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

July 23, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
842870 - T-Mobile Site ID: CT11018F
434 Boston Post Road, Milford, CT 06460
Latitude: 41° 13′ 42.69″ / Longitude: -73° 4′ 12.47″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 114-foot mount on the existing 150-foot Self Support Lattice Tower, located at 434 Boston Post Road, Milford, CT. The tower is owned by Crown Castle and the property is owned by the City of Milford. T-Mobile now intends to replace three (3) existing antennas with three (3) new 1900/2100 MHz antennas and three (3) new 2500/2500 MHz antennas for a total antenna inventory of twelve (12) antennas. The new antennas will be installed at the 114-ft level of the tower. T-Mobile is also proposing tower mount modifications, as shown on the enclosed mount analysis.

Planned Modifications:
Tower:

Remove:
(4) 1 5/8" Coax
(1) Hybrid

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

Install New:
(3) AIR6449 B41 Antenna 2500/2500 MHz
(4) Fiber Line

Existing to Remain:
(3) AIR21 KRC118023-1_B2A_B4P Antenna 1900/2100 MHz
(3) RFS APXVAARR24_43-U-NA20 Antenna 600/700 MHz
(3) TMA
(3) Radio 4449 B71/B85

Ground:

Upgrade and replace ground cabinet.

The facility was approved by the City of Milford Planning and Zoning Office on February 10, 2000 when a Zoning Permit was issued. This approval was given without conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Benjamin G. Blake, as both the municipality and property owner, David Sulkis, City Planner, and Crown Castle is the tower owner.

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

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

Attachments

cc: Benjamin Blake, Mayor *(via email only to bblake@ci.milford.ct.us)*
City of Milford
110 River Street
Milford, CT 06460

David Sulkis, City Planner *(via email only to dsulkis@ci.milford.ct.us)*

City of Milford
70 West River Street
Milford, CT 06460

Crown Castle, Tower Owner

From:	Zsamba, Anne Marie
To:	"bblake@ci.milford.ct.us"
Subject:	Notice of Exempt Modification - T-Mobile - 434 Boston Post Road
Date:	Thursday, July 23, 2020 10:10:00 AM
Attachments:	New Configuration-T-Mobile-EM-842870-CT11018F-434 Boston Post Road-Milford_notice.pdf

Dear Mayor Blake:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today July 23, 2020.

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

Best,
Anne Marie Zsamba

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

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

From:	Zsamba, Anne Marie
To:	dsulkis@ci.milford.ct.us
Subject:	Notice of Exempt Modification - T-Mobile - 434 Boston Post Road
Date:	Thursday, July 23, 2020 10:10:00 AM
Attachments:	New Configuration-T-Mobile-EM-842870-CT11018F-434 Boston Post Road-Milford_notice.pdf

Dear City Planner Sulkis:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today July 23, 2020.

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

Best,
Anne Marie Zsamba

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

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

Exhibit A

Original Facility Approval

DATE FILED 10 Feb 00

RECEIPT # Exempt

FEE (INCLUDES CZC) $ see above

434

City of Milford, Connecticut

APPLICATION FOR ZONING PERMIT

#1430

INSTRUCTIONS: Fill out this application in ball point pen. A scaled plot plan in duplicate, based on a certified surveyor's plot plan must be submitted with this application showing the proposed or existing lot and building dimensions and the location of all buildings in relation to the street lines, side lot lines and rear lot lines.

ADDRESS OF PROPERTY Boston Post Road **ZONE** GB

MAP 64 **BLOCK** 430 **PARCEL** 6 **LOT NO.** _____ **ADDRESS MAP NO.** _____ **LOT SIZE** 2.73 acres

WIDTH OF STREET RIGHT OF WAY LESS THAN 50 FT.? YES ____ NO X **CORNER LOT?** YES ____ NO X

IS ANY PORTION OF THE LOT BELOW REGULATORY FLOOD ELEVATION? YES ____ NO X **CAM** YES ____ NO X

CITY WATER NA **PRIVATE WELL*** ____ **SEWER**** NA **SEPTIC***** ____ **ENGINEERING OFF STREET PERMIT #** _____

OWNER City of Milford → AT&T Wireless PCS, LLC **PHONE** (203) 871-4022

ADDRESS OF OWNER c/o Dan Garber 149 Water St Norwalk CT 06854
STREET CITY STATE ZIP CODE

PRESENT USE OF PROPERTY Police Station

PROPOSED CONSTRUCTION NEW X ADDITION _____ ALTERATION _____ REPAIR _____

SIZE/USE OF PROPOSED CONSTRUCTION Truss construction antenna - roof antenna hardware belongs to City total height antenna - with fencing with barbwire enclosure 50' | 54'X 64' irregular shape with 20'X12' equip. bldg*

NO. OF STORIES NA **HEIGHT** 150' **REQUIRED PARKING SPACES** NC **LOT COVERAGE** _____%

DATE OF APPROVALS: **ZBA** NA **CASPR** _____ **SITE PLAN** 18 Jan 00 **SPECIAL PERMIT** _____

EXEMPTION ISSUED NA **SUBDIV. NAME** _____ **HISTORIC DIST. CERT.OF APPROPRIATENESS** ____

CERTIFICATION: *(WARNING)* I hereby certify that I am making this application on behalf of and with full authority of the owner of the property and that I am aware of the Zoning Regulations pertinent in this case and that the statements made herein are true and correct. *APPROVAL SHALL BE VALID FOR PLANS AS SUBMITTED.*

THE OCCUPANCY AND USE OF LAND AND BUILDINGS OR STRUCTURES PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY IS PROHIBITED

APPROVED BY:

Peter W. Cochrane ACP
Zoning Official

DATE ISSUED 10 Feb 00

APPLICANT:

NAME Peter H. Maxwell (Please Print)

SIGNATURE _____

ADDRESS URS Greiner Woodward Clyde, 500 Enterprise Dr
Street

CITY Rocky Hill STATE CT ZIP 06706

TELEPHONE NO. (_____) _____

* **Permit required from State Health Dept. for apartments, subdivisions, trailer parks, shopping centers and public buildings.**

** **Permits for sewer connections are granted by Sewer Commission**

*** **Septic system approvals are granted by Health Department**

P&Z OFFICE - **WHITE** BUILDING DEPT. - **YELLOW** APPLICANT'S COPY - **PINK**

ZONPER7/96

RECEIVED
FEB 22 2000
Building Department
Milford, CT

* To be delivered to the site

From: Charles Corell [mailto:ccorell@ci.milford.ct.us]
Sent: Tuesday, February 23, 2016 2:53 PM
To: Goodall, Amanda
Cc: Joseph Griffith; Christine Angelica
Subject: RE: [Milford CT] Cell Tower-434 Boston Post Road

Good afternoon

We located the original file and plans from our archives, there are no conditions in these documents, there is a statement of special inspections and a final statement of special inspections for the construction. Let me know if this helps you at all

Thanks
Charlie Corell

Exhibit B

Property Card

City of Milford, CT

Property Listing Report

Map Block Lot	064 930 6 A	Account	023341

Property Information

Property Location	434 BOSTON POST RD
Owner	CITY OF MILFORD
Co-Owner	C/O AT&T MBLTY-TAX DEPT
Mailing Address	575 MOROSGO DR ATLANTA GA 30324
Land Use	434V CELL TOWER MDL-00
Land Class	I
Zoning Code	
Census Tract	

Neighborhood	D
Acreage	0
Utilities	All Public,Public Sewer
Lot Setting/Desc	
Additional Info	

Photo

Sketch

Primary Construction Details

Year Built		Bedrooms		Exterior Walls	
Stories		Full Bathrooms		Interior Walls	
Building Style		Half Bathrooms		Heating Type	
Building Use		Bath Style		Heating Fuel	
Building Condition		Kitchen Style		AC Type	
Floors		Roof Style		Gross Bldg Area	
Total Rooms		Roof Cover		Total Living Area	

Report Created On 4/21/2020

City of Milford, CT

Property Listing Report | Map Block Lot **064 930 6 A** | Account **023341**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings		
Extras	0	
Improvements		
Outbuildings	450000	315000
Land	0	0
Total	450000	315000

Outbuilding and Extra Items

Type	Description
CEL TWR SITE	1 UNITS

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
CITY OF MILFORD	02435/0430	11/22/1999	

Report Created On **4/21/2020**

1 inch = 100 feet

0 50 100 150 200 Feet

Disclaimer: This map is for informational purposes only All information is subject to verification by any user. The City of Milford and its mapping contractors assume no legal responsibility for the information contained herein.

Map Produced: July 2016

Exhibit C

Construction Drawings

T-MOBILE SITE NAME:

MILFORD/I-95/X37/JCT.

T-MOBILE SITE NUMBER:

CT11018F

CROWN BU: 842870 / APP#: 481011

67D5A992DB CONFIGURATION

434 BOSTON POST ROAD
MILFORD, CT 06460

EXISTING 150'-0" SELF-SUPPORT TOWER

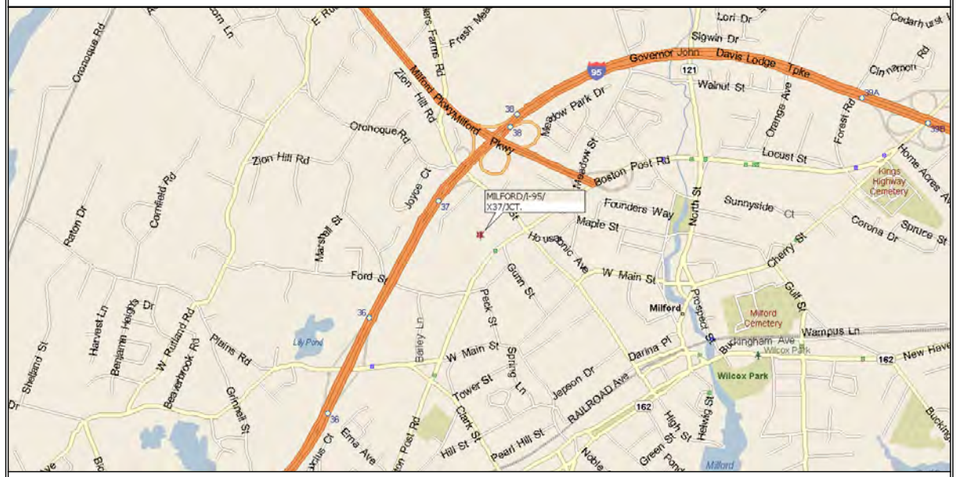
PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	434 BOSTON POST ROAD MILFORD, CT 06460
JURISDICTION:	NEW HAVEN COUNTY

NAD83

LATITUDE:	41.228548° N
LONGITUDE:	73.070141° W
TOWER OWNER:	CROWN CASTLE 3200 HORIZON DRIVE, SUITE 150 KING OF PRUSSIA, PA 19406 JASON SMITH (610) 635-3225
CUSTOMER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054 (973) 397-4800
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



NO SCALE

DRAWING INDEX

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

CONTACT INFORMATION

A&E FIRM:	B+T GROUP 1717 S. BOULDER, STE. 300 TULSA, OK 74119	ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. 203-499-2000
CONTACT: PHONE:	MIKE OAKES (918) 587-4630	TELCO PROVIDER:	OPTIMUM PHONE 855-267-8468

CODE COMPLIANCE

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

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

DRIVING DIRECTIONS

DEPART FROM BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD. ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO CT-20 [BRADLEY FIELD CONNECTOR]. TAKE RAMP (RIGHT) ONTO I-91 [RICHARD P HORAN MEMORIAL HWY]. AT EXIT 17, TURN RIGHT ONTO RAMP. TAKE RAMP (LEFT) ONTO CT-15 [WILBUR CROSS PKWY]. AT EXIT 54, KEEP RIGHT ONTO RAMP. ROAD NAME CHANGES TO MILFORD PKWY. KEEP RIGHT ONTO RAMP. BEAR RIGHT ONTO MEADOW ST. TURN RIGHT ONTO US-1 [BOSTON POST RD]. TURN RIGHT ONTO LOCAL ROAD(S) AND ARRIVE AT MILFORD/I-95/X37/JCT.

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (3) EXISTING ANTENNAS AT 112'-0".
- REMOVE (4) 1 5/8" COAX.
- REMOVE (1) 9x18 HYBRID CABLE.
- REMOVE EXISTING NORTEL S12K CABINET.
- INSTALL (6) NEW ANTENNAS AT 112'-0".
- INSTALL (3) NEW RRUS.
- INSTALL (4) NEW 6x12 HCS FIBER.
- INSTALL (1) NEW ENCLOSURE 6160.
- INSTALL (1) NEW IXRe ROUTER.
- INSTALL (1) NEW B160 BATTERY CABINET.
- INSTALL (3) NEW BB6630 & (1) BB6648.
- MODIFY EXISTING MOUNTS PER MOUNT ANALYSIS BY MASTEC NETWORK SOLUTIONS DATED 7/26/19.

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.

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.

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

811

B+T GRP

CROWN CASTLE

T-Mobile

CT11018F
BU #: 842870
MILFORD/I-95/X37/JCT.
434 BOSTON POST ROAD
MILFORD, CT 06460
EXISTING 150'-0" SELF-SUPPORT TOWER

PROJECT NO:	091292.012.01
CHECKED BY:	GEH

ISSUED FOR:

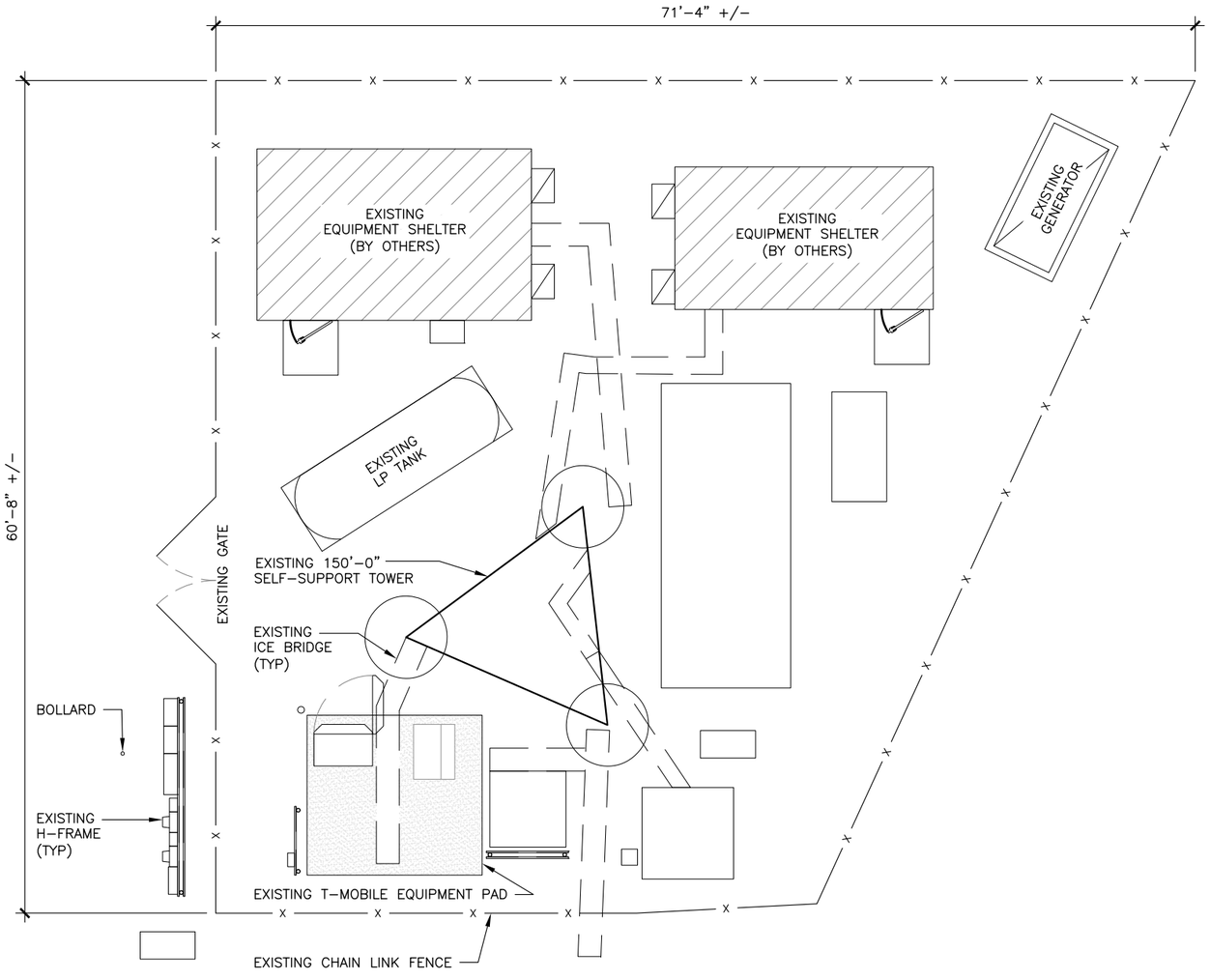
REV	DATE	DRWN	DESCRIPTION
0	8/15/19	RFC	CONSTRUCTION
1	6/25/20	GEH	CONSTRUCTION
2	7/10/20	GEH	CONSTRUCTION

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

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
7/10/20

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: T-1
REVISION: 2



1 OVERALL SITE PLAN

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

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS SITUATED AT 434 BOSTON POST ROAD, MILFORD, CT 06460.

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, (3) NEW RRUS, AND FOUR (4) ADDITIONAL CABLES MOUNTED ON AN EXISTING SELF-SUPPORT TOWER.

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 41.228548° N± AND LONGITUDE OF 73.070141° 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

CT11018F
BU #: 842870
MILFORD/I-95/X37/JCT.
434 BOSTON POST ROAD
MILFORD, CT 06460
EXISTING 150'-0" SELF-SUPPORT TOWER

PROJECT NO:	091292.012.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/15/19	RFC	CONSTRUCTION
1	6/25/20	GEH	CONSTRUCTION
2	7/10/20	GEH	CONSTRUCTION

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

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
7/10/20

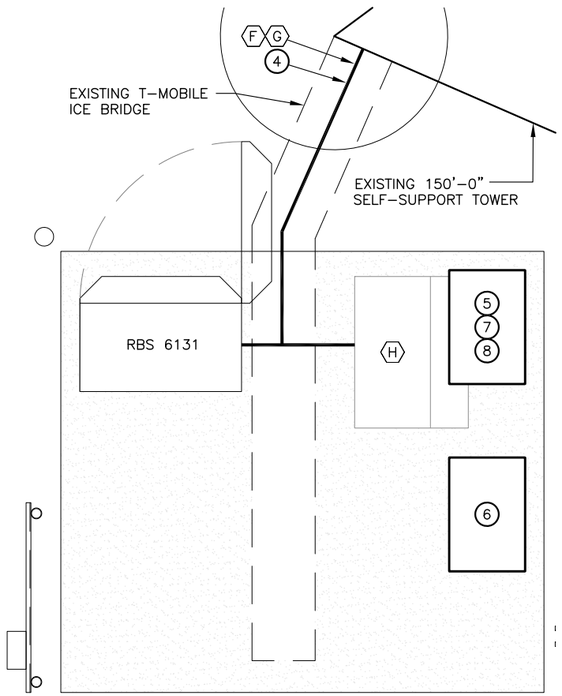
SHEET NUMBER:	REVISION:
A-1	2

LEGEND

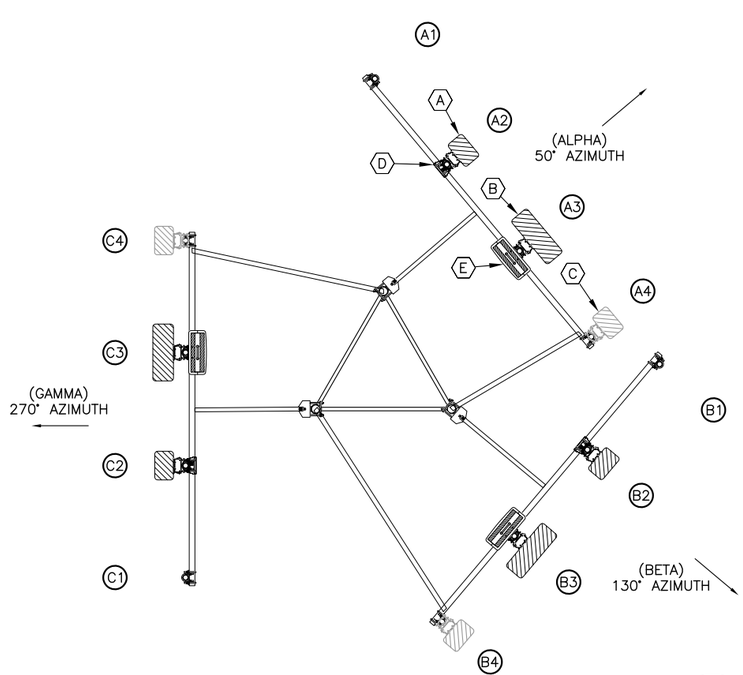
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL ERICSSON AIR32 KRD901146-1_B66A_B2A (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING RFS APXVAARR24_43-U-NA20 ANTENNA TO REMAIN (TOTAL OF 3)	2	INSTALL AIR6449 B41 ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F.) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ERICSSON AIR21 KRC118046-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL ERICSSON 4415 B25 RRUs (TOTAL OF 3)
D	EXISTING TMA TO REMAIN (TOTAL OF 3)	4	INSTALL (4) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING ERICSSON 4449 B71/B85 RRUs TO REMAIN (TOTAL OF 3)	5	INSTALL NEW ENCLOSURE 6160
F	REMOVE (4) 1 5/8" COAX	6	INSTALL NEW ENCLOSURE B160
G	REMOVE (1) 9x18 HYBRID CABLE	7	INSTALL (3) BB6630 & (1) BB6648
H	REMOVE EXISTING NORTEL S12K CABINET	8	INSTALL (1) IXRe ROUTER TO NEW 6160 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
50° – ALPHA	**A1**	**ERICSSON AIR6449 B41**	**LTE**	–	**0°**	**0°**	112'–0"	**0/0**	**(1) 6x12 HCS FIBER**	**DC/FIBER**	**150'–0"**
	A2	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	–	0°	0°		1/0	(2) 1 5/8" COAX	DC/FIBER	150'–0"
	A3	RFS APXVAARR24_43-U-NA20	LTE	B71 B85 **B25**	0°	0°		0/2	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	150'–0"
	A4	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	–	**0°**	**0°**		**0/0**	**(1) 6x12 HCS FIBER**	**DC/FIBER**	**150'–0"**
130° – BETA	**B1**	**ERICSSON AIR6449 B41**	**LTE**	–	**0°**	**0°**	112'–0"	**0/0**	**(1) 6x12 HCS FIBER**	**DC/FIBER**	**150'–0"**
	B2	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	–	0°	0°		1/0	(2) 1 5/8" COAX	DC/FIBER	150'–0"
	B3	RFS APXVAARR24_43-U-NA20	LTE	B71 B85 **B25**	0°	0°		0/2	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	150'–0"
	B4	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	–	**0°**	**0°**		**0/0**	**(1) 6x12 HCS FIBER**	**DC/FIBER**	**150'–0"**
270° – GAMMA	**C1**	**ERICSSON AIR6449 B41**	**LTE**	–	**0°**	**0°**	112'–0"	**0/0**	**(1) 6x12 HCS FIBER**	**DC/FIBER**	**150'–0"**
	C2	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	–	0°	0°		1/0	(2) 1 5/8" COAX	DC/FIBER	150'–0"
	C3	RFS APXVAARR24_43-U-NA20	LTE	B71 B85 **B25**	0°	0°		0/2	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	150'–0"
	C4	**ERICSSON AIR32 KRD901146-1_B66A_B2A**	**LTE**	–	**0°**	**0°**		**0/0**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER**	**150'–0"**

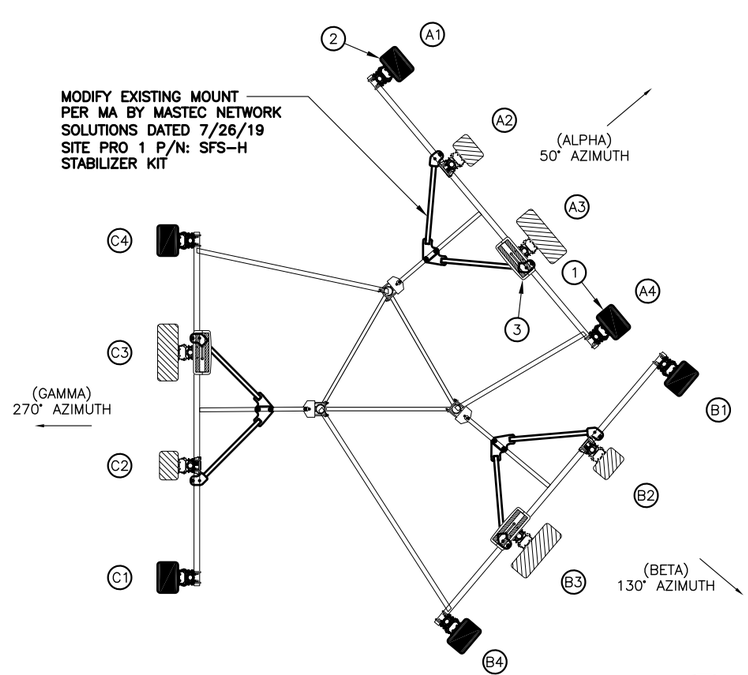


1 ENLARGED AREA PLAN
SCALE: 0' 1' 2' 4' 10'



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

CT11018F
BU #: 842870
MILFORD/I-95/X37/JCT.
434 BOSTON POST ROAD
MILFORD, CT 06460
EXISTING 150'-0" SELF-SUPPORT TOWER

PROJECT NO:	091292.012.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/15/19	RFC	CONSTRUCTION
1	6/25/20	GEH	CONSTRUCTION
2	7/10/20	GEH	CONSTRUCTION

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31627
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7/10/20

SHEET NUMBER:	REVISION:
A-2	2

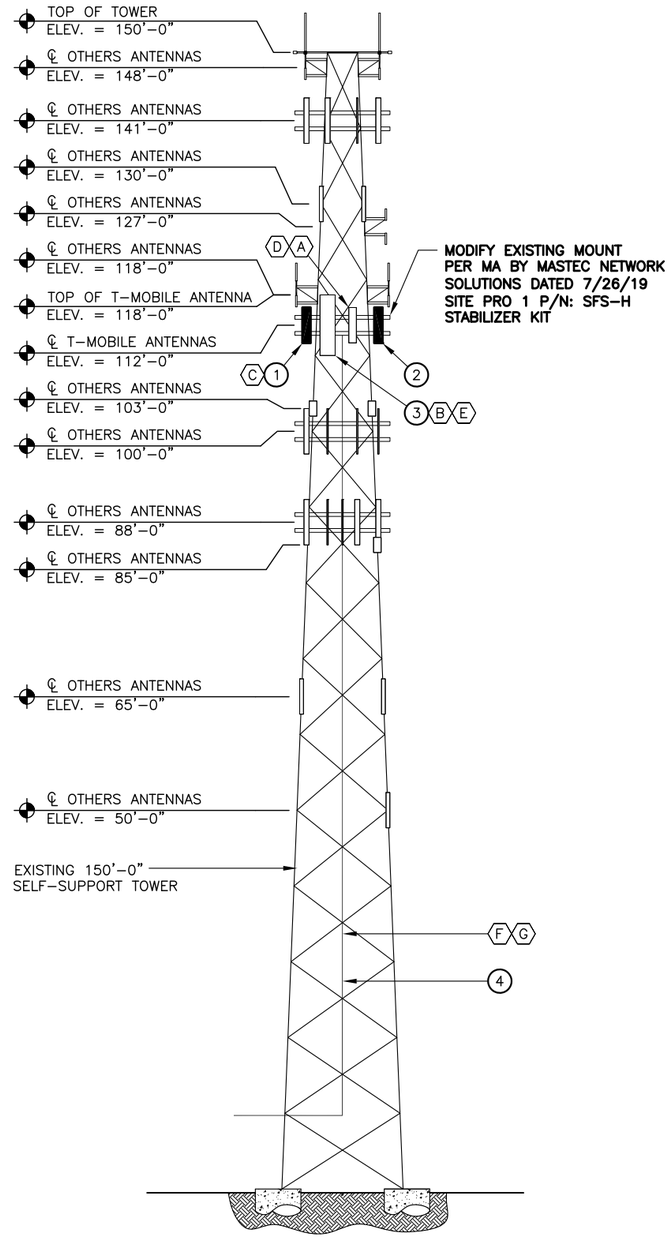
LEGEND

EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL ERICSSON AIR32 KRD901146-1_B66A_B2A (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING RFS APXVAARR24_43-U-NA20 ANTENNA TO REMAIN (TOTAL OF 3)	2	INSTALL AIR6449 B41 ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F.) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ERICSSON AIR21 KRC118046-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL ERICSSON 4415 B25 RRUs (TOTAL OF 3)
D	EXISTING TMA TO REMAIN (TOTAL OF 3)	4	INSTALL (4) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING ERICSSON 4449 B71/B85 RRUs TO REMAIN (TOTAL OF 3)		
F	REMOVE (4) 1 5/8" COAX		
G	REMOVE (1) 9x18 HYBRID CABLE		

EXISTING MOUNT TO BE MODIFIED PER MOUNT ANALYSIS BY MASTEC NETWORK SOLUTIONS DATED 7/26/19.

LEGEND:

- **NEW**
- EXISTING
- FUTURE



1 TOWER ELEVATION

SCALE: 0' 10' 20' 30' 40' 1"=20'

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T-Mobile

CT11018F
BU #: 842870

MILFORD/I-95/X37/JCT.

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SHEET NUMBER:	REVISION:
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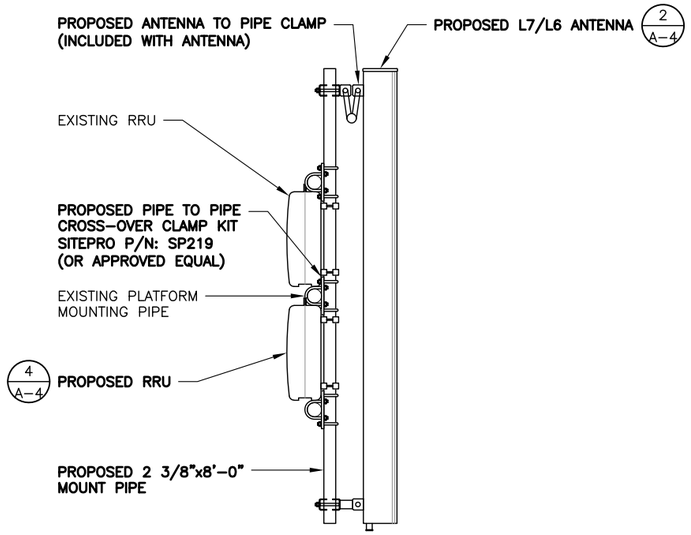
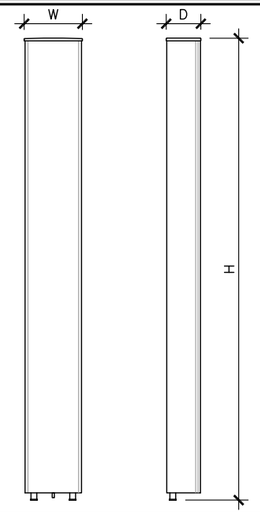


1 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL

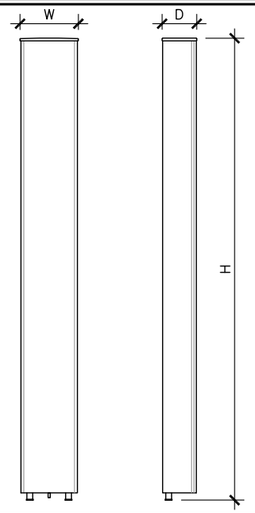
SCALE: 3/8" = 1'-0"



ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR32 KRD901146-1 _B66A_B2A
WIDTH	12.9"
DEPTH	8.7"
HEIGHT	56.6"
WEIGHT	132.2 LBS

2 L21/L19 ANTENNA DETAIL

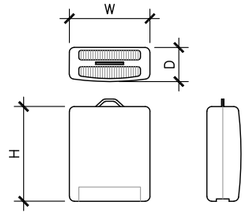
SCALE: 3/8" = 1'-0"



ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20"
DEPTH	5"
HEIGHT	36"
WEIGHT	50 LBS

3 L25/N25 ANTENNA DETAIL

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

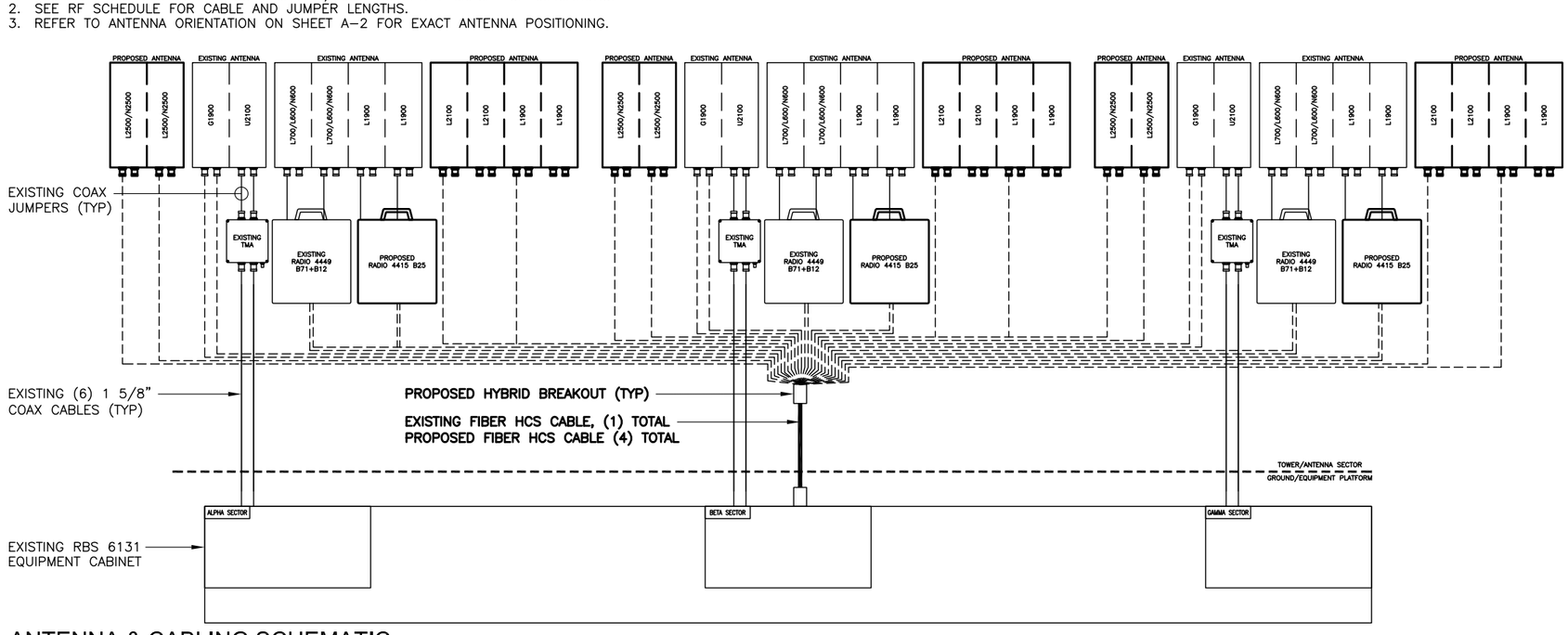


RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4415
WIDTH	13.4"
DEPTH	5.9"
HEIGHT	16.5"
WEIGHT	46 LBS

4 REMOTE RADIO UNIT (RRU)

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.



