-0 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.22 3.59 4.34	6.57 7.19 7.84 9.17	0.03 0.08 0.13 0.25
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.38 6.78 7.19 8.03	6.56 7.19 7.84 9.17	0.04 0.10 0.18 0.34
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.38 6.78 7.19 8.03	6.56 7.19 7.84 9.17	0.04 0.10 0.18 0.34
(2) DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
RFV01U-D1A	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D1A	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RFV01U-D1A	C	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18

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" Ice			
RFV01U-D2A	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	C	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
CBC78T-DS-43-2X	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.37 0.45 0.53 0.72	0.51 0.60 0.70 0.93	0.02 0.03 0.04 0.06
CBC78T-DS-43-2X	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.37 0.45 0.53 0.72	0.51 0.60 0.70 0.93	0.02 0.03 0.04 0.06
CBC78T-DS-43-2X	C	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.37 0.45 0.53 0.72	0.51 0.60 0.70 0.93	0.02 0.03 0.04 0.06
Platform Mount [LP 303-1_HR-1]	C	None		0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.09 21.47 25.72 33.96	17.09 21.47 25.72 33.96	1.50 1.88 2.35 3.52
2.375" OD x 6' Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
2.375" OD x 6' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
2.375" OD x 6' Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
***									
AM-X-CD-14-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.99 3.30 3.62 4.28	2.14 2.43 2.73 3.36	0.05 0.10 0.14 0.27
AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.99 3.30 3.62 4.28	2.14 2.43 2.73 3.36	0.05 0.10 0.14 0.27
AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice	2.99 3.30 3.62	2.14 2.43 2.73	0.05 0.10 0.14

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	4.28	3.36	0.27
						2" Ice			
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.00	96.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.00	96.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.00	96.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
GPS_A	C	From Leg	4.00	0.00	96.00	No Ice	0.26	0.26	0.00
			0.00			1/2"	0.32	0.32	0.00
			7.00			Ice	0.39	0.39	0.01
						1" Ice	0.56	0.56	0.02
						2" Ice			
(2) TT19-08BP111-001	A	From Leg	4.00	0.00	96.00	No Ice	0.55	0.44	0.02
			0.00			1/2"	0.64	0.53	0.02
			2.00			Ice	0.74	0.63	0.03
						1" Ice	0.97	0.84	0.05
						2" Ice			
(2) TT19-08BP111-001	B	From Leg	4.00	0.00	96.00	No Ice	0.55	0.44	0.02
			0.00			1/2"	0.64	0.53	0.02
			2.00			Ice	0.74	0.63	0.03
						1" Ice	0.97	0.84	0.05
						2" Ice			
(2) TT19-08BP111-001	C	From Leg	4.00	0.00	96.00	No Ice	0.55	0.44	0.02
			0.00			1/2"	0.64	0.53	0.02
			2.00			Ice	0.74	0.63	0.03
						1" Ice	0.97	0.84	0.05
						2" Ice			
RRUS 12 B2	A	From Leg	4.00	0.00	96.00	No Ice	3.14	1.28	0.05
			0.00			1/2"	3.36	1.43	0.07
			2.00			Ice	3.59	1.60	0.10
						1" Ice	4.07	1.95	0.16
						2" Ice			
RRUS 12 B2	B	From Leg	4.00	0.00	96.00	No Ice	3.14	1.28	0.05
			0.00			1/2"	3.36	1.43	0.07
			2.00			Ice	3.59	1.60	0.10
						1" Ice	4.07	1.95	0.16
						2" Ice			
RRUS 12 B2	C	From Leg	4.00	0.00	96.00	No Ice	3.14	1.28	0.05
			0.00			1/2"	3.36	1.43	0.07
			2.00			Ice	3.59	1.60	0.10
						1" Ice	4.07	1.95	0.16
						2" Ice			
RRUS 11	A	From Leg	4.00	0.00	96.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			2.00			Ice	3.21	1.49	0.09
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 11	B	From Leg	4.00	0.00	96.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			2.00			Ice	3.21	1.49	0.09
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 11	C	From Leg	4.00	0.00	96.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			2.00			Ice	3.21	1.49	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	3.66	1.83	0.15
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice	1.21	1.21	0.02
						1/2" Ice	1.89	1.89	0.04
						1" Ice	2.11	2.11	0.07
						2" Ice	2.57	2.57	0.13
T-Arm Mount [TA 602-3]	C	None		0.00	96.00	No Ice	13.40	13.40	0.77
						1/2" Ice	16.44	16.44	1.00
						1" Ice	19.70	19.70	1.29
						2" Ice	25.86	25.86	2.05
***									
KS24019-L112A	C	From Leg	4.00 0.00 1.00	0.00	92.00	No Ice	0.10	0.10	0.01
						1/2" Ice	0.18	0.18	0.01
						1" Ice	0.26	0.26	0.01
						2" Ice	0.42	0.42	0.01
Side Arm Mount [SO 701-1]	C	None		0.00	92.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
***									
Side Arm Mount [SO 701-1]	A	None		0.00	87.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
Side Arm Mount [SO 701-1]	B	None		0.00	87.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
***									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice

Comb. No.	Description
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	160 - 156	Pole	Max Tension	9	0.00	0.00	0.00
			Max. Compression	26	-7.05	-0.00	-0.00
			Max. Mx	8	-2.57	-13.71	-0.00
			Max. My	14	-2.58	-0.00	-13.69
			Max. Vy	8	4.21	-13.71	-0.00
			Max. Vx	14	4.21	-0.00	-13.69
			Max. Torque	12			-0.00
L2	156 - 152	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.62	-0.01	-0.00
			Max. Mx	8	-3.27	-33.16	-0.01
			Max. My	14	-3.28	-0.01	-33.12
			Max. Vy	8	5.40	-33.16	-0.01
			Max. Vx	14	5.39	-0.01	-33.12
			Max. Torque	12			-0.00
L3	152 - 148	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.11	-0.01	-0.00
			Max. Mx	8	-3.53	-55.61	-0.01
			Max. My	14	-3.54	-0.01	-55.54
			Max. Vy	8	5.83	-55.61	-0.01
			Max. Vx	14	5.82	-0.01	-55.54
			Max. Torque	12			-0.00
L4	148 - 144	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.62	-0.02	-0.00
			Max. Mx	8	-3.80	-79.80	-0.01
			Max. My	14	-3.82	-0.02	-79.69
			Max. Vy	8	6.27	-79.80	-0.01
			Max. Vx	14	6.26	-0.02	-79.69
			Max. Torque	12			-0.00
L5	144 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.57	-0.03	-0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-7.20	-124.86	-0.02
			Max. My	14	-7.22	-0.03	-124.70
			Max. Vy	8	11.67	-124.86	-0.02
			Max. Vx	14	11.65	-0.03	-124.70
			Max. Torque	12			-0.01
L6	140 - 136	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.16	-0.04	-0.01
			Max. Mx	8	-7.56	-172.43	-0.03
			Max. My	14	-7.59	-0.04	-172.20
			Max. Vy	8	12.12	-172.43	-0.03
			Max. Vx	14	12.11	-0.04	-172.20
			Max. Torque	12			-0.01
L7	136 - 132	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.77	-0.05	-0.01
			Max. Mx	8	-7.94	-221.84	-0.03
			Max. My	14	-7.97	-0.05	-221.53
			Max. Vy	8	12.58	-221.84	-0.03
			Max. Vx	14	12.57	-0.05	-221.53
			Max. Torque	12			-0.01
L8	132 - 128	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.39	-0.06	-0.01
			Max. Mx	8	-8.34	-273.09	-0.04
			Max. My	14	-8.37	-0.06	-272.71
			Max. Vy	8	13.05	-273.09	-0.04
			Max. Vx	14	13.03	-0.06	-272.71
			Max. Torque	12			-0.01
L9	128 - 124	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.02	-0.07	-0.01
			Max. Mx	8	-8.74	-326.21	-0.05
			Max. My	14	-8.78	-0.08	-325.75
			Max. Vy	8	13.52	-326.21	-0.05
			Max. Vx	14	13.50	-0.08	-325.75
			Max. Torque	12			-0.01
L10	124 - 117.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.35	-0.08	-0.02
			Max. Mx	8	-8.96	-353.48	-0.05
			Max. My	14	-8.99	-0.08	-352.98
			Max. Vy	8	13.75	-353.48	-0.05
			Max. Vx	14	13.73	-0.08	-352.98
			Max. Torque	4			-0.76
L11	117.33 - 116.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.48	-1.65	-1.63
			Max. Mx	8	-13.27	-441.74	-0.57
			Max. My	14	-13.35	-0.64	-440.42
			Max. Vy	8	19.13	-441.74	-0.57
			Max. Vx	14	18.72	-0.64	-440.42
			Max. Torque	4			-0.81
L12	116.33 - 112.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.28	-1.67	-1.63
			Max. Mx	8	-13.86	-519.18	-0.95
			Max. My	14	-13.94	-1.03	-516.23
			Max. Vy	8	19.60	-519.18	-0.95
			Max. Vx	14	19.20	-1.03	-516.23
			Max. Torque	4			-0.81
L13	112.33 - 108.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.10	-1.68	-1.63
			Max. Mx	8	-14.46	-598.53	-1.33
			Max. My	14	-14.54	-1.42	-593.94
			Max. Vy	8	20.08	-598.53	-1.33
			Max. Vx	14	19.67	-1.42	-593.94
			Max. Torque	4			-0.81
L14	108.33 - 104.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.81	-1.68	-1.53
			Max. Mx	8	-15.54	-680.69	-1.65
			Max. My	14	-15.62	-1.79	-674.42

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	21.02	-680.69	-1.65
			Max. Vx	14	20.61	-1.79	-674.42
			Max. Torque	4			-0.81
L15	104.33 - 100.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.60	-1.66	-1.42
			Max. Mx	8	-16.69	-766.66	-1.97
			Max. My	14	-16.76	-2.17	-758.68
			Max. Vy	8	21.98	-766.66	-1.97
			Max. Vx	14	21.57	-2.17	-758.68
			Max. Torque	4			-0.81
L16	100.33 - 96.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.42	-1.65	-1.30
			Max. Mx	8	-17.85	-856.45	-2.28
			Max. My	14	-17.93	-2.54	-846.77
			Max. Vy	8	22.94	-856.45	-2.28
			Max. Vx	2	-22.52	1.74	846.36
			Max. Torque	6			-0.86
L17	96.33 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.51	-1.72	-0.72
			Max. Mx	8	-20.48	-920.07	-2.33
			Max. My	14	-20.57	-2.79	-909.12
			Max. Vy	8	26.28	-920.07	-2.33
			Max. Vx	14	25.79	-2.79	-909.12
			Max. Torque	6			-0.86
L18	94 - 93.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.64	-1.74	-0.71
			Max. Mx	8	-20.57	-926.65	-2.35
			Max. My	14	-20.66	-2.82	-915.57
			Max. Vy	8	26.36	-926.65	-2.35
			Max. Vx	2	-25.86	1.96	915.54
			Max. Torque	14			0.73
L19	93.75 - 89.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.90	-1.95	-0.54
			Max. Mx	8	-21.91	-1034.35	-2.65
			Max. My	2	-22.00	2.32	1021.04
			Max. Vy	8	27.50	-1034.35	-2.65
			Max. Vx	2	-26.87	2.32	1021.04
			Max. Torque	14			0.75
L20	89.75 - 82.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.49	-2.06	-0.47
			Max. Mx	8	-22.29	-1082.79	-2.79
			Max. My	2	-22.39	2.45	1068.24
			Max. Vy	8	27.86	-1082.79	-2.79
			Max. Vx	14	27.08	-3.43	-1068.04
			Max. Torque	14			0.75
L21	82.5 - 81.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.26	-2.47	-0.22
			Max. Mx	8	-24.81	-1269.42	-3.33
			Max. My	2	-24.93	2.96	1247.97
			Max. Vy	8	29.39	-1269.42	-3.33
			Max. Vx	2	-28.10	2.96	1247.97
			Max. Torque	14			0.75
L22	81.5 - 77.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.70	-2.72	-0.08
			Max. Mx	8	-25.85	-1388.53	-3.69
			Max. My	2	-25.99	3.26	1361.31
			Max. Vy	8	30.15	-1388.53	-3.69
			Max. Vx	2	-28.57	3.26	1361.31
			Max. Torque	14			0.75
L23	77.5 - 73.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.23	-2.98	0.07
			Max. Mx	8	-26.95	-1510.74	-4.04
			Max. My	2	-27.09	3.54	1476.52
			Max. Vy	8	30.93	-1510.74	-4.04
			Max. Vx	2	-29.04	3.54	1476.52
			Max. Torque	14			0.75

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L24	73.5 - 72.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.67	-3.05	0.12
			Max. Mx	8	-27.26	-1549.51	-4.15
			Max. My	2	-27.41	3.64	1512.90
			Max. Vy	8	31.10	-1549.51	-4.15
			Max. Vx	14	29.19	-5.29	-1512.34
			Max. Torque	14			0.75
L25	72.25 - 72	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.77	-3.07	0.13
			Max. Mx	8	-27.35	-1557.29	-4.17
			Max. My	2	-27.49	3.65	1520.20
			Max. Vy	8	31.15	-1557.29	-4.17
			Max. Vx	2	-29.23	3.65	1520.20
			Max. Torque	14			0.75
L26	72 - 68	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.40	-3.29	0.28
			Max. Mx	8	-28.54	-1682.98	-4.51
			Max. My	2	-28.68	3.96	1638.01
			Max. Vy	8	31.70	-1682.98	-4.51
			Max. Vx	2	-29.69	3.96	1638.01
			Max. Torque	14			0.75
L27	68 - 64	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.04	-3.51	0.44
			Max. Mx	8	-29.75	-1810.92	-4.85
			Max. My	2	-29.89	4.26	1757.73
			Max. Vy	8	32.26	-1810.92	-4.85
			Max. Vx	2	-30.17	4.26	1757.73
			Max. Torque	14			0.75
L28	64 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.70	-3.74	0.60
			Max. Mx	8	-30.99	-1941.05	-5.18
			Max. My	2	-31.12	4.57	1879.35
			Max. Vy	8	32.80	-1941.05	-5.18
			Max. Vx	2	-30.64	4.57	1879.35
			Max. Torque	14			0.75
L29	60 - 56	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.38	-3.98	0.76
			Max. Mx	8	-32.24	-2073.35	-5.52
			Max. My	2	-32.36	4.87	2002.82
			Max. Vy	8	33.33	-2073.35	-5.52
			Max. Vx	2	-31.10	4.87	2002.82
			Max. Torque	14			0.75
L30	56 - 53.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.39	-4.11	0.85
			Max. Mx	8	-32.96	-2148.72	-5.70
			Max. My	2	-33.07	5.03	2073.09
			Max. Vy	8	33.65	-2148.72	-5.70
			Max. Vx	14	31.36	-7.45	-2072.10
			Max. Torque	14			0.75
L31	53.75 - 53.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.52	-4.14	0.86
			Max. Mx	8	-33.07	-2157.14	-5.72
			Max. My	2	-33.18	5.05	2080.93
			Max. Vy	8	33.70	-2157.14	-5.72
			Max. Vx	2	-31.40	5.05	2080.93
			Max. Torque	14			0.75
L32	53.5 - 49.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.66	-4.37	1.03
			Max. Mx	8	-34.64	-2293.08	-6.06
			Max. My	2	-34.75	5.35	2207.44
			Max. Vy	8	34.27	-2293.08	-6.06
			Max. Vx	2	-31.87	5.35	2207.44
			Max. Torque	14			0.75
L33	49.5 - 40.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.99	-4.52	1.13
			Max. Mx	8	-35.63	-2379.23	-6.26
			Max. My	2	-35.74	5.53	2287.48
			Max. Vy	8	34.63	-2379.23	-6.26

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	32.16	-8.24	-2286.33
			Max. Torque	14			0.75
L34	40.583 - 39.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.92	-4.97	1.44
			Max. Mx	8	-41.03	-2640.59	-6.87
			Max. My	2	-41.14	6.08	2529.74
			Max. Vy	8	35.82	-2640.59	-6.87
			Max. Vx	2	-33.15	6.08	2529.74
			Max. Torque	14			0.75
L35	39.583 - 35.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.25	-5.21	1.61
			Max. Mx	8	-42.82	-2785.00	-7.20
			Max. My	2	-42.92	6.37	2663.20
			Max. Vy	8	36.37	-2785.00	-7.20
			Max. Vx	2	-33.59	6.37	2663.20
			Max. Torque	14			0.75
L36	35.583 - 31.483	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.76	-5.47	1.78
			Max. Mx	8	-44.78	-2935.29	-7.54
			Max. My	2	-44.87	6.67	2801.80
			Max. Vy	8	36.93	-2935.29	-7.54
			Max. Vx	14	34.03	-10.07	-2800.27
			Max. Torque	14			0.75
L37	31.483 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.90	-5.49	1.79
			Max. Mx	8	-44.90	-2943.91	-7.56
			Max. My	2	-44.99	6.69	2809.74
			Max. Vy	8	36.98	-2943.91	-7.56
			Max. Vx	2	-34.07	6.69	2809.74
			Max. Torque	14			0.75
L38	31.25 - 28.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.44	-5.63	1.90
			Max. Mx	8	-46.09	-3036.73	-7.76
			Max. My	2	-46.18	6.87	2895.18
			Max. Vy	8	37.29	-3036.73	-7.76
			Max. Vx	14	34.31	-10.39	-2893.58
			Max. Torque	14			0.75
L39	28.75 - 28.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.58	-5.66	1.91
			Max. Mx	8	-46.21	-3046.06	-7.78
			Max. My	2	-46.29	6.89	2903.76
			Max. Vy	8	37.33	-3046.06	-7.78
			Max. Vx	2	-34.35	6.89	2903.76
			Max. Torque	14			0.75
L40	28.5 - 24.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.79	-5.90	2.08
			Max. Mx	8	-47.93	-3196.30	-8.11
			Max. My	2	-48.01	7.18	3041.89
			Max. Vy	8	37.80	-3196.30	-8.11
			Max. Vx	14	34.73	-10.89	-3040.18
			Max. Torque	14			0.75
L41	24.5 - 20.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.98	-6.15	2.25
			Max. Mx	8	-49.69	-3348.44	-8.43
			Max. My	2	-49.75	7.46	3181.60
			Max. Vy	8	38.26	-3348.44	-8.43
			Max. Vx	14	35.13	-11.36	-3179.78
			Max. Torque	14			0.75
L42	20.5 - 16.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.19	-6.40	2.42
			Max. Mx	8	-51.46	-3502.44	-8.76
			Max. My	2	-51.52	7.75	3322.89
			Max. Vy	8	38.73	-3502.44	-8.76
			Max. Vx	14	35.52	-11.84	-3320.97

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	14			0.75
L43	16.5 - 12.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.41	-6.65	2.59
			Max. Mx	8	-53.26	-3658.29	-9.08
			Max. My	2	-53.30	8.03	3465.76
			Max. Vy	8	39.19	-3658.29	-9.08
			Max. Vx	14	35.92	-12.31	-3463.73
			Max. Torque	14			0.75
L44	12.5 - 11	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.28	-6.74	2.64
			Max. Mx	8	-53.93	-3717.22	-9.20
			Max. My	2	-53.97	8.13	3519.75
			Max. Vy	8	39.38	-3717.22	-9.20
			Max. Vx	14	36.08	-12.48	-3517.68
			Max. Torque	14			0.75
L45	11 - 10.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.44	-6.76	2.65
			Max. Mx	8	-54.08	-3727.07	-9.22
			Max. My	2	-54.12	8.15	3528.77
			Max. Vy	8	39.40	-3727.07	-9.22
			Max. Vx	2	-36.09	8.15	3528.77
			Max. Torque	14			0.75
L46	10.75 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.05	-6.99	2.79
			Max. Mx	8	-56.17	-3885.72	-9.53
			Max. My	2	-56.20	8.43	3673.97
			Max. Vy	8	39.91	-3885.72	-9.53
			Max. Vx	14	36.51	-12.98	-3671.78
			Max. Torque	14			0.75
L47	6.75 - 6.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.38	-7.03	2.81
			Max. Mx	8	-56.45	-3905.69	-9.57
			Max. My	2	-56.47	8.46	3692.23
			Max. Vy	8	39.96	-3905.69	-9.57
			Max. Vx	14	36.55	-13.04	-3690.03
			Max. Torque	14			0.75
L48	6.25 - 6	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.54	-7.05	2.81
			Max. Mx	8	-56.58	-3915.69	-9.59
			Max. My	2	-56.60	8.48	3701.38
			Max. Vy	8	39.99	-3915.69	-9.59
			Max. Vx	2	-36.58	8.48	3701.38
			Max. Torque	14			0.75
L49	6 - 5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.19	-7.13	2.85
			Max. Mx	8	-57.10	-3955.76	-9.67
			Max. My	2	-57.12	8.55	3738.01
			Max. Vy	8	40.12	-3955.76	-9.67
			Max. Vx	14	36.69	-13.19	-3735.77
			Max. Torque	14			0.75
L50	5 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.34	-7.15	2.86
			Max. Mx	8	-57.22	-3965.79	-9.69
			Max. My	2	-57.24	8.57	3747.18
			Max. Vy	8	40.15	-3965.79	-9.69
			Max. Vx	2	-36.70	8.57	3747.18
			Max. Torque	14			0.75
L51	4.75 - 0.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.56	-7.41	3.04
			Max. Mx	8	-59.06	-4127.33	-10.01
			Max. My	2	-59.07	8.84	3894.78
			Max. Vy	8	40.60	-4127.33	-10.01
			Max. Vx	14	37.10	-13.69	-3892.43
			Max. Torque	14			0.75
L52	0.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.96	-7.46	3.08
			Max. Mx	8	-59.42	-4157.81	-10.06
			Max. My	2	-59.42	8.89	3922.62
			Max. Vy	8	40.68	-4157.81	-10.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	37.16	-13.78	-3920.25
			Max. Torque	14			0.75

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	95.96	0.00	0.00
	Max. H_x	20	59.43	40.67	0.09
	Max. H_z	2	59.43	0.09	37.15
	Max. M_x	2	3922.62	0.09	37.15
	Max. M_z	8	4157.81	-40.67	-0.09
	Max. Torsion	14	0.75	-0.09	-37.15
	Min. Vert	9	44.57	-40.66	-0.09
	Min. H_x	8	59.43	-40.67	-0.09
	Min. H_z	14	59.43	-0.09	-37.15
	Min. M_x	14	-3920.25	-0.09	-37.15
	Min. M_z	20	-4152.93	40.67	0.09
	Min. Torsion	2	-0.75	0.09	37.15

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	49.52	0.00	-0.00	-1.03	-1.97	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	59.43	-0.09	-37.15	-3922.62	8.89	0.75
0.9 Dead+1.0 Wind 0 deg - No Ice	44.57	-0.09	-37.15	-3885.87	9.41	0.74
1.2 Dead+1.0 Wind 30 deg - No Ice	59.43	18.09	-31.09	-3285.02	-1914.81	0.67
0.9 Dead+1.0 Wind 30 deg - No Ice	44.57	18.09	-31.09	-3254.11	-1896.37	0.66
1.2 Dead+1.0 Wind 60 deg - No Ice	59.43	32.27	-18.39	-1939.45	-3410.69	0.63
0.9 Dead+1.0 Wind 60 deg - No Ice	44.57	32.27	-18.39	-1921.16	-3378.48	0.63
1.2 Dead+1.0 Wind 90 deg - No Ice	59.43	40.67	0.09	10.06	-4157.81	-0.36
0.9 Dead+1.0 Wind 90 deg - No Ice	44.57	40.66	0.09	10.28	-4119.30	-0.36
1.2 Dead+1.0 Wind 120 deg - No Ice	59.43	32.32	18.52	1943.16	-3398.86	-0.23
0.9 Dead+1.0 Wind 120 deg - No Ice	44.57	32.32	18.52	1925.49	-3366.81	-0.23
1.2 Dead+1.0 Wind 150 deg - No Ice	59.43	18.66	31.90	3368.06	-1977.30	-0.47
0.9 Dead+1.0 Wind 150 deg - No Ice	44.57	18.66	31.90	3337.12	-1958.36	-0.47
1.2 Dead+1.0 Wind 180 deg - No Ice	59.43	0.09	37.15	3920.25	-13.78	-0.75
0.9 Dead+1.0 Wind 180 deg - No Ice	44.57	0.09	37.15	3884.19	-13.05	-0.75
1.2 Dead+1.0 Wind 210 deg - No Ice	59.43	-18.09	31.09	3282.48	1909.92	-0.67
0.9 Dead+1.0 Wind 210 deg - No Ice	44.57	-18.09	31.09	3252.21	1892.74	-0.66
1.2 Dead+1.0 Wind 240 deg - No Ice	59.43	-32.27	18.39	1936.90	3405.80	-0.63

