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

March 24, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
806953 - T-Mobile Site ID: CT11071E
69 Guinea Road, Stamford Connecticut
Latitude: 41° 6′ 6.35″ / Longitude: -73° 35′ 41.45″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 116-foot mount on the existing 160-foot Monopole Tower, located at 69 Guinea Road, Stamford, CT. The tower is owned by Crown Castle and the property is owned by the Girl Scouts of Connecticut, Inc. 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. The new antennas will be installed at the 116-ft level of the tower. T-Mobile is also proposing tower mount modifications. As shown on the enclosed mount analysis.

The facility was approved by the Connecticut Siting Council on April 2, 1998 in Docket No. 180. The approval was given with conditions which this proposed exempt modification complies with.

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 electronically to David Martin, Mayor for the City of Stamford, David Woods, Deputy Director of Planning, Crown Castle as the tower owner, and Girl Scouts of Connecticut, Inc., 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
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments
cc:

David Martin, Mayor (*via email to mayorsoffice@stamfordct.gov*)
City of Stamford
Stamford Government Center
888 Washington Blvd. – 10th Floor
Stamford, CT 06901

David W. Woods, Deputy Director of Planning (*via email to dwoods@stamfordct.gov*)
City of Stamford
Stamford Government Center
888 Washington Blvd. – 7th Floor
Stamford, CT 06901

Girl Scouts of Connecticut, Inc.
Michele Velez, Director of Property Services (*via email to mvelez@gsofct.org*)
340 Washington Street
Hartford, CT 06106

Crown Castle, Tower Owner

From: Zsamba, Anne Marie
To: mvelez@gsofct.org
Subject: Notice of Exempt Modification Submission to the Connecticut Siting Council - 69 Guinea Road, Stamford CT
Date: Tuesday, March 24, 2020 1:47:00 PM
Attachments: EM-T-MOBILE_69 GUINEA RD STAMFORD_806953_CT11071E_2.pdf

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Good afternoon Ms. Velez,

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today March 24, 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
Network Real Estate 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:	"mayorsoffice@stamfordct.gov"
Subject:	Notice of Exempt Modification Submission to the Connecticut Siting Council - 69 Guinea Road, Stamford CT
Date:	Tuesday, March 24, 2020 1:45:00 PM
Attachments:	EM-T-MOBILE_69 GUINEA RD STAMFORD_806953_CT11071E_2.pdf

Good afternoon Mayor Martin,

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today March 24, 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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Network Real Estate 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:	dwoods@stamfordct.gov
Subject:	Notice of Exempt Modification Submission to the Connecticut Siting Council - 69 Guinea Road, Stamford CT
Date:	Tuesday, March 24, 2020 1:46:00 PM
Attachments:	EM-T-MOBILE_69 GUINEA RD STAMFORD_806953_CT11071E_2.pdf

---

Good afternoon Mr. Woods,

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today March 24, 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
Network Real Estate 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

Exhibit A

Original Facility Approval

DOCKET NO. 180 - Cellco Partnership d/b/a Bell Atlantic Mobile application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications tower and associated equipment located immediately north of the Merritt Parkway off Guinea Road (prime and alternate one sites), or 141 Den Road (alternate two site) in Stamford, Connecticut.

Connecticut Siting Council

April 2, 1998

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications tower and equipment buildings at the proposed prime site in Stamford, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Bell Atlantic Mobile (BAM) for the construction, operation, and maintenance of a telecommunications tower, associated equipment, and buildings at the proposed prime site, located within a 28-acre parcel at Guinea Road, Stamford, Connecticut. We find the effects on scenic resources and adjacent land uses of the first alternate site and second alternate site to be significant, and therefore deny certification of these sites.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of BAM, Springwich Cellular Limited Partnership (Springwich), Sprint PCS (Sprint), and Nextel Communications of the Mid-Atlantic, Inc. (Nextel); and such tower shall not exceed a height of 160 feet above ground level (AGL).

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: adjustment of the tower location within the leased parcel to protect a nearby stream and minimize grade; a final site plan(s) for site development to include the location and specifications for the tower foundation, antennas, equipment buildings, emergency generator and fuel tank, security fence, access road, and utility line; construction plans for site clearing, tree trimming, water drainage, and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; provisions for the tower finish that may include painting; and provisions for the prevention and containment of spills and/or other discharge into surface water and ground water bodies.

3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

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

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant and Stamford Advocate.

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

The parties and intervenors to this proceeding are:

APPLICANT	**ITS REPRESENTATIVE**
Bell Atlantic Mobile	Kenneth C. Baldwin, Esq. Brian C. S. Freeman, Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 Mr. David S. Malko, P.E. Jennifer Young Gaudet Bell Atlantic Mobile 20 Alexander Drive Wallingford, CT 06492
INTERVENORS	**ITS REPRESENTATIVE**
Sprint Spectrum, L.P. d/b/a Sprint PCS	Elias A. Alexiades John W. Knuff Harris, Beach & Wilcox, LLP 147 North Broad Street Milford, CT 06460
Nextel Communications of the Mid-Atlantic, Inc.d/b/a Nextel Communications	Christopher B. Fisher, Esq. Cuddy, Feder & Worby, Esq. 90 Maple Avenue White Plains, NY 10601
Springwich Cellular Limited Partnership	Peter J. Tyrrell, Esq. General Counsel 500 Enterprise Drive Rocky Hill, CT 06067-3900
PARTIES	**ITS REPRESENTATIVE**
Charles H. Nobs, Maurice Lucas, and Ben and Myrna Raphan	Jeffrey J. Mirman, Esq. Levy & Droney, P.C. P.O. Box 887 Farmington, CT 06034

Exhibit B

Property Card

69 GUINEA ROAD

Location	69 GUINEA ROAD	**Mblu**	002/ 6848/ / /
Acct#	002-6848	**Owner**	GIRL SCOUTS OF CONNECTICUT INC
Assessment	$1,028,420	**Appraisal**	$1,469,120
PID	24323	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$461,570	$1,007,550	$1,469,120

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$323,130	$705,290	$1,028,420

Owner of Record

Owner	GIRL SCOUTS OF CONNECTICUT INC	**Sale Price**	$0
Co-Owner		**Book & Page**	9322/0308
Address	340 WASHINGTON STREET HARTFORD, CT 06106-3317	**Sale Date**	04/16/2008
		Instrument	25

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
GIRL SCOUTS OF CONNECTICUT INC	$0	9322/0308	25	04/16/2008
GIRL SCOUT COUNCIL SW CT INC	$0	4405/0321		05/12/1995
SOUTHWESTERN CT GIRL SCT	$0	1035/0131	25	12/29/1964

Building Information

Building 1 : Section 1

Year Built: 1963
Living Area: 1,960

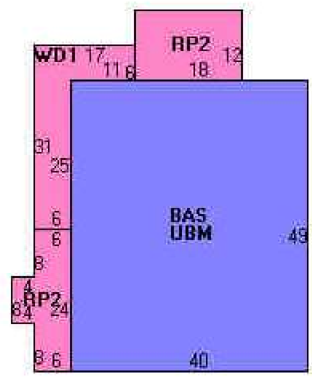
Building Attributes

Field	Description
Style	Ranch
Model	Residential
Grade:	C+
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Cement fiberbd
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Electric
Heat Type:	Electr Basebrd
AC Type:	Central
Total Bedrooms:	00
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	3
Total Rooms:	4
Bath Style:	Average
Kitchen Style:	Typical
Fireplace Msnry.	
Fpl. Gas/Prefab	1
Fpl. Outdoor	
Fpl. Addnl. Open	
Usrfld 105	
Usrfld 106	
Bsmt. Garage	
Num Park	
Fireplaces	
Usrfld 108	
Usrfld 101	
Usrfld 102	
Usrfld 100	
Usrfld 300	
Usrfld 301	

Building Photo

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\11\94\79.jpg)

Building Layout



(http://images.vgsi.com/photos/StamfordCTPhotos//Sketches/24323_2432:

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,960	1,960
RP2	Porch Covered	392	0
UBM	Basement, Unfinished	1,960	0
WD1	Deck, Wood	252	0
		4,564	1,960

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
RP2	Porch Coverd	1056.00 S.F	$28,050	1
RP2	Porch Coverd	756.00 S.F	$20,080	1
RP2	Porch Coverd	672.00 S.F	$17,850	1
RP2	Porch Coverd	216.00 S.F	$5,740	1
RP2	Porch Coverd	176.00 S.F	$4,670	1

Land

Land Use

Use Code 901
Description Exmpt Res MDL-01
Zone RA3
Neighborhood 1100
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 16.86
Depth
Assessed Value $705,290
Appraised Value $1,007,550

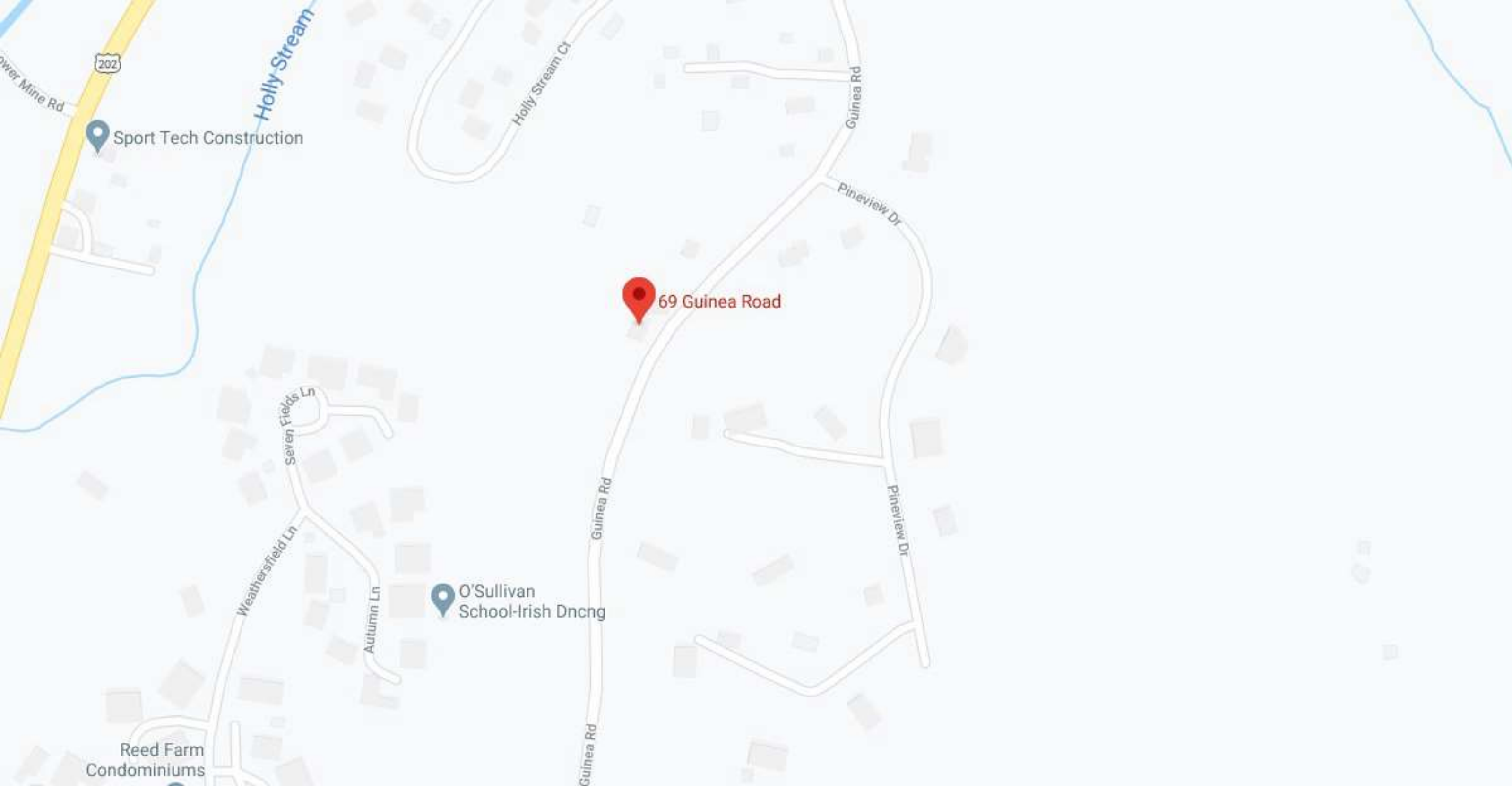
Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FC1	Shed Wood			240.00 S.F.	$2,880	1
MS1	Misc Structure			528.00 S.F.	$3,170	1
WD1	Wood Deck			252.00 S.F.	$5,480	1
CEL1	Cell Tower			1.00 SITES	$146,250	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	$461,570	$1,007,550	$1,469,120
2017	$461,570	$1,007,550	$1,469,120
2016	$438,650	$995,580	$1,434,230

Assessment			
Valuation Year	Improvements	Land	Total
2018	$323,130	$705,290	$1,028,420
2017	$323,130	$705,290	$1,028,420
2016	$307,060	$696,910	$1,003,970



202
Mine Rd
Holly Stream
Sport Tech Construction
Holly Stream Ct
Guinea Rd
Pineview Dr
69 Guinea Road
Seven Fields Ln
Guinea Rd
Pineview Dr
Weathersfield Ln
Autumn Ln
O'Sullivan
School-Irish Dncng
Reed Farm
Condominiums
Guinea Rd

Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NAME:

STAMFORD/ MP X32/ DEN RD.

T-MOBILE SITE NUMBER:

CT11071E

CROWN BU: 806953 / APP#: 479803

67D92DB CONFIGURATION

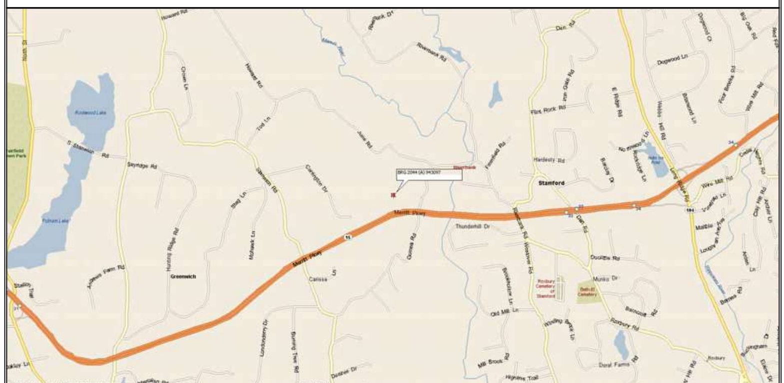
69 GUINEA RD
STAMFORD, CT 06903

EXISTING 160'-0" MONOPOLE

PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	69 GUINEA RD STAMFORD, CT 06903
JURISDICTION:	FAIRFIELD
NAD83	
LATITUDE:	41.101902° N
LONGITUDE:	73.594567° 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	0
A-1	OVERALL SITE PLAN	0
A-2	ANTENNA/CABLE SCHEDULE AND AZIMUTH PLANS	0
A-3	TOWER ELEVATION	0
A-4	ANTENNA AND RRU DETAILS	0
E-1	PANEL SCEHDULE AND ONE-LINE DIAGRAM	0

CONTACT INFORMATION

A&E FIRM: B+T GROUP
1717 S. BOULDER, STE. 300
TULSA, OK 74119
CONTACT: MIKE OAKES
PHONE: (918) 587-4630

ELECTRIC PROVIDER: CONNECTICUT LIGHT & POWER (860) 947-2000

TELCO PROVIDER: PIONEER TELEPHONE (800) 808-9000

DRIVING DIRECTIONS

DEPART LA GUARDIA AIRPORT ONTO CENTRAL TERMINAL DR. BEAR LEFT ONTO LOCAL ROAD. BEAR RIGHT ONTO 94TH ST. TAKE RAMP ONTO GRAND CENTRAL PKWY. AT EXIT 9E, KEEP RIGHT ONTO RAMP. KEEP LEFT TO STAY ON RAMP. KEEP LEFT TO STAY ON RAMP. TAKE RAMP ONTO I-678. ROAD NAME CHANGES TO HUTCHINSON RIVER PKWY N. ROAD NAME CHANGES TO CT-15. AT EXIT 33, KEEP STRAIGHT ONTO RAMP. ROAD NAME CHANGES TO DEN RD. KEEP RIGHT ONTO LOCAL ROAD. TURN RIGHT ONTO ROXBURY RD. KEEP STRAIGHT ONTO LOCAL ROAD. BEAR RIGHT ONTO RIVERBANK RD. TURN LEFT ONTO JUNE RD. KEEP STRAIGHT ONTO GUINEA RD. TURN RIGHT ONTO ACCESS ROAD AND ARRIVE BRG 2044 (A) 943097.

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 CONNECTICUT STATE BUILDING CODE
STRUCTURAL	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	NEC 2017

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (6) EXISTING ANTENNAS AT 118'-0".
- REMOVE (3) EXISTING RRUS AT 118'-0".
- REMOVE (6) EXISTING 1 5/8" COAX.
- REMOVE (1) EXISTING DUS41.
- REMOVE (1) EXISTING XMU.
- INSTALL (6) NEW ANTENNAS AT 118'-0".
- INSTALL (3) NEW RRUS AT 118'-0".
- INSTALL (3) NEW 6x12 HCS FIBER.
- INSTALL (2) NEW BB6630.
- MODIFY EXISTING MOUNTS PER MOUNT ANALYSIS BY MASTEC NETWORK SOLUTIONS DATED 6/21/19.

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

CT11071E
BU #: 806953
STAMFORD/ MP X32/ DEN RD.
69 GUINEA RD
STAMFORD, CT 06903
EXISTING 160'-0" MONOPOLE

PROJECT NO:	137110.001.01
CHECKED BY:	MDW

ISSUED FOR:

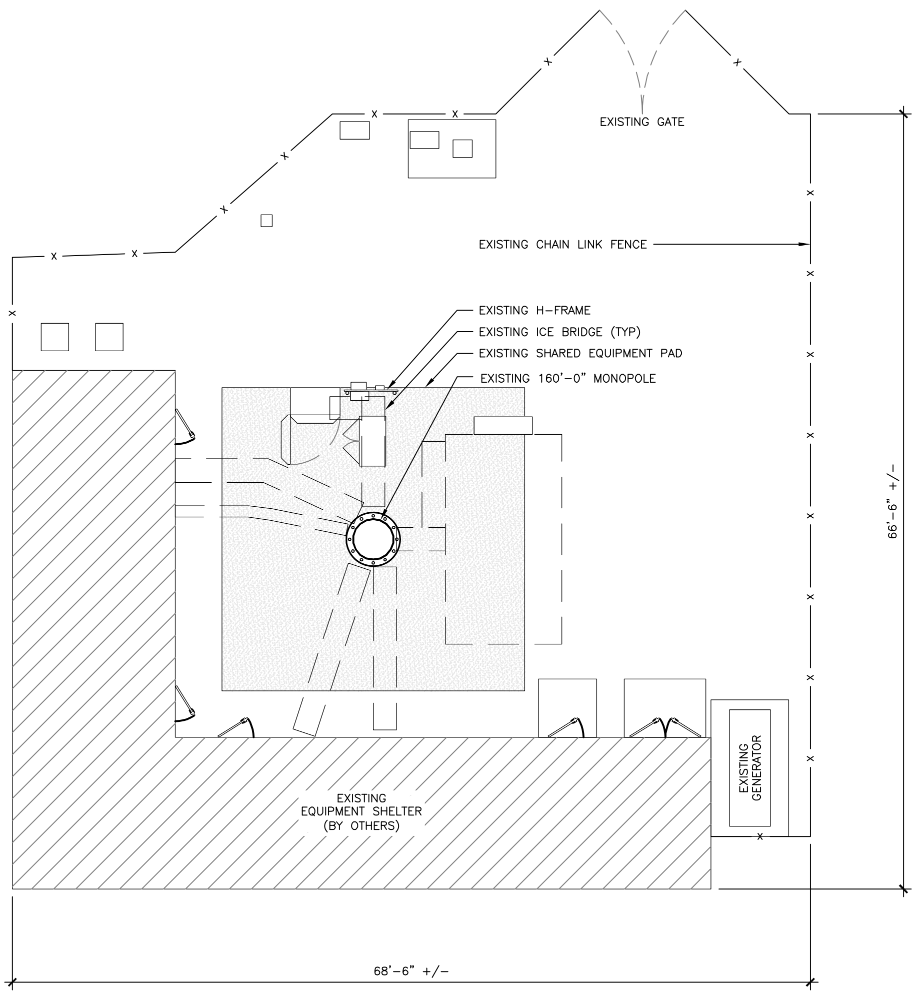
REV	DATE	DRWN	DESCRIPTION
0	8/2/19	JDP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

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

SHEET NUMBER:	REVISION:
T-1	0

137110_806953_BRG 2044 (A) 943097.dwg - Sheet:T-1 - User: mwesel - Aug 02, 2019 - 3:22pm



1 OVERALL SITE PLAN
SCALE: 0' 4' 8' 16' 32'

GENERAL NOTES:

1. SUBJECT PROPERTY IS SITUATED AT 69 GUINEA RD, STAMFORD, CT 06903.

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 41.101902° N± AND LONGITUDE OF 73.594567° 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 SITE PLANS AND FROM CROWN 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

CT11071E
BU #: 806953

STAMFORD/ MP X32/
DEN RD.

69 GUINEA RD
STAMFORD, CT 06903

EXISTING 160'-0" MONOPOLE

PROJECT NO:	137110.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/2/19	JDP	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT * PROFESSIONAL ENGINEER * LICENSED 31627

8/2/19

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

SHEET NUMBER: A-1
REVISION: 0

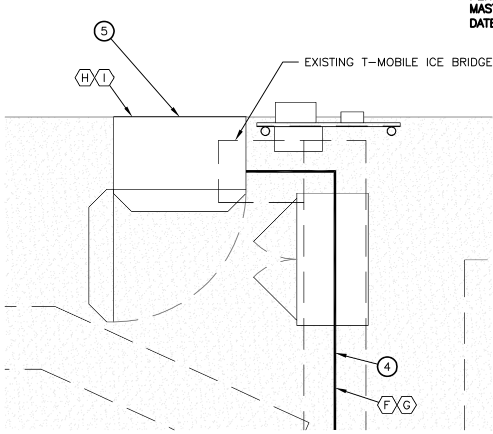
137110_806953_BRG 2044 (A) 943097.dwg – Sheet:A-1 – User: mwesel – Aug 02, 2019 – 3:22pm

LEGEND

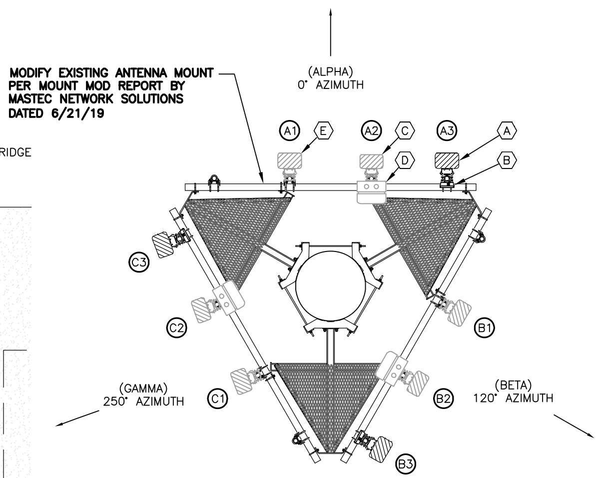
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO REMAIN (TOTAL OF 3)	2	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL ERICSSON AIR32 KRD901146-1_B66A_B2A (8 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING RRUS11 B12 RADIO TO BE REMOVED (TOTAL OF 3)	4	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING ERICSSON AIR21 KRC118023-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	5	INSTALL (2) NEW BB6630 IN EXISTING 6131 CABINET
F	EXISTING 9X18 HCS FIBER TO REMAIN (TOTAL OF 1)		
G	(6) (E) 1 5/8" COAX TO REMAIN (6) (E) 1 5/8" COAX TO BE REMOVED		
H	REMOVE (1) EXISTING DUS41 FROM EXISTING 6131 CABINET		
I	REMOVE (1) EXISTING XMU FROM EXISTING 6131 CABINET		

ANTENNA AND CABLE SCHEDULE

SECTOR	POSITION	EXISTING ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
0° – ALPHA	**A1**	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	**–**	**2°/2°**	**0°**	118'-0"	**0/0**	(1) 9X18 HCS FIBER	**DC/FIBER**	**168'-0"**
	A2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	**168'-0"**
	A3	ERICSSON AIR21 KRC118023-1_B2P_B4A	GSM UMTS	–	2°/2°	0°		1/0	(2) 1 5/8" COAX **(1) 6X12 HCS FIBER**	DC/FIBER & 1/2" COAX	168'-0"
120° – BETA	**B1**	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	**–**	**2°/2°**	**0°**	118'-0"	**0/0**	(1) 9X18 HCS FIBER	**DC/FIBER**	**168'-0"**
	B2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	**168'-0"**
	B3	ERICSSON AIR21 KRC118023-1_B2P_B4A	GSM UMTS	–	2°/2°	0°		1/0	(2) 1 5/8" COAX **(1) 6X12 HCS FIBER**	DC/FIBER & 1/2" COAX	168'-0"
250° – GAMMA	**C1**	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	**–**	**2°/2°**	**0°**	118'-0"	**0/0**	(1) 9X18 HCS FIBER	**DC/FIBER**	**168'-0"**
	C2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	**168'-0"**
	C3	ERICSSON AIR21 KRC118023-1_B2P_B4A	GSM UMTS	–	2°/2°	0°		1/0	(2) 1 5/8" COAX **(1) 6X12 HCS FIBER**	DC/FIBER & 1/2" COAX	168'-0"

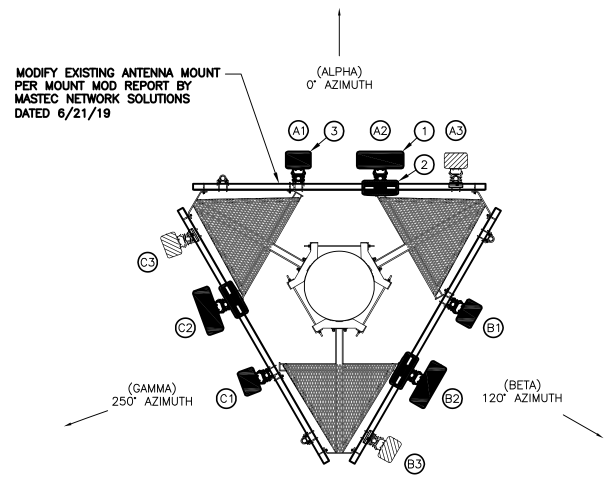


1 ENLARGED AREA PLAN
SCALE: 0' 1' 2' 4' 10'



2 EXISTING ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 16'

N



3 PROPOSED ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 16'

N

B+T GRP

CROWN CASTLE

T-Mobile

CT11071E
BU #: 806953
STAMFORD / MP X32/ DEN RD.
69 GUINEA RD
STAMFORD, CT 06903
EXISTING 160'-0" MONOPOLE

PROJECT NO:	137110.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/2/19	JDP	CONSTRUCTION

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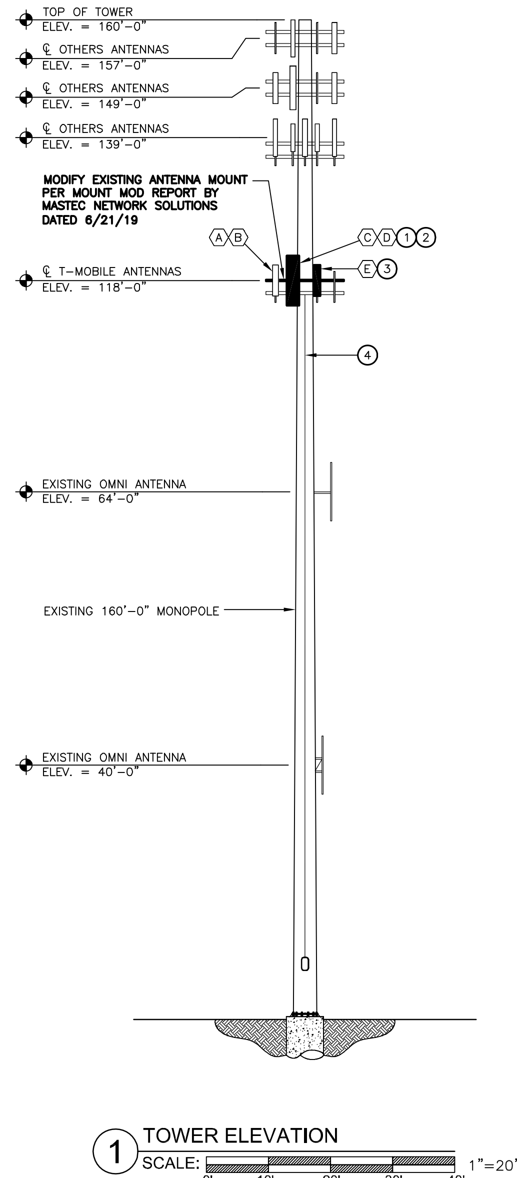
SHEET NUMBER:	REVISION:
A-2	0

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. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO REMAIN (TOTAL OF 3)	2	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL ERICSSON AIR32 KRD901146-1_B66A_B2A (8 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING RRUS11 B12 RADIO TO BE REMOVED (TOTAL OF 3)	4	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING ERICSSON AIR21 KRC118023-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)		
F	EXISTING 9X18 HCS FIBER TO REMAIN (TOTAL OF 1)		
G	(6) (E) 1 5/8" COAX TO REMAIN (6) (E) 1 5/8" COAX TO BE REMOVED		

EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY BLACK & VEATCH CORP. DATED 6/28/19.

EXISTING MOUNT IS SUFFICIENT PER MOUNT ANALYSIS BY MASTEC NETWORK SOLUTIONS DATED 6/21/19.

LEGEND:
- **NEW**
- EXISTING
- FUTURE



1 TOWER ELEVATION
SCALE: 1"=20'

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CROWN CASTLE

T-Mobile

CT11071E
BU #: 806953
STAMFORD/ MP X32/ DEN RD.
69 GUINEA RD
STAMFORD, CT 06903
EXISTING 160'-0" MONOPOLE

PROJECT NO:	137110.001.01
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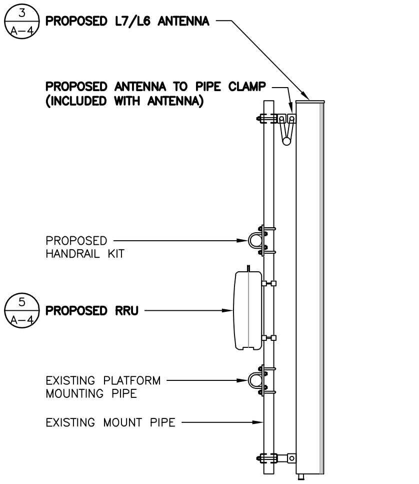
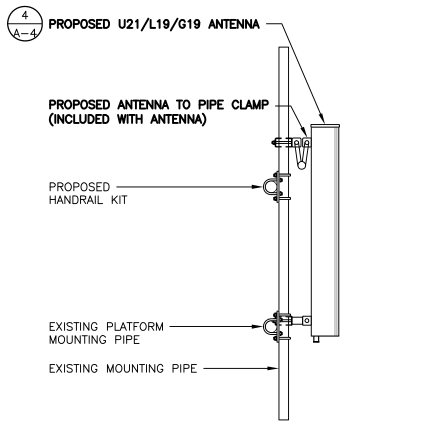
A-3	0

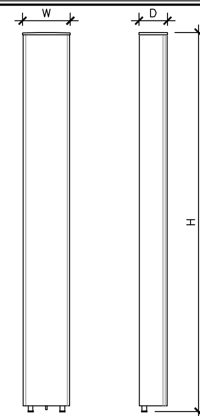
137110_806953_BRG 2044 (A) 943097.dwg - Sheet:A-3 - User: mwesel - Aug 02, 2019 - 3:22pm



1 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL
SCALE: 3/8" = 1'-0"



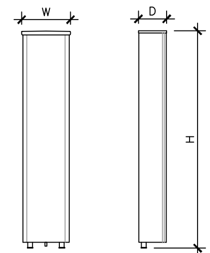
2 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL
SCALE: 3/8" = 1'-0"



ANTENNA SPECS

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

3 L7/L6 ANTENNA DETAIL
SCALE: 3/8" = 1'-0"

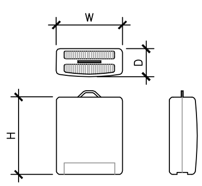


ANTENNA SPECS

MANUFACTURER	ERICSSON
MODEL #	AIR32 B66A/B2P
WIDTH	12.90"
DEPTH	8.70"
HEIGHT	56.60"
WEIGHT	132.20 LBS

4 L19/L21 ANTENNA DETAIL
SCALE: 3/8" = 1'-0"

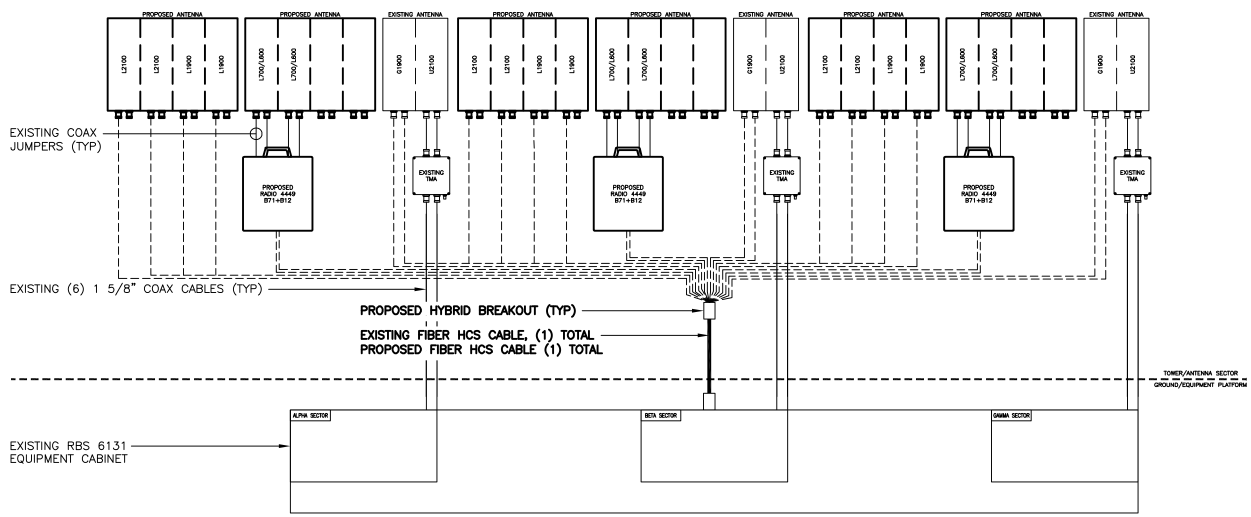
NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS.
2. SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
3. REFER TO ANTENNA ORIENTATION ON SHEET A-2 FOR EXACT ANTENNA POSITIONING.



RRU SPECIFICATIONS

MANUFACTURER	ERICSSON
MODEL #	4449
WIDTH	13.2"
DEPTH	10.4"
HEIGHT	14.9"
WEIGHT	74 LBS

5 REMOTE RADIO UNIT (RRU)
SCALE: 3/8" = 1'-0"



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

B+T GRP

CROWN CASTLE

T-Mobile

CT11071E
BU #: 806953
STAMFORD/ MP X32/ DEN RD.
69 GUINEA RD
STAMFORD, CT 06903
EXISTING 160'-0" MONOPOLE

PROJECT NO:	137110.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/2/19	JDP	CONSTRUCTION

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A-4	0

137110_806953_BRG 2044 (A) 943097.dwg – Sheet:A-4 – User: mwesel – Aug 02, 2019 – 3:22pm

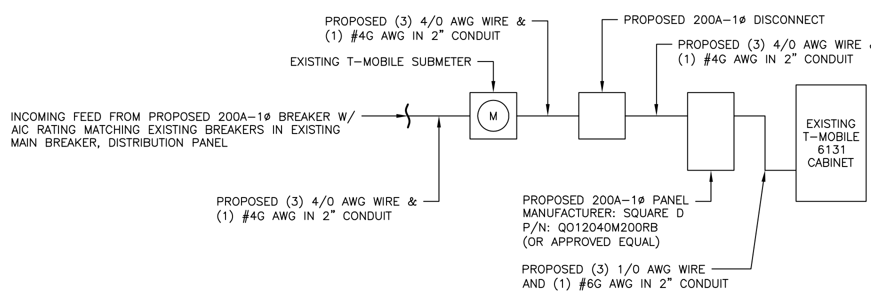
FINAL PANEL SCHEDULE

LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
SURGE	1	**60A**	1	2	50A	2	S8000
RBS 6131	2	**125A**	3	4			
			5	6	15A	1	LIGHT

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

CT11071E
BU #: 806953
STAMFORD/ MP X32/ DEN RD.
69 GUINEA RD
STAMFORD, CT 06903
EXISTING 160'-0" MONOPOLE

PROJECT NO: 137110.001.01
CHECKED BY: MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/2/19	JDP	CONSTRUCTION

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31627
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SHEET NUMBER: E-1
REVISION: 0

Exhibit D

Structural Analysis Report

Date: **June 28, 2019**

BLACK & VEATCH
Building a world of difference.

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-6909

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile*** **Co-Locate**	
	Carrier Site Number:	CT11071E
	Carrier Site Name:	Stamford/ MP X32/ Den Rd.
Crown Castle Designation:	**Crown Castle BU Number:**	806953
	Crown Castle Site Name:	BRG 2044 (A) 943097
	Crown Castle JDE Job Number:	559199
	Crown Castle Work Order Number:	1747502
	Crown Castle Order Number:	479803 Rev. 0
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	400087
Site Data:	**69 Guinea Rd(Camp Rocky Craig), Stamford, Fairfield County, CT** **Latitude *41° 6' 6.35"*, Longitude *-73° 35' 41.45"*** **160 Foot - Monopole Tower**	

Dear Darcy Tarr,

Black & Veatch Corp. 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 – 66.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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: Kanchanaporn Rattanachan / Justin Vibbert

Respectfully submitted by:

Joshua J. Riley, P.E.
Professional Engineer

STATE OF CONNECTICUT
JOSHUA J. RILEY
33208
LICENSED
PROFESSIONAL ENGINEER

06/28/2019

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 Microflect.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by Aero Solutions LLC, in August of 2009. Reinforcement consists of addition of base plate stiffeners. This modification has not been considered due to a lack of a post modification inspection report.

The tower was later modified per reinforcement drawings prepared by Paul J. Ford & Company in October of 2012. Reinforcement consisted of addition of flat plate reinforcement from 1.75' to 16.75' and 77' to 82'. It also consists of the installation of transition stiffeners. Refer to Modification Inspection report by Tower Engineering Professionals, Inc. in August of 2013. These modifications were found to be ineffective.

The tower was later modified per reinforcement drawings prepared by Paul J. Ford & Company in April of 2014. Reinforcement consisted of addition of flat plate reinforcement from 12.25' to 32.25', 32.33' to 52.33', and 78.5' to 88.5'. Refer to Modification Inspection Report by Sinnott Gering and Schmitt Towers, Inc. in August of 2014. The 78.5' to 88.5' reinforcements were found to be effective and all others were found to be ineffective.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.500 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)
118.0	118.0	1	site pro 1	HRK 12 [NA 507-1]	10	1-5/8
		3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe		
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1	cci tower mounts	Platform Mount [LP 712-1]		
	116.0	3	ericsson	KRY 112 144/1		

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)
157.0	158.0	3	alcatel lucent	TD-RRH8x20-25		
		3	argus technologies	LLPX310R-V1 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	box enclosures and assembly	BEN-92P	1 4 1 1 1 3	1/8 17/64 1/2 5/8 7/8 1-1/4
		3	nokia	FWHR		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
	157.0	1	cci tower mounts	Platform Mount [LP 713-1]		
		9	rfs celwave	ACU-A20-N		
154.0	155.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-
		3	alcatel lucent	800MHZ RRH		
	154.0	1	cci tower mounts	Pipe Mount [PM 601-3]		
	153.0	3	alcatel lucent	1900MHz RRH (65MHz)		
149.0	151.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 4 2 1	1-5/8 5/8 3/8 2"conduit
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 4478 B5		
		3	ericsson	RRUS12/RRUS A2		
		3	kmw communications	EPBQ-654L8H6-L2 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
	149.0	1	cci tower mounts	Platform Mount [LP 713-1]		
		3	ericsson	RRUS 11		
		6	powerwave technologies	LGP21401		
		6	powerwave technologies	LGP21901		
		2	raycap	DC6-48-60-18-8F		
139.0	142.0	3	alcatel lucent	B13 RRH 4X30	13	1-5/8
		3	alcatel lucent	B66A RRH4X45		
		6	andrew	DB846F65ZAXY w/ Mount Pipe		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		1	rfs celwave	DB-T1-6Z-8AB-0Z		
	139.0	1	cci tower mounts	Platform Mount [LP 713-1]		
84.0	84.0	1	gps	GPS_A	-	-
40.0	40.0	1	andrew	GPS-QBW-20N	-	-
		1	cci tower mounts	Pipe Mount [PM 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Velocitel	1104116	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Valmont Industries, Inc.	1104113	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont Microflect	823122	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Aero Solutions LLC	1251715	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford & Company	3332716	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	4015064	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford & Company	4837035	CCISITES
4-POST-MODIFICATION INSPECTION	Sinnott Gering and Schmitt Towers, Inc.	5577141	CCISITES
4-EXPOSURE CATEGORY/TOPOGRAPHIC FACTOR	Crown Castle	6124352	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

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 built and maintained in accordance with the manufacturer's specifications.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) The wind loading EPA of the panel antennas has been analyzed and determined by the tower owner. Verification of its accuracy is outside the scope of this structural analysis/design. Black & Veatch does not assume any responsibility for its accuracy.
4) The wind loading Exposure Category and Topographic Category for this site have been analyzed and determined by the tower owner. Black & Veatch does not assume any responsibility for its accuracy.
5) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, appurtenance loading, tower/foundation details, and geotechnical data. The loading on the structure is based on CAD level drawings and carrier orders provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

This analysis may be affected if any assumptions are not valid or have been made in error. Black & Veatch Corp. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP20.801x19.6x0.25	Pole	2.2%	Pass
155 - 150	Pole	TP22.002x20.801x0.25	Pole	5.9%	Pass
150 - 145	Pole	TP23.203x22.002x0.25	Pole	13.4%	Pass
145 - 140	Pole	TP24.404x23.203x0.25	Pole	19.7%	Pass
140 - 135	Pole	TP25.605x24.404x0.25	Pole	29.8%	Pass
135 - 130	Pole	TP26.806x25.605x0.25	Pole	37.7%	Pass
130 - 125	Pole	TP28.007x26.806x0.25	Pole	44.8%	Pass
125 - 120	Pole	TP29.208x28.007x0.25	Pole	51.2%	Pass
120 - 116	Pole	TP31.29x29.208x0.25	Pole	57.0%	Pass
116 - 111	Pole	TP30.867x29.669x0.3438	Pole	42.4%	Pass
111 - 106	Pole	TP32.065x30.867x0.3438	Pole	46.4%	Pass
106 - 101	Pole	TP33.263x32.065x0.3438	Pole	50.1%	Pass
101 - 96	Pole	TP34.461x33.263x0.3438	Pole	53.4%	Pass
96 - 91	Pole	TP35.659x34.461x0.3438	Pole	56.5%	Pass
91 - 86	Pole	TP36.857x35.659x0.3438	Pole	59.3%	Pass
86 - 85.75	Pole + Reinf.	TP36.917x36.857x0.5125	Reinf. 5 Tension Rupture	56.6%	Pass
85.75 - 81	Pole + Reinf.	TP38.055x36.917x0.5063	Reinf. 5 Tension Rupture	58.8%	Pass
81 - 80.75	Pole	TP38.115x38.055x0.3438	Pole	62.1%	Pass
80.75 - 80.5	Pole	TP38.175x38.115x0.3438	Pole	62.2%	Pass
80.5 - 79	Pole	TP39.912x38.175x0.3438	Pole	63.0%	Pass
79 - 72.25	Pole	TP39.467x37.847x0.4063	Pole	54.0%	Pass
72.25 - 67.25	Pole	TP40.667x39.467x0.4063	Pole	55.6%	Pass
67.25 - 62.25	Pole	TP41.867x40.667x0.4063	Pole	57.2%	Pass
62.25 - 57.25	Pole	TP43.067x41.867x0.4063	Pole	58.6%	Pass
57.25 - 52.25	Pole	TP44.268x43.067x0.4063	Pole	60.0%	Pass
52.25 - 49.83	Pole	TP44.848x44.268x0.4063	Pole	60.7%	Pass
49.83 - 49.58	Pole	TP44.908x44.848x0.4063	Pole	60.7%	Pass
49.58 - 44.58	Pole	TP46.109x44.908x0.4063	Pole	62.1%	Pass
44.58 - 43	Pole	TP48.088x46.109x0.4063	Pole	62.5%	Pass
43 - 35.33	Pole	TP47.516x45.675x0.4375	Pole	59.5%	Pass
35.33 - 32.25	Pole	TP48.256x47.516x0.4375	Pole	60.2%	Pass
32.25 - 32	Pole	TP48.317x48.256x0.4375	Pole	60.2%	Pass

32 - 27	Pole	TP49.517x48.317x0.4375	Pole	61.2%	Pass
27 - 22	Pole	TP50.718x49.517x0.4375	Pole	62.2%	Pass
22 - 17	Pole	TP51.918x50.718x0.4375	Pole	63.2%	Pass
17 - 15.5	Pole	TP52.278x51.918x0.4375	Pole	63.4%	Pass
15.5 - 15.25	Pole	TP52.338x52.278x0.4375	Pole	63.5%	Pass
15.25 - 14.75	Pole	TP52.458x52.338x0.4375	Pole	63.6%	Pass
14.75 - 14.5	Pole	TP52.518x52.458x0.4375	Pole	63.6%	Pass
14.5 - 9.5	Pole	TP53.719x52.518x0.4375	Pole	64.6%	Pass
9.5 - 4.5	Pole	TP54.92x53.719x0.4375	Pole	65.5%	Pass
4.5 - 0	Pole	TP56x54.92x0.4375	Pole	66.3%	Pass
				Summary	
			Pole	66.3%	Pass
			Reinforcement	58.8%	Pass
			Overall	66.3%	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower) - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	55.8	Pass
	Base Plate		38.8	Pass
1	Base Foundation	0	20.8	Pass
	Base Foundation Soil Interaction		62.1	Pass