5 ANTENNA & CABLING SCHEMATIC

SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T-Mobile

CT11018F
BU #: 842870
MILFORD/I-95/X37/JCT.
434 BOSTON POST ROAD
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A-4	2

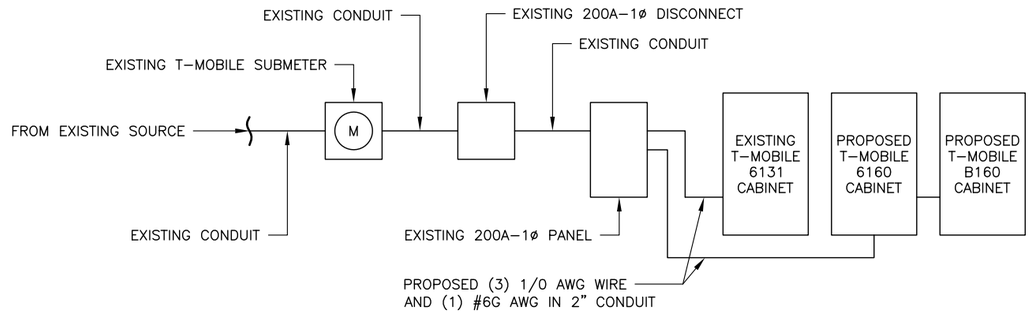
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
SPARE	1	20A	1	2	40A	2	BTS
EQUIPMENT	2	50A	3	4			
			5	6	20A	1	GFI BY PANEL
LED FLOOD	1	20A	7	8	125A	2	6131
			9	10			
			11	12	**100A**	**2**	**6160**
			13	14			

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

REPLACE EXISTING WIRES FOR EXISTING 6131 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
INSTALL NEW (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG WIRES FOR NEW 6160. MINIMUM CONDUIT SIZE TO BE 2".
INSTALL NEW 100A BREAKER IN POSITION 12 & 14 FOR NEW 6160.
IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
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

CT11018F
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434 BOSTON POST ROAD
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B&T ENGINEERING, INC.
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31627
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7/10/20

SHEET NUMBER: E-1
REVISION: 2

Exhibit D

Structural Analysis Report

Date: **June 24, 2020**

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

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11018F
	Carrier Site Name:	Milford/ I-95/ X37/ Jct.
Crown Castle Designation:	**Crown Castle BU Number:**	842870
	Crown Castle Site Name:	MILFORD
	Crown Castle JDE Job Number:	559276
	Crown Castle Work Order Number:	1860446
	Crown Castle Order Number:	481011 Rev. 1
Engineering Firm Designation:	**B+T Group Project Number:**	91292.018.01
Site Data:	**434 Boston Post Road, Milford, New Haven County, CT** **Latitude *41° 13' 42.69"*, Longitude *-73° 4' 12.47"*** **150 Foot - Self Support Tower**	

Dear Denice Nicholson,

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

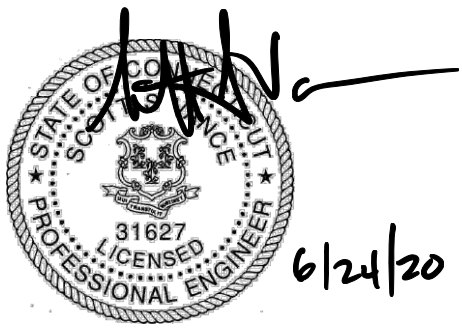
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 87.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code (2015IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Amin Pahlevannejad, E.I.T

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564 Expires: 02-10-2021



Scott S. Vance, P.E.

tnxTower Report - version 8.0.5.0

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Table 2 - Other Considered Equipment

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Table 3 - Documents Provided
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4) ANALYSIS RESULTS
Table 4 - Section Capacity (Summary)
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4.1) Recommendations

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tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This is a 150 ft. Self-Support tower designed by PiRod Inc. in March 2000. This tower has been modified by GPD Group in 2012. Reinforcement consists of replacing the Diagonals Member between elevations from 80' to 100' and those modifications were incorporated in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
114.0	114.0	3	Site Pro1	SFS-H Stabilizer Kit	9 2	1-5/8 1-3/8
		3	--	12.5ft T-Frames		
	112.0	3	Ericsson	AIR 32 B2a/B66Aa		
		3	Ericsson	AIR6449 B41		
		3	Ericsson	ERICSSON AIR 21 B2A B4P		
		3	Ericsson	KRY 112 71		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	Ericsson	RRUS 4415 B25_CCIV2		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		

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)
150.0	160.0	2	Sinclair	SC226-SFXSNM	1 6	3/8 5/8
	151.0	2	Radiowaves	HPLPD1-18		
	150.0	1	--	Platform Mount [LP 405-1]		
141.0	141.0	3	Andrew	SBNHH-1D65A	12 3 4 2	1-5/8 3/8 5/8 7/8
		3	Cci Antennas	OPA-65R-LCUU-H4		
		1	Commscope	WCS-IMFQ-AMT		
		3	Ericsson	RRUS 11 B2		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B30		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4478 B14		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	Ericsson	RRUS 4478 B5		
		6	Kaelus	DBCT108F1V92-1		
		3	Kathrein	80010964		
		3	Powerwave Tech.	7020.00		
		3	Powerwave Tech.	7770.00		
		3	Powerwave Tech.	LGP21401		
		3	Powerwave Tech.	LGP21401		
		1	Raycap	DC6-48-60-18-8F		
		2	Raycap	DC6-48-60-18-8F		
		3	SitePro1	VFA12-WLL-30-30120		
130.0	130.0	2	Terrawave	M5160160P10006	2	7/8
		2	--	Side Arm Mount [SO 301-1]		
118.0	128.0	1	Sinclair	SC229-SFXLDF	2	7/8
		1	Sinclair	SC320		
	118.0	2	--	Side Arm Mount [SO 306-1]		
103.0	103.0	1	--	Pipe Mount [PM 601-3]	--	--
	100.0	3	Alcatel Lucent	800MHZ 2X50W RRH W/FILTER		
		3	Alcatel Lucent	PCS 1900MHZ 2X40W		
100.0	103.0	3	Alcatel Lucent	TD-RRH8X20-25	3 1	1-1/4 7/8
	100.0	3	Commscope	DT465B-2XR		
		3	Rfs Celwave	APXVSPP18-C-A20		
		1	--	Sector Mount [SM 406-3]		
	97.0	3	Alcatel Lucent	RRH2X50-800		
88.0	90.0	6	Antel	BXA-171063/8CF	12	1-5/8
		6	Antel	LPA-80063/4CF		
		1	Rfs Celwave	DB-T1-6Z-8AB-0Z		
		6	Rfs Celwave	FD9R6004/2C-3L		
		3	Swedcom	SWCP 2x5514		
	88.0	1	--	Pipe Mount [PM 601-3]		
		1	--	Sector Mount [SM 408-3]		
65.0	65.0	3	Rfs Celwave	APXV18-206517S-C	6	1-5/8
50.0	50.0	1	Pctel	GPS-TMG-HR-26NCM	1	1/2

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	T-Mobile Co-Locate, Rev. 1	481011	CCI Sites
Tower Manufacturer Drawing	PiRod Inc., Eng. File No: A-116849	4480661	CCI Sites
Mount Analysis Report	Mastec, Project No: 23715-MNT1	9134740	CCI Sites
Tower Modification Drawing	GPD Group, Date: 03/27/2012	4713244	CCI Sites
Post Modification Inspection	GPD Group, Date: 10/23/2012	4713239	CCI Sites
Foundation Drawing	PiRod Inc., Eng. File No: A-116849	4480652	CCI Sites
Geotech Report	Clarence Welti Associates, Date: 01/17/2000	5359323	CCI Sites
Exposure Category Determination	Crown Castle, Date: 11/13/2015	5974782	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 06/10/2020	CCI Sites

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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	150 - 147.583	Leg	1 1/2	1	-2.676	53.917	5.0	Pass
T2	147.583 - 130	Leg	1 1/2	15	-31.413	53.917	58.3	Pass
T3	130 - 110	Leg	2	72	-81.341	117.290	69.3	Pass
T4	110 - 100	Leg	Pirod 105244	136	-88.202	149.618	59.0	Pass
T5	100 - 80	Leg	Pirod 105216	148	-130.929	149.618	87.5	Pass
T6	80 - 60	Leg	Pirod 105217	169	-190.155	225.602	84.3	Pass
T7	60 - 40	Leg	Pirod 105218	187	-233.056	315.715	73.8	Pass
T8	40 - 20	Leg	Pirod 105218	202	-273.564	315.715	86.6	Pass
T9	20 - 0	Leg	Pirod 105219	217	-310.900	419.861	74.0	Pass
T1	150 - 147.583	Diagonal	3/4	11	-1.390	5.577	24.9	Pass
T2	147.583 - 130	Diagonal	3/4	26	-3.803	5.123	74.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T3	130 - 110	Diagonal	7/8	80	-5.727	8.211	69.7	Pass
T4	110 - 100	Diagonal	L2 1/2x2 1/2x3/16	142	-9.870	18.455	53.5 75.1 (b)	Pass
T5	100 - 80	Diagonal	L2 1/2x2 1/2x3/8	157	-16.846	27.043	62.3 63.5 (b)	Pass
T6	80 - 60	Diagonal	L3x3x3/16	177	-8.421	20.182	41.7 69.2 (b)	Pass
T7	60 - 40	Diagonal	L3x3x3/16	193	-8.315	16.112	51.6 67.6 (b)	Pass
T8	40 - 20	Diagonal	L3x3x5/16	207	-9.027	20.744	43.5	Pass
T9	20 - 0	Diagonal	L3x3x5/16	222	-11.225	17.119	65.6	Pass
T2	147.583 - 130	Horizontal	7/8	35	-0.407	5.364	7.6	Pass
T3	130 - 110	Horizontal	3/4	127	-0.970	2.691	36.0	Pass
T1	150 - 147.583	Top Girt	5x1/2	6	-0.963	10.158	9.5	Pass
T2	147.583 - 130	Top Girt	7/8	17	-0.149	6.213	2.4	Pass
T3	130 - 110	Top Girt	7/8	74	-1.755	5.122	34.3	Pass
T4	110 - 100	Top Girt	L3x3x3/16	137	1.216	30.113	4.0 9.9 (b)	Pass
T5	100 - 80	Top Girt	L3x3x3/16	150	9.760	30.113	32.4 79.6 (b)	Pass
T6	80 - 60	Top Girt	L3x3x3/16	170	-8.081	18.645	43.3 79.3 (b)	Pass
T2	147.583 - 130	Bottom Girt	7/8	19	-1.651	5.073	32.5	Pass
T3	130 - 110	Bottom Girt	7/8	76	-1.948	4.166	46.8	Pass
T5	100 - 80	Mid Girt	L3x3x3/16	152	-11.301	22.249	50.8	Pass
							Summary	
						Leg (T5)	87.5	Pass
						Diagonal (T4)	75.1	Pass
						Horizontal (T3)	36.0	Pass
						Top Girt (T5)	79.6	Pass
						Bottom Girt (T3)	46.8	Pass
						Mid Girt (T5)	50.8	Pass
						Bolt Checks	79.6	Pass
						Rating =	87.5	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	26.0	Pass
1	Base Foundation (Structure)	Base	16.3	Pass
1	Base Foundation (Soil Interaction)	Base	45.3	Pass

Structure Rating (max from all components) =	87.5%

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

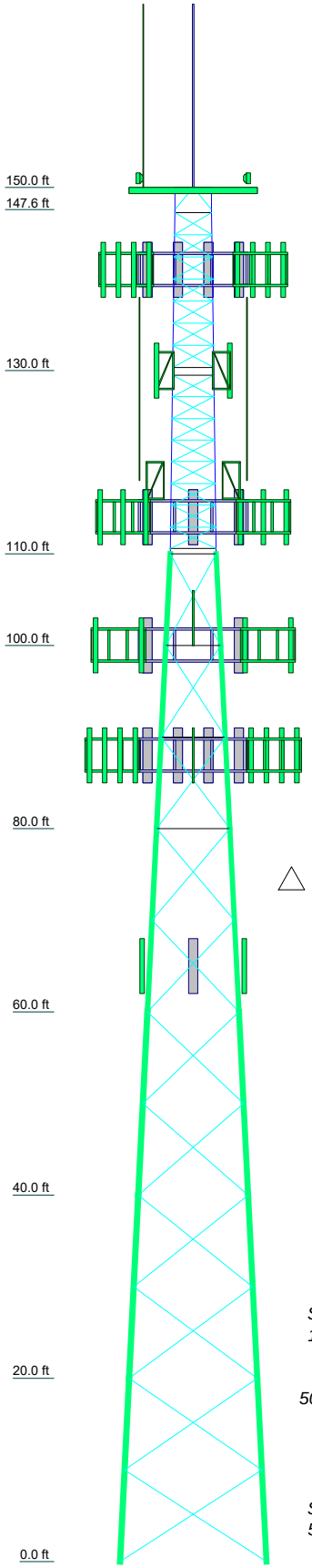
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs		SR 1 1/2	SR 2	Pirod 105244	Pirod 105216	Pirod 105217	Pirod 105218	Pirod 105219	
Leg Grade				A572-50					
Diagonals		SR 3/4	SR 7/8	A	L2 1/2x2 1/2x3/8	L3x3x3/16		L3x3x5/16	
Diagonal Grade		A572-50				A36			
Top Girts					L3x3x3/16			N.A.	
Mid Girts	B	SR 7/8	N.A.		L3x3x3/16		N.A.		
Bottom Girts	C	SR 7/8	N.A.				N.A.		
Horizontals	C	SR 7/8	SR 3/4				N.A.		
Face Width (ft)	4	4.0625	4.5	5	6	8	10	12	14
# Panels @ (ft)	0.2	0.7	1.3	1.1	2.6	2.6	3.0	3.5	4.2
Weight (K)		8 @ 2.41667	8 @ 2.36458				11 @ 10		19.2



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L2 1/2x2 1/2x3/16	C	N.A.
B	5x1/2		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0'
8. TIA-222-H Annex S
9. TOWER RATING: 87.5%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 322 K
SHEAR: 33 K

UPLIFT: -281 K
SHEAR: 30 K

AXIAL 141 K
SHEAR 14 K *MOMENT 1234 kip-ft*
TORQUE 5 kip-ft
50 mph WIND - 1.500 in ICE

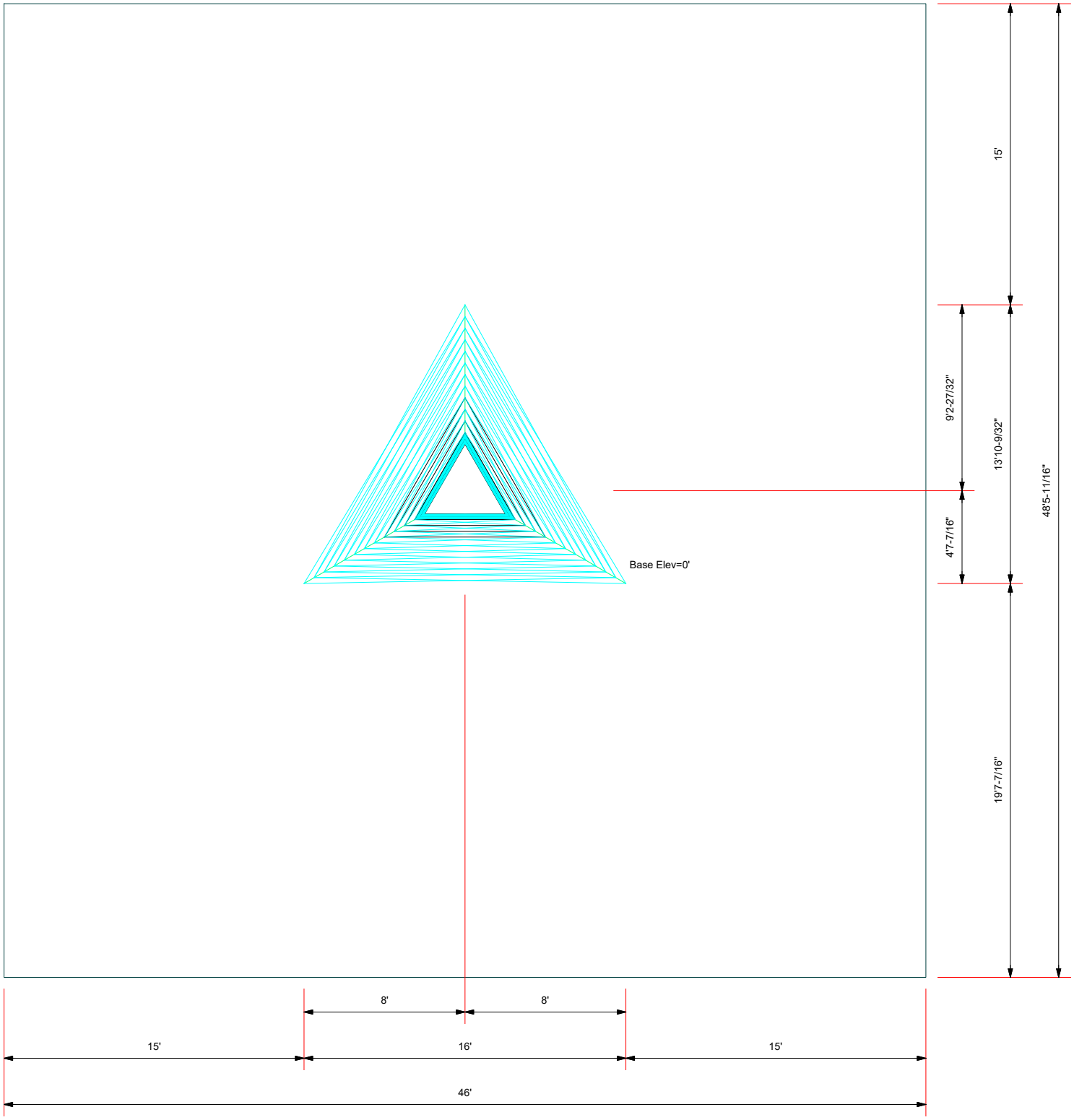
AXIAL 55 K
SHEAR 50 K *MOMENT 4208 kip-ft*
TORQUE 25 kip-ft
REACTIONS - 125 mph WIND

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

Job: 91292.018.01 - MILFORD, CT (BU# 842870			
Project:			
Client: Crown Castle	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 06/23/20	Scale: NTS	
Path: E:\Jobs\June 2020\23-6-2020\91292_842870_Milford-----Shashank-------PlrnxTower\91292_018_01_MILFORD_CT.eri		Dwg No. E-1	

Plot Plan

Total Area - 0.05 Acres



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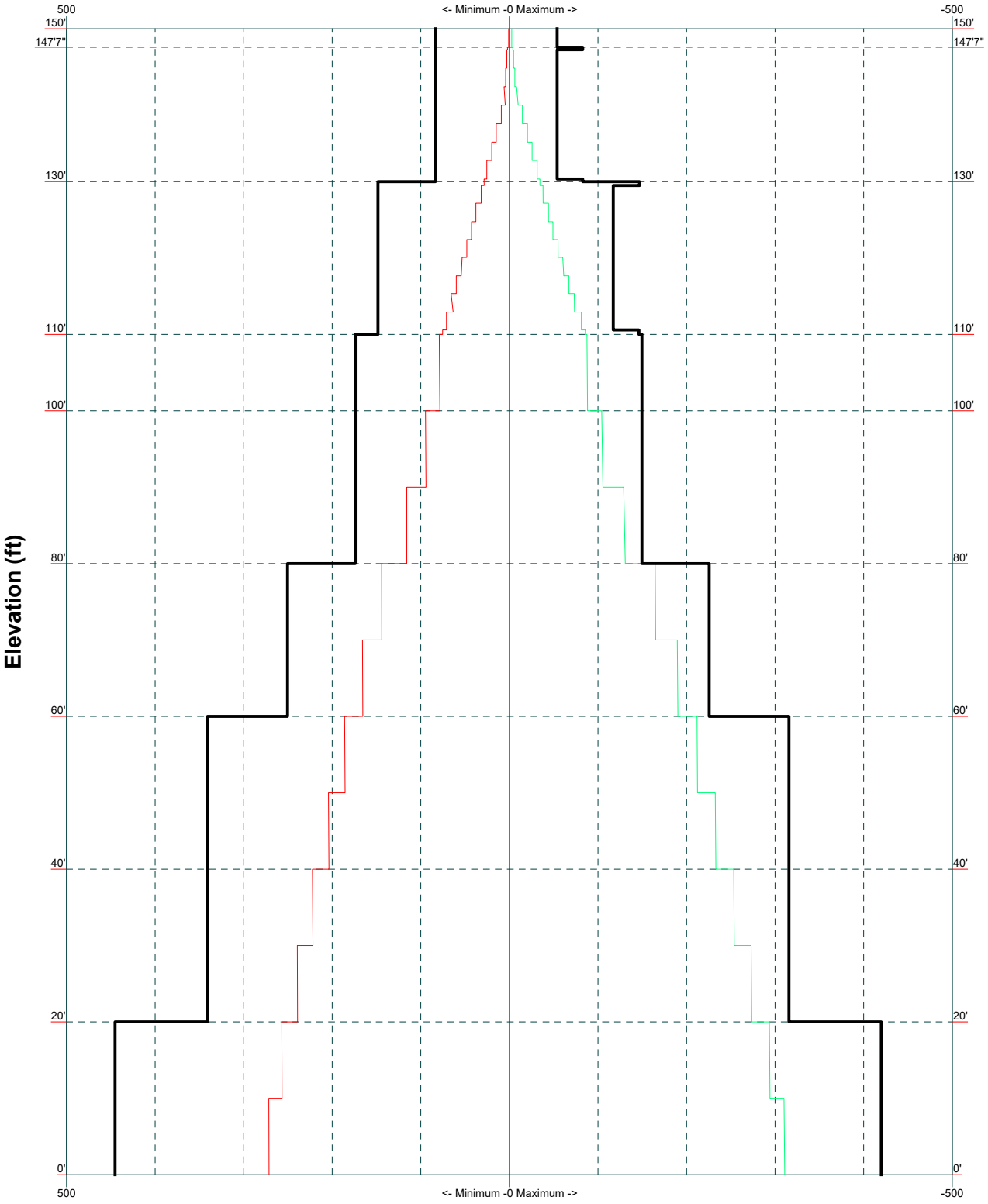
Code: TIA-222-H	Date: 06/23/20	Scale: NTS	
Path: E:\Jobs\June 2020\23-6-2020\91292_842870_Milford-----Shashank-------PlrnxTower\91292_018_01_MILFORD_CT.tel		Dwg No. E-2	

TIA-222-H - 125 mph/50 mph 1.500 in Ice Exposure C

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



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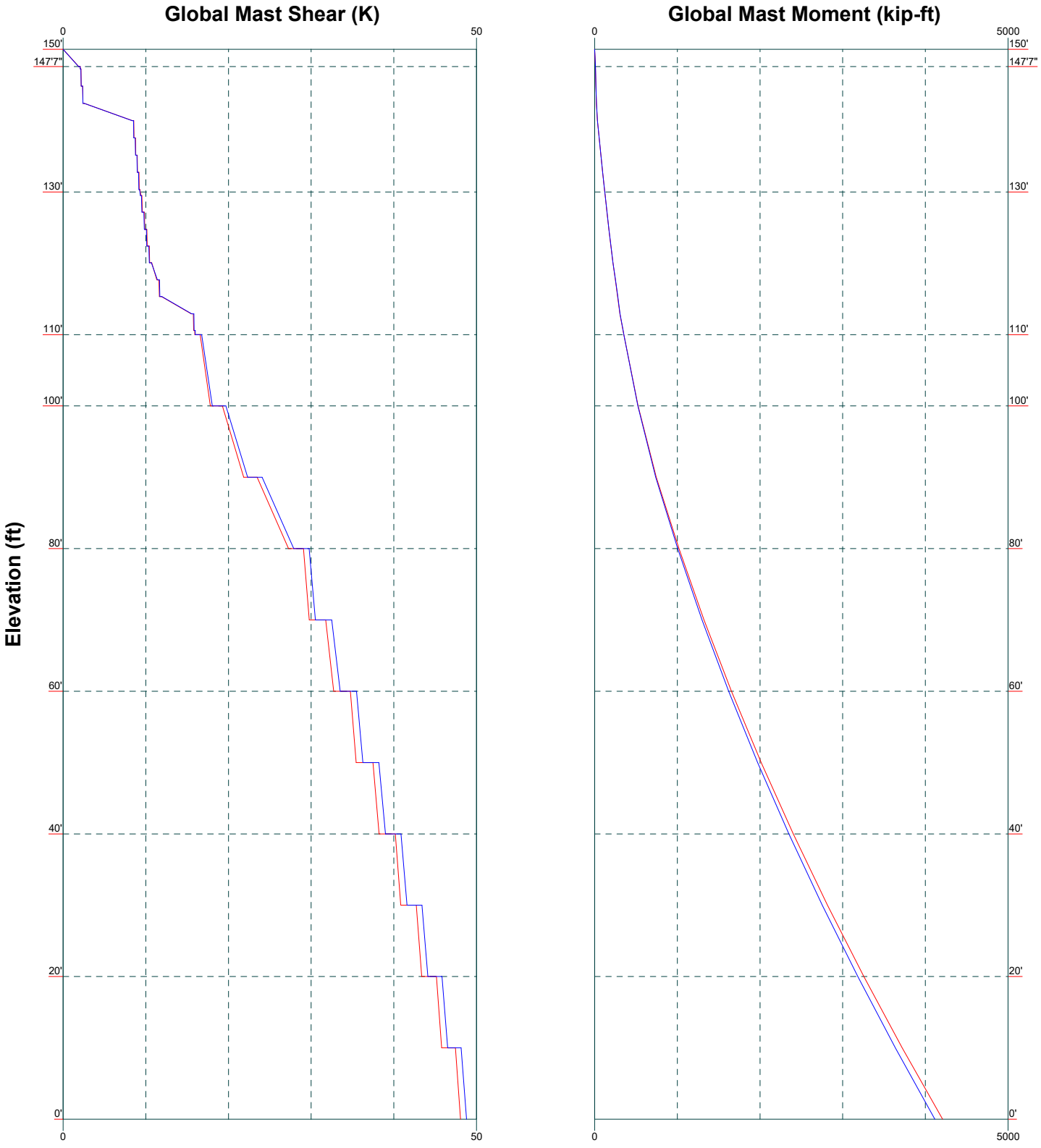
FAX: (918) 295-0265

Job: ***91292.018.01 - MILFORD, CT (BU# 842870***			
Project:			
Client: Crown Castle	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 06/23/20	Scale: NTS	
Path: E:\Jobs\June 2020\23-6-2020\91292_842870_Milford-----Shashank-------PlinxTower\91292_018_01_MILFORD_CT.eri		Dwg No. E-3	

TIA-222-H - 125 mph/50 mph 1.500 in Ice Exposure C

Maximum Values

Vx Vz Mx Mz



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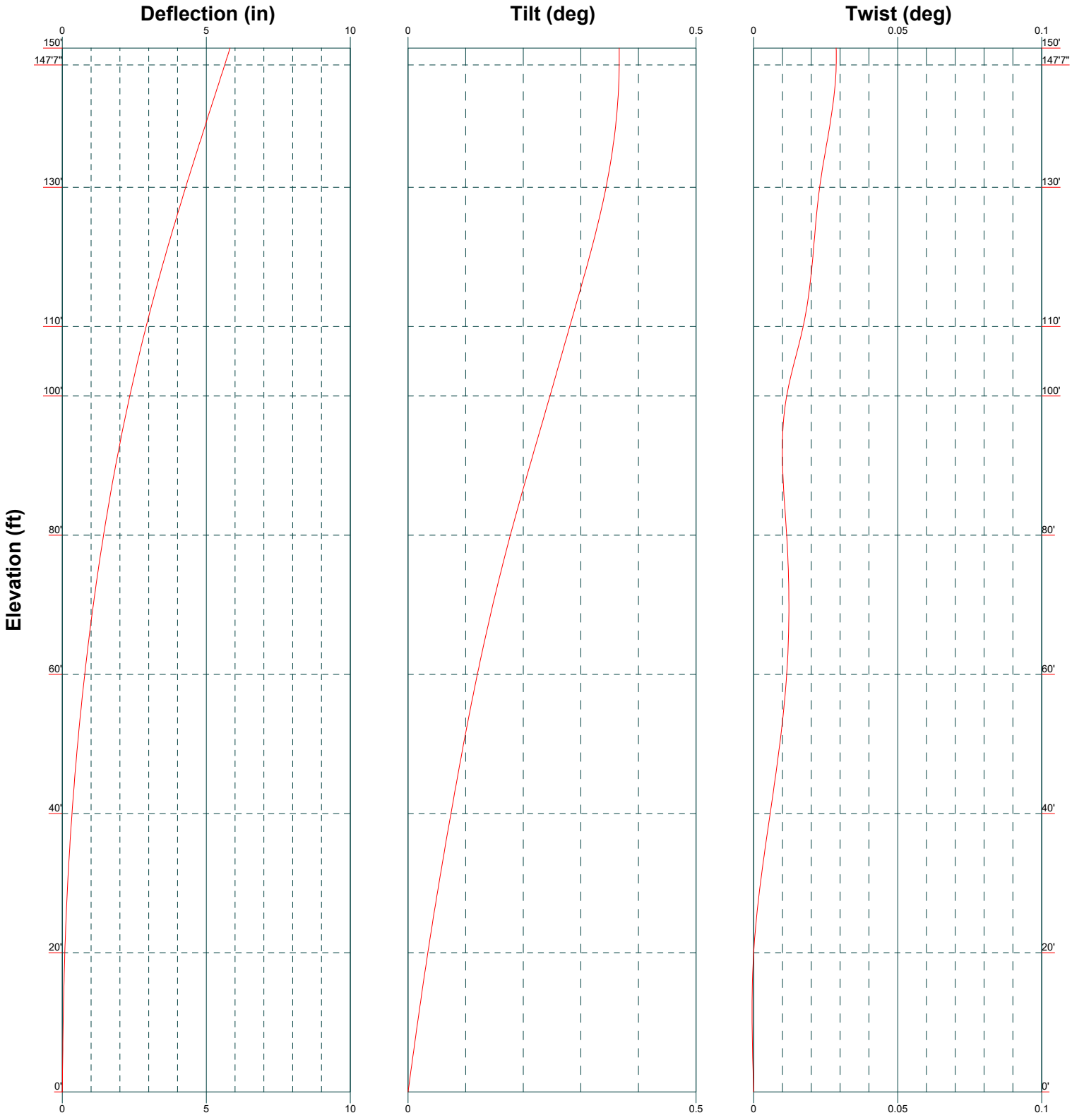
Job: 91292.018.01 - MILFORD, CT (BU# 842870			
Project:			
Client: Crown Castle	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 06/23/20	Scale: NTS	
Path: E:\Jobs\June 2020\23-6-2020\91292_842870_Milford-----Shashank-------PlmxTower\91292_018_01_MILFORD_CT.eri		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



B+T GRP

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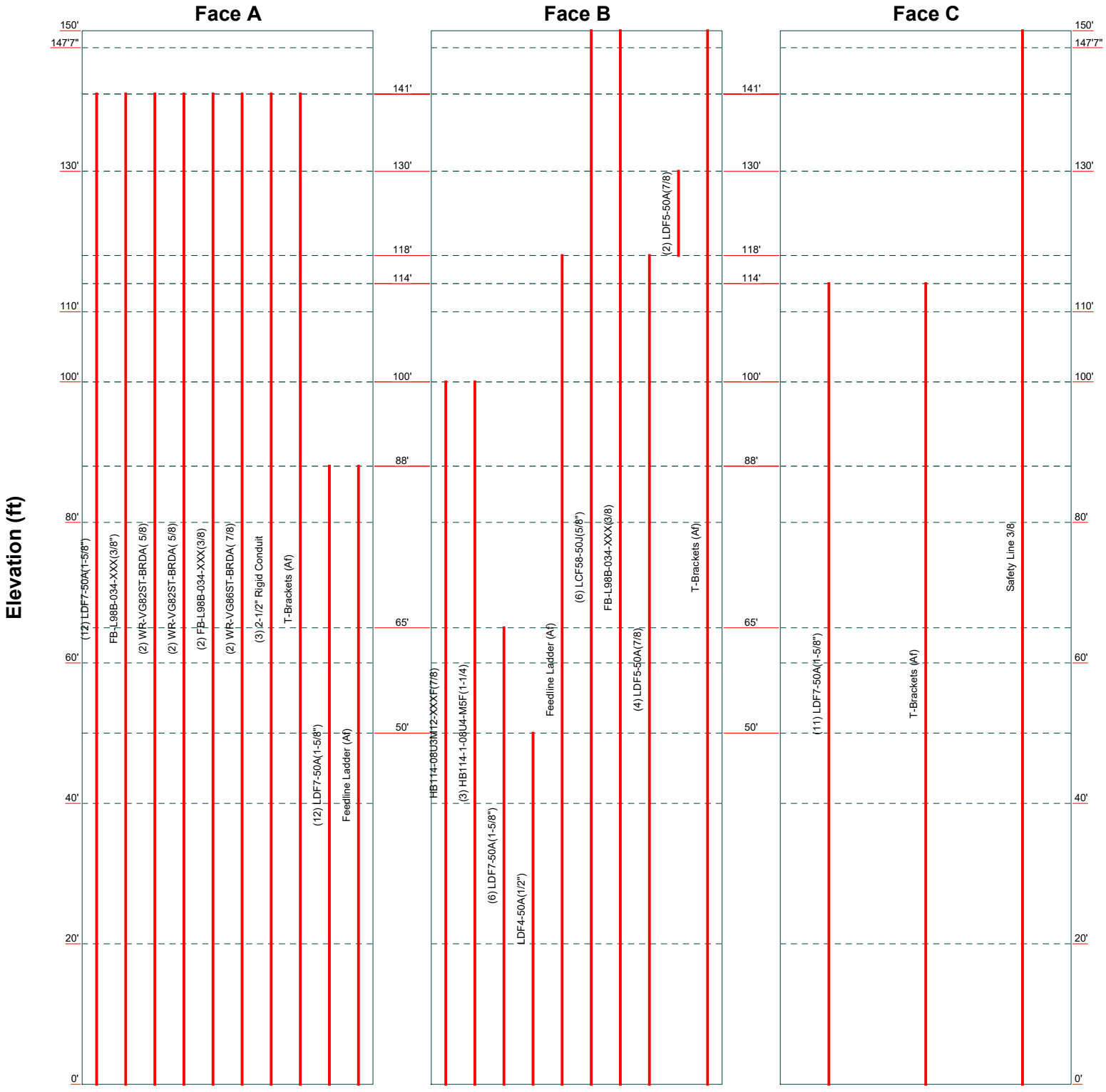
Job: *91292.018.01 - MILFORD, CT (BU# 842870*			
Project:			
Client: Crown Castle	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 06/23/20	Scale: NTS	
Path: E:\Jobs\June 2020\23-6-2020\91292_842870_Milford-----Shashank-------PlinxTower\91292_018_01_MILFORD_CT.eri		Dwg No. E-5	

Feed Line Distribution Chart
0' - 150'

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



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Job: 91292.018.01 - MILFORD, CT (BU# 842870			
Project:			
Client: Crown Castle	Drawn by: Shashank.S.Rao	App'd:	
Code: TIA-222-H	Date: 06/23/20	Scale: NTS	
Path: E:\Jobs\June 2020\23-6-2020\91292_842870_Milford-----Shashank-------P\tnxTower\91292_018_01_MILFORD_CT.eri		Dwg No. E-7	

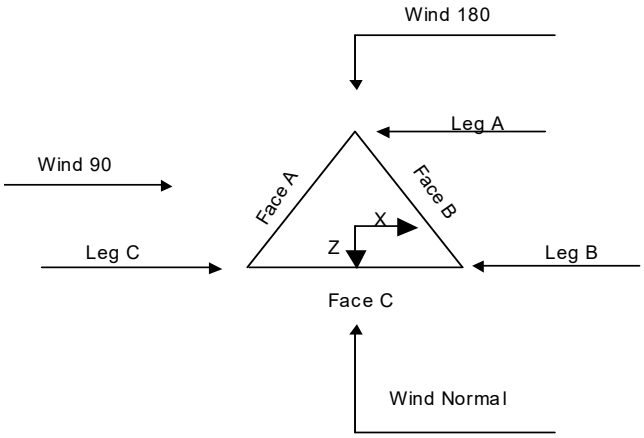
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 150' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 4' at the top and 16' at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 68'.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0'.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
Pressures are calculated at each section.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Stress ratio used in tower member design is 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	150'-147'7"			4'	1	2'5"
T2	147'7"-130'			4'3/4"	1	17'7"
T3	130'-110'			4'6"	1	20'
T4	110'-100'			5'	1	10'
T5	100'-80'			6'	1	20'
T6	80'-60'			8'	1	20'
T7	60'-40'			10'	1	20'
T8	40'-20'			12'	1	20'
T9	20'-0'			14'	1	20'

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	150'-147'7"	2'5"	K Brace Down	No	Yes	0.000	0.000
T2	147'7"-130'	2'5"	X Brace	No	Steps	4.000	4.000
T3	130'-110'	2'4-3/8"	X Brace	No	Steps	6.000	7.000
T4	110'-100'	10'	X Brace	No	No	0.000	0.000
T5	100'-80'	10'	X Brace	No	No	0.000	0.000
T6	80'-60'	10'	X Brace	No	No	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	60'-40'	10'	X Brace	No	No	0.000	0.000
T8	40'-20'	10'	X Brace	No	No	0.000	0.000
T9	20'-0'	10'	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 150'-147'7"	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 147'7"-130'	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 130'-110'	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T4 110'-100'	Truss Leg	Pirod 105244	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 100'-80'	Truss Leg	Pirod 105216	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T6 80'-60'	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 60'-40'	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T8 40'-20'	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T9 20'-0'	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T2 147'7"-130'	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 130'-110'	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T4 110'-100'	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T5 100'-80'	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T6 80'-60'	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 150'-147'7"	None	Solid Round		A36 (36 ksi)	Flat Bar	5x1/2	A36 (36 ksi)
T2 147'7"-130'	None	Solid Round		A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 130'-110'	None	Solid Round		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T5 100'-80'	1	Equal Angle	L3x3x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 150'-147'7"	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T2 147'7"-130'	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T3 130'-110'	0.000	0.000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T4 110'-100'	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 100'-80'	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 80'-60'	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 60'-40'	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 40'-20'	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 20'-0'	0.000	0.000	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 150'-147'7"	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 147'7"-130'	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 130'-110'	No	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 110'-100'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T5 100'-80'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1
T6 80'-60'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1
T7 60'-40'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1
T8 40'-20'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1
T9 20'-0'	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 110'-100'	1	0.5	0.85	1	0.5	0.85
T5 100'-80'	1	0.5	0.85	1	0.5	0.85
T6 80'-60'	1	0.5	0.85	1	0.5	0.85
T7 60'-40'	1	0.5	0.85	1	0.5	0.85
T8 40'-20'	1	0.5	0.85	1	0.5	0.85
T9 20'-0'	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 150'-147'7"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75
T2 147'7"-130'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75
T3 130'-110'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75
T4 110'-100'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 100'-80'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80'-60'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 60'-40'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 40'-20'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 20'-0'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 150'-147'7"	Sleeve DS	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 147'7"-130'	Sleeve DS	0.625 A325N	5	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 130'-110'	Flange	1.000 A325N	6	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 110'-100'	Flange	1.000 A325N	6	1.000 A325N	1	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T5 100'-80'	Flange	1.000 A325N	6	1.000 A325N	1	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T6 80'-60'	Flange	1.000 A325N	6	1.000 A325N	1	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T7 60'-40'	Flange	1.000 A325N	6	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T8 40'-20'	Flange	1.000 A325N	6	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0
T9 20'-0'	Flange	1.250 A687	0	1.250 A325N	1	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF7-50A(1-5/8")	A	No	No	Ar (CaAa)	141' - 0'	-15.000	0.4	12	4	1.000 2.000	1.980		0.001
FB-L98B-034-XXX(3/8")	A	No	No	Ar (CaAa)	141' - 0'	-4.000	0.38	1	1	0.300	0.394		0.000
WR-VG82ST-BRDA(5/8)	A	No	No	Ar (CaAa)	141' - 0'	-4.000	0.37	2	2	0.300	0.645		0.000
WR-VG82ST-BRDA(5/8)	A	No	No	Ar (CaAa)	141' - 0'	-4.000	0.37	2	2	0.300	0.645		0.000
FB-L98B-034-XXX(3/8)	A	No	No	Ar (CaAa)	141' - 0'	-15.000	0.35	2	2	0.300	0.394		0.000
WR-VG86ST-BRDA(7/8)	A	No	No	Ar (CaAa)	141' - 0'	-15.000	0.36	2	2	0.300	0.880		0.001
2-1/2" Rigid Conduit	A	No	No	Ar (CaAa)	141' - 0'	-4.000	0.38	3	3	2.500	2.500		0.003
T-Brackets (Af) *	A	No	No	Af (CaAa)	141' - 0'	-8.000	0.42	1	1	1.000	1.000		0.008
LDF7-50A(1-5/8")	A	No	No	Ar (CaAa)	88' - 0'	0.000	-0.1	12	12	1.000	1.980		0.001
Feedline Ladder (Af) *	A	No	No	Af (CaAa)	88' - 0'	0.000	-0.1	1	1	3.000	3.000		0.008
HB114-08U3M12-XXXF(7/8)	B	No	No	Ar (CaAa)	100' - 0'	-2.000	-0.18	1	1	1.000	1.110		0.001
HB114-1-08U	B	No	No	Ar (CaAa)	100' - 0'	-2.000	-0.22	3	3	1.000	1.540		0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
4-M5F(1-1/4)										0.750			
*													
LDF7-50A(1-5/8")	B	No	No	Ar (CaAa)	65' - 0'	-2.000	-0.3	6	6	1.000	1.980		0.001
*													
LDF4-50A(1/2")	B	No	No	Ar (CaAa)	50' - 0'	-1.000	-0.19	1	1	1.000	0.630		0.000
Feedline Ladder (Af)	B	No	No	Af (CaAa)	118' - 0'	-1.000	-0.26	1	1	3.000	3.000		0.008
*													
LCF58-50J(5/8")	B	No	No	Ar (CaAa)	150' - 0'	-4.000	0.46	6	4	1.000 2.000	0.840		0.000
FB-L98B-034-XXX(3/8)	B	No	No	Ar (CaAa)	150' - 0'	-5.000	0.39	1	1	0.500	0.394		0.000
*													
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	118' - 0'	-4.000	0.42	4	4	1.000	1.090		0.000
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	130' - 118'	-4.000	0.42	2	2	1.000	1.090		0.000
T-Brackets (Af)	B	No	No	Af (CaAa)	150' - 0'	-3.000	0.47	1	1	1.000	1.000		0.008
*													
LDF7-50A(1-5/8")	C	No	No	Ar (CaAa)	114' - 0'	-7.000	0.42	11	6	1.000 2.000	1.980		0.001
T-Brackets (Af)	C	No	No	Af (CaAa)	114' - 0'	-4.000	0.44	1	1	1.000	1.000		0.008
*													
Safety Line 3/8	C	No	No	Ar (CaAa)	150' - 0'	0.000	0.5	1	1	0.375	0.375		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 klf
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	150'-147'7"	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.716	0.000	0.024
		C	0.000	0.000	0.091	0.000	0.001
T2	147'7"-130'	A	0.000	0.000	42.293	0.000	0.330
		B	0.000	0.000	12.485	0.000	0.175
		C	0.000	0.000	0.659	0.000	0.004

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
T3	130'-110'	A	0.000	0.000	76.896	0.000	0.600
		B	0.000	0.000	24.305	0.000	0.285
		C	0.000	0.000	10.129	0.000	0.074
T4	110'-100'	A	0.000	0.000	38.448	0.000	0.300
		B	0.000	0.000	16.460	0.000	0.197
		C	0.000	0.000	23.822	0.000	0.176
T5	100'-80'	A	0.000	0.000	99.904	0.000	0.746
		B	0.000	0.000	44.381	0.000	0.472
		C	0.000	0.000	47.643	0.000	0.353
T6	80'-60'	A	0.000	0.000	134.416	0.000	0.965
		B	0.000	0.000	50.321	0.000	0.497
		C	0.000	0.000	47.643	0.000	0.353
T7	60'-40'	A	0.000	0.000	134.416	0.000	0.965
		B	0.000	0.000	68.771	0.000	0.572
		C	0.000	0.000	47.643	0.000	0.353
T8	40'-20'	A	0.000	0.000	134.416	0.000	0.965
		B	0.000	0.000	69.401	0.000	0.573
		C	0.000	0.000	47.643	0.000	0.353
T9	20'-0'	A	0.000	0.000	134.416	0.000	0.965
		B	0.000	0.000	69.401	0.000	0.573
		C	0.000	0.000	47.643	0.000	0.353