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
0.9 Dead+1.0 Wind 240 deg - No Ice	44.57	-32.27	18.39	1919.26	3374.85	-0.62
1.2 Dead+1.0 Wind 270 deg - No Ice	59.43	-40.67	-0.09	-12.60	4152.93	0.36
0.9 Dead+1.0 Wind 270 deg - No Ice	44.57	-40.66	-0.09	-12.18	4115.67	0.36
1.2 Dead+1.0 Wind 300 deg - No Ice	59.43	-32.32	-18.52	-1945.70	3393.97	0.23
0.9 Dead+1.0 Wind 300 deg - No Ice	44.57	-32.32	-18.52	-1927.39	3363.17	0.23
1.2 Dead+1.0 Wind 330 deg - No Ice	59.43	-18.66	-31.90	-3370.59	1972.41	0.47
0.9 Dead+1.0 Wind 330 deg - No Ice	44.57	-18.66	-31.90	-3339.01	1954.72	0.47
1.2 Dead+1.0 Ice+1.0 Temp	95.96	-0.00	-0.00	-3.08	-7.46	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	95.96	-0.02	-7.26	-814.29	-5.67	0.16
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	95.96	3.55	-6.10	-685.43	-404.79	0.14
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	95.96	6.30	-3.60	-404.53	-712.64	0.12
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	95.96	7.53	0.02	-0.98	-845.42	-0.09
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	95.96	6.22	3.57	395.59	-703.74	-0.07
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	95.96	3.66	6.26	696.46	-417.32	-0.11
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	95.96	0.02	7.26	807.98	-10.03	-0.16
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	95.96	-3.55	6.10	679.12	389.09	-0.14
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	95.96	-6.30	3.60	398.21	696.94	-0.12
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	95.96	-7.53	-0.02	-5.33	829.72	0.09
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	95.96	-6.22	-3.57	-401.91	688.04	0.07
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	95.96	-3.66	-6.26	-702.77	401.62	0.11
Dead+Wind 0 deg - Service	49.52	-0.02	-6.91	-726.70	0.07	0.14
Dead+Wind 30 deg - Service	49.52	3.36	-5.78	-608.70	-355.91	0.12
Dead+Wind 60 deg - Service	49.52	6.00	-3.42	-359.73	-632.76	0.12
Dead+Wind 90 deg - Service	49.52	7.56	0.02	1.04	-771.10	-0.07
Dead+Wind 120 deg - Service	49.52	6.01	3.45	358.78	-630.57	-0.04
Dead+Wind 150 deg - Service	49.52	3.47	5.93	622.47	-367.49	-0.09
Dead+Wind 180 deg - Service	49.52	0.02	6.91	724.60	-4.13	-0.14
Dead+Wind 210 deg - Service	49.52	-3.36	5.78	606.51	351.80	-0.12
Dead+Wind 240 deg - Service	49.52	-6.00	3.42	357.62	628.70	-0.12
Dead+Wind 270 deg - Service	49.52	-7.56	-0.02	-3.15	767.05	0.07
Dead+Wind 300 deg - Service	49.52	-6.01	-3.45	-360.89	626.51	0.04
Dead+Wind 330 deg - Service	49.52	-3.47	-5.93	-624.57	363.43	0.09

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-49.52	0.00	-0.00	49.52	0.00	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
2	-0.09	-59.43	-37.15	0.09	59.43	37.15	0.003%
3	-0.09	-44.57	-37.15	0.09	44.57	37.15	0.006%
4	18.09	-59.43	-31.09	-18.09	59.43	31.09	0.000%
5	18.09	-44.57	-31.09	-18.09	44.57	31.09	0.000%
6	32.27	-59.43	-18.39	-32.27	59.43	18.39	0.000%
7	32.27	-44.57	-18.39	-32.27	44.57	18.39	0.000%
8	40.67	-59.43	0.09	-40.67	59.43	-0.09	0.003%
9	40.67	-44.57	0.09	-40.66	44.57	-0.09	0.006%
10	32.32	-59.43	18.52	-32.32	59.43	-18.52	0.000%
11	32.32	-44.57	18.52	-32.32	44.57	-18.52	0.000%
12	18.66	-59.43	31.90	-18.66	59.43	-31.90	0.000%
13	18.66	-44.57	31.90	-18.66	44.57	-31.90	0.000%
14	0.09	-59.43	37.15	-0.09	59.43	-37.15	0.002%
15	0.09	-44.57	37.15	-0.09	44.57	-37.15	0.003%
16	-18.09	-59.43	31.09	18.09	59.43	-31.09	0.000%
17	-18.09	-44.57	31.09	18.09	44.57	-31.09	0.000%
18	-32.27	-59.43	18.39	32.27	59.43	-18.39	0.000%
19	-32.27	-44.57	18.39	32.27	44.57	-18.39	0.000%
20	-40.67	-59.43	-0.09	40.67	59.43	0.09	0.003%
21	-40.67	-44.57	-0.09	40.66	44.57	0.09	0.006%
22	-32.32	-59.43	-18.52	32.32	59.43	18.52	0.000%
23	-32.32	-44.57	-18.52	32.32	44.57	18.52	0.000%
24	-18.66	-59.43	-31.90	18.66	59.43	31.90	0.000%
25	-18.66	-44.57	-31.90	18.66	44.57	31.90	0.000%
26	0.00	-95.96	0.00	0.00	95.96	0.00	0.001%
27	-0.02	-95.96	-7.26	0.02	95.96	7.26	0.000%
28	3.55	-95.96	-6.10	-3.55	95.96	6.10	0.000%
29	6.30	-95.96	-3.60	-6.30	95.96	3.60	0.000%
30	7.53	-95.96	0.02	-7.53	95.96	-0.02	0.000%
31	6.22	-95.96	3.57	-6.22	95.96	-3.57	0.000%
32	3.66	-95.96	6.26	-3.66	95.96	-6.26	0.000%
33	0.02	-95.96	7.26	-0.02	95.96	-7.26	0.000%
34	-3.55	-95.96	6.10	3.55	95.96	-6.10	0.000%
35	-6.30	-95.96	3.60	6.30	95.96	-3.60	0.000%
36	-7.53	-95.96	-0.02	7.53	95.96	0.02	0.000%
37	-6.22	-95.96	-3.57	6.22	95.96	3.57	0.000%
38	-3.66	-95.96	-6.26	3.66	95.96	6.26	0.000%
39	-0.02	-49.52	-6.91	0.02	49.52	6.91	0.003%
40	3.36	-49.52	-5.78	-3.36	49.52	5.78	0.001%
41	6.00	-49.52	-3.42	-6.00	49.52	3.42	0.001%
42	7.57	-49.52	0.02	-7.56	49.52	-0.02	0.003%
43	6.01	-49.52	3.45	-6.01	49.52	-3.45	0.001%
44	3.47	-49.52	5.93	-3.47	49.52	-5.93	0.001%
45	0.02	-49.52	6.91	-0.02	49.52	-6.91	0.003%
46	-3.36	-49.52	5.78	3.36	49.52	-5.78	0.003%
47	-6.00	-49.52	3.42	6.00	49.52	-3.42	0.001%
48	-7.57	-49.52	-0.02	7.56	49.52	0.02	0.003%
49	-6.01	-49.52	-3.45	6.01	49.52	3.45	0.001%
50	-3.47	-49.52	-5.93	3.47	49.52	5.93	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00004476	0.00011471
3	Yes	16	0.00006044	0.00014814
4	Yes	22	0.00000001	0.00013816
5	Yes	22	0.00000001	0.00010262
6	Yes	22	0.00000001	0.00014232
7	Yes	22	0.00000001	0.00010515
8	Yes	17	0.00004457	0.00009657
9	Yes	16	0.00006019	0.00011380
10	Yes	22	0.00000001	0.00014192
11	Yes	22	0.00000001	0.00010491

12	Yes	22	0.00000001	0.00014577
13	Yes	22	0.00000001	0.00010784
14	Yes	18	0.00002249	0.00008145
15	Yes	17	0.00003036	0.00011443
16	Yes	22	0.00000001	0.00013497
17	Yes	22	0.00000001	0.00010027
18	Yes	22	0.00000001	0.00014449
19	Yes	22	0.00000001	0.00010692
20	Yes	17	0.00004458	0.00011222
21	Yes	16	0.00006020	0.00014214
22	Yes	22	0.00000001	0.00014266
23	Yes	22	0.00000001	0.00010552
24	Yes	22	0.00000001	0.00014363
25	Yes	22	0.00000001	0.00010625
26	Yes	9	0.00000001	0.00006514
27	Yes	20	0.00000001	0.00014865
28	Yes	21	0.00000001	0.00008187
29	Yes	21	0.00000001	0.00008388
30	Yes	21	0.00000001	0.00008145
31	Yes	21	0.00000001	0.00008311
32	Yes	21	0.00000001	0.00008371
33	Yes	20	0.00000001	0.00014856
34	Yes	21	0.00000001	0.00008073
35	Yes	21	0.00000001	0.00008241
36	Yes	21	0.00000001	0.00007994
37	Yes	21	0.00000001	0.00008176
38	Yes	21	0.00000001	0.00008270
39	Yes	15	0.00014119	0.00006496
40	Yes	16	0.00000001	0.00008428
41	Yes	16	0.00000001	0.00008388
42	Yes	15	0.00014088	0.00006600
43	Yes	16	0.00000001	0.00008430
44	Yes	16	0.00000001	0.00008800
45	Yes	15	0.00014122	0.00006519
46	Yes	15	0.00014128	0.00014160
47	Yes	16	0.00000001	0.00008734
48	Yes	15	0.00014089	0.00006578
49	Yes	16	0.00000001	0.00008549
50	Yes	16	0.00000001	0.00008418

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* ft	*Horz. Deflection* in	*Gov. Load Comb.*	*Tilt* °	*Twist* °
L1	160 - 156	18.828	42	1.05	0.00
L2	156 - 152	17.947	42	1.05	0.00
L3	152 - 148	17.069	42	1.05	0.00
L4	148 - 144	16.196	42	1.04	0.00
L5	144 - 140	15.329	42	1.03	0.00
L6	140 - 136	14.473	42	1.01	0.00
L7	136 - 132	13.631	42	1.00	0.00
L8	132 - 128	12.807	42	0.97	0.00
L9	128 - 124	12.003	42	0.95	0.00
L10	124 - 117.33	11.223	42	0.92	0.00
L11	122 - 116.33	10.843	42	0.90	0.00
L12	116.33 - 112.33	9.788	42	0.87	0.00
L13	112.33 - 108.33	9.069	42	0.84	0.00
L14	108.33 - 104.33	8.377	42	0.81	0.00
L15	104.33 - 100.33	7.714	42	0.77	0.00
L16	100.33 - 96.33	7.083	42	0.73	0.00
L17	96.33 - 94	6.484	42	0.69	0.00
L18	94 - 93.75	6.150	42	0.67	0.00
L19	93.75 - 89.75	6.115	42	0.67	0.00
L20	89.75 - 82.5	5.573	42	0.63	0.00
L21	88 - 81.5	5.348	42	0.61	0.00
L22	81.5 - 77.5	4.546	42	0.57	0.00
L23	77.5 - 73.5	4.086	42	0.53	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L24	73.5 - 72.25	3.657	42	0.49	0.00
L25	72.25 - 72	3.530	42	0.48	0.00
L26	72 - 68	3.505	42	0.48	0.00
L27	68 - 64	3.119	42	0.45	0.00
L28	64 - 60	2.758	42	0.41	0.00
L29	60 - 56	2.426	42	0.38	0.00
L30	56 - 53.75	2.121	42	0.35	0.00
L31	53.75 - 53.5	1.961	42	0.33	0.00
L32	53.5 - 49.5	1.944	42	0.33	0.00
L33	49.5 - 40.583	1.680	42	0.30	0.00
L34	47 - 39.583	1.527	42	0.29	0.00
L35	39.583 - 35.583	1.101	42	0.26	0.00
L36	35.583 - 31.483	0.894	42	0.23	0.00
L37	31.483 - 31.25	0.703	42	0.21	0.00
L38	31.25 - 28.75	0.692	42	0.21	0.00
L39	28.75 - 28.5	0.587	42	0.19	0.00
L40	28.5 - 24.5	0.577	42	0.19	0.00
L41	24.5 - 20.5	0.426	42	0.17	0.00
L42	20.5 - 16.5	0.299	42	0.14	0.00
L43	16.5 - 12.5	0.195	42	0.11	0.00
L44	12.5 - 11	0.114	42	0.08	0.00
L45	11 - 10.75	0.089	42	0.07	0.00
L46	10.75 - 6.75	0.085	42	0.07	0.00
L47	6.75 - 6.25	0.035	42	0.05	0.00
L48	6.25 - 6	0.030	42	0.05	0.00
L49	6 - 5	0.028	42	0.04	0.00
L50	5 - 4.75	0.019	42	0.04	0.00
L51	4.75 - 0.75	0.017	42	0.04	0.00
L52	0.75 - 0	0.000	42	0.00	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXV9ERR18-C-A20 w/ Mount Pipe	42	18.608	1.05	0.00	66585
155.00	800MHZ 2X50W RRH W/FILTER	42	17.728	1.05	0.00	66585
142.00	AIR 32 B2A B66AA w/ Mount Pipe	42	14.900	1.02	0.00	16200
118.00	(2) JAHH-65B-R3B w/ Mount Pipe	42	10.095	0.88	0.00	10066
96.00	AM-X-CD-14-65-00T-RET w/ Mount Pipe	42	6.436	0.69	0.00	5614
92.00	KS24019-L112A	42	5.874	0.65	0.00	5447
87.00	Side Arm Mount [SO 701-1]	42	5.221	0.60	0.00	8049

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 156	101.594	8	5.68	0.00
L2	156 - 152	96.843	8	5.68	0.00
L3	152 - 148	92.104	8	5.65	0.00
L4	148 - 144	87.391	8	5.61	0.00
L5	144 - 140	82.719	8	5.56	0.00
L6	140 - 136	78.100	8	5.48	0.00
L7	136 - 132	73.556	8	5.38	0.00
L8	132 - 128	69.108	8	5.25	0.00
L9	128 - 124	64.773	8	5.11	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L10	124 - 117.33	60.566	8	4.95	0.00
L11	122 - 116.33	58.514	8	4.86	0.00
L12	116.33 - 112.33	52.821	8	4.72	0.00
L13	112.33 - 108.33	48.940	8	4.55	0.00
L14	108.33 - 104.33	45.205	8	4.37	0.00
L15	104.33 - 100.33	41.629	8	4.17	0.00
L16	100.33 - 96.33	38.221	8	3.97	0.00
L17	96.33 - 94	34.988	8	3.75	0.00
L18	94 - 93.75	33.190	8	3.62	0.00
L19	93.75 - 89.75	33.000	8	3.61	0.00
L20	89.75 - 82.5	30.076	8	3.38	0.00
L21	88 - 81.5	28.858	8	3.27	0.00
L22	81.5 - 77.5	24.530	8	3.07	0.00
L23	77.5 - 73.5	22.045	8	2.86	0.00
L24	73.5 - 72.25	19.734	8	2.65	0.00
L25	72.25 - 72	19.048	8	2.59	0.00
L26	72 - 68	18.913	8	2.58	0.00
L27	68 - 64	16.826	8	2.41	0.00
L28	64 - 60	14.883	8	2.23	0.00
L29	60 - 56	13.087	8	2.06	0.00
L30	56 - 53.75	11.441	8	1.88	0.00
L31	53.75 - 53.5	10.581	8	1.77	0.00
L32	53.5 - 49.5	10.488	8	1.77	0.00
L33	49.5 - 40.583	9.066	8	1.63	0.00
L34	47 - 39.583	8.235	8	1.54	0.00
L35	39.583 - 35.583	5.939	8	1.40	0.00
L36	35.583 - 31.483	4.822	8	1.27	0.00
L37	31.483 - 31.25	3.790	8	1.14	0.00
L38	31.25 - 28.75	3.735	8	1.13	0.00
L39	28.75 - 28.5	3.165	8	1.05	0.00
L40	28.5 - 24.5	3.110	8	1.04	0.00
L41	24.5 - 20.5	2.300	8	0.89	0.00
L42	20.5 - 16.5	1.614	8	0.74	0.00
L43	16.5 - 12.5	1.052	8	0.60	0.00
L44	12.5 - 11	0.613	8	0.45	0.00
L45	11 - 10.75	0.480	8	0.40	0.00
L46	10.75 - 6.75	0.459	8	0.39	0.00
L47	6.75 - 6.25	0.189	8	0.26	0.00
L48	6.25 - 6	0.163	8	0.24	0.00
L49	6 - 5	0.150	8	0.23	0.00
L50	5 - 4.75	0.105	8	0.20	0.00
L51	4.75 - 0.75	0.094	8	0.19	0.00
L52	0.75 - 0	0.002	8	0.03	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXV9ERR18-C-A20 w/ Mount Pipe	8	100.406	5.68	0.00	12534
155.00	800MHZ 2X50W RRH W/FILTER	8	95.657	5.67	0.00	12534
142.00	AIR 32 B2A B66AA w/ Mount Pipe	8	80.402	5.52	0.00	3046
118.00	(2) JAHH-65B-R3B w/ Mount Pipe	8	54.478	4.76	0.00	1888
96.00	AM-X-CD-14-65-00T-RET w/ Mount Pipe	8	34.730	3.73	0.00	1047
92.00	KS24019-L112A	8	31.696	3.51	0.00	1015
87.00	Side Arm Mount [SO 701-1]	8	28.173	3.23	0.00	1498