Structure Rating (max from all components) =	66.3%

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

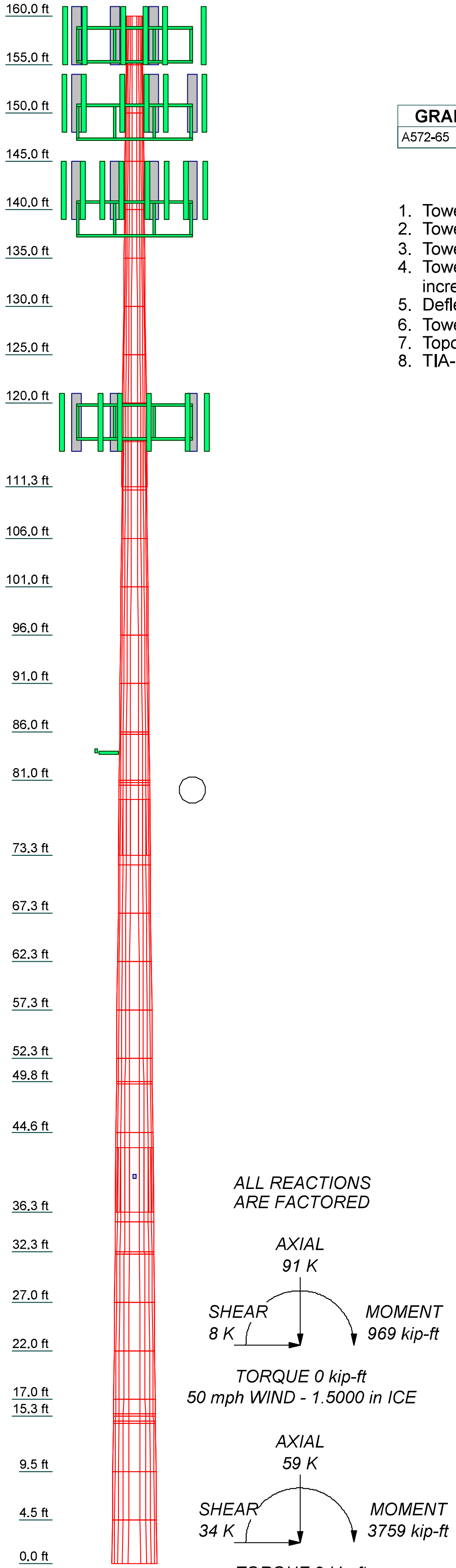
4.1) Recommendations

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2500		19.6000	20.8010		0.3
2	5.00	12	0.2500		20.8010	22.0021		0.3
3	5.00	12	0.2500		22.0021	23.2031		0.3
4	5.00	12	0.2500		23.2031	24.4041		0.3
5	5.00	12	0.2500		24.4041	25.6051		0.3
6	5.00	12	0.2500		25.6051	26.8062		0.4
7	5.00	12	0.2500		26.8062	28.0072		0.4
8	5.00	12	0.2500		28.0072	29.2082		0.4
9	[illegible]	12	0.2500	4.67	29.2082	[illegible]		0.7
10	[illegible]	12	[illegible]		[illegible]	[illegible]		0.6
11	5.00	12	[illegible]		[illegible]	[illegible]		0.6
12	5.00	12	0.3438		32.0650	33.2631		0.6
13	5.00	12	0.3438		33.2631	34.4611		0.6
14	5.00	12	0.3438		34.4611	35.6591		0.7
15	[illegible]	12	[illegible]		[illegible]	[illegible]		0.7
16	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
17	[illegible]	12	[illegible]		[illegible]	[illegible]		1.0
18	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
19	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
20	[illegible]	12	[illegible]	5.75	[illegible]	[illegible]	A572-65	1.1
21	[illegible]	12	[illegible]		[illegible]	[illegible]		1.1
22	5.00	12	[illegible]		[illegible]	[illegible]		0.9
23	5.00	12	0.4063		40.6671	41.8673		0.9
24	5.00	12	0.4063		41.8673	43.0674		0.9
25	5.00	12	[illegible]		[illegible]	[illegible]		1.0
26	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
27	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
28	[illegible]	12	[illegible]		[illegible]	[illegible]		1.0
29	[illegible]	12	0.4063	6.67	[illegible]	[illegible]		1.7
30	[illegible]	12	[illegible]		[illegible]	[illegible]		1.7
31	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
32	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
33	[illegible]	12	[illegible]		[illegible]	[illegible]		1.2
34	5.00	12	0.4375		49.5171	50.7176		1.2
35	5.00	12	[illegible]		[illegible]	[illegible]		1.2
36	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
37	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
38	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
39	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
40	[illegible]	12	[illegible]		[illegible]	[illegible]		1.3
41	5.00	12	0.4375		53.7190	54.9195		1.3
42	4.50	12	0.4375		[illegible]	56.0000		1.2
								27.7



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 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. TIA-222-H Annex S

ALL REACTIONS ARE FACTORED

AXIAL 91 K
SHEAR 8 K
MOMENT 969 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 59 K
SHEAR 34 K
MOMENT 3759 kip-ft
TORQUE 2 kip-ft
REACTIONS - 120 mph WIND

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Black & Veatch Corp. 6800 W. 115th St., Suite 2292, Overland Park, KS 66211, Phone: (913) 458-2000, FAX: (913) 458-8136	Job: ***BRG 2044 (A) 943097 (BU #806953)***	
	Project: ***400087 (806953.1747502)***	
	Client: Crown Castle	Drawn by: vib70985	App'd:
	Code: TIA-222-H	Date: 06/28/19	Scale: NTS
	Path: C:\Users\vib70985\Documents\Verify\806953\806953.1747502 Structural Analysis - Modified.eri	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 Fairfield County, Connecticut.
2) Tower base elevation above sea level: 220.00 ft.
3) Basic wind speed of 120 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 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) TIA-222-H Annex S.
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
- Consider Moments - Horizontals
- Consider Moments - Diagonals
- Use Moment Magnification
- Use Code Stress Ratios
- √ Use Code Safety Factors - Guys
- Escalate Ice
- Always Use Max Kz
- Use Special Wind Profile
- Include Bolts In Member Capacity
- Leg Bolts Are At Top Of Section
- Secondary Horizontal Braces Leg
- Use Diamond Inner Bracing (4 Sided)
- SR Members Have Cut Ends
- SR Members Are Concentric

- Distribute Leg Loads As Uniform
- Assume Legs Pinned
- √ Assume Rigid Index Plate
- √ Use Clear Spans For Wind Area
- Use Clear Spans For KL/r
- Retension Guys To Initial Tension
- √ Bypass Mast Stability Checks
- √ Use Azimuth Dish Coefficients
- √ Project Wind Area of Appurt.
- Autocalc Torque Arm Areas
- Add IBC .6D+W Combination
- Sort Capacity Reports By Component
- Triangulate Diamond Inner Bracing
- Treat Feed Line Bundles As Cylinder
- Ignore KL/ry For 60 Deg. Angle Legs

- Use ASCE 10 X-Brace Ly Rules
- Calculate Redundant Bracing Forces
- Ignore Redundant Members in FEA
- SR Leg Bolts Resist Compression
- All Leg Panels Have Same Allowable
- Offset Girt At Foundation
- √ Consider Feed Line Torque
- Include Angle Block Shear Check
- Use TIA-222-H Bracing Resist. Exemption
- Use TIA-222-H Tension Splice Exemption

Poles

- √ Include Shear-Torsion Interaction
- Always Use Sub-Critical Flow
- Use Top Mounted Sockets
- Pole Without Linear Attachments
- Pole With Shroud Or No Appurtenances
- Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

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	160.00-155.00	5.00	0.00	12	19.6000	20.8010	0.2500	1.0000	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)
L2	155.00-150.00	5.00	0.00	12	20.8010	22.0021	0.2500	1.0000	A572-65 (65 ksi)
L3	150.00-145.00	5.00	0.00	12	22.0021	23.2031	0.2500	1.0000	A572-65 (65 ksi)
L4	145.00-140.00	5.00	0.00	12	23.2031	24.4041	0.2500	1.0000	A572-65 (65 ksi)
L5	140.00-135.00	5.00	0.00	12	24.4041	25.6051	0.2500	1.0000	A572-65 (65 ksi)
L6	135.00-130.00	5.00	0.00	12	25.6051	26.8062	0.2500	1.0000	A572-65 (65 ksi)
L7	130.00-125.00	5.00	0.00	12	26.8062	28.0072	0.2500	1.0000	A572-65 (65 ksi)
L8	125.00-120.00	5.00	0.00	12	28.0072	29.2082	0.2500	1.0000	A572-65 (65 ksi)
L9	120.00-111.33	8.67	4.67	12	29.2082	31.2900	0.2500	1.0000	A572-65 (65 ksi)
L10	111.33-111.00	5.00	0.00	12	29.6690	30.8670	0.3438	1.3750	A572-65 (65 ksi)
L11	111.00-106.00	5.00	0.00	12	30.8670	32.0650	0.3438	1.3750	A572-65 (65 ksi)
L12	106.00-101.00	5.00	0.00	12	32.0650	33.2631	0.3438	1.3750	A572-65 (65 ksi)
L13	101.00-96.00	5.00	0.00	12	33.2631	34.4611	0.3438	1.3750	A572-65 (65 ksi)
L14	96.00-91.00	5.00	0.00	12	34.4611	35.6591	0.3438	1.3750	A572-65 (65 ksi)
L15	91.00-86.00	5.00	0.00	12	35.6591	36.8571	0.3438	1.3750	A572-65 (65 ksi)
L16	86.00-85.75	0.25	0.00	12	36.8571	36.9170	0.5125	2.0500	A572-65 (65 ksi)
L17	85.75-81.00	4.75	0.00	12	36.9170	38.0551	0.5062	2.0250	A572-65 (65 ksi)
L18	81.00-80.75	0.25	0.00	12	38.0551	38.1150	0.3438	1.3750	A572-65 (65 ksi)
L19	80.75-80.50	0.25	0.00	12	38.1150	38.1749	0.3438	1.3750	A572-65 (65 ksi)
L20	80.50-73.25	7.25	5.75	12	38.1749	39.9120	0.3438	1.3750	A572-65 (65 ksi)
L21	73.25-72.25	6.75	0.00	12	37.8468	39.4670	0.4063	1.6250	A572-65 (65 ksi)
L22	72.25-67.25	5.00	0.00	12	39.4670	40.6671	0.4063	1.6250	A572-65 (65 ksi)
L23	67.25-62.25	5.00	0.00	12	40.6671	41.8673	0.4063	1.6250	A572-65 (65 ksi)
L24	62.25-57.25	5.00	0.00	12	41.8673	43.0674	0.4063	1.6250	A572-65 (65 ksi)
L25	57.25-52.25	5.00	0.00	12	43.0674	44.2675	0.4063	1.6250	A572-65 (65 ksi)
L26	52.25-49.83	2.42	0.00	12	44.2675	44.8484	0.4063	1.6250	A572-65 (65 ksi)
L27	49.83-49.58	0.25	0.00	12	44.8484	44.9084	0.4063	1.6250	A572-65 (65 ksi)
L28	49.58-44.58	5.00	0.00	12	44.9084	46.1086	0.4063	1.6250	A572-65 (65 ksi)
L29	44.58-36.33	8.25	6.67	12	46.1086	48.0880	0.4063	1.6250	A572-65 (65 ksi)
L30	36.33-35.33	7.67	0.00	12	45.6753	47.5162	0.4375	1.7500	A572-65 (65 ksi)
L31	35.33-32.25	3.08	0.00	12	47.5162	48.2565	0.4375	1.7500	A572-65 (65 ksi)
L32	32.25-32.00	0.25	0.00	12	48.2565	48.3165	0.4375	1.7500	A572-65 (65 ksi)
L33	32.00-27.00	5.00	0.00	12	48.3165	49.5171	0.4375	1.7500	A572-65 (65 ksi)
L34	27.00-22.00	5.00	0.00	12	49.5171	50.7176	0.4375	1.7500	A572-65 (65 ksi)
L35	22.00-17.00	5.00	0.00	12	50.7176	51.9181	0.4375	1.7500	A572-65 (65 ksi)

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*
L36	17.00-15.50	1.50	0.00	12	51.9181	52.2783	0.4375	1.7500	A572-65 (65 ksi)
L37	15.50-15.25	0.25	0.00	12	52.2783	52.3383	0.4375	1.7500	A572-65 (65 ksi)
L38	15.25-14.75	0.50	0.00	12	52.3383	52.4584	0.4375	1.7500	A572-65 (65 ksi)
L39	14.75-14.50	0.25	0.00	12	52.4584	52.5184	0.4375	1.7500	A572-65 (65 ksi)
L40	14.50-9.50	5.00	0.00	12	52.5184	53.7190	0.4375	1.7500	A572-65 (65 ksi)
L41	9.50-4.50	5.00	0.00	12	53.7190	54.9195	0.4375	1.7500	A572-65 (65 ksi)
L42	4.50-0.00	4.50		12	54.9195	56.0000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	*Tip Dia.* *in*	*Area* *in²*	*I* *in⁴*	*r* *in*	*C* *in*	*I/C* *in³*	*J* *in⁴*	*It/Q* *in²*	*w* *in*	*w/t*
L1	20.2032	15.5768	744.4315	6.9273	10.1528	73.3228	1508.4200	7.6664	4.5828	18.331
	21.4466	16.5436	891.8307	7.3573	10.7749	82.7690	1807.0908	8.1422	4.9047	19.619
L2	21.4466	16.5436	891.8307	7.3573	10.7749	82.7690	1807.0908	8.1422	4.9047	19.619
	22.6900	17.5104	1057.5054	7.7872	11.3971	92.7875	2142.7926	8.6181	5.2266	20.906
L3	22.6900	17.5104	1057.5054	7.7872	11.3971	92.7875	2142.7926	8.6181	5.2266	20.906
	23.9334	18.4772	1242.5239	8.2172	12.0192	103.3783	2517.6902	9.0939	5.5484	22.194
L4	23.9334	18.4772	1242.5239	8.2172	12.0192	103.3783	2517.6902	9.0939	5.5484	22.194
	25.1768	19.4441	1447.9539	8.6472	12.6413	114.5413	2933.9472	9.5698	5.8703	23.481
L5	25.1768	19.4441	1447.9539	8.6472	12.6413	114.5413	2933.9472	9.5698	5.8703	23.481
	26.4202	20.4109	1674.8639	9.0771	13.2635	126.2766	3393.7282	10.0456	6.1922	24.769
L6	26.4202	20.4109	1674.8639	9.0771	13.2635	126.2766	3393.7282	10.0456	6.1922	24.769
	27.6636	21.3777	1924.3214	9.5071	13.8856	138.5841	3899.1969	10.5215	6.5141	26.056
L7	27.6636	21.3777	1924.3214	9.5071	13.8856	138.5841	3899.1969	10.5215	6.5141	26.056
	28.9070	22.3445	2197.3950	9.9371	14.5077	151.4638	4452.5181	10.9973	6.8359	27.344
L8	28.9070	22.3445	2197.3950	9.9371	14.5077	151.4638	4452.5181	10.9973	6.8359	27.344
	30.1504	23.3114	2495.1526	10.3670	15.1299	164.9158	5055.8556	11.4731	7.1578	28.631
L9	30.1504	23.3114	2495.1526	10.3670	15.1299	164.9158	5055.8556	11.4731	7.1578	28.631
	32.3056	24.9872	3072.8897	11.1123	16.2082	189.5883	6226.5076	12.2979	7.7157	30.863
L10	31.7520	32.4594	3562.9622	10.4985	15.3686	231.8345	7219.5273	15.9755	7.0301	20.451
	31.8347	33.7855	4017.7105	10.9273	15.9891	251.2777	8140.9708	16.6282	7.3511	21.385
L11	31.8347	33.7855	4017.7105	10.9273	15.9891	251.2777	8140.9708	16.6282	7.3511	21.385
	33.0749	35.1115	4509.5937	11.3562	16.6097	271.5037	9137.6595	17.2808	7.6722	22.319
L12	33.0749	35.1115	4509.5937	11.3562	16.6097	271.5037	9137.6595	17.2808	7.6722	22.319
	34.3152	36.4376	5040.0701	11.7851	17.2303	292.5127	10212.5486	17.9335	7.9932	23.253
L13	34.3152	36.4376	5040.0701	11.7851	17.2303	292.5127	10212.5486	17.9335	7.9932	23.253
	35.5555	37.7636	5610.5969	12.2140	17.8508	314.3045	11368.5904	18.5861	8.3143	24.187
L14	35.5555	37.7636	5610.5969	12.2140	17.8508	314.3045	11368.5904	18.5861	8.3143	24.187
	36.7957	39.0896	6222.6314	12.6429	18.4714	336.8793	12608.7383	19.2387	8.6354	25.121
L15	36.7957	39.0896	6222.6314	12.6429	18.4714	336.8793	12608.7383	19.2387	8.6354	25.121
	38.0360	40.4157	6877.6307	13.0718	19.0920	360.2369	13935.9445	19.8914	8.9564	26.055
L16	37.9765	59.9776	10112.4097	13.0114	19.0920	529.6683	20490.4836	29.5192	8.5042	16.594
	38.0385	60.0765	10162.4922	13.0328	19.1230	531.4278	20591.9643	29.5678	8.5203	16.625
L17	38.0407	59.3540	10043.7305	13.0350	19.1230	525.2174	20351.3211	29.2123	8.5370	16.863
	39.2189	61.2093	11015.3009	13.4425	19.7125	558.7968	22319.9859	30.1254	8.8420	17.466
L18	39.2763	41.7417	7577.0535	13.5007	19.7125	384.3774	15353.164	20.5440	9.2775	26.989

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
							6			
	39.3383	41.8080	7613.2166	13.5221	19.7436	385.6050	15426.4409	20.5766	9.2936	27.036
L19	39.3383	41.8080	7613.2166	13.5221	19.7436	385.6050	15426.4409	20.5766	9.2936	27.036
	39.4003	41.8743	7649.4953	13.5435	19.7746	386.8345	15499.9513	20.6093	9.3096	27.083
L20	39.4003	41.8743	7649.4953	13.5435	19.7746	386.8345	15499.9513	20.6093	9.3096	27.083
	41.1987	43.7971	8752.3577	14.1654	20.6744	423.3424	17734.6495	21.5556	9.7752	28.437
L21	40.4674	48.9769	8763.1762	13.4037	19.6046	446.9951	17756.5707	24.1049	9.0542	22.287
	40.7159	51.0963	9950.7610	13.9837	20.4439	486.7351	20162.9396	25.1481	9.4884	23.356
L22	40.7159	51.0963	9950.7610	13.9837	20.4439	486.7351	20162.9396	25.1481	9.4884	23.356
	41.9584	52.6663	10896.4424	14.4134	21.0656	517.2631	22079.1464	25.9207	9.8100	24.148
L23	41.9584	52.6663	10896.4424	14.4134	21.0656	517.2631	22079.1464	25.9207	9.8100	24.148
	43.2009	54.2362	11900.2181	14.8430	21.6872	548.7198	24113.0683	26.6934	10.1317	24.94
L24	43.2009	54.2362	11900.2181	14.8430	21.6872	548.7198	24113.0683	26.6934	10.1317	24.94
	44.4433	55.8061	12963.8191	15.2727	22.3089	581.1049	26268.2122	27.4661	10.4533	25.731
L25	44.4433	55.8061	12963.8191	15.2727	22.3089	581.1049	26268.2122	27.4661	10.4533	25.731
	45.6858	57.3761	14088.9788	15.7023	22.9306	614.4186	28548.0908	28.2387	10.7750	26.523
L26	45.6858	57.3761	14088.9788	15.7023	22.9306	614.4186	28548.0908	28.2387	10.7750	26.523
	46.2872	58.1359	14656.1780	15.9103	23.2315	630.8758	29697.3901	28.6127	10.9306	26.906
L27	46.2872	58.1359	14656.1780	15.9103	23.2315	630.8758	29697.3901	28.6127	10.9306	26.906
	46.3493	58.2144	14715.6257	15.9318	23.2626	632.5884	29817.8472	28.6514	10.9467	26.946
L28	46.3493	58.2144	14715.6257	15.9318	23.2626	632.5884	29817.8472	28.6514	10.9467	26.946
	47.5918	59.7843	15938.5809	16.3614	23.8842	667.3264	32295.8861	29.4240	11.2683	27.737
L29	47.5918	59.7843	15938.5809	16.3614	23.8842	667.3264	32295.8861	29.4240	11.2683	27.737
	49.6411	62.3737	18100.5493	17.0701	24.9096	726.6500	36676.6202	30.6984	11.7988	29.043
L30	48.7894	63.7288	16646.5570	16.1951	23.6598	703.5796	33730.4377	31.3654	11.0685	25.299
	49.0380	66.3220	18762.5508	16.8542	24.6134	762.2911	38018.0147	32.6417	11.5618	26.427
L31	49.0380	66.3220	18762.5508	16.8542	24.6134	762.2911	38018.0147	32.6417	11.5618	26.427
	49.8044	67.3650	19661.6857	17.1192	24.9969	786.5664	39839.9058	33.1550	11.7602	26.881
L32	49.8044	67.3650	19661.6857	17.1192	24.9969	786.5664	39839.9058	33.1550	11.7602	26.881
	49.8666	67.4495	19735.8237	17.1407	25.0280	788.5513	39990.1294	33.1966	11.7763	26.917
L33	49.8666	67.4495	19735.8237	17.1407	25.0280	788.5513	39990.1294	33.1966	11.7763	26.917
	51.1095	69.1408	21257.9631	17.5705	25.6498	828.7759	43074.3965	34.0290	12.0981	27.653
L34	51.1095	69.1408	21257.9631	17.5705	25.6498	828.7759	43074.3965	34.0290	12.0981	27.653
	52.3524	70.8321	22856.4209	18.0003	26.2717	870.0011	46313.3055	34.8614	12.4198	28.388
L35	52.3524	70.8321	22856.4209	18.0003	26.2717	870.0011	46313.3055	34.8614	12.4198	28.388
	53.5953	72.5234	24533.064	18.4301	26.8936	912.2269	49710.639	35.6938	12.7416	29.124

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
			0				0			
L36	53.5953	72.5234	24533.0640	18.4301	26.8936	912.2269	49710.6390	35.6938	12.7416	29.124
	53.9682	73.0307	25051.5810	18.5590	27.0802	925.0897	50761.2950	35.9435	12.8381	29.344
L37	53.9682	73.0307	25051.5810	18.5590	27.0802	925.0897	50761.2950	35.9435	12.8381	29.344
	54.0303	73.1153	25138.7057	18.5805	27.1113	927.2423	50937.8333	35.9851	12.8542	29.381
L38	54.0303	73.1153	25138.7057	18.5805	27.1113	927.2423	50937.8333	35.9851	12.8542	29.381
	54.1546	73.2844	25313.5578	18.6235	27.1734	931.5550	51292.1309	36.0684	12.8863	29.455
L39	54.1546	73.2844	25313.5578	18.6235	27.1734	931.5550	51292.1309	36.0684	12.8863	29.455
	54.2167	73.3690	25401.2885	18.6450	27.2045	933.7151	51469.8970	36.1100	12.9024	29.491
L40	54.2167	73.3690	25401.2885	18.6450	27.2045	933.7151	51469.8970	36.1100	12.9024	29.491
	55.4596	75.0603	27198.7098	19.0748	27.8264	977.4418	55111.9599	36.9424	13.2242	30.227
L41	55.4596	75.0603	27198.7098	19.0748	27.8264	977.4418	55111.9599	36.9424	13.2242	30.227
	56.7025	76.7515	29078.9834	19.5046	28.4483	1022.1693	58921.9041	37.7748	13.5459	30.962
L42	56.7025	76.7515	29078.9834	19.5046	28.4483	1022.1693	58921.9041	37.7748	13.5459	30.962
	57.8211	78.2737	30843.6108	19.8914	29.0080	1063.2795	62497.5176	38.5239	13.8355	31.624

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 160.00-155.00				1	1	1			
L2 155.00-150.00				1	1	1			
L3 150.00-145.00				1	1	1			
L4 145.00-140.00				1	1	1			
L5 140.00-135.00				1	1	1			
L6 135.00-130.00				1	1	1			
L7 130.00-125.00				1	1	1			
L8 125.00-120.00				1	1	1			
L9 120.00-111.33				1	1	1			
L10 111.33-111.00				1	1	1			
L11 111.00-106.00				1	1	1			
L12 106.00-101.00				1	1	1			
L13 101.00-96.00				1	1	1			
L14 96.00-91.00				1	1	1			
L15 91.00-86.00				1	1	1			
L16 86.00-85.75				1	1	0.973888			
L17 85.75-81.00				1	1	0.976445			

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
L18 81.00-80.75				1	1	1			
L19 80.75-80.50				1	1	1			
L20 80.50-73.25				1	1	1			
L21 73.25-72.25				1	1	1			
L22 72.25-67.25				1	1	1			
L23 67.25-62.25				1	1	1			
L24 62.25-57.25				1	1	1			
L25 57.25-52.25				1	1	1			
L26 52.25-49.83				1	1	1			
L27 49.83-49.58				1	1	1			
L28 49.58-44.58				1	1	1			
L29 44.58-36.33				1	1	1			
L30 36.33-35.33				1	1	1			
L31 35.33-32.25				1	1	1			
L32 32.25-32.00				1	1	1			
L33 32.00-27.00				1	1	1			
L34 27.00-22.00				1	1	1			
L35 22.00-17.00				1	1	1			
L36 17.00-15.50				1	1	1			
L37 15.50-15.25				1	1	1			
L38 15.25-14.75				1	1	1			
L39 14.75-14.50				1	1	1			
L40 14.50-9.50				1	1	1			
L41 9.50-4.50				1	1	1			
L42 4.50-0.00				1	1	1			

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
Safety Line 3/8	C	No	Surface Ar (CaAa)	160.00 - 10.00	1	1	-0.390 -0.380	0.3750		0.22
***										
MK SR 1	A	No	Surface Af (CaAa)	16.75 - 1.75	1	1	0.000 0.000	4.0000	9.5000	10.21
MK SR 1	B	No	Surface Af (CaAa)	16.75 - 1.75	1	1	0.000 0.000	4.0000	9.5000	10.21
MK SR 1	C	No	Surface Af	16.75 -	1	1	0.000	4.0000	9.5000	10.21

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*
			(CaAa)	1.75			0.000			
MK SR 2	A	No	Surface Af	82.00 -	1	1	0.000	4.0000	9.5000	10.21
			(CaAa)	77.00			0.000			
MK SR 2	B	No	Surface Af	82.00 -	1	1	0.000	4.0000	9.5000	10.21
			(CaAa)	77.00			0.000			
MK SR 2	C	No	Surface Af	82.00 -	1	1	0.000	4.0000	9.5000	10.21
			(CaAa)	77.00			0.000			
CCI-AFP-060100	A	No	Surface Af	32.25 -	1	1	0.000	6.0000	14.0000	20.42
			(CaAa)	12.25			0.000			
CCI-AFP-060100	B	No	Surface Af	32.25 -	1	1	0.000	6.0000	14.0000	20.42
			(CaAa)	12.25			0.000			
CCI-AFP-060100	C	No	Surface Af	32.25 -	1	1	0.000	6.0000	14.0000	20.42
			(CaAa)	12.25			0.000			
CCI-AFP-060100	A	No	Surface Af	52.33 -	1	1	0.000	6.0000	14.0000	20.42
			(CaAa)	32.33			0.000			
CCI-AFP-060100	B	No	Surface Af	52.33 -	1	1	0.000	6.0000	14.0000	20.42
			(CaAa)	32.33			0.000			
CCI-AFP-060100	C	No	Surface Af	52.33 -	1	1	0.000	6.0000	14.0000	20.42
			(CaAa)	32.33			0.000			
CCI-AFP-060100	A	No	Surface Af	88.50 -	1	1	0.000	6.0000	14.0000	0.00
			(CaAa)	78.50			0.000			
CCI-AFP-060100	B	No	Surface Af	88.50 -	1	1	0.000	6.0000	14.0000	0.00
			(CaAa)	78.50			0.000			
CCI-AFP-060100	C	No	Surface Af	88.50 -	1	1	0.000	6.0000	14.0000	0.00
			(CaAa)	78.50			0.000			
***										

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*
***									
004U8X-32125E2G(1/8)	C	No	No	Inside Pole	157.00 - 0.00	1	No Ice	0.00	0.01
							1/2" Ice	0.00	0.01
							1" Ice	0.00	0.01
							2" Ice	0.00	0.01
7919A(17/64)	C	No	No	Inside Pole	157.00 - 0.00	4	No Ice	0.00	0.03
							1/2" Ice	0.00	0.03
							1" Ice	0.00	0.03
							2" Ice	0.00	0.03
LDF4-50A(1/2)	C	No	No	Inside Pole	157.00 - 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
HB058-M12-XXXF(5/8)	C	No	No	Inside Pole	157.00 - 0.00	1	No Ice	0.00	0.24
							1/2" Ice	0.00	0.24
							1" Ice	0.00	0.24
							2" Ice	0.00	0.24
TYPE SOOW 12/9(7/8)	C	No	No	Inside Pole	157.00 - 0.00	1	No Ice	0.00	0.51
							1/2" Ice	0.00	0.51
							1" Ice	0.00	0.51
							2" Ice	0.00	0.51
HB114-1-0813U4-M5J(1-1/4)	C	No	No	Inside Pole	157.00 - 0.00	3	No Ice	0.00	1.20
							1/2" Ice	0.00	1.20
							1" Ice	0.00	1.20
							2" Ice	0.00	1.20
***									
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	149.00 - 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
WR-VG82ST-BRDA(5/8)	C	No	No	Inside Pole	149.00 - 0.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31

Description	*Face or Leg*	*Allow Shield*	*Exclude From Torque Calculation*	*Component Type*	*Placement* *ft*	*Total Number*		C_AA_A *ft²/ft*	*Weight* *plf*
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	149.00 - 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
WR-VG82ST-BRDA(5/8)	C	No	No	Inside Pole	149.00 - 0.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
2" innerduct conduit	C	No	No	Inside Pole	149.00 - 0.00	1	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
LCF158-50JA-A0(1-5/8)	C	No	No	Inside Pole	149.00 - 0.00	12	No Ice	0.00	0.80
							1/2" Ice	0.00	0.80
							1" Ice	0.00	0.80
							2" Ice	0.00	0.80
***									
561(1-5/8)	C	No	No	Inside Pole	139.00 - 0.00	12	No Ice	0.00	1.35
							1/2" Ice	0.00	1.35
							1" Ice	0.00	1.35
							2" Ice	0.00	1.35
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	139.00 - 0.00	1	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
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	116.00 - 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	116.00 - 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	116.00 - 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
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	*Tower Elevation* *ft*	*Face*	A_R *ft²*	A_F *ft²*	C_AA_A *In Face* *ft²*	C_AA_A *Out Face* *ft²*	*Weight* *K*
L1	160.00-155.00	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	0.188	0.000	0.01
L2	155.00-150.00	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	0.188	0.000	0.02
L3	150.00-145.00	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	0.188	0.000	0.07
L4	145.00-140.00	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	0.188	0.000	0.08
L5	140.00-135.00	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	0.188	0.000	0.15

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L6	135.00-130.00	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	0.188	0.000	0.17
L7	130.00-125.00	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	0.188	0.000	0.17
L8	125.00-120.00	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	0.188	0.000	0.17
L9	120.00-111.33	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	0.325	0.000	0.35
L10	111.33-111.00	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	0.012	0.000	0.02
L11	111.00-106.00	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	0.188	0.000	0.23
L12	106.00-101.00	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	0.188	0.000	0.23
L13	101.00-96.00	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	0.188	0.000	0.23
L14	96.00-91.00	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	0.188	0.000	0.23
L15	91.00-86.00	A	0.000	0.000	2.280	0.000	0.00
		B	0.000	0.000	2.280	0.000	0.00
		C	0.000	0.000	2.468	0.000	0.23
L16	86.00-85.75	A	0.000	0.000	0.228	0.000	0.00
		B	0.000	0.000	0.228	0.000	0.00
		C	0.000	0.000	0.237	0.000	0.01
L17	85.75-81.00	A	0.000	0.000	4.885	0.000	0.01
		B	0.000	0.000	4.885	0.000	0.01
		C	0.000	0.000	5.063	0.000	0.23
L18	81.00-80.75	A	0.000	0.000	0.366	0.000	0.00
		B	0.000	0.000	0.366	0.000	0.00
		C	0.000	0.000	0.376	0.000	0.01
L19	80.75-80.50	A	0.000	0.000	0.366	0.000	0.00
		B	0.000	0.000	0.366	0.000	0.00
		C	0.000	0.000	0.376	0.000	0.01
L20	80.50-73.25	A	0.000	0.000	3.759	0.000	0.04
		B	0.000	0.000	3.759	0.000	0.04
		C	0.000	0.000	4.031	0.000	0.37
L21	73.25-72.25	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	0.037	0.000	0.05
L22	72.25-67.25	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	0.188	0.000	0.23
L23	67.25-62.25	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	0.188	0.000	0.23
L24	62.25-57.25	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	0.188	0.000	0.23
L25	57.25-52.25	A	0.000	0.000	0.080	0.000	0.00
		B	0.000	0.000	0.080	0.000	0.00
		C	0.000	0.000	0.268	0.000	0.24
L26	52.25-49.83	A	0.000	0.000	2.420	0.000	0.05
		B	0.000	0.000	2.420	0.000	0.05
		C	0.000	0.000	2.511	0.000	0.16
L27	49.83-49.58	A	0.000	0.000	0.250	0.000	0.01
		B	0.000	0.000	0.250	0.000	0.01
		C	0.000	0.000	0.259	0.000	0.02
L28	49.58-44.58	A	0.000	0.000	5.000	0.000	0.10
		B	0.000	0.000	5.000	0.000	0.10
		C	0.000	0.000	5.188	0.000	0.34

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
L29	44.58-36.33	A	0.000	0.000	8.247	0.000	0.17
		B	0.000	0.000	8.247	0.000	0.17
		C	0.000	0.000	8.556	0.000	0.55
L30	36.33-35.33	A	0.000	0.000	1.000	0.000	0.02
		B	0.000	0.000	1.000	0.000	0.02
		C	0.000	0.000	1.038	0.000	0.07
L31	35.33-32.25	A	0.000	0.000	3.003	0.000	0.06
		B	0.000	0.000	3.003	0.000	0.06
		C	0.000	0.000	3.119	0.000	0.21
L32	32.25-32.00	A	0.000	0.000	0.250	0.000	0.01
		B	0.000	0.000	0.250	0.000	0.01
		C	0.000	0.000	0.259	0.000	0.02
L33	32.00-27.00	A	0.000	0.000	5.000	0.000	0.10
		B	0.000	0.000	5.000	0.000	0.10
		C	0.000	0.000	5.188	0.000	0.34
L34	27.00-22.00	A	0.000	0.000	5.000	0.000	0.10
		B	0.000	0.000	5.000	0.000	0.10
		C	0.000	0.000	5.188	0.000	0.34
L35	22.00-17.00	A	0.000	0.000	5.000	0.000	0.10
		B	0.000	0.000	5.000	0.000	0.10
		C	0.000	0.000	5.188	0.000	0.34
L36	17.00-15.50	A	0.000	0.000	2.333	0.000	0.04
		B	0.000	0.000	2.333	0.000	0.04
		C	0.000	0.000	2.390	0.000	0.11
L37	15.50-15.25	A	0.000	0.000	0.417	0.000	0.01
		B	0.000	0.000	0.417	0.000	0.01
		C	0.000	0.000	0.426	0.000	0.02
L38	15.25-14.75	A	0.000	0.000	0.833	0.000	0.02
		B	0.000	0.000	0.833	0.000	0.02
		C	0.000	0.000	0.852	0.000	0.04
L39	14.75-14.50	A	0.000	0.000	0.417	0.000	0.01
		B	0.000	0.000	0.417	0.000	0.01
		C	0.000	0.000	0.426	0.000	0.02
L40	14.50-9.50	A	0.000	0.000	5.583	0.000	0.10
		B	0.000	0.000	5.583	0.000	0.10
		C	0.000	0.000	5.752	0.000	0.33
L41	9.50-4.50	A	0.000	0.000	3.333	0.000	0.05
		B	0.000	0.000	3.333	0.000	0.05
		C	0.000	0.000	3.333	0.000	0.28
L42	4.50-0.00	A	0.000	0.000	1.833	0.000	0.03
		B	0.000	0.000	1.833	0.000	0.03
		C	0.000	0.000	1.833	0.000	0.24

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	160.00-155.00	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	1.678	0.000	0.03
L2	155.00-150.00	A	1.486	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	1.673	0.000	0.04
L3	150.00-145.00	A	1.481	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	1.668	0.000	0.09
L4	145.00-140.00	A	1.476	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	1.663	0.000	0.10
L5	140.00-135.00	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	1.658	0.000	0.17
L6	135.00-130.00	A	1.465	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	1.653	0.000	0.18

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
L7	130.00-125.00	A	1.459	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	1.647	0.000	0.18
L8	125.00-120.00	A	1.454	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	1.641	0.000	0.18
L9	120.00-111.33	A	1.445	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	2.830	0.000	0.38
L10	111.33-111.00	A	1.440	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	0.109	0.000	0.02
L11	111.00-106.00	A	1.436	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	1.624	0.000	0.25
L12	106.00-101.00	A	1.429	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	1.617	0.000	0.25
L13	101.00-96.00	A	1.422	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	1.610	0.000	0.25
L14	96.00-91.00	A	1.415	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	1.602	0.000	0.25
L15	91.00-86.00	A	1.407	0.000	0.000	2.654	0.000	0.03
		B		0.000	0.000	2.654	0.000	0.03
		C		0.000	0.000	4.249	0.000	0.28
L16	86.00-85.75	A	1.403	0.000	0.000	0.265	0.000	0.00
		B		0.000	0.000	0.265	0.000	0.00
		C		0.000	0.000	0.345	0.000	0.02
L17	85.75-81.00	A	1.399	0.000	0.000	5.741	0.000	0.07
		B		0.000	0.000	5.741	0.000	0.07
		C		0.000	0.000	7.248	0.000	0.30
L18	81.00-80.75	A	1.395	0.000	0.000	0.441	0.000	0.01
		B		0.000	0.000	0.441	0.000	0.01
		C		0.000	0.000	0.520	0.000	0.02
L19	80.75-80.50	A	1.394	0.000	0.000	0.441	0.000	0.01
		B		0.000	0.000	0.441	0.000	0.01
		C		0.000	0.000	0.520	0.000	0.02
L20	80.50-73.25	A	1.387	0.000	0.000	4.573	0.000	0.08
		B		0.000	0.000	4.573	0.000	0.08
		C		0.000	0.000	6.857	0.000	0.44
L21	73.25-72.25	A	1.380	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	0.315	0.000	0.05
L22	72.25-67.25	A	1.374	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	1.562	0.000	0.25
L23	67.25-62.25	A	1.364	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	1.551	0.000	0.25
L24	62.25-57.25	A	1.353	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	1.540	0.000	0.25
L25	57.25-52.25	A	1.341	0.000	0.000	0.101	0.000	0.00
		B		0.000	0.000	0.101	0.000	0.00
		C		0.000	0.000	1.630	0.000	0.25
L26	52.25-49.83	A	1.332	0.000	0.000	3.065	0.000	0.07
		B		0.000	0.000	3.065	0.000	0.07
		C		0.000	0.000	3.800	0.000	0.19
L27	49.83-49.58	A	1.328	0.000	0.000	0.316	0.000	0.01
		B		0.000	0.000	0.316	0.000	0.01
		C		0.000	0.000	0.392	0.000	0.02
L28	49.58-44.58	A	1.321	0.000	0.000	6.321	0.000	0.15
		B		0.000	0.000	6.321	0.000	0.15
		C		0.000	0.000	7.830	0.000	0.40
L29	44.58-36.33	A	1.301	0.000	0.000	10.393	0.000	0.25
		B		0.000	0.000	10.393	0.000	0.25
		C		0.000	0.000	12.848	0.000	0.65

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
L30	36.33-35.33	A	1.286	0.000	0.000	1.260	0.000	0.03
		B		0.000	0.000	1.260	0.000	0.03
		C		0.000	0.000	1.558	0.000	0.08
L31	35.33-32.25	A	1.278	0.000	0.000	3.771	0.000	0.09
		B		0.000	0.000	3.771	0.000	0.09
		C		0.000	0.000	4.675	0.000	0.24
L32	32.25-32.00	A	1.272	0.000	0.000	0.314	0.000	0.01
		B		0.000	0.000	0.314	0.000	0.01
		C		0.000	0.000	0.387	0.000	0.02
L33	32.00-27.00	A	1.261	0.000	0.000	6.261	0.000	0.15
		B		0.000	0.000	6.261	0.000	0.15
		C		0.000	0.000	7.709	0.000	0.39
L34	27.00-22.00	A	1.238	0.000	0.000	6.238	0.000	0.15
		B		0.000	0.000	6.238	0.000	0.15
		C		0.000	0.000	7.663	0.000	0.39
L35	22.00-17.00	A	1.210	0.000	0.000	6.210	0.000	0.15
		B		0.000	0.000	6.210	0.000	0.15
		C		0.000	0.000	7.607	0.000	0.39
L36	17.00-15.50	A	1.188	0.000	0.000	2.987	0.000	0.06
		B		0.000	0.000	2.987	0.000	0.06
		C		0.000	0.000	3.399	0.000	0.14
L37	15.50-15.25	A	1.181	0.000	0.000	0.535	0.000	0.01
		B		0.000	0.000	0.535	0.000	0.01
		C		0.000	0.000	0.603	0.000	0.02
L38	15.25-14.75	A	1.178	0.000	0.000	1.069	0.000	0.02
		B		0.000	0.000	1.069	0.000	0.02
		C		0.000	0.000	1.206	0.000	0.05
L39	14.75-14.50	A	1.175	0.000	0.000	0.534	0.000	0.01
		B		0.000	0.000	0.534	0.000	0.01
		C		0.000	0.000	0.602	0.000	0.02
L40	14.50-9.50	A	1.152	0.000	0.000	7.254	0.000	0.15
		B		0.000	0.000	7.254	0.000	0.15
		C		0.000	0.000	8.460	0.000	0.39
L41	9.50-4.50	A	1.092	0.000	0.000	4.425	0.000	0.08
		B		0.000	0.000	4.425	0.000	0.08
		C		0.000	0.000	4.425	0.000	0.31
L42	4.50-0.00	A	0.974	0.000	0.000	2.369	0.000	0.04
		B		0.000	0.000	2.369	0.000	0.04
		C		0.000	0.000	2.369	0.000	0.25

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.00-155.00	0.1651	0.1584	0.9175	0.8799
L2	155.00-150.00	0.1651	0.1584	0.9265	0.8885
L3	150.00-145.00	0.1651	0.1584	0.9345	0.8961
L4	145.00-140.00	0.1651	0.1584	0.9414	0.9028
L5	140.00-135.00	0.1651	0.1584	0.9475	0.9086
L6	135.00-130.00	0.1651	0.1584	0.9528	0.9137
L7	130.00-125.00	0.1651	0.1584	0.9573	0.9180
L8	125.00-120.00	0.1651	0.1584	0.9612	0.9217
L9	120.00-111.33	0.1651	0.1584	0.9654	0.9258
L10	111.33-111.00	0.1653	0.1585	0.9690	0.9292
L11	111.00-106.00	0.1653	0.1585	0.9673	0.9276
L12	106.00-101.00	0.1653	0.1585	0.9691	0.9293
L13	101.00-96.00	0.1653	0.1585	0.9703	0.9304
L14	96.00-91.00	0.1653	0.1585	0.9709	0.9311
L15	91.00-86.00	0.1135	0.1088	0.7105	0.6813
L16	86.00-85.75	0.0872	0.0836	0.5641	0.5409
L17	85.75-81.00	0.0829	0.0795	0.5361	0.5141
L18	81.00-80.75	0.0617	0.0592	0.4443	0.4261
L19	80.75-80.50	0.0618	0.0593	0.4446	0.4264
L20	80.50-73.25	0.1115	0.1069	0.6878	0.6596

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L21	73.25-72.25	0.1654	0.1586	0.9707	0.9309
L22	72.25-67.25	0.1653	0.1586	0.9655	0.9259
L23	67.25-62.25	0.1653	0.1586	0.9632	0.9237
L24	62.25-57.25	0.1653	0.1585	0.9602	0.9208
L25	57.25-52.25	0.1632	0.1565	0.9452	0.9064
L26	52.25-49.83	0.0911	0.0873	0.5494	0.5269
L27	49.83-49.58	0.0913	0.0876	0.5503	0.5277
L28	49.58-44.58	0.0919	0.0881	0.5517	0.5291
L29	44.58-36.33	0.0933	0.0895	0.5544	0.5317
L30	36.33-35.33	0.0936	0.0897	0.5561	0.5333
L31	35.33-32.25	0.0950	0.0911	0.5573	0.5344
L32	32.25-32.00	0.0943	0.0904	0.5515	0.5288
L33	32.00-27.00	0.0948	0.0909	0.5512	0.5286
L34	27.00-22.00	0.0958	0.0919	0.5497	0.5271
L35	22.00-17.00	0.0967	0.0928	0.5461	0.5237
L36	17.00-15.50	0.0792	0.0760	0.4390	0.4210
L37	15.50-15.25	0.0766	0.0734	0.4222	0.4049
L38	15.25-14.75	0.0766	0.0735	0.4219	0.4045
L39	14.75-14.50	0.0767	0.0736	0.4215	0.4042
L40	14.50-9.50	0.0842	0.0808	0.4511	0.4326
L41	9.50-4.50	0.0000	0.0000	0.0000	0.0000
L42	4.50-0.00	0.0000	0.0000	0.0000	0.0000