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	150'-147'7"	A	1.482	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	5.389	0.000	0.090
		C		0.000	0.000	0.807	0.000	0.009
T2	147'7"-130'	A	1.472	0.000	0.000	89.040	0.000	1.500
		B		0.000	0.000	39.078	0.000	0.651
		C		0.000	0.000	5.836	0.000	0.062
T3	130'-110'	A	1.451	0.000	0.000	160.838	0.000	2.700
		B		0.000	0.000	72.373	0.000	1.090
		C		0.000	0.000	19.218	0.000	0.377
T4	110'-100'	A	1.431	0.000	0.000	79.942	0.000	1.338
		B		0.000	0.000	43.485	0.000	0.686
		C		0.000	0.000	34.798	0.000	0.797
T5	100'-80'	A	1.410	0.000	0.000	202.940	0.000	3.301
		B		0.000	0.000	120.264	0.000	1.764
		C		0.000	0.000	69.277	0.000	1.582
T6	80'-60'	A	1.375	0.000	0.000	267.082	0.000	4.208
		B		0.000	0.000	131.622	0.000	1.887
		C		0.000	0.000	68.766	0.000	1.561
T7	60'-40'	A	1.329	0.000	0.000	264.396	0.000	4.116
		B		0.000	0.000	170.855	0.000	2.337
		C		0.000	0.000	68.102	0.000	1.534
T8	40'-20'	A	1.263	0.000	0.000	260.488	0.000	3.983
		B		0.000	0.000	171.098	0.000	2.275
		C		0.000	0.000	67.137	0.000	1.496
T9	20'-0'	A	1.132	0.000	0.000	242.539	0.000	3.634
		B		0.000	0.000	165.065	0.000	2.092
		C		0.000	0.000	65.221	0.000	1.422

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	150'-147'7"	2.919	2.470	2.311	2.770
T2	147'7"-130'	5.728	-4.885	3.862	-1.712
T3	130'-110'	3.860	-6.485	3.669	-3.115
T4	110'-100'	-2.156	-3.993	-0.259	-1.390
T5	100'-80'	-3.873	-6.299	-1.113	-3.754
T6	80'-60'	-6.578	-8.425	-3.225	-6.286
T7	60'-40'	-7.293	-12.589	-3.711	-10.650
T8	40'-20'	-8.360	-14.603	-4.247	-12.627
T9	20'-0'	-9.287	-16.238	-5.011	-14.113

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	21	LCF58-50J(5/8")	147.58 - 150.00	0.6000	0.4113
T1	22	FB-L98B-034-XXX(3/8)	147.58 - 150.00	0.6000	0.4113
T1	26	T-Brackets (Af)	147.58 - 150.00	0.6000	0.4113
T1	32	Safety Line 3/8	147.58 - 150.00	0.6000	0.4113
T2	1	LDF7-50A(1-5/8")	130.00 - 141.00	0.6000	0.5569
T2	2	FB-L98B-034-XXX(3/8")	130.00 - 141.00	0.0000	0.0000
T2	3	WR-VG82ST-BRDA(5/8)	130.00 - 141.00	0.0000	0.0000
T2	4	WR-VG82ST-BRDA(5/8)	130.00 - 141.00	0.0000	0.0000
T2	5	FB-L98B-034-XXX(3/8)	130.00 - 141.00	0.0000	0.0000
T2	6	WR-VG86ST-BRDA(7/8)	130.00 - 141.00	0.0000	0.0000
T2	7	2-1/2" Rigid Conduit	130.00 - 141.00	0.6000	0.5569
T2	8	T-Brackets (Af)	130.00 - 141.00	0.6000	0.5569
T2	21	LCF58-50J(5/8")	130.00 - 147.58	0.6000	0.5569
T2	22	FB-L98B-034-XXX(3/8)	130.00 - 147.58	0.6000	0.5569
T2	26	T-Brackets (Af)	130.00 - 147.58	0.6000	0.5569
T2	32	Safety Line 3/8	130.00 - 147.58	0.6000	0.5569
T3	1	LDF7-50A(1-5/8")	110.00 - 130.00	0.6000	0.5638
T3	2	FB-L98B-034-XXX(3/8")	110.00 - 130.00	0.0000	0.0000
T3	3	WR-VG82ST-BRDA(5/8)	110.00 - 130.00	0.0000	0.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	4	WR-VG82ST-BRDA(5/8)	110.00 - 130.00	0.0000	0.0000
T3	5	FB-L98B-034-XXX(3/8)	110.00 - 130.00	0.0000	0.0000
T3	6	WR-VG86ST-BRDA(7/8)	110.00 - 130.00	0.0000	0.0000
T3	7	2-1/2" Rigid Conduit	110.00 - 130.00	0.6000	0.5638
T3	8	T-Brackets (Af)	110.00 - 130.00	0.6000	0.5638
T3	19	Feedline Ladder (Af)	110.00 - 118.00	0.6000	0.5638
T3	21	LCF58-50J(5/8")	110.00 - 130.00	0.6000	0.5638
T3	22	FB-L98B-034-XXX(3/8)	110.00 - 130.00	0.6000	0.5638
T3	24	LDF5-50A(7/8)	110.00 - 118.00	0.6000	0.5638
T3	25	LDF5-50A(7/8)	118.00 - 130.00	0.6000	0.5638
T3	26	T-Brackets (Af)	110.00 - 130.00	0.6000	0.5638
T3	29	LDF7-50A(1-5/8")	110.00 - 114.00	0.6000	0.5638
T3	30	T-Brackets (Af)	110.00 - 114.00	0.6000	0.5638
T3	32	Safety Line 3/8	110.00 - 130.00	0.6000	0.5638
T4	1	LDF7-50A(1-5/8")	100.00 - 110.00	0.6000	0.3163
T4	2	FB-L98B-034-XXX(3/8")	100.00 - 110.00	0.0000	0.0000
T4	3	WR-VG82ST-BRDA(5/8)	100.00 - 110.00	0.0000	0.0000
T4	4	WR-VG82ST-BRDA(5/8)	100.00 - 110.00	0.0000	0.0000
T4	5	FB-L98B-034-XXX(3/8)	100.00 - 110.00	0.0000	0.0000
T4	6	WR-VG86ST-BRDA(7/8)	100.00 - 110.00	0.0000	0.0000
T4	7	2-1/2" Rigid Conduit	100.00 - 110.00	0.6000	0.3163
T4	8	T-Brackets (Af)	100.00 - 110.00	0.6000	0.3163
T4	19	Feedline Ladder (Af)	100.00 - 110.00	0.6000	0.3163
T4	21	LCF58-50J(5/8")	100.00 - 110.00	0.6000	0.3163
T4	22	FB-L98B-034-XXX(3/8)	100.00 - 110.00	0.6000	0.3163
T4	24	LDF5-50A(7/8)	100.00 - 110.00	0.6000	0.3163
T4	26	T-Brackets (Af)	100.00 - 110.00	0.6000	0.3163
T4	29	LDF7-50A(1-5/8")	100.00 - 110.00	0.6000	0.3163
T4	30	T-Brackets (Af)	100.00 - 110.00	0.6000	0.3163
T4	32	Safety Line 3/8	100.00 - 110.00	0.6000	0.3163
T5	1	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.4220
T5	2	FB-L98B-034-XXX(3/8")	80.00 - 100.00	0.0000	0.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	3	WR-VG82ST-BRDA(5/8)	80.00 - 100.00	0.0000	0.0000
T5	4	WR-VG82ST-BRDA(5/8)	80.00 - 100.00	0.0000	0.0000
T5	5	FB-L98B-034-XXX(3/8)	80.00 - 100.00	0.0000	0.0000
T5	6	WR-VG86ST-BRDA(7/8)	80.00 - 100.00	0.0000	0.0000
T5	7	2-1/2" Rigid Conduit	80.00 - 100.00	0.6000	0.4220
T5	8	T-Brackets (Af)	80.00 - 100.00	0.6000	0.4220
T5	10	LDF7-50A(1-5/8")	80.00 - 88.00	0.6000	0.4220
T5	11	Feedline Ladder (Af)	80.00 - 88.00	0.6000	0.4220
T5	13	HB114-08U3M12-XXXF(7/8)	80.00 - 100.00	0.6000	0.4220
T5	14	HB114-1-08U4-M5F(1-1/4)	80.00 - 100.00	0.6000	0.4220
T5	19	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.4220
T5	21	LCF58-50J(5/8")	80.00 - 100.00	0.6000	0.4220
T5	22	FB-L98B-034-XXX(3/8)	80.00 - 100.00	0.6000	0.4220
T5	24	LDF5-50A(7/8)	80.00 - 100.00	0.6000	0.4220
T5	26	T-Brackets (Af)	80.00 - 100.00	0.6000	0.4220
T5	29	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.4220
T5	30	T-Brackets (Af)	80.00 - 100.00	0.6000	0.4220
T5	32	Safety Line 3/8	80.00 - 100.00	0.6000	0.4220
T6	1	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5201
T6	2	FB-L98B-034-XXX(3/8")	60.00 - 80.00	0.0000	0.0000
T6	3	WR-VG82ST-BRDA(5/8)	60.00 - 80.00	0.0000	0.0000
T6	4	WR-VG82ST-BRDA(5/8)	60.00 - 80.00	0.0000	0.0000
T6	5	FB-L98B-034-XXX(3/8)	60.00 - 80.00	0.0000	0.0000
T6	6	WR-VG86ST-BRDA(7/8)	60.00 - 80.00	0.0000	0.0000
T6	7	2-1/2" Rigid Conduit	60.00 - 80.00	0.6000	0.5201
T6	8	T-Brackets (Af)	60.00 - 80.00	0.6000	0.5201
T6	10	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5201
T6	11	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.5201
T6	13	HB114-08U3M12-XXXF(7/8)	60.00 - 80.00	0.6000	0.5201
T6	14	HB114-1-08U4-M5F(1-1/4)	60.00 - 80.00	0.6000	0.5201
T6	16	LDF7-50A(1-5/8")	60.00 - 65.00	0.6000	0.5201
T6	19	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.5201
T6	21	LCF58-50J(5/8")	60.00 - 80.00	0.6000	0.5201
T6	22	FB-L98B-034-XXX(3/8)	60.00 - 80.00	0.6000	0.5201
T6	24	LDF5-50A(7/8)	60.00 - 80.00	0.6000	0.5201
T6	26	T-Brackets (Af)	60.00 - 80.00	0.6000	0.5201
T6	29	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5201
T6	30	T-Brackets (Af)	60.00 - 80.00	0.6000	0.5201
T6	32	Safety Line 3/8	60.00 - 80.00	0.6000	0.5201
T7	1	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.5999
T7	2	FB-L98B-034-XXX(3/8")	40.00 - 60.00	0.0000	0.0000
T7	3	WR-VG82ST-BRDA(5/8)	40.00 - 60.00	0.0000	0.0000
T7	4	WR-VG82ST-BRDA(5/8)	40.00 - 60.00	0.0000	0.0000
T7	5	FB-L98B-034-XXX(3/8)	40.00 - 60.00	0.0000	0.0000
T7	6	WR-VG86ST-BRDA(7/8)	40.00 - 60.00	0.0000	0.0000
T7	7	2-1/2" Rigid Conduit	40.00 - 60.00	0.6000	0.5999
T7	8	T-Brackets (Af)	40.00 - 60.00	0.6000	0.5999
T7	10	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.5999
T7	11	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.5999
T7	13	HB114-08U3M12-XXXF(7/8)	40.00 - 60.00	0.6000	0.5999
T7	14	HB114-1-08U4-M5F(1-1/4)	40.00 - 60.00	0.6000	0.5999
T7	16	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.5999
T7	18	LDF4-50A(1/2")	40.00 - 50.00	0.6000	0.5999
T7	19	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.5999
T7	21	LCF58-50J(5/8")	40.00 - 60.00	0.6000	0.5999
T7	22	FB-L98B-034-XXX(3/8)	40.00 - 60.00	0.6000	0.5999
T7	24	LDF5-50A(7/8)	40.00 - 60.00	0.6000	0.5999
T7	26	T-Brackets (Af)	40.00 - 60.00	0.6000	0.5999
T7	29	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.5999

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	30	T-Brackets (Af)	40.00 - 60.00	0.6000	0.5999
T7	32	Safety Line 3/8	40.00 - 60.00	0.6000	0.5999
T8	1	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	2	FB-L98B-034-XXX(3/8")	20.00 - 40.00	0.0000	0.0000
T8	3	WR-VG82ST-BRDA(5/8)	20.00 - 40.00	0.0000	0.0000
T8	4	WR-VG82ST-BRDA(5/8)	20.00 - 40.00	0.0000	0.0000
T8	5	FB-L98B-034-XXX(3/8)	20.00 - 40.00	0.0000	0.0000
T8	6	WR-VG86ST-BRDA(7/8)	20.00 - 40.00	0.0000	0.0000
T8	7	2-1/2" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T8	8	T-Brackets (Af)	20.00 - 40.00	0.6000	0.6000
T8	10	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	11	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	13	HB114-08U3M12-XXXF(7/8)	20.00 - 40.00	0.6000	0.6000
T8	14	HB114-1-08U4-M5F(1-1/4)	20.00 - 40.00	0.6000	0.6000
T8	16	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	18	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T8	19	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	21	LCF58-50J(5/8")	20.00 - 40.00	0.6000	0.6000
T8	22	FB-L98B-034-XXX(3/8)	20.00 - 40.00	0.6000	0.6000
T8	24	LDF5-50A(7/8)	20.00 - 40.00	0.6000	0.6000
T8	26	T-Brackets (Af)	20.00 - 40.00	0.6000	0.6000
T8	29	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	30	T-Brackets (Af)	20.00 - 40.00	0.6000	0.6000
T8	32	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T9	1	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	2	FB-L98B-034-XXX(3/8")	0.00 - 20.00	0.0000	0.0000
T9	3	WR-VG82ST-BRDA(5/8)	0.00 - 20.00	0.0000	0.0000
T9	4	WR-VG82ST-BRDA(5/8)	0.00 - 20.00	0.0000	0.0000
T9	5	FB-L98B-034-XXX(3/8)	0.00 - 20.00	0.0000	0.0000
T9	6	WR-VG86ST-BRDA(7/8)	0.00 - 20.00	0.0000	0.0000
T9	7	2-1/2" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T9	8	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T9	10	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	11	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	13	HB114-08U3M12-XXXF(7/8)	0.00 - 20.00	0.6000	0.6000
T9	14	HB114-1-08U4-M5F(1-1/4)	0.00 - 20.00	0.6000	0.6000
T9	16	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	18	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000
T9	19	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	21	LCF58-50J(5/8")	0.00 - 20.00	0.6000	0.6000
T9	22	FB-L98B-034-XXX(3/8)	0.00 - 20.00	0.6000	0.6000
T9	24	LDF5-50A(7/8)	0.00 - 20.00	0.6000	0.6000
T9	26	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T9	29	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	30	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T9	32	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SC226-SFXSNM	A	From Leg	4.000 0' 10'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	6.216 8.407 10.614 15.079	6.216 8.407 10.614 15.079	0.041 0.086 0.145 0.303
SC226-SFXSNM	C	From Leg	4.000 0' 10'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	6.216 8.407 10.614 15.079	6.216 8.407 10.614 15.079	0.041 0.086 0.145 0.303
1' x 6" x 3"	C	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	0.600 0.704 0.815 1.059	0.317 0.401 0.492 0.695	0.033 0.038 0.044 0.062
(3) 6' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
(3) 6' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
(3) 6' x 2" Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Leg	0.000 0' 3'	0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Platform Mount [LP 405-1]	C	None		0.000	150'	No Ice 1/2" Ice 1" Ice 2" Ice	20.880 28.890 37.040 53.730	20.880 28.890 37.040 53.730	1.800 2.277 2.868 4.394
*									
7770.00	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	5.508 5.867 6.233 6.986	2.928 3.273 3.625 4.352	0.035 0.068 0.105 0.195
7770.00	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	5.508 5.867 6.233 6.986	2.928 3.273 3.625 4.352	0.035 0.068 0.105 0.195
7770.00	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	5.508 5.867 6.233 6.986	2.928 3.273 3.625 4.352	0.035 0.068 0.105 0.195
LGP21401	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	1.104 1.239 1.381 1.688	0.207 0.274 0.348 0.521	0.014 0.021 0.030 0.055
LGP21401	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	1.104 1.239 1.381 1.688	0.207 0.274 0.348 0.521	0.014 0.021 0.030 0.055
LGP21401	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	1.104 1.239 1.381 1.688	0.207 0.274 0.348 0.521	0.014 0.021 0.030 0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
7020.00	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
7020.00	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
7020.00	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
RRUS 11 B2	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B2	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B2	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
DC6-48-60-18-8F	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	1.212 1.892 2.105 2.570	1.212 1.892 2.105 2.570	0.033 0.055 0.080 0.138
80010964	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	8.580 9.160 9.750 10.990	2.960 3.440 3.940 4.980	0.095 0.154 0.218 0.365
80010964	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	8.580 9.160 9.750 10.990	2.960 3.440 3.940 4.980	0.095 0.154 0.218 0.365
80010964	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	8.580 9.160 9.750 10.990	2.960 3.440 3.940 4.980	0.095 0.154 0.218 0.365
SBNHH-1D65A	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	3.080 3.400 3.730 4.410	1.850 2.140 2.450 3.090	0.034 0.073 0.117 0.222
SBNHH-1D65A	B	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	3.080 3.400 3.730 4.410	1.850 2.140 2.450 3.090	0.034 0.073 0.117 0.222
SBNHH-1D65A	C	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	3.080 3.400 3.730 4.410	1.850 2.140 2.450 3.090	0.034 0.073 0.117 0.222
OPA-65R-LCUU-H4	A	From Leg	4.000 0' 0'	0.000	141'	No Ice 1/2" Ice 1" Ice 2" Ice	6.000 6.550 7.110 8.290	3.030 3.510 4.010 5.070	0.064 0.103 0.148 0.251
OPA-65R-LCUU-H4	B	From Leg	4.000	0.000	141'	No Ice	6.000	3.030	0.064

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	6.550	3.510	0.103
			0'			1" Ice	7.110	4.010	0.148
						2" Ice	8.290	5.070	0.251
OPA-65R-LCUU-H4	C	From Leg	4.000	0.000	141'	No Ice	6.000	3.030	0.064
			0'			1/2" Ice	6.550	3.510	0.103
			0'			1" Ice	7.110	4.010	0.148
						2" Ice	8.290	5.070	0.251
(3) DBCT108F1V92-1	A	From Leg	4.000	0.000	141'	No Ice	0.637	0.604	0.029
			0'			1/2" Ice	0.740	0.705	0.036
			0'			1" Ice	0.850	0.813	0.045
						2" Ice	1.093	1.052	0.069
(2) DBCT108F1V92-1	B	From Leg	4.000	0.000	141'	No Ice	0.637	0.604	0.029
			0'			1/2" Ice	0.740	0.705	0.036
			0'			1" Ice	0.850	0.813	0.045
						2" Ice	1.093	1.052	0.069
DBCT108F1V92-1	C	From Leg	4.000	0.000	141'	No Ice	0.637	0.604	0.029
			0'			1/2" Ice	0.740	0.705	0.036
			0'			1" Ice	0.850	0.813	0.045
						2" Ice	1.093	1.052	0.069
LGP21401	A	From Leg	4.000	0.000	141'	No Ice	1.104	0.207	0.014
			0'			1/2" Ice	1.239	0.274	0.021
			0'			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
LGP21401	B	From Leg	4.000	0.000	141'	No Ice	1.104	0.207	0.014
			0'			1/2" Ice	1.239	0.274	0.021
			0'			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
LGP21401	C	From Leg	4.000	0.000	141'	No Ice	1.104	0.207	0.014
			0'			1/2" Ice	1.239	0.274	0.021
			0'			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
RRUS 4478 B5	A	From Leg	4.000	0.000	141'	No Ice	1.843	1.059	0.060
			0'			1/2" Ice	2.012	1.197	0.076
			0'			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478 B5	B	From Leg	4.000	0.000	141'	No Ice	1.843	1.059	0.060
			0'			1/2" Ice	2.012	1.197	0.076
			0'			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478 B5	C	From Leg	4.000	0.000	141'	No Ice	1.843	1.059	0.060
			0'			1/2" Ice	2.012	1.197	0.076
			0'			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 32 B2	A	From Leg	4.000	0.000	141'	No Ice	2.731	1.668	0.053
			0'			1/2" Ice	2.953	1.855	0.074
			0'			1" Ice	3.182	2.049	0.098
						2" Ice	3.663	2.458	0.157
RRUS 32 B2	B	From Leg	4.000	0.000	141'	No Ice	2.731	1.668	0.053
			0'			1/2" Ice	2.953	1.855	0.074
			0'			1" Ice	3.182	2.049	0.098
						2" Ice	3.663	2.458	0.157
RRUS 32 B2	C	From Leg	4.000	0.000	141'	No Ice	2.731	1.668	0.053
			0'			1/2" Ice	2.953	1.855	0.074
			0'			1" Ice	3.182	2.049	0.098
						2" Ice	3.663	2.458	0.157
RRUS 4478 B14	A	From Leg	4.000	0.000	141'	No Ice	1.843	1.059	0.060
			0'			1/2" Ice	2.012	1.197	0.076

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478 B14	B	From Leg	4.000	0.000	141'	No Ice	1.843	1.059	0.060
			0'			1/2" Ice	2.012	1.197	0.076
			0'			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478 B14	C	From Leg	4.000	0.000	141'	No Ice	1.843	1.059	0.060
			0'			1/2" Ice	2.012	1.197	0.076
			0'			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 32 B30	A	From Leg	4.000	0.000	141'	No Ice	2.692	1.573	0.060
			0'			1/2" Ice	2.912	1.756	0.080
			0'			1" Ice	3.138	1.945	0.104
						2" Ice	3.614	2.346	0.161
RRUS 32 B30	B	From Leg	4.000	0.000	141'	No Ice	2.692	1.573	0.060
			0'			1/2" Ice	2.912	1.756	0.080
			0'			1" Ice	3.138	1.945	0.104
						2" Ice	3.614	2.346	0.161
RRUS 32 B30	C	From Leg	4.000	0.000	141'	No Ice	2.692	1.573	0.060
			0'			1/2" Ice	2.912	1.756	0.080
			0'			1" Ice	3.138	1.945	0.104
						2" Ice	3.614	2.346	0.161
RRUS 4426 B66	A	From Leg	4.000	0.000	141'	No Ice	1.644	0.725	0.048
			0'			1/2" Ice	1.804	0.842	0.061
			0'			1" Ice	1.972	0.969	0.076
						2" Ice	2.329	1.244	0.115
RRUS 4426 B66	B	From Leg	4.000	0.000	141'	No Ice	1.644	0.725	0.048
			0'			1/2" Ice	1.804	0.842	0.061
			0'			1" Ice	1.972	0.969	0.076
						2" Ice	2.329	1.244	0.115
RRUS 4426 B66	C	From Leg	4.000	0.000	141'	No Ice	1.644	0.725	0.048
			0'			1/2" Ice	1.804	0.842	0.061
			0'			1" Ice	1.972	0.969	0.076
						2" Ice	2.329	1.244	0.115
WCS-IMFQ-AMT	C	From Leg	4.000	0.000	141'	No Ice	0.989	0.644	0.030
			0'			1/2" Ice	1.114	0.748	0.039
			0'			1" Ice	1.246	0.860	0.051
						2" Ice	1.533	1.105	0.081
DC6-48-60-18-8F	A	From Leg	4.000	0.000	141'	No Ice	1.212	1.212	0.033
			0'			1/2" Ice	1.892	1.892	0.055
			0'			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
DC6-48-60-18-8F	C	From Leg	4.000	0.000	141'	No Ice	1.212	1.212	0.033
			0'			1/2" Ice	1.892	1.892	0.055
			0'			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
(5) 10' x 2.875" Mount Pipe	A	From Leg	4.000	0.000	141'	No Ice	2.875	2.875	0.058
			0'			1/2" Ice	3.907	3.907	0.079
			0'			1" Ice	4.956	4.956	0.107
						2" Ice	6.188	6.188	0.182
(5) 10' x 2.875" Mount Pipe	B	From Leg	4.000	0.000	141'	No Ice	2.875	2.875	0.058
			0'			1/2" Ice	3.907	3.907	0.079
			0'			1" Ice	4.956	4.956	0.107
						2" Ice	6.188	6.188	0.182
(5) 10' x 2.875" Mount Pipe	C	From Leg	4.000	0.000	141'	No Ice	2.875	2.875	0.058
			0'			1/2" Ice	3.907	3.907	0.079
			0'			1" Ice	4.956	4.956	0.107

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	6.188	6.188	0.182
(2) 7'x2" Mount Pipe	A	From Leg	2.000 0'	0.000	141'	No Ice	1.663	1.663	0.026
			0'			1/2" Ice	2.391	2.391	0.039
						1" Ice	2.825	2.825	0.056
						2" Ice	3.706	3.706	0.105
(2) 7'x2" Mount Pipe	B	From Leg	2.000 0'	0.000	141'	No Ice	1.663	1.663	0.026
			0'			1/2" Ice	2.391	2.391	0.039
						1" Ice	2.825	2.825	0.056
						2" Ice	3.706	3.706	0.105
(2) 7'x2" Mount Pipe	C	From Leg	2.000 0'	0.000	141'	No Ice	1.663	1.663	0.026
			0'			1/2" Ice	2.391	2.391	0.039
						1" Ice	2.825	2.825	0.056
						2" Ice	3.706	3.706	0.105
10.5' x 2.375" horizontal mount pipe	A	From Leg	4.000 0'	0.000	141'	No Ice	2.494	2.494	0.035
			0'			1/2" Ice	3.572	3.572	0.054
						1" Ice	4.667	4.667	0.079
						2" Ice	6.317	6.317	0.151
10.5' x 2.375" horizontal mount pipe	B	From Leg	4.000 0'	0.000	141'	No Ice	2.494	2.494	0.035
			0'			1/2" Ice	3.572	3.572	0.054
						1" Ice	4.667	4.667	0.079
						2" Ice	6.317	6.317	0.151
10.5' x 2.375" horizontal mount pipe	C	From Leg	4.000 0'	0.000	141'	No Ice	2.494	2.494	0.035
			0'			1/2" Ice	3.572	3.572	0.054
						1" Ice	4.667	4.667	0.079
						2" Ice	6.317	6.317	0.151
Sector Mount [SM 503-3]	C	None		0.000	141'	No Ice	30.430	30.430	1.690
						1/2" Ice	43.020	43.020	2.296
						1" Ice	55.430	55.430	3.097
						2" Ice	79.890	79.890	5.269
*									
M5160160P10006	B	From Leg	2.000 0'	0.000	130'	No Ice	0.917	0.294	0.002
			0'			1/2" Ice	1.049	0.408	0.007
						1" Ice	1.187	0.530	0.014
						2" Ice	1.493	0.783	0.035
M5160160P10006	C	From Leg	2.000 0'	0.000	130'	No Ice	0.917	0.294	0.002
			0'			1/2" Ice	1.049	0.408	0.007
						1" Ice	1.187	0.530	0.014
						2" Ice	1.493	0.783	0.035
Side Arm Mount [SO 301-1]	B	From Leg	1.000 0'	0.000	130'	No Ice	0.460	0.910	0.023
			0'			1/2" Ice	0.650	1.300	0.033
						1" Ice	0.870	1.710	0.047
						2" Ice	1.410	2.620	0.091
Side Arm Mount [SO 301-1]	C	From Leg	1.000 0'	0.000	130'	No Ice	0.460	0.910	0.023
			0'			1/2" Ice	0.650	1.300	0.033
						1" Ice	0.870	1.710	0.047
						2" Ice	1.410	2.620	0.091
*									
SC320	B	From Leg	4.000 0'	0.000	118'	No Ice	6.380	6.380	0.025
			10'			1/2" Ice	8.613	8.613	0.071
						1" Ice	10.862	10.862	0.131
						2" Ice	15.410	15.410	0.293
SC229-SFXLDF	C	From Leg	4.000 0'	0.000	118'	No Ice	5.950	5.950	0.032
			10'			1/2" Ice	7.967	7.967	0.075
						1" Ice	10.000	10.000	0.130
						2" Ice	14.117	14.117	0.279
Side Arm Mount [SO 306-1]	B	From Leg	2.000 0'	0.000	118'	No Ice	0.410	2.260	0.042
						1/2" Ice	0.810	3.830	0.062

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	1.230	5.480	0.094
						2" Ice	2.080	9.370	0.187
Side Arm Mount [SO 306-1]	C	From Leg	2.000	0.000	118'	No Ice	0.410	2.260	0.042
			0'			1/2" Ice	0.810	3.830	0.062
			0'			1" Ice	1.230	5.480	0.094
						2" Ice	2.080	9.370	0.187
10' x 2.375" Horizontal Mount Pipe	B	From Face	1.000	0.000	118'	No Ice	2.375	0.061	0.040
			0'			1/2" Ice	3.403	0.124	0.058
			0'			1" Ice	4.448	0.209	0.082
						2" Ice	5.911	0.443	0.151
10' x 2.375" Horizontal Mount Pipe	C	From Face	1.000	0.000	118'	No Ice	2.375	0.061	0.040
			0'			1/2" Ice	3.403	0.124	0.058
			0'			1" Ice	4.448	0.209	0.082
						2" Ice	5.911	0.443	0.151
*									
ERICSSON AIR 21 B2A B4P	A	From Leg	4.000	0.000	114'	No Ice	6.092	4.297	0.092
			0'			1/2" Ice	6.462	4.649	0.133
			-2'			1" Ice	6.838	5.005	0.180
						2" Ice	7.613	5.737	0.290
ERICSSON AIR 21 B2A B4P	B	From Leg	4.000	0.000	114'	No Ice	6.092	4.297	0.092
			0'			1/2" Ice	6.462	4.649	0.133
			-2'			1" Ice	6.838	5.005	0.180
						2" Ice	7.613	5.737	0.290
ERICSSON AIR 21 B2A B4P	C	From Leg	4.000	0.000	114'	No Ice	6.092	4.297	0.092
			0'			1/2" Ice	6.462	4.649	0.133
			-2'			1" Ice	6.838	5.005	0.180
						2" Ice	7.613	5.737	0.290
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000	0.000	114'	No Ice	14.690	6.870	0.186
			0'			1/2" Ice	15.460	7.550	0.315
			-2'			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000	0.000	114'	No Ice	14.690	6.870	0.186
			0'			1/2" Ice	15.460	7.550	0.315
			-2'			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000	0.000	114'	No Ice	14.690	6.870	0.186
			0'			1/2" Ice	15.460	7.550	0.315
			-2'			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
KRY 112 71	A	From Leg	4.000	0.000	114'	No Ice	0.583	0.398	0.013
			0'			1/2" Ice	0.688	0.488	0.018
			-2'			1" Ice	0.799	0.586	0.025
						2" Ice	1.045	0.805	0.044
KRY 112 71	B	From Leg	4.000	0.000	114'	No Ice	0.583	0.398	0.013
			0'			1/2" Ice	0.688	0.488	0.018
			-2'			1" Ice	0.799	0.586	0.025
						2" Ice	1.045	0.805	0.044
KRY 112 71	C	From Leg	4.000	0.000	114'	No Ice	0.583	0.398	0.013
			0'			1/2" Ice	0.688	0.488	0.018
			-2'			1" Ice	0.799	0.586	0.025
						2" Ice	1.045	0.805	0.044
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000	0.000	114'	No Ice	1.970	1.587	0.073
			0'			1/2" Ice	2.147	1.749	0.093
			-2'			1" Ice	2.331	1.918	0.116
						2" Ice	2.721	2.280	0.170
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000	0.000	114'	No Ice	1.970	1.587	0.073
			0'			1/2" Ice	2.147	1.749	0.093

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-2'			1" Ice	2.331	1.918	0.116
						2" Ice	2.721	2.280	0.170
RADIO 4449 B71	C	From Leg	4.000	0.000	114'	No Ice	1.970	1.587	0.073
B85A_T-MOBILE			0'			1/2" Ice	2.147	1.749	0.093
			-2'			1" Ice	2.331	1.918	0.116
						2" Ice	2.721	2.280	0.170
AIR 32 B2a/B66Aa	A	From Leg	4.000	0.000	114'	No Ice	6.510	4.712	0.132
			0'			1/2" Ice	6.887	5.068	0.178
			-2'			1" Ice	7.271	5.431	0.229
						2" Ice	8.060	6.178	0.348
AIR 32 B2a/B66Aa	B	From Leg	4.000	0.000	114'	No Ice	6.510	4.712	0.132
			0'			1/2" Ice	6.887	5.068	0.178
			-2'			1" Ice	7.271	5.431	0.229
						2" Ice	8.060	6.178	0.348
AIR 32 B2a/B66Aa	C	From Leg	4.000	0.000	114'	No Ice	6.510	4.712	0.132
			0'			1/2" Ice	6.887	5.068	0.178
			-2'			1" Ice	7.271	5.431	0.229
						2" Ice	8.060	6.178	0.348
AIR6449 B41	A	From Leg	4.000	0.000	114'	No Ice	5.682	2.491	0.104
			0'			1/2" Ice	5.984	2.718	0.143
			-2'			1" Ice	6.294	2.952	0.186
						2" Ice	6.935	3.442	0.287
AIR6449 B41	B	From Leg	4.000	0.000	114'	No Ice	5.682	2.491	0.104
			0'			1/2" Ice	5.984	2.718	0.143
			-2'			1" Ice	6.294	2.952	0.186
						2" Ice	6.935	3.442	0.287
AIR6449 B41	C	From Leg	4.000	0.000	114'	No Ice	5.682	2.491	0.104
			0'			1/2" Ice	5.984	2.718	0.143
			-2'			1" Ice	6.294	2.952	0.186
						2" Ice	6.935	3.442	0.287
RRUS 4415 B25_CCIV2	A	From Leg	4.000	0.000	114'	No Ice	1.843	0.820	0.046
			0'			1/2" Ice	2.012	0.943	0.060
			-2'			1" Ice	2.190	1.075	0.077
						2" Ice	2.566	1.368	0.118
RRUS 4415 B25_CCIV2	B	From Leg	4.000	0.000	114'	No Ice	1.843	0.820	0.046
			0'			1/2" Ice	2.012	0.943	0.060
			-2'			1" Ice	2.190	1.075	0.077
						2" Ice	2.566	1.368	0.118
RRUS 4415 B25_CCIV2	C	From Leg	4.000	0.000	114'	No Ice	1.843	0.820	0.046
			0'			1/2" Ice	2.012	0.943	0.060
			-2'			1" Ice	2.190	1.075	0.077
						2" Ice	2.566	1.368	0.118
(2) L 2.5x2.5x3/16x6'	A	From Leg	2.000	0.000	114'	No Ice	1.500	0.005	0.025
			0'			1/2" Ice	1.918	0.024	0.034
			0'			1" Ice	2.343	0.049	0.048
						2" Ice	3.215	0.123	0.091
(2) L 2.5x2.5x3/16x6'	B	From Leg	2.000	0.000	114'	No Ice	1.500	0.005	0.025
			0'			1/2" Ice	1.918	0.024	0.034
			0'			1" Ice	2.343	0.049	0.048
						2" Ice	3.215	0.123	0.091
(2) L 2.5x2.5x3/16x6'	C	From Leg	2.000	0.000	114'	No Ice	1.500	0.005	0.025
			0'			1/2" Ice	1.918	0.024	0.034
			0'			1" Ice	2.343	0.049	0.048
						2" Ice	3.215	0.123	0.091
Sector Mount [SM 307-3]	C	None		0.000	114'	No Ice	26.180	26.180	1.620
						1/2" Ice	35.720	35.720	2.113
						1" Ice	45.160	45.160	2.761

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	63.920	63.920	4.520
*									
800MHZ 2X50W RRH W/FILTER	A	From Leg	2.000 0' -3'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
800MHZ 2X50W RRH W/FILTER	B	From Leg	2.000 0' -3'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
800MHZ 2X50W RRH W/FILTER	C	From Leg	2.000 0' -3'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	2.058 2.240 2.429 2.829	1.932 2.109 2.293 2.684	0.064 0.086 0.111 0.172
PCS 1900MHZ 2X40W	A	From Leg	2.000 0' -3'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	2.351 2.547 2.751 3.181	1.278 1.434 1.598 1.946	0.044 0.062 0.084 0.135
PCS 1900MHZ 2X40W	B	From Leg	2.000 0' -3'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	2.351 2.547 2.751 3.181	1.278 1.434 1.598 1.946	0.044 0.062 0.084 0.135
PCS 1900MHZ 2X40W	C	From Leg	2.000 0' -3'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	2.351 2.547 2.751 3.181	1.278 1.434 1.598 1.946	0.044 0.062 0.084 0.135
(2) 4' x 2" Pipe Mount	A	From Leg	1.000 0' 0'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
(2) 4' x 2" Pipe Mount	B	From Leg	1.000 0' 0'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
(2) 4' x 2" Pipe Mount	C	From Leg	1.000 0' 0'	0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
Pipe Mount [PM 601-3]	C	None		0.000	103'	No Ice 1/2" Ice 1" Ice 2" Ice	3.170 3.790 4.420 5.760	3.170 3.790 4.420 5.760	0.195 0.232 0.279 0.401
*									
DT465B-2XR w/ Mount Pipe	A	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	5.500 5.970 6.450 7.440	4.380 4.840 5.300 6.260	0.091 0.164 0.248 0.451
DT465B-2XR w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	5.500 5.970 6.450 7.440	4.380 4.840 5.300 6.260	0.091 0.164 0.248 0.451
DT465B-2XR w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	5.500 5.970 6.450 7.440	4.380 4.840 5.300 6.260	0.091 0.164 0.248 0.451
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000 0'	0.000	100'	No Ice 1/2" Ice	4.600 5.050	4.010 4.450	0.095 0.160

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	5.500	4.890	0.235
						2" Ice	6.440	5.820	0.419
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419
RRH2X50-800	A	From Leg	4.000 0' -3'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
RRH2X50-800	B	From Leg	4.000 0' -3'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
RRH2X50-800	C	From Leg	4.000 0' -3'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
TD-RRH8X20-25	A	From Leg	4.000 0' 3'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
TD-RRH8X20-25	B	From Leg	4.000 0' 3'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
TD-RRH8X20-25	C	From Leg	4.000 0' 3'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
10' x 2.375" Horizontal Mount Pipe	A	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	0.061 0.124 0.209 0.443	0.040 0.058 0.082 0.151
10' x 2.375" Horizontal Mount Pipe	B	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	0.061 0.124 0.209 0.443	0.040 0.058 0.082 0.151
10' x 2.375" Horizontal Mount Pipe	C	From Leg	4.000 0' 0'	0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	0.061 0.124 0.209 0.443	0.040 0.058 0.082 0.151
Sector Mount [SM 406-3]	C	None		0.000	100'	No Ice 1/2" Ice 1" Ice 2" Ice	19.760 29.240 38.800 58.910	19.760 29.240 38.800 58.910	0.923 1.311 1.845 3.330
*									
(2) BXA-171063/8CF w/ Mount Pipe	A	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	3.140 3.515 3.892 4.654	3.510 4.130 4.757 6.059	0.029 0.062 0.100 0.196
(2) BXA-171063/8CF w/ Mount Pipe	B	From Leg	4.000 0'	0.000	88'	No Ice 1/2" Ice	3.140 3.515	3.510 4.130	0.029 0.062