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L1	160 - 156 (1)	TP23.1103x22.35x0.2188	4.00	0.00	0.0	16.1242	-2.57	943.27	0.003
L2	156 - 152 (2)	TP23.8705x23.1103x0.2188	4.00	0.00	0.0	16.6597	-3.27	974.59	0.003
L3	152 - 148 (3)	TP24.6308x23.8705x0.2188	4.00	0.00	0.0	17.1952	-3.53	1005.92	0.004
L4	148 - 144 (4)	TP25.391x24.6308x0.2188	4.00	0.00	0.0	17.7307	-3.80	1037.25	0.004
L5	144 - 140 (5)	TP26.1513x25.391x0.2188	4.00	0.00	0.0	18.2662	-7.20	1068.57	0.007
L6	140 - 136 (6)	TP26.9115x26.1513x0.2188	4.00	0.00	0.0	18.8017	-7.56	1099.90	0.007
L7	136 - 132 (7)	TP27.6718x26.9115x0.2188	4.00	0.00	0.0	19.3372	-7.94	1131.23	0.007
L8	132 - 128 (8)	TP28.432x27.6718x0.2188	4.00	0.00	0.0	19.8727	-8.34	1162.55	0.007
L9	128 - 124 (9)	TP29.1923x28.432x0.2188	4.00	0.00	0.0	20.4082	-8.74	1193.88	0.007
L10	124 - 117.33 (10)	TP30.46x29.1923x0.2188	6.67	0.00	0.0	20.6760	-8.96	1209.54	0.007
L11	117.33 - 116.33 (11)	TP30.2122x29.1349x0.2813	5.67	0.00	0.0	27.1062	-13.27	1585.71	0.008
L12	116.33 - 112.33 (12)	TP30.9722x30.2122x0.2813	4.00	0.00	0.0	27.7945	-13.86	1625.98	0.009
L13	112.33 - 108.33 (13)	TP31.7322x30.9722x0.2813	4.00	0.00	0.0	28.4828	-14.46	1666.24	0.009
L14	108.33 - 104.33 (14)	TP32.4922x31.7322x0.2813	4.00	0.00	0.0	29.1711	-15.54	1706.51	0.009
L15	104.33 - 100.33 (15)	TP33.2523x32.4922x0.2813	4.00	0.00	0.0	29.8594	-16.69	1746.77	0.010
L16	100.33 - 96.33 (16)	TP34.0123x33.2523x0.2813	4.00	0.00	0.0	30.5477	-17.85	1787.04	0.010
L17	96.33 - 94 (17)	TP34.455x34.0123x0.2813	2.33	0.00	0.0	30.9486	-20.48	1810.49	0.011
L18	94 - 93.75 (18)	TP34.5025x34.455x0.2813	0.25	0.00	0.0	30.9916	-20.57	1813.01	0.011
L19	93.75 - 89.75 (19)	TP35.2625x34.5025x0.2813	4.00	0.00	0.0	31.6799	-21.91	1853.27	0.012
L20	89.75 - 82.5 (20)	TP36.64x35.2625x0.2813	7.25	0.00	0.0	31.9810	-22.29	1870.89	0.012
L21	82.5 - 81.5 (21)	TP36.2727x35.0325x0.375	6.50	0.00	0.0	43.3465	-24.81	2535.77	0.010
L22	81.5 - 77.5 (22)	TP37.036x36.2727x0.375	4.00	0.00	0.0	44.2681	-25.85	2589.68	0.010
L23	77.5 - 73.5 (23)	TP37.7992x37.036x0.375	4.00	0.00	0.0	45.1897	-26.95	2643.60	0.010
L24	73.5 - 72.25 (24)	TP38.0377x37.7992x0.375	1.25	0.00	0.0	45.4777	-27.26	2660.45	0.010
L25	72.25 - 72 (25)	TP38.0854x38.0377x0.4875	0.25	0.00	0.0	59.0193	-27.35	3452.63	0.008
L26	72 - 68 (26)	TP38.8486x38.0854x0.4813	4.00	0.00	0.0	59.4551	-28.54	3478.12	0.008
L27	68 - 64 (27)	TP39.6119x38.8486x0.475	4.00	0.00	0.0	59.8598	-29.75	3501.80	0.008
L28	64 - 60 (28)	TP40.3751x39.6119x0.475	4.00	0.00	0.0	61.0272	-30.99	3570.09	0.009
L29	60 - 56 (29)	TP41.1383x40.3751x0.475	4.00	0.00	0.0	62.1946	-32.24	3638.38	0.009
L30	56 - 53.75 (30)	TP41.5676x41.1383x0.475	2.25	0.00	0.0	62.8512	-32.96	3676.79	0.009
L31	53.75 - 53.5 (31)	TP41.6153x41.5676x0.6375	0.25	0.00	0.0	84.1173	-33.07	4920.86	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L32	53.5 - 49.5 (32)	TP42.3786x41.6153x0.6375	4.00	0.00	0.0	85.6840	-34.64	5012.51	0.007
L33	49.5 - 40.583 (33)	TP44.08x42.3786x0.625	8.92	0.00	0.0	84.9891	-35.63	4971.86	0.007
L34	40.583 - 39.583 (34)	TP43.5092x42.1056x0.7	7.42	0.00	0.0	96.4919	-41.03	5644.78	0.007
L35	39.583 - 35.583 (35)	TP44.2662x43.5092x0.7	4.00	0.00	0.0	98.1982	-42.82	5744.59	0.007
L36	35.583 - 31.483 (36)	TP45.0421x44.2662x0.7375	4.10	0.00	0.0	105.2120	-44.78	6154.92	0.007
L37	31.483 - 31.25 (37)	TP45.0862x45.0421x0.7375	0.23	0.00	0.0	105.3170	-44.90	6161.04	0.007
L38	31.25 - 28.75 (38)	TP45.5593x45.0862x0.7375	2.50	0.00	0.0	106.4400	-46.09	6226.77	0.007
L39	28.75 - 28.5 (39)	TP45.6066x45.5593x0.6375	0.25	0.00	0.0	92.3103	-46.21	5400.15	0.009
L40	28.5 - 24.5 (40)	TP46.3636x45.6066x0.625	4.00	0.00	0.0	92.0488	-47.93	5384.86	0.009
L41	24.5 - 20.5 (41)	TP47.1205x46.3636x0.625	4.00	0.00	0.0	93.5722	-49.69	5473.98	0.009
L42	20.5 - 16.5 (42)	TP47.8775x47.1205x0.625	4.00	0.00	0.0	95.0956	-51.46	5563.10	0.009
L43	16.5 - 12.5 (43)	TP48.6345x47.8775x0.625	4.00	0.00	0.0	96.6190	-53.26	5652.21	0.009
L44	12.5 - 11 (44)	TP48.9183x48.6345x0.6125	1.50	0.00	0.0	95.2712	-53.93	5573.36	0.010
L45	11 - 10.75 (45)	TP48.9656x48.9183x0.7125	0.25	0.00	0.0	110.7050	-54.08	6476.23	0.008
L46	10.75 - 6.75 (46)	TP49.7226x48.9656x0.7125	4.00	0.00	0.0	112.4410	-56.17	6577.82	0.009
L47	6.75 - 6.25 (47)	TP49.8172x49.7226x0.7125	0.50	0.00	0.0	112.6590	-56.45	6590.52	0.009
L48	6.25 - 6 (48)	TP49.8645x49.8172x0.6625	0.25	0.00	0.0	104.9600	-56.58	6140.18	0.009
L49	6 - 5 (49)	TP50.0538x49.8645x0.6625	1.00	0.00	0.0	105.3640	-57.10	6163.79	0.009
L50	5 - 4.75 (50)	TP50.1011x50.0538x0.5625	0.25	0.00	0.0	89.7268	-57.22	5249.02	0.011
L51	4.75 - 0.75 (51)	TP50.8581x50.1011x0.5625	4.00	0.00	0.0	91.0978	-59.06	5329.22	0.011
L52	0.75 - 0 (52)	TP51x50.8581x0.5625	0.75	0.00	0.0	91.3549	-59.42	5344.26	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	160 - 156 (1)	TP23.1103x22.35x0.2188	13.71	508.76	0.027	0.00	508.76	0.000
L2	156 - 152 (2)	TP23.8705x23.1103x0.2188	33.16	535.95	0.062	0.00	535.95	0.000
L3	152 - 148 (3)	TP24.6308x23.8705x0.2188	55.61	563.31	0.099	0.00	563.31	0.000
L4	148 - 144 (4)	TP25.391x24.6308x0.2188	79.80	590.80	0.135	0.00	590.80	0.000
L5	144 - 140 (5)	TP26.1513x25.391x0.2188	124.86	618.36	0.202	0.00	618.36	0.000
L6	140 - 136 (6)	TP26.9115x26.1513x0.2188	172.44	645.96	0.267	0.00	645.96	0.000
L7	136 - 132 (7)	TP27.6718x26.9115x0.2188	221.84	673.55	0.329	0.00	673.55	0.000
L8	132 - 128 (8)	TP28.432x27.6718x0.2188	273.09	701.08	0.390	0.00	701.08	0.000
L9	128 - 124 (9)	TP29.1923x28.432x0.2188	326.21	728.50	0.448	0.00	728.50	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L10	124 - 117.33 (10)	TP30.46x29.1923x0.2188	353.48	742.16	0.476	0.00	742.16	0.000
L11	117.33 - 116.33 (11)	TP30.2122x29.1349x0.2813	441.74	1110.75	0.398	0.00	1110.75	0.000
L12	116.33 - 112.33 (12)	TP30.9722x30.2122x0.2813	519.18	1155.81	0.449	0.00	1155.81	0.000
L13	112.33 - 108.33 (13)	TP31.7322x30.9722x0.2813	598.53	1201.07	0.498	0.00	1201.07	0.000
L14	108.33 - 104.33 (14)	TP32.4922x31.7322x0.2813	680.70	1246.48	0.546	0.00	1246.48	0.000
L15	104.33 - 100.33 (15)	TP33.2523x32.4922x0.2813	766.66	1292.01	0.593	0.00	1292.01	0.000
L16	100.33 - 96.33 (16)	TP34.0123x33.2523x0.2813	856.45	1337.60	0.640	0.00	1337.60	0.000
L17	96.33 - 94 (17)	TP34.455x34.0123x0.2813	920.07	1364.17	0.674	0.00	1364.17	0.000
L18	94 - 93.75 (18)	TP34.5025x34.455x0.2813	926.65	1367.02	0.678	0.00	1367.02	0.000
L19	93.75 - 89.75 (19)	TP35.2625x34.5025x0.2813	1034.35	1412.62	0.732	0.00	1412.62	0.000
L20	89.75 - 82.5 (20)	TP36.64x35.2625x0.2813	1082.80	1432.55	0.756	0.00	1432.55	0.000
L21	82.5 - 81.5 (21)	TP36.2727x35.0325x0.375	1269.43	2217.08	0.573	0.00	2217.08	0.000
L22	81.5 - 77.5 (22)	TP37.036x36.2727x0.375	1388.54	2295.20	0.605	0.00	2295.20	0.000
L23	77.5 - 73.5 (23)	TP37.7992x37.036x0.375	1510.74	2373.84	0.636	0.00	2373.84	0.000
L24	73.5 - 72.25 (24)	TP38.0377x37.7992x0.375	1549.52	2398.52	0.646	0.00	2398.52	0.000
L25	72.25 - 72 (25)	TP38.0854x38.0377x0.4875	1557.30	3315.62	0.470	0.00	3315.62	0.000
L26	72 - 68 (26)	TP38.8486x38.0854x0.4813	1682.98	3409.88	0.494	0.00	3409.88	0.000
L27	68 - 64 (27)	TP39.6119x38.8486x0.475	1810.93	3499.11	0.518	0.00	3499.11	0.000
L28	64 - 60 (28)	TP40.3751x39.6119x0.475	1941.06	3616.87	0.537	0.00	3616.87	0.000
L29	60 - 56 (29)	TP41.1383x40.3751x0.475	2073.35	3735.69	0.555	0.00	3735.69	0.000
L30	56 - 53.75 (30)	TP41.5676x41.1383x0.475	2148.72	3802.98	0.565	0.00	3802.98	0.000
L31	53.75 - 53.5 (31)	TP41.6153x41.5676x0.6375	2157.14	5137.26	0.420	0.00	5137.26	0.000
L32	53.5 - 49.5 (32)	TP42.3786x41.6153x0.6375	2293.09	5331.90	0.430	0.00	5331.90	0.000
L33	49.5 - 40.583 (33)	TP44.08x42.3786x0.625	2379.23	5353.18	0.444	0.00	5353.18	0.000
L34	40.583 - 39.583 (34)	TP43.5092x42.1056x0.7	2640.60	6151.57	0.429	0.00	6151.57	0.000
L35	39.583 - 35.583 (35)	TP44.2662x43.5092x0.7	2785.01	6372.82	0.437	0.00	6372.82	0.000
L36	35.583 - 31.483 (36)	TP45.0421x44.2662x0.7375	2935.31	6939.79	0.423	0.00	6939.79	0.000
L37	31.483 - 31.25 (37)	TP45.0862x45.0421x0.7375	2943.92	6953.72	0.423	0.00	6953.72	0.000
L38	31.25 - 28.75 (38)	TP45.5593x45.0862x0.7375	3036.73	7104.11	0.427	0.00	7104.11	0.000
L39	28.75 - 28.5 (39)	TP45.6066x45.5593x0.6375	3046.07	6195.15	0.492	0.00	6195.15	0.000
L40	28.5 - 24.5 (40)	TP46.3636x45.6066x0.625	3196.32	6286.48	0.508	0.00	6286.48	0.000
L41	24.5 - 20.5 (41)	TP47.1205x46.3636x0.625	3348.45	6497.72	0.515	0.00	6497.72	0.000
L42	20.5 - 16.5 (42)	TP47.8775x47.1205x0.625	3502.45	6712.43	0.522	0.00	6712.43	0.000
L43	16.5 - 12.5 (43)	TP48.6345x47.8775x0.625	3658.30	6930.65	0.528	0.00	6930.65	0.000
L44	12.5 - 11 (44)	TP48.9183x48.6345x0.61	3717.23	6878.45	0.540	0.00	6878.45	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
		25						
L45	11 - 10.75 (45)	TP48.9656x48.9183x0.7125	3727.08	7967.60	0.468	0.00	7967.60	0.000
L46	10.75 - 6.75 (46)	TP49.7226x48.9656x0.7125	3885.73	8221.39	0.473	0.00	8221.39	0.000
L47	6.75 - 6.25 (47)	TP49.8172x49.7226x0.7125	3905.70	8253.39	0.473	0.00	8253.39	0.000
L48	6.25 - 6 (48)	TP49.8645x49.8172x0.6625	3915.70	7712.60	0.508	0.00	7712.60	0.000
L49	6 - 5 (49)	TP50.0538x49.8645x0.6625	3955.77	7772.43	0.509	0.00	7772.43	0.000
L50	5 - 4.75 (50)	TP50.1011x50.0538x0.5625	3965.81	6509.38	0.609	0.00	6509.38	0.000
L51	4.75 - 0.75 (51)	TP50.8581x50.1011x0.5625	4127.34	6678.03	0.618	0.00	6678.03	0.000
L52	0.75 - 0 (52)	TP51x50.8581x0.5625	4157.82	6709.77	0.620	0.00	6709.77	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	160 - 156 (1)	TP23.1103x22.35x0.2188	4.21	282.98	0.015	0.00	569.81	0.000
L2	156 - 152 (2)	TP23.8705x23.1103x0.2188	5.40	292.38	0.018	0.00	608.29	0.000
L3	152 - 148 (3)	TP24.6308x23.8705x0.2188	5.83	301.78	0.019	0.00	648.02	0.000
L4	148 - 144 (4)	TP25.391x24.6308x0.2188	6.27	311.17	0.020	0.00	689.01	0.000
L5	144 - 140 (5)	TP26.1513x25.391x0.2188	11.67	320.57	0.036	0.00	731.26	0.000
L6	140 - 136 (6)	TP26.9115x26.1513x0.2188	12.12	329.97	0.037	0.00	774.76	0.000
L7	136 - 132 (7)	TP27.6718x26.9115x0.2188	12.58	339.37	0.037	0.00	819.52	0.000
L8	132 - 128 (8)	TP28.432x27.6718x0.2188	13.05	348.77	0.037	0.00	865.54	0.000
L9	128 - 124 (9)	TP29.1923x28.432x0.2188	13.52	358.16	0.038	0.00	912.82	0.000
L10	124 - 117.33 (10)	TP30.46x29.1923x0.2188	13.75	362.86	0.038	0.00	936.92	0.000
L11	117.33 - 116.33 (11)	TP30.2122x29.1349x0.2813	19.13	475.71	0.040	0.41	1252.47	0.000
L12	116.33 - 112.33 (12)	TP30.9722x30.2122x0.2813	19.60	487.79	0.040	0.41	1316.88	0.000
L13	112.33 - 108.33 (13)	TP31.7322x30.9722x0.2813	20.08	499.87	0.040	0.41	1382.91	0.000
L14	108.33 - 104.33 (14)	TP32.4922x31.7322x0.2813	21.02	511.95	0.041	0.48	1450.55	0.000
L15	104.33 - 100.33 (15)	TP33.2523x32.4922x0.2813	21.98	524.03	0.042	0.55	1519.81	0.000
L16	100.33 - 96.33 (16)	TP34.0123x33.2523x0.2813	22.94	536.11	0.043	0.63	1590.68	0.000
L17	96.33 - 94 (17)	TP34.455x34.0123x0.2813	26.28	543.15	0.048	0.40	1632.72	0.000
L18	94 - 93.75 (18)	TP34.5025x34.455x0.2813	26.36	543.90	0.048	0.38	1637.26	0.000
L19	93.75 - 89.75 (19)	TP35.2625x34.5025x0.2813	27.50	555.98	0.049	0.34	1710.78	0.000
L20	89.75 - 82.5 (20)	TP36.64x35.2625x0.2813	27.86	561.27	0.050	0.32	1743.47	0.000
L21	82.5 - 81.5 (21)	TP36.2727x35.0325x0.375	29.39	760.73	0.039	0.10	2402.14	0.000
L22	81.5 - 77.5 (22)	TP37.036x36.2727x0.375	30.15	776.90	0.039	0.14	2505.37	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L23	77.5 - 73.5 (23)	TP37.7992x37.036x0.375	30.93	793.08	0.039	0.36	2610.78	0.000
L24	73.5 - 72.25 (24)	TP38.0377x37.7992x0.375	31.10	798.13	0.039	0.36	2644.16	0.000
L25	72.25 - 72 (25)	TP38.0854x38.0377x0.4875	31.15	1035.79	0.030	0.36	3425.58	0.000
L26	72 - 68 (26)	TP38.8486x38.0854x0.4813	31.70	1043.44	0.030	0.36	3521.50	0.000
L27	68 - 64 (27)	TP39.6119x38.8486x0.475	32.26	1050.54	0.031	0.36	3616.58	0.000
L28	64 - 60 (28)	TP40.3751x39.6119x0.475	32.80	1071.03	0.031	0.36	3759.02	0.000
L29	60 - 56 (29)	TP41.1383x40.3751x0.475	33.33	1091.51	0.031	0.36	3904.20	0.000
L30	56 - 53.75 (30)	TP41.5676x41.1383x0.475	33.65	1103.04	0.031	0.36	3987.07	0.000
L31	53.75 - 53.5 (31)	TP41.6153x41.5676x0.6375	33.70	1476.26	0.023	0.36	5321.22	0.000
L32	53.5 - 49.5 (32)	TP42.3786x41.6153x0.6375	34.27	1503.75	0.023	0.36	5521.28	0.000
L33	49.5 - 40.583 (33)	TP44.08x42.3786x0.625	34.63	1491.56	0.023	0.36	5540.73	0.000
L34	40.583 - 39.583 (34)	TP43.5092x42.1056x0.7	35.82	1693.43	0.021	0.36	6376.83	0.000
L35	39.583 - 35.583 (35)	TP44.2662x43.5092x0.7	36.37	1723.38	0.021	0.36	6604.34	0.000
L36	35.583 - 31.483 (36)	TP45.0421x44.2662x0.7375	36.93	1846.48	0.020	0.36	7196.02	0.000
L37	31.483 - 31.25 (37)	TP45.0862x45.0421x0.7375	36.98	1848.31	0.020	0.36	7210.34	0.000
L38	31.25 - 28.75 (38)	TP45.5593x45.0862x0.7375	37.29	1868.03	0.020	0.36	7365.00	0.000
L39	28.75 - 28.5 (39)	TP45.6066x45.5593x0.6375	37.33	1620.05	0.023	0.36	6408.27	0.000
L40	28.5 - 24.5 (40)	TP46.3636x45.6066x0.625	37.80	1615.46	0.023	0.36	6499.47	0.000
L41	24.5 - 20.5 (41)	TP47.1205x46.3636x0.625	38.26	1642.19	0.023	0.36	6716.37	0.000
L42	20.5 - 16.5 (42)	TP47.8775x47.1205x0.625	38.73	1668.93	0.023	0.36	6936.85	0.000
L43	16.5 - 12.5 (43)	TP48.6345x47.8775x0.625	39.19	1695.66	0.023	0.36	7160.88	0.000
L44	12.5 - 11 (44)	TP48.9183x48.6345x0.6125	39.38	1672.01	0.024	0.36	7104.57	0.000
L45	11 - 10.75 (45)	TP48.9656x48.9183x0.7125	39.40	1942.87	0.020	0.36	8246.48	0.000
L46	10.75 - 6.75 (46)	TP49.7226x48.9656x0.7125	39.91	1973.35	0.020	0.36	8507.25	0.000
L47	6.75 - 6.25 (47)	TP49.8172x49.7226x0.7125	39.96	1977.16	0.020	0.36	8540.17	0.000
L48	6.25 - 6 (48)	TP49.8645x49.8172x0.6625	39.99	1842.05	0.022	0.36	7972.32	0.000
L49	6 - 5 (49)	TP50.0538x49.8645x0.6625	40.12	1849.14	0.022	0.36	8033.77	0.000
L50	5 - 4.75 (50)	TP50.1011x50.0538x0.5625	40.15	1574.71	0.025	0.36	6861.87	0.000
L51	4.75 - 0.75 (51)	TP50.8581x50.1011x0.5625	40.60	1598.77	0.025	0.36	7073.18	0.000
L52	0.75 - 0 (52)	TP51x50.8581x0.5625	40.68	1603.28	0.025	0.36	7113.16	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 156 (1)	0.003	0.027	0.000	0.015	0.000	0.030	1.050	4.8.2
L2	156 - 152 (2)	0.003	0.062	0.000	0.018	0.000	0.066	1.050	4.8.2
L3	152 - 148 (3)	0.004	0.099	0.000	0.019	0.000	0.103	1.050	4.8.2
L4	148 - 144 (4)	0.004	0.135	0.000	0.020	0.000	0.139	1.050	4.8.2
L5	144 - 140 (5)	0.007	0.202	0.000	0.036	0.000	0.210	1.050	4.8.2
L6	140 - 136 (6)	0.007	0.267	0.000	0.037	0.000	0.275	1.050	4.8.2
L7	136 - 132 (7)	0.007	0.329	0.000	0.037	0.000	0.338	1.050	4.8.2
L8	132 - 128 (8)	0.007	0.390	0.000	0.037	0.000	0.398	1.050	4.8.2
L9	128 - 124 (9)	0.007	0.448	0.000	0.038	0.000	0.457	1.050	4.8.2
L10	124 - 117.33 (10)	0.007	0.476	0.000	0.038	0.000	0.485	1.050	4.8.2
L11	117.33 - 116.33 (11)	0.008	0.398	0.000	0.040	0.000	0.408	1.050	4.8.2
L12	116.33 - 112.33 (12)	0.009	0.449	0.000	0.040	0.000	0.459	1.050	4.8.2
L13	112.33 - 108.33 (13)	0.009	0.498	0.000	0.040	0.000	0.509	1.050	4.8.2
L14	108.33 - 104.33 (14)	0.009	0.546	0.000	0.041	0.000	0.557	1.050	4.8.2
L15	104.33 - 100.33 (15)	0.010	0.593	0.000	0.042	0.000	0.605	1.050	4.8.2
L16	100.33 - 96.33 (16)	0.010	0.640	0.000	0.043	0.000	0.652	1.050	4.8.2
L17	96.33 - 94 (17)	0.011	0.674	0.000	0.048	0.000	0.688	1.050	4.8.2
L18	94 - 93.75 (18)	0.011	0.678	0.000	0.048	0.000	0.692	1.050	4.8.2
L19	93.75 - 89.75 (19)	0.012	0.732	0.000	0.049	0.000	0.747	1.050	4.8.2
L20	89.75 - 82.5 (20)	0.012	0.756	0.000	0.050	0.000	0.770	1.050	4.8.2
L21	82.5 - 81.5 (21)	0.010	0.573	0.000	0.039	0.000	0.584	1.050	4.8.2
L22	81.5 - 77.5 (22)	0.010	0.605	0.000	0.039	0.000	0.616	1.050	4.8.2
L23	77.5 - 73.5 (23)	0.010	0.636	0.000	0.039	0.000	0.648	1.050	4.8.2
L24	73.5 - 72.25 (24)	0.010	0.646	0.000	0.039	0.000	0.658	1.050	4.8.2
L25	72.25 - 72 (25)	0.008	0.470	0.000	0.030	0.000	0.479	1.050	4.8.2
L26	72 - 68 (26)	0.008	0.494	0.000	0.030	0.000	0.503	1.050	4.8.2
L27	68 - 64 (27)	0.008	0.518	0.000	0.031	0.000	0.527	1.050	4.8.2
L28	64 - 60 (28)	0.009	0.537	0.000	0.031	0.000	0.546	1.050	4.8.2
L29	60 - 56 (29)	0.009	0.555	0.000	0.031	0.000	0.565	1.050	4.8.2
L30	56 - 53.75 (30)	0.009	0.565	0.000	0.031	0.000	0.575	1.050	4.8.2
L31	53.75 - 53.5 (31)	0.007	0.420	0.000	0.023	0.000	0.427	1.050	4.8.2
L32	53.5 - 49.5 (32)	0.007	0.430	0.000	0.023	0.000	0.438	1.050	4.8.2
L33	49.5 - 40.583 (33)	0.007	0.444	0.000	0.023	0.000	0.452	1.050	4.8.2
L34	40.583 - 39.583 (34)	0.007	0.429	0.000	0.021	0.000	0.437	1.050	4.8.2
L35	39.583 - 35.583 (35)	0.007	0.437	0.000	0.021	0.000	0.445	1.050	4.8.2
L36	35.583 - 31.483 (36)	0.007	0.423	0.000	0.020	0.000	0.431	1.050	4.8.2
L37	31.483 - 31.25 (37)	0.007	0.423	0.000	0.020	0.000	0.431	1.050	4.8.2
L38	31.25 - 28.75 (38)	0.007	0.427	0.000	0.020	0.000	0.435	1.050	4.8.2
L39	28.75 - 28.5 (39)	0.009	0.492	0.000	0.023	0.000	0.501	1.050	4.8.2
L40	28.5 - 24.5 (40)	0.009	0.508	0.000	0.023	0.000	0.518	1.050	4.8.2
L41	24.5 - 20.5 (41)	0.009	0.515	0.000	0.023	0.000	0.525	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L42	20.5 - 16.5 (42)	0.009	0.522	0.000	0.023	0.000	0.532	1.050	4.8.2
L43	16.5 - 12.5 (43)	0.009	0.528	0.000	0.023	0.000	0.538	1.050	4.8.2
L44	12.5 - 11 (44)	0.010	0.540	0.000	0.024	0.000	0.551	1.050	4.8.2
L45	11 - 10.75 (45)	0.008	0.468	0.000	0.020	0.000	0.477	1.050	4.8.2
L46	10.75 - 6.75 (46)	0.009	0.473	0.000	0.020	0.000	0.482	1.050	4.8.2
L47	6.75 - 6.25 (47)	0.009	0.473	0.000	0.020	0.000	0.482	1.050	4.8.2
L48	6.25 - 6 (48)	0.009	0.508	0.000	0.022	0.000	0.517	1.050	4.8.2
L49	6 - 5 (49)	0.009	0.509	0.000	0.022	0.000	0.519	1.050	4.8.2
L50	5 - 4.75 (50)	0.011	0.609	0.000	0.025	0.000	0.621	1.050	4.8.2
L51	4.75 - 0.75 (51)	0.011	0.618	0.000	0.025	0.000	0.630	1.050	4.8.2
L52	0.75 - 0 (52)	0.011	0.620	0.000	0.025	0.000	0.631	1.050	4.8.2

Section Capacity Table

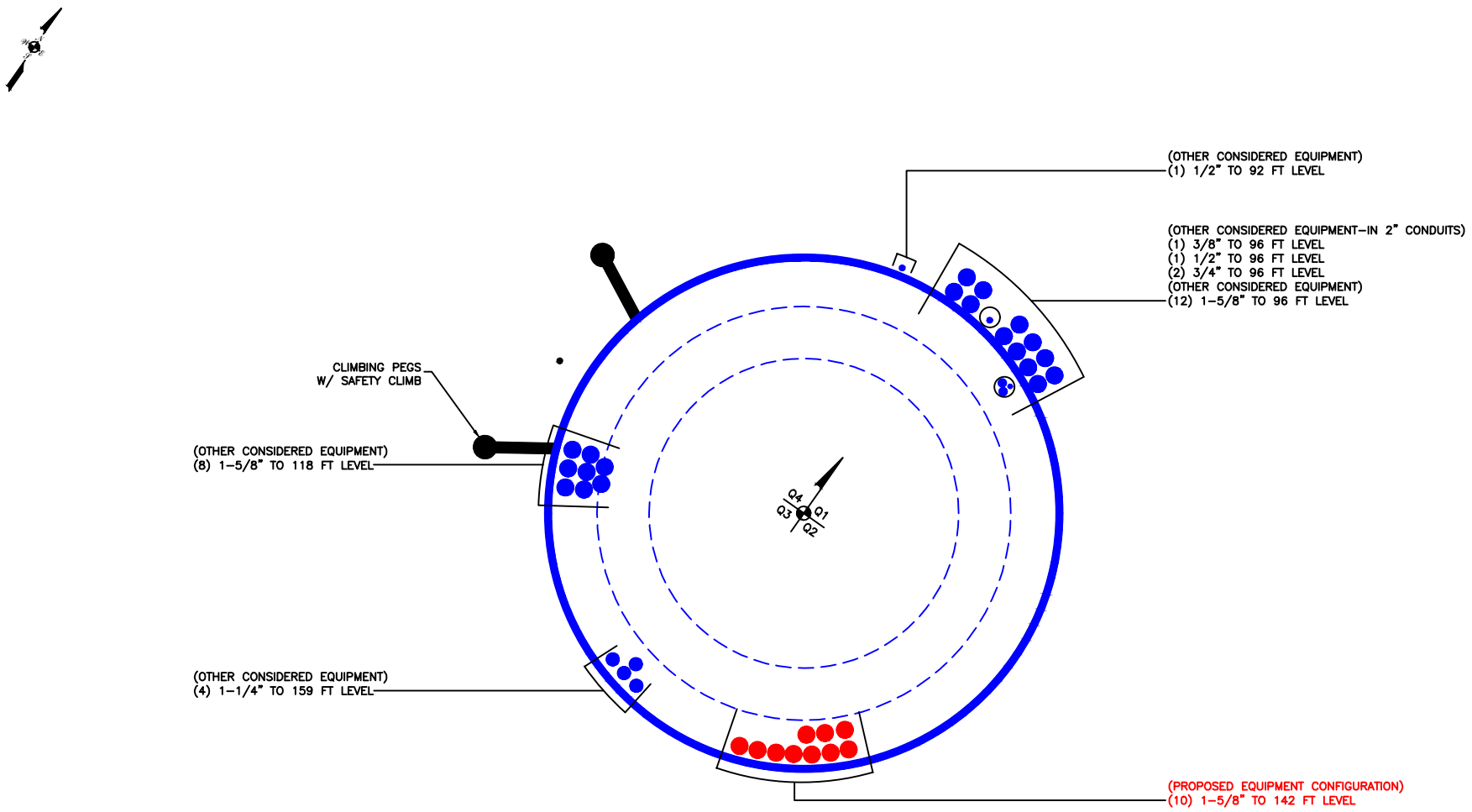
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160 - 156	Pole	TP23.1103x22.35x0.2188	1	-2.57	990.43	2.8	Pass
L2	156 - 152	Pole	TP23.8705x23.1103x0.2188	2	-3.27	1023.32	6.2	Pass
L3	152 - 148	Pole	TP24.6308x23.8705x0.2188	3	-3.53	1056.22	9.8	Pass
L4	148 - 144	Pole	TP25.391x24.6308x0.2188	4	-3.80	1089.11	13.3	Pass
L5	144 - 140	Pole	TP26.1513x25.391x0.2188	5	-7.20	1122.00	20.0	Pass
L6	140 - 136	Pole	TP26.9115x26.1513x0.2188	6	-7.56	1154.89	26.2	Pass
L7	136 - 132	Pole	TP27.6718x26.9115x0.2188	7	-7.94	1187.79	32.2	Pass
L8	132 - 128	Pole	TP28.432x27.6718x0.2188	8	-8.34	1220.68	37.9	Pass
L9	128 - 124	Pole	TP29.1923x28.432x0.2188	9	-8.74	1253.57	43.5	Pass
L10	124 - 117.33	Pole	TP30.46x29.1923x0.2188	10	-8.96	1270.02	46.2	Pass
L11	117.33 - 116.33	Pole	TP30.2122x29.1349x0.2813	11	-13.27	1665.00	38.8	Pass
L12	116.33 - 112.33	Pole	TP30.9722x30.2122x0.2813	12	-13.86	1707.28	43.7	Pass
L13	112.33 - 108.33	Pole	TP31.7322x30.9722x0.2813	13	-14.46	1749.55	48.4	Pass
L14	108.33 - 104.33	Pole	TP32.4922x31.7322x0.2813	14	-15.54	1791.84	53.0	Pass
L15	104.33 - 100.33	Pole	TP33.2523x32.4922x0.2813	15	-16.69	1834.11	57.6	Pass
L16	100.33 - 96.33	Pole	TP34.0123x33.2523x0.2813	16	-17.85	1876.39	62.1	Pass
L17	96.33 - 94	Pole	TP34.455x34.0123x0.2813	17	-20.48	1901.01	65.5	Pass
L18	94 - 93.75	Pole	TP34.5025x34.455x0.2813	18	-20.57	1903.66	65.9	Pass
L19	93.75 - 89.75	Pole	TP35.2625x34.5025x0.2813	19	-21.91	1945.93	71.1	Pass
L20	89.75 - 82.5	Pole	TP36.64x35.2625x0.2813	20	-22.29	1964.43	73.4	Pass
L21	82.5 - 81.5	Pole	TP36.2727x35.0325x0.375	21	-24.81	2662.56	55.6	Pass
L22	81.5 - 77.5	Pole	TP37.036x36.2727x0.375	22	-25.85	2719.16	58.7	Pass
L23	77.5 - 73.5	Pole	TP37.7992x37.036x0.375	23	-26.95	2775.78	61.7	Pass
L24	73.5 - 72.25	Pole	TP38.0377x37.7992x0.375	24	-27.26	2793.47	62.6	Pass
L25	72.25 - 72	Pole	TP38.0854x38.0377x0.4875	25	-27.35	3625.26	45.6	Pass
L26	72 - 68	Pole	TP38.8486x38.0854x0.4813	26	-28.54	3652.03	47.9	Pass
L27	68 - 64	Pole	TP39.6119x38.8486x0.475	27	-29.75	3676.89	50.2	Pass
L28	64 - 60	Pole	TP40.3751x39.6119x0.475	28	-30.99	3748.59	52.0	Pass
L29	60 - 56	Pole	TP41.1383x40.3751x0.475	29	-32.24	3820.30	53.8	Pass
L30	56 - 53.75	Pole	TP41.5676x41.1383x0.475	30	-32.96	3860.63	54.8	Pass
L31	53.75 - 53.5	Pole	TP41.6153x41.5676x0.6375	31	-33.07	5166.90	40.7	Pass
L32	53.5 - 49.5	Pole	TP42.3786x41.6153x0.6375	32	-34.64	5263.14	41.7	Pass
L33	49.5 - 40.583	Pole	TP44.08x42.3786x0.625	33	-35.63	5220.45	43.1	Pass
L34	40.583 - 39.583	Pole	TP43.5092x42.1056x0.7	34	-41.03	5927.02	41.6	Pass
L35	39.583 - 35.583	Pole	TP44.2662x43.5092x0.7	35	-42.82	6031.82	42.4	Pass
L36	35.583 - 31.483	Pole	TP45.0421x44.2662x0.7375	36	-44.78	6462.67	41.0	Pass
L37	31.483 - 31.25	Pole	TP45.0862x45.0421x0.7375	37	-44.90	6469.09	41.1	Pass
L38	31.25 - 28.75	Pole	TP45.5593x45.0862x0.7375	38	-46.09	6538.11	41.5	Pass
L39	28.75 - 28.5	Pole	TP45.6066x45.5593x0.6375	39	-46.21	5670.16	47.7	Pass
L40	28.5 - 24.5	Pole	TP46.3636x45.6066x0.625	40	-47.93	5654.10	49.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L41	24.5 - 20.5	Pole	TP47.1205x46.3636x0.625	41	-49.69	5747.68	50.0	Pass
L42	20.5 - 16.5	Pole	TP47.8775x47.1205x0.625	42	-51.46	5841.25	50.6	Pass
L43	16.5 - 12.5	Pole	TP48.6345x47.8775x0.625	43	-53.26	5934.82	51.2	Pass
L44	12.5 - 11	Pole	TP48.9183x48.6345x0.6125	44	-53.93	5852.03	52.4	Pass
L45	11 - 10.75	Pole	TP48.9656x48.9183x0.7125	45	-54.08	6800.04	45.4	Pass
L46	10.75 - 6.75	Pole	TP49.7226x48.9656x0.7125	46	-56.17	6906.71	45.9	Pass
L47	6.75 - 6.25	Pole	TP49.8172x49.7226x0.7125	47	-56.45	6920.05	45.9	Pass
L48	6.25 - 6	Pole	TP49.8645x49.8172x0.6625	48	-56.58	6447.19	49.3	Pass
L49	6 - 5	Pole	TP50.0538x49.8645x0.6625	49	-57.10	6471.98	49.4	Pass
L50	5 - 4.75	Pole	TP50.1011x50.0538x0.5625	50	-57.22	5511.47	59.1	Pass
L51	4.75 - 0.75	Pole	TP50.8581x50.1011x0.5625	51	-59.06	5595.68	60.0	Pass
L52	0.75 - 0	Pole	TP51x50.8581x0.5625	52	-59.42	5611.47	60.1	Pass
							Summary	
						Pole (L20)	73.4	Pass
						RATING =	**73.4**	**Pass**