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
L1	1	Safety Line 3/8	155.00 - 160.00	1.0000	1.0000
L2	1	Safety Line 3/8	150.00 - 155.00	1.0000	1.0000
L3	1	Safety Line 3/8	145.00 - 150.00	1.0000	1.0000
L4	1	Safety Line 3/8	140.00 - 145.00	1.0000	1.0000
L5	1	Safety Line 3/8	135.00 - 140.00	1.0000	1.0000
L6	1	Safety Line 3/8	130.00 - 135.00	1.0000	1.0000
L7	1	Safety Line 3/8	125.00 - 130.00	1.0000	1.0000
L8	1	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L9	1	Safety Line 3/8	111.33 - 120.00	1.0000	1.0000
L11	1	Safety Line 3/8	106.00 - 111.00	1.0000	1.0000
L12	1	Safety Line 3/8	101.00 - 106.00	1.0000	1.0000
L13	1	Safety Line 3/8	96.00 - 101.00	1.0000	1.0000
L14	1	Safety Line 3/8	91.00 - 96.00	1.0000	1.0000
L15	1	Safety Line 3/8	86.00 - 91.00	1.0000	1.0000
L15	40	CCI-AFP-060100	86.00 - 88.50	1.0000	1.0000
L15	41	CCI-AFP-060100	86.00 - 88.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	42	CCI-AFP-060100	86.00 - 88.50	1.0000	1.0000
L16	1	Safety Line 3/8	85.75 - 86.00	1.0000	1.0000
L16	40	CCI-AFP-060100	85.75 - 86.00	1.0000	1.0000
L16	41	CCI-AFP-060100	85.75 - 86.00	1.0000	1.0000
L16	42	CCI-AFP-060100	85.75 - 86.00	1.0000	1.0000
L17	1	Safety Line 3/8	81.00 - 85.75	1.0000	1.0000
L17	31	MK SR 2	81.00 - 82.00	1.0000	1.0000
L17	32	MK SR 2	81.00 - 82.00	1.0000	1.0000
L17	33	MK SR 2	81.00 - 82.00	1.0000	1.0000
L17	40	CCI-AFP-060100	81.00 - 85.75	1.0000	1.0000
L17	41	CCI-AFP-060100	81.00 - 85.75	1.0000	1.0000
L17	42	CCI-AFP-060100	81.00 - 85.75	1.0000	1.0000
L18	1	Safety Line 3/8	80.75 - 81.00	1.0000	1.0000
L18	31	MK SR 2	80.75 - 81.00	1.0000	1.0000
L18	32	MK SR 2	80.75 - 81.00	1.0000	1.0000
L18	33	MK SR 2	80.75 - 81.00	1.0000	1.0000
L18	40	CCI-AFP-060100	80.75 - 81.00	1.0000	1.0000
L18	41	CCI-AFP-060100	80.75 - 81.00	1.0000	1.0000
L18	42	CCI-AFP-060100	80.75 - 81.00	1.0000	1.0000
L19	1	Safety Line 3/8	80.50 - 80.75	1.0000	1.0000
L19	31	MK SR 2	80.50 - 80.75	1.0000	1.0000
L19	32	MK SR 2	80.50 - 80.75	1.0000	1.0000
L19	33	MK SR 2	80.50 - 80.75	1.0000	1.0000
L19	40	CCI-AFP-060100	80.50 - 80.75	1.0000	1.0000
L19	41	CCI-AFP-060100	80.50 - 80.75	1.0000	1.0000
L19	42	CCI-AFP-060100	80.50 - 80.75	1.0000	1.0000
L20	1	Safety Line 3/8	73.25 - 80.50	1.0000	1.0000
L20	31	MK SR 2	77.00 - 80.50	1.0000	1.0000
L20	32	MK SR 2	77.00 - 80.50	1.0000	1.0000
L20	33	MK SR 2	77.00 - 80.50	1.0000	1.0000
L20	40	CCI-AFP-060100	78.50 - 80.50	1.0000	1.0000
L20	41	CCI-AFP-060100	78.50 - 80.50	1.0000	1.0000
L20	42	CCI-AFP-060100	78.50 - 80.50	1.0000	1.0000
L22	1	Safety Line 3/8	67.25 - 72.25	1.0000	1.0000
L23	1	Safety Line 3/8	62.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			67.25		
L24	1	Safety Line 3/8	57.25 - 62.25	1.0000	1.0000
L25	1	Safety Line 3/8	52.25 - 57.25	1.0000	1.0000
L25	37	CCI-AFP-060100	52.25 - 52.33	1.0000	1.0000
L25	38	CCI-AFP-060100	52.25 - 52.33	1.0000	1.0000
L25	39	CCI-AFP-060100	52.25 - 52.33	1.0000	1.0000
L26	1	Safety Line 3/8	49.83 - 52.25	1.0000	1.0000
L26	37	CCI-AFP-060100	49.83 - 52.25	1.0000	1.0000
L26	38	CCI-AFP-060100	49.83 - 52.25	1.0000	1.0000
L26	39	CCI-AFP-060100	49.83 - 52.25	1.0000	1.0000
L27	1	Safety Line 3/8	49.58 - 49.83	1.0000	1.0000
L27	37	CCI-AFP-060100	49.58 - 49.83	1.0000	1.0000
L27	38	CCI-AFP-060100	49.58 - 49.83	1.0000	1.0000
L27	39	CCI-AFP-060100	49.58 - 49.83	1.0000	1.0000
L28	1	Safety Line 3/8	44.58 - 49.58	1.0000	1.0000
L28	37	CCI-AFP-060100	44.58 - 49.58	1.0000	1.0000
L28	38	CCI-AFP-060100	44.58 - 49.58	1.0000	1.0000
L28	39	CCI-AFP-060100	44.58 - 49.58	1.0000	1.0000
L29	1	Safety Line 3/8	36.33 - 44.58	1.0000	1.0000
L29	37	CCI-AFP-060100	36.33 - 44.58	1.0000	1.0000
L29	38	CCI-AFP-060100	36.33 - 44.58	1.0000	1.0000
L29	39	CCI-AFP-060100	36.33 - 44.58	1.0000	1.0000
L31	1	Safety Line 3/8	32.25 - 35.33	1.0000	1.0000
L31	37	CCI-AFP-060100	32.33 - 35.33	1.0000	1.0000
L31	38	CCI-AFP-060100	32.33 - 35.33	1.0000	1.0000
L31	39	CCI-AFP-060100	32.33 - 35.33	1.0000	1.0000
L32	1	Safety Line 3/8	32.00 - 32.25	1.0000	1.0000
L32	34	CCI-AFP-060100	32.00 - 32.25	1.0000	1.0000
L32	35	CCI-AFP-060100	32.00 - 32.25	1.0000	1.0000
L32	36	CCI-AFP-060100	32.00 - 32.25	1.0000	1.0000
L33	1	Safety Line 3/8	27.00 - 32.00	1.0000	1.0000
L33	34	CCI-AFP-060100	27.00 - 32.00	1.0000	1.0000
L33	35	CCI-AFP-060100	27.00 - 32.00	1.0000	1.0000
L33	36	CCI-AFP-060100	27.00 - 32.00	1.0000	1.0000
L34	1	Safety Line 3/8	22.00 - 27.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L34	34	CCI-AFP-060100	22.00 - 27.00	1.0000	1.0000
L34	35	CCI-AFP-060100	22.00 - 27.00	1.0000	1.0000
L34	36	CCI-AFP-060100	22.00 - 27.00	1.0000	1.0000
L35	1	Safety Line 3/8	17.00 - 22.00	1.0000	1.0000
L35	34	CCI-AFP-060100	17.00 - 22.00	1.0000	1.0000
L35	35	CCI-AFP-060100	17.00 - 22.00	1.0000	1.0000
L35	36	CCI-AFP-060100	17.00 - 22.00	1.0000	1.0000
L36	1	Safety Line 3/8	15.50 - 17.00	1.0000	1.0000
L36	28	MK SR 1	15.50 - 16.75	1.0000	1.0000
L36	29	MK SR 1	15.50 - 16.75	1.0000	1.0000
L36	30	MK SR 1	15.50 - 16.75	1.0000	1.0000
L36	34	CCI-AFP-060100	15.50 - 17.00	1.0000	1.0000
L36	35	CCI-AFP-060100	15.50 - 17.00	1.0000	1.0000
L36	36	CCI-AFP-060100	15.50 - 17.00	1.0000	1.0000
L37	1	Safety Line 3/8	15.25 - 15.50	1.0000	1.0000
L37	28	MK SR 1	15.25 - 15.50	1.0000	1.0000
L37	29	MK SR 1	15.25 - 15.50	1.0000	1.0000
L37	30	MK SR 1	15.25 - 15.50	1.0000	1.0000
L37	34	CCI-AFP-060100	15.25 - 15.50	1.0000	1.0000
L37	35	CCI-AFP-060100	15.25 - 15.50	1.0000	1.0000
L37	36	CCI-AFP-060100	15.25 - 15.50	1.0000	1.0000
L38	1	Safety Line 3/8	14.75 - 15.25	1.0000	1.0000
L38	28	MK SR 1	14.75 - 15.25	1.0000	1.0000
L38	29	MK SR 1	14.75 - 15.25	1.0000	1.0000
L38	30	MK SR 1	14.75 - 15.25	1.0000	1.0000
L38	34	CCI-AFP-060100	14.75 - 15.25	1.0000	1.0000
L38	35	CCI-AFP-060100	14.75 - 15.25	1.0000	1.0000
L38	36	CCI-AFP-060100	14.75 - 15.25	1.0000	1.0000
L39	1	Safety Line 3/8	14.50 - 14.75	1.0000	1.0000
L39	28	MK SR 1	14.50 - 14.75	1.0000	1.0000
L39	29	MK SR 1	14.50 - 14.75	1.0000	1.0000
L39	30	MK SR 1	14.50 - 14.75	1.0000	1.0000
L39	34	CCI-AFP-060100	14.50 - 14.75	1.0000	1.0000
L39	35	CCI-AFP-060100	14.50 - 14.75	1.0000	1.0000
L39	36	CCI-AFP-060100	14.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			14.75		
L40	1	Safety Line 3/8	10.00 - 14.50	1.0000	1.0000
L40	28	MK SR 1	9.50 - 14.50	1.0000	1.0000
L40	29	MK SR 1	9.50 - 14.50	1.0000	1.0000
L40	30	MK SR 1	9.50 - 14.50	1.0000	1.0000
L40	34	CCI-AFP-060100	12.25 - 14.50	1.0000	1.0000
L40	35	CCI-AFP-060100	12.25 - 14.50	1.0000	1.0000
L40	36	CCI-AFP-060100	12.25 - 14.50	1.0000	1.0000
L41	28	MK SR 1	4.50 - 9.50	1.0000	1.0000
L41	29	MK SR 1	4.50 - 9.50	1.0000	1.0000
L41	30	MK SR 1	4.50 - 9.50	1.0000	1.0000
L42	28	MK SR 1	1.75 - 4.50	1.0000	1.0000
L42	29	MK SR 1	1.75 - 4.50	1.0000	1.0000
L42	30	MK SR 1	1.75 - 4.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
Platform Mount [LP 713-1]	C	None		0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.27 39.68 48.09 64.91	31.27 39.68 48.09 64.91	1.51 1.93 2.35 3.19
4'x2" Mount Pipe	A	From Leg	4.00 6.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.87 1.11 1.36 1.90	0.87 1.11 1.36 1.90	0.01 0.02 0.03 0.06
4'x2" Mount Pipe	B	From Leg	4.00 -2.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.87 1.11 1.36 1.90	0.87 1.11 1.36 1.90	0.01 0.02 0.03 0.06
4'x2" Mount Pipe	C	From Leg	4.00 -2.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.87 1.11 1.36 1.90	0.87 1.11 1.36 1.90	0.01 0.02 0.03 0.06
4'x3"x3"x3/16" Horizontal Angle	A	From Face	3.00 0.00 2.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.20 1.49 1.78 2.39	0.07 0.11 0.16 0.27	0.02 0.03 0.05 0.09
4'x3"x3"x3/16" Horizontal Angle	B	From Face	3.00 0.00 2.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.20 1.49 1.78 2.39	0.07 0.11 0.16 0.27	0.02 0.03 0.05 0.09
4'x3"x3"x3/16" Horizontal Angle	C	From Face	3.00 0.00 2.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	1.20 1.49 1.78 2.39	0.07 0.11 0.16 0.27	0.02 0.03 0.05 0.09

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft²*	*C_AA_A Side* *ft²*	*Weight* *K*
						2" Ice			
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00	0.0000	157.00	No Ice	4.09	2.86	0.08
			-6.00			1/2"	4.48	3.23	0.13
			1.00			Ice	4.88	3.61	0.19
						1" Ice	5.71	4.40	0.33
						2" Ice			
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00	0.0000	157.00	No Ice	4.09	2.86	0.08
			6.00			1/2"	4.48	3.23	0.13
			1.00			Ice	4.88	3.61	0.19
						1" Ice	5.71	4.40	0.33
						2" Ice			
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00	0.0000	157.00	No Ice	4.09	2.86	0.08
			-6.00			1/2"	4.48	3.23	0.13
			1.00			Ice	4.88	3.61	0.19
						1" Ice	5.71	4.40	0.33
						2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	157.00	No Ice	4.60	4.01	0.10
			-2.00			1/2"	5.05	4.45	0.16
			1.00			Ice	5.50	4.89	0.23
						1" Ice	6.44	5.82	0.42
						2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	157.00	No Ice	4.60	4.01	0.10
			2.00			1/2"	5.05	4.45	0.16
			1.00			Ice	5.50	4.89	0.23
						1" Ice	6.44	5.82	0.42
						2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	157.00	No Ice	4.60	4.01	0.10
			2.00			1/2"	5.05	4.45	0.16
			1.00			Ice	5.50	4.89	0.23
						1" Ice	6.44	5.82	0.42
						2" Ice			
LLPX310R-V1 w/ Mount Pipe	A	From Leg	4.00	0.0000	157.00	No Ice	4.54	2.98	0.05
			2.00			1/2"	4.89	3.53	0.08
			1.00			Ice	5.25	4.09	0.13
						1" Ice	6.01	5.24	0.23
						2" Ice			
LLPX310R-V1 w/ Mount Pipe	B	From Leg	4.00	0.0000	157.00	No Ice	4.54	2.98	0.05
			-6.00			1/2"	4.89	3.53	0.08
			1.00			Ice	5.25	4.09	0.13
						1" Ice	6.01	5.24	0.23
						2" Ice			
LLPX310R-V1 w/ Mount Pipe	C	From Leg	4.00	0.0000	157.00	No Ice	4.54	2.98	0.05
			6.00			1/2"	4.89	3.53	0.08
			1.00			Ice	5.25	4.09	0.13
						1" Ice	6.01	5.24	0.23
						2" Ice			
(3) ACU-A20-N	A	From Leg	4.00	0.0000	157.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			0.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
(3) ACU-A20-N	B	From Leg	4.00	0.0000	157.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			0.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
(3) ACU-A20-N	C	From Leg	4.00	0.0000	157.00	No Ice	0.07	0.12	0.00
			0.00			1/2"	0.10	0.16	0.00
			0.00			Ice	0.15	0.21	0.00
						1" Ice	0.26	0.34	0.01
						2" Ice			
TD-RRH8x20-25	A	From Leg	4.00	0.0000	157.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft ft ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft²*	*C_AA_A Side* *ft²*	*Weight* *K*
						2" Ice			
TD-RRH8x20-25	B	From Leg	4.00	0.0000	157.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
TD-RRH8x20-25	C	From Leg	4.00	0.0000	157.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			1.00			Ice	4.56	1.90	0.13
						1" Ice	5.10	2.30	0.20
						2" Ice			
BEN-92P	A	From Leg	4.00	0.0000	157.00	No Ice	0.65	0.42	0.00
			0.00			1/2"	0.75	0.51	0.01
			1.00			Ice	0.86	0.60	0.02
						1" Ice	1.10	0.81	0.04
						2" Ice			
FWHR	A	From Leg	4.00	0.0000	157.00	No Ice	1.03	0.51	0.03
			0.00			1/2"	1.16	0.60	0.04
			1.00			Ice	1.30	0.70	0.05
						1" Ice	1.59	0.92	0.08
						2" Ice			
FWHR	B	From Leg	4.00	0.0000	157.00	No Ice	1.03	0.51	0.03
			0.00			1/2"	1.16	0.60	0.04
			1.00			Ice	1.30	0.70	0.05
						1" Ice	1.59	0.92	0.08
						2" Ice			
FWHR	C	From Leg	4.00	0.0000	157.00	No Ice	1.03	0.51	0.03
			0.00			1/2"	1.16	0.60	0.04
			1.00			Ice	1.30	0.70	0.05
						1" Ice	1.59	0.92	0.08
						2" Ice			
***									
Pipe Mount [PM 601-3]	C	None		0.0000	154.00	No Ice	4.39	4.39	0.20
						1/2"	5.48	5.48	0.24
						Ice	6.57	6.57	0.28
						1" Ice	8.75	8.75	0.36
						2" Ice			
800 EXTERNAL NOTCH FILTER	A	From Leg	1.00	0.0000	154.00	No Ice	0.66	0.32	0.01
			0.00			1/2"	0.76	0.40	0.02
			1.00			Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
800 EXTERNAL NOTCH FILTER	B	From Leg	1.00	0.0000	154.00	No Ice	0.66	0.32	0.01
			0.00			1/2"	0.76	0.40	0.02
			1.00			Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
800 EXTERNAL NOTCH FILTER	C	From Leg	1.00	0.0000	154.00	No Ice	0.66	0.32	0.01
			0.00			1/2"	0.76	0.40	0.02
			1.00			Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
1900MHz RRH (65MHz)	A	From Leg	1.00	0.0000	154.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-1.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
1900MHz RRH (65MHz)	B	From Leg	1.00	0.0000	154.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-1.00			Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
1900MHz RRH (65MHz)	C	From Leg	1.00	0.0000	154.00	No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-1.00			Ice	2.74	2.65	0.11

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert ft ft ft*	*Azimuth Adjustment °*	*Placement ft*		*C_AA_A Front ft²*	*C_AA_A Side ft²*	*Weight K*
						1" Ice	3.19	3.09	0.17
						2" Ice			
800MHZ RRH	A	From Leg	1.00	0.0000	154.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			1.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800MHZ RRH	B	From Leg	1.00	0.0000	154.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			1.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
800MHZ RRH	C	From Leg	1.00	0.0000	154.00	No Ice	2.13	1.77	0.05
			0.00			1/2"	2.32	1.95	0.07
			1.00			Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
						2" Ice			
***									
Platform Mount [LP 713-1]	C	None		0.0000	149.00	No Ice	31.27	31.27	1.51
						1/2"	39.68	39.68	1.93
						Ice	48.09	48.09	2.35
						1" Ice	64.91	64.91	3.19
						2" Ice			
EPBQ-654L8H6-L2 w/ Mount Pipe	A	From Leg	4.00	0.0000	149.00	No Ice	13.47	6.64	0.11
			2.00			1/2"	14.09	7.83	0.20
			2.00			Ice	14.66	8.75	0.30
						1" Ice	15.84	10.58	0.53
						2" Ice			
EPBQ-654L8H6-L2 w/ Mount Pipe	B	From Leg	4.00	0.0000	149.00	No Ice	13.47	6.64	0.11
			2.00			1/2"	14.09	7.83	0.20
			2.00			Ice	14.66	8.75	0.30
						1" Ice	15.84	10.58	0.53
						2" Ice			
EPBQ-654L8H6-L2 w/ Mount Pipe	C	From Leg	4.00	0.0000	149.00	No Ice	13.47	6.64	0.11
			2.00			1/2"	14.09	7.83	0.20
			2.00			Ice	14.66	8.75	0.30
						1" Ice	15.84	10.58	0.53
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00	0.0000	149.00	No Ice	9.22	6.25	0.07
			6.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	149.00	No Ice	9.22	6.25	0.07
			6.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00	0.0000	149.00	No Ice	9.22	6.25	0.07
			6.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	149.00	No Ice	5.75	4.25	0.06
			-6.00			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			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	149.00	No Ice	5.75	4.25	0.06
			-6.00			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			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	149.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert*	*Azimuth Adjustment*	*Placement*		*C_AA_A Front*	*C_AA_A Side*	*Weight*
			ft ft ft	*°*	*ft*		*ft^2*	*ft^2*	*K*
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
(2) LGP21401	A	From Leg	4.00	0.0000	149.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	149.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	C	From Leg	4.00	0.0000	149.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
RRUS 4478 B5	A	From Leg	4.00	0.0000	149.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 4478 B5	B	From Leg	4.00	0.0000	149.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 4478 B5	C	From Leg	4.00	0.0000	149.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	149.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
DC6-48-60-18-8F	B	From Leg	1.00	0.0000	149.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
RRUS12/RRUS A2	A	From Leg	4.00	0.0000	149.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS12/RRUS A2	B	From Leg	4.00	0.0000	149.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS12/RRUS A2	C	From Leg	4.00	0.0000	149.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS 11	A	From Leg	4.00	0.0000	149.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.10
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 11	B	From Leg	4.00	0.0000	149.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft ft ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
			0.00			Ice	3.21	1.49	0.10
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS 11	C	From Leg	4.00	0.0000	149.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.10
						1" Ice	3.66	1.83	0.15
						2" Ice			
(2) LGP21901	A	From Leg	4.00	0.0000	149.00	No Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			0.00			Ice	0.36	0.28	0.01
						1" Ice	0.53	0.42	0.02
						2" Ice			
(2) LGP21901	B	From Leg	4.00	0.0000	149.00	No Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			0.00			Ice	0.36	0.28	0.01
						1" Ice	0.53	0.42	0.02
						2" Ice			
(2) LGP21901	C	From Leg	4.00	0.0000	149.00	No Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			0.00			Ice	0.36	0.28	0.01
						1" Ice	0.53	0.42	0.02
						2" Ice			
RRUS 32	A	From Leg	4.00	0.0000	149.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	B	From Leg	4.00	0.0000	149.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	C	From Leg	4.00	0.0000	149.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
***									
Platform Mount [LP 713-1]	C	None		0.0000	139.00	No Ice	31.27	31.27	1.51
						1/2"	39.68	39.68	1.93
						Ice	48.09	48.09	2.35
						1" Ice	64.91	64.91	3.19
						2" Ice			
6'x2" Mount Pipe	A	From Leg	4.00	0.0000	139.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	B	From Leg	4.00	0.0000	139.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	C	From Leg	4.00	0.0000	139.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
DB846F65ZAXY w/ Mount	A	From Leg	4.00	0.0000	139.00	No Ice	7.27	7.82	0.05
Pipe			-6.00			1/2"	7.83	9.01	0.11
			3.00			Ice	8.35	9.91	0.19
						1" Ice	9.40	11.73	0.37
						2" Ice			
DB846F65ZAXY w/ Mount	A	From Leg	4.00	0.0000	139.00	No Ice	7.27	7.82	0.05

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*
Pipe			6.00 3.00			1/2" Ice 1" Ice 2" Ice	7.83 8.35 9.40	9.01 9.91 11.73	0.11 0.19 0.37
DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 -6.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.27 7.83 8.35 9.40	7.82 9.01 9.91 11.73	0.05 0.11 0.19 0.37
DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 6.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.27 7.83 8.35 9.40	7.82 9.01 9.91 11.73	0.05 0.11 0.19 0.37
DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 -6.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.27 7.83 8.35 9.40	7.82 9.01 9.91 11.73	0.05 0.11 0.19 0.37
DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 6.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.27 7.83 8.35 9.40	7.82 9.01 9.91 11.73	0.05 0.11 0.19 0.37
JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00 -2.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.35 9.92 10.46 11.55	7.65 8.83 9.73 11.56	0.09 0.16 0.25 0.45
JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00 2.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.35 9.92 10.46 11.55	7.65 8.83 9.73 11.56	0.09 0.16 0.25 0.45
JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00 -2.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.35 9.92 10.46 11.55	7.65 8.83 9.73 11.56	0.09 0.16 0.25 0.45
JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00 2.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.35 9.92 10.46 11.55	7.65 8.83 9.73 11.56	0.09 0.16 0.25 0.45
JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00 -2.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.35 9.92 10.46 11.55	7.65 8.83 9.73 11.56	0.09 0.16 0.25 0.45
JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00 2.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.35 9.92 10.46 11.55	7.65 8.83 9.73 11.56	0.09 0.16 0.25 0.45
DB-T1-6Z-8AB-0Z	C	From Leg	4.00 0.00 3.00	0.0000	139.00	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
B66A RRH4X45	A	From Leg	4.00 0.00 3.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.58 2.79 3.01 3.48	1.63 1.81 2.00 2.40	0.06 0.08 0.10 0.16
B66A RRH4X45	B	From Leg	4.00	0.0000	139.00	No Ice	2.58	1.63	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	2.79	1.81	0.08
			3.00			Ice	3.01	2.00	0.10
						1" Ice	3.48	2.40	0.16
						2" Ice			
B66A RRH4X45	C	From Leg	4.00	0.0000	139.00	No Ice	2.58	1.63	0.06
			0.00			1/2"	2.79	1.81	0.08
			3.00			Ice	3.01	2.00	0.10
						1" Ice	3.48	2.40	0.16
						2" Ice			
B13 RRH 4X30	A	From Leg	4.00	0.0000	139.00	No Ice	2.06	1.32	0.06
			0.00			1/2"	2.24	1.48	0.07
			3.00			Ice	2.43	1.64	0.09
						1" Ice	2.84	2.00	0.14
						2" Ice			
B13 RRH 4X30	B	From Leg	4.00	0.0000	139.00	No Ice	2.06	1.32	0.06
			0.00			1/2"	2.24	1.48	0.07
			3.00			Ice	2.43	1.64	0.09
						1" Ice	2.84	2.00	0.14
						2" Ice			
B13 RRH 4X30	C	From Leg	4.00	0.0000	139.00	No Ice	2.06	1.32	0.06
			0.00			1/2"	2.24	1.48	0.07
			3.00			Ice	2.43	1.64	0.09
						1" Ice	2.84	2.00	0.14
						2" Ice			
***									
Platform Mount [LP 712-1]	C	None		0.0000	118.00	No Ice	24.53	24.53	1.34
						1/2"	29.94	29.94	1.65
						Ice	35.35	35.35	1.96
						1" Ice	46.17	46.17	2.58
						2" Ice			
HRK 12 [NA 507-1]	C	From Leg	0.00	0.0000	118.00	No Ice	4.80	4.80	0.26
			0.00			1/2"	6.70	6.70	0.31
			0.00			Ice	8.60	8.60	0.37
						1" Ice	12.40	12.40	0.47
						2" Ice			
6'x2" Mount Pipe	A	From Leg	4.00	0.0000	118.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	B	From Leg	4.00	0.0000	118.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	C	From Leg	4.00	0.0000	118.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
APXVAARR24_43-U-NA20	A	From Leg	4.00	0.0000	118.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			-6.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
APXVAARR24_43-U-NA20	B	From Leg	4.00	0.0000	118.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			-6.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
APXVAARR24_43-U-NA20	C	From Leg	4.00	0.0000	118.00	No Ice	14.69	6.87	0.19
w/ Mount Pipe			-6.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft²*	*C_AA_A Side* *ft²*	*Weight* *K*
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 -2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	0.15 0.21 0.28 0.44
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 -2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	0.15 0.21 0.28 0.44
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 -2.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	0.15 0.21 0.28 0.44
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 6.00 0.00	0.0000	118.00	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 6.00 0.00	0.0000	118.00	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 6.00 0.00	0.0000	118.00	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
RADIO 4449 B12/B71	A	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.30 1.44 1.60 1.92	0.08 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.30 1.44 1.60 1.92	0.08 0.09 0.11 0.16
RADIO 4449 B12/B71	C	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.30 1.44 1.60 1.92	0.08 0.09 0.11 0.16
KRY 112 144/1	A	From Leg	4.00 0.00 -2.00	0.0000	118.00	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 -2.00	0.0000	118.00	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 -2.00	0.0000	118.00	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
***									
3'x2" Horizontal Pipe	C	From Leg	1.50 0.00 0.00	0.0000	84.00	No Ice 1/2" Ice 1" Ice	0.58 0.77 0.97 1.42	0.01 0.04 0.07 0.13	0.01 0.02 0.02 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
						2" Ice			
GPS_A	C	From Leg	3.00	0.0000	84.00	No Ice	0.26	0.26	0.00
			0.00			1/2" Ice	0.32	0.32	0.00
			0.00			1" Ice	0.39	0.39	0.01
						2" Ice	0.56	0.56	0.02
***									
Pipe Mount [PM 601-1]	A	From Leg	1.00	0.0000	40.00	No Ice	3.00	0.90	0.07
			0.00			1/2" Ice	3.74	1.12	0.08
			0.00			1" Ice	4.48	1.34	0.09
						2" Ice	5.96	1.78	0.12
GPS-QBW-20N	A	From Leg	1.00	0.0000	40.00	No Ice	0.13	0.13	0.00
			0.00			1/2" Ice	0.18	0.18	0.00
			0.00			1" Ice	0.23	0.23	0.00
						2" Ice	0.37	0.37	0.01
***									

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
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

Comb. No.	Description
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 - 155	Pole	Max Tension	8	0.00	0.00	0.00
			Max. Compression	26	-7.23	2.25	-0.76
			Max. Mx	20	-3.07	10.17	-0.33
			Max. My	14	-3.07	0.69	-9.72
			Max. Vy	20	-3.73	10.17	-0.33
			Max. Vx	14	3.74	0.69	-9.72
			Max. Torque	2			1.10
L2	155 - 150	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.17	2.28	-0.78
			Max. Mx	20	-4.00	32.62	-0.34
			Max. My	14	-4.00	0.70	-32.21
			Max. Vy	20	-4.82	32.62	-0.34
			Max. Vx	14	4.83	0.70	-32.21
			Max. Torque	2			1.10
L3	150 - 145	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.21	2.17	-0.74
			Max. Mx	20	-7.66	82.75	-0.33
			Max. My	14	-7.66	0.69	-82.40
			Max. Vy	20	-10.08	82.75	-0.33
			Max. Vx	14	10.09	0.69	-82.40
			Max. Torque	2			1.10
L4	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.94	2.21	-0.77
			Max. Mx	20	-8.12	134.21	-0.34
			Max. My	14	-8.12	0.71	-133.90
			Max. Vy	20	-10.50	134.21	-0.34
			Max. Vx	14	10.51	0.71	-133.90
			Max. Torque	2			1.05
L5	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.89	3.01	-1.25
			Max. Mx	20	-11.58	219.50	-0.73
			Max. My	14	-11.58	1.20	-218.84
			Max. Vy	20	-16.15	219.50	-0.73
			Max. Vx	14	16.12	1.20	-218.84
			Max. Torque	14			-1.35
L6	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.79	3.05	-1.29
			Max. Mx	20	-12.22	301.31	-0.94
			Max. My	14	-12.22	1.42	-300.47
			Max. Vy	20	-16.58	301.31	-0.94
			Max. Vx	14	16.55	1.42	-300.47
			Max. Torque	14			-1.35
L7	130 - 125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.71	3.10	-1.33
			Max. Mx	20	-12.89	385.29	-1.15
			Max. My	14	-12.89	1.64	-384.27
			Max. Vy	20	-17.02	385.29	-1.15

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	16.98	1.64	-384.27
			Max. Torque	14			-1.35
L8	125 - 120	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.67	3.13	-1.37
			Max. Mx	20	-13.60	471.45	-1.36
			Max. My	14	-13.60	1.86	-470.26
			Max. Vy	20	-17.46	471.45	-1.36
			Max. Vx	14	17.43	1.86	-470.26
			Max. Torque	14			-1.35
L9	120 - 111.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.25	3.66	-1.69
			Max. Mx	20	-17.84	549.85	-1.71
			Max. My	14	-17.84	2.35	-548.37
			Max. Vy	20	-21.60	549.85	-1.71
			Max. Vx	14	21.57	2.35	-548.37
			Max. Torque	14			-1.57
L10	111.333 - 111	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.21	3.70	-1.73
			Max. Mx	20	-19.25	659.16	-1.93
			Max. My	14	-19.25	2.57	-657.51
			Max. Vy	20	-22.13	659.16	-1.93
			Max. Vx	14	22.10	2.57	-657.51
			Max. Torque	14			-1.57
L11	111 - 106	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.51	3.74	-1.78
			Max. Mx	20	-20.28	770.95	-2.14
			Max. My	14	-20.28	2.79	-769.14
			Max. Vy	20	-22.60	770.95	-2.14
			Max. Vx	14	22.57	2.79	-769.14
			Max. Torque	14			-1.57
L12	106 - 101	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.84	3.78	-1.82
			Max. Mx	20	-21.35	885.06	-2.35
			Max. My	14	-21.35	3.01	-883.08
			Max. Vy	20	-23.06	885.06	-2.35
			Max. Vx	14	23.03	3.01	-883.08
			Max. Torque	14			-1.57
L13	101 - 96	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.21	3.81	-1.86
			Max. Mx	20	-22.45	1001.50	-2.56
			Max. My	14	-22.45	3.23	-999.35
			Max. Vy	20	-23.53	1001.50	-2.56
			Max. Vx	14	23.50	3.23	-999.35
			Max. Torque	14			-1.57
L14	96 - 91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.61	3.84	-1.90
			Max. Mx	20	-23.59	1120.27	-2.78
			Max. My	14	-23.59	3.45	-1117.96
			Max. Vy	20	-24.00	1120.27	-2.78
			Max. Vx	14	23.97	3.45	-1117.96
			Max. Torque	14			-1.57
L15	91 - 86	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.13	3.86	-1.94
			Max. Mx	20	-24.76	1241.38	-2.99
			Max. My	14	-24.76	3.66	-1238.91
			Max. Vy	20	-24.47	1241.38	-2.99
			Max. Vx	14	24.44	3.66	-1238.91
			Max. Torque	14			-1.57
L16	86 - 85.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.23	3.87	-1.94
			Max. Mx	20	-24.84	1247.50	-3.00
			Max. My	14	-24.84	3.68	-1245.02
			Max. Vy	20	-24.49	1247.50	-3.00
			Max. Vx	14	24.46	3.68	-1245.02
			Max. Torque	14			-1.57
L17	85.75 - 81	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.24	4.04	-2.07

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-26.34	1365.07	-3.24
			Max. My	14	-26.32	3.94	-1362.82
			Max. Vy	20	-25.01	1365.07	-3.24
			Max. Vx	14	25.14	3.94	-1362.82
			Max. Torque	14			-1.60
L18	81 - 80.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.33	4.05	-2.07
			Max. Mx	20	-26.41	1371.33	-3.25
			Max. My	14	-26.40	3.95	-1369.10
			Max. Vy	20	-25.04	1371.33	-3.25
			Max. Vx	14	25.17	3.95	-1369.10
			Max. Torque	14			-1.60
L19	80.75 - 80.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.43	4.05	-2.07
			Max. Mx	20	-26.48	1377.59	-3.27
			Max. My	14	-26.47	3.96	-1375.40
			Max. Vy	20	-25.07	1377.59	-3.27
			Max. Vx	14	25.20	3.96	-1375.40
			Max. Torque	14			-1.60
L20	80.5 - 73.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.94	4.05	-2.08
			Max. Mx	20	-26.86	1415.29	-3.34
			Max. My	14	-26.85	4.04	-1413.30
			Max. Vy	20	-25.22	1415.29	-3.34
			Max. Vx	14	25.36	4.04	-1413.30
			Max. Torque	14			-1.60
L21	73.25 - 72.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.82	4.05	-2.12
			Max. Mx	20	-29.78	1588.09	-3.68
			Max. My	14	-29.77	4.39	-1587.00
			Max. Vy	20	-25.99	1588.09	-3.68
			Max. Vx	14	26.12	4.39	-1587.00
			Max. Torque	14			-1.60
L22	72.25 - 67.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.53	4.05	-2.14
			Max. Mx	20	-31.20	1719.14	-3.94
			Max. My	14	-31.19	4.64	-1718.71
			Max. Vy	20	-26.46	1719.14	-3.94
			Max. Vx	14	26.59	4.64	-1718.71
			Max. Torque	14			-1.60
L23	67.25 - 62.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.28	4.05	-2.17
			Max. Mx	20	-32.65	1852.53	-4.19
			Max. My	14	-32.64	4.89	-1852.77
			Max. Vy	20	-26.93	1852.53	-4.19
			Max. Vx	14	27.06	4.89	-1852.77
			Max. Torque	14			-1.60
L24	62.25 - 57.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.07	4.05	-2.20
			Max. Mx	20	-34.13	1988.25	-4.44
			Max. My	14	-34.12	5.15	-1989.15
			Max. Vy	20	-27.39	1988.25	-4.44
			Max. Vx	14	27.52	5.15	-1989.15
			Max. Torque	14			-1.60
L25	57.25 - 52.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.91	4.05	-2.23
			Max. Mx	20	-35.66	2126.26	-4.69
			Max. My	14	-35.65	5.40	-2127.84
			Max. Vy	20	-27.84	2126.26	-4.69
			Max. Vx	14	27.98	5.40	-2127.84
			Max. Torque	14			-1.59
L26	52.25 - 49.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.06	4.05	-2.24

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-36.59	2193.88	-4.81
			Max. My	14	-36.57	5.52	-2195.87
			Max. Vy	20	-28.07	2193.88	-4.81
			Max. Vx	14	28.28	5.52	-2195.87
			Max. Torque	14			-1.59
L27	49.83 - 49.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.18	4.05	-2.24
			Max. Mx	20	-36.69	2200.90	-4.82
			Max. My	14	-36.68	5.53	-2202.94
			Max. Vy	20	-28.08	2200.90	-4.82
			Max. Vx	14	28.30	5.53	-2202.94
			Max. Torque	14			-1.59
L28	49.58 - 44.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.58	4.05	-2.27
			Max. Mx	20	-38.62	2342.42	-5.07
			Max. My	14	-38.61	5.78	-2345.93
			Max. Vy	20	-28.54	2342.42	-5.07
			Max. Vx	14	28.91	5.78	-2345.93
			Max. Torque	14			-1.59
L29	44.58 - 36.3333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.34	4.05	-2.28
			Max. Mx	20	-39.24	2387.60	-5.15
			Max. My	14	-39.22	5.86	-2391.73
			Max. Vy	20	-28.69	2387.60	-5.15
			Max. Vx	14	29.11	5.86	-2391.73
			Max. Torque	14			-1.59
L30	36.3333 - 35.3333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.53	4.05	-1.96
			Max. Mx	20	-44.09	2610.69	-5.30
			Max. My	14	-44.07	6.24	-2618.94
			Max. Vy	20	-29.51	2610.69	-5.30
			Max. Vx	14	30.22	6.24	-2618.94
			Max. Torque	14			-1.59
L31	35.3333 - 32.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.10	4.05	-1.98
			Max. Mx	20	-45.38	2702.02	-5.45
			Max. My	14	-45.36	6.39	-2712.59
			Max. Vy	20	-29.76	2702.02	-5.45
			Max. Vx	14	30.56	6.39	-2712.59
			Max. Torque	14			-1.59
L32	32.25 - 32	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.23	4.05	-1.98
			Max. Mx	20	-45.49	2709.46	-5.46
			Max. My	14	-45.47	6.40	-2720.23
			Max. Vy	20	-29.78	2709.46	-5.46
			Max. Vx	14	30.58	6.40	-2720.23
			Max. Torque	14			-1.59
L33	32 - 27	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.82	4.05	-2.01
			Max. Mx	20	-47.62	2859.28	-5.71
			Max. My	14	-47.60	6.65	-2874.40
			Max. Vy	20	-30.17	2859.28	-5.71
			Max. Vx	14	31.11	6.65	-2874.40
			Max. Torque	14			-1.59
L34	27 - 22	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.44	4.05	-2.04
			Max. Mx	20	-49.79	3011.04	-5.95
			Max. My	14	-49.77	6.89	-3031.23
			Max. Vy	20	-30.57	3011.04	-5.95
			Max. Vx	14	31.65	6.89	-3031.23
			Max. Torque	14			-1.59
L35	22 - 17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.09	4.05	-2.07
			Max. Mx	20	-51.99	3164.77	-6.20

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-51.97	7.13	-3190.74
			Max. Vy	20	-30.96	3164.77	-6.20
			Max. Vx	14	32.19	7.13	-3190.74
			Max. Torque	14			-1.59
L36	17 - 15.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.96	4.05	-2.07
			Max. Mx	20	-52.70	3211.27	-6.27
			Max. My	14	-52.68	7.20	-3239.12
			Max. Vy	20	-31.09	3211.27	-6.27
			Max. Vx	14	32.37	7.20	-3239.12
			Max. Torque	14			-1.59
L37	15.5 - 15.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.11	4.05	-2.08
			Max. Mx	20	-52.83	3219.04	-6.28
			Max. My	14	-52.82	7.22	-3247.21
			Max. Vy	20	-31.09	3219.04	-6.28
			Max. Vx	14	32.38	7.22	-3247.21
			Max. Torque	14			-1.59
L38	15.25 - 14.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.41	4.05	-2.08
			Max. Mx	20	-53.07	3234.59	-6.31
			Max. My	14	-53.06	7.24	-3263.41
			Max. Vy	20	-31.13	3234.59	-6.31
			Max. Vx	14	32.44	7.24	-3263.41
			Max. Torque	14			-1.59
L39	14.75 - 14.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.55	4.05	-2.08
			Max. Mx	20	-53.20	3242.37	-6.32
			Max. My	14	-53.18	7.25	-3271.53
			Max. Vy	20	-31.15	3242.37	-6.32
			Max. Vx	14	32.46	7.25	-3271.53
			Max. Torque	14			-1.59
L40	14.5 - 9.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.25	4.05	-2.10
			Max. Mx	20	-55.43	3399.07	-6.56
			Max. My	14	-55.42	7.49	-3435.19
			Max. Vy	20	-31.56	3399.07	-6.56
			Max. Vx	14	33.03	7.49	-3435.19
			Max. Torque	14			-1.59
L41	9.5 - 4.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.73	4.05	-2.10
			Max. Mx	20	-57.53	3557.76	-6.80
			Max. My	14	-57.53	7.73	-3601.23
			Max. Vy	20	-31.96	3557.76	-6.80
			Max. Vx	14	33.42	7.73	-3601.23
			Max. Torque	14			-1.59
L42	4.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.85	4.05	-2.10
			Max. Mx	20	-59.40	3702.30	-7.01
			Max. My	14	-59.40	7.94	-3752.36
			Max. Vy	20	-32.32	3702.30	-7.01
			Max. Vx	14	33.79	7.94	-3752.36
			Max. Torque	14			-1.59

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	90.85	0.00	-0.00
	Max. H_x	20	59.41	32.30	-0.05
	Max. H_z	2	59.41	-0.05	32.31
	Max. M_x	2	3696.43	-0.05	32.31
	Max. M_z	8	3699.37	-32.30	0.05

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. Torsion	2	1.58	-0.05	32.31
	Min. Vert	11	44.56	-27.95	-16.12
	Min. H_x	8	59.41	-32.30	0.05
	Min. H_z	14	59.41	0.05	-33.77
	Min. M_x	14	-3752.36	0.05	-33.77
	Min. M_z	20	-3702.30	32.30	-0.05
	Min. Torsion	14	-1.59	0.05	-33.77

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	49.51	0.00	0.00	0.40	1.13	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	59.41	0.05	-32.31	-3696.43	-5.03	-1.58
0.9 Dead+1.0 Wind 0 deg - No Ice	44.56	0.05	-32.31	-3651.35	-5.34	-1.54
1.2 Dead+1.0 Wind 30 deg - No Ice	59.41	16.19	-28.01	-3204.36	-1854.58	-1.27
0.9 Dead+1.0 Wind 30 deg - No Ice	44.56	16.19	-28.01	-3165.29	-1832.25	-1.25
1.2 Dead+1.0 Wind 60 deg - No Ice	59.41	29.26	-16.92	-1881.00	-3254.33	-0.63
0.9 Dead+1.0 Wind 60 deg - No Ice	44.56	29.26	-16.92	-1858.33	-3215.23	-0.62
1.2 Dead+1.0 Wind 90 deg - No Ice	59.41	32.30	-0.05	-5.96	-3699.37	0.18
0.9 Dead+1.0 Wind 90 deg - No Ice	44.56	32.30	-0.05	-6.02	-3654.48	0.17
1.2 Dead+1.0 Wind 120 deg - No Ice	59.41	27.95	16.12	1843.38	-3200.33	0.95
0.9 Dead+1.0 Wind 120 deg - No Ice	44.56	27.95	16.12	1820.70	-3161.54	0.92
1.2 Dead+1.0 Wind 150 deg - No Ice	59.41	16.11	27.96	3198.94	-1843.36	1.47
0.9 Dead+1.0 Wind 150 deg - No Ice	44.56	16.11	27.96	3159.68	-1821.18	1.43
1.2 Dead+1.0 Wind 180 deg - No Ice	59.41	-0.05	33.77	3752.36	7.94	1.59
0.9 Dead+1.0 Wind 180 deg - No Ice	44.56	-0.05	33.77	3706.74	7.47	1.56
1.2 Dead+1.0 Wind 210 deg - No Ice	59.41	-16.19	28.01	3205.41	1857.49	1.28
0.9 Dead+1.0 Wind 210 deg - No Ice	44.56	-16.19	28.01	3166.06	1834.38	1.27
1.2 Dead+1.0 Wind 240 deg - No Ice	59.41	-28.00	16.20	1854.61	3209.71	0.63
0.9 Dead+1.0 Wind 240 deg - No Ice	44.56	-28.00	16.20	1831.78	3170.06	0.62
1.2 Dead+1.0 Wind 270 deg - No Ice	59.41	-32.30	0.05	7.01	3702.30	-0.20
0.9 Dead+1.0 Wind 270 deg - No Ice	44.56	-32.30	0.05	6.78	3656.62	-0.18
1.2 Dead+1.0 Wind 300 deg - No Ice	59.41	-29.21	-16.84	-1869.79	3250.79	-0.97
0.9 Dead+1.0 Wind 300 deg - No Ice	44.56	-29.21	-16.84	-1847.26	3210.99	-0.94
1.2 Dead+1.0 Wind 330 deg - No Ice	59.41	-16.11	-27.96	-3197.91	1846.27	-1.47
0.9 Dead+1.0 Wind 330 deg - No Ice	44.56	-16.11	-27.96	-3158.92	1823.31	-1.43
1.2 Dead+1.0 Ice+1.0 Temp	90.85	-0.00	0.00	2.10	4.05	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	90.85	0.01	-7.90	-960.71	2.87	-0.42

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
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	90.85	3.96	-6.85	-832.39	-478.72	-0.32
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	90.85	6.86	-3.97	-480.99	-831.85	-0.14
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	90.85	7.89	-0.01	0.83	-959.30	0.09
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	90.85	6.83	3.94	482.47	-829.52	0.29
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	90.85	3.94	6.84	835.42	-476.34	0.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	90.85	-0.01	7.92	966.22	5.62	0.42
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	90.85	-3.96	6.85	836.80	487.21	0.32
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	90.85	-6.84	3.96	484.85	839.39	0.14
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	90.85	-7.89	0.01	3.58	967.80	-0.09
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	90.85	-6.85	-3.95	-478.61	838.97	-0.29
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	90.85	-3.94	-6.84	-831.01	484.83	-0.41
Dead+Wind 0 deg - Service	49.51	0.01	-7.61	-864.03	-0.31	-0.37
Dead+Wind 30 deg - Service	49.51	3.81	-6.59	-748.97	-432.79	-0.30
Dead+Wind 60 deg - Service	49.51	6.89	-3.98	-439.56	-760.15	-0.15
Dead+Wind 90 deg - Service	49.51	7.61	-0.01	-1.09	-864.16	0.04
Dead+Wind 120 deg - Service	49.51	6.58	3.79	431.34	-747.47	0.22
Dead+Wind 150 deg - Service	49.51	3.79	6.58	748.31	-430.17	0.34
Dead+Wind 180 deg - Service	49.51	-0.01	7.95	877.78	2.72	0.37
Dead+Wind 210 deg - Service	49.51	-3.81	6.59	749.83	435.20	0.30
Dead+Wind 240 deg - Service	49.51	-6.59	3.81	433.97	751.39	0.15
Dead+Wind 270 deg - Service	49.51	-7.61	0.01	1.94	866.57	-0.04
Dead+Wind 300 deg - Service	49.51	-6.88	-3.97	-436.94	761.05	-0.22
Dead+Wind 330 deg - Service	49.51	-3.79	-6.58	-747.46	432.58	-0.34