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2'			1" Ice	3.892	4.757	0.100
						2" Ice	4.654	6.059	0.196
(2) BXA-171063/8CF w/ Mount Pipe	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	3.140 3.515 3.892 4.654	3.510 4.130 4.757 6.059	0.029 0.062 0.100 0.196
SWCP 2x5514 w/ Mount Pipe	A	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	6.560 7.150 7.760 9.020	6.390 6.980 7.580 8.840	0.039 0.099 0.167 0.332
SWCP 2x5514 w/ Mount Pipe	B	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	6.560 7.150 7.760 9.020	6.390 6.980 7.580 8.840	0.039 0.099 0.167 0.332
SWCP 2x5514 w/ Mount Pipe	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	6.560 7.150 7.760 9.020	6.390 6.980 7.580 8.840	0.039 0.099 0.167 0.332
(2) LPA-80063/4CF w/ Mount Pipe	A	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	6.385 6.784 7.192 8.035	6.603 7.232 7.876 9.214	0.038 0.104 0.176 0.344
(2) LPA-80063/4CF w/ Mount Pipe	B	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	6.385 6.784 7.192 8.035	6.603 7.232 7.876 9.214	0.038 0.104 0.176 0.344
(2) LPA-80063/4CF w/ Mount Pipe	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	6.385 6.784 7.192 8.035	6.603 7.232 7.876 9.214	0.038 0.104 0.176 0.344
(2) FD9R6004/2C-3L	A	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	0.314 0.386 0.466 0.647	0.076 0.119 0.169 0.294	0.003 0.005 0.009 0.020
(2) FD9R6004/2C-3L	B	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	0.314 0.386 0.466 0.647	0.076 0.119 0.169 0.294	0.003 0.005 0.009 0.020
(2) FD9R6004/2C-3L	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	0.314 0.386 0.466 0.647	0.076 0.119 0.169 0.294	0.003 0.005 0.009 0.020
DB-T1-6Z-8AB-0Z	C	From Leg	4.000 0' 2'	0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 5.070 5.348 5.926	2.000 2.193 2.393 2.815	0.044 0.080 0.120 0.213
Sector Mount [SM 408-3]	C	None		0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	22.380 33.310 44.350 67.760	22.380 33.310 44.350 67.760	1.019 1.459 2.064 3.750
Pipe Mount [PM 601-3]	C	None		0.000	88'	No Ice 1/2" Ice 1" Ice 2" Ice	3.170 3.790 4.420 5.760	3.170 3.790 4.420 5.760	0.195 0.232 0.279 0.401
*									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	1.000 0'	0.000	65'	No Ice 1/2" Ice	3.790 4.380	3.160 3.750	0.053 0.094

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	4.990	4.350	0.145
						2" Ice	6.250	5.590	0.281
APXV18-206517S-C w/ Mount Pipe	B	From Leg	1.000 0' 0'	0.000	65'	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
APXV18-206517S-C w/ Mount Pipe	C	From Leg	1.000 0' 0'	0.000	65'	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
*									
GPS-TMG-HR-26NCM	C	From Leg	1.000 0' 0'	0.000	50'	No Ice 1/2" Ice 1" Ice 2" Ice	0.133 0.183 0.239 0.375	0.133 0.183 0.239 0.375	0.001 0.002 0.005 0.014
4' x 2" Pipe Mount	C	From Leg	0.500 0' 0'	0.000	50'	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPLPD1-18	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0' 1'	-27.000		150'	1.140	No Ice 1/2" Ice 1" Ice 2" Ice	1.021 1.175 1.330 1.639	0.017 0.023 0.029 0.041
HPLPD1-18	C	Paraboloid w/Shroud (HP)	From Leg	4.000 0' 1'	-11.000		150'	1.140	No Ice 1/2" Ice 1" Ice 2" Ice	1.021 1.175 1.330 1.639	0.017 0.023 0.029 0.041
*											

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105244	1026.861	3022.418	0.563	0.444	7.131	20.989	3.682
Pirod 105216	1998.089	6207.095	0.505	0.833	6.938	21.552	3.682
Pirod 105217	2130.748	6248.170	0.619	0.819	7.398	21.695	5.301
Pirod 105218	2263.469	6279.964	0.755	0.796	7.859	21.805	7.216

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diameter	Equiv. Diameter Ice	Leg Area
	in^2	in^2	K	K	in	in	in^2
Pirod 105218	2263.469	6221.454	0.755	0.737	7.859	21.602	7.216
Pirod 105219	2441.869	6177.301	0.944	0.658	8.479	21.449	9.425

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
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	150 - 147.583	Leg	Max Tension	23	0.909	0.000	0.000
			Max. Compression	35	-2.676	-0.052	0.008
			Max. Mx	18	-2.517	-0.134	0.023
			Max. My	2	-0.289	0.061	-0.067
			Max. Vy	18	0.063	0.000	0.000
			Max. Vx	24	0.032	0.000	0.000
		Diagonal	Max Tension	5	1.339	0.000	0.000
			Max. Compression	4	-1.390	0.000	0.000
			Max. Mx	26	-0.053	0.005	0.000
			Max. Vy	26	-0.006	0.000	0.000
		Top Girt	Max Tension	15	0.947	0.000	0.000
			Max. Compression	2	-0.963	0.017	-0.000
			Max. Mx	2	0.563	-0.093	-0.000
			Max. My	27	0.039	-0.052	-0.000
			Max. Vy	2	-0.057	-0.093	-0.000
			Max. Vx	27	-0.000	0.000	0.000
T2	147.583 - 130	Leg	Max Tension	7	28.573	-0.330	0.025
			Max. Compression	2	-34.535	0.341	0.009
			Max. Mx	6	3.809	0.777	0.007
			Max. My	21	-2.295	-0.004	0.787
			Max. Vy	2	-3.133	0.341	0.009
			Max. Vx	9	-2.741	0.003	0.263
		Diagonal	Max Tension	5	3.791	0.000	0.000
			Max. Compression	4	-3.803	0.000	0.000
			Max. Mx	27	0.864	-0.005	-0.000
			Max. My	6	-3.023	-0.001	-0.000
			Max. Vy	27	0.008	-0.005	-0.000
			Max. Vx	6	0.000	-0.001	-0.000
		Horizontal	Max Tension	14	0.677	0.000	0.000
			Max. Compression	3	-0.407	0.000	0.000
			Max. Mx	26	0.405	0.016	0.000
			Max. Vy	26	0.015	0.000	0.000
		Top Girt	Max Tension	10	0.197	0.000	0.000
			Max. Compression	7	-0.149	0.000	0.000
			Max. Mx	26	0.045	0.014	0.000
			Max. Vy	26	-0.014	0.000	0.000
		Bottom Girt	Max Tension	14	1.795	0.000	0.000
			Max. Compression	3	-1.651	0.000	0.000
			Max. Mx	26	0.055	0.017	0.000
			Max. Vy	26	-0.015	0.000	0.000
T3	130 - 110	Leg	Max Tension	7	75.425	-2.622	0.007
			Max. Compression	2	-85.861	2.615	0.004
			Max. Mx	6	74.013	-2.625	0.008
			Max. My	8	-6.380	-0.006	1.831
			Max. Vy	6	5.696	-2.625	0.008
			Max. Vx	9	-3.840	-0.002	1.830
		Diagonal	Max Tension	25	5.596	0.000	0.000
			Max. Compression	8	-5.727	0.000	0.000
			Max. Mx	27	1.361	-0.007	-0.000
			Max. My	6	-3.971	-0.002	-0.001
			Max. Vy	27	0.011	-0.007	-0.000
			Max. Vx	6	0.000	0.000	0.000
		Horizontal	Max Tension	14	1.129	0.000	0.000
			Max. Compression	3	-0.970	0.000	0.000
			Max. Mx	26	0.301	0.017	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	26	-0.014	0.000	0.000
		Top Girt	Max Tension	10	1.772	0.000	0.000
			Max. Compression	7	-1.755	0.000	0.000
			Max. Mx	26	0.035	0.017	0.000
			Max. Vy	26	-0.015	0.000	0.000
		Bottom Girt	Max Tension	14	2.092	0.000	0.000
			Max. Compression	3	-1.948	0.000	0.000
			Max. Mx	26	0.173	0.020	0.000
			Max. Vy	26	0.016	0.000	0.000
T4	110 - 100	Leg	Max Tension	7	79.118	-2.622	0.007
			Max. Compression	2	-88.202	5.569	0.061
			Max. Mx	2	-88.202	5.569	0.061
			Max. My	8	-5.884	0.023	5.599
			Max. Vy	14	0.556	-5.465	-0.040
			Max. Vx	8	-0.653	0.023	5.599
		Diagonal	Max Tension	9	8.405	0.054	0.002
			Max. Compression	8	-9.870	0.000	0.000
			Max. Mx	8	4.884	0.076	-0.001
			Max. My	29	-2.318	0.009	-0.008
			Max. Vy	28	0.026	0.047	-0.005
			Max. Vx	29	0.002	0.000	0.000
		Top Girt	Max Tension	14	1.216	0.000	0.000
			Max. Compression	3	-0.805	0.000	0.000
			Max. Mx	26	0.557	-0.046	0.000
			Max. My	26	0.563	0.000	0.001
			Max. Vy	26	0.036	0.000	0.000
			Max. Vx	26	0.001	0.000	0.000
T5	100 - 80	Leg	Max Tension	7	115.906	-5.450	0.019
			Max. Compression	2	-130.929	5.936	0.028
			Max. Mx	2	-130.929	5.936	0.028
			Max. My	8	-6.736	-0.115	6.076
			Max. Vy	6	-0.908	-4.902	0.075
			Max. Vx	8	1.327	-0.115	6.076
		Diagonal	Max Tension	9	14.211	0.000	0.000
			Max. Compression	8	-16.845	0.000	0.000
			Max. Mx	2	0.150	0.158	-0.004
			Max. My	29	-3.238	0.005	-0.010
			Max. Vy	27	-0.044	0.096	0.009
			Max. Vx	29	0.003	0.000	0.000
		Top Girt	Max Tension	6	9.760	0.000	0.000
			Max. Compression	3	-7.899	0.000	0.000
			Max. Mx	26	2.686	-0.065	0.000
			Max. My	26	2.518	0.000	0.002
			Max. Vy	26	-0.043	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
		Mid Girt	Max Tension	6	13.830	0.000	0.000
			Max. Compression	3	-11.301	0.000	0.000
			Max. Mx	26	3.823	-0.088	0.000
			Max. My	26	3.609	0.000	0.003
			Max. Vy	26	0.050	0.000	0.000
			Max. Vx	26	0.001	0.000	0.000
T6	80 - 60	Leg	Max Tension	15	165.900	-4.713	-0.075
			Max. Compression	2	-190.155	6.202	0.049
			Max. Mx	2	-190.155	6.202	0.049
			Max. My	9	-9.447	-0.294	8.447
			Max. Vy	10	-0.371	6.088	0.004
			Max. Vx	9	-0.760	-0.294	8.447
		Diagonal	Max Tension	16	8.488	0.000	0.000
			Max. Compression	2	-8.840	0.000	0.000
			Max. Mx	2	7.112	0.135	0.011
			Max. My	4	-8.169	-0.069	0.020

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	27	-0.048	0.109	0.012
			Max. Vx	4	-0.004	0.000	0.000
		Top Girt	Max Tension	6	9.727	0.000	0.000
			Max. Compression	3	-8.081	0.000	0.000
			Max. Mx	26	2.558	-0.113	0.000
			Max. My	26	2.428	0.000	0.003
			Max. Vy	26	0.056	0.000	0.000
			Max. Vx	26	-0.002	0.000	0.000
T7	60 - 40	Leg	Max Tension	15	204.182	-5.342	-0.019
			Max. Compression	2	-233.056	6.930	0.180
			Max. Mx	2	-233.056	6.930	0.180
			Max. My	9	-11.498	0.081	6.664
			Max. Vy	10	-0.281	6.832	0.097
			Max. Vx	9	-0.371	0.081	6.664
		Diagonal	Max Tension	16	8.297	0.000	0.000
			Max. Compression	16	-8.359	0.000	0.000
			Max. Mx	2	6.921	0.101	0.009
			Max. My	36	-1.029	0.062	-0.012
			Max. Vy	37	0.053	0.091	-0.012
			Max. Vx	36	0.003	0.000	0.000
T8	40 - 20	Leg	Max Tension	15	239.512	-5.072	-0.041
			Max. Compression	2	-273.564	6.295	0.042
			Max. Mx	2	-253.257	6.930	0.180
			Max. My	9	-11.981	0.081	6.664
			Max. Vy	33	0.492	-4.380	-0.033
			Max. Vx	9	0.442	-0.136	6.339
		Diagonal	Max Tension	16	8.733	0.000	0.000
			Max. Compression	2	-9.027	0.000	0.000
			Max. Mx	2	6.679	0.160	0.012
			Max. My	30	2.782	0.127	0.018
			Max. Vy	37	0.071	0.130	0.016
			Max. Vx	30	-0.004	0.000	0.000
T9	20 - 0	Leg	Max Tension	23	271.696	-5.677	-0.030
			Max. Compression	2	-310.900	0.000	-0.000
			Max. Mx	2	-293.468	6.295	0.042
			Max. My	24	-16.538	-0.439	9.670
			Max. Vy	33	-0.813	-4.380	-0.033
			Max. Vx	9	1.128	-0.296	9.658
		Diagonal	Max Tension	15	10.424	0.000	0.000
			Max. Compression	2	-11.225	0.000	0.000
			Max. Mx	27	0.737	0.160	0.017
			Max. My	8	8.740	0.127	0.024
			Max. Vy	37	0.074	0.157	-0.017
			Max. Vx	36	0.004	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	312.960	27.677	-16.861
	Max. H_x	18	312.960	27.677	-16.861
	Max. H_z	7	-277.668	-24.825	15.151
	Min. Vert	7	-277.668	-24.825	15.151
	Min. H_x	7	-277.668	-24.825	15.151
	Min. H_z	18	312.960	27.677	-16.861
Leg B	Max. Vert	10	316.572	-28.407	-16.918

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	23	-281.274	25.470	15.180
	Max. H_z	23	-281.274	25.470	15.180
	Min. Vert	23	-281.274	25.470	15.180
	Min. H_x	10	316.572	-28.407	-16.918
	Min. H_z	10	316.572	-28.407	-16.918
Leg A	Max. Vert	2	322.083	-0.579	33.265
	Max. H_x	21	14.034	2.294	1.122
	Max. H_z	2	322.083	-0.579	33.265
	Min. Vert	15	-280.620	0.559	-29.609
	Min. H_x	8	20.562	-2.308	1.649
	Min. H_z	15	-280.620	0.559	-29.609

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	46.069	0.000	-0.000	-15.142	6.214	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	55.283	0.102	-49.612	-4207.575	-4.745	-15.783
0.9 Dead+1.0 Wind 0 deg - No Ice	41.462	0.102	-49.612	-4203.033	-6.609	-15.783
1.2 Dead+1.0 Wind 30 deg - No Ice	55.283	23.281	-40.246	-3480.226	-1996.786	-11.226
0.9 Dead+1.0 Wind 30 deg - No Ice	41.462	23.281	-40.246	-3475.684	-1998.651	-11.226
1.2 Dead+1.0 Wind 60 deg - No Ice	55.283	40.859	-23.652	-2041.930	-3485.675	-20.341
0.9 Dead+1.0 Wind 60 deg - No Ice	41.462	40.859	-23.652	-2037.387	-3487.539	-20.341
1.2 Dead+1.0 Wind 90 deg - No Ice	55.283	48.904	-0.097	-29.575	-4111.748	-25.067
0.9 Dead+1.0 Wind 90 deg - No Ice	41.462	48.904	-0.097	-25.033	-4113.612	-25.067
1.2 Dead+1.0 Wind 120 deg - No Ice	55.283	42.855	24.693	2050.627	-3586.384	-11.820
0.9 Dead+1.0 Wind 120 deg - No Ice	41.462	42.855	24.693	2055.169	-3588.248	-11.820
1.2 Dead+1.0 Wind 150 deg - No Ice	55.283	24.208	42.040	3539.914	-2039.491	11.237
0.9 Dead+1.0 Wind 150 deg - No Ice	41.462	24.208	42.040	3544.457	-2041.355	11.237
1.2 Dead+1.0 Wind 180 deg - No Ice	55.283	-0.089	48.147	4075.353	17.645	15.796
0.9 Dead+1.0 Wind 180 deg - No Ice	41.462	-0.089	48.147	4079.896	15.781	15.796
1.2 Dead+1.0 Wind 210 deg - No Ice	55.283	-23.188	40.074	3421.408	1999.697	11.208
0.9 Dead+1.0 Wind 210 deg - No Ice	41.462	-23.188	40.074	3425.950	1997.833	11.208
1.2 Dead+1.0 Wind 240 deg - No Ice	55.283	-41.802	24.191	2028.291	3541.475	20.293
0.9 Dead+1.0 Wind 240 deg - No Ice	41.462	-41.802	24.191	2032.834	3539.611	20.293
1.2 Dead+1.0 Wind 270 deg - No Ice	55.283	-48.720	0.092	-7.497	4102.877	25.035
0.9 Dead+1.0 Wind 270 deg -	41.462	-48.720	0.092	-2.954	4101.012	25.035

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice 1.2 Dead+1.0 Wind 300 deg - No Ice	55.283	-41.760	-24.063	-2052.481	3541.003	11.776
0.9 Dead+1.0 Wind 300 deg - No Ice	41.462	-41.760	-24.063	-2047.939	3539.139	11.776
1.2 Dead+1.0 Wind 330 deg - No Ice	55.283	-24.218	-42.037	-3575.732	2055.903	-11.269
0.9 Dead+1.0 Wind 330 deg - No Ice	41.462	-24.218	-42.037	-3571.190	2054.039	-11.269
1.2 Dead+1.0 Ice+1.0 Temp	140.606	-0.000	-0.000	-62.098	28.463	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	140.605	0.025	-13.451	-1228.488	25.436	-2.029
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	140.605	6.655	-11.531	-1065.083	-550.399	-1.138
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	140.605	11.795	-6.839	-651.498	-986.657	-3.241
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	140.606	14.050	-0.024	-64.939	-1167.451	-5.457
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	140.606	12.153	7.018	531.038	-998.784	-2.854
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	140.606	6.764	11.767	945.788	-550.046	1.397
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	140.606	-0.022	13.156	1077.822	31.022	2.032
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	140.606	-6.586	11.409	925.064	598.414	1.133
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	140.606	-11.810	6.846	522.434	1035.511	3.230
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	140.605	-13.912	0.023	-59.426	1206.608	5.450
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	140.605	-12.021	-6.942	-651.244	1048.669	2.844
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	140.605	-6.767	-11.766	-1069.862	607.319	-1.404
Dead+Wind 0 deg - Service	46.069	0.025	-12.032	-1031.183	3.255	-3.828
Dead+Wind 30 deg - Service	46.069	5.646	-9.761	-854.781	-479.868	-2.723
Dead+Wind 60 deg - Service	46.069	9.909	-5.736	-505.957	-840.962	-4.933
Dead+Wind 90 deg - Service	46.069	11.861	-0.024	-17.908	-992.801	-6.080
Dead+Wind 120 deg - Service	46.069	10.394	5.989	486.596	-865.387	-2.867
Dead+Wind 150 deg - Service	46.069	5.871	10.196	847.787	-490.224	2.725
Dead+Wind 180 deg - Service	46.069	-0.022	11.677	977.646	8.685	3.831
Dead+Wind 210 deg - Service	46.069	-5.624	9.719	819.046	489.385	2.718
Dead+Wind 240 deg - Service	46.069	-10.138	5.867	481.179	863.307	4.922
Dead+Wind 270 deg - Service	46.069	-11.816	0.022	-12.553	999.461	6.072
Dead+Wind 300 deg - Service	46.069	-10.128	-5.836	-508.516	863.192	2.856
Dead+Wind 330 deg - Service	46.069	-5.873	-10.195	-877.944	503.016	-2.733

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-46.069	0.000	0.000	46.069	0.000	0.000%
2	0.102	-55.283	-49.612	-0.102	55.283	49.612	0.000%
3	0.102	-41.462	-49.612	-0.102	41.462	49.612	0.000%
4	23.281	-55.283	-40.246	-23.281	55.283	40.246	0.000%
5	23.281	-41.462	-40.246	-23.281	41.462	40.246	0.000%
6	40.859	-55.283	-23.652	-40.859	55.283	23.652	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
7	40.859	-41.462	-23.652	-40.859	41.462	23.652	0.000%
8	48.904	-55.283	-0.097	-48.904	55.283	0.097	0.000%
9	48.904	-41.462	-0.097	-48.904	41.462	0.097	0.000%
10	42.855	-55.283	24.693	-42.855	55.283	-24.693	0.000%
11	42.855	-41.462	24.693	-42.855	41.462	-24.693	0.000%
12	24.208	-55.283	42.040	-24.208	55.283	-42.040	0.000%
13	24.208	-41.462	42.040	-24.208	41.462	-42.040	0.000%
14	-0.089	-55.283	48.147	0.089	55.283	-48.147	0.000%
15	-0.089	-41.462	48.147	0.089	41.462	-48.147	0.000%
16	-23.188	-55.283	40.074	23.188	55.283	-40.074	0.000%
17	-23.188	-41.462	40.074	23.188	41.462	-40.074	0.000%
18	-41.802	-55.283	24.191	41.802	55.283	-24.191	0.000%
19	-41.802	-41.462	24.191	41.802	41.462	-24.191	0.000%
20	-48.720	-55.283	0.092	48.720	55.283	-0.092	0.000%
21	-48.720	-41.462	0.092	48.720	41.462	-0.092	0.000%
22	-41.760	-55.283	-24.063	41.760	55.283	24.063	0.000%
23	-41.760	-41.462	-24.063	41.760	41.462	24.063	0.000%
24	-24.218	-55.283	-42.037	24.218	55.283	42.037	0.000%
25	-24.218	-41.462	-42.037	24.218	41.462	42.037	0.000%
26	0.000	-140.605	0.000	0.000	140.606	0.000	0.000%
27	0.025	-140.605	-13.451	-0.025	140.605	13.451	0.000%
28	6.655	-140.605	-11.531	-6.655	140.605	11.531	0.000%
29	11.795	-140.605	-6.839	-11.795	140.605	6.839	0.000%
30	14.050	-140.605	-0.024	-14.050	140.606	0.024	0.000%
31	12.153	-140.605	7.018	-12.153	140.606	-7.018	0.000%
32	6.764	-140.605	11.767	-6.764	140.606	-11.767	0.000%
33	-0.022	-140.605	13.156	0.022	140.606	-13.156	0.000%
34	-6.586	-140.605	11.409	6.586	140.606	-11.409	0.000%
35	-11.810	-140.605	6.846	11.810	140.606	-6.846	0.000%
36	-13.912	-140.605	0.023	13.912	140.605	-0.023	0.000%
37	-12.021	-140.605	-6.942	12.021	140.605	6.942	0.000%
38	-6.767	-140.605	-11.766	6.767	140.605	11.766	0.000%
39	0.025	-46.069	-12.032	-0.025	46.069	12.032	0.000%
40	5.646	-46.069	-9.761	-5.646	46.069	9.761	0.000%
41	9.909	-46.069	-5.736	-9.909	46.069	5.736	0.000%
42	11.861	-46.069	-0.024	-11.861	46.069	0.024	0.000%
43	10.394	-46.069	5.989	-10.394	46.069	-5.989	0.000%
44	5.871	-46.069	10.196	-5.871	46.069	-10.196	0.000%
45	-0.022	-46.069	11.677	0.022	46.069	-11.677	0.000%
46	-5.624	-46.069	9.719	5.624	46.069	-9.719	0.000%
47	-10.138	-46.069	5.867	10.138	46.069	-5.867	0.000%
48	-11.816	-46.069	0.022	11.816	46.069	-0.022	0.000%
49	-10.128	-46.069	-5.836	10.128	46.069	5.836	0.000%
50	-5.873	-46.069	-10.195	5.873	46.069	10.195	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 147.583	5.825	39	0.367	0.027
T2	147.583 - 130	5.638	39	0.366	0.026
T3	130 - 110	4.285	39	0.341	0.020
T4	110 - 100	2.912	39	0.282	0.015
T5	100 - 80	2.343	39	0.248	0.014
T6	80 - 60	1.433	39	0.177	0.012

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T7	60 - 40	0.779	39	0.120	0.009
T8	40 - 20	0.337	39	0.077	0.005
T9	20 - 0	0.088	39	0.033	0.003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151'	HPLPD1-18	39	5.825	0.367	0.027	195653
150'	SC226-SFXSNM	39	5.825	0.367	0.027	195653
141'	7770.00	39	5.126	0.361	0.024	144633
130'	M5160160P10006	39	4.285	0.341	0.020	26469
118'	SC320	39	3.428	0.307	0.017	16615
114'	ERICSSON AIR 21 B2A B4P	39	3.163	0.295	0.016	14828
103'	800MHZ 2X50W RRH W/FILTER	39	2.505	0.259	0.014	14744
100'	DT465B-2XR w/ Mount Pipe	39	2.343	0.248	0.014	15297
88'	(2) BXA-171063/8CF w/ Mount Pipe	39	1.763	0.205	0.013	17322
65'	APXV18-206517S-C w/ Mount Pipe	39	0.921	0.132	0.010	21899
50'	GPS-TMG-HR-26NCM	39	0.533	0.098	0.007	24262

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 147.583	23.821	2	1.499	0.111
T2	147.583 - 130	23.057	2	1.497	0.108
T3	130 - 110	17.522	2	1.395	0.084
T4	110 - 100	11.906	2	1.152	0.063
T5	100 - 80	9.579	2	1.015	0.058
T6	80 - 60	5.860	2	0.723	0.051
T7	60 - 40	3.186	2	0.490	0.038
T8	40 - 20	1.380	2	0.314	0.022
T9	20 - 0	0.360	2	0.135	0.011

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151'	HPLPD1-18	2	23.821	1.499	0.111	52045
150'	SC226-SFXSNM	2	23.821	1.499	0.111	52045
141'	7770.00	2	20.965	1.477	0.100	36822
130'	M5160160P10006	2	17.522	1.395	0.084	6491
118'	SC320	2	14.016	1.257	0.069	4051
114'	ERICSSON AIR 21 B2A B4P	2	12.935	1.205	0.066	3618
103'	800MHZ 2X50W RRH W/FILTER	2	10.241	1.057	0.059	3598

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100'	DT465B-2XR w/ Mount Pipe	2	9.579	1.015	0.058	3733
88'	(2) BXA-171063/8CF w/ Mount Pipe	2	7.209	0.838	0.054	4233
65'	APXV18-206517S-C w/ Mount Pipe	2	3.768	0.541	0.042	5359
50'	GPS-TMG-HR-26NCM	2	2.182	0.400	0.030	5935

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	147.583	Leg	A325N	0.625	5	6.907	27.612	0.250 ✔	1.05	Bolt DS
T3	130	Leg	A325N	1.000	6	12.571	54.517	0.231 ✔	1.05	Bolt Tension
T4	110	Leg	A325N	1.000	6	13.186	54.517	0.242 ✔	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	8.405	10.663	0.788 ✔	1.05	Member Block Shear
		Top Girt	A325N	1.000	1	1.216	11.682	0.104 ✔	1.05	Member Block Shear
T5	100	Leg	A325N	1.000	6	19.318	54.517	0.354 ✔	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	14.211	21.326	0.666 ✔	1.05	Member Block Shear
		Top Girt	A325N	1.000	1	9.760	11.682	0.835 ✔	1.05	Member Block Shear
T6	80	Leg	A325N	1.000	6	27.650	54.517	0.507 ✔	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	8.488	11.682	0.727 ✔	1.05	Member Block Shear
		Top Girt	A325N	1.000	1	9.727	11.682	0.833 ✔	1.05	Member Block Shear
T7	60	Leg	A325N	1.000	6	34.031	54.517	0.624 ✔	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	8.297	11.682	0.710 ✔	1.05	Member Block Shear
T8	40	Leg	A325N	1.000	6	39.919	54.517	0.732 ✔	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	8.733	19.471	0.449 ✔	1.05	Member Block Shear
T9	20	Diagonal	A325N	1.250	1	10.424	23.701	0.440 ✔	1.05	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 147.583	1 1/2	2'5"	2'5"	77.3 K=1.00	1.767	-2.676	51.350	0.052 [1] ✔
T2	147.583 - 130	1 1/2	17'7-1/32"	2'5"	77.3 K=1.00	1.767	-31.413	51.350	0.612 [1] ✔
T3	130 - 110	2	20'1/32"	2'4-3/8"	56.8 K=1.00	3.142	-81.341	111.705	0.728 [1] ✔
T4	110 - 100	Pirod 105244	10'7/32"	10'7/32"	45.4 K=1.00	3.682	-88.202	142.493	0.619 [1] ✔
T5	100 - 80	Pirod 105216	20'13/32"	10'7/32"	45.4 K=1.00	3.682	-130.929	142.493	0.919 [1] ✔
T6	80 - 60	Pirod 105217	20'13/32"	10'7/32"	37.8 K=1.00	5.301	-190.155	214.859	0.885 [1] ✔
T7	60 - 40	Pirod 105218	20'13/32"	10'7/32"	32.4 K=1.00	7.216	-233.056	300.681	0.775 [1] ✔
T8	40 - 20	Pirod 105218	20'13/32"	10'7/32"	32.4 K=1.00	7.216	-273.564	300.681	0.910 [1] ✔
T9	20 - 0	Pirod 105219	20'13/32"	10'7/32"	28.4 K=1.00	9.425	-310.900	399.868	0.778 [1] ✔

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	110 - 100	0.5	1'5-25/32"	121.0	165.670	0.196	0.653	3.389	0.194 ✔
T5	100 - 80	0.5	1'5-25/32"	121.0	165.670	0.196	1.329	3.292	0.405 ✔
T6	80 - 60	0.5	1'5-21/32"	120.0	238.565	0.196	0.764	3.335	0.230 ✔
T7	60 - 40	0.5	1'5-1/2"	119.0	324.713	0.196	0.373	3.378	0.111 ✔
T8	40 - 20	0.5	1'5-1/2"	119.0	324.713	0.196	0.492	3.378	0.146 ✔
T9	20 - 0	0.625	1'5-11/32"	94.4	424.115	0.307	1.130	6.958	0.163 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 147.583	3/4	3'1-7/8"	3'23/32"	137.1 K=0.70	0.442	-1.390	5.311	0.262 [1] ✔
T2	147.583 - 130	3/4	5'7/8"	2'5-25/32"	143.0 K=0.90	0.442	-3.803	4.879	0.779 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	130 - 110	7/8	5'5-29/32"	2'8-1/32"	131.8 K=0.90	0.601	-5.727	7.820	0.732 [1] ✔
T4	110 - 100	L2 1/2x2 1/2x3/16	11'5"	4'11-25/32"	120.8 K=1.00	0.902	-9.870	17.576	0.562 [1] ✔
T5	100 - 80	L2 1/2x2 1/2x3/8	12'6-1/32"	5'7-17/32"	138.7 K=1.00	1.730	-16.846	25.755	0.654 [1] ✔
T6	80 - 60	L3x3x3/16	13'9-9/16"	6'3-15/16"	127.4 K=1.00	1.090	-8.421	19.221	0.438 [1] ✔
T7	60 - 40	L3x3x3/16	15'2-29/32"	7'31/32"	142.6 K=1.00	1.090	-8.315	15.345	0.542 [1] ✔
T8	40 - 20	L3x3x5/16	16'9-5/8"	7'10-19/32"	160.6 K=1.00	1.780	-9.027	19.756	0.457 [1] ✔
T9	20 - 0	L3x3x5/16	18'5-3/8"	8'8-1/8"	176.8 K=1.00	1.780	-11.225	16.304	0.688 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	147.583 - 130	7/8	4'4-7/16"	4'2-15/16"	163.1 K=0.70	0.601	-0.407	5.109	0.080 [1] ✔
T3	130 - 110	3/4	4'6-7/8"	4'4-7/8"	197.3 K=0.70	0.442	-0.970	2.563	0.378 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 147.583	5x1/2	4'	2'10-7/8"	241.6 K=1.00	2.500	-0.963	9.674	0.100 [1] ✔
		KL/R > 200 (C) - 6							
T2	147.583 - 130	7/8	4'27/32"	3'11-11/32"	151.5 K=0.70	0.601	-0.149	5.917	0.025 [1] ✔
T3	130 - 110	7/8	4'6-5/32"	4'4-5/32"	166.9 K=0.70	0.601	-1.755	4.878	0.360 [1] ✔
T4	110 - 100	L3x3x3/16	5'	4'5"	104.5 K=1.17	1.090	-0.805	25.343	0.032 [1] ✔
T5	100 - 80	L3x3x3/16	6'	4'7"	106.1 K=1.15	1.090	-7.899	24.936	0.317 [1] ✔
T6	80 - 60	L3x3x3/16	8'	6'7"	132.6 K=1.00	1.090	-8.081	17.757	0.455 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	147.583 - 130	7/8	4'5-29/32"	4'4-13/32"	167.7 K=0.70	0.601	-1.651	4.831	0.342 [1] ✔
T3	130 - 110	7/8	4'11-13/16"	4'9-13/16"	185.0 K=0.70	0.601	-1.948	3.967	0.491 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T5	100 - 80	L3x3x3/16	7'	6'	120.5 K=1.00	1.090	-11.301	21.189	0.533 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 147.583	1 1/2	2'5"	2'5"	77.3	1.767	0.909	79.522	0.011 [1] ✔
T2	147.583 - 130	1 1/2	17'7-1/32"	4"	10.7	1.767	28.573	79.522	0.359 [1] ✔
T3	130 - 110	2	20'1/32"	7"	14.0	3.142	75.424	141.372	0.534 [1] ✔
T4	110 - 100	Pirod 105244	10'7/32"	10'7/32"	45.4	3.682	79.118	165.670	0.478 [1] ✔
T5	100 - 80	Pirod 105216	20'13/32"	10'7/32"	45.4	3.682	115.906	165.670	0.700 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	80 - 60	Pirod 105217	20'13/32"	10'7/32"	37.8	5.301	165.900	238.565	0.695 [1] ✔
T7	60 - 40	Pirod 105218	20'13/32"	10'7/32"	32.4	7.216	204.183	324.713	0.629 [1] ✔
T8	40 - 20	Pirod 105218	20'13/32"	10'7/32"	32.4	7.216	239.512	324.713	0.738 [1] ✔
T9	20 - 0	Pirod 105219	20'13/32"	10'7/32"	28.4	9.425	271.696	424.115	0.641 [1] ✔

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T4	110 - 100	0.5	1'5-25/32"	121.0	165.670	0.196	0.653	3.389	0.194 ✔
T5	100 - 80	0.5	1'5-25/32"	121.0	165.670	0.196	1.329	3.292	0.405 ✔
T6	80 - 60	0.5	1'5-21/32"	120.0	238.565	0.196	0.764	3.335	0.230 ✔
T7	60 - 40	0.5	1'5-1/2"	119.0	324.713	0.196	0.373	3.378	0.111 ✔
T8	40 - 20	0.5	1'5-1/2"	119.0	324.713	0.196	0.492	3.378	0.146 ✔
T9	20 - 0	0.625	1'5-11/32"	94.4	424.115	0.307	1.130	6.958	0.163 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 147.583	3/4	3'1-7/8"	3'23/32"	195.8	0.442	1.339	19.880	0.067 [1] ✔
T2	147.583 - 130	3/4	5'7/8"	2'5-25/32"	158.9	0.442	3.791	19.880	0.191 [1] ✔
T3	130 - 110	7/8	5'5-29/32"	2'8-1/32"	146.4	0.601	5.596	27.059	0.207 [1] ✔
T4	110 - 100	L2 1/2x2 1/2x3/16	11'5"	4'11-25/32"	80.1	0.518	8.405	22.546	0.373 [1] ✔
T5	100 - 80	L2 1/2x2 1/2x3/8	12'6-1/32"	5'7-17/32"	93.0	0.981	14.211	42.678	0.333 [1] ✔
T6	80 - 60	L3x3x3/16	13'9-9/16"	6'3-15/16"	83.5	0.659	8.488	28.679	0.296 [1] ✔
T7	60 - 40	L3x3x3/16	14'6-1/32"	6'8-23/32"	88.6	0.659	8.297	28.679	0.289 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	40 - 20	L3x3x5/16	16'1/8"	7'5-15/16"	100.3	1.071	8.733	46.603	0.187 [1] ✔
T9	20 - 0	L3x3x5/16	18'5-3/8"	8'8-1/8"	116.2	1.013	10.424	44.054	0.237 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	147.583 - 130	7/8	4'4-7/16"	4'2-15/16"	232.9	0.601	0.677	27.059	0.025 [1] ✔
T3	130 - 110	3/4	4'6-7/8"	4'4-7/8"	281.9	0.442	1.129	19.880	0.057 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 147.583	5x1/2	4'	2'10-7/8"	241.6	2.500	0.947	81.000	0.012 [1] ✔
T2	147.583 - 130	7/8	4'27/32"	3'11-11/32"	216.5	0.601	0.197	27.059	0.007 [1] ✔
T3	130 - 110	7/8	4'6-5/32"	4'4-5/32"	238.4	0.601	1.772	27.059	0.066 [1] ✔
T4	110 - 100	L3x3x3/16	5'	4'5"	61.8	0.659	1.216	28.679	0.042 [1] ✔
T5	100 - 80	L3x3x3/16	6'	4'7"	63.9	0.659	9.760	28.679	0.340 [1] ✔
T6	80 - 60	L3x3x3/16	8'	6'7"	89.5	0.659	9.727	28.679	0.339 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	147.583 - 130	7/8	4'5-29/32"	4'4-13/32"	239.5	0.601	1.795	27.059	0.066 [1] ✔
T3	130 - 110	7/8	4'11-13/16"	4'9-13/16"	264.3	0.601	2.092	27.059	0.077 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T5	100 - 80	L3x3x3/16	7'	6'	76.7	1.090	13.830	35.316	0.392 [1] ✔