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 92 FT LEVEL
(OTHER CONSIDERED EQUIPMENT–IN 2" CONDUITS)
(1) 3/8" TO 96 FT LEVEL
(1) 1/2" TO 96 FT LEVEL
(2) 3/4" TO 96 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1–5/8" TO 96 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(8) 1–5/8" TO 118 FT LEVEL
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(4) 1–1/4" TO 159 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(10) 1–5/8" TO 142 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876339

Work Order: 1901226

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	160	42.67	4.67	12	22.35	30.46	0.21875	Auto	A572-65
2	122	39.5	5.5	12	29.13	36.64	0.28125	Auto	A572-65
3	88	47.417	6.417	12	35.03	44.08	0.375	Auto	A572-65
4	47	47	0	12	42.11	51	0.4375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	6.25	plate	FP 6.25" x 1.25"	1								■				
2	6.25	31.5	plate	FP 6.875" x 1.25" (B)	1							■					
3	0	31.5	plate	FP 6.875" x 1.25"	2			■								■	
4	31.5	53.75	plate	FP 5.25" x 1.25"	3			■				■				■	
5	45.75	72.25	plate	FP 4" x 1"	3		■				■				■		
6	5	11	plate	MS-600 (1.1875")	3		■			■				■			
7	28.75	40.75	plate	MS-450 (1.1875")	3	■				■				■			
8	88	94	plate	MS-450 (1.1875")	3				■			■			■		
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6.25	1.25	7.8125	0.625	Welded	n/a	PC 8.8 - M20 (100)	27.000	19.000	6.250	1.1875	A572-65
2	6.875	1.25	8.59375	0.625	PC 8.8 - M20 (100)	39	PC 8.8 - M20 (100)	27.000	18.000	7.031	1.1875	A572-65
3	6.875	1.25	8.59375	0.625	Welded	n/a	PC 8.8 - M20 (100)	27.000	18.000	7.031	1.1875	A572-65
4	5.25	1.25	6.5625	0.625	PC 8.8 - M20 (100)	27	PC 8.8 - M20 (100)	27.000	22.000	5.000	1.1875	A572-65
5	4	1	4	0.5	PC 8.8 - M20 (100)	21	PC 8.8 - M20 (100)	21.000	20.000	2.750	1.1875	A514-GR100
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
7	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
8	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
FP 6.25" x 1.25"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	CJP Groove	6.25	1.25	45	0.3125	-	-	-
FP 6.875" x 1.25"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	CJP Groove	6.875	1.25	45	0.3125	-	-	-
FP 6.875" x 1.25" (B)	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	13	N	3	3	-	-	-	-	-	-	-	-	-
FP 5.25" x 1.25"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	9	N	3	3	-	-	-	-	-	-	-	-	-
FP 4" x 1"	Top	7	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	7	N	3	3	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): 4 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	160 - 156	4		12	22.350	23.110	0.21875	A572-65	1.000
2	156 - 152	4		12	23.110	23.871	0.21875	A572-65	1.000
3	152 - 148	4		12	23.871	24.631	0.21875	A572-65	1.000
4	148 - 144	4		12	24.631	25.391	0.21875	A572-65	1.000
5	144 - 140	4		12	25.391	26.151	0.21875	A572-65	1.000
6	140 - 136	4		12	26.151	26.912	0.21875	A572-65	1.000
7	136 - 132	4		12	26.912	27.672	0.21875	A572-65	1.000
8	132 - 128	4		12	27.672	28.432	0.21875	A572-65	1.000
9	128 - 124	4		12	28.432	29.192	0.21875	A572-65	1.000
10	124 - 122	6.67	4.67	12	29.192	30.460	0.21875	A572-65	1.000
11	122 - 116.33	5.67		12	29.135	30.212	0.28125	A572-65	1.000
12	116.33 - 112.33	4		12	30.212	30.972	0.28125	A572-65	1.000
13	112.33 - 108.33	4		12	30.972	31.732	0.28125	A572-65	1.000
14	108.33 - 104.33	4		12	31.732	32.492	0.28125	A572-65	1.000
15	104.33 - 100.33	4		12	32.492	33.252	0.28125	A572-65	1.000
16	100.33 - 96.33	4		12	33.252	34.012	0.28125	A572-65	1.000
17	96.33 - 94	2.33		12	34.012	34.455	0.28125	A572-65	1.000
18	94 - 93.75	0.25		12	34.455	34.502	0.28125	A572-65	1.000
19	93.75 - 89.75	4		12	34.502	35.262	0.28125	A572-65	1.000
20	89.75 - 88	7.25	5.5	12	35.262	36.640	0.28125	A572-65	1.000
21	88 - 81.5	6.5		12	35.032	36.273	0.375	A572-65	1.000
22	81.5 - 77.5	4		12	36.273	37.036	0.375	A572-65	1.000
23	77.5 - 73.5	4		12	37.036	37.799	0.375	A572-65	1.000
24	73.5 - 72.25	1.25		12	37.799	38.038	0.375	A572-65	1.000
25	72.25 - 72	0.25		12	38.038	38.085	0.4875	A572-65	0.975
26	72 - 68	4		12	38.085	38.849	0.48125	A572-65	0.984
27	68 - 64	4		12	38.849	39.612	0.475	A572-65	0.992
28	64 - 60	4		12	39.612	40.375	0.475	A572-65	0.988
29	60 - 56	4		12	40.375	41.138	0.475	A572-65	0.985
30	56 - 53.75	2.25		12	41.138	41.568	0.475	A572-65	0.983
31	53.75 - 53.5	0.25		12	41.568	41.615	0.6375	A572-65	0.969
32	53.5 - 49.5	4		12	41.615	42.379	0.6375	A572-65	0.962
33	49.5 - 47	8.917	6.417	12	42.379	44.080	0.625	A572-65	0.977
34	47 - 39.583	7.417		12	42.106	43.509	0.7	A572-65	0.973
35	39.583 - 35.583	4		12	43.509	44.266	0.7	A572-65	0.967
36	35.583 - 31.483	4.1		12	44.266	45.042	0.7375	A572-65	0.971
37	31.483 - 31.25	0.233		12	45.042	45.086	0.7375	A572-65	0.971
38	31.25 - 28.75	2.5		12	45.086	45.559	0.7375	A572-65	0.967
39	28.75 - 28.5	0.25		12	45.559	45.607	0.6375	A572-65	0.969
40	28.5 - 24.5	4		12	45.607	46.364	0.625	A572-65	0.983
41	24.5 - 20.5	4		12	46.364	47.121	0.625	A572-65	0.979
42	20.5 - 16.5	4		12	47.121	47.877	0.625	A572-65	0.974
43	16.5 - 12.5	4		12	47.877	48.634	0.625	A572-65	0.970
44	12.5 - 11	1.5		12	48.634	48.918	0.6125	A572-65	0.988
45	11 - 10.75	0.25		12	48.918	48.966	0.7125	A572-65	1.014
46	10.75 - 6.75	4		12	48.966	49.723	0.7125	A572-65	1.007
47	6.75 - 6.25	0.5		12	49.723	49.817	0.7125	A572-65	1.007
48	6.25 - 6	0.25		12	49.817	49.865	0.6625	A572-65	1.074
49	6 - 5	1		12	49.865	50.054	0.6625	A572-65	1.072
50	5 - 4.75	0.25		12	50.054	50.101	0.5625	A572-65	1.059
51	4.75 - 0.75	4		12	50.101	50.858	0.5625	A572-65	1.055
52	0.75 - 0	0.75		12	50.858	51.000	0.5625	A572-65	1.054

TNX Section Forces

Increment (ft):	4	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 156	2.57	13.71	4.21
2	156 - 152	3.27	33.16	5.40
3	152 - 148	3.53	55.61	5.83
4	148 - 144	3.80	79.80	6.27
5	144 - 140	7.20	124.86	11.67
6	140 - 136	7.56	172.43	12.12
7	136 - 132	7.94	221.84	12.58
8	132 - 128	8.34	273.09	13.05
9	128 - 124	8.74	326.21	13.52
10	124 - 122	8.96	353.48	13.75
11	122 - 116.33	13.27	441.74	19.13
12	116.33 - 112.33	13.86	519.18	19.60
13	112.33 - 108.33	14.46	598.53	20.08
14	108.33 - 104.33	15.54	680.70	21.02
15	104.33 - 100.33	16.69	766.66	21.98
16	100.33 - 96.33	17.85	856.45	22.94
17	96.33 - 94	20.48	920.07	26.28
18	94 - 93.75	20.57	926.65	26.36
19	93.75 - 89.75	21.91	1034.35	27.50
20	89.75 - 88	22.29	1082.80	27.86
21	88 - 81.5	24.81	1269.43	29.39
22	81.5 - 77.5	25.85	1388.54	30.15
23	77.5 - 73.5	26.95	1510.74	30.93
24	73.5 - 72.25	27.26	1549.51	31.10
25	72.25 - 72	27.35	1557.30	31.15
26	72 - 68	28.54	1682.98	31.70
27	68 - 64	29.75	1810.92	32.26
28	64 - 60	30.99	1941.06	32.80
29	60 - 56	32.24	2073.35	33.33
30	56 - 53.75	32.96	2148.72	33.65
31	53.75 - 53.5	33.07	2157.14	33.70
32	53.5 - 49.5	34.64	2293.09	34.27
33	49.5 - 47	35.63	2379.24	34.63
34	47 - 39.583	41.03	2640.60	35.82
35	39.583 - 35.583	42.82	2785.01	36.37
36	35.583 - 31.483	44.78	2935.30	36.93
37	31.483 - 31.25	44.90	2943.92	36.98
38	31.25 - 28.75	46.09	3036.74	37.29
39	28.75 - 28.5	46.21	3046.07	37.33
40	28.5 - 24.5	47.93	3196.31	37.80
41	24.5 - 20.5	49.69	3348.45	38.26
42	20.5 - 16.5	51.46	3502.45	38.73
43	16.5 - 12.5	53.26	3658.30	39.19
44	12.5 - 11	53.93	3717.23	39.38
45	11 - 10.75	54.08	3727.08	39.40
46	10.75 - 6.75	56.17	3885.73	39.91
47	6.75 - 6.25	56.45	3905.70	39.96
48	6.25 - 6	56.58	3915.70	39.99
49	6 - 5	57.10	3955.77	40.12
50	5 - 4.75	57.22	3965.80	40.15
51	4.75 - 0.75	59.06	4127.34	40.60
52	0.75 - 0	59.42	4157.83	40.68

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 156	Pole	TP23.11x22.35x0.2188	Pole	2.8%	Pass
156 - 152	Pole	TP23.871x23.11x0.2188	Pole	6.2%	Pass
152 - 148	Pole	TP24.631x23.871x0.2188	Pole	9.7%	Pass
148 - 144	Pole	TP25.391x24.631x0.2188	Pole	13.2%	Pass
144 - 140	Pole	TP26.151x25.391x0.2188	Pole	19.8%	Pass
140 - 136	Pole	TP26.912x26.151x0.2188	Pole	26.0%	Pass
136 - 132	Pole	TP27.672x26.912x0.2188	Pole	32.0%	Pass
132 - 128	Pole	TP28.432x27.672x0.2188	Pole	37.7%	Pass
128 - 124	Pole	TP29.192x28.432x0.2188	Pole	43.3%	Pass
124 - 122	Pole	TP30.46x29.192x0.2188	Pole	46.0%	Pass
122 - 116.33	Pole	TP30.212x29.135x0.2813	Pole	38.5%	Pass
116.33 - 112.33	Pole	TP30.972x30.212x0.2813	Pole	43.4%	Pass
112.33 - 108.33	Pole	TP31.732x30.972x0.2813	Pole	48.1%	Pass
108.33 - 104.33	Pole	TP32.492x31.732x0.2813	Pole	52.7%	Pass
104.33 - 100.33	Pole	TP33.252x32.492x0.2813	Pole	57.2%	Pass
100.33 - 96.33	Pole	TP34.012x33.252x0.2813	Pole	61.7%	Pass
96.33 - 94	Pole	TP34.455x34.012x0.2813	Pole	65.1%	Pass
94 - 93.75	Pole	TP34.502x34.455x0.2813	Pole	65.5%	Pass
93.75 - 89.75	Pole	TP35.262x34.502x0.2813	Pole	70.7%	Pass
89.75 - 88	Pole	TP36.64x35.262x0.2813	Pole	72.9%	Pass
88 - 81.5	Pole	TP36.273x35.032x0.375	Pole	55.2%	Pass
81.5 - 77.5	Pole	TP37.036x36.273x0.375	Pole	58.3%	Pass
77.5 - 73.5	Pole	TP37.799x37.036x0.375	Pole	61.3%	Pass
73.5 - 72.25	Pole	TP38.038x37.799x0.375	Pole	62.2%	Pass
72.25 - 72	Pole + Reinf.	TP38.085x38.038x0.4875	Reinf. 5 Tension Rupture	58.7%	Pass
72 - 68	Pole + Reinf.	TP38.849x38.085x0.4813	Reinf. 5 Tension Rupture	61.2%	Pass
68 - 64	Pole + Reinf.	TP39.612x38.849x0.475	Reinf. 5 Tension Rupture	63.5%	Pass
64 - 60	Pole + Reinf.	TP40.375x39.612x0.475	Reinf. 5 Tension Rupture	65.7%	Pass
60 - 56	Pole + Reinf.	TP41.138x40.375x0.475	Reinf. 5 Tension Rupture	67.9%	Pass
56 - 53.75	Pole + Reinf.	TP41.568x41.138x0.475	Reinf. 5 Tension Rupture	69.0%	Pass
53.75 - 53.5	Pole + Reinf.	TP41.615x41.568x0.6375	Reinf. 4 Tension Rupture	64.5%	Pass
53.5 - 49.5	Pole + Reinf.	TP42.379x41.615x0.6375	Reinf. 4 Tension Rupture	66.6%	Pass
49.5 - 47	Pole + Reinf.	TP44.08x42.379x0.625	Reinf. 4 Tension Rupture	67.8%	Pass
47 - 39.58	Pole + Reinf.	TP43.509x42.106x0.7	Reinf. 7 Compression	69.7%	Pass
39.58 - 35.58	Pole + Reinf.	TP44.266x43.509x0.7	Reinf. 7 Compression	71.4%	Pass
35.58 - 31.48	Pole + Reinf.	TP45.042x44.266x0.7375	Reinf. 7 Compression	68.6%	Pass
31.48 - 31.25	Pole + Reinf.	TP45.086x45.042x0.7375	Reinf. 7 Compression	68.7%	Pass
31.25 - 28.75	Pole + Reinf.	TP45.559x45.086x0.7375	Reinf. 7 Compression	69.7%	Pass
28.75 - 28.5	Pole + Reinf.	TP45.607x45.559x0.6375	Reinf. 3 Tension Rupture	70.8%	Pass
28.5 - 24.5	Pole + Reinf.	TP46.364x45.607x0.625	Reinf. 3 Tension Rupture	72.3%	Pass
24.5 - 20.5	Pole + Reinf.	TP47.121x46.364x0.625	Reinf. 3 Tension Rupture	73.6%	Pass
20.5 - 16.5	Pole + Reinf.	TP47.877x47.121x0.625	Reinf. 3 Tension Rupture	74.9%	Pass
16.5 - 12.5	Pole + Reinf.	TP48.634x47.877x0.625	Reinf. 3 Tension Rupture	76.1%	Pass
12.5 - 11	Pole + Reinf.	TP48.918x48.634x0.6125	Reinf. 3 Tension Rupture	76.6%	Pass
11 - 10.75	Pole + Reinf.	TP48.966x48.918x0.7125	Reinf. 3 Tension Rupture	67.9%	Pass
10.75 - 6.75	Pole + Reinf.	TP49.723x48.966x0.7125	Reinf. 3 Tension Rupture	69.1%	Pass
6.75 - 6.25	Pole + Reinf.	TP49.817x49.723x0.7125	Reinf. 3 Tension Rupture	69.2%	Pass
6.25 - 6	Pole + Reinf.	TP49.865x49.817x0.6625	Reinf. 6 Tension Rupture	74.5%	Pass
6 - 5	Pole + Reinf.	TP50.054x49.865x0.6625	Reinf. 6 Tension Rupture	74.8%	Pass
5 - 4.75	Pole + Reinf.	TP50.101x50.054x0.5625	Reinf. 3 Tension Rupture	79.8%	Pass
4.75 - 0.75	Pole + Reinf.	TP50.858x50.101x0.5625	Reinf. 3 Tension Rupture	80.8%	Pass
0.75 - 0	Pole + Reinf.	TP51x50.858x0.5625	Reinf. 3 Tension Rupture	81.0%	Pass
				Summary	
			Pole	72.9%	Pass
			Reinforcement	81.0%	Pass
			Overall	81.0%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*								
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8
160 - 156	1080	n/a	1080	16.10	n/a	16.10	2.8%								
156 - 152	1191	n/a	1191	16.64	n/a	16.64	6.2%								
152 - 148	1310	n/a	1310	17.17	n/a	17.17	9.7%								
148 - 144	1436	n/a	1436	17.71	n/a	17.71	13.2%								
144 - 140	1570	n/a	1570	18.24	n/a	18.24	19.8%								
140 - 136	1712	n/a	1712	18.77	n/a	18.77	26.0%								
136 - 132	1863	n/a	1863	19.31	n/a	19.31	32.0%								
132 - 128	2022	n/a	2022	19.84	n/a	19.84	37.7%								
128 - 124	2190	n/a	2190	20.38	n/a	20.38	43.3%								
124 - 122	2277	n/a	2277	20.65	n/a	20.65	46.0%								
122 - 116.33	3104	n/a	3104	27.07	n/a	27.07	38.5%								
116.33 - 112.33	3346	n/a	3346	27.75	n/a	27.75	43.4%								
112.33 - 108.33	3601	n/a	3601	28.44	n/a	28.44	48.1%								
108.33 - 104.33	3868	n/a	3868	29.13	n/a	29.13	52.7%								
104.33 - 100.33	4149	n/a	4149	29.82	n/a	29.82	57.2%								
100.33 - 96.33	4442	n/a	4442	30.50	n/a	30.50	61.7%								
96.33 - 94	4619	n/a	4619	30.90	n/a	30.90	65.1%								
94 - 93.75	4639	n/a	4639	30.95	n/a	30.95	65.5%								
93.75 - 89.75	4955	n/a	4955	31.63	n/a	31.63	70.7%								
89.75 - 88	5097	n/a	5097	31.94	n/a	31.94	72.9%								
88 - 81.5	7139	n/a	7139	43.28	n/a	43.28	55.2%								
81.5 - 77.5	7605	n/a	7605	44.20	n/a	44.20	58.3%								
77.5 - 73.5	8089	n/a	8089	45.13	n/a	45.13	61.3%								
73.5 - 72.25	8245	n/a	8245	45.41	n/a	45.41	62.2%								
72.25 - 72	8276	2300	10576	45.47	12.00	57.47	47.2%					58.7%			
72 - 68	8789	2390	11180	46.39	12.00	58.39	49.6%					61.2%			
68 - 64	9323	2482	11805	47.31	12.00	59.31	52.0%					63.5%			
64 - 60	9877	2576	12454	48.23	12.00	60.23	54.3%					65.7%			
60 - 56	10454	2672	13126	49.15	12.00	61.15	56.5%					67.9%			
56 - 53.75	10787	2727	13514	49.67	12.00	61.67	57.7%					69.0%			
53.75 - 53.5	10825	7278	18103	49.73	31.69	81.41	43.3%				64.5%	51.8%			
53.5 - 49.5	11437	7539	18976	50.65	31.69	82.33	45.1%				66.6%	53.5%			
49.5 - 47	11831	7705	19536	51.22	31.69	82.91	46.2%				67.8%	54.5%			
47 - 39.58	14387	8309	22697	60.59	33.19	93.78	42.4%				65.8%			69.7%	
39.58 - 35.58	15159	8592	23751	61.66	33.19	94.84	43.7%				67.4%			71.4%	
35.58 - 31.48	15979	10548	26527	62.75	39.28	102.03	42.3%		67.6%	67.6%				68.6%	
31.48 - 31.25	16026	10568	26594	62.81	39.28	102.09	42.4%		60.4%	60.4%				68.7%	
31.25 - 28.75	16541	10784	27325	63.47	39.28	102.76	43.2%		61.3%	61.3%				69.7%	
28.75 - 28.5	16593	7128	23721	63.54	25.78	89.32	49.9%		70.8%	70.8%					
28.5 - 24.5	17441	7358	24800	64.61	25.78	90.39	51.3%		72.3%	72.3%					
24.5 - 20.5	18318	7593	25911	65.67	25.78	91.45	52.6%		73.6%	73.6%					
20.5 - 16.5	19224	7830	27054	66.74	25.78	92.52	53.9%		74.9%	74.9%					
16.5 - 12.5	20159	8072	28231	67.80	25.78	93.58	55.2%		76.1%	76.1%					
12.5 - 11	20517	8163	28680	68.20	25.78	93.98	55.7%		76.6%	76.6%					
11 - 10.75	20606	12549	33156	68.27	43.78	112.05	50.5%		65.5%	67.9%			66.3%		
10.75 - 6.75	21585	12929	34514	69.33	43.78	113.11	51.7%		66.6%	69.1%			67.5%		
6.75 - 6.25	21709	12977	34686	69.46	43.78	113.25	51.9%		66.8%	69.2%			67.6%		
6.25 - 6	21749	10663	32412	69.53	43.00	112.53	55.6%	65.9%		70.7%			74.5%		
6 - 5	21999	10742	32741	69.80	43.00	112.80	55.9%	66.2%		71.0%			74.8%		
5 - 4.75	22144	6160	28304	69.86	25.00	94.86	66.9%	79.3%		79.8%					
4.75 - 0.75	23170	6343	29513	70.93	25.00	95.93	68.2%	80.4%		80.8%					
0.75 - 0	23366	6378	29744	71.13	25.00	96.13	68.5%	80.6%		81.0%					