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-49.51	0.00	0.00	49.51	0.00	0.000%
2	0.05	-59.41	-32.31	-0.05	59.41	32.31	0.000%
3	0.05	-44.56	-32.31	-0.05	44.56	32.31	0.000%
4	16.19	-59.41	-28.01	-16.19	59.41	28.01	0.000%
5	16.19	-44.56	-28.01	-16.19	44.56	28.01	0.000%
6	29.26	-59.41	-16.92	-29.26	59.41	16.92	0.000%
7	29.26	-44.56	-16.92	-29.26	44.56	16.92	0.000%
8	32.30	-59.41	-0.05	-32.30	59.41	0.05	0.000%
9	32.30	-44.56	-0.05	-32.30	44.56	0.05	0.000%
10	27.95	-59.41	16.12	-27.95	59.41	-16.12	0.000%
11	27.95	-44.56	16.12	-27.95	44.56	-16.12	0.000%
12	16.11	-59.41	27.96	-16.11	59.41	-27.96	0.000%
13	16.11	-44.56	27.96	-16.11	44.56	-27.96	0.000%
14	-0.05	-59.41	33.77	0.05	59.41	-33.77	0.000%
15	-0.05	-44.56	33.77	0.05	44.56	-33.77	0.000%
16	-16.19	-59.41	28.01	16.19	59.41	-28.01	0.000%
17	-16.19	-44.56	28.01	16.19	44.56	-28.01	0.000%
18	-28.00	-59.41	16.20	28.00	59.41	-16.20	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
19	-28.00	-44.56	16.20	28.00	44.56	-16.20	0.000%
20	-32.30	-59.41	0.05	32.30	59.41	-0.05	0.000%
21	-32.30	-44.56	0.05	32.30	44.56	-0.05	0.000%
22	-29.21	-59.41	-16.84	29.21	59.41	16.84	0.000%
23	-29.21	-44.56	-16.84	29.21	44.56	16.84	0.000%
24	-16.11	-59.41	-27.96	16.11	59.41	27.96	0.000%
25	-16.11	-44.56	-27.96	16.11	44.56	27.96	0.000%
26	0.00	-90.85	0.00	0.00	90.85	-0.00	0.000%
27	0.01	-90.85	-7.90	-0.01	90.85	7.90	0.000%
28	3.96	-90.85	-6.85	-3.96	90.85	6.85	0.000%
29	6.86	-90.85	-3.97	-6.86	90.85	3.97	0.000%
30	7.89	-90.85	-0.01	-7.89	90.85	0.01	0.000%
31	6.83	-90.85	3.94	-6.83	90.85	-3.94	0.000%
32	3.94	-90.85	6.84	-3.94	90.85	-6.84	0.000%
33	-0.01	-90.85	7.92	0.01	90.85	-7.92	0.000%
34	-3.96	-90.85	6.85	3.96	90.85	-6.85	0.000%
35	-6.84	-90.85	3.96	6.84	90.85	-3.96	0.000%
36	-7.89	-90.85	0.01	7.89	90.85	-0.01	0.000%
37	-6.85	-90.85	-3.95	6.85	90.85	3.95	0.000%
38	-3.94	-90.85	-6.84	3.94	90.85	6.84	0.000%
39	0.01	-49.51	-7.61	-0.01	49.51	7.61	0.000%
40	3.81	-49.51	-6.59	-3.81	49.51	6.59	0.000%
41	6.89	-49.51	-3.98	-6.89	49.51	3.98	0.000%
42	7.61	-49.51	-0.01	-7.61	49.51	0.01	0.000%
43	6.58	-49.51	3.79	-6.58	49.51	-3.79	0.000%
44	3.79	-49.51	6.58	-3.79	49.51	-6.58	0.000%
45	-0.01	-49.51	7.95	0.01	49.51	-7.95	0.000%
46	-3.81	-49.51	6.59	3.81	49.51	-6.59	0.000%
47	-6.59	-49.51	3.81	6.59	49.51	-3.81	0.000%
48	-7.61	-49.51	0.01	7.61	49.51	-0.01	0.000%
49	-6.88	-49.51	-3.97	6.88	49.51	3.97	0.000%
50	-3.79	-49.51	-6.58	3.79	49.51	6.58	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00068950
3	Yes	5	0.00000001	0.00031327
4	Yes	6	0.00000001	0.00090912
5	Yes	6	0.00000001	0.00030180
6	Yes	6	0.00000001	0.00093988
7	Yes	6	0.00000001	0.00031181
8	Yes	5	0.00000001	0.00029608
9	Yes	5	0.00000001	0.00010719
10	Yes	6	0.00000001	0.00093330
11	Yes	6	0.00000001	0.00031098
12	Yes	6	0.00000001	0.00089962
13	Yes	6	0.00000001	0.00029886
14	Yes	5	0.00000001	0.00082638
15	Yes	5	0.00000001	0.00037865
16	Yes	6	0.00000001	0.00094663
17	Yes	6	0.00000001	0.00031498
18	Yes	6	0.00000001	0.00092180
19	Yes	6	0.00000001	0.00030583
20	Yes	5	0.00000001	0.00034915
21	Yes	5	0.00000001	0.00013653
22	Yes	6	0.00000001	0.00091365
23	Yes	6	0.00000001	0.00030259
24	Yes	6	0.00000001	0.00094133
25	Yes	6	0.00000001	0.00031378
26	Yes	4	0.00000001	0.00069477
27	Yes	6	0.00000001	0.00092366
28	Yes	7	0.00000001	0.00013335

29	Yes	7	0.00000001	0.00013378
30	Yes	6	0.00000001	0.00091918
31	Yes	7	0.00000001	0.00013452
32	Yes	7	0.00000001	0.00013402
33	Yes	6	0.00000001	0.00093338
34	Yes	7	0.00000001	0.00013748
35	Yes	7	0.00000001	0.00013718
36	Yes	6	0.00000001	0.00093811
37	Yes	7	0.00000001	0.00013547
38	Yes	7	0.00000001	0.00013583
39	Yes	5	0.00000001	0.00006780
40	Yes	5	0.00000001	0.00024316
41	Yes	5	0.00000001	0.00026297
42	Yes	5	0.00000001	0.00005746
43	Yes	5	0.00000001	0.00026282
44	Yes	5	0.00000001	0.00023995
45	Yes	5	0.00000001	0.00006930
46	Yes	5	0.00000001	0.00027102
47	Yes	5	0.00000001	0.00025255
48	Yes	5	0.00000001	0.00005803
49	Yes	5	0.00000001	0.00024826
50	Yes	5	0.00000001	0.00026979

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* ft	*Horz. Deflection* in	*Gov. Load Comb.*	*Tilt* °	*Twist* °
L1	160 - 155	24.339	47	1.3859	0.0041
L2	155 - 150	22.890	49	1.3846	0.0039
L3	150 - 145	21.448	49	1.3768	0.0035
L4	145 - 140	20.018	49	1.3598	0.0031
L5	140 - 135	18.611	49	1.3326	0.0028
L6	135 - 130	17.238	49	1.2943	0.0024
L7	130 - 125	15.910	49	1.2458	0.0021
L8	125 - 120	14.636	49	1.1901	0.0018
L9	120 - 111.333	13.423	49	1.1290	0.0016
L10	116 - 111	12.500	49	1.0772	0.0014
L11	111 - 106	11.389	49	1.0455	0.0013
L12	106 - 101	10.324	45	0.9895	0.0012
L13	101 - 96	9.319	45	0.9316	0.0010
L14	96 - 91	8.374	45	0.8726	0.0009
L15	91 - 86	7.491	45	0.8132	0.0008
L16	86 - 85.75	6.671	45	0.7534	0.0007
L17	85.75 - 81	6.632	45	0.7513	0.0007
L18	81 - 80.75	5.904	45	0.7122	0.0006
L19	80.75 - 80.5	5.866	45	0.7093	0.0006
L20	80.5 - 73.25	5.829	45	0.7063	0.0006
L21	79 - 72.25	5.610	45	0.6884	0.0006
L22	72.25 - 67.25	4.664	45	0.6455	0.0005
L23	67.25 - 62.25	4.016	41	0.5928	0.0005
L24	62.25 - 57.25	3.423	41	0.5407	0.0004
L25	57.25 - 52.25	2.884	41	0.4894	0.0004
L26	52.25 - 49.83	2.398	41	0.4388	0.0003
L27	49.83 - 49.58	2.182	41	0.4146	0.0003
L28	49.58 - 44.58	2.160	41	0.4121	0.0003
L29	44.58 - 36.3333	1.754	41	0.3629	0.0002
L30	43 - 35.3333	1.637	41	0.3475	0.0002
L31	35.3333 - 32.25	1.108	41	0.3065	0.0002
L32	32.25 - 32	0.920	41	0.2780	0.0002
L33	32 - 27	0.905	41	0.2757	0.0002
L34	27 - 22	0.640	41	0.2304	0.0001
L35	22 - 17	0.422	41	0.1858	0.0001
L36	17 - 15.5	0.251	41	0.1422	0.0001
L37	15.5 - 15.25	0.208	41	0.1294	0.0001
L38	15.25 - 14.75	0.201	41	0.1272	0.0001
L39	14.75 - 14.5	0.188	41	0.1229	0.0001
L40	14.5 - 9.5	0.182	41	0.1208	0.0001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L41	9.5 - 4.5	0.078	41	0.0784	0.0000
L42	4.5 - 0	0.017	41	0.0368	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
157.00	Platform Mount [LP 713-1]	49	23.469	1.3856	0.0040	63777
154.00	Pipe Mount [PM 601-3]	49	22.601	1.3837	0.0038	50494
149.00	Platform Mount [LP 713-1]	49	21.161	1.3741	0.0034	20649
139.00	Platform Mount [LP 713-1]	49	18.334	1.3258	0.0027	8300
118.00	Platform Mount [LP 712-1]	49	12.957	1.1009	0.0015	5232
84.00	3'x2" Horizontal Pipe	45	6.359	0.7386	0.0007	6198
40.00	Pipe Mount [PM 601-1]	41	1.421	0.3294	0.0002	9842

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	104.069	6	5.9091	0.0176
L2	155 - 150	97.908	6	5.9046	0.0167
L3	150 - 145	91.762	6	5.8743	0.0148
L4	145 - 140	85.663	6	5.8040	0.0132
L5	140 - 135	79.660	6	5.6902	0.0118
L6	135 - 130	73.796	6	5.5303	0.0103
L7	130 - 125	68.124	6	5.3261	0.0090
L8	125 - 120	62.680	6	5.0905	0.0079
L9	120 - 111.333	57.495	6	4.8317	0.0068
L10	116 - 111	53.546	6	4.6118	0.0061
L11	111 - 106	48.791	6	4.4775	0.0056
L12	106 - 101	44.233	6	4.2395	0.0050
L13	101 - 96	39.928	6	3.9932	0.0044
L14	96 - 91	35.883	6	3.7416	0.0039
L15	91 - 86	32.103	6	3.4868	0.0034
L16	86 - 85.75	28.589	6	3.2305	0.0030
L17	85.75 - 81	28.420	6	3.2218	0.0030
L18	81 - 80.75	25.301	6	3.0542	0.0027
L19	80.75 - 80.5	25.142	6	3.0415	0.0027
L20	80.5 - 73.25	24.983	6	3.0287	0.0027
L21	79 - 72.25	24.044	6	2.9519	0.0026
L22	72.25 - 67.25	19.990	6	2.7679	0.0023
L23	67.25 - 62.25	17.212	6	2.5419	0.0020
L24	62.25 - 57.25	14.668	6	2.3186	0.0018
L25	57.25 - 52.25	12.357	6	2.0983	0.0016
L26	52.25 - 49.83	10.274	6	1.8813	0.0013
L27	49.83 - 49.58	9.347	6	1.7776	0.0012
L28	49.58 - 44.58	9.255	6	1.7669	0.0012
L29	44.58 - 36.3333	7.516	6	1.5554	0.0010
L30	43 - 35.3333	7.012	6	1.4893	0.0010
L31	35.3333 - 32.25	4.748	6	1.3134	0.0009
L32	32.25 - 32	3.939	6	1.1914	0.0008
L33	32 - 27	3.877	6	1.1816	0.0008
L34	27 - 22	2.742	6	0.9870	0.0006
L35	22 - 17	1.809	6	0.7961	0.0005
L36	17 - 15.5	1.073	6	0.6090	0.0004
L37	15.5 - 15.25	0.890	6	0.5541	0.0003
L38	15.25 - 14.75	0.862	6	0.5449	0.0003
L39	14.75 - 14.5	0.806	6	0.5266	0.0003
L40	14.5 - 9.5	0.778	6	0.5174	0.0003

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L41	9.5 - 4.5	0.332	6	0.3356	0.0002
L42	4.5 - 0	0.074	6	0.1574	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
157.00	Platform Mount [LP 713-1]	6	100.372	5.9082	0.0172	17813
154.00	Pipe Mount [PM 601-3]	6	96.677	5.9013	0.0164	13756
149.00	Platform Mount [LP 713-1]	6	90.537	5.8636	0.0144	5157
139.00	Platform Mount [LP 713-1]	6	78.474	5.6620	0.0115	2003
118.00	Platform Mount [LP 712-1]	6	55.501	4.7127	0.0064	1246
84.00	3'x2" Horizontal Pipe	6	27.252	3.1671	0.0029	1460
40.00	Pipe Mount [PM 601-1]	6	6.090	1.4119	0.0009	2298

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	160 - 155 (1)	TP20.801x19.6x0.25	5.00	0.00	0.0	16.5436	-3.07	967.80	0.003
L2	155 - 150 (2)	TP22.0021x20.801x0.25	5.00	0.00	0.0	17.5104	-4.00	1024.36	0.004
L3	150 - 145 (3)	TP23.2031x22.0021x0.25	5.00	0.00	0.0	18.4772	-7.66	1080.92	0.007
L4	145 - 140 (4)	TP24.4041x23.2031x0.25	5.00	0.00	0.0	19.4441	-8.12	1137.48	0.007
L5	140 - 135 (5)	TP25.6051x24.4041x0.25	5.00	0.00	0.0	20.4109	-11.57	1194.04	0.010
L6	135 - 130 (6)	TP26.8062x25.6051x0.25	5.00	0.00	0.0	21.3777	-12.22	1250.60	0.010
L7	130 - 125 (7)	TP28.0072x26.8062x0.25	5.00	0.00	0.0	22.3445	-12.89	1307.16	0.010
L8	125 - 120 (8)	TP29.2082x28.0072x0.25	5.00	0.00	0.0	23.3114	-13.59	1363.71	0.010
L9	120 - 111.333 (9)	TP31.29x29.2082x0.25	8.67	0.00	0.0	24.0848	-17.84	1408.96	0.013
L10	111.333 - 111 (10)	TP30.867x29.669x0.3438	5.00	0.00	0.0	33.7855	-19.24	1976.45	0.010
L11	111 - 106 (11)	TP32.065x30.867x0.3438	5.00	0.00	0.0	35.1115	-20.27	2054.02	0.010
L12	106 - 101 (12)	TP33.2631x32.065x0.3438	5.00	0.00	0.0	36.4376	-21.35	2131.60	0.010
L13	101 - 96 (13)	TP34.4611x33.2631x0.3438	5.00	0.00	0.0	37.7636	-22.45	2209.17	0.010
L14	96 - 91 (14)	TP35.6591x34.4611x0.3438	5.00	0.00	0.0	39.0896	-23.59	2286.74	0.010
L15	91 - 86 (15)	TP36.8571x35.6591x0.3438	5.00	0.00	0.0	40.4157	-24.76	2364.32	0.010
L16	86 - 85.75 (16)	TP36.917x36.8571x0.5125	0.25	0.00	0.0	60.0765	-24.84	3514.48	0.007
L17	85.75 - 81 (17)	TP38.0551x36.917x0.5063	4.75	0.00	0.0	61.2093	-26.33	3580.74	0.007
L18	81 - 80.75	TP38.115x38.0551x0.343	0.25	0.00	0.0	41.808	-26.41	2445.77	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	(18)	8				0			
L19	80.75 - 80.5 (19)	TP38.1749x38.115x0.3438	0.25	0.00	0.0	41.8743	-26.48	2449.65	0.011
L20	80.5 - 73.25 (20)	TP39.912x38.1749x0.3438	7.25	0.00	0.0	42.2722	-26.86	2472.92	0.011
L21	73.25 - 72.25 (21)	TP39.467x37.8468x0.4063	6.75	0.00	0.0	51.0963	-29.78	2989.13	0.010
L22	72.25 - 67.25 (22)	TP40.6671x39.467x0.4063	5.00	0.00	0.0	52.6663	-31.18	3080.98	0.010
L23	67.25 - 62.25 (23)	TP41.8673x40.6671x0.4063	5.00	0.00	0.0	54.2362	-32.63	3172.82	0.010
L24	62.25 - 57.25 (24)	TP43.0674x41.8673x0.4063	5.00	0.00	0.0	55.8061	-34.12	3264.66	0.010
L25	57.25 - 52.25 (25)	TP44.2675x43.0674x0.4063	5.00	0.00	0.0	57.3761	-35.65	3356.50	0.011
L26	52.25 - 49.83 (26)	TP44.8484x44.2675x0.4063	2.42	0.00	0.0	58.1359	-36.57	3400.95	0.011
L27	49.83 - 49.58 (27)	TP44.9084x44.8484x0.4063	0.25	0.00	0.0	58.2144	-36.68	3405.54	0.011
L28	49.58 - 44.58 (28)	TP46.1086x44.9084x0.4063	5.00	0.00	0.0	59.7843	-38.60	3497.38	0.011
L29	44.58 - 36.3333 (29)	TP48.088x46.1086x0.4063	8.25	0.00	0.0	60.2804	-39.22	3526.41	0.011
L30	36.3333 - 35.3333 (30)	TP47.5162x45.6753x0.4375	7.67	0.00	0.0	66.3221	-44.06	3879.84	0.011
L31	35.3333 - 32.25 (31)	TP48.2565x47.5162x0.4375	3.08	0.00	0.0	67.3650	-45.35	3940.85	0.012
L32	32.25 - 32 (32)	TP48.3165x48.2565x0.4375	0.25	0.00	0.0	67.4495	-45.47	3945.80	0.012
L33	32 - 27 (33)	TP49.5171x48.3165x0.4375	5.00	0.00	0.0	69.1408	-47.60	4044.74	0.012
L34	27 - 22 (34)	TP50.7176x49.5171x0.4375	5.00	0.00	0.0	70.8321	-49.77	4143.68	0.012
L35	22 - 17 (35)	TP51.9181x50.7176x0.4375	5.00	0.00	0.0	72.5234	-51.97	4242.62	0.012
L36	17 - 15.5 (36)	TP52.2783x51.9181x0.4375	1.50	0.00	0.0	73.0307	-52.68	4272.30	0.012
L37	15.5 - 15.25 (37)	TP52.3383x52.2783x0.4375	0.25	0.00	0.0	73.1153	-52.82	4277.25	0.012
L38	15.25 - 14.75 (38)	TP52.4584x52.3383x0.4375	0.50	0.00	0.0	73.2844	-53.06	4287.14	0.012
L39	14.75 - 14.5 (39)	TP52.5184x52.4584x0.4375	0.25	0.00	0.0	73.3690	-53.18	4292.09	0.012
L40	14.5 - 9.5 (40)	TP53.719x52.5184x0.4375	5.00	0.00	0.0	75.0603	-55.42	4391.03	0.013
L41	9.5 - 4.5 (41)	TP54.9195x53.719x0.4375	5.00	0.00	0.0	76.7515	-57.53	4489.96	0.013
L42	4.5 - 0 (42)	TP56x54.9195x0.4375	4.50	0.00	0.0	78.2737	-59.40	4579.01	0.013

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 - 155 (1)	TP20.801x19.6x0.25	10.23	508.14	0.020	0.00	508.14	0.000
L2	155 - 150 (2)	TP22.0021x20.801x0.25	32.69	559.87	0.058	0.00	559.87	0.000
L3	150 - 145 (3)	TP23.2031x22.0021x0.25	82.84	612.89	0.135	0.00	612.89	0.000
L4	145 - 140 (4)	TP24.4041x23.2031x0.25	134.30	667.00	0.201	0.00	667.00	0.000
L5	140 - 135 (5)	TP25.6051x24.4041x0.25	219.80	722.04	0.304	0.00	722.04	0.000
L6	135 - 130 (6)	TP26.8062x25.6051x0.25	301.74	777.82	0.388	0.00	777.82	0.000
L7	130 - 125 (7)	TP28.0072x26.8062x0.25	385.85	834.16	0.463	0.00	834.16	0.000
L8	125 - 120 (8)	TP29.2082x28.0072x0.25	472.14	890.88	0.530	0.00	890.88	0.000
L9	120 - 111.333 (9)	TP31.29x29.2082x0.25	550.69	936.40	0.588	0.00	936.40	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	111.333 - 111 (10)	TP30.867x29.669x0.3438	660.13	1506.34	0.438	0.00	1506.34	0.000
L11	111 - 106 (11)	TP32.065x30.867x0.3438	772.05	1606.85	0.480	0.00	1606.85	0.000
L12	106 - 101 (12)	TP33.2631x32.065x0.3438	886.30	1708.83	0.519	0.00	1708.83	0.000
L13	101 - 96 (13)	TP34.4611x33.2631x0.3438	1002.87	1812.13	0.553	0.00	1812.13	0.000
L14	96 - 91 (14)	TP35.6591x34.4611x0.3438	1121.77	1916.55	0.585	0.00	1916.55	0.000
L15	91 - 86 (15)	TP36.8571x35.6591x0.3438	1243.00	2021.91	0.615	0.00	2021.91	0.000
L16	86 - 85.75 (16)	TP36.917x36.8571x0.5125	1249.13	3264.29	0.383	0.00	3264.29	0.000
L17	85.75 - 81 (17)	TP38.0551x36.917x0.5063	1366.85	3432.41	0.398	0.00	3432.41	0.000
L18	81 - 80.75 (18)	TP38.115x38.0551x0.3438	1373.11	2133.36	0.644	0.00	2133.36	0.000
L19	80.75 - 80.5 (19)	TP38.1749x38.115x0.3438	1379.38	2138.68	0.645	0.00	2138.68	0.000
L20	80.5 - 73.25 (20)	TP39.912x38.1749x0.3438	1417.13	2170.66	0.653	0.00	2170.66	0.000
L21	73.25 - 72.25 (21)	TP39.467x37.8468x0.4063	1590.14	2839.37	0.560	0.00	2839.37	0.000
L22	72.25 - 67.25 (22)	TP40.6671x39.467x0.4063	1721.41	2983.96	0.577	0.00	2983.96	0.000
L23	67.25 - 62.25 (23)	TP41.8673x40.6671x0.4063	1855.86	3129.88	0.593	0.00	3129.88	0.000
L24	62.25 - 57.25 (24)	TP43.0674x41.8673x0.4063	1992.63	3276.97	0.608	0.00	3276.97	0.000
L25	57.25 - 52.25 (25)	TP44.2675x43.0674x0.4063	2131.70	3425.04	0.622	0.00	3425.04	0.000
L26	52.25 - 49.83 (26)	TP44.8484x44.2675x0.4063	2199.93	3497.01	0.629	0.00	3497.01	0.000
L27	49.83 - 49.58 (27)	TP44.9084x44.8484x0.4063	2207.02	3504.46	0.630	0.00	3504.46	0.000
L28	49.58 - 44.58 (28)	TP46.1086x44.9084x0.4063	2350.38	3653.68	0.643	0.00	3653.68	0.000
L29	44.58 - 36.3333 (29)	TP48.088x46.1086x0.4063	2396.31	3700.96	0.647	0.00	3700.96	0.000
L30	36.3333 - 35.3333 (30)	TP47.5162x45.6753x0.4375	2624.25	4255.33	0.617	0.00	4255.33	0.000
L31	35.3333 - 32.25 (31)	TP48.2565x47.5162x0.4375	2718.00	4361.67	0.623	0.00	4361.67	0.000
L32	32.25 - 32 (32)	TP48.3165x48.2565x0.4375	2725.65	4370.30	0.624	0.00	4370.30	0.000
L33	32 - 27 (33)	TP49.5171x48.3165x0.4375	2879.98	4543.38	0.634	0.00	4543.38	0.000
L34	27 - 22 (34)	TP50.7176x49.5171x0.4375	3036.98	4717.04	0.644	0.00	4717.04	0.000
L35	22 - 17 (35)	TP51.9181x50.7176x0.4375	3196.65	4891.11	0.654	0.00	4891.11	0.000
L36	17 - 15.5 (36)	TP52.2783x51.9181x0.4375	3245.09	4943.38	0.656	0.00	4943.38	0.000
L37	15.5 - 15.25 (37)	TP52.3383x52.2783x0.4375	3253.18	4952.09	0.657	0.00	4952.09	0.000
L38	15.25 - 14.75 (38)	TP52.4584x52.3383x0.4375	3269.40	4969.52	0.658	0.00	4969.52	0.000
L39	14.75 - 14.5 (39)	TP52.5184x52.4584x0.4375	3277.53	4978.23	0.658	0.00	4978.23	0.000
L40	14.5 - 9.5 (40)	TP53.719x52.5184x0.4375	3441.35	5152.57	0.668	0.00	5152.57	0.000
L41	9.5 - 4.5 (41)	TP54.9195x53.719x0.4375	3607.55	5326.86	0.677	0.00	5326.86	0.000
L42	4.5 - 0 (42)	TP56x54.9195x0.4375	3758.83	5483.53	0.685	0.00	5483.53	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 - 155 (1)	TP20.801x19.6x0.25	3.73	290.34	0.013	0.56	524.86	0.001
L2	155 - 150 (2)	TP22.0021x20.801x0.25	4.83	307.31	0.016	0.56	588.00	0.001
L3	150 - 145 (3)	TP23.2031x22.0021x0.25	10.09	324.27	0.031	0.56	654.72	0.001
L4	145 - 140 (4)	TP24.4041x23.2031x0.25	10.51	341.24	0.031	0.56	725.03	0.001
L5	140 - 135 (5)	TP25.6051x24.4041x0.25	16.18	358.21	0.045	0.56	798.92	0.001
L6	135 - 130 (6)	TP26.8062x25.6051x0.25	16.61	375.18	0.044	0.56	876.40	0.001
L7	130 - 125 (7)	TP28.0072x26.8062x0.25	17.05	392.15	0.043	0.56	957.47	0.001
L8	125 - 120 (8)	TP29.2082x28.0072x0.25	17.49	409.11	0.043	0.56	1042.12	0.001
L9	120 - 111.333 (9)	TP31.29x29.2082x0.25	21.63	422.69	0.051	0.56	1112.42	0.001
L10	111.333 - 111 (10)	TP30.867x29.669x0.3438	22.17	592.93	0.037	0.56	1591.98	0.000
L11	111 - 106 (11)	TP32.065x30.867x0.3438	22.63	616.21	0.037	0.56	1719.40	0.000
L12	106 - 101 (12)	TP33.2631x32.065x0.3438	23.09	639.48	0.036	0.56	1851.72	0.000
L13	101 - 96 (13)	TP34.4611x33.2631x0.3438	23.56	662.75	0.036	0.56	1988.96	0.000
L14	96 - 91 (14)	TP35.6591x34.4611x0.3438	24.03	686.02	0.035	0.56	2131.09	0.000
L15	91 - 86 (15)	TP36.8571x35.6591x0.3438	24.49	709.29	0.035	0.56	2278.13	0.000
L16	86 - 85.75 (16)	TP36.917x36.8571x0.5125	24.52	1054.34	0.023	0.56	3376.27	0.000
L17	85.75 - 81 (17)	TP38.0551x36.917x0.5063	25.04	1074.22	0.023	0.56	3548.06	0.000
L18	81 - 80.75 (18)	TP38.115x38.0551x0.3438	25.08	733.73	0.034	0.56	2437.80	0.000
L19	80.75 - 80.5 (19)	TP38.1749x38.115x0.3438	25.11	734.89	0.034	0.56	2445.54	0.000
L20	80.5 - 73.25 (20)	TP39.912x38.1749x0.3438	25.25	741.88	0.034	0.56	2492.22	0.000
L21	73.25 - 72.25 (21)	TP39.467x37.8468x0.4063	26.02	896.74	0.029	0.56	3081.11	0.000
L22	72.25 - 67.25 (22)	TP40.6671x39.467x0.4063	26.67	924.29	0.029	0.56	3273.35	0.000
L23	67.25 - 62.25 (23)	TP41.8673x40.6671x0.4063	27.14	951.85	0.029	0.56	3471.41	0.000
L24	62.25 - 57.25 (24)	TP43.0674x41.8673x0.4063	27.60	979.40	0.028	0.56	3675.29	0.000
L25	57.25 - 52.25 (25)	TP44.2675x43.0674x0.4063	28.06	1006.95	0.028	0.56	3884.98	0.000
L26	52.25 - 49.83 (26)	TP44.8484x44.2675x0.4063	28.36	1020.29	0.028	0.56	3988.57	0.000
L27	49.83 - 49.58 (27)	TP44.9084x44.8484x0.4063	28.38	1021.66	0.028	0.56	3999.34	0.000
L28	49.58 - 44.58 (28)	TP46.1086x44.9084x0.4063	28.99	1049.22	0.028	0.56	4217.96	0.000
L29	44.58 - 36.3333 (29)	TP48.088x46.1086x0.4063	29.18	1057.92	0.028	0.56	4288.25	0.000
L30	36.3333 - 35.3333 (30)	TP47.5162x45.6753x0.4375	30.25	1163.95	0.026	0.63	4820.13	0.000
L31	35.3333 - 32.25 (31)	TP48.2565x47.5162x0.4375	30.59	1182.26	0.026	0.63	4972.92	0.000
L32	32.25 - 32 (32)	TP48.3165x48.2565x0.4375	30.61	1183.74	0.026	0.63	4985.42	0.000
L33	32 - 27 (33)	TP49.5171x48.3165x0.4375	31.15	1213.42	0.026	0.63	5238.56	0.000
L34	27 - 22 (34)	TP50.7176x49.5171x0.4375	31.68	1243.10	0.025	0.63	5497.98	0.000
L35	22 - 17 (35)	TP51.9181x50.7176x0.4375	32.22	1272.78	0.025	0.63	5763.67	0.000
L36	17 - 15.5 (36)	TP52.2783x51.9181x0.4375	32.40	1281.69	0.025	0.63	5844.59	0.000
L37	15.5 - 15.25 (37)	TP52.3383x52.2783x0.4375	32.41	1283.17	0.025	0.63	5858.14	0.000
L38	15.25 - 14.75	TP52.4584x52.3383x0.43	32.47	1286.14	0.025	0.63	5885.27	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 $\frac{T_u}{\phi T_n}$
	(38)	75						
L39	14.75 - 14.5 (39)	TP52.5184x52.4584x0.43 75	32.50	1287.63	0.025	0.63	5898.86	0.000
L40	14.5 - 9.5 (40)	TP53.719x52.5184x0.437 5	33.06	1317.31	0.025	0.63	6173.95	0.000
L41	9.5 - 4.5 (41)	TP54.9195x53.719x0.437 5	33.46	1346.99	0.025	0.63	6455.31	0.000
L42	4.5 - 0 (42)	TP56x54.9195x0.4375	33.82	1373.70	0.025	0.63	6713.89	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 155 (1)	0.003	0.020	0.000	0.013	0.001	0.023	1.050	4.8.2
L2	155 - 150 (2)	0.004	0.058	0.000	0.016	0.001	0.063	1.050	4.8.2
L3	150 - 145 (3)	0.007	0.135	0.000	0.031	0.001	0.143	1.050	4.8.2
L4	145 - 140 (4)	0.007	0.201	0.000	0.031	0.001	0.209	1.050	4.8.2
L5	140 - 135 (5)	0.010	0.304	0.000	0.045	0.001	0.316	1.050	4.8.2
L6	135 - 130 (6)	0.010	0.388	0.000	0.044	0.001	0.400	1.050	4.8.2
L7	130 - 125 (7)	0.010	0.463	0.000	0.043	0.001	0.474	1.050	4.8.2
L8	125 - 120 (8)	0.010	0.530	0.000	0.043	0.001	0.542	1.050	4.8.2
L9	120 - 111.333 (9)	0.013	0.588	0.000	0.051	0.001	0.603	1.050	4.8.2
L10	111.333 - 111 (10)	0.010	0.438	0.000	0.037	0.000	0.449	1.050	4.8.2
L11	111 - 106 (11)	0.010	0.480	0.000	0.037	0.000	0.492	1.050	4.8.2
L12	106 - 101 (12)	0.010	0.519	0.000	0.036	0.000	0.530	1.050	4.8.2
L13	101 - 96 (13)	0.010	0.553	0.000	0.036	0.000	0.565	1.050	4.8.2
L14	96 - 91 (14)	0.010	0.585	0.000	0.035	0.000	0.597	1.050	4.8.2
L15	91 - 86 (15)	0.010	0.615	0.000	0.035	0.000	0.626	1.050	4.8.2
L16	86 - 85.75 (16)	0.007	0.383	0.000	0.023	0.000	0.390	1.050	4.8.2
L17	85.75 - 81 (17)	0.007	0.398	0.000	0.023	0.000	0.406	1.050	4.8.2
L18	81 - 80.75 (18)	0.011	0.644	0.000	0.034	0.000	0.656	1.050	4.8.2
L19	80.75 - 80.5 (19)	0.011	0.645	0.000	0.034	0.000	0.657	1.050	4.8.2
L20	80.5 - 73.25 (20)	0.011	0.653	0.000	0.034	0.000	0.665	1.050	4.8.2
L21	73.25 - 72.25 (21)	0.010	0.560	0.000	0.029	0.000	0.571	1.050	4.8.2
L22	72.25 - 67.25 (22)	0.010	0.577	0.000	0.029	0.000	0.588	1.050	4.8.2
L23	67.25 - 62.25 (23)	0.010	0.593	0.000	0.029	0.000	0.604	1.050	4.8.2
L24	62.25 - 57.25 (24)	0.010	0.608	0.000	0.028	0.000	0.619	1.050	4.8.2
L25	57.25 - 52.25 (25)	0.011	0.622	0.000	0.028	0.000	0.634	1.050	4.8.2
L26	52.25 - 49.83 (26)	0.011	0.629	0.000	0.028	0.000	0.641	1.050	4.8.2
L27	49.83 - 49.58 (27)	0.011	0.630	0.000	0.028	0.000	0.641	1.050	4.8.2
L28	49.58 - 44.58 (28)	0.011	0.643	0.000	0.028	0.000	0.655	1.050	4.8.2
L29	44.58 - 36.3333 (29)	0.011	0.647	0.000	0.028	0.000	0.659	1.050	4.8.2
L30	36.3333 - 35.3333 (30)	0.011	0.617	0.000	0.026	0.000	0.629	1.050	4.8.2
L31	35.3333 - 32.25 (31)	0.012	0.623	0.000	0.026	0.000	0.635	1.050	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L32	32.25 - 32 (32)	0.012	0.624	0.000	0.026	0.000	0.636	1.050	4.8.2
L33	32 - 27 (33)	0.012	0.634	0.000	0.026	0.000	0.646	1.050	4.8.2
L34	27 - 22 (34)	0.012	0.644	0.000	0.025	0.000	0.656	1.050	4.8.2
L35	22 - 17 (35)	0.012	0.654	0.000	0.025	0.000	0.666	1.050	4.8.2
L36	17 - 15.5 (36)	0.012	0.656	0.000	0.025	0.000	0.669	1.050	4.8.2
L37	15.5 - 15.25 (37)	0.012	0.657	0.000	0.025	0.000	0.670	1.050	4.8.2
L38	15.25 - 14.75 (38)	0.012	0.658	0.000	0.025	0.000	0.671	1.050	4.8.2
L39	14.75 - 14.5 (39)	0.012	0.658	0.000	0.025	0.000	0.671	1.050	4.8.2
L40	14.5 - 9.5 (40)	0.013	0.668	0.000	0.025	0.000	0.681	1.050	4.8.2
L41	9.5 - 4.5 (41)	0.013	0.677	0.000	0.025	0.000	0.691	1.050	4.8.2
L42	4.5 - 0 (42)	0.013	0.685	0.000	0.025	0.000	0.699	1.050	4.8.2

Section Capacity Table

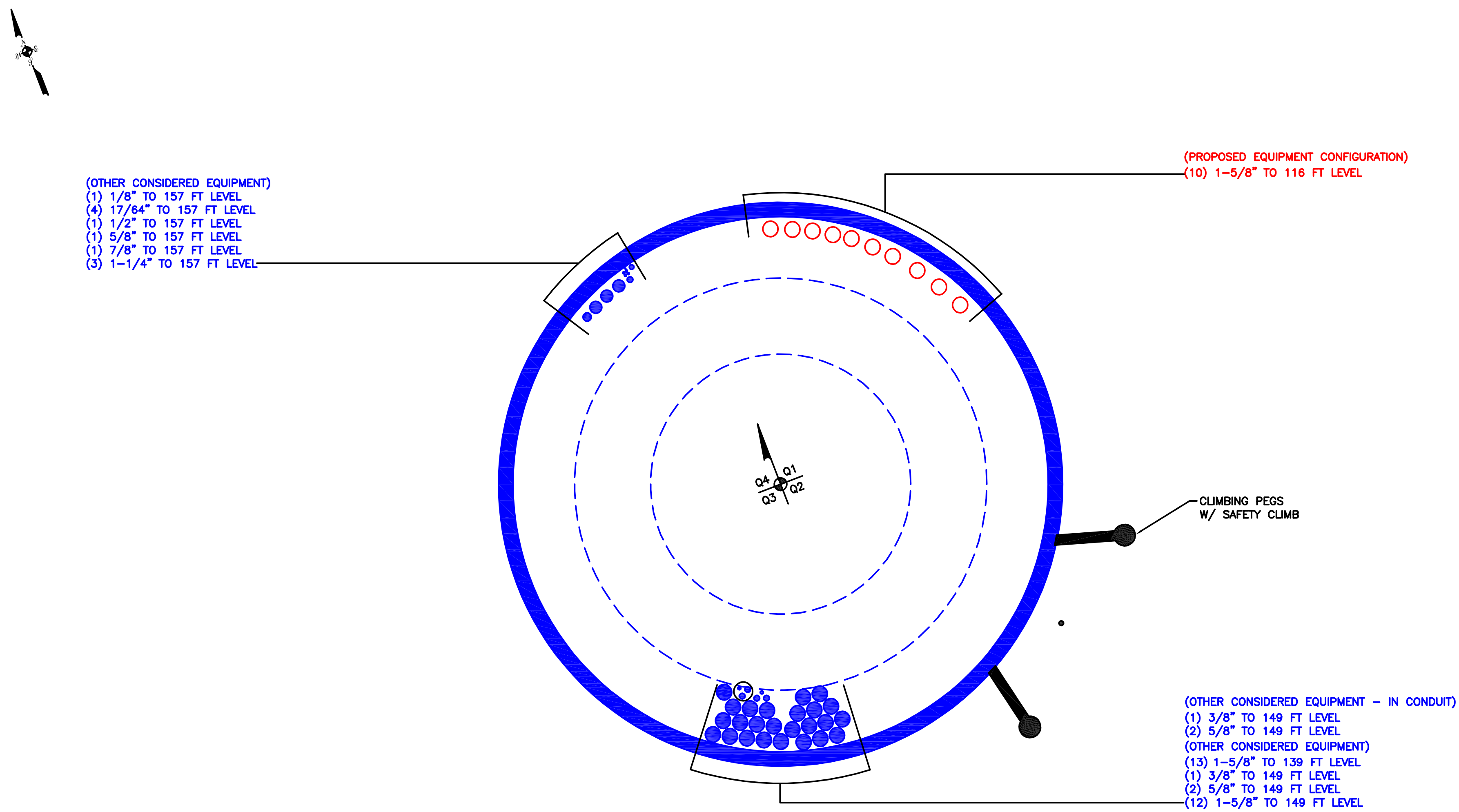
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
L1	160 - 155	Pole	TP20.801x19.6x0.25	1	-3.07	1016.19	2.2	Pass
L2	155 - 150	Pole	TP22.0021x20.801x0.25	2	-4.00	1075.58	6.0	Pass
L3	150 - 145	Pole	TP23.2031x22.0021x0.25	3	-7.66	1134.97	13.6	Pass
L4	145 - 140	Pole	TP24.4041x23.2031x0.25	4	-8.12	1194.35	20.0	Pass
L5	140 - 135	Pole	TP25.6051x24.4041x0.25	5	-11.57	1253.74	30.1	Pass
L6	135 - 130	Pole	TP26.8062x25.6051x0.25	6	-12.22	1313.13	38.1	Pass
L7	130 - 125	Pole	TP28.0072x26.8062x0.25	7	-12.89	1372.52	45.2	Pass
L8	125 - 120	Pole	TP29.2082x28.0072x0.25	8	-13.59	1431.90	51.6	Pass
L9	120 - 111.333	Pole	TP31.29x29.2082x0.25	9	-17.84	1479.41	57.5	Pass
L10	111.333 - 111	Pole	TP30.867x29.669x0.3438	10	-19.24	2075.27	42.8	Pass
L11	111 - 106	Pole	TP32.065x30.867x0.3438	11	-20.27	2156.72	46.8	Pass
L12	106 - 101	Pole	TP33.2631x32.065x0.3438	12	-21.35	2238.18	50.5	Pass
L13	101 - 96	Pole	TP34.4611x33.2631x0.3438	13	-22.45	2319.63	53.8	Pass
L14	96 - 91	Pole	TP35.6591x34.4611x0.3438	14	-23.59	2401.08	56.8	Pass
L15	91 - 86	Pole	TP36.8571x35.6591x0.3438	15	-24.76	2482.54	59.7	Pass
L16	86 - 85.75	Pole	TP36.917x36.8571x0.5125	16	-24.84	3690.20	37.2	Pass
L17	85.75 - 81	Pole	TP38.0551x36.917x0.5063	17	-26.33	3759.78	38.7	Pass
L18	81 - 80.75	Pole	TP38.115x38.0551x0.3438	18	-26.41	2568.06	62.4	Pass
L19	80.75 - 80.5	Pole	TP38.1749x38.115x0.3438	19	-26.48	2572.13	62.6	Pass
L20	80.5 - 73.25	Pole	TP39.912x38.1749x0.3438	20	-26.86	2596.57	63.3	Pass
L21	73.25 - 72.25	Pole	TP39.467x37.8468x0.4063	21	-29.78	3138.59	54.4	Pass
L22	72.25 - 67.25	Pole	TP40.6671x39.467x0.4063	22	-31.18	3235.03	56.0	Pass
L23	67.25 - 62.25	Pole	TP41.8673x40.6671x0.4063	23	-32.63	3331.46	57.5	Pass
L24	62.25 - 57.25	Pole	TP43.0674x41.8673x0.4063	24	-34.12	3427.89	59.0	Pass
L25	57.25 - 52.25	Pole	TP44.2675x43.0674x0.4063	25	-35.65	3524.32	60.4	Pass
L26	52.25 - 49.83	Pole	TP44.8484x44.2675x0.4063	26	-36.57	3571.00	61.0	Pass
L27	49.83 - 49.58	Pole	TP44.9084x44.8484x0.4063	27	-36.68	3575.82	61.1	Pass
L28	49.58 - 44.58	Pole	TP46.1086x44.9084x0.4063	28	-38.60	3672.25	62.4	Pass
L29	44.58 - 36.3333	Pole	TP48.088x46.1086x0.4063	29	-39.22	3702.73	62.8	Pass
L30	36.3333 - 35.3333	Pole	TP47.5162x45.6753x0.4375	30	-44.06	4073.83	59.9	Pass
L31	35.3333 - 32.25	Pole	TP48.2565x47.5162x0.4375	31	-45.35	4137.89	60.5	Pass
L32	32.25 - 32	Pole	TP48.3165x48.2565x0.4375	32	-45.47	4143.09	60.6	Pass
L33	32 - 27	Pole	TP49.5171x48.3165x0.4375	33	-47.60	4246.98	61.6	Pass
L34	27 - 22	Pole	TP50.7176x49.5171x0.4375	34	-49.77	4350.86	62.5	Pass
L35	22 - 17	Pole	TP51.9181x50.7176x0.4375	35	-51.97	4454.75	63.5	Pass
L36	17 - 15.5	Pole	TP52.2783x51.9181x0.4375	36	-52.68	4485.91	63.8	Pass
L37	15.5 - 15.25	Pole	TP52.3383x52.2783x0.4375	37	-52.82	4491.11	63.8	Pass
L38	15.25 - 14.75	Pole	TP52.4584x52.3383x0.4375	38	-53.06	4501.50	63.9	Pass
L39	14.75 - 14.5	Pole	TP52.5184x52.4584x0.4375	39	-53.18	4506.69	63.9	Pass
L40	14.5 - 9.5	Pole	TP53.719x52.5184x0.4375	40	-55.42	4610.58	64.9	Pass
L41	9.5 - 4.5	Pole	TP54.9195x53.719x0.4375	41	-57.53	4714.46	65.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
L42	4.5 - 0	Pole	TP56x54.9195x0.4375	42	-59.40	4807.96	66.6	Pass
							Summary	
						Pole (L42)	66.6	Pass
						RATING =	**66.6**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806953 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 806953