[1] P_u / ϕP_n controls

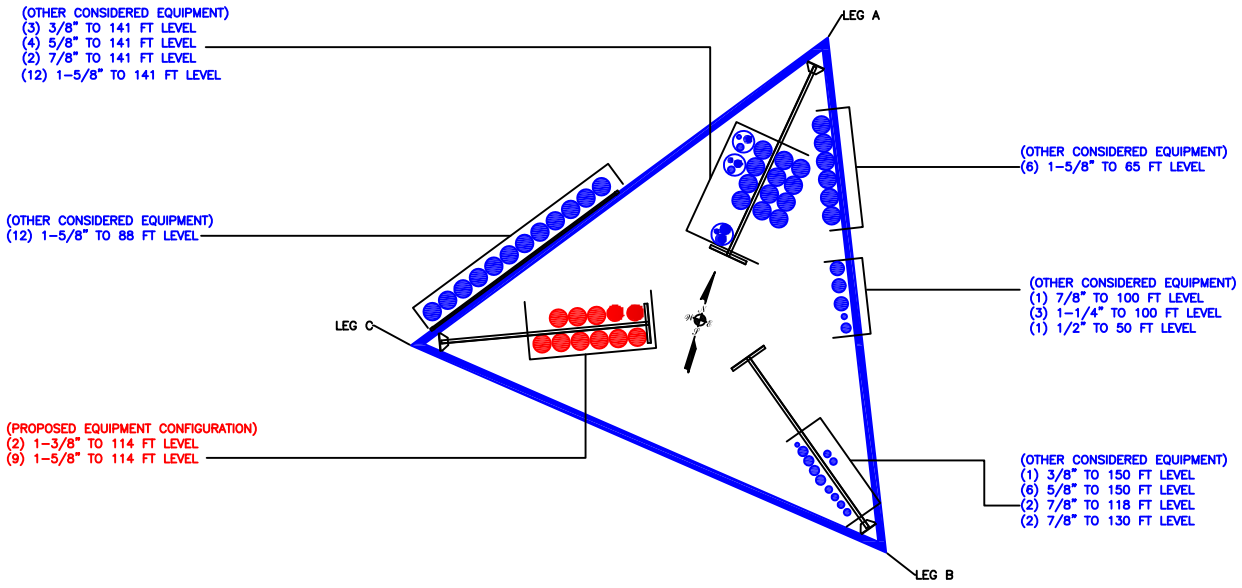
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	150 - 147.583	Leg	1 1/2	1	-2.676	53.917	5.0	Pass
T2	147.583 - 130	Leg	1 1/2	15	-31.413	53.917	58.3	Pass
T3	130 - 110	Leg	2	72	-81.341	117.290	69.3	Pass
T4	110 - 100	Leg	Pirod 105244	136	-88.202	149.618	59.0	Pass
T5	100 - 80	Leg	Pirod 105216	148	-130.929	149.618	87.5	Pass
T6	80 - 60	Leg	Pirod 105217	169	-190.155	225.602	84.3	Pass
T7	60 - 40	Leg	Pirod 105218	187	-233.056	315.715	73.8	Pass
T8	40 - 20	Leg	Pirod 105218	202	-273.564	315.715	86.6	Pass
T9	20 - 0	Leg	Pirod 105219	217	-310.900	419.861	74.0	Pass
T1	150 - 147.583	Diagonal	3/4	11	-1.390	5.577	24.9	Pass
T2	147.583 - 130	Diagonal	3/4	26	-3.803	5.123	74.2	Pass
T3	130 - 110	Diagonal	7/8	80	-5.727	8.211	69.7	Pass
T4	110 - 100	Diagonal	L2 1/2x2 1/2x3/16	142	-9.870	18.455	53.5 75.1 (b)	Pass
T5	100 - 80	Diagonal	L2 1/2x2 1/2x3/8	157	-16.846	27.043	62.3 63.5 (b)	Pass
T6	80 - 60	Diagonal	L3x3x3/16	177	-8.421	20.182	41.7 69.2 (b)	Pass
T7	60 - 40	Diagonal	L3x3x3/16	193	-8.315	16.112	51.6 67.6 (b)	Pass
T8	40 - 20	Diagonal	L3x3x5/16	207	-9.027	20.744	43.5	Pass
T9	20 - 0	Diagonal	L3x3x5/16	222	-11.225	17.119	65.6	Pass
T2	147.583 - 130	Horizontal	7/8	35	-0.407	5.364	7.6	Pass
T3	130 - 110	Horizontal	3/4	127	-0.970	2.691	36.0	Pass
T1	150 - 147.583	Top Girt	5x1/2	6	-0.963	10.158	9.5	Pass
T2	147.583 - 130	Top Girt	7/8	17	-0.149	6.213	2.4	Pass
T3	130 - 110	Top Girt	7/8	74	-1.755	5.122	34.3	Pass
T4	110 - 100	Top Girt	L3x3x3/16	137	1.216	30.113	4.0 9.9 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T5	100 - 80	Top Girt	L3x3x3/16	150	9.760	30.113	32.4 79.6 (b)	Pass
T6	80 - 60	Top Girt	L3x3x3/16	170	-8.081	18.645	43.3 79.3 (b)	Pass
T2	147.583 - 130	Bottom Girt	7/8	19	-1.651	5.073	32.5	Pass
T3	130 - 110	Bottom Girt	7/8	76	-1.948	4.166	46.8	Pass
T5	100 - 80	Mid Girt	L3x3x3/16	152	-11.301	22.249	50.8	Pass
							Summary	
							Leg (T5) 87.5	Pass
							Diagonal (T4) 75.1	Pass
							Horizontal (T3) 36.0	Pass
							Top Girt (T5) 79.6	Pass
							Bottom Girt (T3) 46.8	Pass
							Mid Girt (T5) 50.8	Pass
							Bolt Checks 79.6	Pass
							RATING = 87.5	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842870

APPENDIX C

ADDITIONAL CALCULATIONS

CCIplate

Project Information

BU #	842870
Site Name	MILFORD, CT
Order #	481011, REV. 1

Tower Information

Tower Type	Self Support
TIA-222 Rev	H

☑ Apply TIA-222-H Section 15.5

Applied Loads

	Comp.	Uplift
Axial (k)	0.00	281.00
Shear (k)	0.00	30.00

Anchor Rod Data

Quantity:	6	
Diameter (in):	1.25	
Material Grade:	A687	Fy=105 ksi Fu=150 ksi
Grout Considered:	Yes	Not Considered, lar<=1(d)
l_{ar} (in):	0	
Eta Factor, η:	0.55	
Thread Type:	N-Included	
Configuration:	Symmetrical	

Anchor Rod Results

Axial, Pu_t (kips)	46.83	
Shear, Vu (kips)	5.00	
Moment, Mu (kip-in)	-	
Axial Cap., φPn_t (kips)	90.84	
Shear Cap., ϕVn (kips)	57.52	
Moment Cap., ϕMn (kip-in)	-	
Stress Rating	26.0%	**Pass**

SST Unit Base Foundation

BU # :	842870
Site Name:	MILFORD, CT
Order Number:	481011, Rev. 1
TIA-222 Revision:	H

Top & Bot. Pad Rein. Different?:	☐
Tower Centroid Offset?:	☑
Block Foundation?:	☐

Superstructure Analysis Reactions

Global Moment, **M**:	4208	ft-kips
Global Axial, **P**:	55	kips
Global Shear, **V**:	50	kips
Leg Compression, P_{comp}:	322	kips
Leg Comp. Shear, V_{u_comp}:	33	kips
Leg Uplift, P_{uplift}:	281	kips
Leg Uplift. Shear, V_{u_uplift}:	30	kips
Tower Height, **H**:	150	ft
Base Face Width, **BW**:	16	ft
BP Dist. Above Fdn, bp_{dist}:	4.75	in

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	487.48	50.00	**9.8%**	**Pass**
Bearing Pressure (ksf)	9.00	1.93	**20.4%**	**Pass**
*Overturning (kip*ft)*	10422.02	4721.40	**45.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	1679.29	107.25	**6.1%**	**Pass**
*Pier Flexure (Tension) (kip*ft)*	821.74	97.50	**11.3%**	**Pass**
Pier Compression (kip)	7592.08	331.30	**4.2%**	**Pass**
*Pad Flexure (kip*ft)*	10017.30	487.96	**4.6%**	**Pass**
Pad Shear - 1-way (kips)	1172.32	80.61	**6.5%**	**Pass**
Pad Shear - Comp 2-way (ksi)	0.164	0.028	**16.3%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9194.09	64.35	**0.7%**	**Pass**
Pad Shear - Tension 2-way (ksi)	0.164	0.026	**15.2%**	**Pass**
*Flexural 2-way (Tension) (kip*ft)*	9194.09	58.50	**0.6%**	**Pass**

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

Soil Rating*:	**45.3%**
Structural Rating*:	**16.3%**

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	4.5	ft
Ext. Above Grade, **E**:	0.50	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	16	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.50	ft
Pad Width, **W**:	29.50	ft
Pad Thickness, **T**:	3.75	ft
Pad Rebar Size (Bottom), **Sp**:	9	
Pad Rebar Quantity (Bottom), **mp**:	58	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

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

Soil Properties

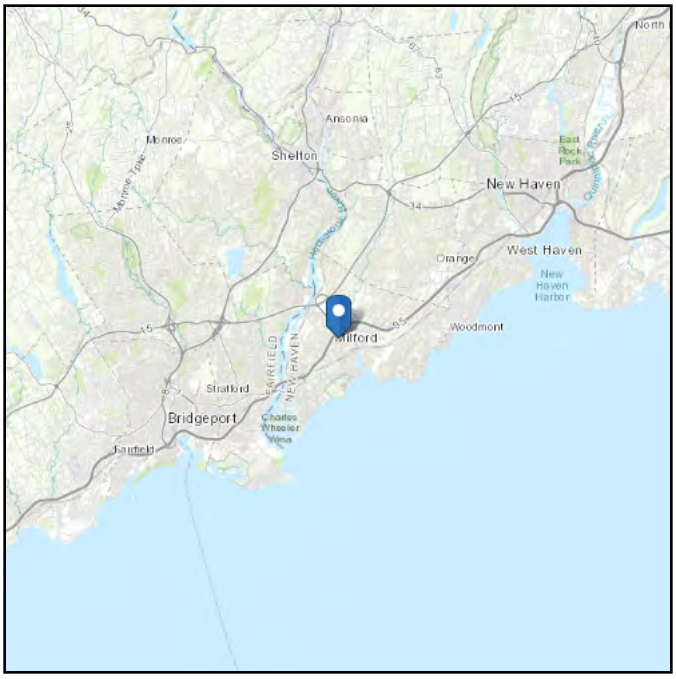
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	34	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.5	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	7	ft

<-- Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	68.18 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.228525
Soil Class:	D - Stiff Soil	**Longitude:**	-73.070131



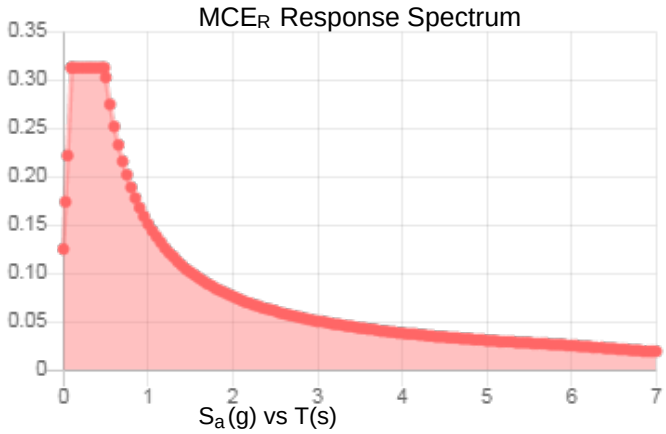
Seismic

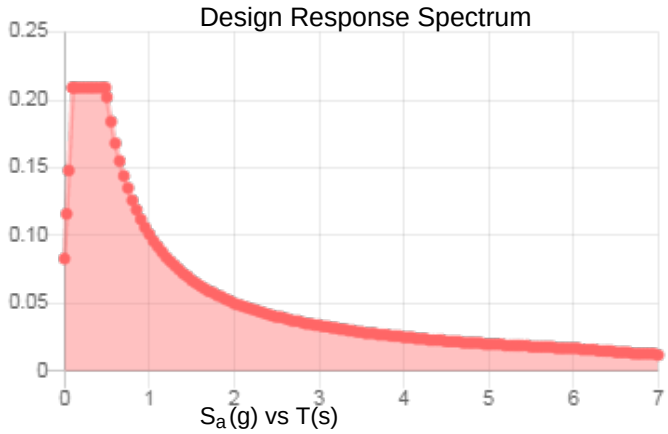
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.195	S_{DS} :	0.209
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.104
S_{MS} :	0.313	PGA_M :	0.166
S_{M1} :	0.151	F_{PGA} :	1.592
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Jun 22 2020

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Jun 22 2020

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

Date: **June 17, 2020**

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

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 244-5207

Subject:	**Mount Analysis**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11018F
	Carrier Site Name:	Milford/ I-95/ X37/ Jct.
Crown Castle Designation:	**Crown Castle BU Number:**	842870
	Crown Castle Site Name:	MILFORD
	Crown Castle JDE Number:	559276
	Crown Castle Order Number:	481011 Revision 1
Engineering Firm Designation:	**MasTec Network Solutions Project Number:**	23715-MNT1
Site Data:	**434 Boston Post Road, Milford, New Haven County, CT 06460** **Latitude: 41° 13' 42.69" Longitude: -73° 4' 12.47"**	
Structure Information	**Tower Height & Type:**	150 ft Self Support
	Mount Elevation:	114 ft
	Mount Width & Type:	12.5 ft T-Frame Mount

Dear Darcy Tarr,

MasTec Network Solutions is pleased to submit this **"Mount 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:

T-Frame Mount **Conditional Pass***

***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

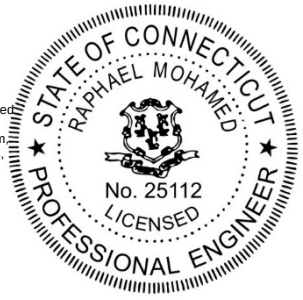
Mount analysis prepared by: Elisa Mathon, EI

Respectfully Submitted by:

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

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: 2020.06.17 16:58:31-04'00'



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1) INTRODUCTION

This is a 12.5 ft T-Frame Mount mapped by ETS.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category	II
Ultimate Wind Speed:	125 mph
Exposure Category:	C
Topographic Category:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.195
Seismic S1:	0.063
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
114.0	112.0	3	ericsson	AIR 32 B2A/ B66AA	(3) 12.5ft T-Frames
		3	ericsson	AIR6449 B41	
		3	ericsson	AIR 21 B2A B4P	
		3	rfs/celwave	APXVAARR24_43-U-NA20	
		3	ericsson	KRY 112 71	
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE	
		3	ericsson	RADIO 4415 B25_CCIV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-ORDER INFORMATION	CROWN CASTLE	Order No. 481011, Rev. 0	CCIsites
4-MOUNT MAPPING	ETS	8527206	CCIsites
4-MOUNT MODIFICATIONS	MASTEC	8556514	CCIsites

3.1) Analysis Method

RISA-3D (Version No. 17.0.4), 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 3 - Mount Component Stresses vs. Capacity (T-Frame Mount)

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Mount Pipe	--	114	84.2	Pass
1	Horizontal	--	114	71.4	Pass
1	Center Pipe	--	114	28.5	Pass
1	Stabilizer	--	114	6.0	Pass
1	Standoff	--	114	55.1	Pass
1	Bolt Connection	--	114	16.0	Pass

Structure Rating (max from all components) =	**84.2%**

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

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity (lb)[3]	Notes
N83A	Existing	633	Leg	2" SR	111705	1

Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

4.1) Recommendations

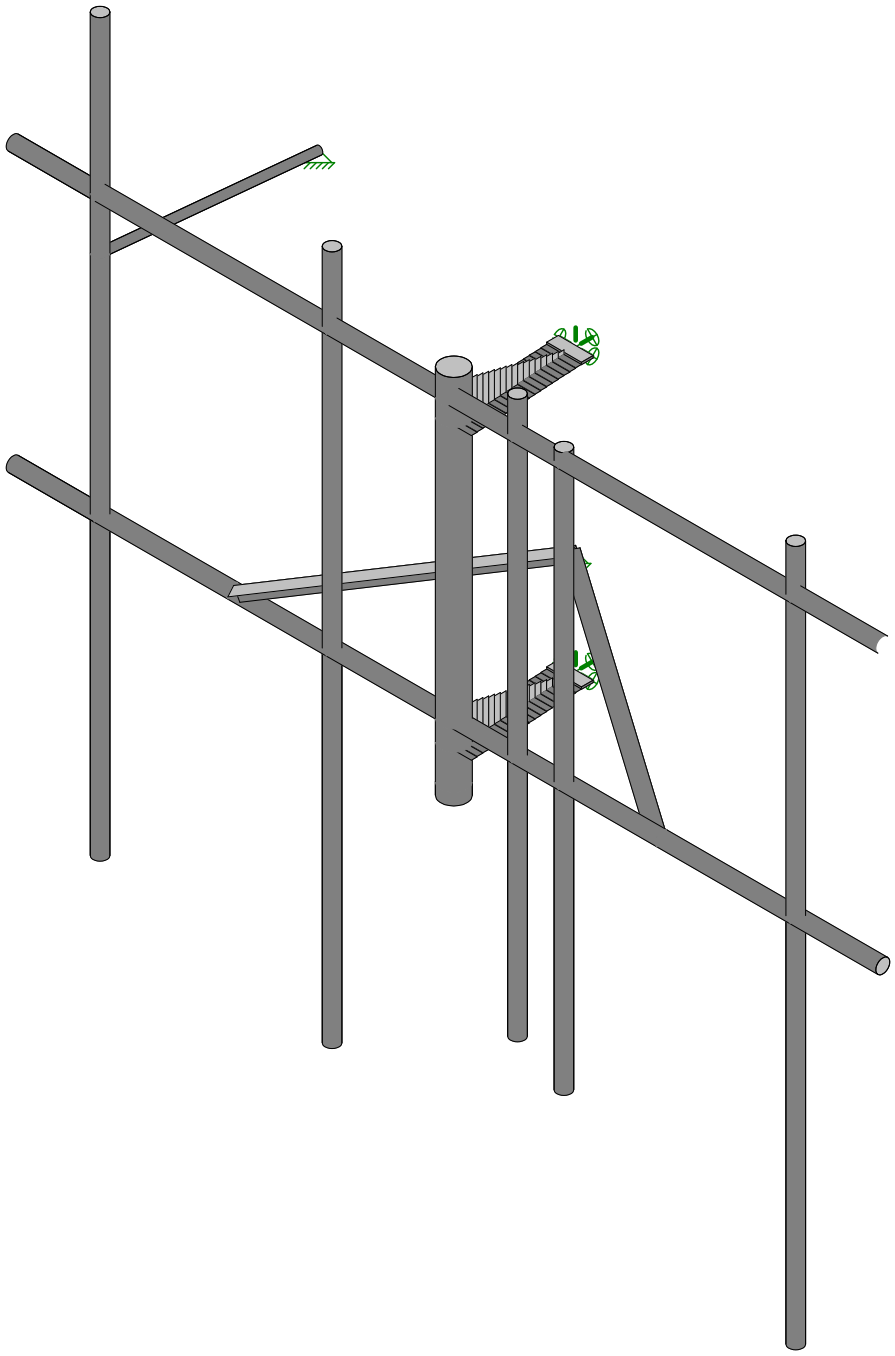
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the loading modification listed below must be completed.:

1. Mount modifications per MasTec (Doc ID 8556514) must be installed.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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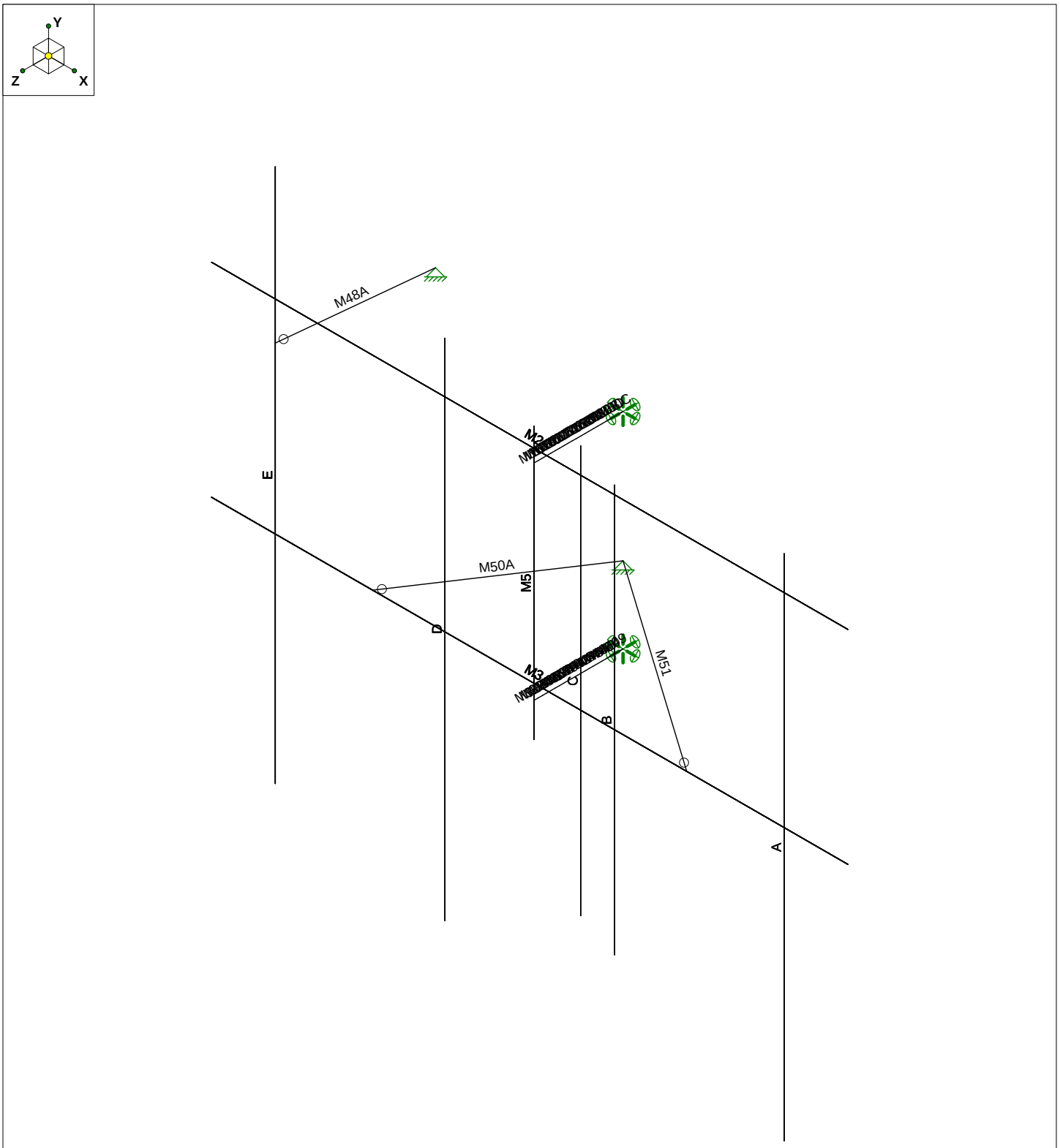
EJM		June 17, 2020 at 11:15 AM
23715-MNT1		19114.R3D



Envelope Only Solution

MasTec Network Solutions	842870-Milford	Member Labels
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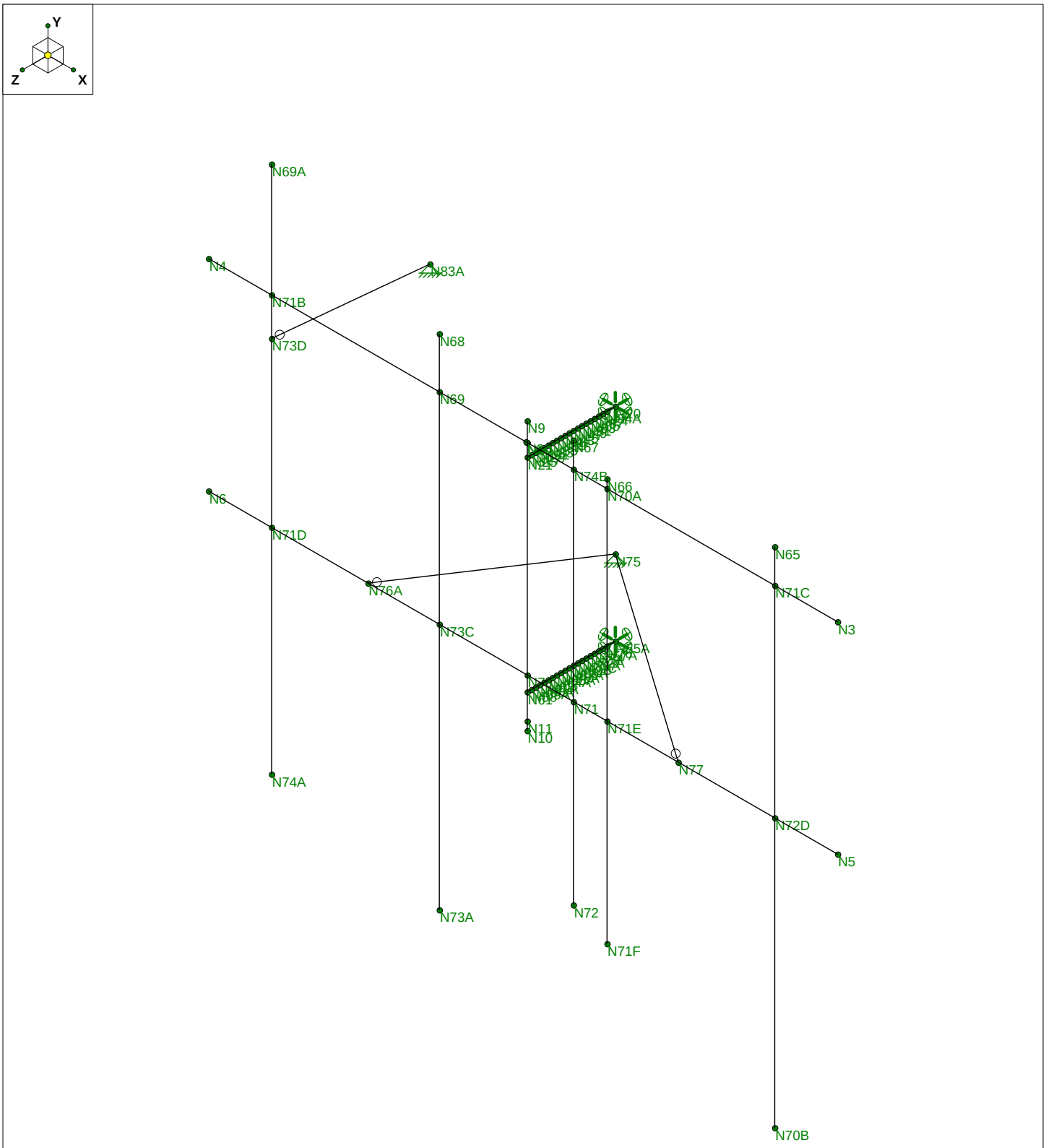
23715-MNT1		19114.R3D



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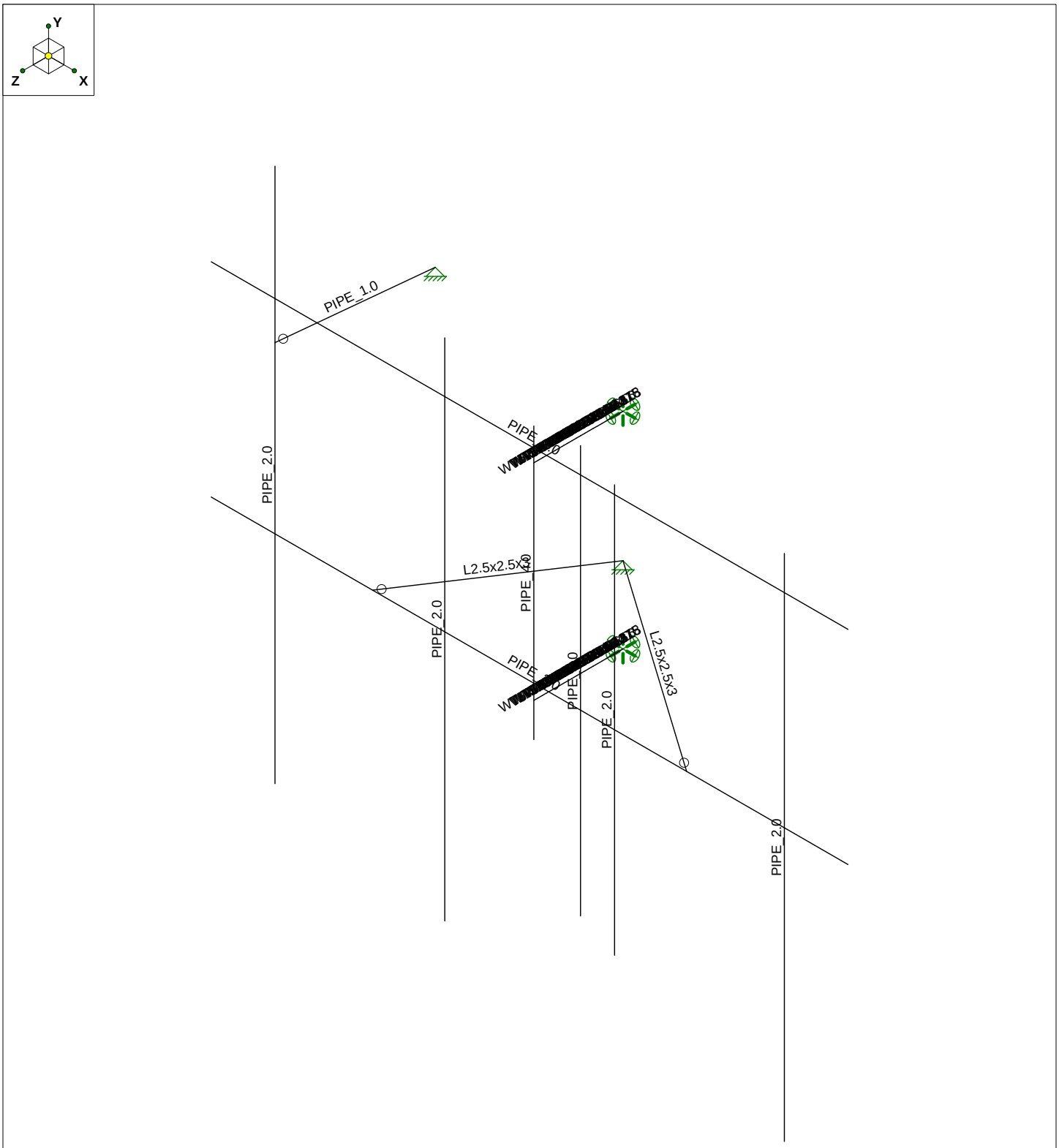
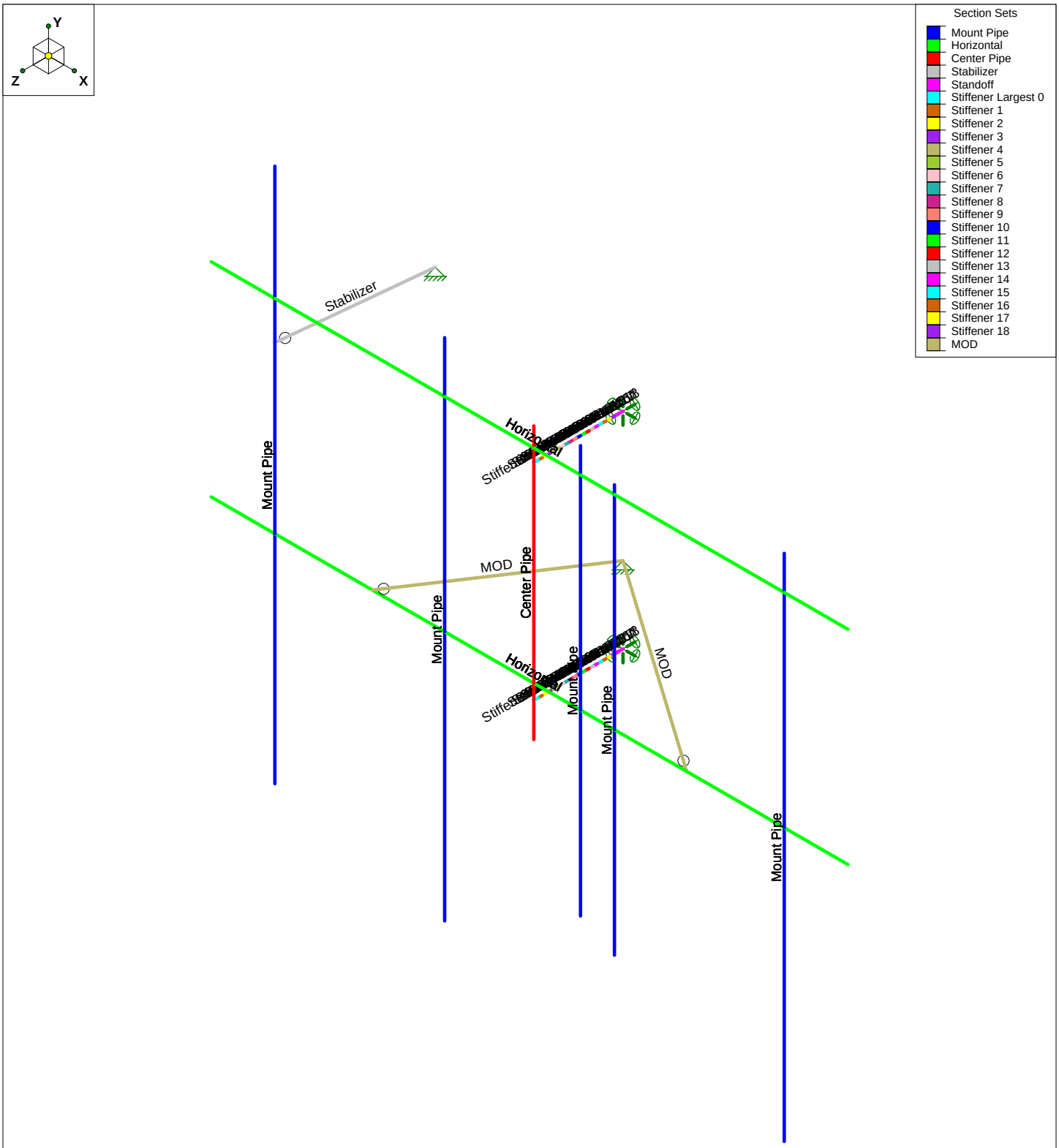


MasTec Network Solutions	842870-Milford	Member Shapes
EJM		June 17, 2020 at 11:18 AM
23715-MNT1		19114.R3D



MasTec Network Solutions	842870-Milford	Section Sets
EJM		June 17, 2020 at 11:19 AM
23715-MNT1		19114.R3D

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

MasTec Network Solutions	842870-Milford	Unity Check
EJM		June 17, 2020 at 11:19 AM
23715-MNT1		19114.R3D

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

MasTec Network Solutions	842870-Milford	Shear. Check
EJM		June 17, 2020 at 11:19 AM
23715-MNT1		19114.R3D

APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec Network Solutions

Mount Analysis Tool

Site Name	MILFORD		
Site ID	842870		
Job Number	19114-MOD1	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	84.2%	PASS

Analysis Parameters		
Mount Height	114	ft
Exposure Category	C	(B,C, or D)
Ultimate Wind Speed	125	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	68.18	ft, Google Earth
S_1	0.063	USGS
S_{DS}	0.209	2.7.5
Vertical Seismic Loads, E_v	0.042	2.7.6
Seismic Response Coefficient, C_s	0.105	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	1.301	2.6.5.2	K_e	0.998	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	44.524	psf, 2.6.11.6			
C/D	142.578	Table 2-9			
t_{iz}	1.698	in, 2.6.10			
q_{iz}	7.124	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D_{iz}	57.031	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	2.563	psf, 2.6.9.6	$K_{es\ (Wind)}$	1.000	Table S-1
$C/D_{Maintenance}$	34.219	Table 2-9	$K_{es\ (ice)}$	1.000	Table S-1
Ice Dead, Grating	0.015847732	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
A	114	120	2.375
B	114	96	2.375
C	114	96	2.375
D	114	119	2.375
E	114	126	2.375

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
Ericsson AIR 21 B2A B4P	Antenna	56	12.1	7.87	91.5
RFS APXVAARR24_43-U-NA20	Antenna	95.9	24	8.7	128
Ericsson AIR -32 B2A/B66AA	Antenna	56.6	12.9	8.7	132.2
Ericsson KRY 112 71	RRU, TMA, Etc.	13.2	12.5	5.6	3.7
Ericsson AIR6449 B41	Antenna	33.1	20.6	8.6	104
Ericsson Radio 4449 B71 B85A_T-MOBILE	RRU, TMA, Etc.	17.91	13.2	10.63	73.21
Ericsson RRUS 4415 B25_CCIV2	RRU, TMA, Etc.	16.5	13.4	5.9	46

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 %
A	Ericsson AIR6449 B41	112	1	0	100.0%	100.0%	Antenna	33.100	20.600	8.600	104.000	5.682	2.491	0.253	0.111	56.2%	83.8%
A	Ericsson KRY 112 71	112	1	0	0.0%	100.0%	RRU, TMA, Etc.	13.200	12.500	5.600	3.700	1.375	0.616	0.000	0.027	64.5%	75.5%
A																	
A																	
A																	
A																	
B	Ericsson AIR 21 B2A B4P	112	1	0	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.271	0.191	45.8%	100.0%
B	Ericsson Radio 4449 B71 B85A_T-MOBILE	112	1	0	20.0%	100.0%	RRU, TMA, Etc.	17.910	13.200	10.630	73.210	1.970	1.587	0.018	0.071	65.7%	84.3%
B																	
B																	
B																	
B																	
C																	
C																	
C																	
C																	
C																	
C																	
D	RFS APXVAARR24_43-U-NA20	112	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	14.670	5.320	0.653	0.237	29.9%	100.0%
D																	
D																	
D																	
D																	
D																	
E	Ericsson AIR -32 B2A/B66AA	112	1	0	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.290	0.210	46.6%	91.5%
E	Ericsson RRUS 4415 B25_CCIV2	112	1	0	20.0%	100.0%	RRU, TMA, Etc.	16.500	13.400	5.900	46.000	1.843	0.820	0.016	0.037	62.5%	75.6%
E																	
E																	
E																	
E																	

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Ice Weight (lb)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
A	Ericsson AIR6449 B41	112	1	0	100.0%	100.0%	Antenna	33.100	20.600	8.600	137.450	7.298	3.722	0.052	0.027	56.2%	83.8%
A	Ericsson KRY 112 71	112	1	0	0.0%	100.0%	RRU, TMA, Etc.	13.200	12.500	5.600	35.130	2.198	1.244	0.000	0.009	64.5%	75.5%
A																	
A																	
A																	
A																	
B	Ericsson AIR 21 B2A B4P	112	1	0	100.0%	100.0%	Antenna	56.000	12.100	7.870	156.173	8.049	6.149	0.057	0.044	45.8%	100.0%
B	Ericsson Radio 4449 B71 B85A_T-MOBILE	112	1	0	20.0%	100.0%	RRU, TMA, Etc.	17.910	13.200	10.630	57.731	2.947	2.490	0.004	0.018	65.7%	84.3%
B																	
B																	
B																	
B																	
C																	
C																	
C																	
C																	
C																	
C																	
D	RFS APXVAARR24_43-U-NA20	112	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	451.367	23.613	12.013	0.168	0.086	29.9%	100.0%
D																	
D																	
D																	
D																	
D																	
E	Ericsson AIR -32 B2A/B66AA	112	1	0	100.0%	100.0%	Antenna	56.600	12.900	8.700	168.857	8.504	6.599	0.061	0.047	46.6%	91.5%
E	Ericsson RRUS 4415 B25_CCIV2	112	1	0	20.0%	100.0%	RRU, TMA, Etc.	16.500	13.400	5.900	46.606	2.785	1.541	0.004	0.011	62.5%	75.6%
E																	
E																	
E																	
E																	