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

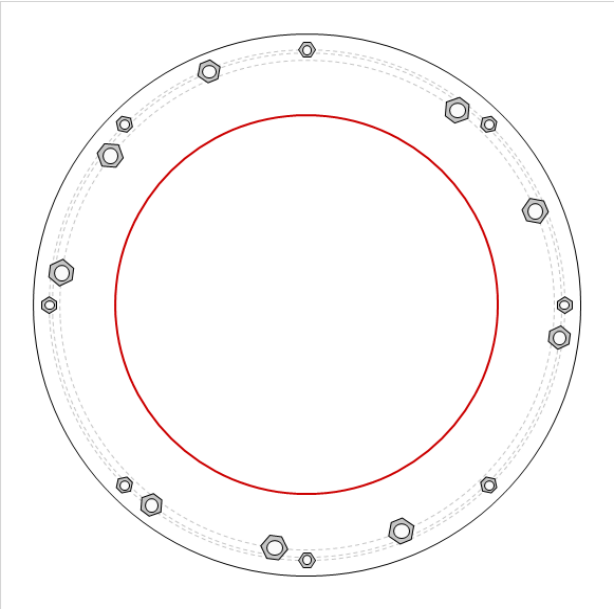
Monopole Base Plate Connection

Site Info	
BU #	876339
Site Name	ond Meadow Rd. Stabl
Order #	479798 Rev. 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	1708.27
Axial Force (kips)	0.00
Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 1-1/4" ø bolts (Williams R7S N; Fy=120 ksi, Fu=125 ksi) on 68.5" BC
GROUP 2: (6) 2" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 65.8" BC
GROUP 3: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 67.8" BC

Base Plate Data

72.75" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

51" x 0.4375" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_c = 42.67	ϕPn_c = 132.54	**Stress Rating**
Vu = 0	ϕVn = 59.64	**30.7%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 105.64	ϕPn_c = 296.88	**Stress Rating**
Vu = 0	ϕVn = 133.6	**33.9%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 3:		
Pu_c = 82.73	ϕPn_c = 227.3	**Stress Rating**
Vu = 0	ϕVn = 102.28	**34.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	20.82	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**44.1%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

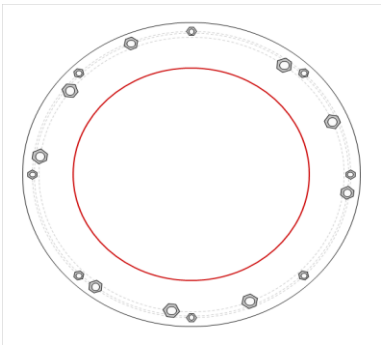
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	
3	No	No	No	No	No	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1.25	Williams R7S	68.5		0	N-Included		No
2	1	45	1.25	Williams R7S	68.5		0	N-Included		No
3	1	90	1.25	Williams R7S	68.5		0	N-Included		No
4	1	135	1.25	Williams R7S	68.5		0	N-Included		No
5	1	180	1.25	Williams R7S	68.5		0	N-Included		No
6	1	225	1.25	Williams R7S	68.5		0	N-Included		No
7	1	270	1.25	Williams R7S	68.5		0	N-Included		No
8	1	315	1.25	Williams R7S	68.5		0	N-Included		No
9	2	22.5	2	A193 Gr. B7	65.8		0	N-Included		No
10	2	52.5	2	A193 Gr. B7	65.8		0	N-Included		No
11	2	142.5	2	A193 Gr. B7	65.8		0	N-Included		No
12	2	172.5	2	A193 Gr. B7	65.8		0	N-Included		No
13	2	262.5	2	A193 Gr. B7	65.8		0	N-Included		No
14	2	292.5	2	A193 Gr. B7	65.8		0	N-Included		No
15	3	112.5	1.75	A193 Gr. B7	67.8		0	N-Included		No
16	3	232.5	1.75	A193 Gr. B7	67.8		0	N-Included		No
17	3	352.5	1.75	A193 Gr. B7	67.8		0	N-Included		No

Plot Graphic



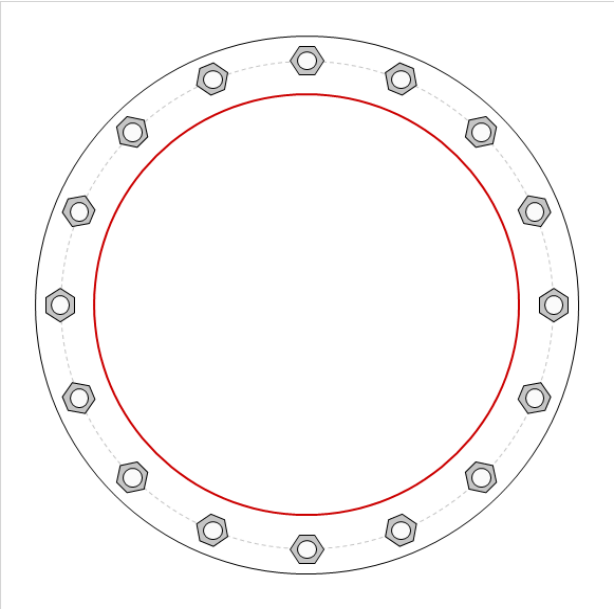
Monopole Base Plate Connection

Site Info	
BU #	876339
Site Name	ond Meadow Rd. Stabl
Order #	479798 Rev. 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	2449.56
Axial Force (kips)	59.42
Shear Force (kips)	40.68

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 59.3" BC

Base Plate Data

65.3" OD x 2.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

51" x 0.4375" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 127.56	ϕPn_c = 268.39	**Stress Rating**
Vu = 2.54	ϕVn = 120.77	**45.3%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	17.07	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**30.1%**	**Pass**

Pier and Pad Foundation

BU # :	876339
Site Name:	Pond Meadow Rd.
App. Number:	479798 Rev. 1

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	59.43	kips
Base Shear, Vu_comp:	40.67	kips
Moment, M_u:	4157.82	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	6	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	36	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.7	ft
Pad Width, W_1:	23	ft
Pad Thickness, **T**:	3.7	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	24	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	33	degrees
SPT Blow Count, N_{blows}:	20	
Base Friction, μ:	0.45	
Neglected Depth, **N**:	3.30	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)	180.38	40.67	**21.5%**	**Pass**
Bearing Pressure (ksf)	22.50	3.70	**16.4%**	**Pass**
*Overturning (kip*ft)*	6504.44	4511.65	**69.4%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8674.54	4340.84	**47.7%**	**Pass**
Pier Compression (kip)	24494.62	90.60	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	6417.08	1930.13	**28.6%**	**Pass**
Pad Shear - 1-way (kips)	1028.63	301.93	**28.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9950.88	2604.50	**24.9%**	**Pass**

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

Soil Rating*:	**69.4%**
Structural Rating*:	**47.7%**

Version 4.0.0

Pier and Pad Foundation

BU # :	876339
Site Name:	Pond Meadow Rd.
App. Number:	479798 Rev. 1

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	59.43	kips
Base Shear, Vu_comp:	40.67	kips
Moment, M_u:	4157.82	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	6	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	36	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.7	ft
Pad Width, W_1:	23	ft
Pad Thickness, **T**:	3.7	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	24	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	33	degrees
SPT Blow Count, N_{blows}:	20	
Base Friction, μ:	0.45	
Neglected Depth, **N**:	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	180.38	40.67	**21.5%**	**Pass**
Bearing Pressure (ksf)	22.50	5.53	**24.6%**	**Pass**
*Overturning (kip*ft)*	6227.20	4511.65	**72.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8674.54	4340.84	**47.7%**	**Pass**
Pier Compression (kip)	24494.62	90.60	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	6417.08	1930.13	**28.6%**	**Pass**
Pad Shear - 1-way (kips)	1028.63	301.93	**28.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9950.88	2604.50	**24.9%**	**Pass**

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

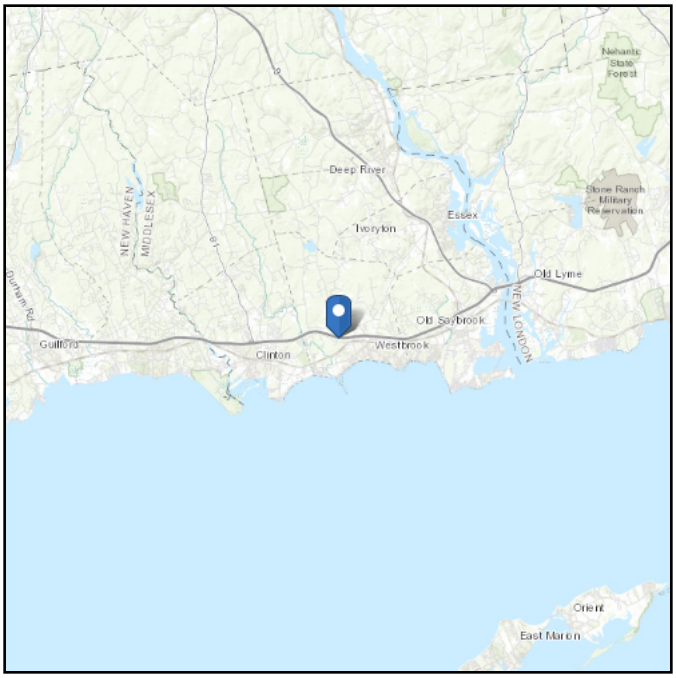
Soil Rating*:	**72.5%**
Structural Rating*:	**47.7%**

Version 4.0.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	94.72 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.290472
Soil Class:	D - Stiff Soil	**Longitude:**	-72.468861



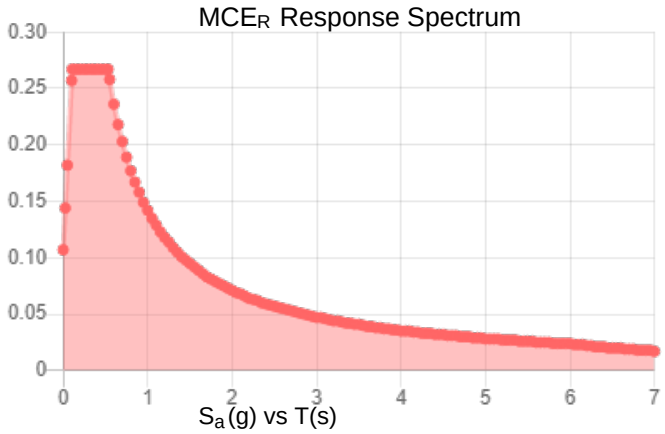
Seismic

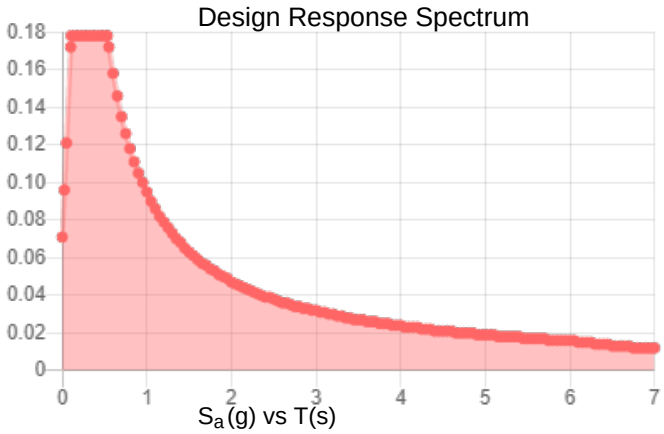
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.178
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.267	PGA_M :	0.134
S_{M1} :	0.142	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Sep 11 2020

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 11 2020

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-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 E

Mount Analysis

PAUL J. FORD & COMPANY

Date: June 6, 2019

Charles McGuirt
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject:	**Mount Modification Report**	
Carrier Designation:	***T-Mobile* Equipment Change-out**	
	Carrier Site Number:	CT11032D
	Carrier Site Name:	Westbrook/ I-95/ X64/CH1
Crown Castle Designation:	**Crown Castle BU Number:**	876339
	Crown Castle Site Name:	Pond Meadow RD. Stable
	Crown Castle JDE Job Number:	559326
	Crown Castle Purchase Order Number:	1390266
	Crown Castle Order Number:	479798 Rev. 1
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	A37519-1581.003.7191
Site Data:	**782 Old Clinton Road, Westbrook, Middlesex County, CT** **Latitude 41.290472°, Longitude -72.468861°**	
Structure Information:	**Tower Height & Type:**	**160 Foot Monopole**
	Mount Elevation:	**142 Foot**
	Mount Type:	**(1) 13 Foot Platform**

Dear Charles Mcguirt,

Paul J Ford and Company is pleased to submit this "Mount Modification Report" to determine the structural integrity of the T-Mobile antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

13' Platform **SUFFICIENT***

***The mount has sufficient capacity once the modifications, as described in Section 4.1 Recommendations of this report, are completed.**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

Rebekah Dorris

Rebekah M. Dorris, PE
Project Engineer
RDorris@pauljford.com

STATE OF CONNECTICUT
JUSTIN T. KLINE
No. 30301
LICENSED PROFESSIONAL ENGINEER

2019.06.06 17:57:30-04'00'

PAUL J. FORD & COMPANY

Date: June 6, 2019

Charles McGuirt
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
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Subject:	**Mount Modification Report**	
Carrier Designation:	***T-Mobile* Equipment Change-out**	
	Carrier Site Number:	CT11032D
	Carrier Site Name:	Westbrook/ I-95/ X64/CH1
Crown Castle Designation:	**Crown Castle BU Number:**	876339
	Crown Castle Site Name:	Pond Meadow RD. Stable
	Crown Castle JDE Job Number:	559326
	Crown Castle Purchase Order Number:	1390266
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Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	A37519-1581.003.7191
Site Data:	**782 Old Clinton Road, Westbrook, Middlesex County, CT** **Latitude 41.290472°, Longitude -72.468861°**	
Structure Information:	**Tower Height & Type:**	**160 Foot Monopole**
	Mount Elevation:	**142 Foot**
	Mount Type:	**(1) 13 Foot Platform**

Dear Charles Mcguirt,

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The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

13' Platform **SUFFICIENT***

***The mount has sufficient capacity once the modifications, as described in Section 4.1 Recommendations of this report, are completed.**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

Rebekah Dorris

Rebekah M. Dorris, PE
Project Engineer
RDorris@pauljford.com

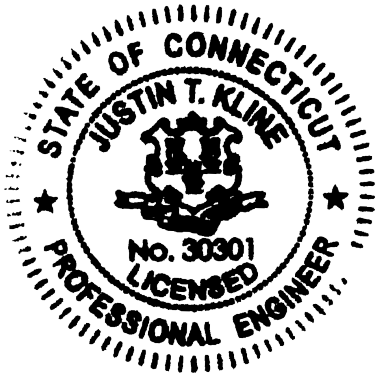

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE
Table 2 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 3 - Mount Component Capacity
4.1) Recommendations

5) STANDARD CONDITIONS

6) APPENDIX A
WIRE FRAME AND RENDERED MODELS

7) APPENDIX B
SOFTWARE INPUT CALCULATIONS

8) APPENDIX C
SOFTWARE ANALYSIS OUTPUT

9) APPENDIX D
STANDARD ANTENNA CENTERING CONDITIONS

10) APPENDIX E
SUPPLEMENTAL MODIFICATION INFORMATION

11) APPENDIX F
MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)

1) INTRODUCTION

The existing mount under consideration is (1) 13' Platform mount estimated based on photos and models of previously analyzed mounts of similar type.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 135 mph
Exposure Category: B
Topographic Factor at Base: 1.0
Topographic Factor at Mount: 1.0
Ice Thickness: 1.5 in
Wind Speed with Ice: 50 mph
Live Loading Wind Speed: 30 mph
Man Live Load at Mid/End-Points: 250 lb
Man Live Load at Mount Pipes: 500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
142	145	3	Ericsson	AIR 32 B2A B66AA	(1) 13' Platform
		3	Ericsson	AIR 21 B2A B4P	
		3	RFS	APXVAARR24_43-U-NA20	
		3	Ericsson	KRY 112 144/1	
		3	Ericsson	RADIO 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Photos	Dated: 03/23/16	-	CCISites
Order	ID: 479798 Rev. 1 Dated: 04/16/19	-	CCISites

3.1) Analysis Method

RISA-3D (version 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

3.2) Assumptions

1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
5) *Steel grades are as follows, unless noted otherwise:*
   - *a) Channel, Solid Round, Angle, Plate, Unistrut* — *ASTM A36 (GR 36)*
   - *b) Pipe* — *ASTM A53 (GR 35)*
   - *c) HSS (Rectangular)* — *ASTM 500 (GR B-46)*
   - *d) HSS (Round)* — *ASTM 500 (GR B-42)*
   - *e) Threaded Rods* — *ASTM F1554 (GR 36)*
   - *f) Connection Bolts* — *ASTM A325*
   - *g) U-Bolts* — *SAE J429 (GR 2)*
6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
7) *Mount has been modeled based on the photographs and/or the TIA inspection referenced in Table 2. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.*

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Face Horizontals	142	79.8	Pass
1	Support Rails		75.3	Pass
1	Grating Support Members		40.9	Pass
1	Standoff Members		23.1	Pass
1	Corner Plates		47.9	Pass
1	Mount Pipes		68.7	Pass
1	Mount to Tower Connection		34.9	Pass

Mount Rating (max from all components) =	**79.8%**

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

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

- All existing and proposed antennas and their respective mount pipes shall be centered vertically with respect to the mount. See "Appendix D: Standard Antenna Centering Conditions" in this report for reference. Pipe relocation may require unbolting existing connections and installing new U-bolt connections. A vertical tolerance of 24-in with respect to the mount centerline is acceptable.
- Install SitePro1 PRK-1245L Platform Reinforcement Kit or EOR approved equivalent as indicated in "Appendix E – Supplemental Modification Information" and in conformance with the attached manufacturer drawings.
- Replace existing mount pipes with 8-ft long, P2.5 STD (2.88" O.D. x 0.189") mount pipes where required. See Appendix A/D details.

Connection from the mount to the tower and local stresses on the tower are sufficient.

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY

1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.

2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.

3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.

4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

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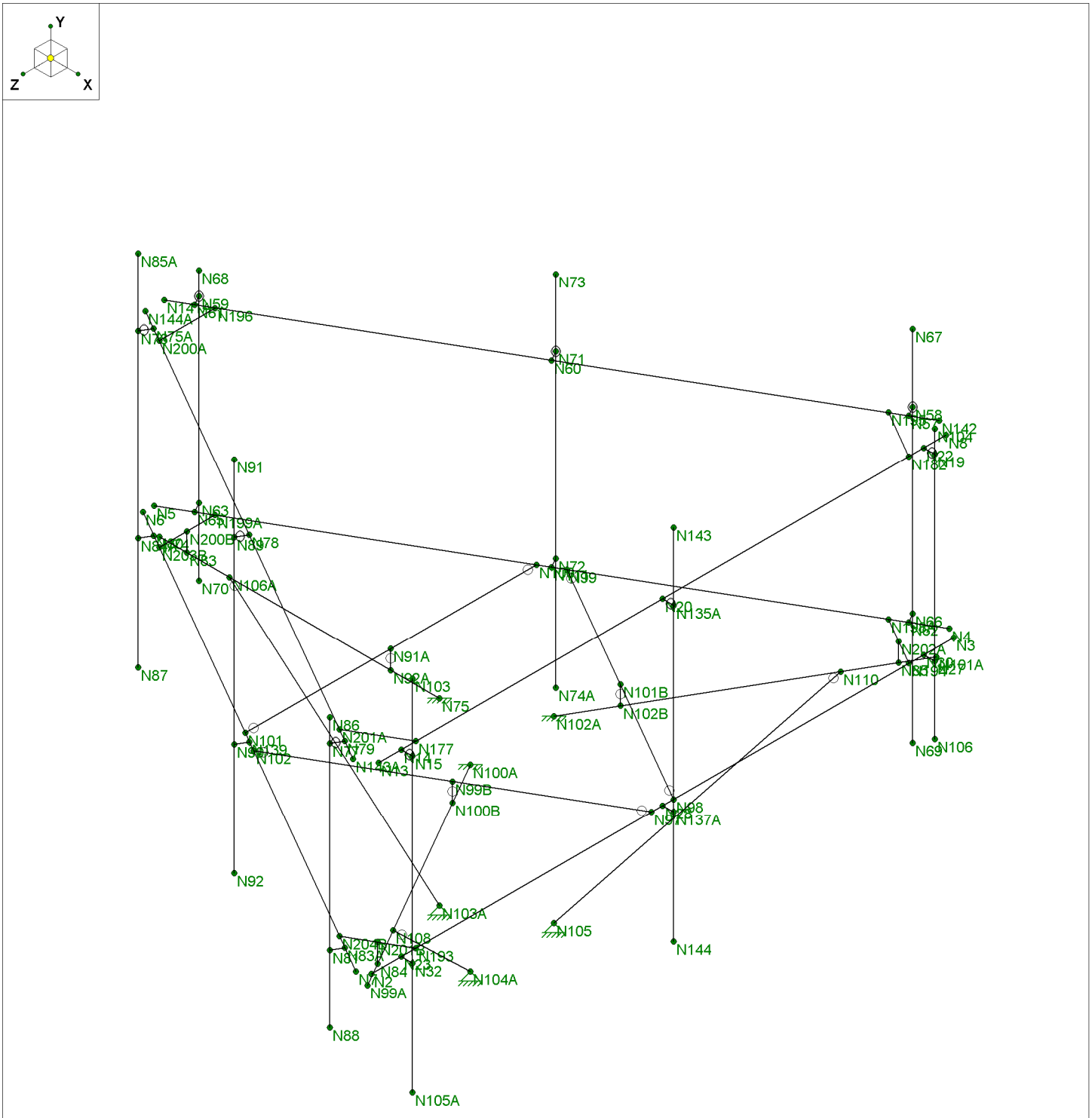
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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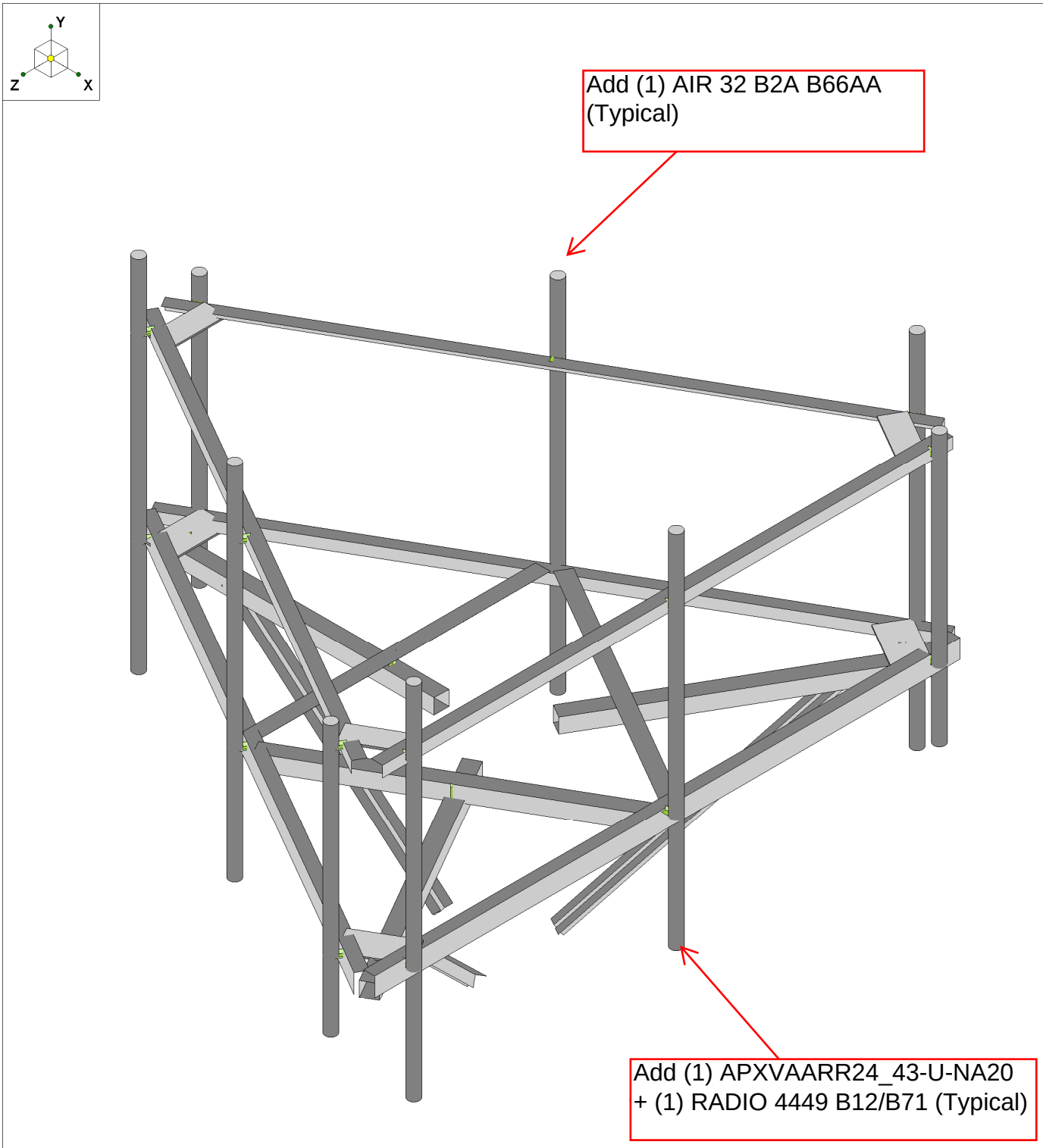