Work Order: 1747502

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	48.6667	4.6667	12	19.6	31.29	0.25	Auto	A572-65
2	116	42.75	5.75	12	29.67	39.912	0.34375	Auto	A572-65
3	79	42.6667	6.6667	12	37.85	48.088	0.40625	Auto	A572-65
4	43	43	0	12	45.68	56	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	15.5	plate	MK SR 1													
2	78.25	80.75	plate	MK SR 2													
3	14.75	32.25	plate	CCI-AFP-060100													
4	32.25	49.83	plate	CCI-AFP-060100													
5	81	86	plate	CCI-AFP-060100	3		E3				E3				E3		
6																	
7																	
8																	
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4	0.75	3	0.375	15.000	15.000	15.000	2.063	1.1875	A572-65
2	4	0.75	3	0.375	15.000	15.000	15.000	2.063	1.1875	A572-65
3	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
4	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
5	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	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 - 155	5		12	19.600	20.801	0.25	A572-65	1.000
2	155 - 150	5		12	20.801	22.002	0.25	A572-65	1.000
3	150 - 145	5		12	22.002	23.203	0.25	A572-65	1.000
4	145 - 140	5		12	23.203	24.404	0.25	A572-65	1.000
5	140 - 135	5		12	24.404	25.605	0.25	A572-65	1.000
6	135 - 130	5		12	25.605	26.806	0.25	A572-65	1.000
7	130 - 125	5		12	26.806	28.007	0.25	A572-65	1.000
8	125 - 120	5		12	28.007	29.208	0.25	A572-65	1.000
9	120 - 116	8.6667	4.6667	12	29.208	31.290	0.25	A572-65	1.000
10	116 - 111	5		12	29.669	30.867	0.34375	A572-65	1.000
11	111 - 106	5		12	30.867	32.065	0.34375	A572-65	1.000
12	106 - 101	5		12	32.065	33.263	0.34375	A572-65	1.000
13	101 - 96	5		12	33.263	34.461	0.34375	A572-65	1.000
14	96 - 91	5		12	34.461	35.659	0.34375	A572-65	1.000
15	91 - 86	5		12	35.659	36.857	0.34375	A572-65	1.000
16	86 - 85.75	0.25		12	36.857	36.917	0.5125	A572-65	0.974
17	85.75 - 81	4.75		12	36.917	38.055	0.50625	A572-65	0.976
18	81 - 80.75	0.25		12	38.055	38.115	0.34375	A572-65	1.000
19	80.75 - 80.5	0.25		12	38.115	38.175	0.34375	A572-65	1.000
20	80.5 - 79	7.25	5.75	12	38.175	39.912	0.34375	A572-65	1.000
21	79 - 72.25	6.75		12	37.847	39.467	0.40625	A572-65	1.000
22	72.25 - 67.25	5		12	39.467	40.667	0.40625	A572-65	1.000
23	67.25 - 62.25	5		12	40.667	41.867	0.40625	A572-65	1.000
24	62.25 - 57.25	5		12	41.867	43.067	0.40625	A572-65	1.000
25	57.25 - 52.25	5		12	43.067	44.268	0.40625	A572-65	1.000
26	52.25 - 49.83	2.42		12	44.268	44.848	0.40625	A572-65	1.000
27	49.83 - 49.58	0.25		12	44.848	44.908	0.40625	A572-65	1.000
28	49.58 - 44.58	5		12	44.908	46.109	0.40625	A572-65	1.000
29	44.58 - 43	8.2467	6.6667	12	46.109	48.088	0.40625	A572-65	1.000
30	43 - 35.3333	7.6667		12	45.675	47.516	0.4375	A572-65	1.000
31	35.3333 - 32.25	3.0833		12	47.516	48.256	0.4375	A572-65	1.000
32	32.25 - 32	0.25		12	48.256	48.317	0.4375	A572-65	1.000
33	32 - 27	5		12	48.317	49.517	0.4375	A572-65	1.000
34	27 - 22	5		12	49.517	50.718	0.4375	A572-65	1.000
35	22 - 17	5		12	50.718	51.918	0.4375	A572-65	1.000
36	17 - 15.5	1.5		12	51.918	52.278	0.4375	A572-65	1.000
37	15.5 - 15.25	0.25		12	52.278	52.338	0.4375	A572-65	1.000
38	15.25 - 14.75	0.5		12	52.338	52.458	0.4375	A572-65	1.000
39	14.75 - 14.5	0.25		12	52.458	52.518	0.4375	A572-65	1.000
40	14.5 - 9.5	5		12	52.518	53.719	0.4375	A572-65	1.000
41	9.5 - 4.5	5		12	53.719	54.920	0.4375	A572-65	1.000
42	4.5 - 0	4.5		12	54.920	56.000	0.4375	A572-65	1.000

TNX Section Forces

Increment (ft): 5

	Section Height (ft)			TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160	-	155	3.07	10.23	3.73
2	155	-	150	4.00	32.69	4.83
3	150	-	145	7.66	82.84	10.09
4	145	-	140	8.12	134.30	10.51
5	140	-	135	11.57	219.80	16.18
6	135	-	130	12.22	301.74	16.61
7	130	-	125	12.89	385.85	17.05
8	125	-	120	13.59	472.14	17.49
9	120	-	116	17.84	550.69	21.63
10	116	-	111	19.24	660.13	22.17
11	111	-	106	20.27	772.06	22.63
12	106	-	101	21.35	886.30	23.09
13	101	-	96	22.45	1002.86	23.56
14	96	-	91	23.59	1121.76	24.03
15	91	-	86	24.76	1243.00	24.49
16	86	-	85.75	24.84	1249.13	24.52
17	85.75	-	81	26.33	1366.85	25.04
18	81	-	80.75	26.41	1373.11	25.08
19	80.75	-	80.5	26.48	1379.38	25.11
20	80.5	-	79	26.86	1417.13	25.25
21	79	-	72.25	29.78	1590.14	26.02
22	72.25	-	67.25	31.18	1721.41	26.67
23	67.25	-	62.25	32.63	1855.86	27.14
24	62.25	-	57.25	34.12	1992.63	27.60
25	57.25	-	52.25	35.65	2131.70	28.06
26	52.25	-	49.83	36.57	2199.92	28.36
27	49.83	-	49.58	36.68	2207.01	28.38
28	49.58	-	44.58	38.60	2350.38	28.99
29	44.58	-	43	39.22	2396.31	29.18
30	43	-	35.3333	44.06	2624.25	30.25
31	35.3333	-	32.25	45.35	2718.00	30.59
32	32.25	-	32	45.47	2725.65	30.61
33	32	-	27	47.60	2879.99	31.15
34	27	-	22	49.77	3036.98	31.68
35	22	-	17	51.97	3196.65	32.22
36	17	-	15.5	52.68	3245.09	32.40
37	15.5	-	15.25	52.82	3253.19	32.41
38	15.25	-	14.75	53.06	3269.40	32.47
39	14.75	-	14.5	53.18	3277.52	32.50
40	14.5	-	9.5	55.42	3441.35	33.06
41	9.5	-	4.5	57.53	3607.55	33.46
42	4.5	-	0	59.40	3758.83	33.82

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP20.801x19.6x0.25	Pole	2.2%	Pass
155 - 150	Pole	TP22.002x20.801x0.25	Pole	5.9%	Pass
150 - 145	Pole	TP23.203x22.002x0.25	Pole	13.4%	Pass
145 - 140	Pole	TP24.404x23.203x0.25	Pole	19.7%	Pass
140 - 135	Pole	TP25.605x24.404x0.25	Pole	29.8%	Pass
135 - 130	Pole	TP26.806x25.605x0.25	Pole	37.7%	Pass
130 - 125	Pole	TP28.007x26.806x0.25	Pole	44.8%	Pass
125 - 120	Pole	TP29.208x28.007x0.25	Pole	51.2%	Pass
120 - 116	Pole	TP31.29x29.208x0.25	Pole	57.0%	Pass
116 - 111	Pole	TP30.867x29.669x0.3438	Pole	42.4%	Pass
111 - 106	Pole	TP32.065x30.867x0.3438	Pole	46.4%	Pass
106 - 101	Pole	TP33.263x32.065x0.3438	Pole	50.1%	Pass
101 - 96	Pole	TP34.461x33.263x0.3438	Pole	53.4%	Pass
96 - 91	Pole	TP35.659x34.461x0.3438	Pole	56.5%	Pass
91 - 86	Pole	TP36.857x35.659x0.3438	Pole	59.3%	Pass
86 - 85.75	Pole + Reinf.	TP36.917x36.857x0.5125	Reinf. 5 Tension Rupture	56.6%	Pass
85.75 - 81	Pole + Reinf.	TP38.055x36.917x0.5063	Reinf. 5 Tension Rupture	58.8%	Pass
81 - 80.75	Pole	TP38.115x38.055x0.3438	Pole	62.1%	Pass
80.75 - 80.5	Pole	TP38.175x38.115x0.3438	Pole	62.2%	Pass
80.5 - 79	Pole	TP39.912x38.175x0.3438	Pole	63.0%	Pass
79 - 72.25	Pole	TP39.467x37.847x0.4063	Pole	54.0%	Pass
72.25 - 67.25	Pole	TP40.667x39.467x0.4063	Pole	55.6%	Pass
67.25 - 62.25	Pole	TP41.867x40.667x0.4063	Pole	57.2%	Pass
62.25 - 57.25	Pole	TP43.067x41.867x0.4063	Pole	58.6%	Pass
57.25 - 52.25	Pole	TP44.268x43.067x0.4063	Pole	60.0%	Pass
52.25 - 49.83	Pole	TP44.848x44.268x0.4063	Pole	60.7%	Pass
49.83 - 49.58	Pole	TP44.908x44.848x0.4063	Pole	60.7%	Pass
49.58 - 44.58	Pole	TP46.109x44.908x0.4063	Pole	62.1%	Pass
44.58 - 43	Pole	TP48.088x46.109x0.4063	Pole	62.5%	Pass
43 - 35.33	Pole	TP47.516x45.675x0.4375	Pole	59.5%	Pass
35.33 - 32.25	Pole	TP48.256x47.516x0.4375	Pole	60.2%	Pass
32.25 - 32	Pole	TP48.317x48.256x0.4375	Pole	60.2%	Pass
32 - 27	Pole	TP49.517x48.317x0.4375	Pole	61.2%	Pass
27 - 22	Pole	TP50.718x49.517x0.4375	Pole	62.2%	Pass
22 - 17	Pole	TP51.918x50.718x0.4375	Pole	63.2%	Pass
17 - 15.5	Pole	TP52.278x51.918x0.4375	Pole	63.4%	Pass
15.5 - 15.25	Pole	TP52.338x52.278x0.4375	Pole	63.5%	Pass
15.25 - 14.75	Pole	TP52.458x52.338x0.4375	Pole	63.6%	Pass
14.75 - 14.5	Pole	TP52.518x52.458x0.4375	Pole	63.6%	Pass
14.5 - 9.5	Pole	TP53.719x52.518x0.4375	Pole	64.6%	Pass
9.5 - 4.5	Pole	TP54.92x53.719x0.4375	Pole	65.5%	Pass
4.5 - 0	Pole	TP56x54.92x0.4375	Pole	66.3%	Pass
				Summary	
			Pole	66.3%	Pass
			Reinforcement	58.8%	Pass
			Overall	66.3%	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
160 - 155	893	n/a	893	16.52	n/a	16.52	2.2%					
155 - 150	1059	n/a	1059	17.49	n/a	17.49	5.9%					
150 - 145	1244	n/a	1244	18.45	n/a	18.45	13.4%					
145 - 140	1450	n/a	1450	19.42	n/a	19.42	19.7%					
140 - 135	1677	n/a	1677	20.38	n/a	20.38	29.8%					
135 - 130	1927	n/a	1927	21.35	n/a	21.35	37.7%					
130 - 125	2200	n/a	2200	22.31	n/a	22.31	44.8%					
125 - 120	2499	n/a	2499	23.28	n/a	23.28	51.2%					
120 - 116	2756	n/a	2756	24.05	n/a	24.05	57.0%					
116 - 111	4023	n/a	4023	33.74	n/a	33.74	42.4%					
111 - 106	4516	n/a	4516	35.06	n/a	35.06	46.4%					
106 - 101	5047	n/a	5047	36.39	n/a	36.39	50.1%					
101 - 96	5618	n/a	5618	37.71	n/a	37.71	53.4%					
96 - 91	6231	n/a	6231	39.03	n/a	39.03	56.5%					
91 - 86	6887	n/a	6887	40.36	n/a	40.36	59.3%					
86 - 85.75	6921	3263	10183	40.42	18.00	58.42	39.1%					56.6%
85.75 - 81	7587	3460	11047	41.68	18.00	59.68	41.2%					58.8%
81 - 80.75	7623	n/a	7623	41.75	n/a	41.75	62.1%					
80.75 - 80.5	7660	n/a	7660	41.81	n/a	41.81	62.2%					
80.5 - 79	7880	n/a	7880	42.21	n/a	42.21	63.0%					
79 - 72.25	9964	n/a	9964	51.02	n/a	51.02	54.0%					
72.25 - 67.25	10911	n/a	10911	52.59	n/a	52.59	55.6%					
67.25 - 62.25	11916	n/a	11916	54.16	n/a	54.16	57.2%					
62.25 - 57.25	12981	n/a	12981	55.73	n/a	55.73	58.6%					
57.25 - 52.25	14108	n/a	14108	57.29	n/a	57.29	60.0%					
52.25 - 49.83	14676	n/a	14676	58.05	n/a	58.05	60.7%					
49.83 - 49.58	14735	n/a	14735	58.13	n/a	58.13	60.7%					
49.58 - 44.58	15960	n/a	15960	59.70	n/a	59.70	62.1%					
44.58 - 43	16361	n/a	16361	60.19	n/a	60.19	62.5%					
43 - 35.33	18788	n/a	18788	66.23	n/a	66.23	59.5%					
35.33 - 32.25	19688	n/a	19688	67.27	n/a	67.27	60.2%					
32.25 - 32	19762	n/a	19762	67.35	n/a	67.35	60.2%					
32 - 27	21287	n/a	21287	69.04	n/a	69.04	61.2%					
27 - 22	22887	n/a	22887	70.73	n/a	70.73	62.2%					
22 - 17	24566	n/a	24566	72.42	n/a	72.42	63.2%					
17 - 15.5	25085	n/a	25085	72.93	n/a	72.93	63.4%					
15.5 - 15.25	25172	n/a	25172	73.01	n/a	73.01	63.5%					
15.25 - 14.75	25348	n/a	25348	73.18	n/a	73.18	63.6%					
14.75 - 14.5	25435	n/a	25435	73.26	n/a	73.26	63.6%					
14.5 - 9.5	27235	n/a	27235	74.95	n/a	74.95	64.6%					
9.5 - 4.5	29118	n/a	29118	76.64	n/a	76.64	65.5%					
4.5 - 0	30885	n/a	30885	78.16	n/a	78.16	66.3%					

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

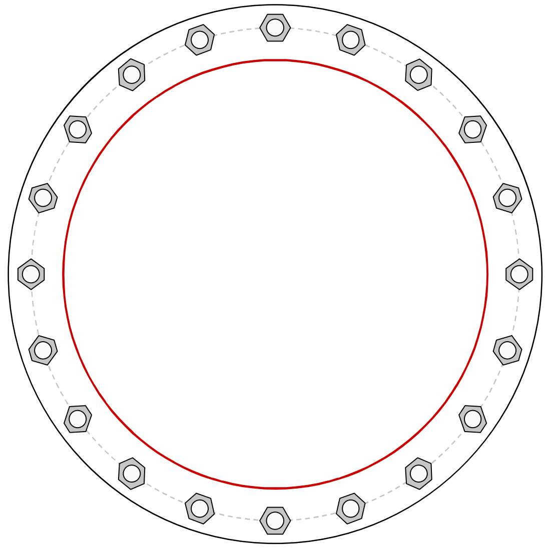
Monopole Base Plate Connection

Site Info	
BU #	806953
Site Name	BRG 2044 (A) 943097
Order #	478803 Rev.0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	1.0625

Applied Loads	
Moment (kip-ft)	3758.83
Axial Force (kips)	59.40
Shear Force (kips)	33.82

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 64.48" BC

Base Plate Data

70.48" OD x 2.75" Plate (A633-60; Fy=60 ksi, Fu=80 ksi)

Stiffener Data

N/A

Pole Data

56" 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 = 142.81	ϕPn_c = 243.75	**Stress Rating**
Vu = 1.69	ϕVn = 73.13	**55.8%**
Mu = n/a	ϕMn = n/a	Pass

Base Plate Summary

Max Stress (ksi):	22	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**38.8%**	Pass

Pier and Pad Foundation

BU # :	806953
Site Name:	BRG 2044 (A) 9430
App. Number:	479803 Rev.0

TIA-222 Revision:	H	Top & Bot. Pad Rein. Different?:	☑
Tower Type:	Monopole	Block Foundation?:	☑

Superstructure Analysis Reactions		
Compression, P_{comp}:	59.4	kips
Base Shear, Vu_comp:	33.82	kips
Moment, M_u:	3758.83	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	6	in
Bolt Circle / Bearing Plate Width, **BC**:	64.48	in

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	194.46	33.82	**16.6%**	**Pass**
Bearing Pressure (ksf)	30.34	2.27	**7.5%**	**Pass**
*Overturning (kip*ft)*	6352.61	3944.84	**62.1%**	**Pass**
*Pad Flexure (kip*ft)*	8047.81	1757.30	**20.8%**	**Pass**
Pad Shear - 1-way (kips)	1630.75	203.06	**11.9%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.002	**1.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	6537.76	0.00	**0.0%**	**Pass**

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

Soil Rating*:	**62.1%**
Structural Rating*:	**20.8%**

Pad Properties		
Depth, **D**:	3.5	ft
Pad Width, **W**:	26	ft
Pad Thickness, **T**:	5	ft
Pad Rebar Size (Top), Sp_{top}:	8	
Pad Top Rebar Quantity (Top), mp_{top}:	18	
Pad Rebar Size (Bottom), **Sp**:	10	
Pad Rebar Quantity (Bottom), **mp**:	26	
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:	130	pcf	
Ultimate Net Bearing, Qnet:	40.000	ksf	<--Toggle between Gross and Net
Cohesion, **Cu**:	0.000	ksf	
Friction Angle, φ:	40	degrees	
SPT Blow Count, N_{blows}:	50		
Base Friction, μ:	0.5		
Neglected Depth, **N**:	3.33	ft	
Foundation Bearing on Rock?	No		
Groundwater Depth, **gw**:	N/A	ft	

Version 3.2.0

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 220 ft (NAVD 88)
Latitude: 41.101764
Longitude: -73.594847

Ultimate 3-second gust wind speed of 120 mph used per jurisdictional requirements.

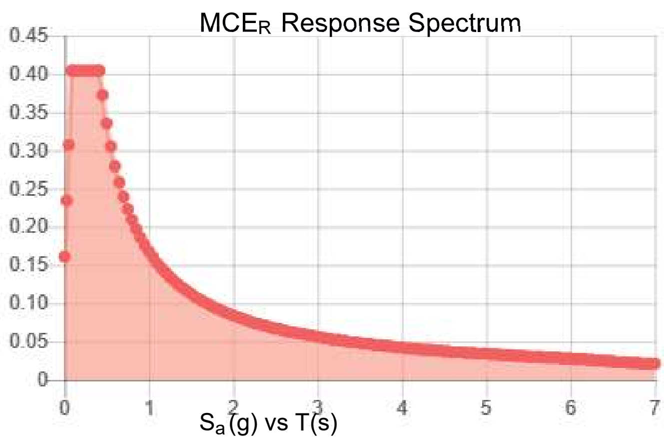
Seismic

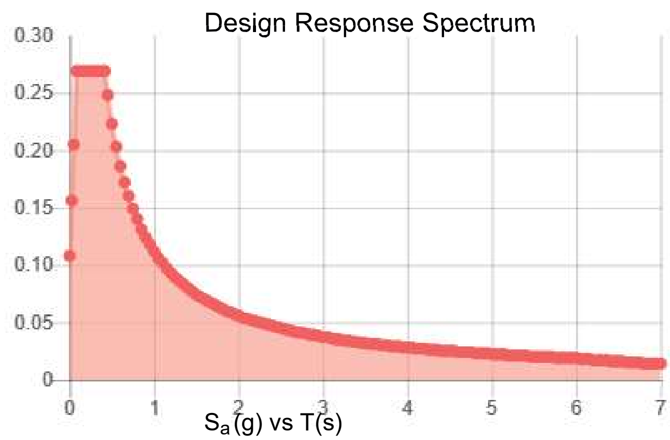
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.253	S_{DS} :	0.269
S_1 :	0.07	S_{D1} :	0.112
F_a :	1.598	T_L :	6
F_v :	2.4	PGA :	0.148
S_{MS} :	0.404	PGA_M :	0.222
S_{M1} :	0.168	F_{PGA} :	1.505
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Jun 26 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:	Wed Jun 26 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.

Exhibit E

Mount Analysis

MasTec Network Solutions

Date: **June 21, 2019**

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

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 674-5866

Subject:	**Mount Modification Analysis**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11071E
	Carrier Site Name:	Stamford/MP X32 / Den Rd.
Crown Castle Designation:	**Crown Castle BU Number:**	806953
	Crown Castle Site Name:	BRG 2044 (A) 943097
	Crown Castle JDE Number:	559199
	Crown Castle Order Number:	479803 Revision 0
Engineering Firm Designation:	**MasTec Networks Solutions Project Number:**	18809-MOD1
Site Data:	**69 Guinea Road (Camp Rocky Craig), Stamford, Fairfield County, CT**	
	Latitude: 41°˚ 6' 6.35" Longitude: -73°˚ 35' 41.45"	
Structure Information	**Tower Height & Type:**	160 ft Monopole
	Mount Elevation:	116 ft
	Mount Width & Type:	12 ft Platform Mount

Dear Charles McGuirt,

MasTec Network Solutions is pleased to submit this **"Mount Modification Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned 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 for fall protection or rigging 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:

Platform Mount	**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: NDN

Respectfully Submitted by:

STATE OF CONNECTICUT
RAPHAEL MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER

Raphael Mohamed

Digitally signed by Raphael Mohamed
DN:
E=Raphael.Mohamed@mastec.com,
CN=Raphael Mohamed, OU=Users,
OU=MasTec Network Solutions,
OU=Service Lines, DC=mastec,
DC=local
Date: 2019.06.21 18:13:55-04'00'

Raphael I. Mohamed, PE, PEng
Senior Director of Engineering
CT PE License No. 25112

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration Information

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

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

5) APPENDIX A
Wire Frame and Rendered Models

6) APPENDIX B
Software Input Calculations

7) APPENDIX C
Software Analysis Output

8) APPENDIX D
Additional Calculations

9) APPENDIX E
Modification Drawings

1) INTRODUCTION

This is a 12 ft Platform Mount mapped by Pier Structural Engineering Corp., dated April 15, 2019.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Category:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.253
Seismic S1:	0.07
Live Loading Wind Speed:	30 mph
Live Loading at Mid/End-Points:	250 lb
Man Live Loading at Mount Pipes	500 lb

Table 1 - Proposed Loading Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
116	118	3	Ericsson	AIR 21 B2A B4P	12-ft Platform
		3	Ericsson	AIR 32 B2A/B66AA	
		3	RFS	APXVAARR24_43-U-NA20	
		3	Ericsson	Radio 4449 B12/B71	
	116	3	Ericsson	KRY 112 144/1	

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-MOUNT ANALYSIS ORDER INFORMATION	CROWN CASTLE	Order No. 479803	CCIsites
4-MOUNT ANALYSIS REPORT	MasTec	8458758	CCIsites
4-MOUNT MAPPING	Pier Structural Engineering Corp.	Project No. 19651-13	On File
4-MODIFICATION DRAWINGS	MasTec	Appendix E	On File

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 antenna mounting system 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 antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR B-35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 4- Mount Component Stresses vs. Capacity

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Handrails	--	116	32.3	Pass
1	Mount Pipe	--		29.4	Pass
1	Support Angle 2	--		15.5	Pass
1	Support Angle 1	--		30.7	Pass
1	Frame Rail	--		47.5	Pass
1	Arm	--		57.9	Pass
1	Corner Angles	--		58.2	Pass
1	Mount to Tower Connection	--		41.0	Pass

Structure Rating (max from all components) =	58.2%

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

4.1) Recommendations

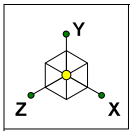
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

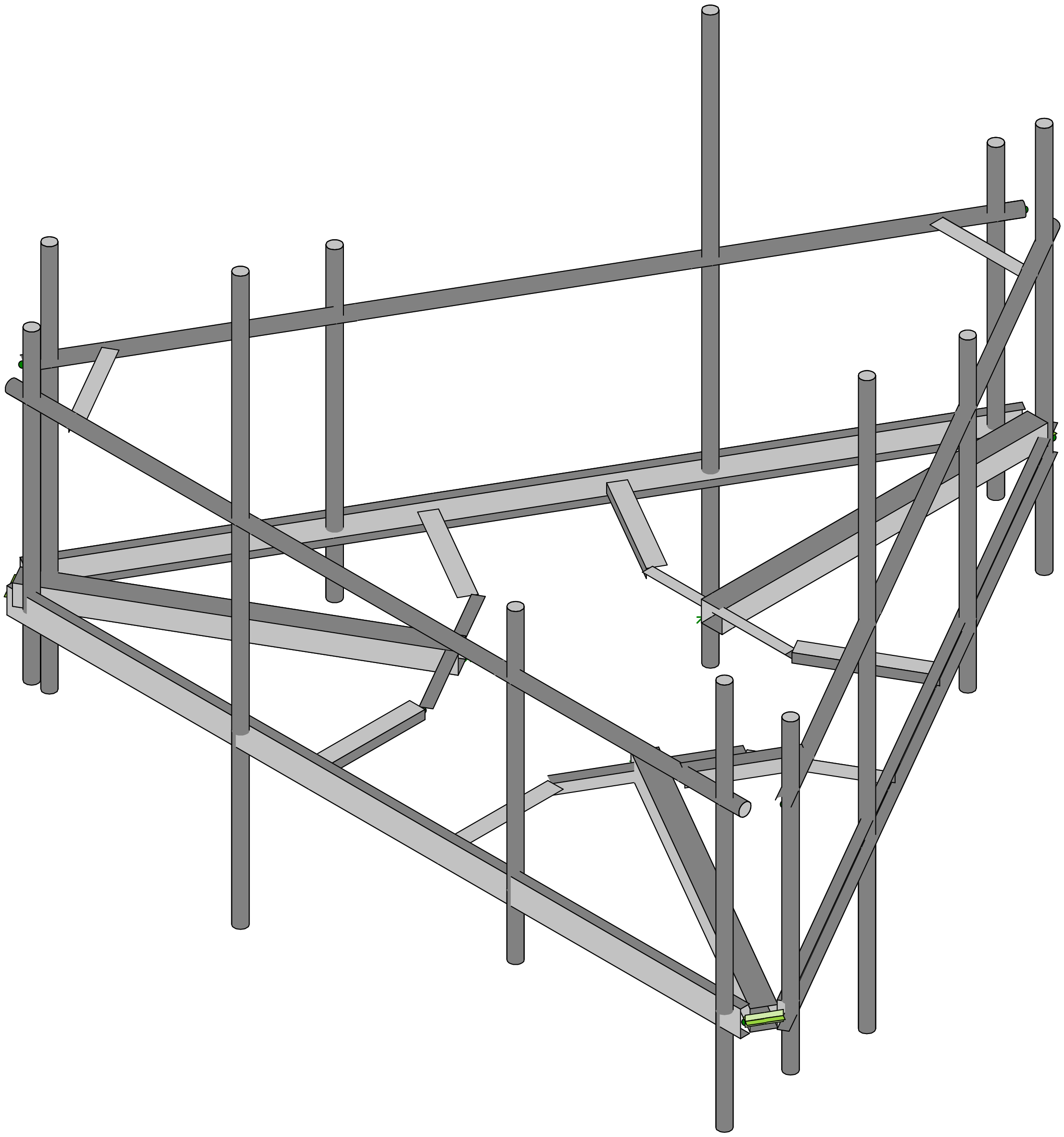
1. Handrail Kit

Engineering Detail Drawings have been provided in Appendix E- Mount Modification Drawings. Connection from the mount to the tower and local stresses on the tower are sufficient.

APPENDIX A

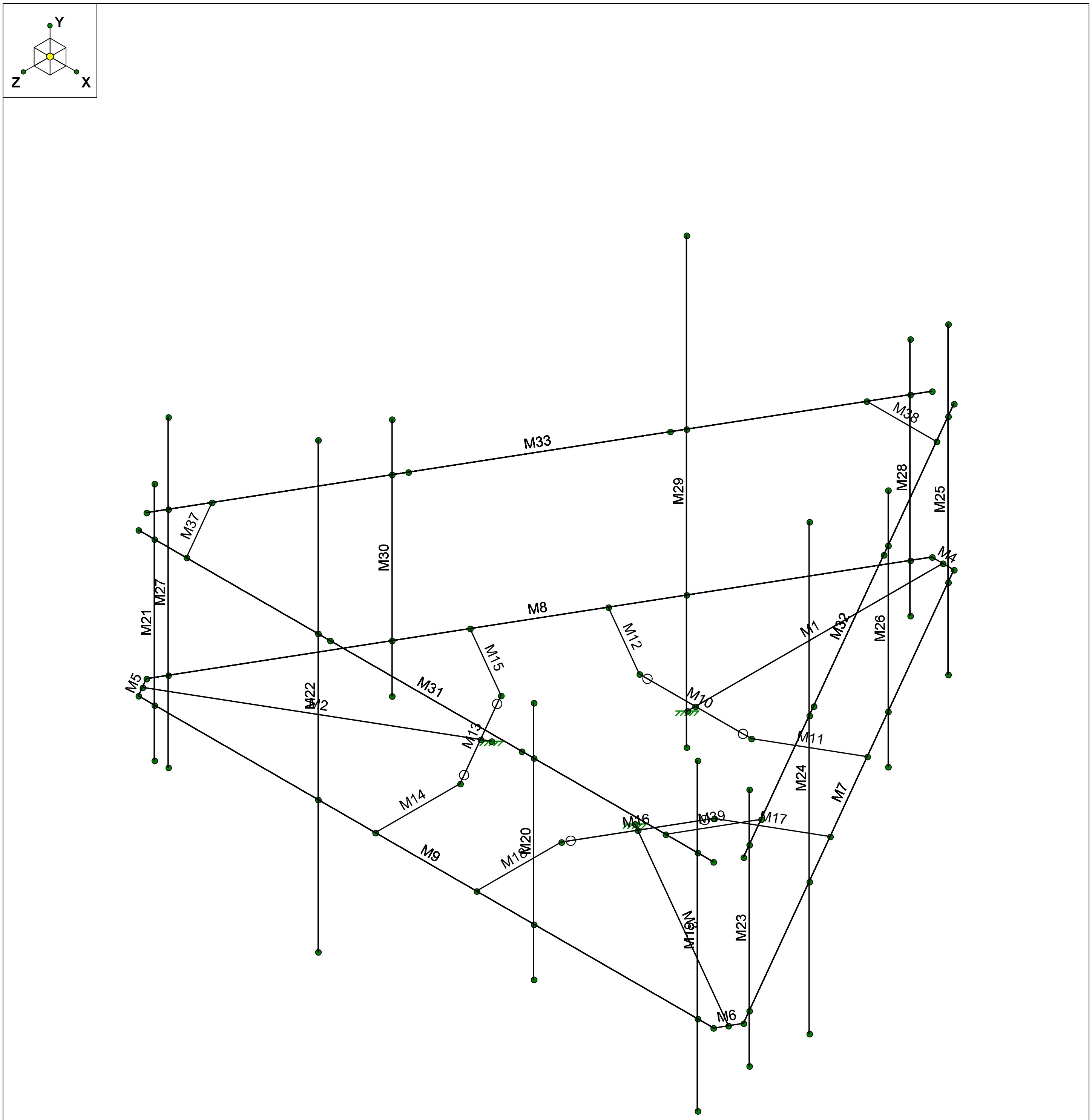
WIRE FRAME AND RENDERED MODELS





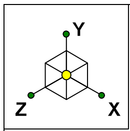
Envelope Only Solution

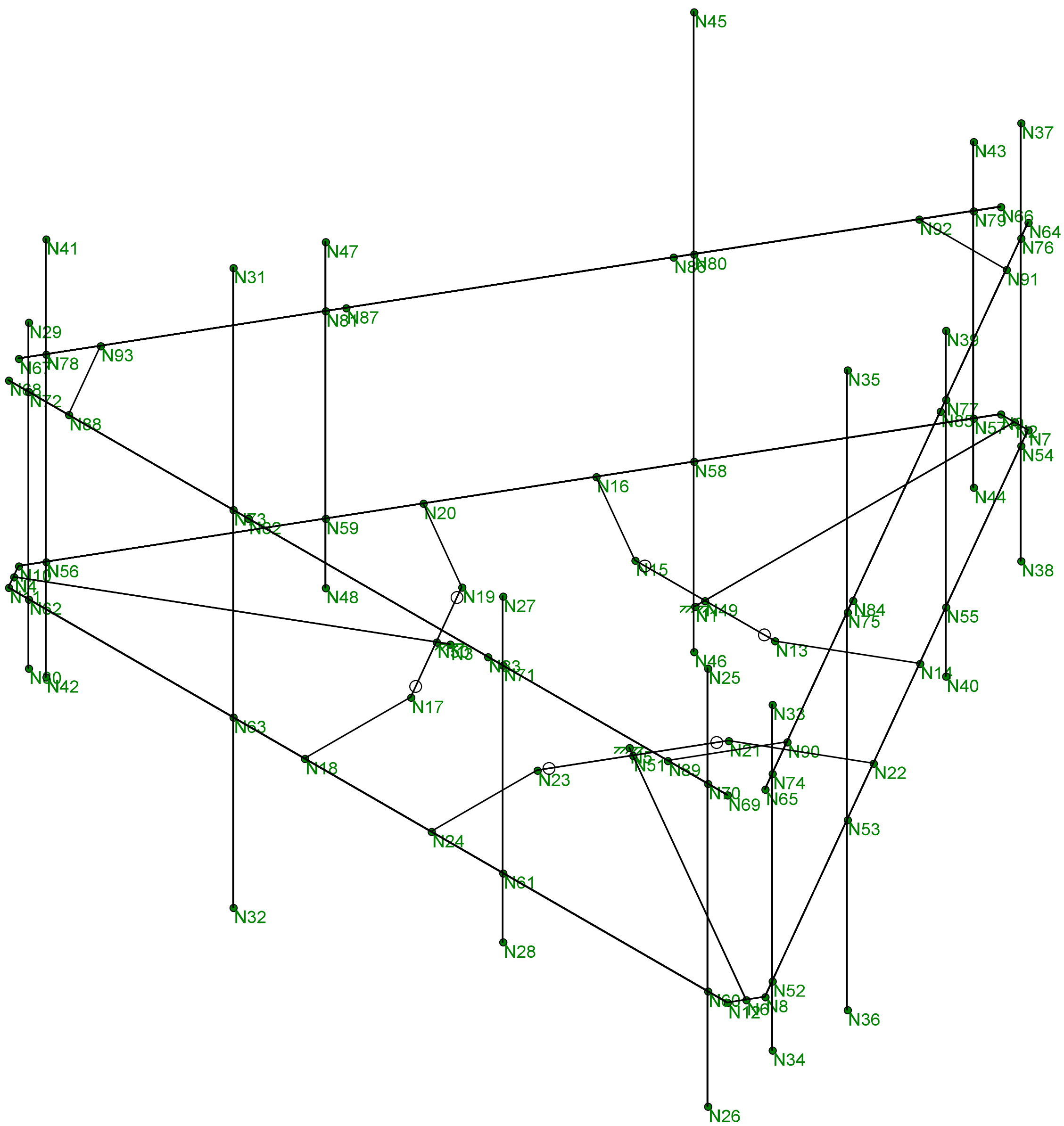
MasTec	806953 - BRG 2044 (A) 943097	Render
NDN		June 20, 2019 at 12:53 PM
18809-MOD1		806953.R3D



Envelope Only Solution

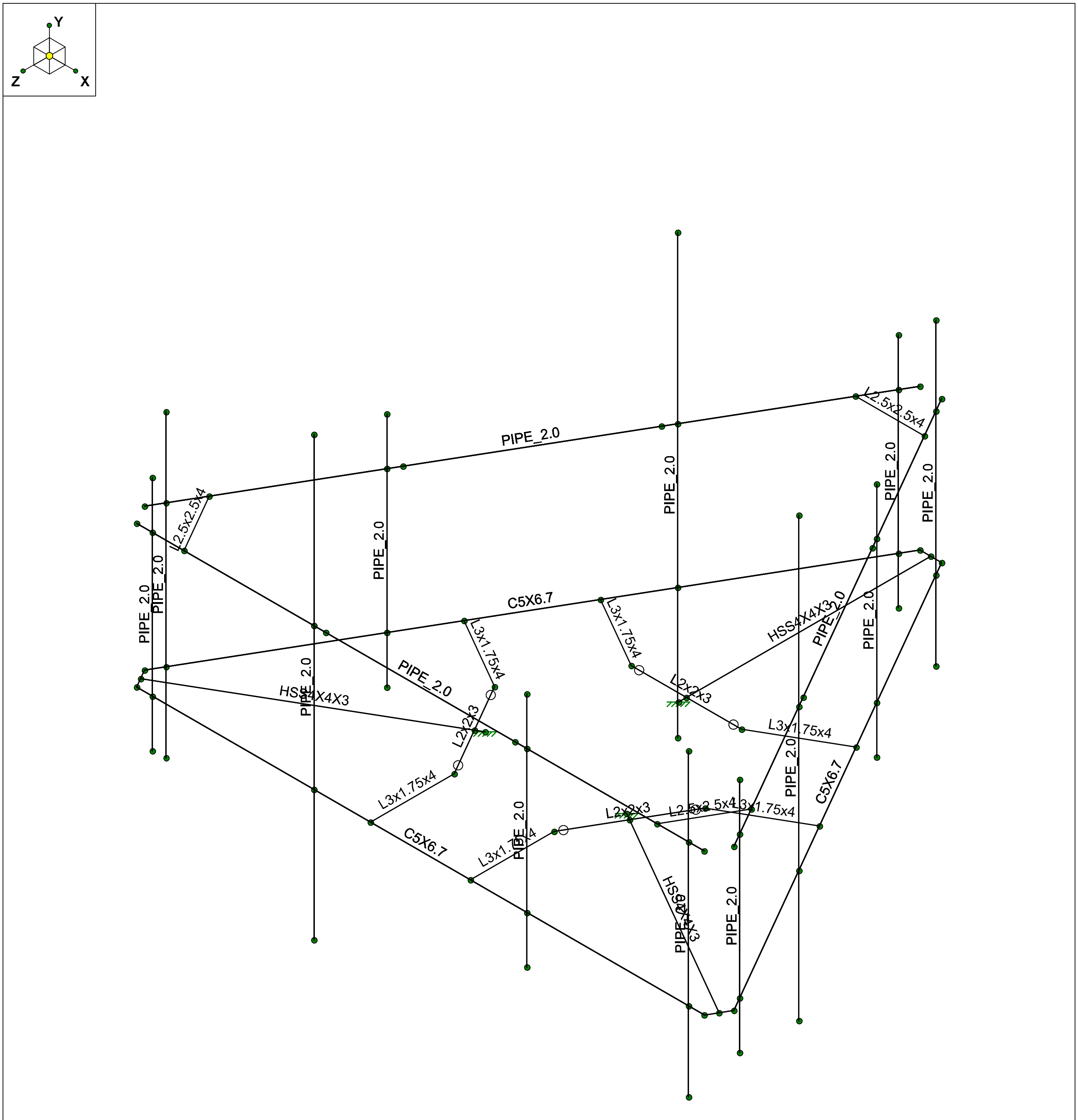
MasTec	806953 - BRG 2044 (A) 943097	Member Labels
NDN		June 20, 2019 at 12:53 PM
18809-MOD1		806953.R3D





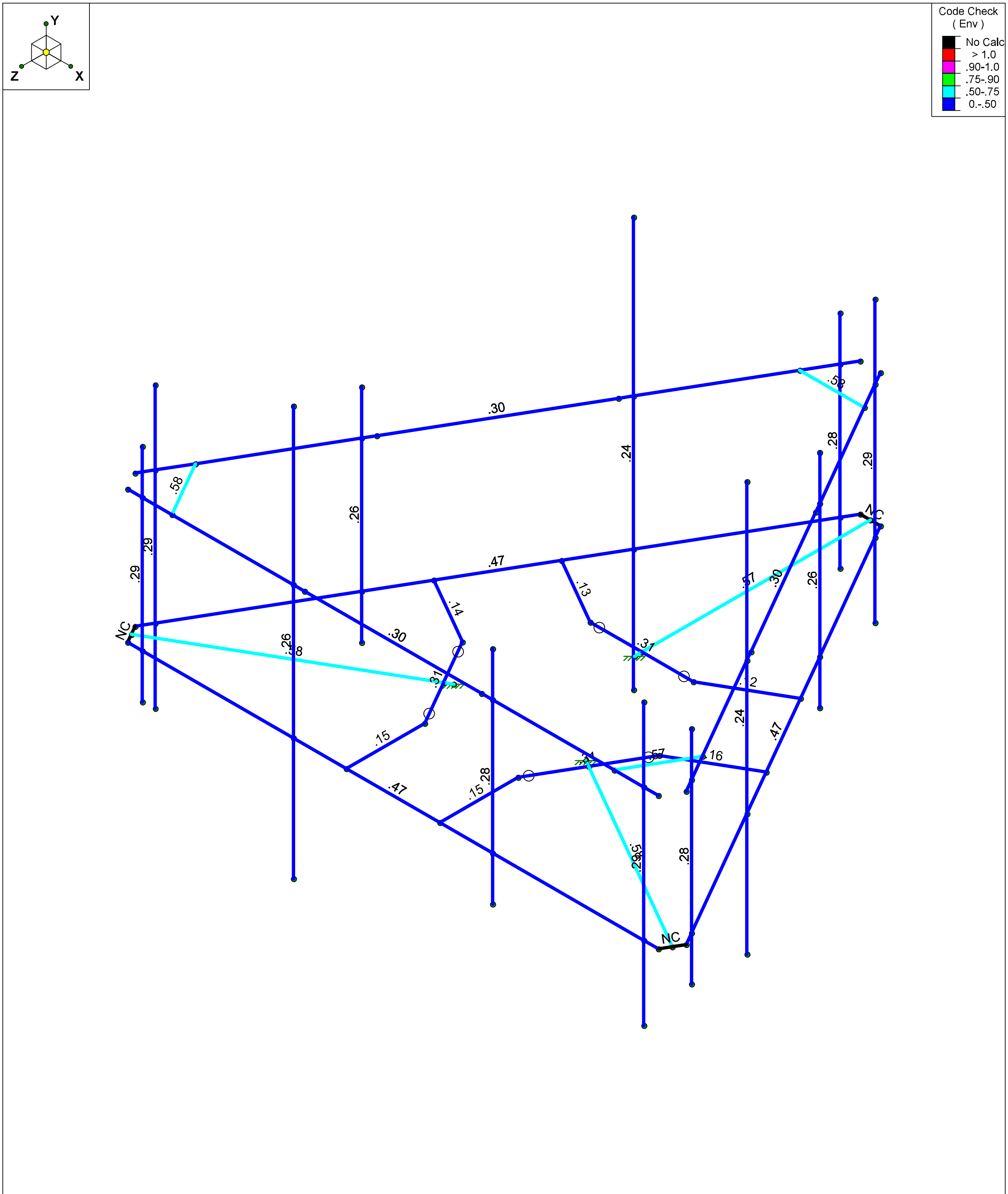
Envelope Only Solution

MasTec	806953 - BRG 2044 (A) 943097	Joint Labels
NDN		June 20, 2019 at 12:54 PM
18809-MOD1		806953.R3D



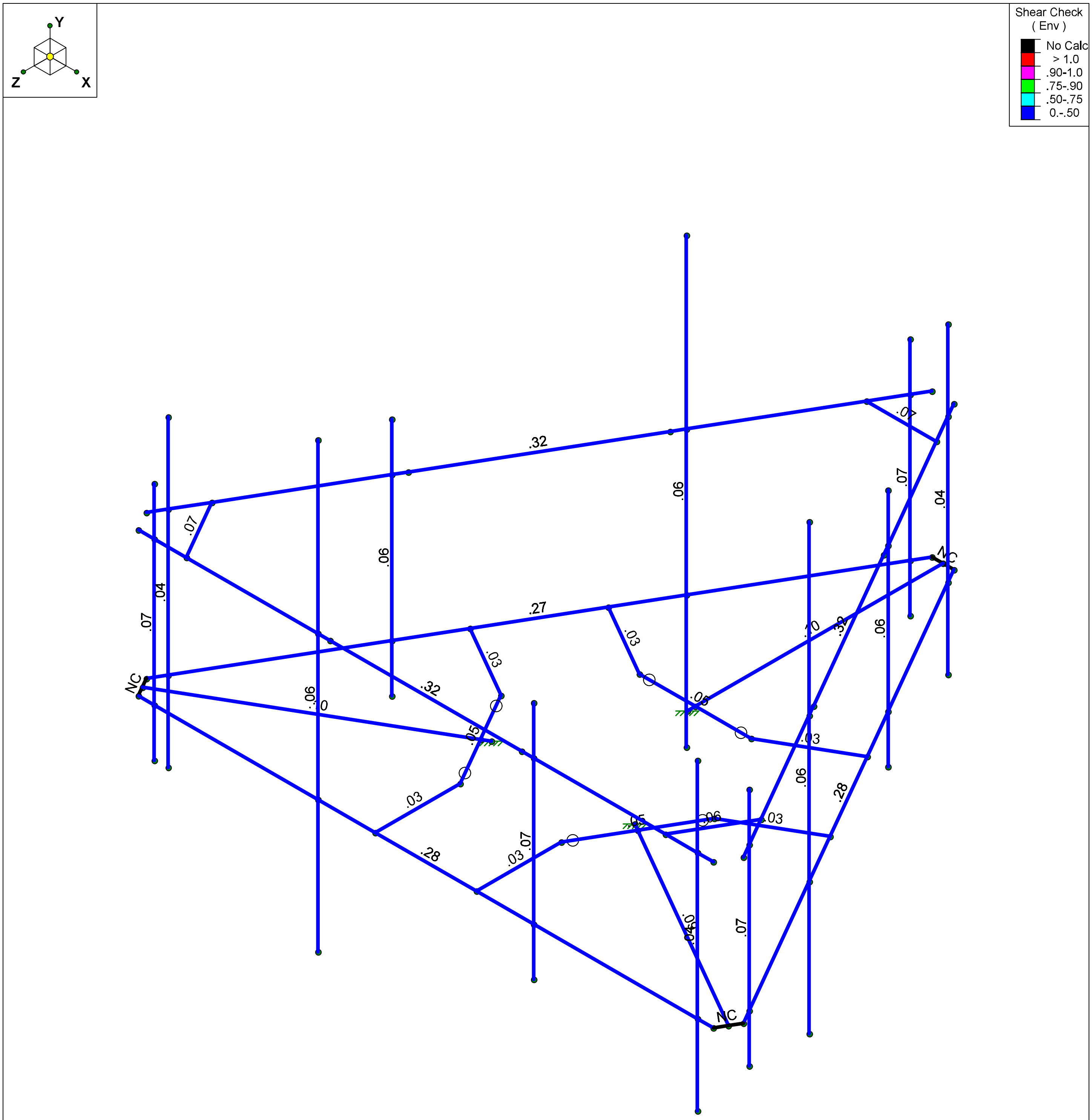
Envelope Only Solution

MasTec	806953 - BRG 2044 (A) 943097	Shapes
NDN		June 20, 2019 at 12:54 PM
18809-MOD1		806953.R3D