Member	Section Set	Member Length (ft)	Flat/Round	Wind Projection (in)	D_c (in)	A_w (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)
M2	Horizontal	12.5	Round	2.380	2.380	21.753	1.200	0.011	0.000	0.004	0.003	0.008	0.001	0.000
M3	Horizontal	12.5	Round	2.380	2.380	21.753	1.200	0.011	0.000	0.004	0.003	0.008	0.001	0.000
M5	Center Pipe	5.333333	Round	4.500	4.500	33.062	1.200	0.020	0.020	0.006	0.006	0.013	0.001	0.001
M16	Stiffener Largest 0	0.083333	Flat	6.375	7.046	46.643	2.000	0.000	0.047	0.000	0.008	0.018	0.000	0.003
M17	Stiffener 1	0.083334	Flat	6.063	6.760	45.118	2.000	0.000	0.045	0.000	0.007	0.018	0.000	0.003
M18	Stiffener 2	0.083333	Flat	5.750	6.486	43.656	2.000	0.000	0.043	0.000	0.007	0.017	0.000	0.002
M19	Stiffener 3	0.083333	Flat	5.438	6.210	42.184	2.000	0.000	0.040	0.000	0.006	0.016	0.000	0.002
M20	Stiffener 4	0.083334	Flat	5.125	5.938	40.733	2.000	0.000	0.038	0.000	0.006	0.016	0.000	0.002
M21	Stiffener 5	0.083333	Flat	4.813	5.671	39.309	2.000	0.000	0.036	0.000	0.006	0.015	0.000	0.002
M22	Stiffener 6	0.083333	Flat	4.500	5.408	37.906	2.000	0.000	0.033	0.000	0.005	0.015	0.000	0.002
M23	Stiffener 7	0.083334	Flat	4.188	5.151	36.535	2.000	0.000	0.031	0.000	0.005	0.014	0.000	0.002
M24	Stiffener 8	0.083333	Flat	3.875	4.901	35.201	2.000	0.000	0.029	0.000	0.005	0.014	0.000	0.002
M25	Stiffener 9	0.083333	Flat	3.563	4.657	33.900	2.000	0.000	0.026	0.000	0.004	0.013	0.000	0.002
M26	Stiffener 10	0.083334	Flat	3.188	4.377	32.406	2.000	0.000	0.024	0.000	0.004	0.013	0.000	0.001
M27	Stiffener 11	0.083333	Flat	2.875	4.155	31.222	2.000	0.000	0.021	0.000	0.003	0.012	0.000	0.001
M28	Stiffener 12	0.083333	Flat	2.563	3.945	30.101	2.000	0.000	0.019	0.000	0.003	0.012	0.000	0.001
M29	Stiffener 13	0.083334	Flat	2.250	3.750	29.061	2.000	0.000	0.017	0.000	0.003	0.011	0.000	0.001
M30	Stiffener 14	0.083333	Flat	1.938	3.571	28.106	2.000	0.000	0.014	0.000	0.002	0.011	0.000	0.001
M31	Stiffener 15	0.083333	Flat	1.625	3.412	27.258	2.000	0.000	0.012	0.000	0.002	0.011	0.000	0.001
M32	Stiffener 16	0.083334	Flat	1.313	3.275	26.527	2.000	0.000	0.010	0.000	0.002	0.010	0.000	0.001
M30B	Stiffener 17	0.083333	Flat	1.000	3.162	25.925	2.000	0.000	0.007	0.000	0.001	0.010	0.000	0.000
M30C	Standoff	0.166667	Flat	6.000	6.012	41.128	2.000	0.000	0.045	0.000	0.007	0.016	0.000	0.003
M30D	Stiffener 18	0.083333	Flat	0.688	3.078	25.477	2.000	0.000	0.005	0.000	0.001	0.010	0.000	0.000
M31A	Stiffener Largest 0	0.083333	Flat	6.375	7.046	46.643	2.000	0.000	0.047	0.000	0.008	0.018	0.000	0.003
M32A	Stiffener 1	0.083334	Flat	6.063	6.760	45.118	2.000	0.000	0.045	0.000	0.007	0.018	0.000	0.003
M33A	Stiffener 2	0.083333	Flat	5.750	6.486	43.656	2.000	0.000	0.043	0.000	0.007	0.017	0.000	0.002
M34A	Stiffener 3	0.083333	Flat	5.438	6.210	42.184	2.000	0.000	0.040	0.000	0.006	0.016	0.000	0.002
M35	Stiffener 4	0.083334	Flat	5.125	5.938	40.733	2.000	0.000	0.038	0.000	0.006	0.016	0.000	0.002
M36	Stiffener 5	0.083333	Flat	4.813	5.671	39.309	2.000	0.000	0.036	0.000	0.006	0.015	0.000	0.002
M37	Stiffener 6	0.083333	Flat	4.500	5.408	37.906	2.000	0.000	0.033	0.000	0.005	0.015	0.000	0.002
M38	Stiffener 7	0.083334	Flat	4.188	5.151	36.535	2.000	0.000	0.031	0.000	0.005	0.014	0.000	0.002
M39	Stiffener 8	0.083333	Flat	3.875	4.901	35.201	2.000	0.000	0.029	0.000	0.005	0.014	0.000	0.002
M40	Stiffener 9	0.083333	Flat	3.563	4.657	33.900	2.000	0.000	0.026	0.000	0.004	0.013	0.000	0.002
M41	Stiffener 10	0.083334	Flat	3.188	4.377	32.406	2.000	0.000	0.024	0.000	0.004	0.013	0.000	0.001
M42	Stiffener 11	0.083333	Flat	2.875	4.155	31.222	2.000	0.000	0.021	0.000	0.003	0.012	0.000	0.001
M43	Stiffener 12	0.083333	Flat	2.563	3.945	30.101	2.000	0.000	0.019	0.000	0.003	0.012	0.000	0.001
M44	Stiffener 13	0.083334	Flat	2.250	3.750	29.061	2.000	0.000	0.017	0.000	0.003	0.011	0.000	0.001
M45	Stiffener 14	0.083333	Flat	1.938	3.571	28.106	2.000	0.000	0.014	0.000	0.002	0.011	0.000	0.001
M46	Stiffener 15	0.083333	Flat	1.625	3.412	27.258	2.000	0.000	0.012	0.000	0.002	0.011	0.000	0.001
M47	Stiffener 16	0.083334	Flat	1.313	3.275	26.527	2.000	0.000	0.010	0.000	0.002	0.010	0.000	0.001
M48	Stiffener 17	0.083333	Flat	1.000	3.162	25.925	2.000	0.000	0.007	0.000	0.001	0.010	0.000	0.000
M49	Standoff	0.166667	Flat	6.000	6.012	41.128	2.000	0.000	0.045	0.000	0.007	0.016	0.000	0.003
M50	Stiffener 18	0.083333	Flat	0.688	3.078	25.477	2.000	0.000	0.005	0.000	0.001	0.010	0.000	0.000
M48A	Stabilizer	2.870966662	Round	2.380	2.380	21.753	1.200	0.000	0.010	0.000	0.002	0.008	0.000	0.001
A	Mount Pipe	10	Round	2.380	2.380	21.753	1.200	0.011	0.011	0.004	0.004	0.008	0.001	0.001
B	Mount Pipe	8	Round	2.380	2.380	21.753	1.200	0.011	0.011	0.004	0.004	0.008	0.001	0.001
C	Mount Pipe	8	Round	2.380	2.380	21.753	1.200	0.011	0.011	0.004	0.004	0.008	0.001	0.001
D	Mount Pipe	9.916667	Round	2.380	2.380	21.753	1.200	0.011	0.011	0.004	0.004	0.008	0.001	0.001
E	Mount Pipe	10.5	Round	2.380	2.380	21.753	1.200	0.011	0.011	0.004	0.004	0.008	0.001	0.001
M50A	MOD	3.81449191	Flat	2.500	3.536	27.917	2.000	0.016	0.009	0.005	0.003	0.011	0.001	0.001
M51	MOD	3.677304534	Flat	2.500	3.536	27.917	2.000	0.015	0.009	0.005	0.003	0.011	0.001	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	Mount Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Horizontal	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Center Pipe	PIPE_4.0	Beam	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	Stabilizer	PIPE_1.0	Beam	None	A53 Gr.B	Typical	.469	.083	.083	.166
5	Standoff	PL6x.375	Beam	None	A36 Gr.36	Typical	2.25	.026	6.75	.101
6	Stiffener Largest 0	WT6x0	Beam	None	A36 Gr.36	Typical	4.5	6.776	18.207	.212
7	Stiffener 1	WT5-11/16x1	Beam	None	A36 Gr.36	Typical	4.383	6.775	15.836	.206
8	Stiffener 2	WT5-3/8x2	Beam	None	A36 Gr.36	Typical	4.266	6.774	13.667	.201
9	Stiffener 3	WT5-1/16x3	Beam	None	A36 Gr.36	Typical	4.148	6.772	11.692	.195
10	Stiffener 4	WT4-3/4x4	Beam	None	A36 Gr.36	Typical	4.031	6.771	9.904	.19
11	Stiffener 5	WT4-7/16x5	Beam	None	A36 Gr.36	Typical	3.914	6.77	8.296	.184
12	Stiffener 6	WT4-1/8x6	Beam	None	A36 Gr.36	Typical	3.797	6.768	6.86	.179
13	Stiffener 7	WT3-13/16x7	Beam	None	A36 Gr.36	Typical	3.68	6.767	5.59	.173
14	Stiffener 8	WT3-1/2x8	Beam	None	A36 Gr.36	Typical	3.563	6.765	4.478	.168
15	Stiffener 9	WT3-3/16x9	Beam	None	A36 Gr.36	Typical	3.445	6.764	3.515	.163
16	Stiffener 10	WT2-13/16x10	Beam	None	A36 Gr.36	Typical	3.305	6.762	2.546	.156
17	Stiffener 11	WT2-1/2x11	Beam	None	A36 Gr.36	Typical	3.188	6.761	1.882	.15
18	Stiffener 12	WT2-3/16x12	Beam	None	A36 Gr.36	Typical	3.07	6.76	1.34	.145
19	Stiffener 13	WT1-7/8x13	Beam	None	A36 Gr.36	Typical	2.953	6.758	.91	.139
20	Stiffener 14	WT1-9/16x14	Beam	None	A36 Gr.36	Typical	2.836	6.757	.582	.134
21	Stiffener 15	WT1-1/4x15	Beam	None	A36 Gr.36	Typical	2.719	6.755	.343	.128
22	Stiffener 16	WT-15/16x16	Beam	None	A36 Gr.36	Typical	2.602	6.754	.183	.123
23	Stiffener 17	WT-5/8x17	Beam	None	A36 Gr.36	Typical	2.484	6.753	.087	.117
24	Stiffener 18	WT-5/16x18	Beam	None	A36 Gr.36	Typical	2.367	6.751	.04	.111
25	MOD	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N3	15.558291	4.	9.319514	0	
2	N4	3.058291	4.	9.319514	0	
3	N5	15.558291	0	9.319514	0	
4	N6	3.058291	0	9.319514	0	
5	N9	9.391625	4.375	9.319514	0	
6	N10	9.391625	-0.958333	9.319514	0	
7	N11	9.391625	-0.791667	9.319514	0	
8	N20	9.391625	3.75	7.569514	0	
9	N21	9.391625	3.75	9.319514	0	
10	N24	9.391625	3.75	7.819514	0	
11	N25	9.391625	3.75	9.236181	0	
12	N27	9.391625	3.75	9.152847	0	
13	N29	9.391625	3.75	9.069514	0	
14	N31	9.391625	3.75	8.986181	0	
15	N33	9.391625	3.75	8.902847	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
16	N35	9.391625	3.75	8.819514	0	
17	N37	9.391625	3.75	8.736181	0	
18	N39	9.391625	3.75	8.652847	0	
19	N41	9.391625	3.75	8.569514	0	
20	N43	9.391625	3.75	8.486181	0	
21	N45	9.391625	3.75	8.402847	0	
22	N47	9.391625	3.75	8.319514	0	
23	N49	9.391625	3.75	8.236181	0	
24	N51	9.391625	3.75	8.152847	0	
25	N53	9.391625	3.75	8.069514	0	
26	N55	9.391625	3.75	7.986181	0	
27	N57	9.391625	3.75	7.902847	0	
28	N59	9.391625	4.	9.319514	0	
29	N60	9.365309	4.	9.319514	0	
30	N61	9.391625	-0.291667	9.319514	0	
31	N70	9.391625	0	9.319514	0	
32	N54A	9.391625	3.75	7.736181	0	
33	N55A	9.391625	-0.291667	7.569514	0	
34	N57A	9.391625	-0.291667	7.819514	0	
35	N58	9.391625	-0.291667	9.236181	0	
36	N59A	9.391625	-0.291667	9.152847	0	
37	N60A	9.391625	-0.291667	9.069514	0	
38	N61A	9.391625	-0.291667	8.986181	0	
39	N62	9.391625	-0.291667	8.902847	0	
40	N63	9.391625	-0.291667	8.819514	0	
41	N64A	9.391625	-0.291667	8.736181	0	
42	N65A	9.391625	-0.291667	8.652847	0	
43	N66A	9.391625	-0.291667	8.569514	0	
44	N67A	9.391625	-0.291667	8.486181	0	
45	N68A	9.391625	-0.291667	8.402847	0	
46	N69B	9.391625	-0.291667	8.319514	0	
47	N70C	9.391625	-0.291667	8.236181	0	
48	N71A	9.391625	-0.291667	8.152847	0	
49	N72A	9.391625	-0.291667	8.069514	0	
50	N73	9.391625	-0.291667	7.986181	0	
51	N74	9.391625	-0.291667	7.902847	0	
52	N76	9.391625	-0.291667	7.736181	0	
53	N71B	4.308291	4.	9.319514	0	
54	N71C	14.308291	4.	9.319514	0	
55	N71D	4.308291	0	9.319514	0	
56	N72D	14.308291	0	9.319514	0	
57	N73C	7.641625	0	9.319514	0	
58	N71E	10.974958	0	9.319514	0	
59	N69	7.641625	4.	9.319514	0	
60	N70A	10.974958	4.	9.319514	0	
61	N83A	4.600972	3.25	6.463505	0	
62	N73D	4.308291	3.25	9.319514	0	
63	N71	10.308291	0	9.319514	0	
64	N74B	10.308291	4.	9.319514	0	
65	N65	14.308291	4.666667	9.319514	0	
66	N66	10.974958	4.166667	9.319514	0	
67	N67	10.308291	4.5	9.319514	0	
68	N68	7.641625	5.	9.319514	0	
69	N69A	4.308291	6.25	9.319514	0	
70	N70B	14.308291	-5.333333	9.319514	0	
71	N71F	10.974958	-3.833333	9.319514	0	
72	N72	10.308291	-3.5	9.319514	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
73	N73A	7.641625	-4.916667	9.319514	0	
74	N74A	4.308291	-4.25	9.319514	0	
75	N75	9.391625	1.208333	7.569514	0	
76	N76A	6.224958	0	9.319514	0	
77	N77	12.391625	0	9.319514	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	N20	Reaction	Reaction	Reaction	Reaction		Reaction
2	N55A	Reaction	Reaction	Reaction	Reaction		Reaction
3	N83A	Reaction	Reaction	Reaction			
4	N75	Reaction	Reaction	Reaction			

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	M2	N3	N4			Horizontal	Beam	None	A53 Gr.B	Typical
2	M3	N5	N6			Horizontal	Beam	None	A53 Gr.B	Typical
3	M5	N9	N10			Center Pipe	Beam	None	A53 Gr.B	Typical
4	M16	N25	N21		180	Stiffener Largest 0	Beam	None	A36 Gr.36	Typical
5	M17	N27	N25		180	Stiffener 1	Beam	None	A36 Gr.36	Typical
6	M18	N29	N27		180	Stiffener 2	Beam	None	A36 Gr.36	Typical
7	M19	N31	N29		180	Stiffener 3	Beam	None	A36 Gr.36	Typical
8	M20	N33	N31		180	Stiffener 4	Beam	None	A36 Gr.36	Typical
9	M21	N35	N33		180	Stiffener 5	Beam	None	A36 Gr.36	Typical
10	M22	N37	N35		180	Stiffener 6	Beam	None	A36 Gr.36	Typical
11	M23	N39	N37		180	Stiffener 7	Beam	None	A36 Gr.36	Typical
12	M24	N41	N39		180	Stiffener 8	Beam	None	A36 Gr.36	Typical
13	M25	N43	N41		180	Stiffener 9	Beam	None	A36 Gr.36	Typical
14	M26	N45	N43		180	Stiffener 10	Beam	None	A36 Gr.36	Typical
15	M27	N47	N45		180	Stiffener 11	Beam	None	A36 Gr.36	Typical
16	M28	N49	N47		180	Stiffener 12	Beam	None	A36 Gr.36	Typical
17	M29	N51	N49		180	Stiffener 13	Beam	None	A36 Gr.36	Typical
18	M30	N53	N51		180	Stiffener 14	Beam	None	A36 Gr.36	Typical
19	M31	N55	N53		180	Stiffener 15	Beam	None	A36 Gr.36	Typical
20	M32	N57	N55		180	Stiffener 16	Beam	None	A36 Gr.36	Typical
21	M30B	N24	N57		180	Stiffener 17	Beam	None	A36 Gr.36	Typical
22	M30C	N54A	N20		90	Standoff	Beam	None	A36 Gr.36	Typical
23	M30D	N24	N54A		180	Stiffener 18	Beam	None	A36 Gr.36	Typical
24	M31A	N58	N61		180	Stiffener Largest 0	Beam	None	A36 Gr.36	Typical
25	M32A	N59A	N58		180	Stiffener 1	Beam	None	A36 Gr.36	Typical
26	M33A	N60A	N59A		180	Stiffener 2	Beam	None	A36 Gr.36	Typical
27	M34A	N61A	N60A		180	Stiffener 3	Beam	None	A36 Gr.36	Typical
28	M35	N62	N61A		180	Stiffener 4	Beam	None	A36 Gr.36	Typical
29	M36	N63	N62		180	Stiffener 5	Beam	None	A36 Gr.36	Typical
30	M37	N64A	N63		180	Stiffener 6	Beam	None	A36 Gr.36	Typical
31	M38	N65A	N64A		180	Stiffener 7	Beam	None	A36 Gr.36	Typical
32	M39	N66A	N65A		180	Stiffener 8	Beam	None	A36 Gr.36	Typical
33	M40	N67A	N66A		180	Stiffener 9	Beam	None	A36 Gr.36	Typical
34	M41	N68A	N67A		180	Stiffener 10	Beam	None	A36 Gr.36	Typical
35	M42	N69B	N68A		180	Stiffener 11	Beam	None	A36 Gr.36	Typical
36	M43	N70C	N69B		180	Stiffener 12	Beam	None	A36 Gr.36	Typical
37	M44	N71A	N70C		180	Stiffener 13	Beam	None	A36 Gr.36	Typical
38	M45	N72A	N71A		180	Stiffener 14	Beam	None	A36 Gr.36	Typical
39	M46	N73	N72A		180	Stiffener 15	Beam	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
40	M47	N74	N73		180	Stiffener 16	Beam	None	A36 Gr.36	Typical
41	M48	N57A	N74		180	Stiffener 17	Beam	None	A36 Gr.36	Typical
42	M49	N76	N55A		90	Standoff	Beam	None	A36 Gr.36	Typical
43	M50	N57A	N76		180	Stiffener 18	Beam	None	A36 Gr.36	Typical
44	M48A	N73D	N83A			Stabilizer	Beam	None	A53 Gr.B	Typical
45	A	N65	N70B			Mount Pipe	Beam	None	A53 Gr.B	Typical
46	B	N66	N71F			Mount Pipe	Beam	None	A53 Gr.B	Typical
47	C	N67	N72			Mount Pipe	Beam	None	A53 Gr.B	Typical
48	D	N68	N73A			Mount Pipe	Beam	None	A53 Gr.B	Typical
49	E	N69A	N74A			Mount Pipe	Beam	None	A53 Gr.B	Typical
50	M50A	N76A	N75		90	MOD	Beam	None	A36 Gr.36	Typical
51	M51	N77	N75		180	MOD	Beam	None	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	M2	Horizontal	12.5		6.25	Lbyy						Lateral
2	M3	Horizontal	12.5		6.25	Lbyy						Lateral
3	M5	Center Pipe	5.333	4	4	Lbyy						Lateral
4	M16	Stiffener Lar...	.083			Lbyy						Lateral
5	M17	Stiffener 1	.083			Lbyy						Lateral
6	M18	Stiffener 2	.083			Lbyy						Lateral
7	M19	Stiffener 3	.083			Lbyy						Lateral
8	M20	Stiffener 4	.083			Lbyy						Lateral
9	M21	Stiffener 5	.083			Lbyy						Lateral
10	M22	Stiffener 6	.083			Lbyy						Lateral
11	M23	Stiffener 7	.083			Lbyy						Lateral
12	M24	Stiffener 8	.083			Lbyy						Lateral
13	M25	Stiffener 9	.083			Lbyy						Lateral
14	M26	Stiffener 10	.083			Lbyy						Lateral
15	M27	Stiffener 11	.083			Lbyy						Lateral
16	M28	Stiffener 12	.083			Lbyy						Lateral
17	M29	Stiffener 13	.083			Lbyy						Lateral
18	M30	Stiffener 14	.083			Lbyy						Lateral
19	M31	Stiffener 15	.083			Lbyy						Lateral
20	M32	Stiffener 16	.083			Lbyy						Lateral
21	M30B	Stiffener 17	.083			Lbyy						Lateral
22	M30C	Standoff	.167			Lbyy						Lateral
23	M30D	Stiffener 18	.083			Lbyy						Lateral
24	M31A	Stiffener Lar...	.083			Lbyy						Lateral
25	M32A	Stiffener 1	.083			Lbyy						Lateral
26	M33A	Stiffener 2	.083			Lbyy						Lateral
27	M34A	Stiffener 3	.083			Lbyy						Lateral
28	M35	Stiffener 4	.083			Lbyy						Lateral
29	M36	Stiffener 5	.083			Lbyy						Lateral
30	M37	Stiffener 6	.083			Lbyy						Lateral
31	M38	Stiffener 7	.083			Lbyy						Lateral
32	M39	Stiffener 8	.083			Lbyy						Lateral
33	M40	Stiffener 9	.083			Lbyy						Lateral
34	M41	Stiffener 10	.083			Lbyy						Lateral
35	M42	Stiffener 11	.083			Lbyy						Lateral
36	M43	Stiffener 12	.083			Lbyy						Lateral
37	M44	Stiffener 13	.083			Lbyy						Lateral
38	M45	Stiffener 14	.083			Lbyy						Lateral
39	M46	Stiffener 15	.083			Lbyy						Lateral
40	M47	Stiffener 16	.083			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
41	M48	Stiffener 17	.083			Lbyy						Lateral
42	M49	Standoff	.167			Lbyy						Lateral
43	M50	Stiffener 18	.083			Lbyy						Lateral
44	M48A	Stabilizer	2.871			Lbyy						Lateral
45	A	Mount Pipe	10			Lbyy						Lateral
46	B	Mount Pipe	8			Lbyy						Lateral
47	C	Mount Pipe	8			Lbyy						Lateral
48	D	Mount Pipe	9.917			Lbyy						Lateral
49	E	Mount Pipe	10.5			Lbyy						Lateral
50	M50A	MOD	3.814			Lbyy						Lateral
51	M51	MOD	3.677			Lbyy						Lateral

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/ft, k*s^2*ft)]
1	N70B	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/ft, k*s^2*ft)]
1	N71F	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/ft, k*s^2*ft)]
1	N74A	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/ft, k*s^2*ft)]
1	N5	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/ft, k*s^2*ft)]
1	N6	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/ft, k*s^2*ft)]
1	N3	L	Y	0

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.104	%70
2	A	Y	-.004	%70
3	B	Y	-.092	%72.9
4	B	Y	-.073	%75
5	D	Y	-.128	%64.9
6	E	Y	-.132	%69
7	E	Y	-.046	%69

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.137	%70
2	A	Y	-.035	%70
3	B	Y	-.156	%72.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	B	Y	-.058	%75
5	D	Y	-.451	%64.9
6	E	Y	-.169	%69
7	E	Y	-.047	%69

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.126	%56.2
2	B	Z	-.136	%45.8
3	B	Z	-.018	%75
4	D	Z	-.327	%29.9
5	E	Z	-.145	%46.6
6	E	Z	-.016	%69
7	A	Z	-.126	%83.8
8	B	Z	-.136	%100
9	D	Z	-.327	%100
10	E	Z	-.145	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.094	%56.2
2	B	Z	-.109	%45.8
3	B	Z	-.014	%75
4	D	Z	-.238	%29.9
5	E	Z	-.117	%46.6
6	E	Z	-.012	%69
7	A	Z	-.094	%83.8
8	B	Z	-.109	%100
9	D	Z	-.238	%100
10	E	Z	-.117	%91.5
11	A	X	.054	%56.2
12	A	X	.003	%70
13	B	X	.063	%45.8
14	B	X	.015	%75
15	D	X	.137	%29.9
16	E	X	.067	%46.6
17	E	X	.011	%69
18	A	X	.054	%83.8
19	B	X	.063	%100
20	D	X	.137	%100
21	E	X	.067	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.037	%56.2
2	B	Z	-.053	%45.8
3	B	Z	-.007	%75
4	D	Z	-.085	%29.9
5	E	Z	-.057	%46.6
6	E	Z	-.005	%69
7	A	Z	-.037	%83.8
8	B	Z	-.053	%100
9	D	Z	-.085	%100
10	E	Z	-.057	%91.5
11	A	X	.063	%56.2

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
12	A	X	.018	%70
13	B	X	.091	%45.8
14	B	X	.05	%75
15	D	X	.148	%29.9
16	E	X	.1	%46.6
17	E	X	.027	%69
18	A	X	.063	%83.8
19	B	X	.091	%100
20	D	X	.148	%100
21	E	X	.1	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	0	%56.2
2	B	Z	0	%45.8
3	B	Z	0	%75
4	D	Z	0	%29.9
5	E	Z	0	%46.6
6	E	Z	0	%69
7	A	Z	0	%83.8
8	B	Z	0	%100
9	D	Z	0	%100
10	E	Z	0	%91.5
11	A	X	.055	%56.2
12	A	X	.027	%70
13	B	X	.096	%45.8
14	B	X	.071	%75
15	D	X	.118	%29.9
16	E	X	.105	%46.6
17	E	X	.037	%69
18	A	X	.055	%83.8
19	B	X	.096	%100
20	D	X	.118	%100
21	E	X	.105	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.037	%56.2
2	B	Z	.053	%45.8
3	B	Z	.007	%75
4	D	Z	.085	%29.9
5	E	Z	.057	%46.6
6	E	Z	.005	%69
7	A	Z	.037	%83.8
8	B	Z	.053	%100
9	D	Z	.085	%100
10	E	Z	.057	%91.5
11	A	X	.063	%56.2
12	A	X	.018	%70
13	B	X	.091	%45.8
14	B	X	.05	%75
15	D	X	.148	%29.9
16	E	X	.1	%46.6
17	E	X	.027	%69
18	A	X	.063	%83.8
19	B	X	.091	%100

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
20	D	X	.148	%100
21	E	X	.1	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.094	%56.2
2	B	Z	.109	%45.8
3	B	Z	.014	%75
4	D	Z	.238	%29.9
5	E	Z	.117	%46.6
6	E	Z	.012	%69
7	A	Z	.094	%83.8
8	B	Z	.109	%100
9	D	Z	.238	%100
10	E	Z	.117	%91.5
11	A	X	.054	%56.2
12	A	X	.003	%70
13	B	X	.063	%45.8
14	B	X	.015	%75
15	D	X	.137	%29.9
16	E	X	.067	%46.6
17	E	X	.011	%69
18	A	X	.054	%83.8
19	B	X	.063	%100
20	D	X	.137	%100
21	E	X	.067	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.026	%56.2
2	B	Z	-.029	%45.8
3	B	Z	-.004	%75
4	D	Z	-.084	%29.9
5	E	Z	-.03	%46.6
6	E	Z	-.004	%69
7	A	Z	-.026	%83.8
8	B	Z	-.029	%100
9	D	Z	-.084	%100
10	E	Z	-.03	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.02	%56.2
2	B	Z	-.023	%45.8
3	B	Z	-.003	%75
4	D	Z	-.064	%29.9
5	E	Z	-.025	%46.6
6	E	Z	-.003	%69
7	A	Z	-.02	%83.8
8	B	Z	-.023	%100
9	D	Z	-.064	%100
10	E	Z	-.025	%91.5
11	A	X	.011	%56.2
12	A	X	.001	%70
13	B	X	.013	%45.8

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	B	X	.004	%75
15	D	X	.037	%29.9
16	E	X	.014	%46.6
17	E	X	.003	%69
18	A	X	.011	%83.8
19	B	X	.013	%100
20	D	X	.037	%100
21	E	X	.014	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.008	%56.2
2	B	Z	-.012	%45.8
3	B	Z	-.002	%75
4	D	Z	-.027	%29.9
5	E	Z	-.013	%46.6
6	E	Z	-.001	%69
7	A	Z	-.008	%83.8
8	B	Z	-.012	%100
9	D	Z	-.027	%100
10	E	Z	-.013	%91.5
11	A	X	.014	%56.2
12	A	X	.006	%70
13	B	X	.02	%45.8
14	B	X	.012	%75
15	D	X	.046	%29.9
16	E	X	.022	%46.6
17	E	X	.008	%69
18	A	X	.014	%83.8
19	B	X	.02	%100
20	D	X	.046	%100
21	E	X	.022	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	0	%56.2
2	B	Z	0	%45.8
3	B	Z	0	%75
4	D	Z	0	%29.9
5	E	Z	0	%46.6
6	E	Z	0	%69
7	A	Z	0	%83.8
8	B	Z	0	%100
9	D	Z	0	%100
10	E	Z	0	%91.5
11	A	X	.013	%56.2
12	A	X	.009	%70
13	B	X	.022	%45.8
14	B	X	.018	%75
15	D	X	.043	%29.9
16	E	X	.024	%46.6
17	E	X	.011	%69
18	A	X	.013	%83.8
19	B	X	.022	%100
20	D	X	.043	%100
21	E	X	.024	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.008	%56.2
2	B	Z	.012	%45.8
3	B	Z	.002	%75
4	D	Z	.027	%29.9
5	E	Z	.013	%46.6
6	E	Z	.001	%69
7	A	Z	.008	%83.8
8	B	Z	.012	%100
9	D	Z	.027	%100
10	E	Z	.013	%91.5
11	A	X	.014	%56.2
12	A	X	.006	%70
13	B	X	.02	%45.8
14	B	X	.012	%75
15	D	X	.046	%29.9
16	E	X	.022	%46.6
17	E	X	.008	%69
18	A	X	.014	%83.8
19	B	X	.02	%100
20	D	X	.046	%100
21	E	X	.022	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.02	%56.2
2	B	Z	.012	%45.8
3	B	Z	.002	%75
4	D	Z	.027	%29.9
5	E	Z	.013	%46.6
6	E	Z	.001	%69
7	A	Z	.02	%83.8
8	B	Z	.012	%100
9	D	Z	.027	%100
10	E	Z	.013	%91.5
11	A	X	.011	%56.2
12	A	X	.006	%70
13	B	X	.02	%45.8
14	B	X	.012	%75
15	D	X	.046	%29.9
16	E	X	.022	%46.6
17	E	X	.008	%69
18	A	X	.011	%83.8
19	B	X	.02	%100
20	D	X	.046	%100
21	E	X	.022	%91.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.011	%70
2	A	Z	0	%70
3	B	Z	-.01	%72.9
4	B	Z	-.008	%75
5	D	Z	-.013	%64.9
6	E	Z	-.014	%69
7	E	Z	-.005	%69

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	X	.011	%70
2	A	X	0	%70
3	B	X	.01	%72.9
4	B	X	.008	%75
5	D	X	.013	%64.9
6	E	X	.014	%69
7	E	X	.005	%69

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.021	%70
2	A	Y	-.001	%70
3	B	Y	-.018	%72.9
4	B	Y	-.015	%75
5	D	Y	-.026	%64.9
6	E	Y	-.026	%69
7	E	Y	-.009	%69