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APPENDIX B

SOFTWARE INPUT CALCULATION

ANSI/TIA-222H - WIND & ICE LOAD CALCULATIONS

Site Code/Name	876339 - Pond Meadow Rd. Stable
State	Connecticut
County	Middlesex
V	135 mph
V_i	50 mph
t_i	1.5 in
z_s	96 ft
z	142 ft

Structure Class	II
Exposure Category	B
Topographic Category	1
Wind direction probability factor	0.95
Gust factor	1
Wind Pressure (including Ka = 0.9)	43.42 psf
t_{iz}	1.74 in

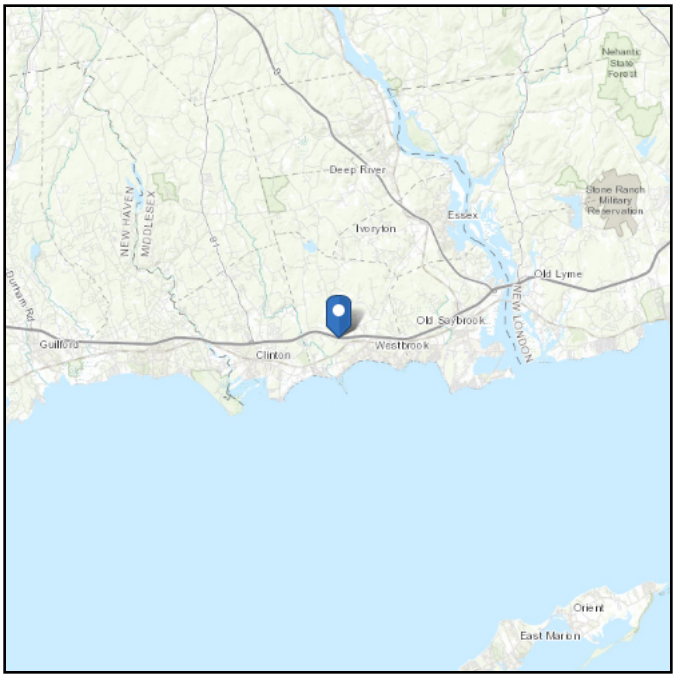
Dead and Wind Forces for Equipment									
Manufacturer	Model	L [in]	W [in]	D [in]	0° [lbs]	30° [lbs]	60° [lbs]	90° [lbs]	Weight [lbs]
Ericsson	AIR 32 B2A B66AA	59.25	12.87	8.66	297.4	277.0	236.0	215.5	143.0
Ericsson	AIR 21 B2A B4P	56	12.1	7.87	264.5	245.0	206.1	186.6	91.5
RFS	APXVAARR24_43-U-NA20	95.9	24	8.7	879.0	755.8	509.2	386.0	128.0
Ericsson	KRY 112 144/1	7	6	3	15.2	13.3	9.5	7.6	11.0
Ericsson	RADIO 4449 B12/B71	14.95	13.19	9.25	71.4	66.0	55.4	50.0	75.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 95.46 ft (NAVD 88)
Latitude: 41.290556
Longitude: -72.468889



Wind

Results:

Wind Speed:	131 Vmph
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	97 Vmph
100-year MRI	107 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Thu May 02 2019

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 7-10 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 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

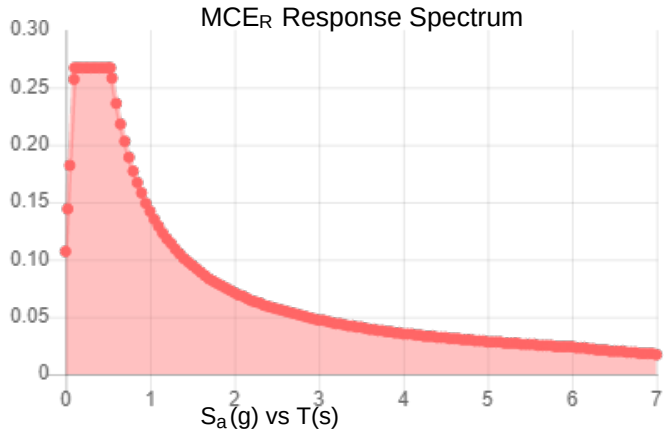
Seismic

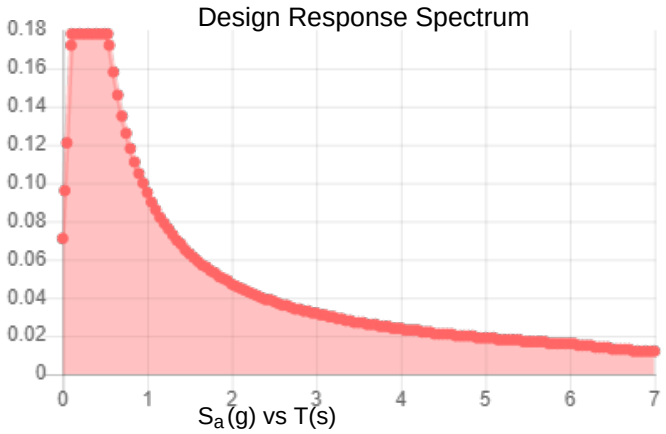
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.178
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.267	PGA_M :	0.134
S_{M1} :	0.142	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu May 02 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

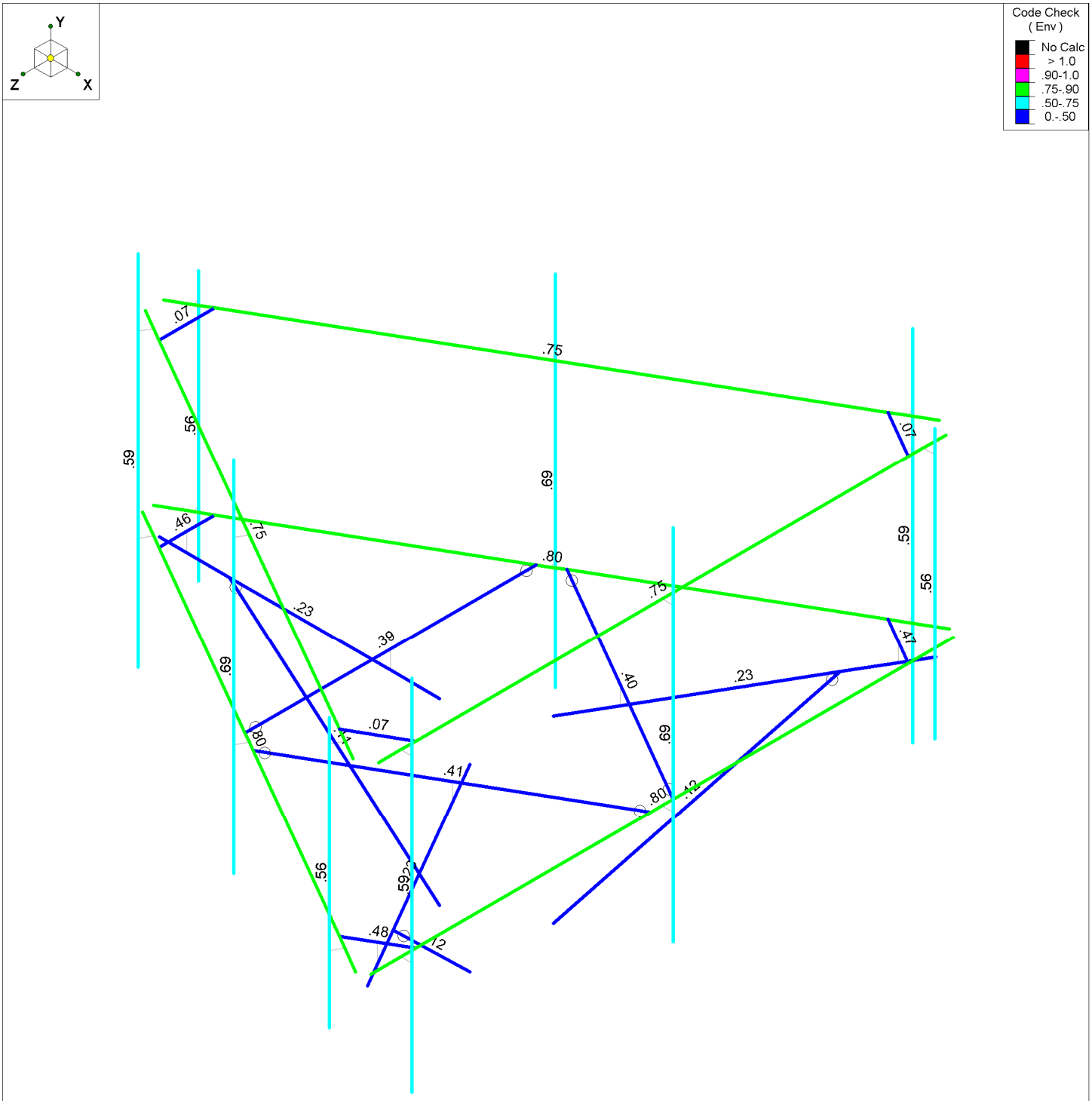
Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu May 02 2019

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 50-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.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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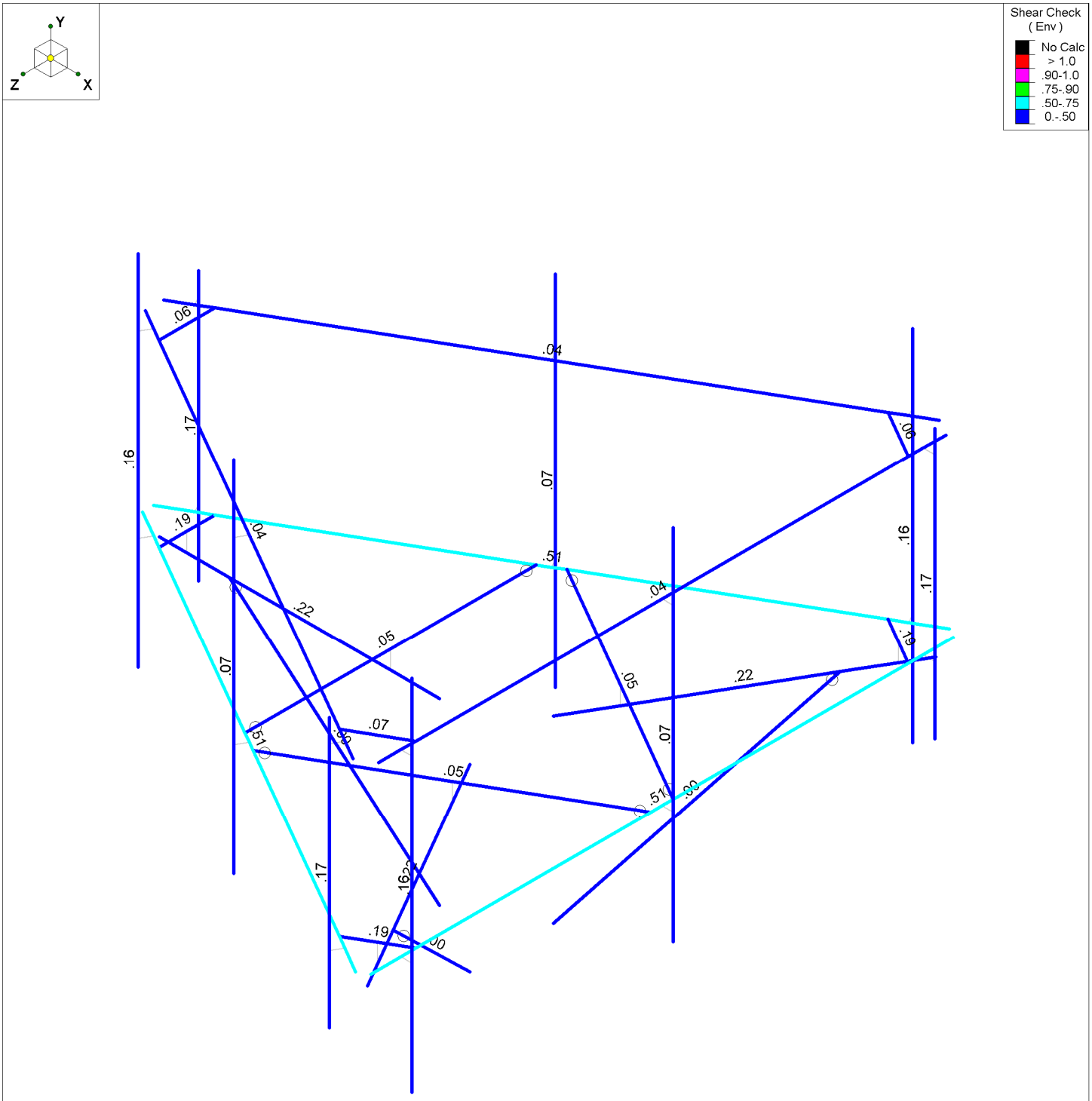

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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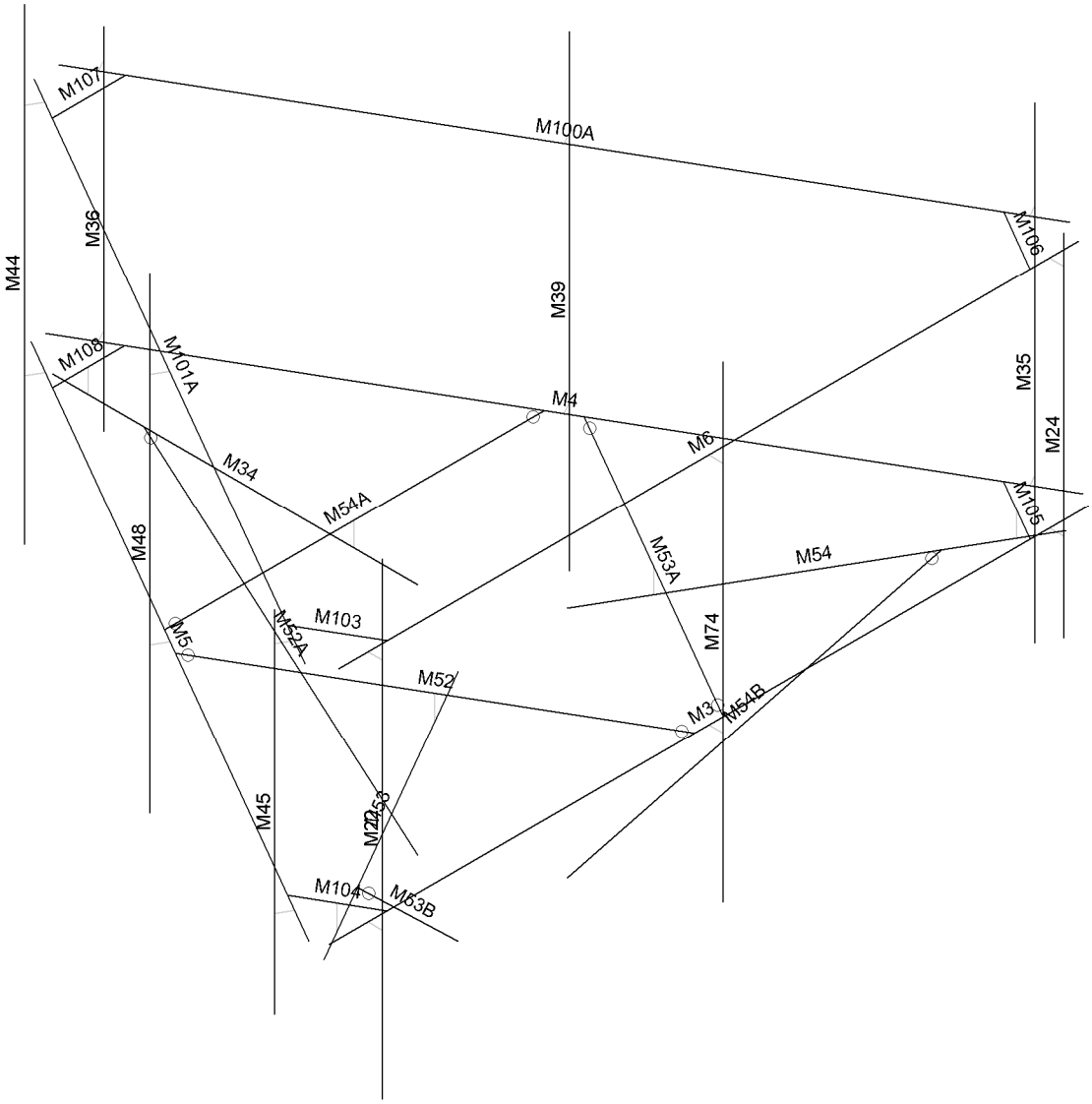

Envelope Only Solution

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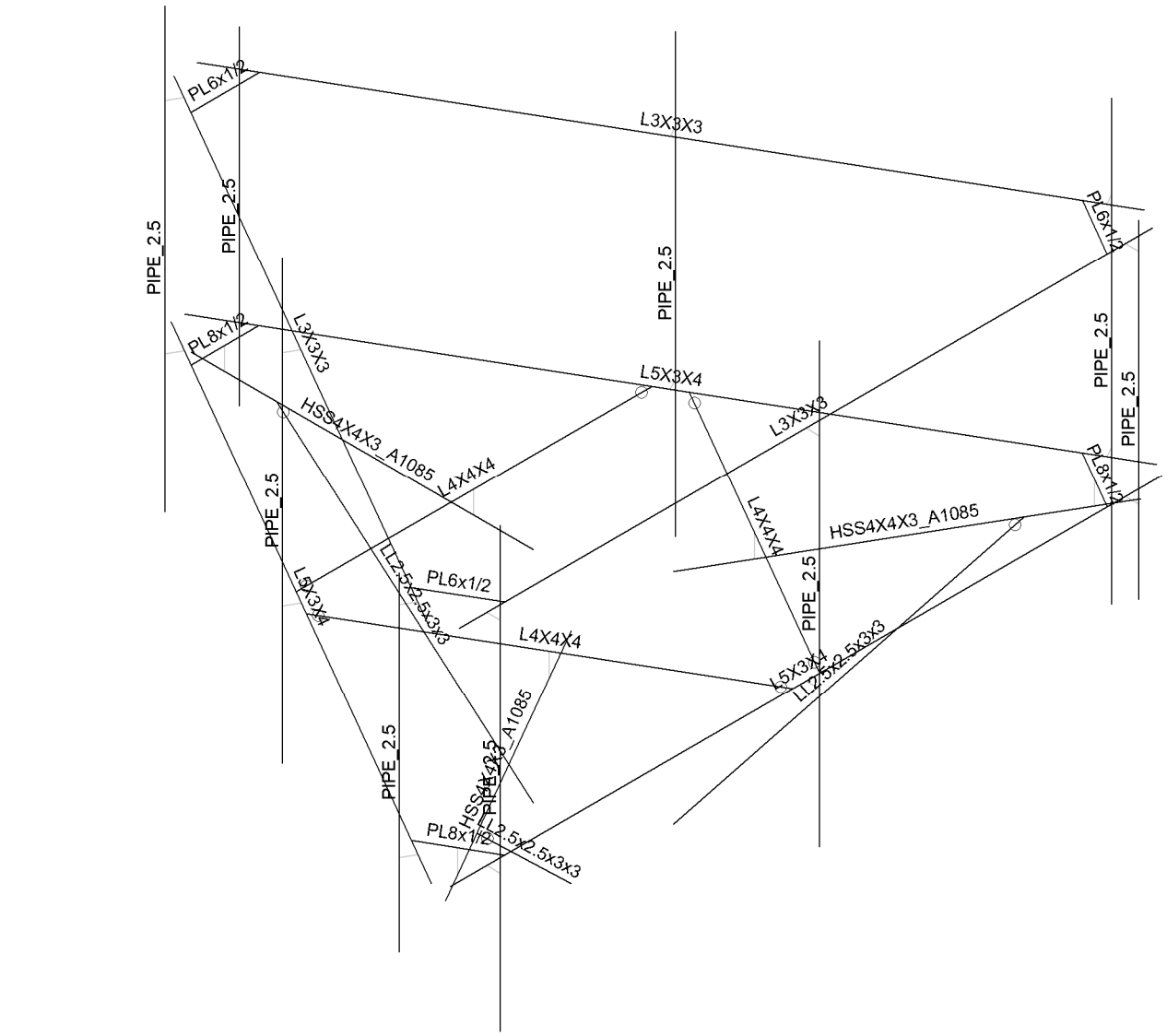

Envelope Only Solution

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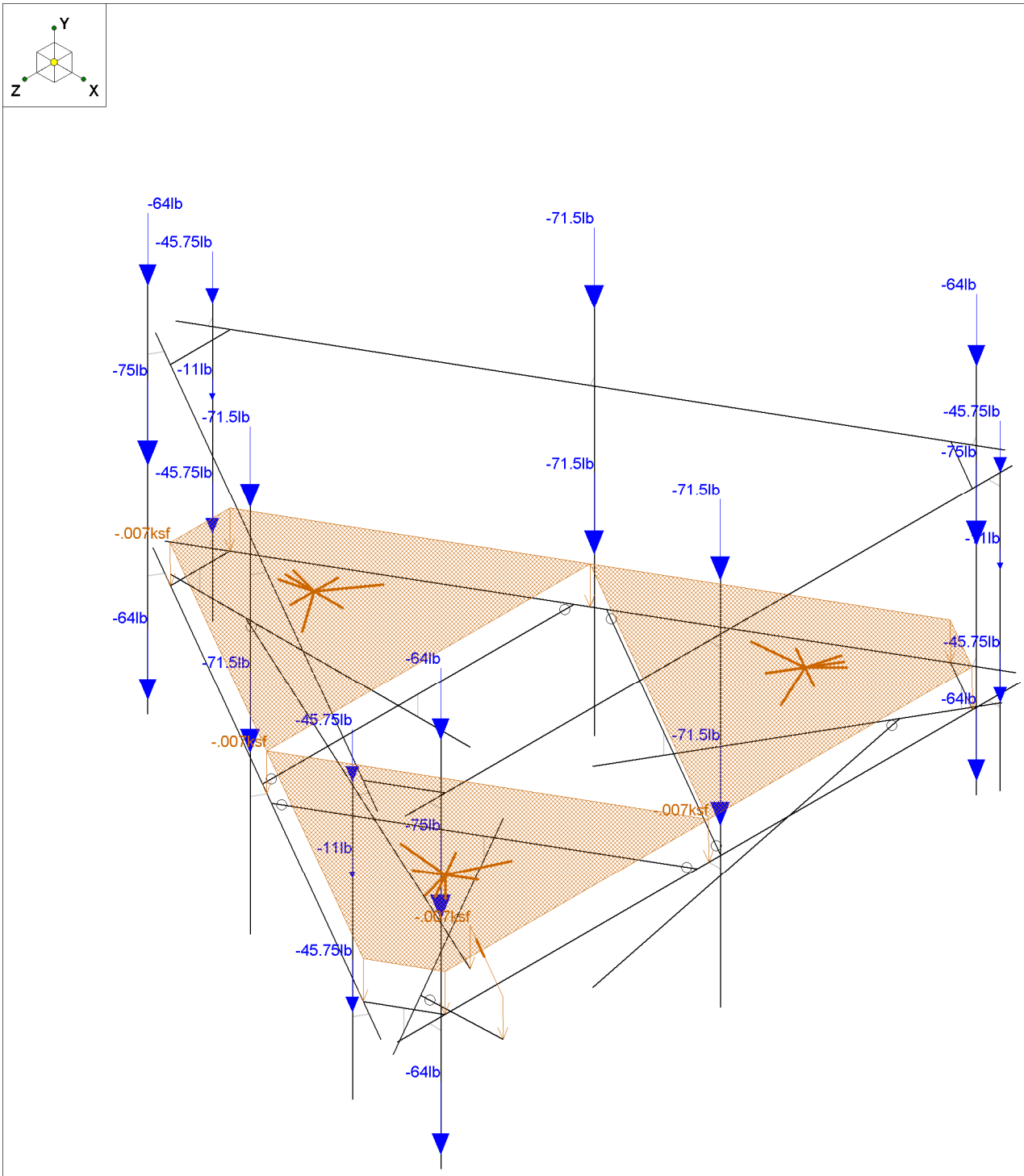