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

MasTec	806953 - BRG 2044 (A) 943097	Unity Bending Check
NDN		June 20, 2019 at 12:55 PM
18809-MOD1		806953.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

MasTec	806953 - BRG 2044 (A) 943097	Shear Check
NDN		June 20, 2019 at 12:56 PM
18809-MOD1		806953.R3D

APPENDIX B

SOFTWARE INPUT CALCULATIONS

APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec Network Solutions

Mount Analysis Tool

Site Name	BRG 2044 (A) 943097		
Site ID	806953		
Job Number	18809-MOD1	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	58.2%	PASS

Analysis Parameters		
Mount Height	116	ft
Exposure Category	B	(B,C, or D)
Ultimate Wind Speed	120	mph
Ice Wind Speed	50	mph
Design Ice Thickness, t_i	1.5	in
Maintenance Wind Speed	30	mph
Run Earthquake Analysis?	Yes	
Ground Elevation	220	ft, Google Earth
S_1	0.07	USGS
S_{DS}	0.269	2.7.5
Vertical Seismic Loads, E_v	0.054	2.7.6
Seismic Response Coefficient, C_s	0.135	2.7.7.1.1
C_s Min	0.030	2.7.7.1.1

Wind Parameters					
Gust Effect Factor, G_h	1.000	2.6.9	K_s	1.000	2.6.7
K_Z	1.031	2.6.5.2	K_e	0.992	2.6.8
K_{Zt}	1.000	2.6.6	K_a	0.900	16.6
K_d	0.950	Table 2-2	*Note for Rooftop Structures greater than 50', unobstructed for 90 deg and protruding 50' above surrounding buildings Ks must be calculated.		
q_z	32.340	psf, 2.6.11.6			
C/D	121.848	Table 2-9			
t_{iz}	1.701	in, 2.6.10			
q_{iz}	5.615	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D $_{iz}$	50.770	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	2.031	psf, 2.6.9.6	$K_{es\,(Wind)}$	1.000	Table S-1
C/D $_{Maintenance}$	30.462	Table 2-9	$K_{es\,(Ice)}$	1.000	Table S-1
Ice Dead, Grating	0.015875318	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
M19	118	96	2.375
M21	118	60	2.375
M20	118	60	2.375
M27	118	96	2.375
M28	118	60	2.375
M30	118	60	2.375
M25	118	96	2.375
M23	118	60	2.375
M26	118	60	2.375

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
Ericsson AIR21 B2A B4P	Antenna	56	12.1	7.87	91.5
RFS APXVAARR24_43-U-NA20	Antenna	95.9	24	8.7	128
Ericsson AIR32 B2A/B66A	Antenna	56.6	12.9	8.7	132.2
Ericsson KRY 112 144/1	RRU, TMA, Etc.	7	6	3	11
Ericsson Radio 4449 B12/71	RRU, TMA, Etc.	14.95	13.19	9.25	75

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
M19	RFS APXVAARR24_43-U-NA20	118	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.655	0.287	0.1%	99.9%
M19	Ericsson Radio 4449 B12/71	120	1	0	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.037	17.2%	32.8%
M19																	
M19																	
M19																	
M19																	
M21	Ericsson AIR21 B2A B4P	118	1	0	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.197	0.139	3.3%	96.7%
M21	Ericsson KRY 112 144/1	118	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.006	44.2%	55.8%
M21																	
M21																	
M21																	
M21																	
M20	Ericsson AIR32 B2A/B66A	118	1	0	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.211	0.152	2.8%	97.2%
M20																	
M20																	
M20																	
M20																	
M20																	
M27	RFS APXVAARR24_43-U-NA20	118	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.379	0.563	0.1%	99.9%
M27	Ericsson Radio 4449 B12/71	120	1	120	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.049	17.2%	32.8%
M27																	
M27																	
M27																	
M27																	
M28	Ericsson AIR21 B2A B4P	118	1	120	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.153	0.182	3.3%	96.7%
M28	Ericsson KRY 112 144/1	118	1	120	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.010	44.2%	55.8%
M28																	
M28																	
M28																	
M28																	
M30	Ericsson AIR32 B2A/B66A	118	1	120	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.167	0.196	2.8%	97.2%
M30																	
M30																	
M30																	
M30																	
M30																	
M25	RFS APXVAARR24_43-U-NA20	118	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.379	0.563	0.1%	99.9%
M25	Ericsson Radio 4449 B12/71	120	1	240	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.049	17.2%	32.8%
M25																	
M25																	
M25																	
M25																	
M23	Ericsson AIR21 B2A B4P	118	1	240	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.153	0.182	3.3%	96.7%
M23	Ericsson KRY 112 144/1	118	1	240	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.010	44.2%	55.8%
M23																	
M23																	
M23																	
M23																	
M26	Ericsson AIR32 B2A/B66A	118	1	240	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.167	0.196	2.8%	97.2%
M26																	
M26																	
M26																	
M26																	
M26																	

Member	Section Set	Member Length (ft)	Flat/Round	Wind Projection (in)	D_c (in)	A_{iz} (in^2)	C_F	Front Wind (klf)	Side Wind (klf)	Front Ice Wind (klf)	Side Ice Wind (klf)	Ice Dead (klf)	Front Maint Wind (klf)	Side Maint Wind (klf)
M1	Arm	5.333333	Flat	4.000	5.657	39.317	2.000	0.000	0.022	0.000	0.004	0.015	0.000	0.001
M2	Arm	5.333332867	Flat	4.000	5.657	39.317	2.000	0.016	0.005	0.004	0.003	0.015	0.001	0.000
M3	Arm	5.333332867	Flat	4.000	5.657	39.317	2.000	0.016	0.005	0.004	0.003	0.015	0.001	0.000
M4	RIGID	0.458334	Flat	0.000	0.000	9.089	2.000	0.000	0.000	0.003	0.003	0.004	0.000	0.000
M5	RIGID	0.458333231	Flat	0.000	0.000	9.089	2.000	0.000	0.000	0.001	0.001	0.004	0.000	0.000
M6	RIGID	0.458333231	Flat	0.000	0.000	9.089	2.000	0.000	0.000	0.001	0.001	0.004	0.000	0.000
M7	Frame Rail	11.99955571	Flat	5.000	5.297	37.396	2.000	0.007	0.020	0.002	0.004	0.015	0.000	0.001
M8	Frame Rail	11.99955571	Flat	5.000	5.297	37.396	2.000	0.007	0.020	0.002	0.004	0.015	0.000	0.001
M9	Frame Rail	11.999556	Flat	5.000	5.297	37.396	2.000	0.027	0.000	0.007	0.002	0.015	0.002	0.000
M10	Support Angle 1	2.333334	Flat	2.000	2.828	24.203	2.000	0.011	0.000	0.004	0.002	0.009	0.001	0.000
M11	Support Angle 2	1.771434134	Flat	3.000	3.800	29.395	2.000	0.012	0.004	0.004	0.003	0.011	0.001	0.000
M12	Support Angle 2	1.771434134	Flat	3.000	3.800	29.395	2.000	0.012	0.004	0.004	0.003	0.011	0.001	0.000
M13	Support Angle 1	2.33333355	Flat	2.000	2.828	24.203	2.000	0.003	0.008	0.001	0.002	0.009	0.000	0.001
M14	Support Angle 2	1.771434	Flat	3.000	3.800	29.395	2.000	0.000	0.016	0.000	0.003	0.011	0.000	0.001
M15	Support Angle 2	1.771434134	Flat	3.000	3.800	29.395	2.000	0.012	0.004	0.004	0.003	0.011	0.001	0.000
M16	Support Angle 1	2.33333355	Flat	2.000	2.828	24.203	2.000	0.003	0.008	0.001	0.002	0.009	0.000	0.001
M17	Support Angle 2	1.771434134	Flat	3.000	3.800	29.395	2.000	0.012	0.004	0.004	0.003	0.011	0.001	0.000
M18	Support Angle 2	1.771434	Flat	3.000	3.800	29.395	2.000	0.000	0.016	0.000	0.003	0.011	0.000	0.001
M19	Mount Pipe	6.333334	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M20	Mount Pipe	5	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M21	Mount Pipe	5	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M22	Mount Pipe	9.25	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.003	0.003	0.008	0.000	0.000
M23	Mount Pipe	5	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M24	Mount Pipe	9.25	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.003	0.003	0.008	0.000	0.000
M25	Mount Pipe	6.333334	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M26	Mount Pipe	5	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M27	Mount Pipe	6.333334	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M28	Mount Pipe	5	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M29	Mount Pipe	9.25	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.003	0.003	0.008	0.000	0.000
M30	Mount Pipe	5	Round	2.380	2.380	21.807	1.200	0.008	0.008	0.004	0.004	0.008	0.000	0.000
M31	Handrails	11.999556	Round	2.380	2.380	21.807	1.200	0.008	0.000	0.003	0.002	0.008	0.000	0.000
M32	Handrails	11.99955571	Round	2.380	2.380	21.807	1.200	0.002	0.006	0.001	0.001	0.008	0.000	0.000
M33	Handrails	11.99955571	Round	2.380	2.380	21.807	1.200	0.002	0.006	0.001	0.001	0.008	0.000	0.000
M37	Corner Angles	1.458332882	Flat	2.500	3.536	27.982	2.000	0.003	0.010	0.001	0.002	0.011	0.000	0.001
M38	Corner Angles	1.458334	Flat	2.500	3.536	27.982	2.000	0.013	0.000	0.005	0.003	0.011	0.001	0.000
M39	Corner Angles	1.458332882	Flat	2.500	3.536	27.982	2.000	0.003	0.010	0.001	0.002	0.011	0.000	0.001

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	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 RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Corners	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
2	Handrails	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Mount Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Support Angle 2	L3x1.75x4	Beam	Single Angle	A36 Gr.36	Typical	1.125	.266	1.037	.022
5	Support Angle 1	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
6	Frame Rail	C5X6.7	Beam	Channel	A36 Gr.36	Typical	1.97	.47	7.48	.055
7	Arm	HSS4X4X3	Beam	Tube	A500 Gr....	Typical	2.58	6.21	6.21	10
8	Corner Angles	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	-0.	0	-1.726923	0	
2	N2	-0.	0	-7.060256	0	
3	N3	-1.495559	0	0.863462	0	
4	N4	-6.114361	0	3.530128	0	
5	N5	1.495559	0	0.863462	0	
6	N6	6.114361	0	3.530128	0	
7	N7	0.229167	0	-7.060256	0	
8	N8	6.228945	0	3.331664	0	
9	N9	-0.229167	0	-7.060256	0	
10	N10	-6.228945	0	3.331664	0	
11	N11	-5.999778	0	3.728592	0	
12	N12	5.999778	0	3.728592	0	
13	N13	1.166667	0	-1.89359	0	
14	N14	2.700774	0	-2.779307	0	
15	N15	-1.166667	0	-1.89359	0	
16	N16	-2.700774	0	-2.779307	0	
17	N17	-1.056563	0	1.957158	0	
18	N18	-1.056563	0	3.728592	0	
19	N19	-2.22323	0	-0.063568	0	
20	N20	-3.757337	0	-0.949285	0	
21	N21	2.22323	0	-0.063568	0	
22	N22	3.757337	0	-0.949285	0	
23	N23	1.056563	0	1.957158	0	
24	N24	1.056563	0	3.728592	0	
25	N25	5.666445	4.666667	3.728592	0	
26	N26	5.666445	-1.666667	3.728592	0	
27	N27	2.249778	4	3.728592	0	
28	N28	2.249778	-1	3.728592	0	
29	N29	-5.666445	4	3.728592	0	
30	N30	-5.666445	-1	3.728592	0	
31	N31	-2.249778	6.5	3.728592	0	
32	N32	-2.249778	-2.75	3.728592	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
33	N33	6.062278	4	3.042989	0	
34	N34	6.062278	-1	3.042989	0	
35	N35	4.353945	6.5	0.084069	0	
36	N36	4.353945	-2.75	0.084069	0	
37	N37	0.395833	4.666667	-6.771581	0	
38	N38	0.395833	-1.666667	-6.771581	0	
39	N39	2.104167	4	-3.812661	0	
40	N40	2.104167	-1	-3.812661	0	
41	N41	-6.062278	4.666667	3.042989	0	
42	N42	-6.062278	-1.666667	3.042989	0	
43	N43	-0.395833	4	-6.771581	0	
44	N44	-0.395833	-1	-6.771581	0	
45	N45	-2.104167	6.5	-3.812661	0	
46	N46	-2.104167	-2.75	-3.812661	0	
47	N47	-4.353945	4	0.084069	0	
48	N48	-4.353945	-1	0.084069	0	
49	N49	-0.	0	-1.89359	0	
50	N50	-1.639897	0	0.946795	0	
51	N51	1.639897	0	0.946795	0	
52	N52	6.062278	0	3.042989	0	
53	N53	4.353945	0	0.084069	0	
54	N54	0.395833	0	-6.771581	0	
55	N55	2.104167	0	-3.812661	0	
56	N56	-6.062278	0	3.042989	0	
57	N57	-0.395833	0	-6.771581	0	
58	N58	-2.104167	0	-3.812661	0	
59	N59	-4.353945	0	0.084069	0	
60	N60	5.666445	0	3.728592	0	
61	N61	2.249778	0	3.728592	0	
62	N62	-5.666445	0	3.728592	0	
63	N63	-2.249778	0	3.728592	0	
64	N64	0.229167	3	-7.060256	0	
65	N65	6.228945	3	3.331664	0	
66	N66	-0.229167	3	-7.060256	0	
67	N67	-6.228945	3	3.331664	0	
68	N68	-5.999778	3	3.728592	0	
69	N69	5.999778	3	3.728592	0	
70	N70	5.666445	3	3.728592	0	
71	N71	2.249778	3	3.728592	0	
72	N72	-5.666445	3	3.728592	0	
73	N73	-2.249778	3	3.728592	0	
74	N74	6.062278	3	3.042989	0	
75	N75	4.353945	3	0.084069	0	
76	N76	0.395833	3	-6.771581	0	
77	N77	2.104167	3	-3.812661	0	
78	N78	-6.062278	3	3.042989	0	
79	N79	-0.395833	3	-6.771581	0	
80	N80	-2.104167	3	-3.812661	0	
81	N81	-4.353945	3	0.084069	0	
82	N82	-1.999778	3	3.728592	0	
83	N83	1.999778	3	3.728592	0	
84	N84	4.228945	3	-0.132438	0	
85	N85	2.229167	3	-3.596155	0	
86	N86	-2.229167	3	-3.596155	0	
87	N87	-4.228945	3	-0.132438	0	
88	N88	-4.999778	3	3.728592	0	
89	N89	4.999778	3	3.728592	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
90	N90	5.728945	3	2.465639	0	
91	N91	0.729167	3	-6.194231	0	
92	N92	-0.729167	3	-6.194231	0	
93	N93	-5.728945	3	2.465639	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		180	Arm	Beam	Tube	A500 Gr.B...	Typical
2	M2	N3	N4		180	Arm	Beam	Tube	A500 Gr.B...	Typical
3	M3	N5	N6		180	Arm	Beam	Tube	A500 Gr.B...	Typical
4	M4	N9	N7		180	RIGID	None	None	RIGID	Typical
5	M5	N10	N11		180	RIGID	None	None	RIGID	Typical
6	M6	N12	N8		180	RIGID	None	None	RIGID	Typical
7	M7	N7	N8		180	Frame Rail	Beam	Channel	A36 Gr.36	Typical
8	M8	N9	N10		180	Frame Rail	Beam	Channel	A36 Gr.36	Typical
9	M9	N11	N12		180	Frame Rail	Beam	Channel	A36 Gr.36	Typical
10	M10	N15	N13		90	Support Angle 1	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N14	N13		90	Support Angle 2	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N15	N16		90	Support Angle 2	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N19	N17		180	Support Angle 1	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N17	N18		90	Support Angle 2	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N20	N19		90	Support Angle 2	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N23	N21		180	Support Angle 1	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N21	N22		90	Support Angle 2	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N24	N23		90	Support Angle 2	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N25	N26			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
20	M20	N27	N28			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
21	M21	N29	N30			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
22	M22	N31	N32			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
23	M23	N33	N34			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
24	M24	N35	N36			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
25	M25	N37	N38			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
26	M26	N39	N40			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
27	M27	N41	N42			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
28	M28	N43	N44			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
29	M29	N45	N46			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
30	M30	N47	N48			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
31	M31	N68	N69			Handrails	Beam	Pipe	A53 Gr.B	Typical
32	M32	N65	N64			Handrails	Beam	Pipe	A53 Gr.B	Typical
33	M33	N67	N66			Handrails	Beam	Pipe	A53 Gr.B	Typical
34	M37	N88	N93		90	Corner Angles	Beam	Single Angle	A36 Gr.36	Typical
35	M38	N92	N91		90	Corner Angles	Beam	Single Angle	A36 Gr.36	Typical
36	M39	N89	N90		180	Corner Angles	Beam	Single Angle	A36 Gr.36	Typical

Joint Loads and Enforced Displacements (BLC 42 : Man 1 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N63	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 43 : Man 2 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N53	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 44 : Man 3 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N58	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 45 : Man 4 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N24	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 46 : Man 5 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N14	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 47 : Man 6 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N20	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Y	-.128	%50
2	M19	Y	-.075	%25
3	M21	Y	-.092	%50
4	M21	Y	-.011	%50
5	M20	Y	-.132	%50
6	M27	Y	-.128	%50
7	M27	Y	-.075	%25
8	M28	Y	-.092	%50
9	M28	Y	-.011	%50
10	M30	Y	-.132	%50
11	M25	Y	-.128	%50
12	M25	Y	-.075	%25
13	M23	Y	-.092	%50
14	M23	Y	-.011	%50
15	M26	Y	-.132	%50

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Y	-.452	%50
2	M19	Y	-.046	%25
3	M21	Y	-.156	%50
4	M21	Y	-.01	%50
5	M20	Y	-.169	%50
6	M27	Y	-.452	%50
7	M27	Y	-.046	%25
8	M28	Y	-.156	%50
9	M28	Y	-.01	%50

Member Point Loads (BLC 2 : Ice Dead) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	M30	Y	-.169	%50
11	M25	Y	-.452	%50
12	M25	Y	-.046	%25
13	M23	Y	-.156	%50
14	M23	Y	-.01	%50
15	M26	Y	-.169	%50

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.327	%.1
2	M21	Z	-.099	%3.3
3	M20	Z	-.105	%2.8
4	M27	Z	-.19	%.1
5	M28	Z	-.077	%3.3
6	M30	Z	-.083	%2.8
7	M25	Z	-.19	%.1
8	M23	Z	-.077	%3.3
9	M26	Z	-.083	%2.8
10	M19	Z	-.327	%99.9
11	M21	Z	-.099	%96.7
12	M20	Z	-.105	%97.2
13	M27	Z	-.19	%99.9
14	M28	Z	-.077	%96.7
15	M30	Z	-.083	%97.2
16	M25	Z	-.19	%99.9
17	M23	Z	-.077	%96.7
18	M26	Z	-.083	%97.2

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.244	%.1
2	M21	Z	-.079	%3.3
3	M20	Z	-.085	%2.8
4	M27	Z	-.124	%.1
5	M28	Z	-.06	%3.3
6	M30	Z	-.066	%2.8
7	M25	Z	-.244	%.1
8	M23	Z	-.079	%3.3
9	M26	Z	-.085	%2.8
10	M19	Z	-.244	%99.9
11	M21	Z	-.079	%96.7
12	M20	Z	-.085	%97.2
13	M27	Z	-.124	%99.9
14	M28	Z	-.06	%96.7
15	M30	Z	-.066	%97.2
16	M25	Z	-.244	%99.9
17	M23	Z	-.079	%96.7
18	M26	Z	-.085	%97.2
19	M19	X	.141	%.1
20	M19	X	.005	%25
21	M21	X	.046	%3.3
22	M21	X	.001	%50
23	M20	X	.049	%2.8
24	M27	X	.072	%.1
25	M27	X	.019	%25
26	M28	X	.035	%3.3

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
27	M28	X	.003	%50
28	M30	X	.038	%2.8
29	M25	X	.141	%.1
30	M25	X	.005	%25
31	M23	X	.046	%3.3
32	M23	X	.001	%50
33	M26	X	.049	%2.8
34	M19	X	.141	%99.9
35	M21	X	.046	%96.7
36	M20	X	.049	%97.2
37	M27	X	.072	%99.9
38	M28	X	.035	%96.7
39	M30	X	.038	%97.2
40	M25	X	.141	%99.9
41	M23	X	.046	%96.7
42	M26	X	.049	%97.2

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.095	%.1
2	M21	Z	-.038	%3.3
3	M20	Z	-.042	%2.8
4	M27	Z	-.095	%.1
5	M28	Z	-.038	%3.3
6	M30	Z	-.042	%2.8
7	M25	Z	-.164	%.1
8	M23	Z	-.049	%3.3
9	M26	Z	-.053	%2.8
10	M19	Z	-.095	%99.9
11	M21	Z	-.038	%96.7
12	M20	Z	-.042	%97.2
13	M27	Z	-.095	%99.9
14	M28	Z	-.038	%96.7
15	M30	Z	-.042	%97.2
16	M25	Z	-.164	%99.9
17	M23	Z	-.049	%96.7
18	M26	Z	-.053	%97.2
19	M19	X	.164	%.1
20	M19	X	.024	%25
21	M21	X	.066	%3.3
22	M21	X	.004	%50
23	M20	X	.072	%2.8
24	M27	X	.164	%.1
25	M27	X	.024	%25
26	M28	X	.066	%3.3
27	M28	X	.004	%50
28	M30	X	.072	%2.8
29	M25	X	.283	%.1
30	M25	X	0	%25
31	M23	X	.085	%3.3
32	M23	X	0	%50
33	M26	X	.091	%2.8
34	M19	X	.164	%99.9
35	M21	X	.066	%96.7
36	M20	X	.072	%97.2
37	M27	X	.164	%99.9

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
38	M28	X	.066	%96.7
39	M30	X	.072	%97.2
40	M25	X	.283	%99.9
41	M23	X	.085	%96.7
42	M26	X	.091	%97.2

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	0	%.1
2	M21	Z	0	%3.3
3	M20	Z	0	%2.8
4	M27	Z	0	%.1
5	M28	Z	0	%3.3
6	M30	Z	0	%2.8
7	M25	Z	0	%.1
8	M23	Z	0	%3.3
9	M26	Z	0	%2.8
10	M19	Z	0	%99.9
11	M21	Z	0	%96.7
12	M20	Z	0	%97.2
13	M27	Z	0	%99.9
14	M28	Z	0	%96.7
15	M30	Z	0	%97.2
16	M25	Z	0	%99.9
17	M23	Z	0	%96.7
18	M26	Z	0	%97.2
19	M19	X	.144	%.1
20	M19	X	.037	%25
21	M21	X	.069	%3.3
22	M21	X	.006	%50
23	M20	X	.076	%2.8
24	M27	X	.281	%.1
25	M27	X	.009	%25
26	M28	X	.091	%3.3
27	M28	X	.001	%50
28	M30	X	.098	%2.8
29	M25	X	.281	%.1
30	M25	X	.009	%25
31	M23	X	.091	%3.3
32	M23	X	.001	%50
33	M26	X	.098	%2.8
34	M19	X	.144	%99.9
35	M21	X	.069	%96.7
36	M20	X	.076	%97.2
37	M27	X	.281	%99.9
38	M28	X	.091	%96.7
39	M30	X	.098	%97.2
40	M25	X	.281	%99.9
41	M23	X	.091	%96.7
42	M26	X	.098	%97.2

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	.095	%.1
2	M21	Z	.038	%3.3
3	M20	Z	.042	%2.8

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	M27	Z	.164	%.1
5	M28	Z	.049	%3.3
6	M30	Z	.053	%2.8
7	M25	Z	.095	%.1
8	M23	Z	.038	%3.3
9	M26	Z	.042	%2.8
10	M19	Z	.095	%99.9
11	M21	Z	.038	%96.7
12	M20	Z	.042	%97.2
13	M27	Z	.164	%99.9
14	M28	Z	.049	%96.7
15	M30	Z	.053	%97.2
16	M25	Z	.095	%99.9
17	M23	Z	.038	%96.7
18	M26	Z	.042	%97.2
19	M19	X	.164	%.1
20	M19	X	.024	%25
21	M21	X	.066	%3.3
22	M21	X	.004	%50
23	M20	X	.072	%2.8
24	M27	X	.283	%.1
25	M28	X	.085	%3.3
26	M30	X	.091	%2.8
27	M25	X	.164	%.1
28	M25	X	.024	%25
29	M23	X	.066	%3.3
30	M23	X	.004	%50
31	M26	X	.072	%2.8
32	M19	X	.164	%99.9
33	M21	X	.066	%96.7
34	M20	X	.072	%97.2
35	M27	X	.283	%99.9
36	M28	X	.085	%96.7
37	M30	X	.091	%97.2
38	M25	X	.164	%99.9
39	M23	X	.066	%96.7
40	M26	X	.072	%97.2

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	.244	%.1
2	M21	Z	.079	%3.3
3	M20	Z	.085	%2.8
4	M27	Z	.244	%.1
5	M28	Z	.079	%3.3
6	M30	Z	.085	%2.8
7	M25	Z	.124	%.1
8	M23	Z	.06	%3.3
9	M26	Z	.066	%2.8
10	M19	Z	.244	%99.9
11	M21	Z	.079	%96.7
12	M20	Z	.085	%97.2
13	M27	Z	.244	%99.9
14	M28	Z	.079	%96.7
15	M30	Z	.085	%97.2
16	M25	Z	.124	%99.9

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
17	M23	Z	.06	%96.7
18	M26	Z	.066	%97.2
19	M19	X	.141	%.1
20	M19	X	.005	%25
21	M21	X	.046	%3.3
22	M21	X	.001	%50
23	M20	X	.049	%2.8
24	M27	X	.141	%.1
25	M27	X	.005	%25
26	M28	X	.046	%3.3
27	M28	X	.001	%50
28	M30	X	.049	%2.8
29	M25	X	.072	%.1
30	M25	X	.019	%25
31	M23	X	.035	%3.3
32	M23	X	.003	%50
33	M26	X	.038	%2.8
34	M19	X	.141	%99.9
35	M21	X	.046	%96.7
36	M20	X	.049	%97.2
37	M27	X	.141	%99.9
38	M28	X	.046	%96.7
39	M30	X	.049	%97.2
40	M25	X	.072	%99.9
41	M23	X	.035	%96.7
42	M26	X	.038	%97.2

Member Point Loads (BLC 15 : Ice Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.066	%.1
2	M21	Z	-.023	%3.3
3	M20	Z	-.024	%2.8
4	M27	Z	-.042	%.1
5	M28	Z	-.019	%3.3
6	M30	Z	-.02	%2.8
7	M25	Z	-.042	%.1
8	M23	Z	-.019	%3.3
9	M26	Z	-.02	%2.8
10	M19	Z	-.066	%99.9
11	M21	Z	-.023	%96.7
12	M20	Z	-.024	%97.2
13	M27	Z	-.042	%99.9
14	M28	Z	-.019	%96.7
15	M30	Z	-.02	%97.2
16	M25	Z	-.042	%99.9
17	M23	Z	-.019	%96.7
18	M26	Z	-.02	%97.2

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.05	%.1
2	M21	Z	-.018	%3.3
3	M20	Z	-.02	%2.8
4	M27	Z	-.029	%.1
5	M28	Z	-.015	%3.3
6	M30	Z	-.016	%2.8

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
7	M25	Z	-.05	%.1
8	M23	Z	-.018	%3.3
9	M26	Z	-.02	%2.8
10	M19	Z	-.05	%99.9
11	M21	Z	-.018	%96.7
12	M20	Z	-.02	%97.2
13	M27	Z	-.029	%99.9
14	M28	Z	-.015	%96.7
15	M30	Z	-.016	%97.2
16	M25	Z	-.05	%99.9
17	M23	Z	-.018	%96.7
18	M26	Z	-.02	%97.2
19	M19	X	.029	%.1
20	M19	X	.001	%25
21	M21	X	.011	%3.3
22	M21	X	0	%50
23	M20	X	.011	%2.8
24	M27	X	.017	%.1
25	M27	X	.005	%25
26	M28	X	.009	%3.3
27	M28	X	.002	%50
28	M30	X	.009	%2.8
29	M25	X	.029	%.1
30	M25	X	.001	%25
31	M23	X	.011	%3.3
32	M23	X	0	%50
33	M26	X	.011	%2.8
34	M19	X	.029	%99.9
35	M21	X	.011	%96.7
36	M20	X	.011	%97.2
37	M27	X	.017	%99.9
38	M28	X	.009	%96.7
39	M30	X	.009	%97.2
40	M25	X	.029	%99.9
41	M23	X	.011	%96.7
42	M26	X	.011	%97.2

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.021	%.1
2	M21	Z	-.009	%3.3
3	M20	Z	-.01	%2.8
4	M27	Z	-.021	%.1
5	M28	Z	-.009	%3.3
6	M30	Z	-.01	%2.8
7	M25	Z	-.033	%.1
8	M23	Z	-.011	%3.3
9	M26	Z	-.012	%2.8
10	M19	Z	-.021	%99.9
11	M21	Z	-.009	%96.7
12	M20	Z	-.01	%97.2
13	M27	Z	-.021	%99.9
14	M28	Z	-.009	%96.7
15	M30	Z	-.01	%97.2
16	M25	Z	-.033	%99.9
17	M23	Z	-.011	%96.7

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
18	M26	Z	-.012	%97.2
19	M19	X	.036	%.1
20	M19	X	.007	%25
21	M21	X	.016	%3.3
22	M21	X	.002	%50
23	M20	X	.017	%2.8
24	M27	X	.036	%.1
25	M27	X	.007	%25
26	M28	X	.016	%3.3
27	M28	X	.002	%50
28	M30	X	.017	%2.8
29	M25	X	.057	%.1
30	M25	X	0	%25
31	M23	X	.02	%3.3
32	M23	X	0	%50
33	M26	X	.021	%2.8
34	M19	X	.036	%99.9
35	M21	X	.016	%96.7
36	M20	X	.017	%97.2
37	M27	X	.036	%99.9
38	M28	X	.016	%96.7
39	M30	X	.017	%97.2
40	M25	X	.057	%99.9
41	M23	X	.02	%96.7
42	M26	X	.021	%97.2

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	0	%.1
2	M21	Z	0	%3.3
3	M20	Z	0	%2.8
4	M27	Z	0	%.1
5	M28	Z	0	%3.3
6	M30	Z	0	%2.8
7	M25	Z	0	%.1
8	M23	Z	0	%3.3
9	M26	Z	0	%2.8
10	M19	Z	0	%99.9
11	M21	Z	0	%96.7
12	M20	Z	0	%97.2
13	M27	Z	0	%99.9
14	M28	Z	0	%96.7
15	M30	Z	0	%97.2
16	M25	Z	0	%99.9
17	M23	Z	0	%96.7
18	M26	Z	0	%97.2
19	M19	X	.034	%.1
20	M19	X	.011	%25
21	M21	X	.017	%3.3
22	M21	X	.003	%50
23	M20	X	.019	%2.8
24	M27	X	.058	%.1
25	M27	X	.003	%25
26	M28	X	.021	%3.3
27	M28	X	.001	%50
28	M30	X	.023	%2.8

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
29	M25	X	.058	%.1
30	M25	X	.003	%25
31	M23	X	.021	%3.3
32	M23	X	.001	%50
33	M26	X	.023	%2.8
34	M19	X	.034	%99.9
35	M21	X	.017	%96.7
36	M20	X	.019	%97.2
37	M27	X	.058	%99.9
38	M28	X	.021	%96.7
39	M30	X	.023	%97.2
40	M25	X	.058	%99.9
41	M23	X	.021	%96.7
42	M26	X	.023	%97.2

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	.021	%.1
2	M21	Z	.009	%3.3
3	M20	Z	.01	%2.8
4	M27	Z	.033	%.1
5	M28	Z	.011	%3.3
6	M30	Z	.012	%2.8
7	M25	Z	.021	%.1
8	M23	Z	.009	%3.3
9	M26	Z	.01	%2.8
10	M19	Z	.021	%99.9
11	M21	Z	.009	%96.7
12	M20	Z	.01	%97.2
13	M27	Z	.033	%99.9
14	M28	Z	.011	%96.7
15	M30	Z	.012	%97.2
16	M25	Z	.021	%99.9
17	M23	Z	.009	%96.7
18	M26	Z	.01	%97.2
19	M19	X	.036	%.1
20	M19	X	.007	%25
21	M21	X	.016	%3.3
22	M21	X	.002	%50
23	M20	X	.017	%2.8
24	M27	X	.057	%.1
25	M28	X	.02	%3.3
26	M30	X	.021	%2.8
27	M25	X	.036	%.1
28	M25	X	.007	%25
29	M23	X	.016	%3.3
30	M23	X	.002	%50
31	M26	X	.017	%2.8
32	M19	X	.036	%99.9
33	M21	X	.016	%96.7
34	M20	X	.017	%97.2
35	M27	X	.057	%99.9
36	M28	X	.02	%96.7
37	M30	X	.021	%97.2
38	M25	X	.036	%99.9
39	M23	X	.016	%96.7

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
40	M26	X	.017	%97.2

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	.05	%.1
2	M21	Z	.009	%3.3
3	M20	Z	.01	%2.8
4	M27	Z	.033	%.1
5	M28	Z	.011	%3.3
6	M30	Z	.012	%2.8
7	M25	Z	.021	%.1
8	M23	Z	.009	%3.3
9	M26	Z	.01	%2.8
10	M19	Z	.05	%99.9
11	M21	Z	.009	%96.7
12	M20	Z	.01	%97.2
13	M27	Z	.033	%99.9
14	M28	Z	.011	%96.7
15	M30	Z	.012	%97.2
16	M25	Z	.021	%99.9
17	M23	Z	.009	%96.7
18	M26	Z	.01	%97.2
19	M19	X	.029	%.1
20	M19	X	.007	%25
21	M21	X	.016	%3.3
22	M21	X	.002	%50
23	M20	X	.017	%2.8
24	M27	X	.057	%.1
25	M28	X	.02	%3.3
26	M30	X	.021	%2.8
27	M25	X	.036	%.1
28	M25	X	.007	%25
29	M23	X	.016	%3.3
30	M23	X	.002	%50
31	M26	X	.017	%2.8
32	M19	X	.029	%99.9
33	M21	X	.016	%96.7
34	M20	X	.017	%97.2
35	M27	X	.057	%99.9
36	M28	X	.02	%96.7
37	M30	X	.021	%97.2
38	M25	X	.036	%99.9
39	M23	X	.016	%96.7
40	M26	X	.017	%97.2

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Z	-.017	%50
2	M19	Z	-.01	%25
3	M21	Z	-.012	%50
4	M21	Z	-.001	%50
5	M20	Z	-.018	%50
6	M27	Z	-.017	%50
7	M27	Z	-.01	%25
8	M28	Z	-.012	%50
9	M28	Z	-.001	%50

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	M30	Z	-.018	%50
11	M25	Z	-.017	%50
12	M25	Z	-.01	%25
13	M23	Z	-.012	%50
14	M23	Z	-.001	%50
15	M26	Z	-.018	%50

Member Point Loads (BLC 28 : Seismic Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	X	.017	%50
2	M19	X	.01	%25
3	M21	X	.012	%50
4	M21	X	.001	%50
5	M20	X	.018	%50
6	M27	X	.017	%50
7	M27	X	.01	%25
8	M28	X	.012	%50
9	M28	X	.001	%50
10	M30	X	.018	%50
11	M25	X	.017	%50
12	M25	X	.01	%25
13	M23	X	.012	%50
14	M23	X	.001	%50
15	M26	X	.018	%50

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M19	Y	-.026	%50
2	M19	Y	-.015	%25
3	M21	Y	-.018	%50
4	M21	Y	-.002	%50
5	M20	Y	-.026	%50
6	M27	Y	-.026	%50
7	M27	Y	-.015	%25
8	M28	Y	-.018	%50
9	M28	Y	-.002	%50
10	M30	Y	-.026	%50
11	M25	Y	-.026	%50
12	M25	Y	-.015	%25
13	M23	Y	-.018	%50
14	M23	Y	-.002	%50
15	M26	Y	-.026	%50

Member Distributed Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Y	-.015	-.015	0	%100
2	M2	Y	-.015	-.015	0	%100
3	M3	Y	-.015	-.015	0	%100
4	M4	Y	-.004	-.004	0	%100
5	M5	Y	-.004	-.004	0	%100
6	M6	Y	-.004	-.004	0	%100
7	M7	Y	-.015	-.015	0	%100
8	M8	Y	-.015	-.015	0	%100
9	M9	Y	-.015	-.015	0	%100