Member Distributed Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Y	-.008	-.008	0	%100
2	M3	Y	-.008	-.008	0	%100
3	M5	Y	-.013	-.013	0	%100
4	M16	Y	-.018	-.018	0	%100
5	M17	Y	-.018	-.018	0	%100
6	M18	Y	-.017	-.017	0	%100
7	M19	Y	-.016	-.016	0	%100
8	M20	Y	-.016	-.016	0	%100
9	M21	Y	-.015	-.015	0	%100
10	M22	Y	-.015	-.015	0	%100
11	M23	Y	-.014	-.014	0	%100
12	M24	Y	-.014	-.014	0	%100
13	M25	Y	-.013	-.013	0	%100
14	M26	Y	-.013	-.013	0	%100
15	M27	Y	-.012	-.012	0	%100
16	M28	Y	-.012	-.012	0	%100
17	M29	Y	-.011	-.011	0	%100
18	M30	Y	-.011	-.011	0	%100
19	M31	Y	-.011	-.011	0	%100
20	M32	Y	-.01	-.01	0	%100
21	M30B	Y	-.01	-.01	0	%100
22	M30C	Y	-.016	-.016	0	%100
23	M30D	Y	-.01	-.01	0	%100
24	M31A	Y	-.018	-.018	0	%100
25	M32A	Y	-.018	-.018	0	%100
26	M33A	Y	-.017	-.017	0	%100
27	M34A	Y	-.016	-.016	0	%100
28	M35	Y	-.016	-.016	0	%100
29	M36	Y	-.015	-.015	0	%100
30	M37	Y	-.015	-.015	0	%100
31	M38	Y	-.014	-.014	0	%100
32	M39	Y	-.014	-.014	0	%100
33	M40	Y	-.013	-.013	0	%100
34	M41	Y	-.013	-.013	0	%100
35	M42	Y	-.012	-.012	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
36	M43	Y	-.012	-.012	0	%100
37	M44	Y	-.011	-.011	0	%100
38	M45	Y	-.011	-.011	0	%100
39	M46	Y	-.011	-.011	0	%100
40	M47	Y	-.01	-.01	0	%100
41	M48	Y	-.01	-.01	0	%100
42	M49	Y	-.016	-.016	0	%100
43	M50	Y	-.01	-.01	0	%100
44	M48A	Y	-.008	-.008	0	%100
45	A	Y	-.008	-.008	0	%100
46	B	Y	-.008	-.008	0	%100
47	C	Y	-.008	-.008	0	%100
48	D	Y	-.008	-.008	0	%100
49	E	Y	-.008	-.008	0	%100
50	M50A	Y	-.011	-.011	0	%100
51	M51	Y	-.011	-.011	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.011	-.011	0	%100
2	M3	Z	-.011	-.011	0	%100
3	M5	Z	-.02	-.02	0	%100
4	M16	Z	0	0	0	%100
5	M17	Z	0	0	0	%100
6	M18	Z	0	0	0	%100
7	M19	Z	0	0	0	%100
8	M20	Z	0	0	0	%100
9	M21	Z	0	0	0	%100
10	M22	Z	0	0	0	%100
11	M23	Z	0	0	0	%100
12	M24	Z	0	0	0	%100
13	M25	Z	0	0	0	%100
14	M26	Z	0	0	0	%100
15	M27	Z	0	0	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	0	0	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	0	0	0	%100
25	M32A	Z	0	0	0	%100
26	M33A	Z	0	0	0	%100
27	M34A	Z	0	0	0	%100
28	M35	Z	0	0	0	%100
29	M36	Z	0	0	0	%100
30	M37	Z	0	0	0	%100
31	M38	Z	0	0	0	%100
32	M39	Z	0	0	0	%100
33	M40	Z	0	0	0	%100
34	M41	Z	0	0	0	%100
35	M42	Z	0	0	0	%100
36	M43	Z	0	0	0	%100
37	M44	Z	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
38	M45	Z	0	0	0	%100
39	M46	Z	0	0	0	%100
40	M47	Z	0	0	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	0	0	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	0	0	0	%100
45	A	Z	-.011	-.011	0	%56.2
46	B	Z	-.011	-.011	0	%45.8
47	D	Z	-.011	-.011	0	%29.9
48	E	Z	-.011	-.011	0	%46.6
49	M50A	Z	-.016	-.016	0	%100
50	M51	Z	-.015	-.015	0	%100
51	A	Z	-.011	-.011	%83.8	%100
52	C	Z	-.011	-.011	0	%100
53	E	Z	-.011	-.011	%91.5	%100
54	M2	X	0	0	0	%100
55	M3	X	0	0	0	%100
56	M5	X	0	0	0	%100
57	M16	X	0	0	0	%100
58	M17	X	0	0	0	%100
59	M18	X	0	0	0	%100
60	M19	X	0	0	0	%100
61	M20	X	0	0	0	%100
62	M21	X	0	0	0	%100
63	M22	X	0	0	0	%100
64	M23	X	0	0	0	%100
65	M24	X	0	0	0	%100
66	M25	X	0	0	0	%100
67	M26	X	0	0	0	%100
68	M27	X	0	0	0	%100
69	M28	X	0	0	0	%100
70	M29	X	0	0	0	%100
71	M30	X	0	0	0	%100
72	M31	X	0	0	0	%100
73	M32	X	0	0	0	%100
74	M30B	X	0	0	0	%100
75	M30C	X	0	0	0	%100
76	M30D	X	0	0	0	%100
77	M31A	X	0	0	0	%100
78	M32A	X	0	0	0	%100
79	M33A	X	0	0	0	%100
80	M34A	X	0	0	0	%100
81	M35	X	0	0	0	%100
82	M36	X	0	0	0	%100
83	M37	X	0	0	0	%100
84	M38	X	0	0	0	%100
85	M39	X	0	0	0	%100
86	M40	X	0	0	0	%100
87	M41	X	0	0	0	%100
88	M42	X	0	0	0	%100
89	M43	X	0	0	0	%100
90	M44	X	0	0	0	%100
91	M45	X	0	0	0	%100
92	M46	X	0	0	0	%100
93	M47	X	0	0	0	%100
94	M48	X	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
95	M49	X	0	0	0	%100
96	M50	X	0	0	0	%100
97	M48A	X	0	0	0	%100
98	A	X	0	0	0	%100
99	B	X	0	0	0	%100
100	D	X	0	0	0	%100
101	E	X	0	0	0	%100
102	M50A	X	0	0	0	%100
103	M51	X	0	0	0	%100
104	C	X	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.007	-.007	0	%100
2	M3	Z	-.007	-.007	0	%100
3	M5	Z	-.017	-.017	0	%100
4	M16	Z	-.01	-.01	0	%100
5	M17	Z	-.01	-.01	0	%100
6	M18	Z	-.009	-.009	0	%100
7	M19	Z	-.009	-.009	0	%100
8	M20	Z	-.008	-.008	0	%100
9	M21	Z	-.008	-.008	0	%100
10	M22	Z	-.007	-.007	0	%100
11	M23	Z	-.007	-.007	0	%100
12	M24	Z	-.006	-.006	0	%100
13	M25	Z	-.006	-.006	0	%100
14	M26	Z	-.005	-.005	0	%100
15	M27	Z	-.005	-.005	0	%100
16	M28	Z	-.004	-.004	0	%100
17	M29	Z	-.004	-.004	0	%100
18	M30	Z	-.003	-.003	0	%100
19	M31	Z	-.003	-.003	0	%100
20	M32	Z	-.002	-.002	0	%100
21	M30B	Z	-.002	-.002	0	%100
22	M30C	Z	-.01	-.01	0	%100
23	M30D	Z	-.001	-.001	0	%100
24	M31A	Z	-.01	-.01	0	%100
25	M32A	Z	-.01	-.01	0	%100
26	M33A	Z	-.009	-.009	0	%100
27	M34A	Z	-.009	-.009	0	%100
28	M35	Z	-.008	-.008	0	%100
29	M36	Z	-.008	-.008	0	%100
30	M37	Z	-.007	-.007	0	%100
31	M38	Z	-.007	-.007	0	%100
32	M39	Z	-.006	-.006	0	%100
33	M40	Z	-.006	-.006	0	%100
34	M41	Z	-.005	-.005	0	%100
35	M42	Z	-.005	-.005	0	%100
36	M43	Z	-.004	-.004	0	%100
37	M44	Z	-.004	-.004	0	%100
38	M45	Z	-.003	-.003	0	%100
39	M46	Z	-.003	-.003	0	%100
40	M47	Z	-.002	-.002	0	%100
41	M48	Z	-.002	-.002	0	%100
42	M49	Z	-.01	-.01	0	%100
43	M50	Z	-.001	-.001	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
44	M48A	Z	-.002	-.002	0	%100
45	A	Z	-.009	-.009	0	%56.2
46	B	Z	-.009	-.009	0	%45.8
47	D	Z	-.009	-.009	0	%29.9
48	E	Z	-.009	-.009	0	%46.6
49	M50A	Z	-.008	-.008	0	%100
50	M51	Z	-.016	-.016	0	%100
51	A	Z	-.009	-.009	%83.8	%100
52	C	Z	-.009	-.009	0	%100
53	E	Z	-.009	-.009	%91.5	%100
54	M2	X	.004	.004	0	%100
55	M3	X	.004	.004	0	%100
56	M5	X	.01	.01	0	%100
57	M16	X	.006	.006	0	%100
58	M17	X	.006	.006	0	%100
59	M18	X	.005	.005	0	%100
60	M19	X	.005	.005	0	%100
61	M20	X	.005	.005	0	%100
62	M21	X	.004	.004	0	%100
63	M22	X	.004	.004	0	%100
64	M23	X	.004	.004	0	%100
65	M24	X	.004	.004	0	%100
66	M25	X	.003	.003	0	%100
67	M26	X	.003	.003	0	%100
68	M27	X	.003	.003	0	%100
69	M28	X	.002	.002	0	%100
70	M29	X	.002	.002	0	%100
71	M30	X	.002	.002	0	%100
72	M31	X	.002	.002	0	%100
73	M32	X	.001	.001	0	%100
74	M30B	X	.001	.001	0	%100
75	M30C	X	.006	.006	0	%100
76	M30D	X	.001	.001	0	%100
77	M31A	X	.006	.006	0	%100
78	M32A	X	.006	.006	0	%100
79	M33A	X	.005	.005	0	%100
80	M34A	X	.005	.005	0	%100
81	M35	X	.005	.005	0	%100
82	M36	X	.004	.004	0	%100
83	M37	X	.004	.004	0	%100
84	M38	X	.004	.004	0	%100
85	M39	X	.004	.004	0	%100
86	M40	X	.003	.003	0	%100
87	M41	X	.003	.003	0	%100
88	M42	X	.003	.003	0	%100
89	M43	X	.002	.002	0	%100
90	M44	X	.002	.002	0	%100
91	M45	X	.002	.002	0	%100
92	M46	X	.002	.002	0	%100
93	M47	X	.001	.001	0	%100
94	M48	X	.001	.001	0	%100
95	M49	X	.006	.006	0	%100
96	M50	X	.001	.001	0	%100
97	M48A	X	.001	.001	0	%100
98	A	X	.005	.005	0	%100
99	B	X	.005	.005	0	%100
100	D	X	.005	.005	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
101	E	X	.005	.005	0	%100
102	M50A	X	.005	.005	0	%100
103	M51	X	.009	.009	0	%100
104	C	X	.005	.005	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.001	-.001	0	%100
2	M3	Z	-.001	-.001	0	%100
3	M5	Z	-.01	-.01	0	%100
4	M16	Z	-.018	-.018	0	%100
5	M17	Z	-.017	-.017	0	%100
6	M18	Z	-.016	-.016	0	%100
7	M19	Z	-.015	-.015	0	%100
8	M20	Z	-.014	-.014	0	%100
9	M21	Z	-.013	-.013	0	%100
10	M22	Z	-.013	-.013	0	%100
11	M23	Z	-.012	-.012	0	%100
12	M24	Z	-.011	-.011	0	%100
13	M25	Z	-.01	-.01	0	%100
14	M26	Z	-.009	-.009	0	%100
15	M27	Z	-.008	-.008	0	%100
16	M28	Z	-.007	-.007	0	%100
17	M29	Z	-.006	-.006	0	%100
18	M30	Z	-.005	-.005	0	%100
19	M31	Z	-.005	-.005	0	%100
20	M32	Z	-.004	-.004	0	%100
21	M30B	Z	-.003	-.003	0	%100
22	M30C	Z	-.017	-.017	0	%100
23	M30D	Z	-.002	-.002	0	%100
24	M31A	Z	-.018	-.018	0	%100
25	M32A	Z	-.017	-.017	0	%100
26	M33A	Z	-.016	-.016	0	%100
27	M34A	Z	-.015	-.015	0	%100
28	M35	Z	-.014	-.014	0	%100
29	M36	Z	-.013	-.013	0	%100
30	M37	Z	-.013	-.013	0	%100
31	M38	Z	-.012	-.012	0	%100
32	M39	Z	-.011	-.011	0	%100
33	M40	Z	-.01	-.01	0	%100
34	M41	Z	-.009	-.009	0	%100
35	M42	Z	-.008	-.008	0	%100
36	M43	Z	-.007	-.007	0	%100
37	M44	Z	-.006	-.006	0	%100
38	M45	Z	-.005	-.005	0	%100
39	M46	Z	-.005	-.005	0	%100
40	M47	Z	-.004	-.004	0	%100
41	M48	Z	-.003	-.003	0	%100
42	M49	Z	-.017	-.017	0	%100
43	M50	Z	-.002	-.002	0	%100
44	M48A	Z	-.003	-.003	0	%100
45	A	Z	-.005	-.005	0	%56.2
46	B	Z	-.005	-.005	0	%45.8
47	D	Z	-.005	-.005	0	%29.9
48	E	Z	-.005	-.005	0	%46.6
49	M50A	Z	-.003	-.003	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
50	M51	Z	-.008	-.008	0	%100
51	A	Z	-.005	-.005	%83.8	%100
52	C	Z	-.005	-.005	0	%100
53	E	Z	-.005	-.005	%91.5	%100
54	M2	X	.002	.002	0	%100
55	M3	X	.002	.002	0	%100
56	M5	X	.017	.017	0	%100
57	M16	X	.031	.031	0	%100
58	M17	X	.029	.029	0	%100
59	M18	X	.028	.028	0	%100
60	M19	X	.026	.026	0	%100
61	M20	X	.025	.025	0	%100
62	M21	X	.023	.023	0	%100
63	M22	X	.022	.022	0	%100
64	M23	X	.02	.02	0	%100
65	M24	X	.019	.019	0	%100
66	M25	X	.017	.017	0	%100
67	M26	X	.015	.015	0	%100
68	M27	X	.014	.014	0	%100
69	M28	X	.012	.012	0	%100
70	M29	X	.011	.011	0	%100
71	M30	X	.009	.009	0	%100
72	M31	X	.008	.008	0	%100
73	M32	X	.006	.006	0	%100
74	M30B	X	.005	.005	0	%100
75	M30C	X	.029	.029	0	%100
76	M30D	X	.003	.003	0	%100
77	M31A	X	.031	.031	0	%100
78	M32A	X	.029	.029	0	%100
79	M33A	X	.028	.028	0	%100
80	M34A	X	.026	.026	0	%100
81	M35	X	.025	.025	0	%100
82	M36	X	.023	.023	0	%100
83	M37	X	.022	.022	0	%100
84	M38	X	.02	.02	0	%100
85	M39	X	.019	.019	0	%100
86	M40	X	.017	.017	0	%100
87	M41	X	.015	.015	0	%100
88	M42	X	.014	.014	0	%100
89	M43	X	.012	.012	0	%100
90	M44	X	.011	.011	0	%100
91	M45	X	.009	.009	0	%100
92	M46	X	.008	.008	0	%100
93	M47	X	.006	.006	0	%100
94	M48	X	.005	.005	0	%100
95	M49	X	.029	.029	0	%100
96	M50	X	.003	.003	0	%100
97	M48A	X	.006	.006	0	%100
98	A	X	.009	.009	0	%100
99	B	X	.009	.009	0	%100
100	D	X	.009	.009	0	%100
101	E	X	.009	.009	0	%100
102	M50A	X	.005	.005	0	%100
103	M51	X	.013	.013	0	%100
104	C	X	.009	.009	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	0	0	0	%100
2	M3	Z	0	0	0	%100
3	M5	Z	0	0	0	%100
4	M16	Z	0	0	0	%100
5	M17	Z	0	0	0	%100
6	M18	Z	0	0	0	%100
7	M19	Z	0	0	0	%100
8	M20	Z	0	0	0	%100
9	M21	Z	0	0	0	%100
10	M22	Z	0	0	0	%100
11	M23	Z	0	0	0	%100
12	M24	Z	0	0	0	%100
13	M25	Z	0	0	0	%100
14	M26	Z	0	0	0	%100
15	M27	Z	0	0	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	0	0	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	0	0	0	%100
25	M32A	Z	0	0	0	%100
26	M33A	Z	0	0	0	%100
27	M34A	Z	0	0	0	%100
28	M35	Z	0	0	0	%100
29	M36	Z	0	0	0	%100
30	M37	Z	0	0	0	%100
31	M38	Z	0	0	0	%100
32	M39	Z	0	0	0	%100
33	M40	Z	0	0	0	%100
34	M41	Z	0	0	0	%100
35	M42	Z	0	0	0	%100
36	M43	Z	0	0	0	%100
37	M44	Z	0	0	0	%100
38	M45	Z	0	0	0	%100
39	M46	Z	0	0	0	%100
40	M47	Z	0	0	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	0	0	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	0	0	0	%100
45	A	Z	0	0	0	%56.2
46	B	Z	0	0	0	%45.8
47	D	Z	0	0	0	%29.9
48	E	Z	0	0	0	%46.6
49	M50A	Z	0	0	0	%100
50	M51	Z	0	0	0	%100
51	A	Z	0	0	%83.8	%100
52	C	Z	0	0	0	%100
53	E	Z	0	0	%91.5	%100
54	M2	X	0	0	0	%100
55	M3	X	0	0	0	%100
56	M5	X	.02	.02	0	%100
57	M16	X	.047	.047	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
58	M17	X	.045	.045	0	%100
59	M18	X	.043	.043	0	%100
60	M19	X	.04	.04	0	%100
61	M20	X	.038	.038	0	%100
62	M21	X	.036	.036	0	%100
63	M22	X	.033	.033	0	%100
64	M23	X	.031	.031	0	%100
65	M24	X	.029	.029	0	%100
66	M25	X	.026	.026	0	%100
67	M26	X	.024	.024	0	%100
68	M27	X	.021	.021	0	%100
69	M28	X	.019	.019	0	%100
70	M29	X	.017	.017	0	%100
71	M30	X	.014	.014	0	%100
72	M31	X	.012	.012	0	%100
73	M32	X	.01	.01	0	%100
74	M30B	X	.007	.007	0	%100
75	M30C	X	.045	.045	0	%100
76	M30D	X	.005	.005	0	%100
77	M31A	X	.047	.047	0	%100
78	M32A	X	.045	.045	0	%100
79	M33A	X	.043	.043	0	%100
80	M34A	X	.04	.04	0	%100
81	M35	X	.038	.038	0	%100
82	M36	X	.036	.036	0	%100
83	M37	X	.033	.033	0	%100
84	M38	X	.031	.031	0	%100
85	M39	X	.029	.029	0	%100
86	M40	X	.026	.026	0	%100
87	M41	X	.024	.024	0	%100
88	M42	X	.021	.021	0	%100
89	M43	X	.019	.019	0	%100
90	M44	X	.017	.017	0	%100
91	M45	X	.014	.014	0	%100
92	M46	X	.012	.012	0	%100
93	M47	X	.01	.01	0	%100
94	M48	X	.007	.007	0	%100
95	M49	X	.045	.045	0	%100
96	M50	X	.005	.005	0	%100
97	M48A	X	.01	.01	0	%100
98	A	X	.011	.011	0	%100
99	B	X	.011	.011	0	%100
100	D	X	.011	.011	0	%100
101	E	X	.011	.011	0	%100
102	M50A	X	.009	.009	0	%100
103	M51	X	.009	.009	0	%100
104	C	X	.011	.011	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	.001	.001	0	%100
2	M3	Z	.001	.001	0	%100
3	M5	Z	.01	.01	0	%100
4	M16	Z	.018	.018	0	%100
5	M17	Z	.017	.017	0	%100
6	M18	Z	.016	.016	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	M19	Z	.015	.015	0	%100
8	M20	Z	.014	.014	0	%100
9	M21	Z	.013	.013	0	%100
10	M22	Z	.013	.013	0	%100
11	M23	Z	.012	.012	0	%100
12	M24	Z	.011	.011	0	%100
13	M25	Z	.01	.01	0	%100
14	M26	Z	.009	.009	0	%100
15	M27	Z	.008	.008	0	%100
16	M28	Z	.007	.007	0	%100
17	M29	Z	.006	.006	0	%100
18	M30	Z	.005	.005	0	%100
19	M31	Z	.005	.005	0	%100
20	M32	Z	.004	.004	0	%100
21	M30B	Z	.003	.003	0	%100
22	M30C	Z	.017	.017	0	%100
23	M30D	Z	.002	.002	0	%100
24	M31A	Z	.018	.018	0	%100
25	M32A	Z	.017	.017	0	%100
26	M33A	Z	.016	.016	0	%100
27	M34A	Z	.015	.015	0	%100
28	M35	Z	.014	.014	0	%100
29	M36	Z	.013	.013	0	%100
30	M37	Z	.013	.013	0	%100
31	M38	Z	.012	.012	0	%100
32	M39	Z	.011	.011	0	%100
33	M40	Z	.01	.01	0	%100
34	M41	Z	.009	.009	0	%100
35	M42	Z	.008	.008	0	%100
36	M43	Z	.007	.007	0	%100
37	M44	Z	.006	.006	0	%100
38	M45	Z	.005	.005	0	%100
39	M46	Z	.005	.005	0	%100
40	M47	Z	.004	.004	0	%100
41	M48	Z	.003	.003	0	%100
42	M49	Z	.017	.017	0	%100
43	M50	Z	.002	.002	0	%100
44	M48A	Z	.004	.004	0	%100
45	A	Z	.005	.005	0	%56.2
46	B	Z	.005	.005	0	%45.8
47	D	Z	.005	.005	0	%29.9
48	E	Z	.005	.005	0	%46.6
49	M50A	Z	.008	.008	0	%100
50	M51	Z	.003	.003	0	%100
51	A	Z	.005	.005	%83.8	%100
52	C	Z	.005	.005	0	%100
53	E	Z	.005	.005	%91.5	%100
54	M2	X	.002	.002	0	%100
55	M3	X	.002	.002	0	%100
56	M5	X	.017	.017	0	%100
57	M16	X	.031	.031	0	%100
58	M17	X	.029	.029	0	%100
59	M18	X	.028	.028	0	%100
60	M19	X	.026	.026	0	%100
61	M20	X	.025	.025	0	%100
62	M21	X	.023	.023	0	%100
63	M22	X	.022	.022	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
64	M23	X	.02	.02	0	%100
65	M24	X	.019	.019	0	%100
66	M25	X	.017	.017	0	%100
67	M26	X	.015	.015	0	%100
68	M27	X	.014	.014	0	%100
69	M28	X	.012	.012	0	%100
70	M29	X	.011	.011	0	%100
71	M30	X	.009	.009	0	%100
72	M31	X	.008	.008	0	%100
73	M32	X	.006	.006	0	%100
74	M30B	X	.005	.005	0	%100
75	M30C	X	.029	.029	0	%100
76	M30D	X	.003	.003	0	%100
77	M31A	X	.031	.031	0	%100
78	M32A	X	.029	.029	0	%100
79	M33A	X	.028	.028	0	%100
80	M34A	X	.026	.026	0	%100
81	M35	X	.025	.025	0	%100
82	M36	X	.023	.023	0	%100
83	M37	X	.022	.022	0	%100
84	M38	X	.02	.02	0	%100
85	M39	X	.019	.019	0	%100
86	M40	X	.017	.017	0	%100
87	M41	X	.015	.015	0	%100
88	M42	X	.014	.014	0	%100
89	M43	X	.012	.012	0	%100
90	M44	X	.011	.011	0	%100
91	M45	X	.009	.009	0	%100
92	M46	X	.008	.008	0	%100
93	M47	X	.006	.006	0	%100
94	M48	X	.005	.005	0	%100
95	M49	X	.029	.029	0	%100
96	M50	X	.003	.003	0	%100
97	M48A	X	.008	.008	0	%100
98	A	X	.009	.009	0	%100
99	B	X	.009	.009	0	%100
100	D	X	.009	.009	0	%100
101	E	X	.009	.009	0	%100
102	M50A	X	.013	.013	0	%100
103	M51	X	.005	.005	0	%100
104	C	X	.009	.009	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	.007	.007	0	%100
2	M3	Z	.007	.007	0	%100
3	M5	Z	.017	.017	0	%100
4	M16	Z	.01	.01	0	%100
5	M17	Z	.01	.01	0	%100
6	M18	Z	.009	.009	0	%100
7	M19	Z	.009	.009	0	%100
8	M20	Z	.008	.008	0	%100
9	M21	Z	.008	.008	0	%100
10	M22	Z	.007	.007	0	%100
11	M23	Z	.007	.007	0	%100
12	M24	Z	.006	.006	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
13	M25	Z	.006	.006	0	%100
14	M26	Z	.005	.005	0	%100
15	M27	Z	.005	.005	0	%100
16	M28	Z	.004	.004	0	%100
17	M29	Z	.004	.004	0	%100
18	M30	Z	.003	.003	0	%100
19	M31	Z	.003	.003	0	%100
20	M32	Z	.002	.002	0	%100
21	M30B	Z	.002	.002	0	%100
22	M30C	Z	.01	.01	0	%100
23	M30D	Z	.001	.001	0	%100
24	M31A	Z	.01	.01	0	%100
25	M32A	Z	.01	.01	0	%100
26	M33A	Z	.009	.009	0	%100
27	M34A	Z	.009	.009	0	%100
28	M35	Z	.008	.008	0	%100
29	M36	Z	.008	.008	0	%100
30	M37	Z	.007	.007	0	%100
31	M38	Z	.007	.007	0	%100
32	M39	Z	.006	.006	0	%100
33	M40	Z	.006	.006	0	%100
34	M41	Z	.005	.005	0	%100
35	M42	Z	.005	.005	0	%100
36	M43	Z	.004	.004	0	%100
37	M44	Z	.004	.004	0	%100
38	M45	Z	.003	.003	0	%100
39	M46	Z	.003	.003	0	%100
40	M47	Z	.002	.002	0	%100
41	M48	Z	.002	.002	0	%100
42	M49	Z	.01	.01	0	%100
43	M50	Z	.001	.001	0	%100
44	M48A	Z	.003	.003	0	%100
45	A	Z	.009	.009	0	%56.2
46	B	Z	.009	.009	0	%45.8
47	D	Z	.009	.009	0	%29.9
48	E	Z	.009	.009	0	%46.6
49	M50A	Z	.016	.016	0	%100
50	M51	Z	.008	.008	0	%100
51	A	Z	.009	.009	%83.8	%100
52	C	Z	.009	.009	0	%100
53	E	Z	.009	.009	%91.5	%100
54	M2	X	.004	.004	0	%100
55	M3	X	.004	.004	0	%100
56	M5	X	.01	.01	0	%100
57	M16	X	.006	.006	0	%100
58	M17	X	.006	.006	0	%100
59	M18	X	.005	.005	0	%100
60	M19	X	.005	.005	0	%100
61	M20	X	.005	.005	0	%100
62	M21	X	.004	.004	0	%100
63	M22	X	.004	.004	0	%100
64	M23	X	.004	.004	0	%100
65	M24	X	.004	.004	0	%100
66	M25	X	.003	.003	0	%100
67	M26	X	.003	.003	0	%100
68	M27	X	.003	.003	0	%100
69	M28	X	.002	.002	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
70	M29	X	.002	.002	0	%100
71	M30	X	.002	.002	0	%100
72	M31	X	.002	.002	0	%100
73	M32	X	.001	.001	0	%100
74	M30B	X	.001	.001	0	%100
75	M30C	X	.006	.006	0	%100
76	M30D	X	.001	.001	0	%100
77	M31A	X	.006	.006	0	%100
78	M32A	X	.006	.006	0	%100
79	M33A	X	.005	.005	0	%100
80	M34A	X	.005	.005	0	%100
81	M35	X	.005	.005	0	%100
82	M36	X	.004	.004	0	%100
83	M37	X	.004	.004	0	%100
84	M38	X	.004	.004	0	%100
85	M39	X	.004	.004	0	%100
86	M40	X	.003	.003	0	%100
87	M41	X	.003	.003	0	%100
88	M42	X	.003	.003	0	%100
89	M43	X	.002	.002	0	%100
90	M44	X	.002	.002	0	%100
91	M45	X	.002	.002	0	%100
92	M46	X	.002	.002	0	%100
93	M47	X	.001	.001	0	%100
94	M48	X	.001	.001	0	%100
95	M49	X	.006	.006	0	%100
96	M50	X	.001	.001	0	%100
97	M48A	X	.002	.002	0	%100
98	A	X	.005	.005	0	%100
99	B	X	.005	.005	0	%100
100	D	X	.005	.005	0	%100
101	E	X	.005	.005	0	%100
102	M50A	X	.009	.009	0	%100
103	M51	X	.005	.005	0	%100
104	C	X	.005	.005	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.004	-.004	0	%100
2	M3	Z	-.004	-.004	0	%100
3	M5	Z	-.006	-.006	0	%100
4	M16	Z	0	0	0	%100
5	M17	Z	0	0	0	%100
6	M18	Z	0	0	0	%100
7	M19	Z	0	0	0	%100
8	M20	Z	0	0	0	%100
9	M21	Z	0	0	0	%100
10	M22	Z	0	0	0	%100
11	M23	Z	0	0	0	%100
12	M24	Z	0	0	0	%100
13	M25	Z	0	0	0	%100
14	M26	Z	0	0	0	%100
15	M27	Z	0	0	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	0	0	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	0	0	0	%100
25	M32A	Z	0	0	0	%100
26	M33A	Z	0	0	0	%100
27	M34A	Z	0	0	0	%100
28	M35	Z	0	0	0	%100
29	M36	Z	0	0	0	%100
30	M37	Z	0	0	0	%100
31	M38	Z	0	0	0	%100
32	M39	Z	0	0	0	%100
33	M40	Z	0	0	0	%100
34	M41	Z	0	0	0	%100
35	M42	Z	0	0	0	%100
36	M43	Z	0	0	0	%100
37	M44	Z	0	0	0	%100
38	M45	Z	0	0	0	%100
39	M46	Z	0	0	0	%100
40	M47	Z	0	0	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	0	0	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	0	0	0	%100
45	A	Z	-.004	-.004	0	%56.2
46	B	Z	-.004	-.004	0	%45.8
47	D	Z	-.004	-.004	0	%29.9
48	E	Z	-.004	-.004	0	%46.6
49	M50A	Z	-.005	-.005	0	%100
50	M51	Z	-.005	-.005	0	%100
51	A	Z	-.004	-.004	%83.8	%100
52	C	Z	-.004	-.004	0	%100
53	E	Z	-.004	-.004	%91.5	%100
54	M2	X	0	0	0	%100
55	M3	X	0	0	0	%100
56	M5	X	0	0	0	%100
57	M16	X	0	0	0	%100
58	M17	X	0	0	0	%100
59	M18	X	0	0	0	%100
60	M19	X	0	0	0	%100
61	M20	X	0	0	0	%100
62	M21	X	0	0	0	%100
63	M22	X	0	0	0	%100
64	M23	X	0	0	0	%100
65	M24	X	0	0	0	%100
66	M25	X	0	0	0	%100
67	M26	X	0	0	0	%100
68	M27	X	0	0	0	%100
69	M28	X	0	0	0	%100
70	M29	X	0	0	0	%100
71	M30	X	0	0	0	%100
72	M31	X	0	0	0	%100
73	M32	X	0	0	0	%100
74	M30B	X	0	0	0	%100
75	M30C	X	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
76	M30D	X	0	0	0	%100
77	M31A	X	0	0	0	%100
78	M32A	X	0	0	0	%100
79	M33A	X	0	0	0	%100
80	M34A	X	0	0	0	%100
81	M35	X	0	0	0	%100
82	M36	X	0	0	0	%100
83	M37	X	0	0	0	%100
84	M38	X	0	0	0	%100
85	M39	X	0	0	0	%100
86	M40	X	0	0	0	%100
87	M41	X	0	0	0	%100
88	M42	X	0	0	0	%100
89	M43	X	0	0	0	%100
90	M44	X	0	0	0	%100
91	M45	X	0	0	0	%100
92	M46	X	0	0	0	%100
93	M47	X	0	0	0	%100
94	M48	X	0	0	0	%100
95	M49	X	0	0	0	%100
96	M50	X	0	0	0	%100
97	M48A	X	0	0	0	%100
98	A	X	0	0	0	%100
99	B	X	0	0	0	%100
100	D	X	0	0	0	%100
101	E	X	0	0	0	%100
102	M50A	X	0	0	0	%100
103	M51	X	0	0	0	%100
104	C	X	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.003	-.003	0	%100
2	M3	Z	-.003	-.003	0	%100
3	M5	Z	-.005	-.005	0	%100
4	M16	Z	-.002	-.002	0	%100
5	M17	Z	-.002	-.002	0	%100
6	M18	Z	-.001	-.001	0	%100
7	M19	Z	-.001	-.001	0	%100
8	M20	Z	-.001	-.001	0	%100
9	M21	Z	-.001	-.001	0	%100
10	M22	Z	-.001	-.001	0	%100
11	M23	Z	-.001	-.001	0	%100
12	M24	Z	-.001	-.001	0	%100
13	M25	Z	-.001	-.001	0	%100
14	M26	Z	-.001	-.001	0	%100
15	M27	Z	-.001	-.001	0	%100
16	M28	Z	-.001	-.001	0	%100
17	M29	Z	-.001	-.001	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	-.002	-.002	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	-.002	-.002	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
25	M32A	Z	-.002	-.002	0	%100
26	M33A	Z	-.001	-.001	0	%100
27	M34A	Z	-.001	-.001	0	%100
28	M35	Z	-.001	-.001	0	%100
29	M36	Z	-.001	-.001	0	%100
30	M37	Z	-.001	-.001	0	%100
31	M38	Z	-.001	-.001	0	%100
32	M39	Z	-.001	-.001	0	%100
33	M40	Z	-.001	-.001	0	%100
34	M41	Z	-.001	-.001	0	%100
35	M42	Z	-.001	-.001	0	%100
36	M43	Z	-.001	-.001	0	%100
37	M44	Z	-.001	-.001	0	%100
38	M45	Z	0	0	0	%100
39	M46	Z	0	0	0	%100
40	M47	Z	0	0	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	-.002	-.002	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	0	0	0	%100
45	A	Z	-.004	-.004	0	%56.2
46	B	Z	-.004	-.004	0	%45.8
47	D	Z	-.004	-.004	0	%29.9
48	E	Z	-.004	-.004	0	%46.6
49	M50A	Z	-.003	-.003	0	%100
50	M51	Z	-.005	-.005	0	%100
51	A	Z	-.004	-.004	%83.8	%100
52	C	Z	-.004	-.004	0	%100
53	E	Z	-.004	-.004	%91.5	%100
54	M2	X	.002	.002	0	%100
55	M3	X	.002	.002	0	%100
56	M5	X	.003	.003	0	%100
57	M16	X	.001	.001	0	%100
58	M17	X	.001	.001	0	%100
59	M18	X	.001	.001	0	%100
60	M19	X	.001	.001	0	%100
61	M20	X	.001	.001	0	%100
62	M21	X	.001	.001	0	%100
63	M22	X	.001	.001	0	%100
64	M23	X	.001	.001	0	%100
65	M24	X	.001	.001	0	%100
66	M25	X	.001	.001	0	%100
67	M26	X	0	0	0	%100
68	M27	X	0	0	0	%100
69	M28	X	0	0	0	%100
70	M29	X	0	0	0	%100
71	M30	X	0	0	0	%100
72	M31	X	0	0	0	%100
73	M32	X	0	0	0	%100
74	M30B	X	0	0	0	%100
75	M30C	X	.001	.001	0	%100
76	M30D	X	0	0	0	%100
77	M31A	X	.001	.001	0	%100
78	M32A	X	.001	.001	0	%100
79	M33A	X	.001	.001	0	%100
80	M34A	X	.001	.001	0	%100
81	M35	X	.001	.001	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
82	M36	X	.001	.001	0	%100
83	M37	X	.001	.001	0	%100
84	M38	X	.001	.001	0	%100
85	M39	X	.001	.001	0	%100
86	M40	X	.001	.001	0	%100
87	M41	X	0	0	0	%100
88	M42	X	0	0	0	%100
89	M43	X	0	0	0	%100
90	M44	X	0	0	0	%100
91	M45	X	0	0	0	%100
92	M46	X	0	0	0	%100
93	M47	X	0	0	0	%100
94	M48	X	0	0	0	%100
95	M49	X	.001	.001	0	%100
96	M50	X	0	0	0	%100
97	M48A	X	0	0	0	%100
98	A	X	.002	.002	0	%100
99	B	X	.002	.002	0	%100
100	D	X	.002	.002	0	%100
101	E	X	.002	.002	0	%100
102	M50A	X	.002	.002	0	%100
103	M51	X	.003	.003	0	%100
104	C	X	.002	.002	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.001	-.001	0	%100
2	M3	Z	-.001	-.001	0	%100
3	M5	Z	-.003	-.003	0	%100
4	M16	Z	-.003	-.003	0	%100
5	M17	Z	-.003	-.003	0	%100
6	M18	Z	-.003	-.003	0	%100
7	M19	Z	-.002	-.002	0	%100
8	M20	Z	-.002	-.002	0	%100
9	M21	Z	-.002	-.002	0	%100
10	M22	Z	-.002	-.002	0	%100
11	M23	Z	-.002	-.002	0	%100
12	M24	Z	-.002	-.002	0	%100
13	M25	Z	-.002	-.002	0	%100
14	M26	Z	-.001	-.001	0	%100
15	M27	Z	-.001	-.001	0	%100
16	M28	Z	-.001	-.001	0	%100
17	M29	Z	-.001	-.001	0	%100
18	M30	Z	-.001	-.001	0	%100
19	M31	Z	-.001	-.001	0	%100
20	M32	Z	-.001	-.001	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	-.003	-.003	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	-.003	-.003	0	%100
25	M32A	Z	-.003	-.003	0	%100
26	M33A	Z	-.003	-.003	0	%100
27	M34A	Z	-.002	-.002	0	%100
28	M35	Z	-.002	-.002	0	%100
29	M36	Z	-.002	-.002	0	%100
30	M37	Z	-.002	-.002	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
31	M38	Z	-.002	-.002	0	%100
32	M39	Z	-.002	-.002	0	%100
33	M40	Z	-.002	-.002	0	%100
34	M41	Z	-.001	-.001	0	%100
35	M42	Z	-.001	-.001	0	%100
36	M43	Z	-.001	-.001	0	%100
37	M44	Z	-.001	-.001	0	%100
38	M45	Z	-.001	-.001	0	%100
39	M46	Z	-.001	-.001	0	%100
40	M47	Z	-.001	-.001	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	-.003	-.003	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	-.001	-.001	0	%100
45	A	Z	-.002	-.002	0	%56.2
46	B	Z	-.002	-.002	0	%45.8
47	D	Z	-.002	-.002	0	%29.9
48	E	Z	-.002	-.002	0	%46.6
49	M50A	Z	-.001	-.001	0	%100
50	M51	Z	-.003	-.003	0	%100
51	A	Z	-.002	-.002	%83.8	%100
52	C	Z	-.002	-.002	0	%100
53	E	Z	-.002	-.002	%91.5	%100
54	M2	X	.003	.003	0	%100
55	M3	X	.003	.003	0	%100
56	M5	X	.005	.005	0	%100
57	M16	X	.005	.005	0	%100
58	M17	X	.005	.005	0	%100
59	M18	X	.004	.004	0	%100
60	M19	X	.004	.004	0	%100
61	M20	X	.004	.004	0	%100
62	M21	X	.004	.004	0	%100
63	M22	X	.003	.003	0	%100
64	M23	X	.003	.003	0	%100
65	M24	X	.003	.003	0	%100
66	M25	X	.003	.003	0	%100
67	M26	X	.002	.002	0	%100
68	M27	X	.002	.002	0	%100
69	M28	X	.002	.002	0	%100
70	M29	X	.002	.002	0	%100
71	M30	X	.001	.001	0	%100
72	M31	X	.001	.001	0	%100
73	M32	X	.001	.001	0	%100
74	M30B	X	.001	.001	0	%100
75	M30C	X	.005	.005	0	%100
76	M30D	X	.001	.001	0	%100
77	M31A	X	.005	.005	0	%100
78	M32A	X	.005	.005	0	%100
79	M33A	X	.004	.004	0	%100
80	M34A	X	.004	.004	0	%100
81	M35	X	.004	.004	0	%100
82	M36	X	.004	.004	0	%100
83	M37	X	.003	.003	0	%100
84	M38	X	.003	.003	0	%100
85	M39	X	.003	.003	0	%100
86	M40	X	.003	.003	0	%100
87	M41	X	.002	.002	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
88	M42	X	.002	.002	0	%100
89	M43	X	.002	.002	0	%100
90	M44	X	.002	.002	0	%100
91	M45	X	.001	.001	0	%100
92	M46	X	.001	.001	0	%100
93	M47	X	.001	.001	0	%100
94	M48	X	.001	.001	0	%100
95	M49	X	.005	.005	0	%100
96	M50	X	.001	.001	0	%100
97	M48A	X	.001	.001	0	%100
98	A	X	.004	.004	0	%100
99	B	X	.004	.004	0	%100
100	D	X	.004	.004	0	%100
101	E	X	.004	.004	0	%100
102	M50A	X	.002	.002	0	%100
103	M51	X	.004	.004	0	%100
104	C	X	.004	.004	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	0	0	0	%100
2	M3	Z	0	0	0	%100
3	M5	Z	0	0	0	%100
4	M16	Z	0	0	0	%100
5	M17	Z	0	0	0	%100
6	M18	Z	0	0	0	%100
7	M19	Z	0	0	0	%100
8	M20	Z	0	0	0	%100
9	M21	Z	0	0	0	%100
10	M22	Z	0	0	0	%100
11	M23	Z	0	0	0	%100
12	M24	Z	0	0	0	%100
13	M25	Z	0	0	0	%100
14	M26	Z	0	0	0	%100
15	M27	Z	0	0	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	0	0	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	0	0	0	%100
25	M32A	Z	0	0	0	%100
26	M33A	Z	0	0	0	%100
27	M34A	Z	0	0	0	%100
28	M35	Z	0	0	0	%100
29	M36	Z	0	0	0	%100
30	M37	Z	0	0	0	%100
31	M38	Z	0	0	0	%100
32	M39	Z	0	0	0	%100
33	M40	Z	0	0	0	%100
34	M41	Z	0	0	0	%100
35	M42	Z	0	0	0	%100
36	M43	Z	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
37	M44	Z	0	0	0	%100
38	M45	Z	0	0	0	%100
39	M46	Z	0	0	0	%100
40	M47	Z	0	0	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	0	0	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	0	0	0	%100
45	A	Z	0	0	0	%56.2
46	B	Z	0	0	0	%45.8
47	D	Z	0	0	0	%29.9
48	E	Z	0	0	0	%46.6
49	M50A	Z	0	0	0	%100
50	M51	Z	0	0	0	%100
51	A	Z	0	0	%83.8	%100
52	C	Z	0	0	0	%100
53	E	Z	0	0	%91.5	%100
54	M2	X	.003	.003	0	%100
55	M3	X	.003	.003	0	%100
56	M5	X	.006	.006	0	%100
57	M16	X	.008	.008	0	%100
58	M17	X	.007	.007	0	%100
59	M18	X	.007	.007	0	%100
60	M19	X	.006	.006	0	%100
61	M20	X	.006	.006	0	%100
62	M21	X	.006	.006	0	%100
63	M22	X	.005	.005	0	%100
64	M23	X	.005	.005	0	%100
65	M24	X	.005	.005	0	%100
66	M25	X	.004	.004	0	%100
67	M26	X	.004	.004	0	%100
68	M27	X	.003	.003	0	%100
69	M28	X	.003	.003	0	%100
70	M29	X	.003	.003	0	%100
71	M30	X	.002	.002	0	%100
72	M31	X	.002	.002	0	%100
73	M32	X	.002	.002	0	%100
74	M30B	X	.001	.001	0	%100
75	M30C	X	.007	.007	0	%100
76	M30D	X	.001	.001	0	%100
77	M31A	X	.008	.008	0	%100
78	M32A	X	.007	.007	0	%100
79	M33A	X	.007	.007	0	%100
80	M34A	X	.006	.006	0	%100
81	M35	X	.006	.006	0	%100
82	M36	X	.006	.006	0	%100
83	M37	X	.005	.005	0	%100
84	M38	X	.005	.005	0	%100
85	M39	X	.005	.005	0	%100
86	M40	X	.004	.004	0	%100
87	M41	X	.004	.004	0	%100
88	M42	X	.003	.003	0	%100
89	M43	X	.003	.003	0	%100
90	M44	X	.003	.003	0	%100
91	M45	X	.002	.002	0	%100
92	M46	X	.002	.002	0	%100
93	M47	X	.002	.002	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
94	M48	X	.001	.001	0	%100
95	M49	X	.007	.007	0	%100
96	M50	X	.001	.001	0	%100
97	M48A	X	.002	.002	0	%100
98	A	X	.004	.004	0	%100
99	B	X	.004	.004	0	%100
100	D	X	.004	.004	0	%100
101	E	X	.004	.004	0	%100
102	M50A	X	.003	.003	0	%100
103	M51	X	.003	.003	0	%100
104	C	X	.004	.004	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	.001	.001	0	%100
2	M3	Z	.001	.001	0	%100
3	M5	Z	.003	.003	0	%100
4	M16	Z	.003	.003	0	%100
5	M17	Z	.003	.003	0	%100
6	M18	Z	.003	.003	0	%100
7	M19	Z	.002	.002	0	%100
8	M20	Z	.002	.002	0	%100
9	M21	Z	.002	.002	0	%100
10	M22	Z	.002	.002	0	%100
11	M23	Z	.002	.002	0	%100
12	M24	Z	.002	.002	0	%100
13	M25	Z	.002	.002	0	%100
14	M26	Z	.001	.001	0	%100
15	M27	Z	.001	.001	0	%100
16	M28	Z	.001	.001	0	%100
17	M29	Z	.001	.001	0	%100
18	M30	Z	.001	.001	0	%100
19	M31	Z	.001	.001	0	%100
20	M32	Z	.001	.001	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	.003	.003	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	.003	.003	0	%100
25	M32A	Z	.003	.003	0	%100
26	M33A	Z	.003	.003	0	%100
27	M34A	Z	.002	.002	0	%100
28	M35	Z	.002	.002	0	%100
29	M36	Z	.002	.002	0	%100
30	M37	Z	.002	.002	0	%100
31	M38	Z	.002	.002	0	%100
32	M39	Z	.002	.002	0	%100
33	M40	Z	.002	.002	0	%100
34	M41	Z	.001	.001	0	%100
35	M42	Z	.001	.001	0	%100
36	M43	Z	.001	.001	0	%100
37	M44	Z	.001	.001	0	%100
38	M45	Z	.001	.001	0	%100
39	M46	Z	.001	.001	0	%100
40	M47	Z	.001	.001	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	.003	.003	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
43	M50	Z	0	0	0	%100
44	M48A	Z	.001	.001	0	%100
45	A	Z	.002	.002	0	%56.2
46	B	Z	.002	.002	0	%45.8
47	D	Z	.002	.002	0	%29.9
48	E	Z	.002	.002	0	%46.6
49	M50A	Z	.003	.003	0	%100
50	M51	Z	.001	.001	0	%100
51	A	Z	.002	.002	%83.8	%100
52	C	Z	.002	.002	0	%100
53	E	Z	.002	.002	%91.5	%100
54	M2	X	.003	.003	0	%100
55	M3	X	.003	.003	0	%100
56	M5	X	.005	.005	0	%100
57	M16	X	.005	.005	0	%100
58	M17	X	.005	.005	0	%100
59	M18	X	.004	.004	0	%100
60	M19	X	.004	.004	0	%100
61	M20	X	.004	.004	0	%100
62	M21	X	.004	.004	0	%100
63	M22	X	.003	.003	0	%100
64	M23	X	.003	.003	0	%100
65	M24	X	.003	.003	0	%100
66	M25	X	.003	.003	0	%100
67	M26	X	.002	.002	0	%100
68	M27	X	.002	.002	0	%100
69	M28	X	.002	.002	0	%100
70	M29	X	.002	.002	0	%100
71	M30	X	.001	.001	0	%100
72	M31	X	.001	.001	0	%100
73	M32	X	.001	.001	0	%100
74	M30B	X	.001	.001	0	%100
75	M30C	X	.005	.005	0	%100
76	M30D	X	.001	.001	0	%100
77	M31A	X	.005	.005	0	%100
78	M32A	X	.005	.005	0	%100
79	M33A	X	.004	.004	0	%100
80	M34A	X	.004	.004	0	%100
81	M35	X	.004	.004	0	%100
82	M36	X	.004	.004	0	%100
83	M37	X	.003	.003	0	%100
84	M38	X	.003	.003	0	%100
85	M39	X	.003	.003	0	%100
86	M40	X	.003	.003	0	%100
87	M41	X	.002	.002	0	%100
88	M42	X	.002	.002	0	%100
89	M43	X	.002	.002	0	%100
90	M44	X	.002	.002	0	%100
91	M45	X	.001	.001	0	%100
92	M46	X	.001	.001	0	%100
93	M47	X	.001	.001	0	%100
94	M48	X	.001	.001	0	%100
95	M49	X	.005	.005	0	%100
96	M50	X	.001	.001	0	%100
97	M48A	X	.001	.001	0	%100
98	A	X	.004	.004	0	%100
99	B	X	.004	.004	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
100	D	X	.004	.004	0	%100
101	E	X	.004	.004	0	%100
102	M50A	X	.004	.004	0	%100
103	M51	X	.002	.002	0	%100
104	C	X	.004	.004	0	%100