Loads: BLC 2, We
Envelope Only Solution

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(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
1	M3	N2	N3		180	L5X3X4	Beam	Single Angle	A36 Gr.36	Typical
2	M4	N4	N5		180	L5X3X4	Beam	Single Angle	A36 Gr.36	Typical
3	M5	N6	N7		180	L5X3X4	Beam	Single Angle	A36 Gr.36	Typical
4	M6	N13	N8		180	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical
5	M10	N14	N15			RIGID	None	None	RIGID	Typical
6	M15	N22	N19			RIGID	None	None	RIGID	Typical
7	M16	N23	N32			RIGID	None	None	RIGID	Typical
8	M21	N30	N27			RIGID	None	None	RIGID	Typical
9	M22	N103	N105A			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
10	M24	N104	N106			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
11	M103	N201A	N177		90	PL6x1/2	Beam	RECT	A36 Gr.36	Typical
12	M104	N204B	N193		90	PL8x1/2	Beam	RECT	A36 Gr.36	Typical
13	M105	N194	N198A		90	PL8x1/2	Beam	RECT	A36 Gr.36	Typical
14	M106	N182	N195		90	PL6x1/2	Beam	RECT	A36 Gr.36	Typical
15	M107	N200A	N196		90	PL6x1/2	Beam	RECT	A36 Gr.36	Typical
16	M108	N203B	N199A		90	PL8x1/2	Beam	RECT	A36 Gr.36	Typical
17	M34	N74	N75			HSS4X4X3_A1085	Beam	SquareTube ...	A500 Gr....	Typical
18	M37	N84	N201B			RIGID	None	None	RIGID	Typical
19	M40	N83	N200B			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
20	M42	N85	N202A			RIGID	None	None	RIGID	Typical
21	M100A	N142	N141A		180	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical
22	M101A	N144A	N143A		180	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical
23	M53	N99A	N100A			HSS4X4X3_A1085	Beam	SquareTube ...	A500 Gr....	Typical
24	M54	N101A	N102A			HSS4X4X3_A1085	Beam	SquareTube ...	A500 Gr....	Typical
25	M71	N20	N135A			RIGID	None	None	RIGID	Typical
26	M73	N28	N137A			RIGID	None	None	RIGID	Typical
27	M74	N143	N144			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
28	M31	N57	N58			RIGID	None	None	RIGID	Typical
29	M32	N61	N59			RIGID	None	None	RIGID	Typical
30	M33	N62	N66			RIGID	None	None	RIGID	Typical
31	M34A	N65	N63			RIGID	None	None	RIGID	Typical
32	M35	N67	N69			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
33	M36	N68	N70			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
34	M37A	N60	N71			RIGID	None	None	RIGID	Typical
35	M38	N111	N72			RIGID	None	None	RIGID	Typical
36	M39	N73	N74A			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
37	M40A	N75A	N76			RIGID	None	None	RIGID	Typical
38	M41	N79	N77			RIGID	None	None	RIGID	Typical
39	M42A	N80	N84A			RIGID	None	None	RIGID	Typical
40	M43	N83A	N81			RIGID	None	None	RIGID	Typical
41	M44	N85A	N87			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
42	M45	N86	N88			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
43	M46	N78	N89			RIGID	None	None	RIGID	Typical
44	M47A	N139	N90			RIGID	None	None	RIGID	Typical
45	M48	N91	N92			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
46	M49	N92A	N91A			RIGID	None	None	RIGID	Typical
47	M52	N102	N97		180	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical
48	M53A	N98	N99		180	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical
49	M54A	N100	N101		180	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical
50	M50	N100B	N99B			RIGID	None	None	RIGID	Typical
51	M51	N102B	N101B			RIGID	None	None	RIGID	Typical
52	M52A	N103A	N106A			LL2.5x2.5x3x3	None	None	A36 Gr.36	Typical
53	M53B	N104A	N108			LL2.5x2.5x3x3	None	None	A36 Gr.36	Typical
54	M54B	N105	N110			LL2.5x2.5x3x3	None	None	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M3						Yes	Default			None
2	M4						Yes	Default			None
3	M5						Yes	Default			None
4	M6						Yes				None
5	M10	OOOXOX					Yes	** NA **			None
6	M15	OOOXOX					Yes	** NA **			None
7	M16						Yes	** NA **			None
8	M21						Yes	** NA **			None
9	M22						Yes	** NA **			None
10	M24						Yes	** NA **			None
11	M103						Yes				None
12	M104						Yes				None
13	M105						Yes				None
14	M106						Yes				None
15	M107						Yes				None
16	M108						Yes				None
17	M34						Yes	Default			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
18	M37						Yes	** NA **			None
19	M40						Yes	** NA **			None
20	M42						Yes	** NA **			None
21	M100A						Yes				None
22	M101A						Yes				None
23	M53						Yes				None
24	M54						Yes				None
25	M71	OOOXOX					Yes	** NA **			None
26	M73						Yes	** NA **			None
27	M74						Yes	** NA **			None
28	M31	OOOXOX					Yes	** NA **			None
29	M32	OOOXOX					Yes	** NA **			None
30	M33						Yes	** NA **			None
31	M34A						Yes	** NA **			None
32	M35						Yes	** NA **			None
33	M36						Yes	** NA **			None
34	M37A	OOOXOX					Yes	** NA **			None
35	M38						Yes	** NA **			None
36	M39						Yes	** NA **			None
37	M40A	OOOXOX					Yes	** NA **			None
38	M41	OOOXOX					Yes	** NA **			None
39	M42A						Yes	** NA **			None
40	M43						Yes	** NA **			None
41	M44						Yes	** NA **			None
42	M45						Yes	** NA **			None
43	M46	OOOXOX					Yes	** NA **			None
44	M47A						Yes	** NA **			None
45	M48						Yes	** NA **			None
46	M49		BenPIN				Yes	** NA **			None
47	M52	BenPIN	BenPIN				Yes				None
48	M53A	BenPIN	BenPIN				Yes				None
49	M54A	BenPIN	BenPIN				Yes				None
50	M50		BenPIN				Yes	** NA **			None
51	M51		BenPIN				Yes	** NA **			None
52	M52A		BenPIN				Yes	** NA **			None
53	M53B		BenPIN				Yes	** NA **			None
54	M54B		BenPIN				Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M3	L5X3X4	156	66		Lbyy						Lateral
2	M4	L5X3X4	156	66		Lbyy						Lateral
3	M5	L5X3X4	156	66		Lbyy						Lateral
4	M6	L3X3X3	152			Lbyy						Lateral
5	M22	PIPE_2.5	96			Lbyy						Lateral
6	M24	PIPE_2.5	72			Lbyy						Lateral
7	M103	PL6x1/2	15			Lbyy						Lateral
8	M104	PL8x1/2	15			Lbyy						Lateral
9	M105	PL8x1/2	15			Lbyy						Lateral
10	M106	PL6x1/2	15			Lbyy						Lateral
11	M107	PL6x1/2	15			Lbyy						Lateral
12	M108	PL8x1/2	15			Lbyy						Lateral
13	M34	HSS4X4X3...	75			Lbyy						Lateral
14	M100A	L3X3X3	152			Lbyy						Lateral
15	M101A	L3X3X3	152			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
16	M53	HSS4X4X3...	75			Lbyy						Lateral
17	M54	HSS4X4X3...	75			Lbyy						Lateral
18	M74	PIPE_2.5	96			Lbyy						Lateral
19	M35	PIPE_2.5	96			Lbyy						Lateral
20	M36	PIPE_2.5	72			Lbyy						Lateral
21	M39	PIPE_2.5	96			Lbyy						Lateral
22	M44	PIPE_2.5	96			Lbyy						Lateral
23	M45	PIPE_2.5	72			Lbyy						Lateral
24	M48	PIPE_2.5	96			Lbyy						Lateral
25	M52	L4X4X4	78			Lbyy						Lateral
26	M53A	L4X4X4	78			Lbyy						Lateral
27	M54A	L4X4X4	78			Lbyy						Lateral
28	M52A	LL2.5x2.5x3...	73.946									Lateral
29	M53B	LL2.5x2.5x3...	73.946									Lateral
30	M54B	LL2.5x2.5x3...	73.946									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self We	DL		-1.1						
2	We	DL					24		4	
3	Ice We	DL					24	21	3	
4	W0	WL					24	21		
5	W30	WL					48	42		
6	W60	WL					48	42		
7	W90	WL					24	21		
8	W120	WL					48	42		
9	W150	WL					48	42		
10	W0 + Ice	WL					24	21		
11	W30 + Ice	WL					48	42		
12	W60 + Ice	WL					48	42		
13	W90 + Ice	WL					24	21		
14	W120 + Ice	WL					48	42		
15	W150 + Ice	WL					48	42		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL								
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				
22	BLC 2 Transient Area Loads	None						48		
23	BLC 3 Transient Area Loads	None						48		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Dead	Yes	Y		1	1.4	2	1.4																		
2	Dead + Wind 0°	Yes	Y		1	1.2	2	1.2	4	1																
3	Dead + Wind 30°	Yes	Y		1	1.2	2	1.2	5	1																
4	Dead + Wind 60°	Yes	Y		1	1.2	2	1.2	6	1																
5	Dead + Wind 90°	Yes	Y		1	1.2	2	1.2	7	1																
6	Dead + Wind 120°	Yes	Y		1	1.2	2	1.2	8	1																
7	Dead + Wind 150°	Yes	Y		1	1.2	2	1.2	9	1																
8	Dead + Wind 180°	Yes	Y		1	1.2	2	1.2	4	-1																
9	Dead + Wind 210°	Yes	Y		1	1.2	2	1.2	5	-1																
10	Dead + Wind 240°	Yes	Y		1	1.2	2	1.2	6	-1																

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
11	Dead + Wind 270°	Yes	Y		1	1.2	2	1.2	7	-1																
12	Dead + Wind 300°	Yes	Y		1	1.2	2	1.2	8	-1																
13	Dead + Wind 330°	Yes	Y		1	1.2	2	1.2	9	-1																
14	Dead + Ice + Wind Ice 0°	Yes	Y		1	1.2	2	1.2	10	1	3	1														
15	Dead + Ice + Wind Ice 30°	Yes	Y		1	1.2	2	1.2	11	1	3	1														
16	Dead + Ice + Wind Ice 60°	Yes	Y		1	1.2	2	1.2	12	1	3	1														
17	Dead + Ice + Wind Ice 90°	Yes	Y		1	1.2	2	1.2	13	1	3	1														
18	Dead + Ice + Wind Ice 120°	Yes	Y		1	1.2	2	1.2	14	1	3	1														
19	Dead + Ice + Wind Ice 150°	Yes	Y		1	1.2	2	1.2	15	1	3	1														
20	Dead + Ice + Wind Ice 180°	Yes	Y		1	1.2	2	1.2	10	-1	3	1														
21	Dead + Ice + Wind Ice 210°	Yes	Y		1	1.2	2	1.2	11	-1	3	1														
22	Dead + Ice + Wind Ice 240°	Yes	Y		1	1.2	2	1.2	12	-1	3	1														
23	Dead + Ice + Wind Ice 270°	Yes	Y		1	1.2	2	1.2	13	-1	3	1														
24	Dead + Ice + Wind Ice 300°	Yes	Y		1	1.2	2	1.2	14	-1	3	1														
25	Dead + Ice + Wind Ice 330°	Yes	Y		1	1.2	2	1.2	15	-1	3	1														
26	Dead + LM5001 + Wred 0°	Yes	Y		1	1.2	2	1.2	16	1.5	4	.08														
27	Dead + LM5001 + Wred 30°	Yes	Y		1	1.2	2	1.2	16	1.5	5	.08														
28	Dead + LM5001 + Wred 60°	Yes	Y		1	1.2	2	1.2	16	1.5	6	.08														
29	Dead + LM5001 + Wred 90°	Yes	Y		1	1.2	2	1.2	16	1.5	7	.08														
30	Dead + LM5001 + Wred 120°	Yes	Y		1	1.2	2	1.2	16	1.5	8	.08														
31	Dead + LM5001 + Wred 150°	Yes	Y		1	1.2	2	1.2	16	1.5	9	.08														
32	Dead + LM5001 + Wred 180°	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.08														
33	Dead + LM5001 + Wred 210°	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.08														
34	Dead + LM5001 + Wred 240°	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.08														
35	Dead + LM5001 + Wred 270°	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.08														
36	Dead + LM5001 + Wred 300°	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.08														
37	Dead + LM5001 + Wred 330°	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.08														
38	Dead + LM5002 + Wred 0°	Yes	Y		1	1.2	2	1.2	17	1.5	4	.08														
39	Dead + LM5002 + Wred 30°	Yes	Y		1	1.2	2	1.2	17	1.5	5	.08														
40	Dead + LM5002 + Wred 60°	Yes	Y		1	1.2	2	1.2	17	1.5	6	.08														
41	Dead + LM5002 + Wred 90°	Yes	Y		1	1.2	2	1.2	17	1.5	7	.08														
42	Dead + LM5002 + Wred 120°	Yes	Y		1	1.2	2	1.2	17	1.5	8	.08														
43	Dead + LM5002 + Wred 150°	Yes	Y		1	1.2	2	1.2	17	1.5	9	.08														
44	Dead + LM5002 + Wred 180°	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.08														
45	Dead + LM5002 + Wred 210°	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.08														
46	Dead + LM5002 + Wred 240°	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.08														
47	Dead + LM5002 + Wred 270°	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.08														
48	Dead + LM5002 + Wred 300°	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.08														
49	Dead + LM5002 + Wred 330°	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.08														
50	Dead + LM5003 + Wred 0°	Yes	Y		1	1.2	2	1.2	18	1.5	4	.08														
51	Dead + LM5003 + Wred 30°	Yes	Y		1	1.2	2	1.2	18	1.5	5	.08														
52	Dead + LM5003 + Wred 60°	Yes	Y		1	1.2	2	1.2	18	1.5	6	.08														
53	Dead + LM5003 + Wred 90°	Yes	Y		1	1.2	2	1.2	18	1.5	7	.08														
54	Dead + LM5003 + Wred 120°	Yes	Y		1	1.2	2	1.2	18	1.5	8	.08														
55	Dead + LM5003 + Wred 150°	Yes	Y		1	1.2	2	1.2	18	1.5	9	.08														
56	Dead + LM5003 + Wred 180°	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.08														
57	Dead + LM5003 + Wred 210°	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.08														
58	Dead + LM5003 + Wred 240°	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.08														
59	Dead + LM5003 + Wred 270°	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.08														
60	Dead + LM5003 + Wred 300°	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.08														
61	Dead + LM5003 + Wred 330°	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.08														
62	Dead + LM5004 + Wred 0°	Yes	Y		1	1.2	2	1.2	19	1.5	4	.08														
63	Dead + LM5004 + Wred 30°	Yes	Y		1	1.2	2	1.2	19	1.5	5	.08														
64	Dead + LM5004 + Wred 60°	Yes	Y		1	1.2	2	1.2	19	1.5	6	.08														
65	Dead + LM5004 + Wred 90°	Yes	Y		1	1.2	2	1.2	19	1.5	7	.08														
66	Dead + LM5004 + Wred 120°	Yes	Y		1	1.2	2	1.2	19	1.5	8	.08														
67	Dead + LM5004 + Wred 150°	Yes	Y		1	1.2	2	1.2	19	1.5	9	.08														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
68	Dead + LM5004 + Wred 180°	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.08												
69	Dead + LM5004 + Wred 210°	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.08												
70	Dead + LM5004 + Wred 240°	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.08												
71	Dead + LM5004 + Wred 270°	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.08												
72	Dead + LM5004 + Wred 300°	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.08												
73	Dead + LM5004 + Wred 330°	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.08												
74	Dead + LV2505	Yes	Y		1	1.2	2	1.2	20	1.5														
75	Dead + LV2506	Yes	Y		1	1.2	2	1.2	21	1.5														
76	Service 60mph Wind 0°	Yes	Y		1	1	2	1	4	.32														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N75	max	3092.783	2	719.814	20	3303.914	11	14.097	11	34.891	11	3.251	2
2		min	-2726.866	8	-75.481	2	-3313.641	5	-15.161	5	-34.841	5	-9.091	8
3	N100A	max	2870.138	2	788.613	24	2502.904	12	6.885	8	34.896	3	14.037	9
4		min	-3059.431	8	-76.609	6	-2818.914	6	-11.391	2	-34.854	9	-10.233	3
5	N102A	max	2774.872	13	791.948	17	2737.585	12	9.154	13	34.905	7	14.183	7
6		min	-2948.714	7	-76.705	10	-2418.199	6	-3.623	7	-34.845	13	-12.225	13
7	N103A	max	543.599	8	2619.485	14	1.051	4	0	76	0	76	0	76
8		min	-3041.264	14	-439.024	8	-.774	11	0	1	0	1	0	1
9	N104A	max	1593.113	17	2743.336	17	2759.648	17	0	76	0	76	0	76
10		min	-270.717	12	-437.115	12	-468.813	12	0	1	0	1	0	1
11	N105	max	1592.437	23	2741.815	23	469.038	4	0	76	0	76	0	76
12		min	-270.75	4	-437.295	4	-2757.983	23	0	1	0	1	0	1
13	Totals:	max	5785.247	2	9245.466	15	5786.235	11						
14		min	-5785.25	8	3145.558	76	-5786.236	5						

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

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M5	L5X3X4	.799	144.6...	6	.513	144.6...	z	9	34353.505	62856	18.892	53.607	1	H2-1
2	M4	L5X3X4	.799	144.6...	2	.513	144.6...	z	5	34353.505	62856	18.892	53.607	1	H2-1
3	M3	L5X3X4	.798	144.6...	10	.513	144.6...	z	13	34353.505	62856	18.892	53.607	1	H2-1
4	M6	L3X3X3	.753	76	8	.039	9.5	z	8	3659.944	35316	15.841	22.008	1...	H2-1
5	M101A	L3X3X3	.752	76	4	.039	9.5	z	4	3659.944	35316	15.841	22.007	1...	H2-1
6	M100A	L3X3X3	.752	76	12	.039	9.5	z	12	3659.944	35316	15.841	22.007	1...	H2-1
7	M74	PIPE_2.5	.687	66	11	.071	66		12	30038.461	50715	43.155	43.155	2...	H1-1b
8	M39	PIPE_2.5	.687	66	3	.071	66		4	30038.461	50715	43.155	43.155	2...	H1-1b
9	M48	PIPE_2.5	.687	66	7	.071	66		8	30038.461	50715	43.155	43.155	2...	H1-1b
10	M22	PIPE_2.5	.593	66	5	.156	66		4	30038.461	50715	43.155	43.155	2...	H1-1b
11	M44	PIPE_2.5	.593	66	13	.156	66		12	30038.461	50715	43.155	43.155	1...	H1-1b
12	M35	PIPE_2.5	.593	66	9	.156	66		8	30038.461	50715	43.155	43.155	2...	H1-1b
13	M24	PIPE_2.5	.561	54	11	.173	54		12	37773.818	50715	43.155	43.155	1...	H1-1b
14	M45	PIPE_2.5	.561	54	7	.173	54		8	37773.818	50715	43.155	43.155	1...	H1-1b
15	M36	PIPE_2.5	.561	54	3	.173	54		4	37773.818	50715	43.155	43.155	1...	H1-1b
16	M104	PL8x1/2	.479	7.5	17	.190	7.5	y	17	73230.318	129600	16.2	259.2	1...	H1-1b
17	M105	PL8x1/2	.471	7.5	21	.192	7.5	y	23	73230.318	129600	16.2	259.2	1...	H1-1b
18	M108	PL8x1/2	.456	7.5	25	.188	0	y	14	73230.318	129600	16.2	259.2	1...	H1-1b
19	M52	L4X4X4	.409	39	15	.047	39	y	3	37086.773	62532	37.651	71.384	1...	H2-1
20	M53A	L4X4X4	.397	39	20	.047	39	y	7	37086.775	62532	37.651	71.436	1...	H2-1
21	M54A	L4X4X4	.388	39	23	.047	39	y	11	37086.784	62532	37.651	71.332	1...	H2-1
22	M54	HSS4X4X3_A10..	.231	75	7	.216	75	z	13	101108.57	118155.6	169.036	169.036	1...	H1-1b
23	M34	HSS4X4X3_A10..	.231	75	11	.216	75	z	5	101108.57	118155.6	169.036	169.036	1...	H1-1b
24	M53	HSS4X4X3_A10..	.231	75	3	.216	75	z	9	101108.57	118155.6	169.036	169.036	1...	H1-1b
25	M53B	LL2.5x2.5x3x3	.117	0	17	.001	0	y	1	35934.2	58320	47.452	30.311	1	H1-1b*

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

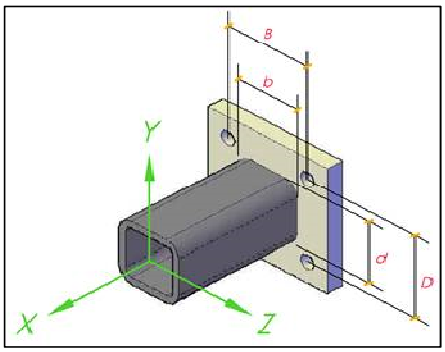
	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
26	M54B	LL2.5x2.5x3x3	.117	0	23	.001	73.946	y	1	35934.2	58320	47.452	30.311	1	H1-1b*
27	M52A	LL2.5x2.5x3x3	.112	0	14	.001	73.946	y	1	35934.2	58320	47.452	30.311	1	H1-1b*
28	M107	PL6x1/2	.071	15	10	.056	0	y	10	55297.063	97200	12.15	145.8	2...	H1-1b
29	M106	PL6x1/2	.071	0	6	.056	0	y	6	55297.148	97200	12.15	145.8	2...	H1-1b
30	M103	PL6x1/2	.071	0	2	.066	0	y	50	55297.166	97200	12.15	145.8	2...	H1-1b

SITE DETAILS

Site Name/Code	876339 - Pond Meadow Rd. Stable
Date	6/5/2019
Engineer	SS

CONNECTION PARAMETERS

Loadcase #		11	
Number of bolts		4	
B		6	*in*
D		6	*in*
Bolt Diameter	d	5/8	*in*
Tensile Area	A_b	0.31	in^2
Tensile Area	A_n	0.23	in^2
Grade		A325	
Bolt Ultimate Strength	F_{ub}	120	*ksi*
Connection length reduction factor	Rb	1	



Connection Sketch/Photo

FLANGE LOADS

Bending Moment	Mzz	**3.97**	*kips-in*
Bending Moment	Myy	**34.89**	*kips-in*
Torsional Moment	Mxx	**14.10**	*kips-in*
Shear Force	Vy	**0.39**	*kips*
Shear Force	Vz	**3.30**	*kips*
Axial Force	Px	**0.17**	*kips*

SOFTWARE REACTIONS TABLE

L...	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
11	N75	172.917	385.5	3303.914	14.097	34.891	-3.967
11	N100A	645.418	604.14	2258.327	-5.639	-4.747	6.504
11	N102A	-870.794	-49.419	2699.42	-.863	-5.438	-4.043
11	N103A	-1043.296	915.12	-.774	0	0	0
11	N104A	-166.466	-259.236	-288.348	0	0	0
11	N105	1262.234	2178.562	-2186.303	0	0	0
11	Totals:	.013	3774.668	5786.235			

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt}= **20.3** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.625 * 0.8 * Fub * Ab * Rb$

ϕR_{nv}= **13.8** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub}= **3.28** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

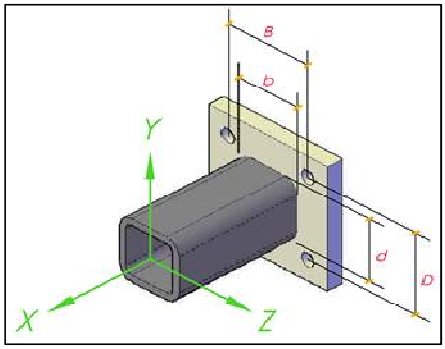
V_{ub}= **1.66** *kips*

Tension Ratio:	**16.1 %**	**Shear Ratio:**	**12.0 %**
	PASS		PASS

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **4.1%** PASS

WELD CHECK

Filler Metal F_{EXX}	**70**	ksi
Weld Thk.	**0.25**	in
Base metal F_u	**58**	ksi
Type of section	**HSS**	
Length of Section [b]	**4.0**	in
Length of Section [d]	4.0	in
l_{total}	**16.00**	in
I_p	**85.33**	in^3
S_z	**21.33**	in^2
S_y	**21.33**	in^2
R_{ux}	1.83	kips/in
R_{uy}	0.35	kips/in
R_{uz}	0.54	kips/in
R_u	1.94	kips/in
Allowable Weld Stress	**5.57**	kips/in