Member Distributed Loads (BLC 2 : Ice Dead) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
10	M10	Y	-.009	-.009	0	%100
11	M11	Y	-.011	-.011	0	%100
12	M12	Y	-.011	-.011	0	%100
13	M13	Y	-.009	-.009	0	%100
14	M14	Y	-.011	-.011	0	%100
15	M15	Y	-.011	-.011	0	%100
16	M16	Y	-.009	-.009	0	%100
17	M17	Y	-.011	-.011	0	%100
18	M18	Y	-.011	-.011	0	%100
19	M19	Y	-.008	-.008	0	%100
20	M20	Y	-.008	-.008	0	%100
21	M21	Y	-.008	-.008	0	%100
22	M22	Y	-.008	-.008	0	%100
23	M23	Y	-.008	-.008	0	%100
24	M24	Y	-.008	-.008	0	%100
25	M25	Y	-.008	-.008	0	%100
26	M26	Y	-.008	-.008	0	%100
27	M27	Y	-.008	-.008	0	%100
28	M28	Y	-.008	-.008	0	%100
29	M29	Y	-.008	-.008	0	%100
30	M30	Y	-.008	-.008	0	%100
31	M31	Y	-.008	-.008	0	%100
32	M32	Y	-.008	-.008	0	%100
33	M33	Y	-.008	-.008	0	%100
34	M37	Y	-.011	-.011	0	%100
35	M38	Y	-.011	-.011	0	%100
36	M39	Y	-.011	-.011	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	-.016	-.016	0	%100
3	M3	Z	-.016	-.016	0	%100
4	M7	Z	-.007	-.007	0	%100
5	M8	Z	-.007	-.007	0	%100
6	M9	Z	-.027	-.027	0	%100
7	M10	Z	-.011	-.011	0	%100
8	M11	Z	-.012	-.012	0	%100
9	M12	Z	-.012	-.012	0	%100
10	M13	Z	-.003	-.003	0	%100
11	M14	Z	0	0	0	%100
12	M15	Z	-.012	-.012	0	%100
13	M16	Z	-.003	-.003	0	%100
14	M17	Z	-.012	-.012	0	%100
15	M18	Z	0	0	0	%100
16	M19	Z	-.008	-.008	0	%.1
17	M20	Z	-.008	-.008	0	%2.8
18	M21	Z	-.008	-.008	0	%3.3
19	M22	Z	-.008	-.008	0	%100
20	M23	Z	-.008	-.008	0	%3.3
21	M24	Z	-.008	-.008	0	%100
22	M25	Z	-.008	-.008	0	%.1
23	M26	Z	-.008	-.008	0	%2.8
24	M27	Z	-.008	-.008	0	%.1
25	M28	Z	-.008	-.008	0	%3.3
26	M29	Z	-.008	-.008	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
27	M30	Z	-.008	-.008	0	%2.8
28	M31	Z	-.008	-.008	0	%100
29	M32	Z	-.002	-.002	0	%100
30	M33	Z	-.002	-.002	0	%100
31	M37	Z	-.003	-.003	0	%100
32	M38	Z	-.013	-.013	0	%100
33	M39	Z	-.003	-.003	0	%100
34	M19	Z	-.008	-.008	%99.9	%100
35	M20	Z	-.008	-.008	%97.2	%100
36	M21	Z	-.008	-.008	%96.7	%100
37	M23	Z	-.008	-.008	%96.7	%100
38	M25	Z	-.008	-.008	%99.9	%100
39	M26	Z	-.008	-.008	%97.2	%100
40	M27	Z	-.008	-.008	%99.9	%100
41	M28	Z	-.008	-.008	%96.7	%100
42	M30	Z	-.008	-.008	%97.2	%100
43	M1	X	0	0	0	%100
44	M2	X	0	0	0	%100
45	M3	X	0	0	0	%100
46	M7	X	0	0	0	%100
47	M8	X	0	0	0	%100
48	M9	X	0	0	0	%100
49	M10	X	0	0	0	%100
50	M11	X	0	0	0	%100
51	M12	X	0	0	0	%100
52	M13	X	0	0	0	%100
53	M14	X	0	0	0	%100
54	M15	X	0	0	0	%100
55	M16	X	0	0	0	%100
56	M17	X	0	0	0	%100
57	M18	X	0	0	0	%100
58	M19	X	0	0	0	%100
59	M20	X	0	0	0	%100
60	M21	X	0	0	0	%100
61	M22	X	0	0	0	%100
62	M23	X	0	0	0	%3.3
63	M24	X	0	0	0	%100
64	M25	X	0	0	0	%.1
65	M26	X	0	0	0	%2.8
66	M27	X	0	0	0	%.1
67	M28	X	0	0	0	%3.3
68	M29	X	0	0	0	%100
69	M30	X	0	0	0	%2.8
70	M31	X	0	0	0	%100
71	M32	X	0	0	0	%100
72	M33	X	0	0	0	%100
73	M37	X	0	0	0	%100
74	M38	X	0	0	0	%100
75	M39	X	0	0	0	%100
76	M23	X	0	0	%96.7	%100
77	M25	X	0	0	%99.9	%100
78	M26	X	0	0	%97.2	%100
79	M27	X	0	0	%99.9	%100
80	M28	X	0	0	%96.7	%100
81	M30	X	0	0	%97.2	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	-.005	-.005	0	%100
2	M2	Z	-.005	-.005	0	%100
3	M3	Z	-.019	-.019	0	%100
4	M7	Z	-.018	-.018	0	%100
5	M8	Z	0	0	0	%100
6	M9	Z	-.018	-.018	0	%100
7	M10	Z	-.007	-.007	0	%100
8	M11	Z	-.004	-.004	0	%100
9	M12	Z	-.014	-.014	0	%100
10	M13	Z	-.007	-.007	0	%100
11	M14	Z	-.004	-.004	0	%100
12	M15	Z	-.014	-.014	0	%100
13	M16	Z	0	0	0	%100
14	M17	Z	-.004	-.004	0	%100
15	M18	Z	-.004	-.004	0	%100
16	M19	Z	-.007	-.007	0	%.1
17	M20	Z	-.007	-.007	0	%2.8
18	M21	Z	-.007	-.007	0	%3.3
19	M22	Z	-.007	-.007	0	%100
20	M23	Z	-.007	-.007	0	%3.3
21	M24	Z	-.007	-.007	0	%100
22	M25	Z	-.007	-.007	0	%.1
23	M26	Z	-.007	-.007	0	%2.8
24	M27	Z	-.007	-.007	0	%.1
25	M28	Z	-.007	-.007	0	%3.3
26	M29	Z	-.007	-.007	0	%100
27	M30	Z	-.007	-.007	0	%2.8
28	M31	Z	-.005	-.005	0	%100
29	M32	Z	-.005	-.005	0	%100
30	M33	Z	0	0	0	%100
31	M37	Z	-.009	-.009	0	%100
32	M38	Z	-.009	-.009	0	%100
33	M39	Z	0	0	0	%100
34	M19	Z	-.007	-.007	%99.9	%100
35	M20	Z	-.007	-.007	%97.2	%100
36	M21	Z	-.007	-.007	%96.7	%100
37	M23	Z	-.007	-.007	%96.7	%100
38	M25	Z	-.007	-.007	%99.9	%100
39	M26	Z	-.007	-.007	%97.2	%100
40	M27	Z	-.007	-.007	%99.9	%100
41	M28	Z	-.007	-.007	%96.7	%100
42	M30	Z	-.007	-.007	%97.2	%100
43	M1	X	.003	.003	0	%100
44	M2	X	.003	.003	0	%100
45	M3	X	.011	.011	0	%100
46	M7	X	.01	.01	0	%100
47	M8	X	0	0	0	%100
48	M9	X	.01	.01	0	%100
49	M10	X	.004	.004	0	%100
50	M11	X	.002	.002	0	%100
51	M12	X	.008	.008	0	%100
52	M13	X	.004	.004	0	%100
53	M14	X	.002	.002	0	%100
54	M15	X	.008	.008	0	%100
55	M16	X	0	0	0	%100
56	M17	X	.002	.002	0	%100
57	M18	X	.002	.002	0	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
58	M19	X	.004	.004	0	%100
59	M20	X	.004	.004	0	%100
60	M21	X	.004	.004	0	%100
61	M22	X	.004	.004	0	%100
62	M23	X	.004	.004	0	%3.3
63	M24	X	.004	.004	0	%100
64	M25	X	.004	.004	0	%.1
65	M26	X	.004	.004	0	%2.8
66	M27	X	.004	.004	0	%.1
67	M28	X	.004	.004	0	%3.3
68	M29	X	.004	.004	0	%100
69	M30	X	.004	.004	0	%2.8
70	M31	X	.003	.003	0	%100
71	M32	X	.003	.003	0	%100
72	M33	X	0	0	0	%100
73	M37	X	.005	.005	0	%100
74	M38	X	.005	.005	0	%100
75	M39	X	0	0	0	%100
76	M23	X	.004	.004	%96.7	%100
77	M25	X	.004	.004	%99.9	%100
78	M26	X	.004	.004	%97.2	%100
79	M27	X	.004	.004	%99.9	%100
80	M28	X	.004	.004	%96.7	%100
81	M30	X	.004	.004	%97.2	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	-.008	-.008	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	-.008	-.008	0	%100
4	M7	Z	-.013	-.013	0	%100
5	M8	Z	-.003	-.003	0	%100
6	M9	Z	-.003	-.003	0	%100
7	M10	Z	-.001	-.001	0	%100
8	M11	Z	0	0	0	%100
9	M12	Z	-.006	-.006	0	%100
10	M13	Z	-.005	-.005	0	%100
11	M14	Z	-.006	-.006	0	%100
12	M15	Z	-.006	-.006	0	%100
13	M16	Z	-.001	-.001	0	%100
14	M17	Z	0	0	0	%100
15	M18	Z	-.006	-.006	0	%100
16	M19	Z	-.004	-.004	0	%.1
17	M20	Z	-.004	-.004	0	%2.8
18	M21	Z	-.004	-.004	0	%3.3
19	M22	Z	-.004	-.004	0	%100
20	M23	Z	-.004	-.004	0	%3.3
21	M24	Z	-.004	-.004	0	%100
22	M25	Z	-.004	-.004	0	%.1
23	M26	Z	-.004	-.004	0	%2.8
24	M27	Z	-.004	-.004	0	%.1
25	M28	Z	-.004	-.004	0	%3.3
26	M29	Z	-.004	-.004	0	%100
27	M30	Z	-.004	-.004	0	%2.8
28	M31	Z	-.001	-.001	0	%100
29	M32	Z	-.004	-.004	0	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
30	M33	Z	-.001	-.001	0	%100
31	M37	Z	-.007	-.007	0	%100
32	M38	Z	-.002	-.002	0	%100
33	M39	Z	-.002	-.002	0	%100
34	M19	Z	-.004	-.004	%99.9	%100
35	M20	Z	-.004	-.004	%97.2	%100
36	M21	Z	-.004	-.004	%96.7	%100
37	M23	Z	-.004	-.004	%96.7	%100
38	M25	Z	-.004	-.004	%99.9	%100
39	M26	Z	-.004	-.004	%97.2	%100
40	M27	Z	-.004	-.004	%99.9	%100
41	M28	Z	-.004	-.004	%96.7	%100
42	M30	Z	-.004	-.004	%97.2	%100
43	M1	X	.014	.014	0	%100
44	M2	X	0	0	0	%100
45	M3	X	.014	.014	0	%100
46	M7	X	.023	.023	0	%100
47	M8	X	.006	.006	0	%100
48	M9	X	.006	.006	0	%100
49	M10	X	.002	.002	0	%100
50	M11	X	0	0	0	%100
51	M12	X	.011	.011	0	%100
52	M13	X	.009	.009	0	%100
53	M14	X	.011	.011	0	%100
54	M15	X	.011	.011	0	%100
55	M16	X	.002	.002	0	%100
56	M17	X	0	0	0	%100
57	M18	X	.011	.011	0	%100
58	M19	X	.007	.007	0	%100
59	M20	X	.007	.007	0	%100
60	M21	X	.007	.007	0	%100
61	M22	X	.007	.007	0	%100
62	M23	X	.007	.007	0	%3.3
63	M24	X	.007	.007	0	%100
64	M25	X	.007	.007	0	%.1
65	M26	X	.007	.007	0	%2.8
66	M27	X	.007	.007	0	%.1
67	M28	X	.007	.007	0	%3.3
68	M29	X	.007	.007	0	%100
69	M30	X	.007	.007	0	%2.8
70	M31	X	.002	.002	0	%100
71	M32	X	.007	.007	0	%100
72	M33	X	.002	.002	0	%100
73	M37	X	.012	.012	0	%100
74	M38	X	.003	.003	0	%100
75	M39	X	.003	.003	0	%100
76	M23	X	.007	.007	%96.7	%100
77	M25	X	.007	.007	%99.9	%100
78	M26	X	.007	.007	%97.2	%100
79	M27	X	.007	.007	%99.9	%100
80	M28	X	.007	.007	%96.7	%100
81	M30	X	.007	.007	%97.2	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	0	0	0	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100
4	M7	Z	0	0	0	%100
5	M8	Z	0	0	0	%100
6	M9	Z	0	0	0	%100
7	M10	Z	0	0	0	%100
8	M11	Z	0	0	0	%100
9	M12	Z	0	0	0	%100
10	M13	Z	0	0	0	%100
11	M14	Z	0	0	0	%100
12	M15	Z	0	0	0	%100
13	M16	Z	0	0	0	%100
14	M17	Z	0	0	0	%100
15	M18	Z	0	0	0	%100
16	M19	Z	0	0	0	%.1
17	M20	Z	0	0	0	%2.8
18	M21	Z	0	0	0	%3.3
19	M22	Z	0	0	0	%100
20	M23	Z	0	0	0	%3.3
21	M24	Z	0	0	0	%100
22	M25	Z	0	0	0	%.1
23	M26	Z	0	0	0	%2.8
24	M27	Z	0	0	0	%.1
25	M28	Z	0	0	0	%3.3
26	M29	Z	0	0	0	%100
27	M30	Z	0	0	0	%2.8
28	M31	Z	0	0	0	%100
29	M32	Z	0	0	0	%100
30	M33	Z	0	0	0	%100
31	M37	Z	0	0	0	%100
32	M38	Z	0	0	0	%100
33	M39	Z	0	0	0	%100
34	M19	Z	0	0	%99.9	%100
35	M20	Z	0	0	%97.2	%100
36	M21	Z	0	0	%96.7	%100
37	M23	Z	0	0	%96.7	%100
38	M25	Z	0	0	%99.9	%100
39	M26	Z	0	0	%97.2	%100
40	M27	Z	0	0	%99.9	%100
41	M28	Z	0	0	%96.7	%100
42	M30	Z	0	0	%97.2	%100
43	M1	X	.022	.022	0	%100
44	M2	X	.005	.005	0	%100
45	M3	X	.005	.005	0	%100
46	M7	X	.02	.02	0	%100
47	M8	X	.02	.02	0	%100
48	M9	X	0	0	0	%100
49	M10	X	0	0	0	%100
50	M11	X	.004	.004	0	%100
51	M12	X	.004	.004	0	%100
52	M13	X	.008	.008	0	%100
53	M14	X	.016	.016	0	%100
54	M15	X	.004	.004	0	%100
55	M16	X	.008	.008	0	%100
56	M17	X	.004	.004	0	%100
57	M18	X	.016	.016	0	%100
58	M19	X	.008	.008	0	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
59	M20	X	.008	.008	0	%100
60	M21	X	.008	.008	0	%100
61	M22	X	.008	.008	0	%100
62	M23	X	.008	.008	0	%3.3
63	M24	X	.008	.008	0	%100
64	M25	X	.008	.008	0	%.1
65	M26	X	.008	.008	0	%2.8
66	M27	X	.008	.008	0	%.1
67	M28	X	.008	.008	0	%3.3
68	M29	X	.008	.008	0	%100
69	M30	X	.008	.008	0	%2.8
70	M31	X	0	0	0	%100
71	M32	X	.006	.006	0	%100
72	M33	X	.006	.006	0	%100
73	M37	X	.01	.01	0	%100
74	M38	X	0	0	0	%100
75	M39	X	.01	.01	0	%100
76	M23	X	.008	.008	%96.7	%100
77	M25	X	.008	.008	%99.9	%100
78	M26	X	.008	.008	%97.2	%100
79	M27	X	.008	.008	%99.9	%100
80	M28	X	.008	.008	%96.7	%100
81	M30	X	.008	.008	%97.2	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	.008	.008	0	%100
2	M2	Z	.008	.008	0	%100
3	M3	Z	0	0	0	%100
4	M7	Z	.003	.003	0	%100
5	M8	Z	.013	.013	0	%100
6	M9	Z	.003	.003	0	%100
7	M10	Z	.001	.001	0	%100
8	M11	Z	.006	.006	0	%100
9	M12	Z	0	0	0	%100
10	M13	Z	.001	.001	0	%100
11	M14	Z	.006	.006	0	%100
12	M15	Z	0	0	0	%100
13	M16	Z	.005	.005	0	%100
14	M17	Z	.006	.006	0	%100
15	M18	Z	.006	.006	0	%100
16	M19	Z	.004	.004	0	%.1
17	M20	Z	.004	.004	0	%2.8
18	M21	Z	.004	.004	0	%3.3
19	M22	Z	.004	.004	0	%100
20	M23	Z	.004	.004	0	%3.3
21	M24	Z	.004	.004	0	%100
22	M25	Z	.004	.004	0	%.1
23	M26	Z	.004	.004	0	%2.8
24	M27	Z	.004	.004	0	%.1
25	M28	Z	.004	.004	0	%3.3
26	M29	Z	.004	.004	0	%100
27	M30	Z	.004	.004	0	%2.8
28	M31	Z	.001	.001	0	%100
29	M32	Z	.001	.001	0	%100
30	M33	Z	.004	.004	0	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
31	M37	Z	.002	.002	0	%100
32	M38	Z	.002	.002	0	%100
33	M39	Z	.007	.007	0	%100
34	M19	Z	.004	.004	%99.9	%100
35	M20	Z	.004	.004	%97.2	%100
36	M21	Z	.004	.004	%96.7	%100
37	M23	Z	.004	.004	%96.7	%100
38	M25	Z	.004	.004	%99.9	%100
39	M26	Z	.004	.004	%97.2	%100
40	M27	Z	.004	.004	%99.9	%100
41	M28	Z	.004	.004	%96.7	%100
42	M30	Z	.004	.004	%97.2	%100
43	M1	X	.014	.014	0	%100
44	M2	X	.014	.014	0	%100
45	M3	X	0	0	0	%100
46	M7	X	.006	.006	0	%100
47	M8	X	.023	.023	0	%100
48	M9	X	.006	.006	0	%100
49	M10	X	.002	.002	0	%100
50	M11	X	.011	.011	0	%100
51	M12	X	0	0	0	%100
52	M13	X	.002	.002	0	%100
53	M14	X	.011	.011	0	%100
54	M15	X	0	0	0	%100
55	M16	X	.009	.009	0	%100
56	M17	X	.011	.011	0	%100
57	M18	X	.011	.011	0	%100
58	M19	X	.007	.007	0	%100
59	M20	X	.007	.007	0	%100
60	M21	X	.007	.007	0	%100
61	M22	X	.007	.007	0	%100
62	M23	X	.007	.007	0	%3.3
63	M24	X	.007	.007	0	%100
64	M25	X	.007	.007	0	%.1
65	M26	X	.007	.007	0	%2.8
66	M27	X	.007	.007	0	%.1
67	M28	X	.007	.007	0	%3.3
68	M29	X	.007	.007	0	%100
69	M30	X	.007	.007	0	%2.8
70	M31	X	.002	.002	0	%100
71	M32	X	.002	.002	0	%100
72	M33	X	.007	.007	0	%100
73	M37	X	.003	.003	0	%100
74	M38	X	.003	.003	0	%100
75	M39	X	.012	.012	0	%100
76	M23	X	.007	.007	%96.7	%100
77	M25	X	.007	.007	%99.9	%100
78	M26	X	.007	.007	%97.2	%100
79	M27	X	.007	.007	%99.9	%100
80	M28	X	.007	.007	%96.7	%100
81	M30	X	.007	.007	%97.2	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	.005	.005	0	%100
2	M2	Z	.019	.019	0	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
3	M3	Z	.005	.005	0	%100
4	M7	Z	0	0	0	%100
5	M8	Z	.018	.018	0	%100
6	M9	Z	.018	.018	0	%100
7	M10	Z	.007	.007	0	%100
8	M11	Z	.014	.014	0	%100
9	M12	Z	.004	.004	0	%100
10	M13	Z	0	0	0	%100
11	M14	Z	.004	.004	0	%100
12	M15	Z	.004	.004	0	%100
13	M16	Z	.007	.007	0	%100
14	M17	Z	.014	.014	0	%100
15	M18	Z	.004	.004	0	%100
16	M19	Z	.007	.007	0	%.1
17	M20	Z	.007	.007	0	%2.8
18	M21	Z	.007	.007	0	%3.3
19	M22	Z	.007	.007	0	%100
20	M23	Z	.007	.007	0	%3.3
21	M24	Z	.007	.007	0	%100
22	M25	Z	.007	.007	0	%.1
23	M26	Z	.007	.007	0	%2.8
24	M27	Z	.007	.007	0	%.1
25	M28	Z	.007	.007	0	%3.3
26	M29	Z	.007	.007	0	%100
27	M30	Z	.007	.007	0	%2.8
28	M31	Z	.005	.005	0	%100
29	M32	Z	0	0	0	%100
30	M33	Z	.005	.005	0	%100
31	M37	Z	0	0	0	%100
32	M38	Z	.009	.009	0	%100
33	M39	Z	.009	.009	0	%100
34	M19	Z	.007	.007	%99.9	%100
35	M20	Z	.007	.007	%97.2	%100
36	M21	Z	.007	.007	%96.7	%100
37	M23	Z	.007	.007	%96.7	%100
38	M25	Z	.007	.007	%99.9	%100
39	M26	Z	.007	.007	%97.2	%100
40	M27	Z	.007	.007	%99.9	%100
41	M28	Z	.007	.007	%96.7	%100
42	M30	Z	.007	.007	%97.2	%100
43	M1	X	.003	.003	0	%100
44	M2	X	.011	.011	0	%100
45	M3	X	.003	.003	0	%100
46	M7	X	0	0	0	%100
47	M8	X	.01	.01	0	%100
48	M9	X	.01	.01	0	%100
49	M10	X	.004	.004	0	%100
50	M11	X	.008	.008	0	%100
51	M12	X	.002	.002	0	%100
52	M13	X	0	0	0	%100
53	M14	X	.002	.002	0	%100
54	M15	X	.002	.002	0	%100
55	M16	X	.004	.004	0	%100
56	M17	X	.008	.008	0	%100
57	M18	X	.002	.002	0	%100
58	M19	X	.004	.004	0	%100
59	M20	X	.004	.004	0	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
60	M21	X	.004	.004	0	%100
61	M22	X	.004	.004	0	%100
62	M23	X	.004	.004	0	%3.3
63	M24	X	.004	.004	0	%100
64	M25	X	.004	.004	0	%.1
65	M26	X	.004	.004	0	%2.8
66	M27	X	.004	.004	0	%.1
67	M28	X	.004	.004	0	%3.3
68	M29	X	.004	.004	0	%100
69	M30	X	.004	.004	0	%2.8
70	M31	X	.003	.003	0	%100
71	M32	X	0	0	0	%100
72	M33	X	.003	.003	0	%100
73	M37	X	0	0	0	%100
74	M38	X	.005	.005	0	%100
75	M39	X	.005	.005	0	%100
76	M23	X	.004	.004	%96.7	%100
77	M25	X	.004	.004	%99.9	%100
78	M26	X	.004	.004	%97.2	%100
79	M27	X	.004	.004	%99.9	%100
80	M28	X	.004	.004	%96.7	%100
81	M30	X	.004	.004	%97.2	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	-.004	-.004	0	%100
3	M3	Z	-.004	-.004	0	%100
4	M4	Z	-.003	-.003	0	%100
5	M5	Z	-.001	-.001	0	%100
6	M6	Z	-.001	-.001	0	%100
7	M7	Z	-.002	-.002	0	%100
8	M8	Z	-.002	-.002	0	%100
9	M9	Z	-.007	-.007	0	%100
10	M10	Z	-.004	-.004	0	%100
11	M11	Z	-.004	-.004	0	%100
12	M12	Z	-.004	-.004	0	%100
13	M13	Z	-.001	-.001	0	%100
14	M14	Z	0	0	0	%100
15	M15	Z	-.004	-.004	0	%100
16	M16	Z	-.001	-.001	0	%100
17	M17	Z	-.004	-.004	0	%100
18	M18	Z	0	0	0	%100
19	M19	Z	-.004	-.004	0	%.1
20	M20	Z	-.004	-.004	0	%2.8
21	M21	Z	-.004	-.004	0	%3.3
22	M22	Z	-.003	-.003	0	%100
23	M23	Z	-.004	-.004	0	%3.3
24	M24	Z	-.003	-.003	0	%100
25	M25	Z	-.004	-.004	0	%.1
26	M26	Z	-.004	-.004	0	%2.8
27	M27	Z	-.004	-.004	0	%.1
28	M28	Z	-.004	-.004	0	%3.3
29	M29	Z	-.003	-.003	0	%100
30	M30	Z	-.004	-.004	0	%2.8
31	M31	Z	-.003	-.003	0	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
32	M32	Z	-.001	-.001	0	%100
33	M33	Z	-.001	-.001	0	%100
34	M37	Z	-.001	-.001	0	%100
35	M38	Z	-.005	-.005	0	%100
36	M39	Z	-.001	-.001	0	%100
37	M19	Z	-.004	-.004	%99.9	%100
38	M20	Z	-.004	-.004	%97.2	%100
39	M21	Z	-.004	-.004	%96.7	%100
40	M23	Z	-.004	-.004	%96.7	%100
41	M25	Z	-.004	-.004	%99.9	%100
42	M26	Z	-.004	-.004	%97.2	%100
43	M27	Z	-.004	-.004	%99.9	%100
44	M28	Z	-.004	-.004	%96.7	%100
45	M30	Z	-.004	-.004	%97.2	%100
46	M1	X	0	0	0	%100
47	M2	X	0	0	0	%100
48	M3	X	0	0	0	%100
49	M4	X	0	0	0	%100
50	M5	X	0	0	0	%100
51	M6	X	0	0	0	%100
52	M7	X	0	0	0	%100
53	M8	X	0	0	0	%100
54	M9	X	0	0	0	%100
55	M10	X	0	0	0	%100
56	M11	X	0	0	0	%100
57	M12	X	0	0	0	%100
58	M13	X	0	0	0	%100
59	M14	X	0	0	0	%100
60	M15	X	0	0	0	%100
61	M16	X	0	0	0	%100
62	M17	X	0	0	0	%100
63	M18	X	0	0	0	%100
64	M19	X	0	0	0	%100
65	M20	X	0	0	0	%100
66	M21	X	0	0	0	%100
67	M22	X	0	0	0	%100
68	M23	X	0	0	0	%3.3
69	M24	X	0	0	0	%100
70	M25	X	0	0	0	%.1
71	M26	X	0	0	0	%2.8
72	M27	X	0	0	0	%.1
73	M28	X	0	0	0	%3.3
74	M29	X	0	0	0	%100
75	M30	X	0	0	0	%2.8
76	M31	X	0	0	0	%100
77	M32	X	0	0	0	%100
78	M33	X	0	0	0	%100
79	M37	X	0	0	0	%100
80	M38	X	0	0	0	%100
81	M39	X	0	0	0	%100
82	M23	X	0	0	%96.7	%100
83	M25	X	0	0	%99.9	%100
84	M26	X	0	0	%97.2	%100
85	M27	X	0	0	%99.9	%100
86	M28	X	0	0	%96.7	%100
87	M30	X	0	0	%97.2	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	-.001	-.001	0	%100
2	M2	Z	-.002	-.002	0	%100
3	M3	Z	-.005	-.005	0	%100
4	M4	Z	-.003	-.003	0	%100
5	M5	Z	-.001	-.001	0	%100
6	M6	Z	-.001	-.001	0	%100
7	M7	Z	-.003	-.003	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	-.005	-.005	0	%100
10	M10	Z	-.003	-.003	0	%100
11	M11	Z	-.002	-.002	0	%100
12	M12	Z	-.004	-.004	0	%100
13	M13	Z	-.002	-.002	0	%100
14	M14	Z	-.001	-.001	0	%100
15	M15	Z	-.004	-.004	0	%100
16	M16	Z	0	0	0	%100
17	M17	Z	-.002	-.002	0	%100
18	M18	Z	-.001	-.001	0	%100
19	M19	Z	-.003	-.003	0	%.1
20	M20	Z	-.003	-.003	0	%2.8
21	M21	Z	-.003	-.003	0	%3.3
22	M22	Z	-.003	-.003	0	%100
23	M23	Z	-.003	-.003	0	%3.3
24	M24	Z	-.003	-.003	0	%100
25	M25	Z	-.003	-.003	0	%.1
26	M26	Z	-.003	-.003	0	%2.8
27	M27	Z	-.003	-.003	0	%.1
28	M28	Z	-.003	-.003	0	%3.3
29	M29	Z	-.003	-.003	0	%100
30	M30	Z	-.003	-.003	0	%2.8
31	M31	Z	-.003	-.003	0	%100
32	M32	Z	-.001	-.001	0	%100
33	M33	Z	0	0	0	%100
34	M37	Z	-.002	-.002	0	%100
35	M38	Z	-.004	-.004	0	%100
36	M39	Z	-.001	-.001	0	%100
37	M19	Z	-.003	-.003	%99.9	%100
38	M20	Z	-.003	-.003	%97.2	%100
39	M21	Z	-.003	-.003	%96.7	%100
40	M23	Z	-.003	-.003	%96.7	%100
41	M25	Z	-.003	-.003	%99.9	%100
42	M26	Z	-.003	-.003	%97.2	%100
43	M27	Z	-.003	-.003	%99.9	%100
44	M28	Z	-.003	-.003	%96.7	%100
45	M30	Z	-.003	-.003	%97.2	%100
46	M1	X	0	0	0	%100
47	M2	X	.001	.001	0	%100
48	M3	X	.003	.003	0	%100
49	M4	X	.002	.002	0	%100
50	M5	X	0	0	0	%100
51	M6	X	0	0	0	%100
52	M7	X	.002	.002	0	%100
53	M8	X	0	0	0	%100
54	M9	X	.003	.003	0	%100
55	M10	X	.002	.002	0	%100
56	M11	X	.001	.001	0	%100
57	M12	X	.002	.002	0	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
58	M13	X	.001	.001	0	%100
59	M14	X	0	0	0	%100
60	M15	X	.002	.002	0	%100
61	M16	X	0	0	0	%100
62	M17	X	.001	.001	0	%100
63	M18	X	0	0	0	%100
64	M19	X	.002	.002	0	%100
65	M20	X	.002	.002	0	%100
66	M21	X	.002	.002	0	%100
67	M22	X	.002	.002	0	%100
68	M23	X	.002	.002	0	%3.3
69	M24	X	.002	.002	0	%100
70	M25	X	.002	.002	0	%.1
71	M26	X	.002	.002	0	%2.8
72	M27	X	.002	.002	0	%.1
73	M28	X	.002	.002	0	%3.3
74	M29	X	.002	.002	0	%100
75	M30	X	.002	.002	0	%2.8
76	M31	X	.001	.001	0	%100
77	M32	X	.001	.001	0	%100
78	M33	X	0	0	0	%100
79	M37	X	.001	.001	0	%100
80	M38	X	.002	.002	0	%100
81	M39	X	0	0	0	%100
82	M23	X	.002	.002	%96.7	%100
83	M25	X	.002	.002	%99.9	%100
84	M26	X	.002	.002	%97.2	%100
85	M27	X	.002	.002	%99.9	%100
86	M28	X	.002	.002	%96.7	%100
87	M30	X	.002	.002	%97.2	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	-.001	-.001	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.002	-.002	0	%100
4	M4	Z	-.002	-.002	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	-.003	-.003	0	%100
8	M8	Z	-.001	-.001	0	%100
9	M9	Z	-.002	-.002	0	%100
10	M10	Z	-.001	-.001	0	%100
11	M11	Z	-.001	-.001	0	%100
12	M12	Z	-.002	-.002	0	%100
13	M13	Z	-.001	-.001	0	%100
14	M14	Z	-.001	-.001	0	%100
15	M15	Z	-.002	-.002	0	%100
16	M16	Z	-.001	-.001	0	%100
17	M17	Z	-.001	-.001	0	%100
18	M18	Z	-.001	-.001	0	%100
19	M19	Z	-.002	-.002	0	%.1
20	M20	Z	-.002	-.002	0	%2.8
21	M21	Z	-.002	-.002	0	%3.3
22	M22	Z	-.002	-.002	0	%100
23	M23	Z	-.002	-.002	0	%3.3

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
24	M24	Z	-.002	-.002	0	%100
25	M25	Z	-.002	-.002	0	%.1
26	M26	Z	-.002	-.002	0	%2.8
27	M27	Z	-.002	-.002	0	%.1
28	M28	Z	-.002	-.002	0	%3.3
29	M29	Z	-.002	-.002	0	%100
30	M30	Z	-.002	-.002	0	%2.8
31	M31	Z	-.001	-.001	0	%100
32	M32	Z	-.001	-.001	0	%100
33	M33	Z	0	0	0	%100
34	M37	Z	-.001	-.001	0	%100
35	M38	Z	-.002	-.002	0	%100
36	M39	Z	-.001	-.001	0	%100
37	M19	Z	-.002	-.002	%99.9	%100
38	M20	Z	-.002	-.002	%97.2	%100
39	M21	Z	-.002	-.002	%96.7	%100
40	M23	Z	-.002	-.002	%96.7	%100
41	M25	Z	-.002	-.002	%99.9	%100
42	M26	Z	-.002	-.002	%97.2	%100
43	M27	Z	-.002	-.002	%99.9	%100
44	M28	Z	-.002	-.002	%96.7	%100
45	M30	Z	-.002	-.002	%97.2	%100
46	M1	X	.002	.002	0	%100
47	M2	X	.001	.001	0	%100
48	M3	X	.004	.004	0	%100
49	M4	X	.003	.003	0	%100
50	M5	X	.001	.001	0	%100
51	M6	X	.001	.001	0	%100
52	M7	X	.004	.004	0	%100
53	M8	X	.001	.001	0	%100
54	M9	X	.003	.003	0	%100
55	M10	X	.002	.002	0	%100
56	M11	X	.002	.002	0	%100
57	M12	X	.003	.003	0	%100
58	M13	X	.002	.002	0	%100
59	M14	X	.002	.002	0	%100
60	M15	X	.003	.003	0	%100
61	M16	X	.001	.001	0	%100
62	M17	X	.002	.002	0	%100
63	M18	X	.002	.002	0	%100
64	M19	X	.003	.003	0	%100
65	M20	X	.003	.003	0	%100
66	M21	X	.003	.003	0	%100
67	M22	X	.003	.003	0	%100
68	M23	X	.003	.003	0	%3.3
69	M24	X	.003	.003	0	%100
70	M25	X	.003	.003	0	%.1
71	M26	X	.003	.003	0	%2.8
72	M27	X	.003	.003	0	%.1
73	M28	X	.003	.003	0	%3.3
74	M29	X	.003	.003	0	%100
75	M30	X	.003	.003	0	%2.8
76	M31	X	.002	.002	0	%100
77	M32	X	.002	.002	0	%100
78	M33	X	.001	.001	0	%100
79	M37	X	.003	.003	0	%100
80	M38	X	.003	.003	0	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
81	M39	X	.001	.001	0	%100
82	M23	X	.003	.003	%96.7	%100
83	M25	X	.003	.003	%99.9	%100
84	M26	X	.003	.003	%97.2	%100
85	M27	X	.003	.003	%99.9	%100
86	M28	X	.003	.003	%96.7	%100
87	M30	X	.003	.003	%97.2	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	0	0	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	0	0	0	%100
13	M13	Z	0	0	0	%100
14	M14	Z	0	0	0	%100
15	M15	Z	0	0	0	%100
16	M16	Z	0	0	0	%100
17	M17	Z	0	0	0	%100
18	M18	Z	0	0	0	%100
19	M19	Z	0	0	0	%.1
20	M20	Z	0	0	0	%2.8
21	M21	Z	0	0	0	%3.3
22	M22	Z	0	0	0	%100
23	M23	Z	0	0	0	%3.3
24	M24	Z	0	0	0	%100
25	M25	Z	0	0	0	%.1
26	M26	Z	0	0	0	%2.8
27	M27	Z	0	0	0	%.1
28	M28	Z	0	0	0	%3.3
29	M29	Z	0	0	0	%100
30	M30	Z	0	0	0	%2.8
31	M31	Z	0	0	0	%100
32	M32	Z	0	0	0	%100
33	M33	Z	0	0	0	%100
34	M37	Z	0	0	0	%100
35	M38	Z	0	0	0	%100
36	M39	Z	0	0	0	%100
37	M19	Z	0	0	%99.9	%100
38	M20	Z	0	0	%97.2	%100
39	M21	Z	0	0	%96.7	%100
40	M23	Z	0	0	%96.7	%100
41	M25	Z	0	0	%99.9	%100
42	M26	Z	0	0	%97.2	%100
43	M27	Z	0	0	%99.9	%100
44	M28	Z	0	0	%96.7	%100
45	M30	Z	0	0	%97.2	%100
46	M1	X	.004	.004	0	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
47	M2	X	.003	.003	0	%100
48	M3	X	.003	.003	0	%100
49	M4	X	.003	.003	0	%100
50	M5	X	.001	.001	0	%100
51	M6	X	.001	.001	0	%100
52	M7	X	.004	.004	0	%100
53	M8	X	.004	.004	0	%100
54	M9	X	.002	.002	0	%100
55	M10	X	.002	.002	0	%100
56	M11	X	.003	.003	0	%100
57	M12	X	.003	.003	0	%100
58	M13	X	.002	.002	0	%100
59	M14	X	.003	.003	0	%100
60	M15	X	.003	.003	0	%100
61	M16	X	.002	.002	0	%100
62	M17	X	.003	.003	0	%100
63	M18	X	.003	.003	0	%100
64	M19	X	.004	.004	0	%100
65	M20	X	.004	.004	0	%100
66	M21	X	.004	.004	0	%100
67	M22	X	.003	.003	0	%100
68	M23	X	.004	.004	0	%3.3
69	M24	X	.003	.003	0	%100
70	M25	X	.004	.004	0	%.1
71	M26	X	.004	.004	0	%2.8
72	M27	X	.004	.004	0	%.1
73	M28	X	.004	.004	0	%3.3
74	M29	X	.003	.003	0	%100
75	M30	X	.004	.004	0	%2.8
76	M31	X	.002	.002	0	%100
77	M32	X	.001	.001	0	%100
78	M33	X	.001	.001	0	%100
79	M37	X	.002	.002	0	%100
80	M38	X	.003	.003	0	%100
81	M39	X	.002	.002	0	%100
82	M23	X	.004	.004	%96.7	%100
83	M25	X	.004	.004	%99.9	%100
84	M26	X	.004	.004	%97.2	%100
85	M27	X	.004	.004	%99.9	%100
86	M28	X	.004	.004	%96.7	%100
87	M30	X	.004	.004	%97.2	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	.001	.001	0	%100
2	M2	Z	.002	.002	0	%100
3	M3	Z	.001	.001	0	%100
4	M4	Z	.002	.002	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	.001	.001	0	%100
8	M8	Z	.003	.003	0	%100
9	M9	Z	.002	.002	0	%100
10	M10	Z	.001	.001	0	%100
11	M11	Z	.002	.002	0	%100
12	M12	Z	.001	.001	0	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
13	M13	Z	.001	.001	0	%100
14	M14	Z	.001	.001	0	%100
15	M15	Z	.001	.001	0	%100
16	M16	Z	.001	.001	0	%100
17	M17	Z	.002	.002	0	%100
18	M18	Z	.001	.001	0	%100
19	M19	Z	.002	.002	0	%.1
20	M20	Z	.002	.002	0	%2.8
21	M21	Z	.002	.002	0	%3.3
22	M22	Z	.002	.002	0	%100
23	M23	Z	.002	.002	0	%3.3
24	M24	Z	.002	.002	0	%100
25	M25	Z	.002	.002	0	%.1
26	M26	Z	.002	.002	0	%2.8
27	M27	Z	.002	.002	0	%.1
28	M28	Z	.002	.002	0	%3.3
29	M29	Z	.002	.002	0	%100
30	M30	Z	.002	.002	0	%2.8
31	M31	Z	.001	.001	0	%100
32	M32	Z	0	0	0	%100
33	M33	Z	.001	.001	0	%100
34	M37	Z	.001	.001	0	%100
35	M38	Z	.002	.002	0	%100
36	M39	Z	.001	.001	0	%100
37	M19	Z	.002	.002	%99.9	%100
38	M20	Z	.002	.002	%97.2	%100
39	M21	Z	.002	.002	%96.7	%100
40	M23	Z	.002	.002	%96.7	%100
41	M25	Z	.002	.002	%99.9	%100
42	M26	Z	.002	.002	%97.2	%100
43	M27	Z	.002	.002	%99.9	%100
44	M28	Z	.002	.002	%96.7	%100
45	M30	Z	.002	.002	%97.2	%100
46	M1	X	.002	.002	0	%100
47	M2	X	.004	.004	0	%100
48	M3	X	.001	.001	0	%100
49	M4	X	.003	.003	0	%100
50	M5	X	.001	.001	0	%100
51	M6	X	.001	.001	0	%100
52	M7	X	.001	.001	0	%100
53	M8	X	.004	.004	0	%100
54	M9	X	.003	.003	0	%100
55	M10	X	.002	.002	0	%100
56	M11	X	.003	.003	0	%100
57	M12	X	.002	.002	0	%100
58	M13	X	.001	.001	0	%100
59	M14	X	.002	.002	0	%100
60	M15	X	.002	.002	0	%100
61	M16	X	.002	.002	0	%100
62	M17	X	.003	.003	0	%100
63	M18	X	.002	.002	0	%100
64	M19	X	.003	.003	0	%100
65	M20	X	.003	.003	0	%100
66	M21	X	.003	.003	0	%100
67	M22	X	.003	.003	0	%100
68	M23	X	.003	.003	0	%3.3
69	M24	X	.003	.003	0	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
70	M25	X	.003	.003	0	%.1
71	M26	X	.003	.003	0	%2.8
72	M27	X	.003	.003	0	%.1
73	M28	X	.003	.003	0	%3.3
74	M29	X	.003	.003	0	%100
75	M30	X	.003	.003	0	%2.8
76	M31	X	.002	.002	0	%100
77	M32	X	.001	.001	0	%100
78	M33	X	.002	.002	0	%100
79	M37	X	.001	.001	0	%100
80	M38	X	.003	.003	0	%100
81	M39	X	.003	.003	0	%100
82	M23	X	.003	.003	%96.7	%100
83	M25	X	.003	.003	%99.9	%100
84	M26	X	.003	.003	%97.2	%100
85	M27	X	.003	.003	%99.9	%100
86	M28	X	.003	.003	%96.7	%100
87	M30	X	.003	.003	%97.2	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
1	M1	Z	.001	.001	0	%100
2	M2	Z	.005	.005	0	%100
3	M3	Z	.002	.002	0	%100
4	M4	Z	.003	.003	0	%100
5	M5	Z	.001	.001	0	%100
6	M6	Z	.001	.001	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	.003	.003	0	%100
9	M9	Z	.005	.005	0	%100
10	M10	Z	.003	.003	0	%100
11	M11	Z	.004	.004	0	%100
12	M12	Z	.002	.002	0	%100
13	M13	Z	0	0	0	%100
14	M14	Z	.001	.001	0	%100
15	M15	Z	.002	.002	0	%100
16	M16	Z	.002	.002	0	%100
17	M17	Z	.004	.004	0	%100
18	M18	Z	.001	.001	0	%100
19	M19	Z	.003	.003	0	%.1
20	M20	Z	.003	.003	0	%2.8
21	M21	Z	.003	.003	0	%3.3
22	M22	Z	.003	.003	0	%100
23	M23	Z	.003	.003	0	%3.3
24	M24	Z	.003	.003	0	%100
25	M25	Z	.003	.003	0	%.1
26	M26	Z	.003	.003	0	%2.8
27	M27	Z	.003	.003	0	%.1
28	M28	Z	.003	.003	0	%3.3
29	M29	Z	.003	.003	0	%100
30	M30	Z	.003	.003	0	%2.8
31	M31	Z	.003	.003	0	%100
32	M32	Z	0	0	0	%100
33	M33	Z	.001	.001	0	%100
34	M37	Z	.001	.001	0	%100
35	M38	Z	.004	.004	0	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,...	End Location[ft,%]
36	M39	Z	.002	.002	0	%100
37	M19	Z	.003	.003	%99.9	%100
38	M20	Z	.003	.003	%97.2	%100
39	M21	Z	.003	.003	%96.7	%100
40	M23	Z	.003	.003	%96.7	%100
41	M25	Z	.003	.003	%99.9	%100
42	M26	Z	.003	.003	%97.2	%100
43	M27	Z	.003	.003	%99.9	%100
44	M28	Z	.003	.003	%96.7	%100
45	M30	Z	.003	.003	%97.2	%100
46	M1	X	0	0	0	%100
47	M2	X	.003	.003	0	%100
48	M3	X	.001	.001	0	%100
49	M4	X	.002	.002	0	%100
50	M5	X	0	0	0	%100
51	M6	X	0	0	0	%100
52	M7	X	0	0	0	%100
53	M8	X	.002	.002	0	%100
54	M9	X	.003	.003	0	%100
55	M10	X	.002	.002	0	%100
56	M11	X	.002	.002	0	%100
57	M12	X	.001	.001	0	%100
58	M13	X	0	0	0	%100
59	M14	X	0	0	0	%100
60	M15	X	.001	.001	0	%100
61	M16	X	.001	.001	0	%100
62	M17	X	.002	.002	0	%100
63	M18	X	0	0	0	%100
64	M19	X	.002	.002	0	%100
65	M20	X	.002	.002	0	%100
66	M21	X	.002	.002	0	%100
67	M22	X	.002	.002	0	%100
68	M23	X	.002	.002	0	%3.3
69	M24	X	.002	.002	0	%100
70	M25	X	.002	.002	0	%.1
71	M26	X	.002	.002	0	%2.8
72	M27	X	.002	.002	0	%.1
73	M28	X	.002	.002	0	%3.3
74	M29	X	.002	.002	0	%100
75	M30	X	.002	.002	0	%2.8
76	M31	X	.001	.001	0	%100
77	M32	X	0	0	0	%100
78	M33	X	.001	.001	0	%100
79	M37	X	0	0	0	%100
80	M38	X	.002	.002	0	%100
81	M39	X	.001	.001	0	%100
82	M23	X	.002	.002	%96.7	%100
83	M25	X	.002	.002	%99.9	%100
84	M26	X	.002	.002	%97.2	%100
85	M27	X	.002	.002	%99.9	%100
86	M28	X	.002	.002	%96.7	%100
87	M30	X	.002	.002	%97.2	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1			15			
2	Ice Dead	None					15	36		
3	Full Wind Antenna (0 Deg)	None					18			
4	Full Wind Antenna (30 Deg)	None					42			
5	Full Wind Antenna (60 Deg)	None					42			
6	Full Wind Antenna (90 Deg)	None					42			
7	Full Wind Antenna (120 Deg)	None					40			
8	Full Wind Antenna (150 Deg)	None					42			
9	Full Wind Members (0 Deg)	None						81		
10	Full Wind Members (30 Deg)	None						81		
11	Full Wind Members (60 Deg)	None						81		
12	Full Wind Members (90 Deg)	None						81		
13	Full Wind Members (120 Deg)	None						81		
14	Full Wind Members (150 Deg)	None						81		
15	Ice Wind Antenna (0 Deg)	None					18			
16	Ice Wind Antenna (30 Deg)	None					42			
17	Ice Wind Antenna (60 Deg)	None					42			
18	Ice Wind Antenna (90 Deg)	None					42			
19	Ice Wind Antenna (120 Deg)	None					40			
20	Ice Wind Antenna (150 Deg)	None					40			
21	Ice Wind Members (0 Deg)	None						87		
22	Ice Wind Members (30 Deg)	None						87		
23	Ice Wind Members (60 Deg)	None						87		
24	Ice Wind Members (90 Deg)	None						87		
25	Ice Wind Members (120 Deg)	None						87		
26	Ice Wind Members (150 Deg)	None						87		
27	Seismic Antenna (0 Deg)	None					15			
28	Seismic Antenna (90 Deg)	None					15			
29	Seismic Members (0 Deg)	None		-.054	-.135					
30	Seismic Members (30 Deg)	None	.067	-.054	-.116					
31	Seismic Members (60 Deg)	None	.116	-.054	-.067					
32	Seismic Members (90 Deg)	None	.135	-.054	-8.239e-...					
33	Seismic Members (120 Deg)	None	.116	-.054	.067					
34	Seismic Members (150 Deg)	None	.067	-.054	.116					
35	Seismic Members (180 Deg)	None	1.648e-17	-.054	.135					
36	Seismic Members (210 Deg)	None	-.067	-.054	.116					
37	Seismic Members (240 Deg)	None	-.116	-.054	.067					
38	Seismic Members (270 Deg)	None	-.135	-.054	2.472e-17					
39	Seismic Members (300 Deg)	None	-.116	-.054	-.067					
40	Seismic Members (330 Deg)	None	-.067	-.054	-.116					
41	Seismic Vertical Antennas	None					15			
42	Man 1 (500 lbs)	None				1				
43	Man 2 (500 lbs)	None				1				
44	Man 3 (500 lbs)	None				1				
45	Man 4 (250 lbs)	None				1				
46	Man 5 (250 lbs)	None				1				
47	Man 6 (250 lbs)	None				1				

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...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D + 1.0W 0°	Yes	Y		1	1.2	3	1	9	1														
3	1.2D + 1.0W 30°	Yes	Y		1	1.2	4	1	10	1														
4	1.2D + 1.0W 60°	Yes	Y		1	1.2	5	1	11	1														
5	1.2D + 1.0W 90°	Yes	Y		1	1.2	6	1	12	1														
6	1.2D + 1.0W 120°	Yes	Y		1	1.2	7	1	13	1														
7	1.2D + 1.0W 150°	Yes	Y		1	1.2	8	1	14	1														
8	1.2D + 1.0W 180°	Yes	Y		1	1.2	3	-1	9	-1														
9	1.2D + 1.0W 210°	Yes	Y		1	1.2	4	-1	10	-1														
10	1.2D + 1.0W 240°	Yes	Y		1	1.2	5	-1	11	-1														
11	1.2D + 1.0W 270°	Yes	Y		1	1.2	6	-1	12	-1														
12	1.2D + 1.0W 300°	Yes	Y		1	1.2	7	-1	13	-1														
13	1.2D + 1.0W 330°	Yes	Y		1	1.2	8	-1	14	-1														
14	1.2D + 1.0Di + 1.0Wi 0°	Yes	Y		1	1.2	2	1	15	1	21	1												
15	1.2D + 1.0Di + 1.0Wi 30°	Yes	Y		1	1.2	2	1	16	1	22	1												
16	1.2D + 1.0Di + 1.0Wi 60°	Yes	Y		1	1.2	2	1	17	1	23	1												
17	1.2D + 1.0Di + 1.0Wi 90°	Yes	Y		1	1.2	2	1	18	1	24	1												
18	1.2D + 1.0Di + 1.0Wi 120°	Yes	Y		1	1.2	2	1	19	1	25	1												
19	1.2D + 1.0Di + 1.0Wi 150°	Yes	Y		1	1.2	2	1	20	1	26	1												
20	1.2D + 1.0Di + 1.0Wi 180°	Yes	Y		1	1.2	2	1	15	-1	21	-1												
21	1.2D + 1.0Di + 1.0Wi 210°	Yes	Y		1	1.2	2	1	16	-1	22	-1												
22	1.2D + 1.0Di + 1.0Wi 240°	Yes	Y		1	1.2	2	1	17	-1	23	-1												
23	1.2D + 1.0Di + 1.0Wi 270°	Yes	Y		1	1.2	2	1	18	-1	24	-1												
24	1.2D + 1.0Di + 1.0Wi 300°	Yes	Y		1	1.2	2	1	19	-1	25	-1												
25	1.2D + 1.0Di + 1.0Wi 330°	Yes	Y		1	1.2	2	1	20	-1	26	-1												
26	1.2D + 1.5Lm_1 + 1.0Wm 0°	Yes	Y		1	1.2	3	.066	9	.066	42	1.5												
27	1.2D + 1.5Lm_1 + 1.0Wm 30°	Yes	Y		1	1.2	4	.066	10	.066	42	1.5												
28	1.2D + 1.5Lm_1 + 1.0Wm 60°	Yes	Y		1	1.2	5	.066	11	.066	42	1.5												
29	1.2D + 1.5Lm_1 + 1.0Wm 90°	Yes	Y		1	1.2	6	.066	12	.066	42	1.5												
30	1.2D + 1.5Lm_1 + 1.0Wm 120°	Yes	Y		1	1.2	7	.066	13	.066	42	1.5												
31	1.2D + 1.5Lm_1 + 1.0Wm 150°	Yes	Y		1	1.2	8	.066	14	.066	42	1.5												
32	1.2D + 1.5Lm_1 + 1.0Wm 180°	Yes	Y		1	1.2	3	-.0...	9	-.0...	42	1.5												
33	1.2D + 1.5Lm_1 + 1.0Wm 210°	Yes	Y		1	1.2	4	-.0...	10	-.0...	42	1.5												
34	1.2D + 1.5Lm_1 + 1.0Wm 240°	Yes	Y		1	1.2	5	-.0...	11	-.0...	42	1.5												
35	1.2D + 1.5Lm_1 + 1.0Wm 270°	Yes	Y		1	1.2	6	-.0...	12	-.0...	42	1.5												
36	1.2D + 1.5Lm_1 + 1.0Wm 300°	Yes	Y		1	1.2	7	-.0...	13	-.0...	42	1.5												
37	1.2D + 1.5Lm_1 + 1.0Wm 330°	Yes	Y		1	1.2	8	-.0...	14	-.0...	42	1.5												
38	1.2D + 1.5Lm_2 + 1.0Wm 0°	Yes	Y		1	1.2	3	.066	9	.066	43	1.5												
39	1.2D + 1.5Lm_2 + 1.0Wm 30°	Yes	Y		1	1.2	4	.066	10	.066	43	1.5												
40	1.2D + 1.5Lm_2 + 1.0Wm 60°	Yes	Y		1	1.2	5	.066	11	.066	43	1.5												
41	1.2D + 1.5Lm_2 + 1.0Wm 90°	Yes	Y		1	1.2	6	.066	12	.066	43	1.5												
42	1.2D + 1.5Lm_2 + 1.0Wm 120°	Yes	Y		1	1.2	7	.066	13	.066	43	1.5												
43	1.2D + 1.5Lm_2 + 1.0Wm 150°	Yes	Y		1	1.2	8	.066	14	.066	43	1.5												
44	1.2D + 1.5Lm_2 + 1.0Wm 180°	Yes	Y		1	1.2	3	-.0...	9	-.0...	43	1.5												
45	1.2D + 1.5Lm_2 + 1.0Wm 210°	Yes	Y		1	1.2	4	-.0...	10	-.0...	43	1.5												
46	1.2D + 1.5Lm_2 + 1.0Wm 240°	Yes	Y		1	1.2	5	-.0...	11	-.0...	43	1.5												
47	1.2D + 1.5Lm_2 + 1.0Wm 270°	Yes	Y		1	1.2	6	-.0...	12	-.0...	43	1.5												
48	1.2D + 1.5Lm_2 + 1.0Wm 300°	Yes	Y		1	1.2	7	-.0...	13	-.0...	43	1.5												
49	1.2D + 1.5Lm_2 + 1.0Wm 330°	Yes	Y		1	1.2	8	-.0...	14	-.0...	43	1.5												
50	1.2D + 1.5Lm_3 + 1.0Wm 0°	Yes	Y		1	1.2	3	.066	9	.066	44	1.5												
51	1.2D + 1.5Lm_3 + 1.0Wm 30°	Yes	Y		1	1.2	4	.066	10	.066	44	1.5												
52	1.2D + 1.5Lm_3 + 1.0Wm 60°	Yes	Y		1	1.2	5	.066	11	.066	44	1.5												
53	1.2D + 1.5Lm_3 + 1.0Wm 90°	Yes	Y		1	1.2	6	.066	12	.066	44	1.5												
54	1.2D + 1.5Lm_3 + 1.0Wm 120°	Yes	Y		1	1.2	7	.066	13	.066	44	1.5												
55	1.2D + 1.5Lm_3 + 1.0Wm 150°	Yes	Y		1	1.2	8	.066	14	.066	44	1.5												
56	1.2D + 1.5Lm_3 + 1.0Wm 180°	Yes	Y		1	1.2	3	-.0...	9	-.0...	44	1.5												