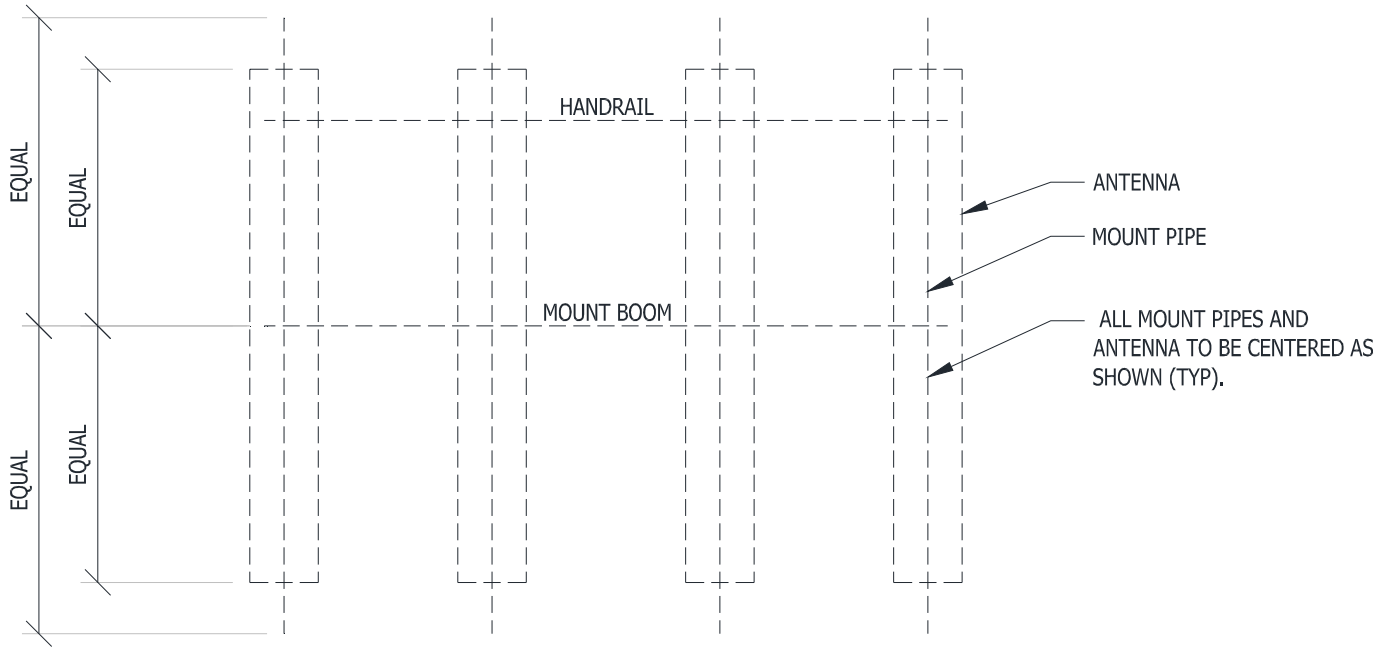
Connection Sketch

34.9% PASS

APPENDIX D

STANDARD ANTENNA CENTERING CONDITIONS

LOW PROFILE PLATFORM WITH HANDRAIL



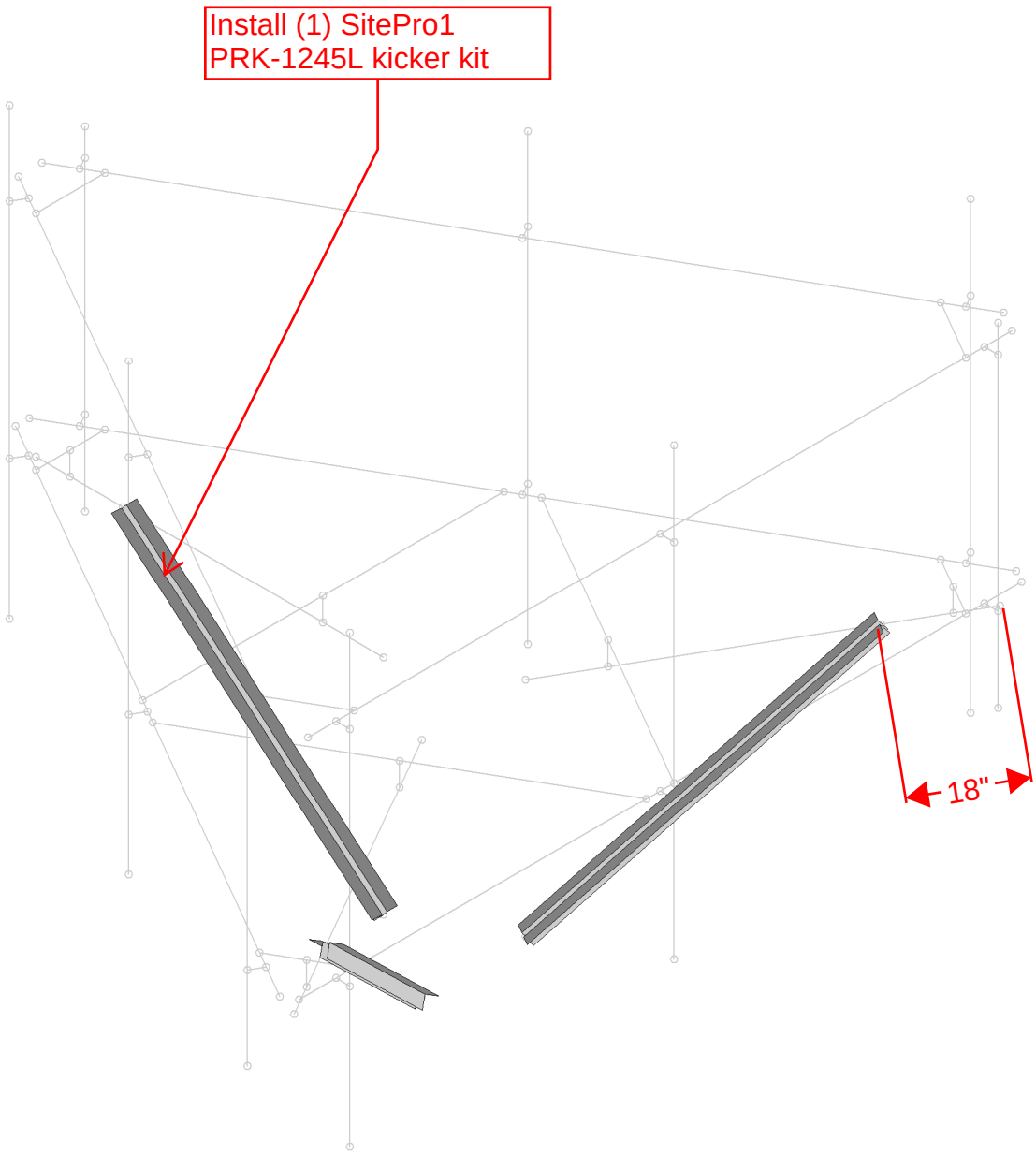
FRONT ELEVATION

Note: Quantity of antennas shown above is representative only and may or may not represent the actual quantity of antennas considered in the analysis.

APPENDIX E

SUPPLEMENTAL MODIFICATION INFORMATION

Modification Sketch 1 of 2

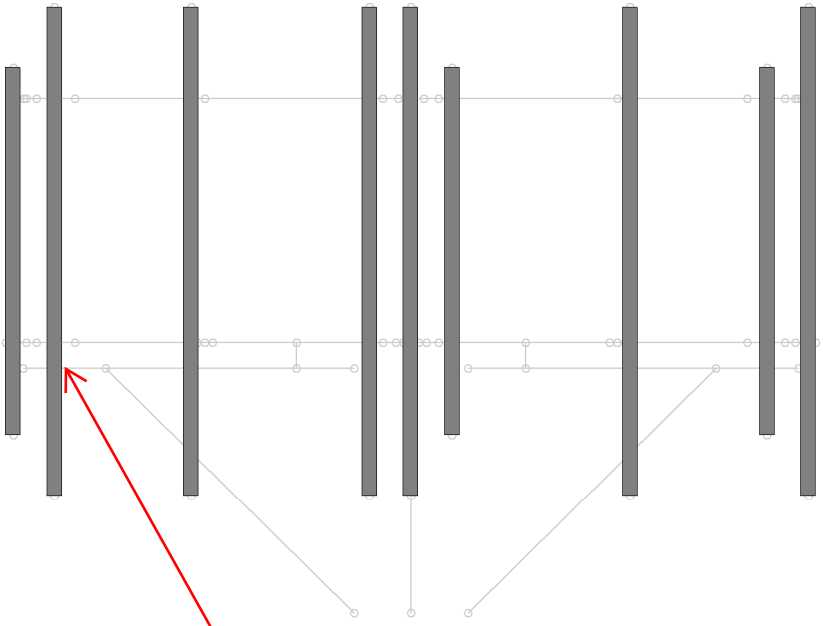


Envelope Only Solution

Paul J Ford	876339_Pond Meadow Rd. Stable	SK - 8
SS		June 5, 2019 at 2:34 PM
A37519-1581.003.7191		876339_Pond Meadow Rd. Stable_...

Modification Sketch 2 of 2

Replace existing antenna pipes with 6ft and 8ft long, P2.5 STD
(Typical 3 per sector)



Center antennas and mount pipes per Appendix D. A 24" vertical tolerance is acceptable

Envelope Only Solution

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APPENDIX F

MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)

SITE PRO 1
A valmont COMPANY

Product Info

Pxxx: Bulk Pipe

Features:

- Factory cut end, hot-dip galvanized pipe

Construction:

- ASTM A53 Grade B
- Schedule 40

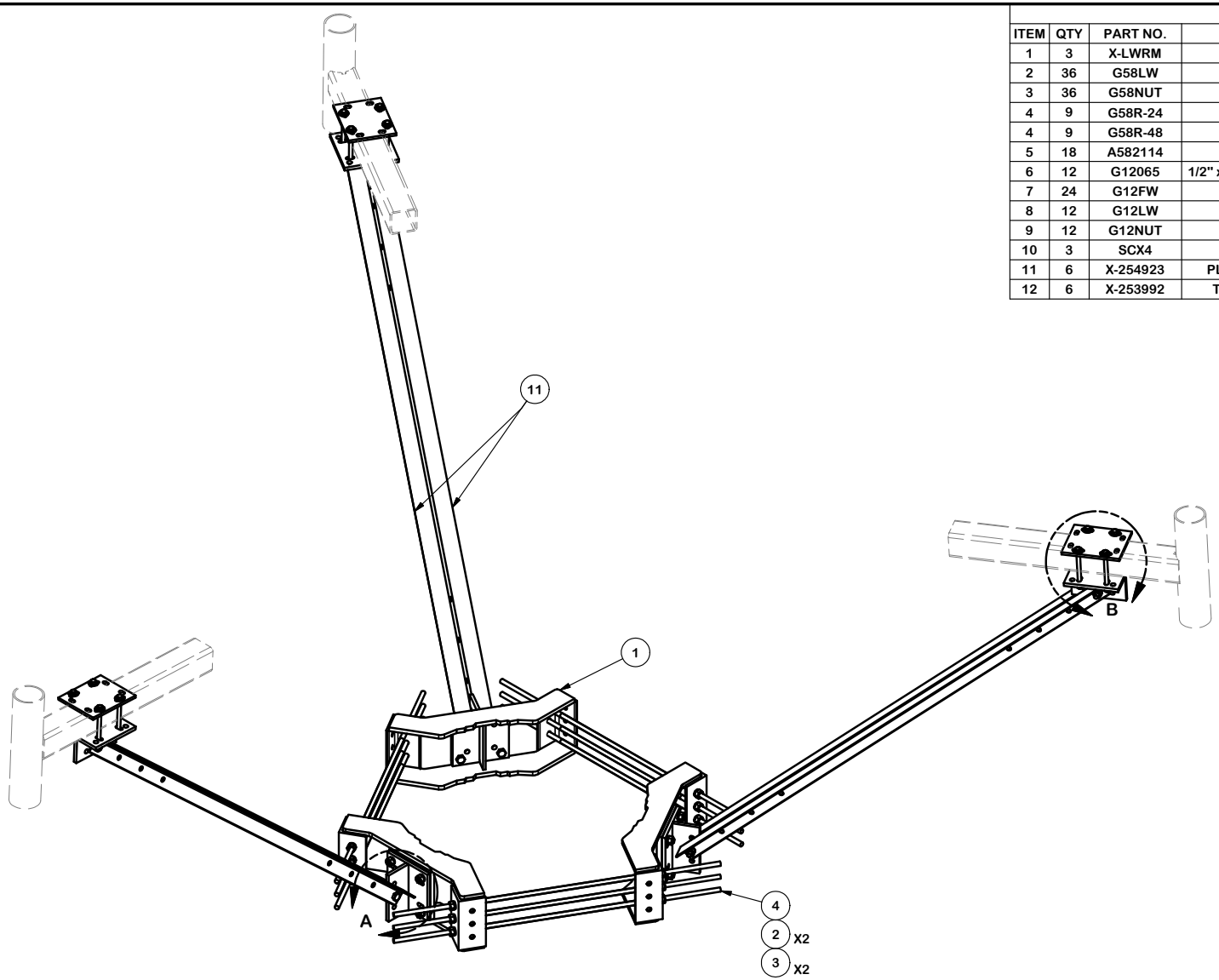
Design Criteria:

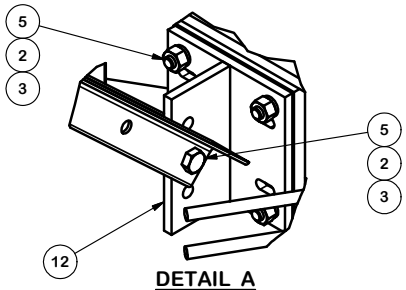
- ASTM A53 Grade B (Yield Fy = 35 ksi [240 MPa] / Tensile Fu = 60 ksi [415 MPa])
- Hot dip galvanized in accordance with ASTM A123 requirements

Part #	Length	OD x Length (in)	Weight
P263	5′-3″	2-3/8″ x 63″	20 lb
P272	6′-0″	2-3/8″ x 72″	22 lb
P284	7′-0″	2-3/8″ x 84″	26 lb
P296	8′-0″	2-3/8″ x 96″	30 lb
P2120	10′-0″	2-3/8″ x 120″	37 lb
P2126	10′-6″	2-3/8″ x 126″	39 lb
P2150	12′-6″	2-3/8″ x 150″	46 lb
P2174	14′-6″	2-3/8″ x 174″	53 lb
P3084	7′-0″	2-7/8″ x 84″	41 lb
P3096	8′-0″	2-7/8″ x 96″	47 lb
P30120	10'-0"	2-7/8" x 120"	58 lb
P30126	10′-6″	2-7/8″ x 126″	61 lb
P30150	12′-6″	2-7/8″ x 150″	73 lb
P30174	14′-6″	2-7/8″ x 174″	84 lb
P360	5′-0″	3-1/2″ x 60″	38 lb
P372	6′-0″	3-1/2″ x 72″	46 lb
P396	8′-0″	3-1/2″ x 96″	61 lb
P3150	12′-6″	3-1/2″ x 150″	95 lb
P3160	13′-4″	3-1/2″ x 160″	101 lb
P3174	14′-6″	3-1/2″ x 174″	110 lb
P3216	18′-0″	3-1/2″ x 216″	137 lb
P472	6′-0″	4-1/2″ x 72″	65 lb
P4126	10′-6″	4-1/2″ x 126″	114 lb

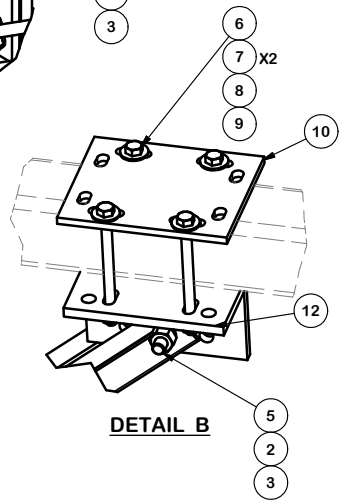
created on: 04/05/2019

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	36	G58LW	5/8" HDG LOCKWASHER		0.03	0.94
3	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
4	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
4	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
5	18	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	5.62
6	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
7	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
8	12	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.17
9	12	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.86
10	3	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	18.06
11	6	X-254923	PLATFORM REINFORCEMENT KIT ANGLE	84 in	22.83	137.00
12	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
					TOTAL WT. #	517.21





DETAIL A



DETAIL B

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED ALL 5/8" BOLTS TO A582114	4488	CEK	10/1/2015

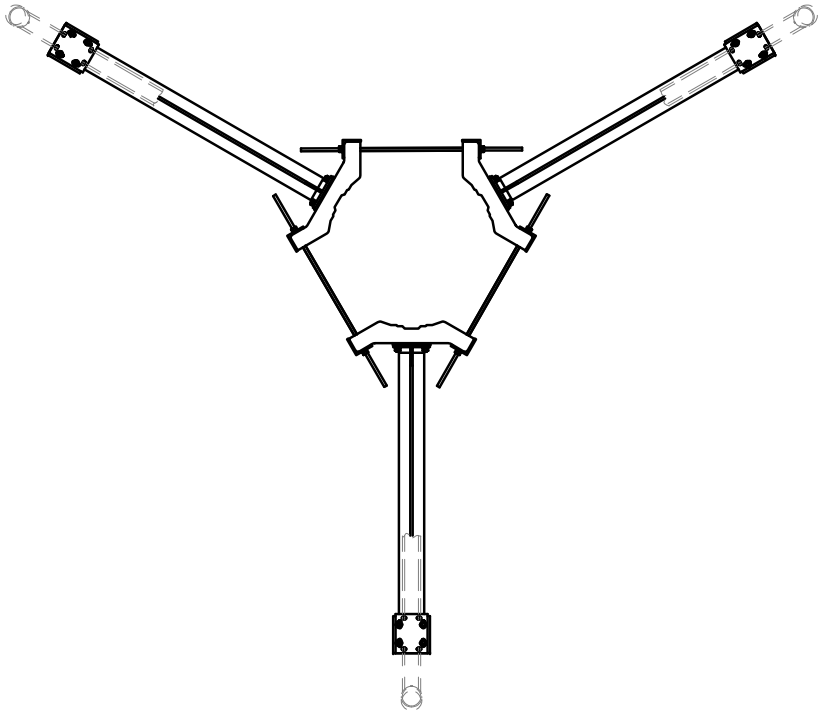
REVISION HISTORY

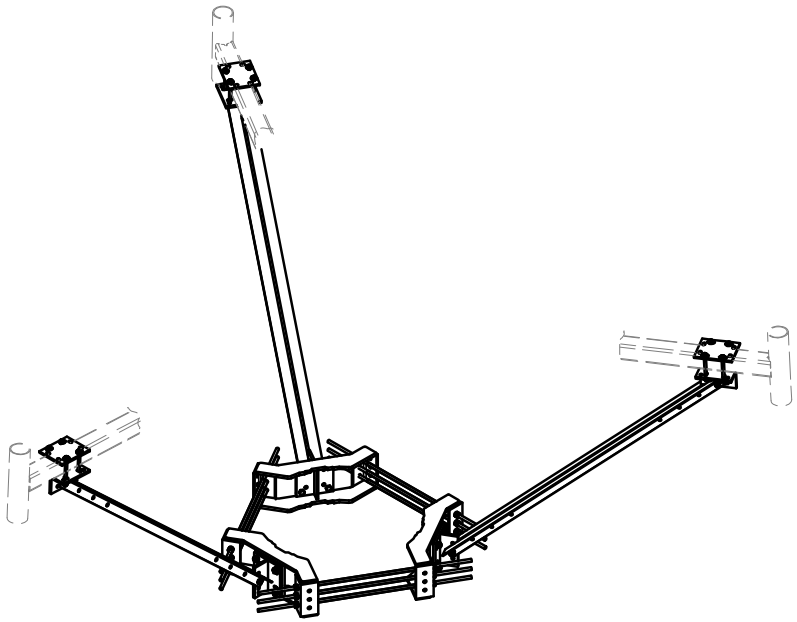
DESCRIPTION
PLATFORM REINFORCEMENT
ON A 12" T0 45" POLE
7' ANGLE

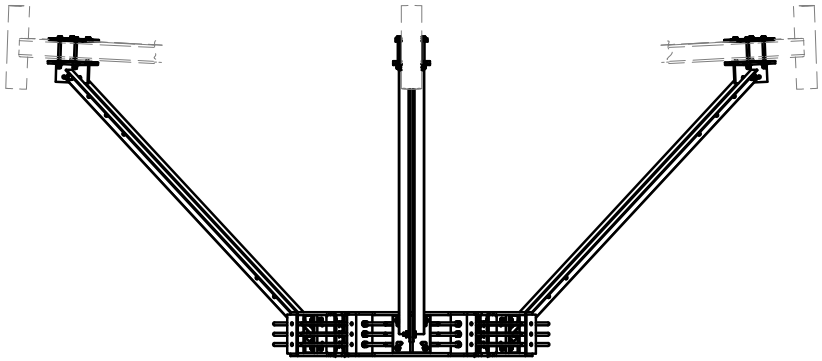
SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

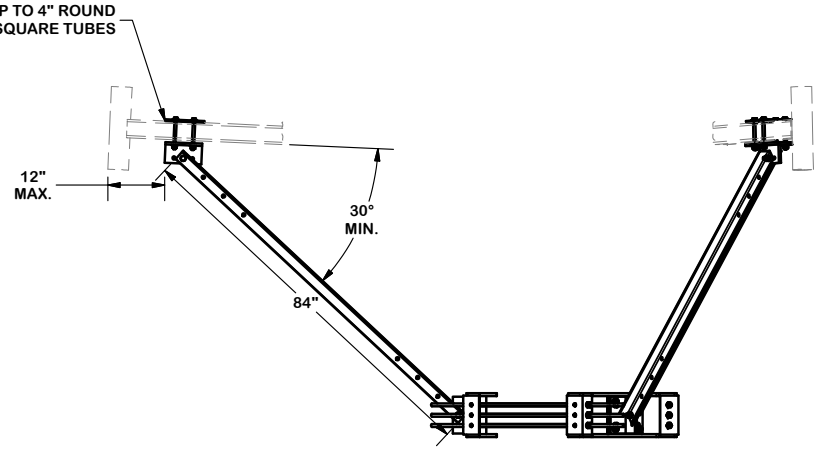
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 7/16/2014		PRK-1245L

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 1/18/2016	PRK-1245L









TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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REVISION HISTORY

DESCRIPTION
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ON A 12" T0 45" POLE
7' ANGLE

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A valmont COMPANY

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Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 7/16/2014		PRK-1245L

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 1/18/2016	PRK-1245L

Exhibit F

Power Density/RF Emissions Report

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11032D

Westbrook/ I-95/ X64/ Ch1
782 Old Clinton Road
Westbrook, CT 06498

May 15, 2019

Transcom Engineering Project Number: 737001-0008

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.01 %**

May 15, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11032D – Westbrook/ I-95/ X64/ Ch1**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **782 Old Clinton Road, Westbrook, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **782 Old Clinton Road, Westbrook, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
UMTS	2100 MHz (AWS)	1	40
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR32 B66A/B2A	145
A	2	Ericsson AIR21 B2A/B4P	145
A	3	RFS APXVAARR24_43-U-NA20	145
B	1	Ericsson AIR32 B66A/B2A	145
B	2	Ericsson AIR21 B2A/B4P	145
B	3	RFS APXVAARR24_43-U-NA20	145
C	1	Ericsson AIR32 B66A/B2A	145
C	2	Ericsson AIR21 B2A/B4P	145
C	3	RFS APXVAARR24_43-U-NA20	145

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since the **2100 MHz UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **1.91 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **180 feet** of **1-5/8”** coax

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR32 B66A/B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	6	280	10,893.26	2.03
Antenna A2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,586.01	0.30
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.08
						Sector A Composite MPE%	**3.40**
Antenna B1	Ericsson AIR32 B66A/B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	6	280	10,893.26	2.03
Antenna B2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,586.01	0.30
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.08
						Sector B Composite MPE%	**3.40**
Antenna C1	Ericsson AIR32 B66A/B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	6	280	10,893.26	2.03
Antenna C2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,586.01	0.30
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.08
						Sector C Composite MPE%	**3.40**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**3.40 %**
Nextel	0.27 %
Sprint	2.24 %
MetroPCS	0.44 %
Verizon Wireless	8.52 %
AT&T	4.14 %
Site Total MPE %:	**19.01 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.40 %
T-MOBILE Sector B Total:	3.40 %
T-MOBILE Sector C Total:	3.40 %
Site Total:	19.01 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,556.18	145	11.58	1900 MHz (PCS)	1000	1.16%
T-Mobile 2100 MHz (AWS) LTE	2	2,334.27	145	8.69	2100 MHz (AWS)	1000	0.87%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	145	1.09	1900 MHz (PCS)	1000	0.11%
T-Mobile 2100 MHz (AWS) UMTS	1	1,002.44	145	1.87	2100 MHz (AWS)	1000	0.19%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	145	2.94	600 MHz	400	0.73%
T-Mobile 700 MHz LTE	2	432.54	145	1.61	700 MHz	467	0.34%
						Total:	**3.40%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	3.40 %
Sector B:	3.40 %
Sector C:	3.40 %
T-MOBILE Maximum Total (per sector):	3.40 %
Site Total:	19.01 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.01 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director
Transcom Engineering, Inc
PO Box 1048
Sterling, MA 01564