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...
57	1.2D + 1.5Lm_3 + 1.0Wm 210°	Yes	Y		1	1.2	4	-.0...	10	-.0...	44	1.5												
58	1.2D + 1.5Lm_3 + 1.0Wm 240°	Yes	Y		1	1.2	5	-.0...	11	-.0...	44	1.5												
59	1.2D + 1.5Lm_3 + 1.0Wm 270°	Yes	Y		1	1.2	6	-.0...	12	-.0...	44	1.5												
60	1.2D + 1.5Lm_3 + 1.0Wm 300°	Yes	Y		1	1.2	7	-.0...	13	-.0...	44	1.5												
61	1.2D + 1.5Lm_3 + 1.0Wm 330°	Yes	Y		1	1.2	8	-.0...	14	-.0...	44	1.5												
62	1.2D + 1.5Lv_1 0°	Yes	Y		1	1.2	45	1.5																
63	1.2D + 1.5Lv_1 30°	Yes	Y		1	1.2	45	1.5																
64	1.2D + 1.5Lv_1 60°	Yes	Y		1	1.2	45	1.5																
65	1.2D + 1.5Lv_1 90°	Yes	Y		1	1.2	45	1.5																
66	1.2D + 1.5Lv_1 120°	Yes	Y		1	1.2	45	1.5																
67	1.2D + 1.5Lv_1 150°	Yes	Y		1	1.2	45	1.5																
68	1.2D + 1.5Lv_1 180°	Yes	Y		1	1.2	45	1.5																
69	1.2D + 1.5Lv_1 210°	Yes	Y		1	1.2	45	1.5																
70	1.2D + 1.5Lv_1 240°	Yes	Y		1	1.2	45	1.5																
71	1.2D + 1.5Lv_1 270°	Yes	Y		1	1.2	45	1.5																
72	1.2D + 1.5Lv_1 300°	Yes	Y		1	1.2	45	1.5																
73	1.2D + 1.5Lv_1 330°	Yes	Y		1	1.2	45	1.5																
74	1.2D + 1.5Lv_2 0°	Yes	Y		1	1.2	46	1.5																
75	1.2D + 1.5Lv_2 30°	Yes	Y		1	1.2	46	1.5																
76	1.2D + 1.5Lv_2 60°	Yes	Y		1	1.2	46	1.5																
77	1.2D + 1.5Lv_2 90°	Yes	Y		1	1.2	46	1.5																
78	1.2D + 1.5Lv_2 120°	Yes	Y		1	1.2	46	1.5																
79	1.2D + 1.5Lv_2 150°	Yes	Y		1	1.2	46	1.5																
80	1.2D + 1.5Lv_2 180°	Yes	Y		1	1.2	46	1.5																
81	1.2D + 1.5Lv_2 210°	Yes	Y		1	1.2	46	1.5																
82	1.2D + 1.5Lv_2 240°	Yes	Y		1	1.2	46	1.5																
83	1.2D + 1.5Lv_2 270°	Yes	Y		1	1.2	46	1.5																
84	1.2D + 1.5Lv_2 300°	Yes	Y		1	1.2	46	1.5																
85	1.2D + 1.5Lv_2 330°	Yes	Y		1	1.2	46	1.5																
86	1.2D + 1.5Lv_3 0°	Yes	Y		1	1.2	47	1.5																
87	1.2D + 1.5Lv_3 30°	Yes	Y		1	1.2	47	1.5																
88	1.2D + 1.5Lv_3 60°	Yes	Y		1	1.2	47	1.5																
89	1.2D + 1.5Lv_3 90°	Yes	Y		1	1.2	47	1.5																
90	1.2D + 1.5Lv_3 120°	Yes	Y		1	1.2	47	1.5																
91	1.2D + 1.5Lv_3 150°	Yes	Y		1	1.2	47	1.5																
92	1.2D + 1.5Lv_3 180°	Yes	Y		1	1.2	47	1.5																
93	1.2D + 1.5Lv_3 210°	Yes	Y		1	1.2	47	1.5																
94	1.2D + 1.5Lv_3 240°	Yes	Y		1	1.2	47	1.5																
95	1.2D + 1.5Lv_3 270°	Yes	Y		1	1.2	47	1.5																
96	1.2D + 1.5Lv_3 300°	Yes	Y		1	1.2	47	1.5																
97	1.2D + 1.5Lv_3 330°	Yes	Y		1	1.2	47	1.5																
98	1.2D + 1.0EV +1.0 EH 0°	Yes	Y		1	1.2	27	1	28		29	1	40	1										
99	1.2D + 1.0EV +1.0 EH 30°	Yes	Y		1	1.2	27	.866	28	.5	30	1	40	1										
100	1.2D + 1.0EV +1.0 EH 60°	Yes	Y		1	1.2	27	.5	28	.866	31	1	40	1										
101	1.2D + 1.0EV +1.0 EH 90°	Yes	Y		1	1.2	27		28	1	32	1	40	1										
102	1.2D + 1.0EV +1.0 EH 120°	Yes	Y		1	1.2	27	-.5	28	.866	33	1	40	1										
103	1.2D + 1.0EV +1.0 EH 150°	Yes	Y		1	1.2	27	-.8...	28	.5	34	1	40	1										
104	1.2D + 1.0EV +1.0 EH 180°	Yes	Y		1	1.2	27	-1	28		35	1	40	1										
105	1.2D + 1.0EV +1.0 EH 210°	Yes	Y		1	1.2	27	-.8...	28	-.5	36	1	40	1										
106	1.2D + 1.0EV +1.0 EH 240°	Yes	Y		1	1.2	27	-.5	28	-.8...	37	1	40	1										
107	1.2D + 1.0EV +1.0 EH 270°	Yes	Y		1	1.2	27		28	-1	38	1	40	1										
108	1.2D + 1.0EV +1.0 EH 300°	Yes	Y		1	1.2	27	.5	28	-.8...	39	1	40	1										
109	1.2D + 1.0EV +1.0 EH 330°	Yes	Y		1	1.2	27	.866	28	-.5	40	1	40	1										

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	1.613	10	2.49	22	1.031	4	-.235	4	.666	13	-.358	4
2		min	-1.754	4	.322	4	-.949	10	-3.54	22	-.665	7	-6.32	22
3	N1	max	.744	11	2.474	14	1.781	2	7.183	14	.558	5	.332	5
4		min	-.744	5	.355	8	-1.944	8	.559	8	-.556	11	-.271	11
5	N5	max	1.83	12	2.49	18	1.134	2	-.214	12	.684	9	6.231	18
6		min	-1.689	6	.322	12	-1.053	8	-3.696	19	-.683	3	.372	12
7	Totals:	max	3.83	11	7.022	14	3.658	2						
8		min	-3.83	5	2.608	8	-3.658	8						

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

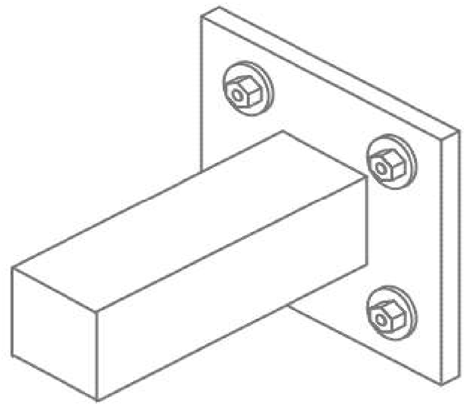
	Mem...	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*...	phi*...	phi*...	phi*...	Cb	Eqn
1	M1	HSS4X4X3	.571	0	14	.095	.167	y	16	95.2..	106...	12.6..	12.6..	2.237	H1...
2	M2	HSS4X4X3	.575	0	22	.096	0	y	24	95.2..	106...	12.6..	12.6..	2.236	H1...
3	M3	HSS4X4X3	.579	0	18	.094	.167	y	20	95.2..	106...	12.6..	12.6..	2.236	H1...
4	M7	C5X6.7	.468	12	21	.276	3.75	y	24	29.6..	63.8..	1.604	8.226	1	H1...
5	M8	C5X6.7	.466	12	20	.273	3.75	y	16	29.6..	63.8..	1.604	8.226	1	H1...
6	M9	C5X6.7	.475	12	15	.275	3.75	y	25	29.6..	63.8..	1.604	8.226	1	H1...
7	M10	L2x2x3	.306	1.167	10	.052	1.167	z	15	17.8..	23.3..	.558	1.239	1.432	H2...
8	M11	L3x1.75x4	.120	0	3	.027	1.771	z	14	30.9..	36.45	.655	2.324	1.656	H2...
9	M12	L3x1.75x4	.127	1.771	5	.025	0	z	14	30.9..	36.45	.655	2.324	1.658	H2...
10	M13	L2x2x3	.306	1.167	6	.051	1.167	y	23	17.8..	23.3..	.558	1.239	1.438	H2...
11	M14	L3x1.75x4	.153	1.771	13	.025	0	z	22	30.9..	36.45	.655	2.324	1.661	H2...
12	M15	L3x1.75x4	.140	0	7	.027	1.771	z	22	30.9..	36.45	.655	2.324	1.656	H2...
13	M16	L2x2x3	.307	1.167	2	.051	1.167	y	19	17.8..	23.3..	.558	1.239	1.436	H2...
14	M17	L3x1.75x4	.155	1.771	9	.025	0	z	18	30.9..	36.45	.655	2.324	1.658	H2...
15	M18	L3x1.75x4	.145	0	3	.027	1.771	z	18	30.9..	36.45	.655	2.324	1.661	H2...
16	M19	PIPE_2.0	.292	4.618	8	.044	4.618		9	19.8..	32.13	1.872	1.872	2.933	H1...
17	M20	PIPE_2.0	.284	3.958	11	.067	3.958		13	23.8..	32.13	1.872	1.872	1.668	H1...
18	M21	PIPE_2.0	.288	3.958	17	.070	3.958		6	23.8..	32.13	1.872	1.872	1.719	H1...
19	M22	PIPE_2.0	.261	6.456	5	.061	6.456		9	11.4..	32.13	1.872	1.872	3.551	H1...
20	M23	PIPE_2.0	.278	3.958	14	.067	1.042		2	23.8..	32.13	1.872	1.872	1.715	H1...
21	M24	PIPE_2.0	.239	6.456	13	.058	6.456		5	11.4..	32.13	1.872	1.872	4.28	H1...
22	M25	PIPE_2.0	.294	4.618	4	.043	1.715		5	19.8..	32.13	1.872	1.872	1.217	H1...
23	M26	PIPE_2.0	.260	3.958	7	.064	1.042		9	23.8..	32.13	1.872	1.872	1.637	H1...
24	M27	PIPE_2.0	.293	4.618	12	.043	1.715		13	19.8..	32.13	1.872	1.872	1.215	H1...
25	M28	PIPE_2.0	.280	3.958	22	.068	2.5		10	23.8..	32.13	1.872	1.872	1.708	H1...
26	M29	PIPE_2.0	.241	6.456	10	.058	6.456		13	11.4..	32.13	1.872	1.872	2.898	H1...
27	M30	PIPE_2.0	.257	3.958	3	.064	1.042		5	23.8..	32.13	1.872	1.872	1.665	H1...
28	M31	PIPE_2.0	.300	11	3	.317	11		2	6.831	32.13	1.872	1.872	3.425	H3...
29	M32	PIPE_2.0	.298	11	11	.319	11		10	6.831	32.13	1.872	1.872	3.469	H3...
30	M33	PIPE_2.0	.302	1	12	.323	1		6	6.831	32.13	1.872	1.872	3.616	H3...
31	M37	L2.5x2.5x4	.582	1.458	6	.066	0	z	6	35.9..	38.5..	1.114	2.537	1.618	H2...
32	M38	L2.5x2.5x4	.579	1.458	10	.065	0	z	10	35.9..	38.5..	1.114	2.537	1.617	H2...
33	M39	L2.5x2.5x4	.573	0	2	.065	1.458	y	2	35.9..	38.5..	1.114	2.537	1.602	H2...

APPENDIX D

ADDITIONAL CALCUATIONS

Bolt Calcuations:

Bolt Size:	5/8	in
# Bolts:	4	
Plate Width:	8	in
Plate Height:	8	in
Bolt H Gap:	6	in
Bolt V Gap:	6	in
Plate T:	0.75	in
Bolt Grade:	A325N	
Fu_{bolt}	120	ksi
r:	4.243	in
J:	72.000	in^4/in^2
Bolt Area, $_{Normal}$:	0.307	
Bolt Area, $_{Net\ Tensile}$:	0.226	in^2



Allowable Shear:	12.4	kip
Allowable Tension:	20.3	kip

Tension Capacity:	35.8%
Shear Capacity:	41.0%
Combined Capacity:	19.9%

Bolt Capacity:	41.0%

Plate Calculations:

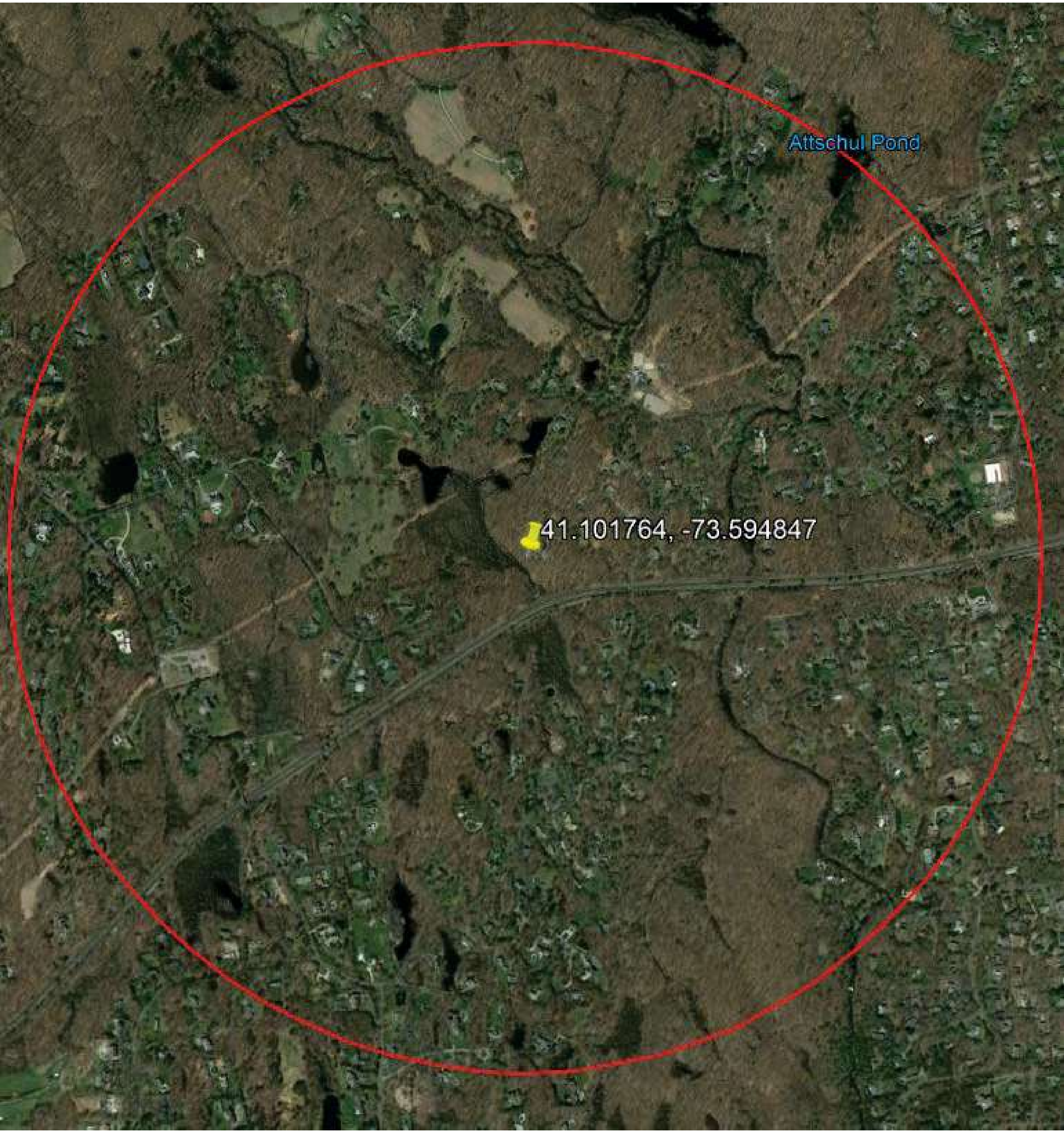
Horizontal Member Height:	4	in
Horizontal Member Width:	4	in
Plate Grade:	A36	
Plate Fy:	36	ksi

Mx =	1.752	k*in
Mz =	14.488	k*in

Zx =	1.125	in^3
Zz =	1.125	in^3

ØMpy (X) =	36.450	k - in
ØMpx (X) =	36.450	k - in

Plate Capacity:	39.7%


Attschul Pond
41.101764, -73.594847

ASCE 7 Hazards Report

Address:		**Standard:**	ASCE/SEI 7-10	**Elevation:**	220 ft (NAVD 88)
No Address at This Location		**Risk Category:**	II	**Latitude:**	41.101764
		Soil Class:	D - Stiff Soil	**Longitude:**	-73.594847

Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Fri May 17 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.

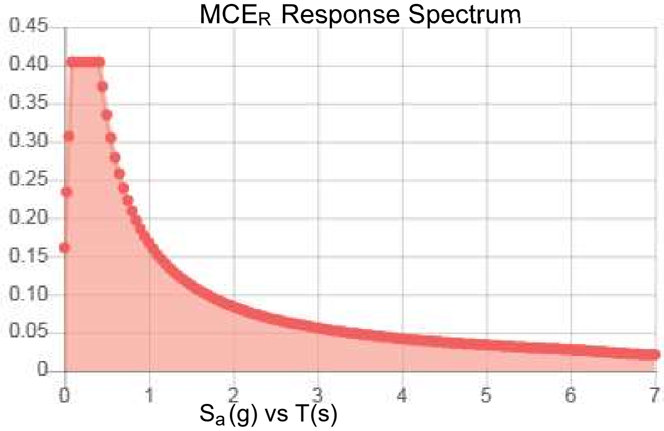
Seismic

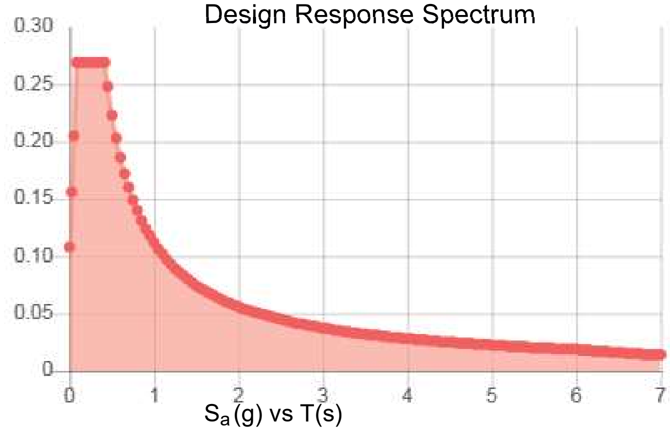
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.253	S_{DS} :	0.269
S_1 :	0.07	S_{D1} :	0.112
F_a :	1.598	T_L :	6
F_v :	2.4	PGA :	0.148
S_{MS} :	0.404	PGA_M :	0.222
S_{M1} :	0.168	F_{PGA} :	1.505
		I_e :	1

Seismic Design Category B





Data Accessed: Fri May 17 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:	Fri May 17 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 E

MODIFICATION DRAWINGS

MOUNT REINFORCEMENT DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: BRG 2044 (A) 943097
BU NUMBER: 806953

SITE ADDRESS:
69 GUINEA ROAD
(CAMP ROCKY CRAIG)
STAMFORD, CT 06903
FAIRFIELD COUNTY, USA

PROJECT CONTACTS:

1. CROWN PROJECT MANAGER
   CHARLES MCGUIRT
   CHARLES.MCGUIRT@CROWNCASTLE.COM

2. DESIGN ENGINEER - MAIN RFI CONTACT
   NOAH NOXON
   919-674-5889
   NOAH.NOXON@MASTEC.COM

3. ENGINEER OF RECORD
   RAPHAEL I. MOHAMED, PE, PEng
   919-674-5895
   507 AIRPORT BLVD.
   SUITE 111
   MORRISVILLE, NC 27560
   RAPHAEL.MOHAMED@MASTEC.COM

4. FOR FABRICATION AND CONSTRUCTION RELATED INQUIRIES: CONTACT MASTEC DESIGN ENGINEER AND ENGINEER OF RECORD.

TOWER INFORMATION

TOWER HEIGHT / TYPE:	160 FT MONOPOLE TOWER
MOUNT HEIGHT/TYPE:	116 FT 12 FT PLATFORM MOUNT
TOWER LOCATION:	LAT: 41° 6' 6.35"
	LONG: -73° 35' 41.45"
MODIFICATION DRAWINGS:	MASTEC
MASTEC PROJECT NUMBER:	18809-MOD1
MA FAILING CCI DOCUMENT ID:	8458758
MOUNT ANALYSIS DATE:	06/07/2019
ORDER NUMBER:	479803, REV. 0
JDE JOB NUMBER:	559199

CODE COMPLIANCE

ANSI/TIA-222-H

2018 CONNECTICUT STATE BUILDING CODE

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

LOOK UP!

SAFETY CLIMB: 'LOOK UP'
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENTS AND EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, OR IMPACT TO THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

QUALIFIED ENGINEERING SERVICES ARE AVAILABLE FROM MASTEC NETWORK SOLUTIONS TO ASSIST CONTRACTORS IN CLASS IV RIGGING PLAN REVIEWS. FOR REQUESTED QUALIFIED ENGINEERING SERVICES, PLEASE CONTACT RAPHAEL MOHAMED AT (919) 244-5207.

DRAWINGS INCLUDED

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
T-1	TITLE SHEET		
N-1	MODIFICATION INSPECTION CHECKLIST		
N-2	GENERAL NOTES		
S-1	MODIFICATION SCHEDULE		
S-2	HANDRAIL KIT DETAILS		
A-1	MANUFACTURER SPECIFICATIONS I		

NO.	DATE	DESCRIPTION	BY
0	06/21/19	FIRST ISSUE	JMB

REVISIONS

STATE OF CONNECTICUT
RAPHAEL MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

MasTec Network Solutions
507 AIRPORT BLVD., SUITE 111
MORRISVILLE, NC 27560

SITE NAME: BRG 204 (A) 943097

BU NUMBER: 806953

APP NUMBER: 479803
MNS ENG. NUMBER: 18809 - MOD1

SITE ADDRESS:
69 GUINEA ROAD
(CAMP ROCKY CRAIG)
STAMFORD, CT 06903
FAIRFIELD COUNTY, USA

DRAWN BY: JMB

CHECKED BY: NDN

APPROVED BY: RIM

SCALE: N.T.S

TITLE SHEET

T-1 REV 0

MI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING
N/A	EOR APPROVAL
N/A	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
N/A	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF BASE PLATE
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	CONTINUOUS FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
N/A	GROUT COMP. STRENGTH (ASTM C109)
N/A	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION AND NDE REPORTS
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

MODIFICATION INSPECTION NOTES:

GENERAL:

1. THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF THE TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR)
2. THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
3. TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR POINT OF CONTACT (POC).

MI INSPECTOR:

1. THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM

   REVIEW THE REQUIREMENTS OF THE MI CHECKLIST WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
2. THE MI IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTORS (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS. AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR:

1. THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:
   - REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.
   - WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT
   - ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
   - BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.
2. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

MI VERIFICATION INSPECTIONS:

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS:

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTIONS AND INSPECTION:
- RAW MATERIALS
- PHOTOS OF ALL CRITICAL DETAILS
- FOUNDATION MODIFICATIONS
- WELD PREPARATION
- BOLT INSTALLATION AND TORQUE
- FINAL INSTALLED CONDITION
- SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
- FINAL IN FIELD CONDITIONS

PHOTOS OF ELEVATED MODIFICATION TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

CORRECTION OF FAILING MI'S:

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE TOWER OWNER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/ENFORCEMENT USING THE AS-BUILT CONDITION.

RECOMMENDATIONS:

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI, THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACULTIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI:

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, TOWER OWNER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF TOWER OWNER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

NO.	DATE	DESCRIPTION	BY
0	06/21/19	FIRST ISSUE	JMB

REVISIONS

STATE OF CONNECTICUT · RAPHAEL MOHAMED · No. 25112 · LICENSED · PROFESSIONAL ENGINEER

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

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FAIRFIELD COUNTY, USA

DRAWN BY: JMB

CHECKED BY: NDN

APPROVED BY: RIM

SCALE: N.T.S

MODIFICATION INSPECTION CHECKLIST

N-1

REV 0

GENERAL NOTES:

1. ALL WORK PRESENTED IN THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN TOWER ERECTION AND RETROFIT SIMILAR TO THAT DESCRIBED HEREIN.
3. ALL CONSTRUCTION IS TO BE COMPLETE IN ACCORDANCE WITH THE ANSI/ASSE A10.48 AND ANSI/TIA-322 STANDARDS. THE CONTRACTOR MUST HAVE CONSIDERABLE WORKING KNOWLEDGE IN THESE STANDARDS TO ACCEPT THIS WORK. BY ACCEPTING THIS PROJECT, THE CONTRACTOR IS ATTESTING THAT HE HAS SUFFICIENT EXPERIENCE, ABILITY, AND KNOWLEDGE OF THE WORK TO BE PERFORMED AND IS PROPERLY LICENSED AND REGISTERED TO COMPLETE THIS WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS PRIOR TO BEGINNING ANY MATERIAL ORDERS, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE EOR. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR MAY PROCEED WITH THE PROJECT.
5. ANY WORK PERFORMED WITHOUT A PREFABRICATION MAPPING IS DONE AT THE RISK OF THE CONTRACTOR AND/OR FABRICATOR.
6. ALL MANUFACTURERS' INSTRUCTIONS FOR INSTALLATION MUST BE FOLLOWED EXACTLY AS SPECIFIED. WHEN CONFLICTING WITH THESE DRAWINGS, THE MANUFACTURER SPECIFICATIONS SHALL GOVERN.
7. ALL MATERIALS AND EQUIPMENT USED IN THE INSTALLATION OF THESE DRAWINGS SHALL BE IN NEW OR GOOD WORKING QUALITY, FREE FROM DEFECTS AND FAULTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ALL SUBSTITUTIONS MUST BE GIVEN WRITTEN APPROVAL FROM THE EOR PRIOR TO INSTALLATION. ALL MATERIALS SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL INTENDED CONSTRUCTION ACTIVITY INCLUDING MATERIALS, ACCESS AND WORK SCHEDULE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND WILL BE RESPONSIBLE FOR ABIDING BY ALL REQUIREMENTS AND CONDITIONS OF THE PERMITS. WHEN APPLICABLE, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTION PRIOR TO BEGINNING OF ANY CONSTRUCTION.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS. CONSTRUCTION OF THE PROPOSED WORK SHALL MEET ANSI/ASSE A10.48, OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
10. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE INSTALLATION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENTS DURING ERECTION AND/OR FIELD ALTERATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE-DOWNS THAT MAY BE NECESSARY; SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
12. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE EOR.
13. INCORRECTLY FABRICATED, DAMAGED, MIS-FITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO THE EOR PRIOR TO ANY REMEDIAL OR CORRECTING ACTION. ALL ACTIONS SHALL REQUIRE EOR APPROVAL.

STEEL:

1. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
2. HOLES SHALL NOT BE TORCH CUT THROUGH STRUCTURAL STEEL FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC SPECIFICATIONS.
3. HOT-DIP GALVANIZE ALL ITEMS AFTER FABRICATION IN COMPLIANCE WITH ASTM A-123 UNLESS OTHERWISE SPECIFIED. ALL NEW STEEL IS TO BE PAINTED TO MATCH THE EXISTING STEEL.
4. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLY DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION UNLESS OTHERWISE SPECIFIED.
5. ALL CONNECTIONS NOT DETAILED IN THESE DRAWINGS MUST BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS.
6. ALL BOLTED CONNECTIONS MUST BE INSTALLED TO A SNUG-TIGHTENED CONDITION PER AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM 325 OR A490 BOLTS" SECTION 8.1 UNLESS OTHERWISE SPECIFIED.
7. CONTRACTOR MAY BE REQUIRED TO STACK WASHERS FOR BOLTS WHERE THREADS ARE EXCLUDED FROM SHEAR PLANE TO OBTAIN SNUG TIGHT INSTALLATION. A NUT LOCKING DEVICE MUST BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS. GALVANIZED ASTM 325 OR A490 BOLTS SHALL NOT BE REUSED.

COLD GALVANIZATION:

1. ALL DAMAGED SURFACES SHALL BE REPAIRED WITH A COLD-GALVANIZING COATING CONFORMING TO ASTM 780. THIS COATING SHALL BE APPLIED BY BRUSH. THE GALVANIZING COMPOUND SHALL CONTAIN A MINIMUM OF 95% ± PURE ZINC. THE FINISHED COATING SHALL BE A MINIMUM THICKNESS OF 4 MILS.
2. CONTRACTOR TO USE ZINGA OR ZRC COLD GALVANIZATION COMPOUNDS OR APPROVED EQUIVALENTS.
3. CLEAN AREAS TO BE PREPARED AND REMOVE SLAG FROM WELDS FOR TREATMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
4. IF THE TOWER IS PAINTED, ALL TREATED AREAS ARE TO BE BRUSH PAINTED TO MATCH THE TOWER AFTER COLD GALVANIZING COMPOUND IS ALLOWED TO CURE.

U-BOLTS:

1. ALL U-BOLTS ARE TO BE ASTM A36/A307, SAE 429 GR. 2 UNLESS OTHERWISE SPECIFIED.
2. U-BOLTS SHALL MEET REQUIREMENTS OF ASME B18.31.5-2011 BENT BOLTS.
3. U-BOLT ASSEMBLY SHALL COME COMPLETE WITH NUTS (ASTM A563), WASHERS (ASTM F436), AND LOCK WASHERS.
4. FULL U-BOLT ASSEMBLY TO BE HOT-DIP GALVANIZED PER ASTM A153/A153M OR A123, AS APPLICABLE.

MODIFICATION MATERIALS

SCOPE	SHAPE	GRADE	YIELD STRENGTH (Fy)	ULTIMATE STRENGTH (Fu)
ALL	PIPE	A53 GR. B	35 KSI	60 KSI

NO.	DATE	DESCRIPTION	BY
0	06/21/19	FIRST ISSUE	JMB

REVISIONS

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

MasTec Network Solutions
507 AIRPORT BLVD., SUITE 111
MORRISVILLE, NC 27560

SITE NAME: BRG 204 (A) 943097

BU NUMBER: 806953

APP NUMBER: 479803
MNS ENG. NUMBER: 18809 - MOD1

SITE ADDRESS:
69 GUINEA ROAD
(CAMP ROCKY CRAIG)
STAMFORD, CT 06903
FAIRFIELD COUNTY, USA

DRAWN BY: JMB

CHECKED BY: NDN

APPROVED BY: RIM

SCALE: N.T.S

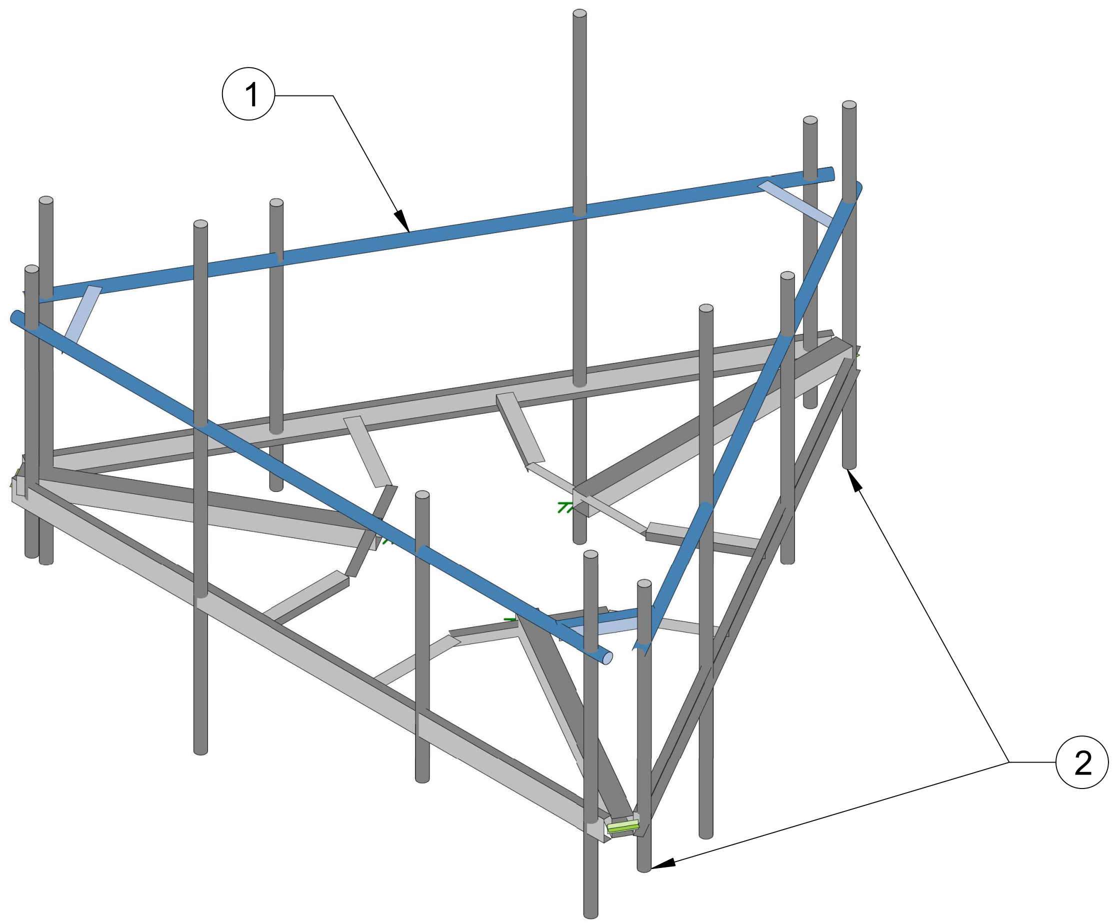
NOTES

N-2

REV 0

MODIFICATION SCHEDULE

SCOPE NO.	MODIFICATION DESCRIPTION	BOTTOM ELEVATION	TOP ELEVATION	SHEET NO.
1	INSTALLATION OF NEW SITE PRO1 HRK12	-	116'-0" ±	S-2
2	EXISTING OUTERMOST PIPE MOUNTS TO BE MOVED OUTWARDS 6 INCHES	-	116'-0" ±	S-2



NOTES:

1. APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
2. ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT MUST NOT BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION OF PROPOSED MODIFICATIONS.
3. ANTENNA AND COAX NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING AND COAX CONFIGURATION.
4. PRIOR TO FABRICATION AND INSTALLATION , CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. INFORMATION PROVIDED IS FOR QUOTING PURPOSES ONLY, AND SHALL NOT BE USED FOR FABRICATION.
5. EXISTING RRU'S AND ANCILLARY EQUIPMENT MAY NEED TO BE TEMPORARILY RELOCATED AS NECESSARY TO COMPLETE THIS MODIFICATION. EQUIPMENT IS NOT TO BE TAKEN OFF AIR AT ANY TIME DURING INSTALLATION. PLEASE CONTACT EOR IF THIS CANNOT BE MET.
6. CONTACT EOR IF PROPOSED MOUNT REINFORCEMENT DIMENSIONS CANNOT BE MET.

NO.	DATE	DESCRIPTION	BY
0	06/21/19	FIRST ISSUE	JMB

REVISIONS

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FAIRFIELD COUNTY, USA

STATE OF CONNECTICUT RAPHAEL MOHAMED No. 25112 LICENSED PROFESSIONAL ENGINEER

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

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DRAWN BY: JMB

CHECKED BY: NDN

APPROVED BY: RIM

SCALE: N.T.S

MODIFICATION SCHEDULE

S-1

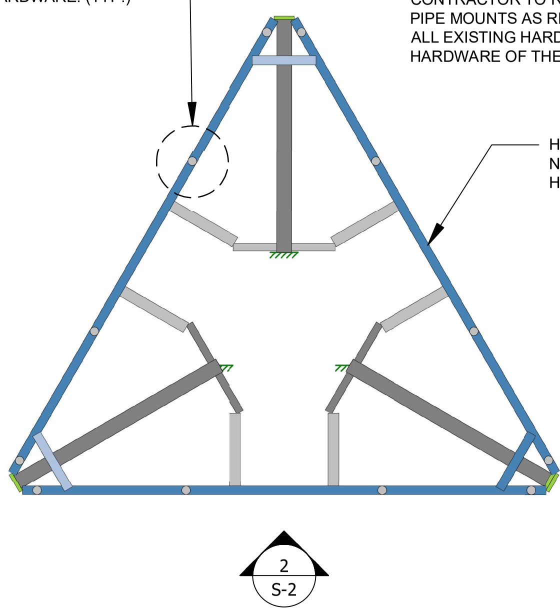
REV 0

NOTES:

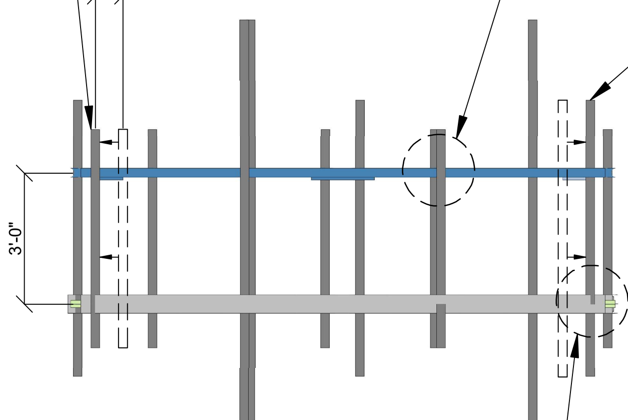
1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW HANDRAIL PIPES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.
3. CONTRACTOR TO REPLACE ALL BOLTS AND HARDWARE WITH NEW A325N BOLTS AND HARDWARE OF THE APPROPRIATE SIZE.
4. ALL FIELD DRILLED HOLES MUST BE SPACED A MINIMUM OF 3" FROM ANY EXISTING BOLT HOLES. CONTACT THE EOR IN THE EVENT THAT THIS REQUIREMENT CANNOT BE MET.

NEW HANDRAIL KIT MATERIAL LIST

SITE PRO PART NO.	QTY.	LENGTH	DESCRIPTION
HRK12	1	12'-6"	HANDRAIL KIT



1
S-2
HANDRAIL KIT INSTALLATION
PLAN VIEW
NTS



2
S-2
HANDRAIL KIT INSTALLATION
FRONT VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	06/21/19	FIRST ISSUE	JMB

REVISIONS

RAPHAEL I. MOHAMED, PE,PEng
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STATE OF CONNECTICUT RAPHAEL MOHAMED No. 25112 LICENSED PROFESSIONAL ENGINEER

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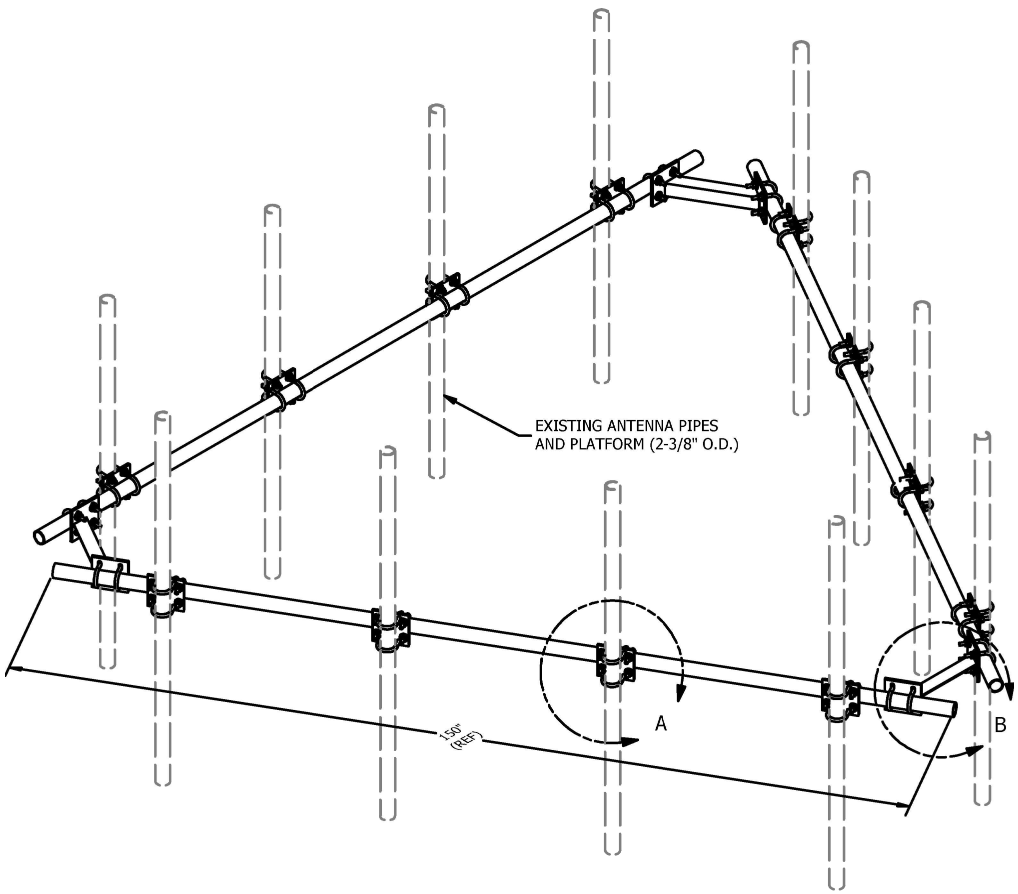
APPROVED BY: RIM

SCALE: N.T.S

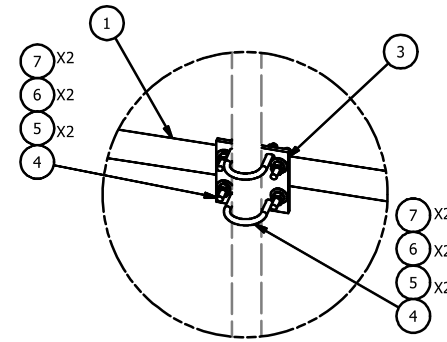
HANDRAIL KIT DETAILS

S-2

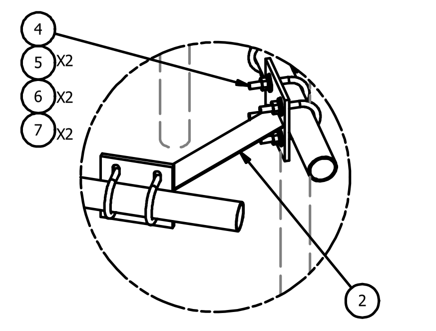
REV 0



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"		3.71	44.50
4	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.08
5	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	43.90
6	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.58
					TOTAL WT. #	261.72



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	REPLACED HCP WITH X-AHCP		CEK	7/10/2014

REVISION HISTORY

DESCRIPTION
HANDRAIL KIT
FOR 12'-6" FACE

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.
		KC8 5/30/2012		HRK12
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 7/14/2014	HRK12

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

Exhibit F

Power Density/RF Emissions Report

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11071E

Stamford/ MP X32/ Den Rd
70 Guinea Road (Girl Scout Camp)
Stamford, CT 06903

June 12, 2019

Transcom Engineering Project Number: 737001-0153

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**13.32 %**

June 12, 2019

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

Emissions Analysis for Site: **CT11071E – Stamford/ MP X32/ Den Rd**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **70 Guinea Road (Girl Scout Camp), Stamford, 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.

<u>General population/uncontrolled exposure</u> 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 MHz & 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 **70 Guinea Road (Girl Scout Camp), Stamford, 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 MHz, 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	118
A	2	Ericsson AIR21 B2A/B4P	118
A	3	RFS APXVAARR24_43-U-NA20	118
B	1	Ericsson AIR32 B66A / B2A	118
B	2	Ericsson AIR21 B2A/B4P	118
B	3	RFS APXVAARR24_43-U-NA20	118
C	1	Ericsson AIR32 B66A / B2A	118
C	2	Ericsson AIR21 B2A/B4P	118
C	3	RFS APXVAARR24_43-U-NA20	118

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 all **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. or each ground mounted **2100 MHz (AWS) UMTS** radio there was **1.58 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **149 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)	15.85 / 15.85	6	280	10,768.57	3.08
Antenna A2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,665.15	0.48
Antenna A3	RFS APXVAARR24 43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.66
						Sector A Composite MPE%	**5.22**
Antenna B1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	3.08
Antenna B2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,665.15	0.48
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.66
						Sector B Composite MPE%	**5.22**
Antenna C1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85 / 15.85	6	280	10,768.57	3.08
Antenna C2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	2	55	1,665.15	0.48
Antenna C3	RFS APXVAARR24 43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.66
						Sector C Composite MPE%	**5.22**

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	**5.22 %**
Sprint	2.29 %
AT&T	2.81 %
Verizon Wireless	2.81 %
Metricom	0.00 %
Nextel	0.19 %
Site Total MPE %:	**13.32 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	5.22 %
T-MOBILE Sector B Total:	5.22 %
T-MOBILE Sector C Total:	5.22 %
Site Total:	13.32 %

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 (μW/cm²)**	**Frequency (MHz)**	**Allowable MPE (μW/cm²)**	**Calculated % MPE**
T-Mobile 1900 MHz (PCS) LTE	4	1,538.37	118	17.64	1900 MHz (PCS)	1000	1.76%
T-Mobile 2100 MHz (AWS) LTE	2	2,307.55	118	13.23	2100 MHz (AWS)	1000	1.32%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	118	1.67	1900 MHz (PCS)	1000	0.17%
T-Mobile 2100 MHz (AWS) UMTS	1	1,081.58	118	3.10	2100 MHz (AWS)	1000	0.31%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	118	4.52	600 MHz	400	1.13%
T-Mobile 700 MHz LTE	2	432.54	118	2.48	700 MHz	467	0.53%
						Total:	**5.22%**

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:	5.22 %
Sector B:	5.22 %
Sector C:	5.22 %
T-MOBILE Maximum Total (per sector):	5.22 %
Site Total:	13.32 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.32 %** 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
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Transcom Engineering, Inc
PO Box 1048
Sterling, MA 01564