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	.003	.003	0	%100
2	M3	Z	.003	.003	0	%100
3	M5	Z	.005	.005	0	%100
4	M16	Z	.002	.002	0	%100
5	M17	Z	.002	.002	0	%100
6	M18	Z	.001	.001	0	%100
7	M19	Z	.001	.001	0	%100
8	M20	Z	.001	.001	0	%100
9	M21	Z	.001	.001	0	%100
10	M22	Z	.001	.001	0	%100
11	M23	Z	.001	.001	0	%100
12	M24	Z	.001	.001	0	%100
13	M25	Z	.001	.001	0	%100
14	M26	Z	.001	.001	0	%100
15	M27	Z	.001	.001	0	%100
16	M28	Z	.001	.001	0	%100
17	M29	Z	.001	.001	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M30B	Z	0	0	0	%100
22	M30C	Z	.002	.002	0	%100
23	M30D	Z	0	0	0	%100
24	M31A	Z	.002	.002	0	%100
25	M32A	Z	.002	.002	0	%100
26	M33A	Z	.001	.001	0	%100
27	M34A	Z	.001	.001	0	%100
28	M35	Z	.001	.001	0	%100
29	M36	Z	.001	.001	0	%100
30	M37	Z	.001	.001	0	%100
31	M38	Z	.001	.001	0	%100
32	M39	Z	.001	.001	0	%100
33	M40	Z	.001	.001	0	%100
34	M41	Z	.001	.001	0	%100
35	M42	Z	.001	.001	0	%100
36	M43	Z	.001	.001	0	%100
37	M44	Z	.001	.001	0	%100
38	M45	Z	0	0	0	%100
39	M46	Z	0	0	0	%100
40	M47	Z	0	0	0	%100
41	M48	Z	0	0	0	%100
42	M49	Z	.002	.002	0	%100
43	M50	Z	0	0	0	%100
44	M48A	Z	.001	.001	0	%100
45	A	Z	.004	.004	0	%56.2
46	B	Z	.004	.004	0	%45.8
47	D	Z	.004	.004	0	%29.9
48	E	Z	.004	.004	0	%46.6

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
49	M50A	Z	.005	.005	0	%100
50	M51	Z	.003	.003	0	%100
51	A	Z	.004	.004	%83.8	%100
52	C	Z	.004	.004	0	%100
53	E	Z	.004	.004	%91.5	%100
54	M2	X	.002	.002	0	%100
55	M3	X	.002	.002	0	%100
56	M5	X	.003	.003	0	%100
57	M16	X	.001	.001	0	%100
58	M17	X	.001	.001	0	%100
59	M18	X	.001	.001	0	%100
60	M19	X	.001	.001	0	%100
61	M20	X	.001	.001	0	%100
62	M21	X	.001	.001	0	%100
63	M22	X	.001	.001	0	%100
64	M23	X	.001	.001	0	%100
65	M24	X	.001	.001	0	%100
66	M25	X	.001	.001	0	%100
67	M26	X	0	0	0	%100
68	M27	X	0	0	0	%100
69	M28	X	0	0	0	%100
70	M29	X	0	0	0	%100
71	M30	X	0	0	0	%100
72	M31	X	0	0	0	%100
73	M32	X	0	0	0	%100
74	M30B	X	0	0	0	%100
75	M30C	X	.001	.001	0	%100
76	M30D	X	0	0	0	%100
77	M31A	X	.001	.001	0	%100
78	M32A	X	.001	.001	0	%100
79	M33A	X	.001	.001	0	%100
80	M34A	X	.001	.001	0	%100
81	M35	X	.001	.001	0	%100
82	M36	X	.001	.001	0	%100
83	M37	X	.001	.001	0	%100
84	M38	X	.001	.001	0	%100
85	M39	X	.001	.001	0	%100
86	M40	X	.001	.001	0	%100
87	M41	X	0	0	0	%100
88	M42	X	0	0	0	%100
89	M43	X	0	0	0	%100
90	M44	X	0	0	0	%100
91	M45	X	0	0	0	%100
92	M46	X	0	0	0	%100
93	M47	X	0	0	0	%100
94	M48	X	0	0	0	%100
95	M49	X	.001	.001	0	%100
96	M50	X	0	0	0	%100
97	M48A	X	0	0	0	%100
98	A	X	.002	.002	0	%100
99	B	X	.002	.002	0	%100
100	D	X	.002	.002	0	%100
101	E	X	.002	.002	0	%100
102	M50A	X	.003	.003	0	%100
103	M51	X	.002	.002	0	%100
104	C	X	.002	.002	0	%100

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Memb...	Surface(Plate/...
1	Dead	None		-1			7			
2	Ice Dead	None					7	51		
3	Full Wind Antenna (0 Deg)	None					10			
4	Full Wind Antenna (30 Deg)	None					21			
5	Full Wind Antenna (60 Deg)	None					21			
6	Full Wind Antenna (90 Deg)	None					21			
7	Full Wind Antenna (120 D...	None					21			
8	Full Wind Antenna (150 D...	None					21			
9	Full Wind Members (0 Deg)	None						104		
10	Full Wind Members (30 D...	None						104		
11	Full Wind Members (60 D...	None						104		
12	Full Wind Members (90 D...	None						104		
13	Full Wind Members (120 ...	None						104		
14	Full Wind Members (150 ...	None						104		
15	Ice Wind Antenna (0 Deg)	None					10			
16	Ice Wind Antenna (30 Deg)	None					21			
17	Ice Wind Antenna (60 Deg)	None					21			
18	Ice Wind Antenna (90 Deg)	None					21			
19	Ice Wind Antenna (120 D...	None					21			
20	Ice Wind Antenna (150 D...	None					21			
21	Ice Wind Members (0 Deg)	None						104		
22	Ice Wind Members (30 De...	None						104		
23	Ice Wind Members (60 De...	None						104		
24	Ice Wind Members (90 De...	None						104		
25	Ice Wind Members (120 D...	None						104		
26	Ice Wind Members (150 D...	None						104		
27	Seismic Antenna (0 Deg)	None					7			
28	Seismic Antenna (90 Deg)	None					7			
29	Seismic Members (0 Deg)	None		-.042	-.104					
30	Seismic Members (30 Deg)	None	.052	-.042	-.09					
31	Seismic Members (60 Deg)	None	.09	-.042	-.052					
32	Seismic Members (90 Deg)	None	.104	-.042	-6.401e...					
33	Seismic Members (120 D...	None	.09	-.042	.052					
34	Seismic Members (150 D...	None	.052	-.042	.09					
35	Seismic Members (180 D...	None	1.28e-17	-.042	.104					
36	Seismic Members (210 D...	None	-.052	-.042	.09					
37	Seismic Members (240 D...	None	-.09	-.042	.052					
38	Seismic Members (270 D...	None	-.104	-.042	1.92e-17					
39	Seismic Members (300 D...	None	-.09	-.042	-.052					
40	Seismic Members (330 D...	None	-.052	-.042	-.09					
41	Seismic Vertical Antennas	None					7			
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	So...	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	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														

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
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...	Yes	Y		1	1.2	3	.058	9	.058	42	1.5												
27	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	4	.058	10	.058	42	1.5												
28	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	5	.058	11	.058	42	1.5												
29	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	6	.058	12	.058	42	1.5												
30	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	7	.058	13	.058	42	1.5												
31	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	8	.058	14	.058	42	1.5												
32	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	3	-.058	9	-.058	42	1.5												
33	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	4	-.058	10	-.058	42	1.5												
34	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	5	-.058	11	-.058	42	1.5												
35	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	6	-.058	12	-.058	42	1.5												
36	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	7	-.058	13	-.058	42	1.5												
37	1.2D + 1.5Lm_1 + 1.0Wm...	Yes	Y		1	1.2	8	-.058	14	-.058	42	1.5												
38	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	3	.058	9	.058	43	1.5												
39	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	4	.058	10	.058	43	1.5												
40	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	5	.058	11	.058	43	1.5												
41	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	6	.058	12	.058	43	1.5												
42	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	7	.058	13	.058	43	1.5												
43	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	8	.058	14	.058	43	1.5												
44	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	3	-.058	9	-.058	43	1.5												
45	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	4	-.058	10	-.058	43	1.5												
46	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	5	-.058	11	-.058	43	1.5												
47	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	6	-.058	12	-.058	43	1.5												
48	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	7	-.058	13	-.058	43	1.5												
49	1.2D + 1.5Lm_2 + 1.0Wm...	Yes	Y		1	1.2	8	-.058	14	-.058	43	1.5												
50	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	3	.058	9	.058	44	1.5												
51	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	4	.058	10	.058	44	1.5												
52	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	5	.058	11	.058	44	1.5												
53	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	6	.058	12	.058	44	1.5												
54	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	7	.058	13	.058	44	1.5												
55	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	8	.058	14	.058	44	1.5												
56	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	3	-.058	9	-.058	44	1.5												
57	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	4	-.058	10	-.058	44	1.5												
58	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	5	-.058	11	-.058	44	1.5												
59	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	6	-.058	12	-.058	44	1.5												
60	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	7	-.058	13	-.058	44	1.5												
61	1.2D + 1.5Lm_3 + 1.0Wm...	Yes	Y		1	1.2	8	-.058	14	-.058	44	1.5												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
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 12...	Yes	Y		1	1.2	27	-.5	28	.866	33	1	40	1										
103	1.2D + 1.0EV +1.0 EH 15...	Yes	Y		1	1.2	27	-.866	28	.5	34	1	40	1										
104	1.2D + 1.0EV +1.0 EH 18...	Yes	Y		1	1.2	27	-1	28		35	1	40	1										
105	1.2D + 1.0EV +1.0 EH 21...	Yes	Y		1	1.2	27	-.866	28	-.5	36	1	40	1										
106	1.2D + 1.0EV +1.0 EH 24...	Yes	Y		1	1.2	27	-.5	28	-.866	37	1	40	1										
107	1.2D + 1.0EV +1.0 EH 27...	Yes	Y		1	1.2	27		28	-1	38	1	40	1										
108	1.2D + 1.0EV +1.0 EH 30...	Yes	Y		1	1.2	27	.5	28	-.866	39	1	40	1										
109	1.2D + 1.0EV +1.0 EH 33...	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	N20	max	.956	52	1.498	15	.457	7	.029	8	0	109	.022	11
2		min	-.75	34	-.157	8	-1.201	13	-.289	15	0	1	-.027	5
3	N55A	max	.946	35	1.461	15	1.798	2	-.003	8	0	109	.019	11
4		min	-1.245	53	.047	9	-.727	8	-.285	15	0	1	-.024	53

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
5	N83A	max	.048	7	.018	18	.631	12	0	109	0	109	0	109
6		min	-.058	12	0	2	-.627	6	0	1	0	1	0	1
7	N75	max	1.165	11	1.241	8	1.515	3	0	109	0	109	0	109
8		min	-1.084	5	-1.02	3	-1.842	8	0	1	0	1	0	1
9	Totals:	max	1.694	11	2.984	25	2.304	2						
10		min	-1.694	5	1.137	2	-2.304	8						

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

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M2	PIPE_2.0	.680	6.25	5	.235	6.25		4	6.295	32.13	1.872	1.872	1....	H1-1b
2	M3	PIPE_2.0	.714	7.813	7	.487	6.25		13	6.295	32.13	1.872	1.872	1....	H3-6
3	M5	PIPE_4.0	.219	4.667	15	.285	4.667		52	88.588	93.24	10.631	10.631	1	H1-1b
4	M16	WT6x0	.295	.083	51	.047	.083	z	53	116.619	145.8	9.682	10.701	1....	H1-1b
5	M17	WT5-11/16x1	.293	.083	51	.047	.083	z	53	117.299	142.003	9.652	9.718	1....	H1-1b
6	M18	WT5-3/8x2	.292	.083	15	.048	0	y	16	117.591	138.218	9.623	8.778	1....	H1-1b
7	M19	WT5-1/16x3	.300	.083	15	.050	0	y	16	117.433	134.409	9.593	7.88	1....	H1-1b
8	M20	WT4-3/4x4	.310	.083	15	.053	0	y	16	116.864	130.613	9.563	7.027	1....	H1-1b
9	M21	WT4-7/16x5	.321	.083	15	.056	0	y	16	115.874	126.816	9.534	6.218	1....	H1-1b
10	M22	WT4-1/8x6	.334	.083	15	.059	0	y	16	114.477	123.019	9.504	5.455	1....	H1-1b
11	M23	WT3-13/16x7	.349	.083	15	.063	0	y	16	112.696	119.222	9.474	4.737	1....	H1-1b
12	M24	WT3-1/2x8	.366	.083	15	.068	0	y	16	110.561	115.425	9.445	4.066	1....	H1-1b
13	M25	WT3-3/16x9	.386	.083	15	.073	0	y	16	108.104	111.628	9.415	3.442	1....	H1-1b
14	M26	WT2-13/16x10	.425	.083	15	.080	0	y	16	104.784	107.072	9.379	2.759	1....	H1-1b
15	M27	WT2-1/2x11	.457	.083	15	.087	0	y	16	101.75	103.275	9.35	2.244	1....	H1-1b
16	M28	WT2-3/16x12	.495	.083	15	.097	0	y	16	98.515	99.478	9.32	1.78	1....	H1-1b
17	M29	WT1-7/8x13	.541	.083	15	.108	0	y	16	95.113	95.681	9.29	1.37	1....	H1-1b
18	M30	WT1-9/16x14	.596	.083	15	.123	0	y	16	91.578	91.884	9.261	1.014	1....	H1-1b
19	M31	WT1-1/4x15	.659	.083	15	.144	0	y	15	87.942	88.088	9.231	.715	1....	H1-1b
20	M32	WT-15/16x16	.713	.083	15	.175	0	y	15	84.228	84.291	9.201	.477	1....	H1-1b
21	M30B	WT-5/8x17	.691	.083	15	.224	0	y	15	80.373	80.494	9.172	.307	1....	H1-1b
22	M30C	PL6x.375	.515	.167	15	.095	0	y	53	71.45	72.9	.57	9.113	1....	H1-1b
23	M30D	WT-5/16x18	.382	0	15	.317	.083	y	15	76.461	76.697	9.142	.226	1....	H1-1b
24	M31A	WT6x0	.352	.083	52	.050	0	z	53	116.619	145.8	9.682	10.701	1....	H1-1b
25	M32A	WT5-11/16x1	.347	.083	52	.051	0	z	53	117.299	142.003	9.652	9.718	1....	H1-1b
26	M33A	WT5-3/8x2	.343	.083	52	.052	0	z	53	117.591	138.218	9.623	8.778	1....	H1-1b
27	M34A	WT5-1/16x3	.342	.083	16	.052	0	z	53	117.433	134.409	9.593	7.88	1....	H1-1b
28	M35	WT4-3/4x4	.348	.083	16	.053	0	z	53	116.864	130.613	9.563	7.027	1....	H1-1b
29	M36	WT4-7/16x5	.356	.083	16	.054	0	y	16	115.874	126.816	9.534	6.218	1....	H1-1b
30	M37	WT4-1/8x6	.366	.083	16	.057	0	y	16	114.477	123.019	9.504	5.455	1....	H1-1b
31	M38	WT3-13/16x7	.378	.083	16	.061	0	y	16	112.696	119.222	9.474	4.737	1....	H1-1b
32	M39	WT3-1/2x8	.391	.083	16	.065	0	y	16	110.561	115.425	9.445	4.066	1....	H1-1b
33	M40	WT3-3/16x9	.408	.083	16	.070	0	y	16	108.104	111.628	9.415	3.442	1....	H1-1b
34	M41	WT2-13/16x10	.443	.083	16	.077	0	y	16	104.784	107.072	9.379	2.759	1....	H1-1b
35	M42	WT2-1/2x11	.472	.083	15	.085	0	y	16	101.75	103.275	9.35	2.244	1....	H1-1b
36	M43	WT2-3/16x12	.508	.083	15	.094	0	y	16	98.515	99.478	9.32	1.78	1....	H1-1b
37	M44	WT1-7/8x13	.551	.083	15	.105	0	y	16	95.113	95.681	9.29	1.37	1....	H1-1b
38	M45	WT1-9/16x14	.604	.083	15	.120	0	y	16	91.578	91.884	9.261	1.014	1....	H1-1b
39	M46	WT1-1/4x15	.664	.083	15	.141	0	y	16	87.942	88.088	9.231	.715	1....	H1-1b
40	M47	WT-15/16x16	.716	.083	15	.170	0	y	16	84.228	84.291	9.201	.477	1....	H1-1b
41	M48	WT-5/8x17	.692	.083	15	.219	0	y	15	80.373	80.494	9.172	.307	1....	H1-1b
42	M49	PL6x.375	.512	.167	15	.098	.167	y	53	71.45	72.9	.57	9.113	1....	H1-1b
43	M50	WT-5/16x18	.385	0	15	.313	.083	y	15	76.461	76.697	9.142	.226	1....	H1-1b
44	M48A	PIPE_1.0	.060	2.871	12	.003	2.871		11	10.481	14.774	.465	.465	1....	H1-1b*
45	A	PIPE_2.0	.393	4.583	36	.131	4.583		2	9.837	32.13	1.872	1.872	4....	H1-1b
46	B	PIPE_2.0	.392	4.167	2	.071	3.667		3	14.916	32.13	1.872	1.872	1....	H1-1b

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

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
47	C	PIPE_2.0	.226	4.5	37	.068	.5		3	14.916	32.13	1.872	1.872	2....	H1-1b
48	D	PIPE_2.0	.842	5.062	8	.267	4.958		12	10.003	32.13	1.872	1.872	1....	H1-1b
49	E	PIPE_2.0	.465	6.234	52	.238	2.953		13	8.922	32.13	1.872	1.872	1....	H1-1b
50	M50A	L2.5x2.5x3	.130	3.814	3	.042	3.814	y	6	18.003	29.192	.873	1.797	1....	H2-1
51	M51	L2.5x2.5x3	.108	3.677	2	.033	3.677	y	15	18.607	29.192	.873	1.794	1....	H2-1

APPENDIX D

ADDITIONAL CALCUATIONS

Input Connection Info. For Each Boundary Conditions							
Joint Label	Bolt Qty.	Bolt Axis	Bolt Oientation	Diameter (in.)	Bolt Type	Horizontal Spacing	Vertical Spacing
N20	2	Horizontal	0	0.625	Threaded Ro	5.5	3.25
N55A	2	Horizontal	0	0.625	Threaded Ro	5.5	3.25
N83A	1	Horizontal	90	0.5	A325N	0	0

Bolt Types			
Bolt Type	Fu (ksi)	Fnt (ksi)	Fnv (ksi)
A325N	120	90	54
A325X	120	90	68
A490N	150	113	68
A490X	150	113	85
U-Bolt	58	44	27
Threaded Rod	58	44	27
OTHER	0	0	0

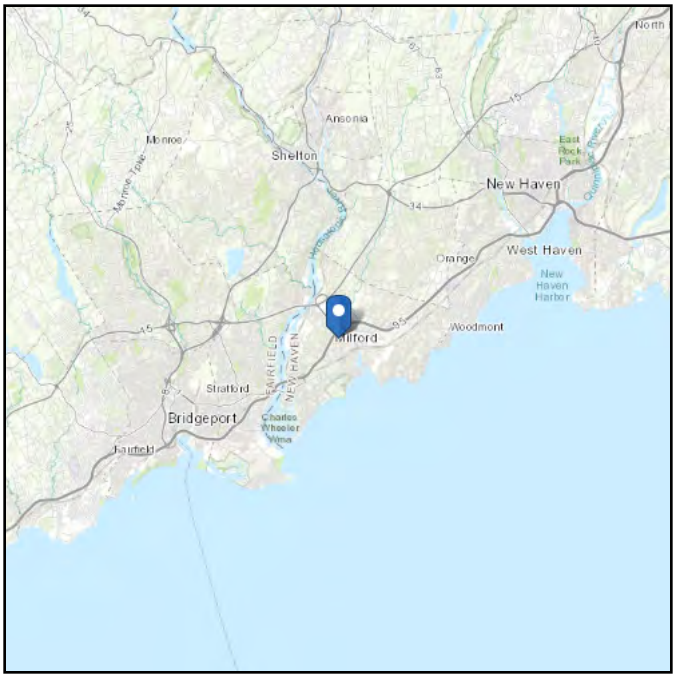
Results	
Limit State	Capacity (%)
Shear	13.0%
Tension	16.0%
Combined	4.1%

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 68.18 ft (NAVD 88)
Latitude: 41.228525
Longitude: -73.070131



Wind

Results:

Wind Speed:	124 Vmph	125 mph per milford city
10-year MRI	77 Vmph	
25-year MRI	87 Vmph	
50-year MRI	94 Vmph	
100-year MRI	100 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: Tue Jul 16 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.

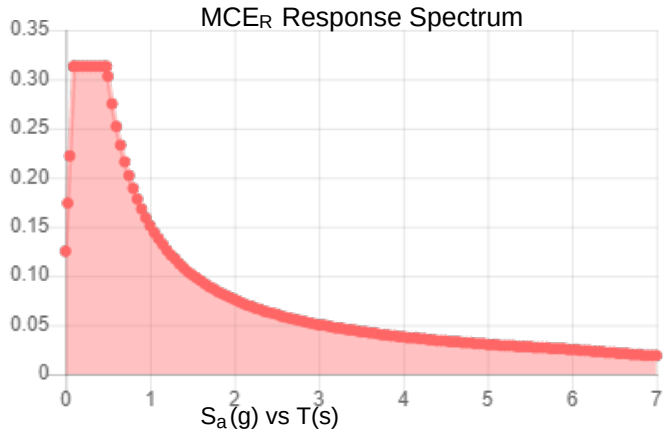
Seismic

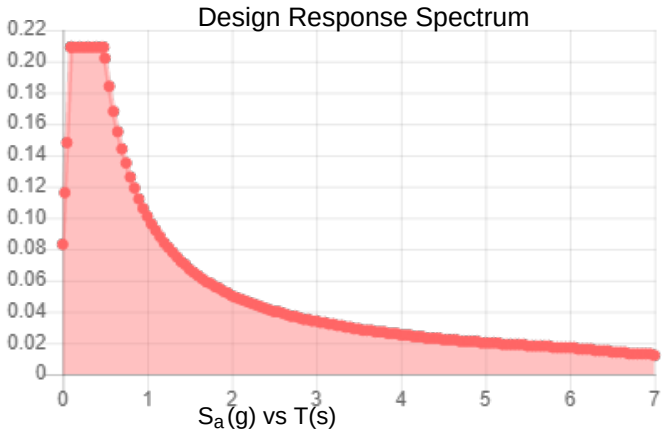
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.195	S_{DS} :	0.209
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.104
S_{MS} :	0.313	PGA_M :	0.166
S_{M1} :	0.151	F_{PGA} :	1.592
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Jul 16 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:	Tue Jul 16 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.

MOUNT REINFORCEMENT DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: MILFORD
BU NUMBER: 842870

SITE ADDRESS:
434 BOSTON POST ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY, USA

PROJECT CONTACTS:

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

2. DESIGN ENGINEER - MAIN RFI CONTACT
   ELISA MATHON
   919-674-5835
   ELISA.MATHON@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:	150 FT SELF SUPPORT TOWER
MOUNT HEIGHT/TYPE:	114 FT RAD (12.5 FT T-FRAME MOUNT)
TOWER LOCATION:	LAT: 41° 13' 42.69"
	LONG: -73° 4' 12.47"
MODIFICATION DRAWINGS:	MASTEC
MASTEC PROJECT NUMBER:	19114-MOD1
MA FAILING CCI DOCUMENT ID:	8532371
MOUNT ANALYSIS DATE:	07/16/2019
ORDER NUMBER:	481011, REV. 0
JDE JOB NUMBER:	559276

CODE COMPLIANCE

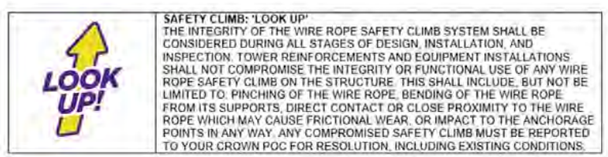
ANSI/TIA-222-H

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.

Raphael Mohamed

Digitally signed by Raphael Mohamed
DN: CN=Raphael Mohamed, O=Raphael I. Mohamed, L=Cary, S=North Carolina, C=US, SERIALNUMBER=zp164vf0fbrshbcrw38c96vpsjn6
Date: 2019.07.29 10:01:34-04'00'



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	SECTOR FRAME REINFORCEMENT DETAILS		
A-1	MANUFACTURER SPECIFICATIONS I		

NO.	DATE	DESCRIPTION	BY
0	07/29/19	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: MILFORD

BU NUMBER: 842870

MNS ENG. NUMBER: 19114 - MOD1

SITE ADDRESS:
434 BOSTON POST ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

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	07/29/19	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: MILFORD

BU NUMBER: 842870

MNS ENG. NUMBER: 19114 - MOD1

SITE ADDRESS:
434 BOSTON POST ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

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	ANGLE	A36	36 KSI	58 KSI

NO.	DATE	DESCRIPTION	BY
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REVISIONS

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NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

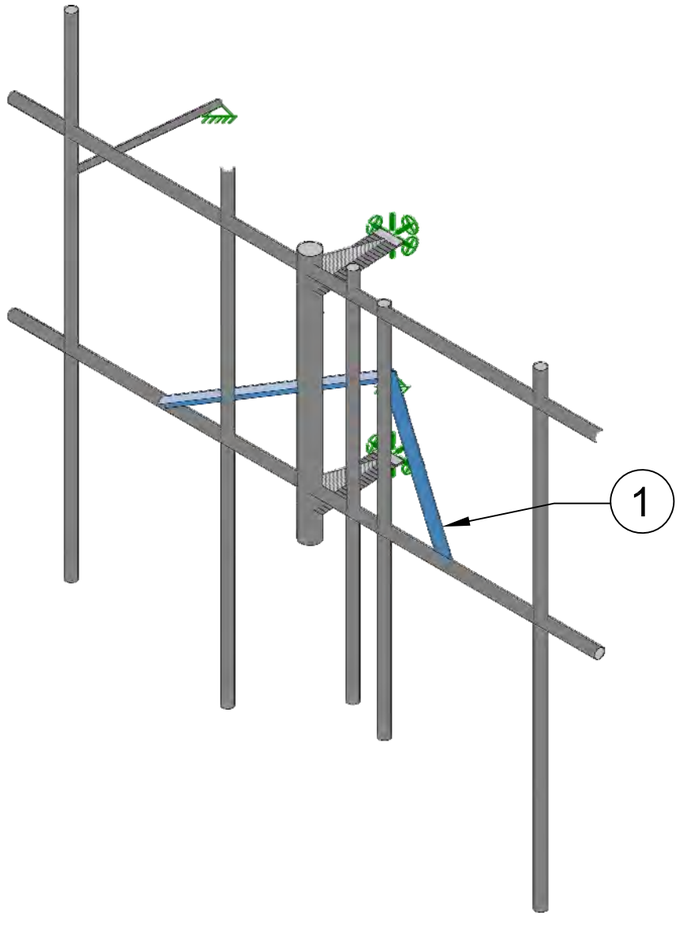
NOTES

N-2

REV 0

MODIFICATION SCHEDULE

SCOPE NO.	MODIFICATION DESCRIPTION	BOTTOM ELEVATION	TOP ELEVATION	SHEET NO.
1	INSTALLATION OF NEW SECTOR FRAME STABILIZER KIT	-	114'-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.

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0	07/29/19	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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MODIFICATION SCHEDULE

S-1

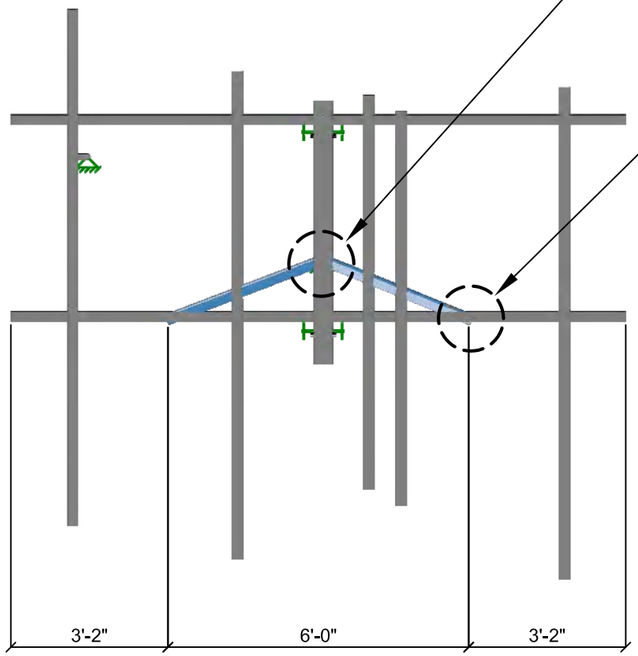
REV 0

NOTE:

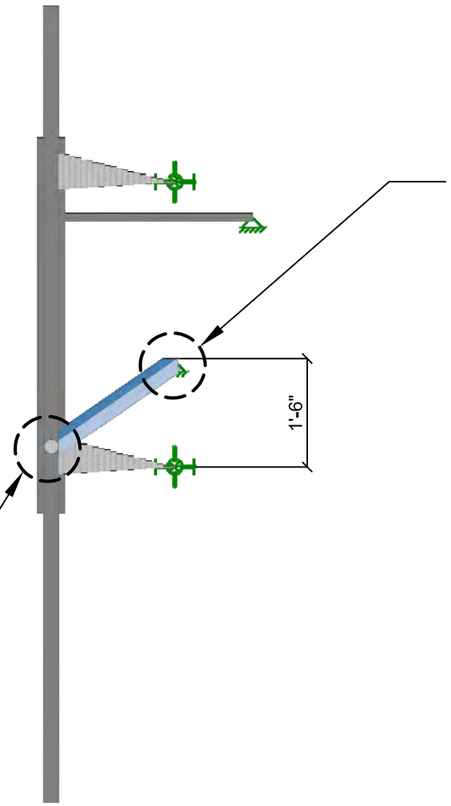
1. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW SECTOR FRAME STABILIZER KIT MATERIAL LIST

SITE PRO1 PART NO.	QTY.	LENGTH	DESCRIPTION
SFS-H	3	ADJUSTABLE	SECTOR FRAME STABILIZER KIT



1 S-2 SECTOR FRAME STABILIZER KIT INSTALLATION
FRONT VIEW
NTS



2 S-2 SECTOR FRAME STABILIZER KIT INSTALLATION
SIDE VIEW
NTS

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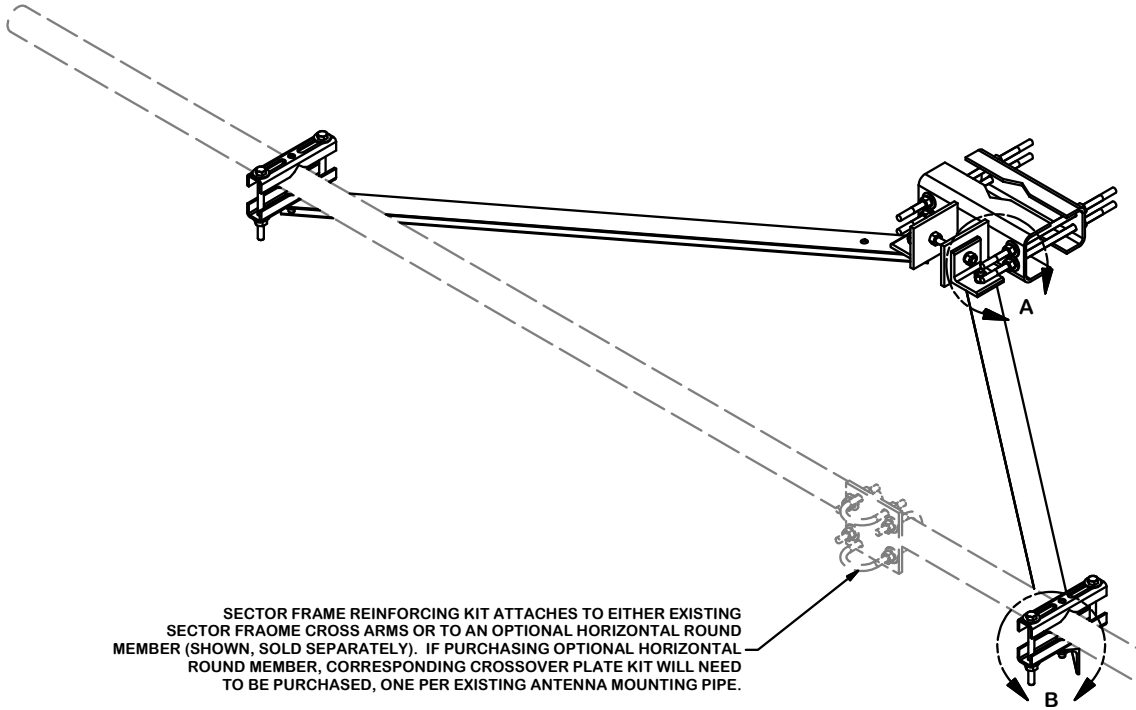
SECTOR FRAME REINFORCEMENT DETAILS

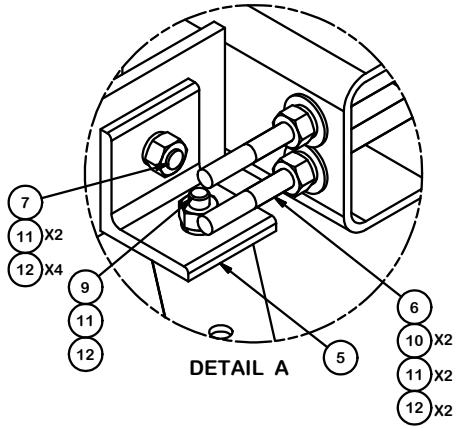
S-2

REV 0

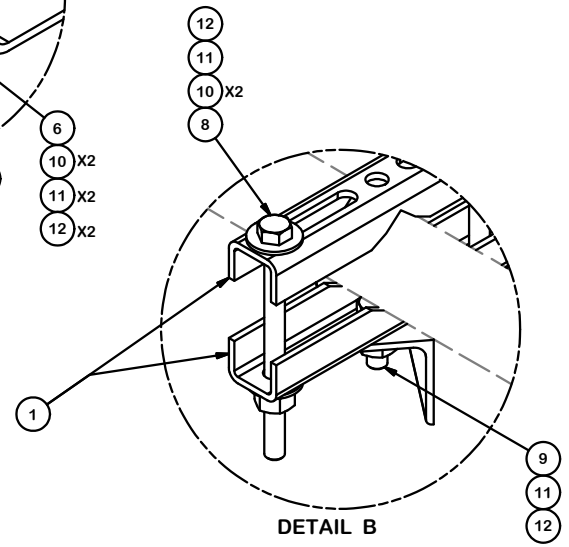
PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	X-STU	STIFF ARM CHANNEL BRACKET		1.37	5.49
2	2	X-232697	TRPD-HD DIAGONAL ANGLE - SITR PRO 1	52 1/2 in	14.21	28.42
3	1	CFS	LOWER GATE FOOT WELDMENT		12.72	12.72
4	1	GBB	GATE BACKING BAR		4.53	4.53
5	2	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.84	3.68
6	4	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.55	2.20
6	4	G12R-12	1/2" x 12" THREADED ROD (HDG.)		0.55	2.20
7	1	G12R-6	1/2" x 6" GALV. THREADED ROD		0.33	0.33
8	4	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	1.64
9	4	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1 1/2 in	0.15	0.59
10	16	G12FW	1/2" HDG USS FLATWASHER		0.03	0.54
11	18	G12LW	1/2" HDG LOCKWASHER		0.01	0.25
12	20	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.43
					TOTAL WT. #	65.66



SECTOR FRAME REINFORCING KIT ATTACHES TO EITHER EXISTING SECTOR FRAOME CROSS ARMS OR TO AN OPTIONAL HORIZONTAL ROUND MEMBER (SHOWN, SOLD SEPARATELY). IF PURCHASING OPTIONAL HORIZONTAL ROUND MEMBER, CORRESPONDING CROSSOVER PLATE KIT WILL NEED TO BE PURCHASED, ONE PER EXISTING ANTENNA MOUNTING PIPE.



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")*

DESCRIPTION
SECTOR FRAME
STABILIZER - HORIZONTAL

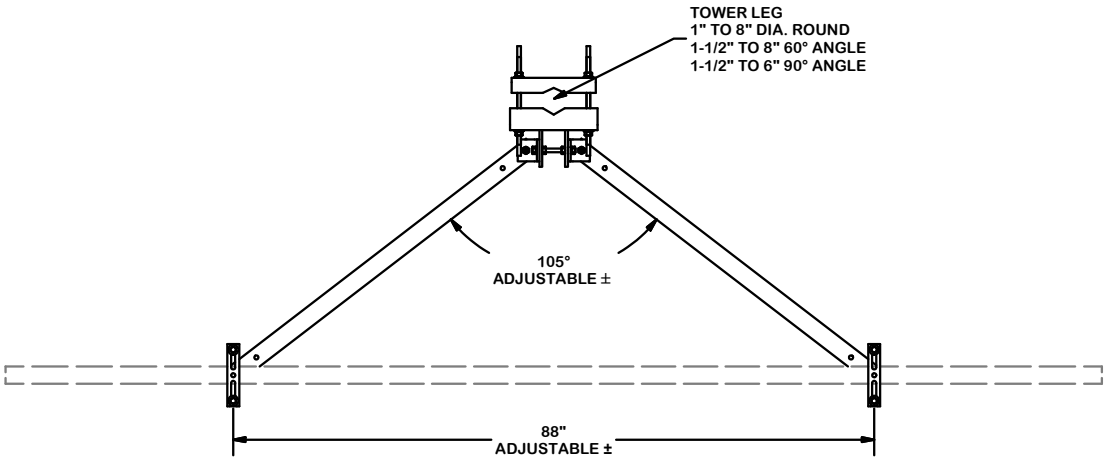
SITE PRO 1 — A valmont COMPANY

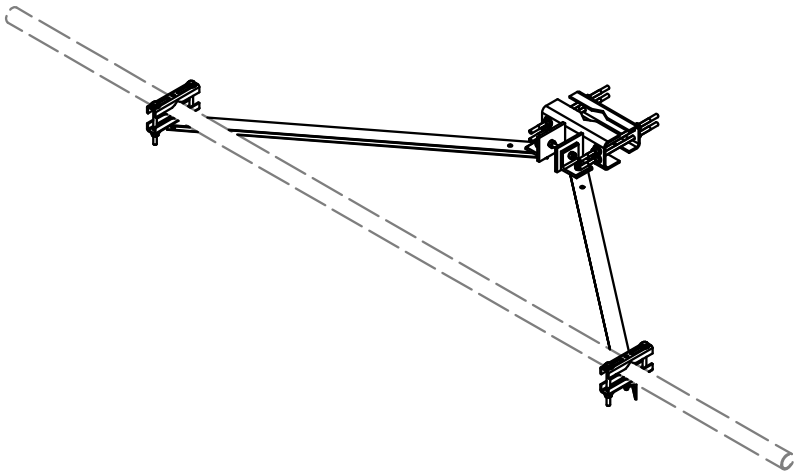
Engineering Support Team: 1-888-753-7446

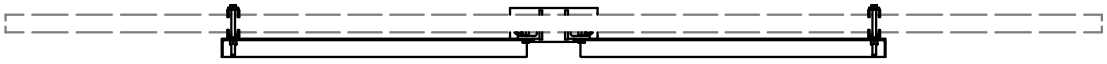
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

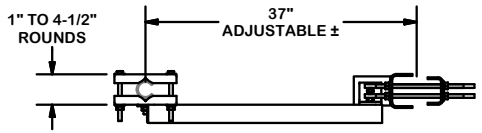
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
5563	CEK 4/29/2014		SFS-H	1 OF 3

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 4/30/2014	SFS-H









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")*

DESCRIPTION
SECTOR FRAME
STABILIZER - HORIZONTAL

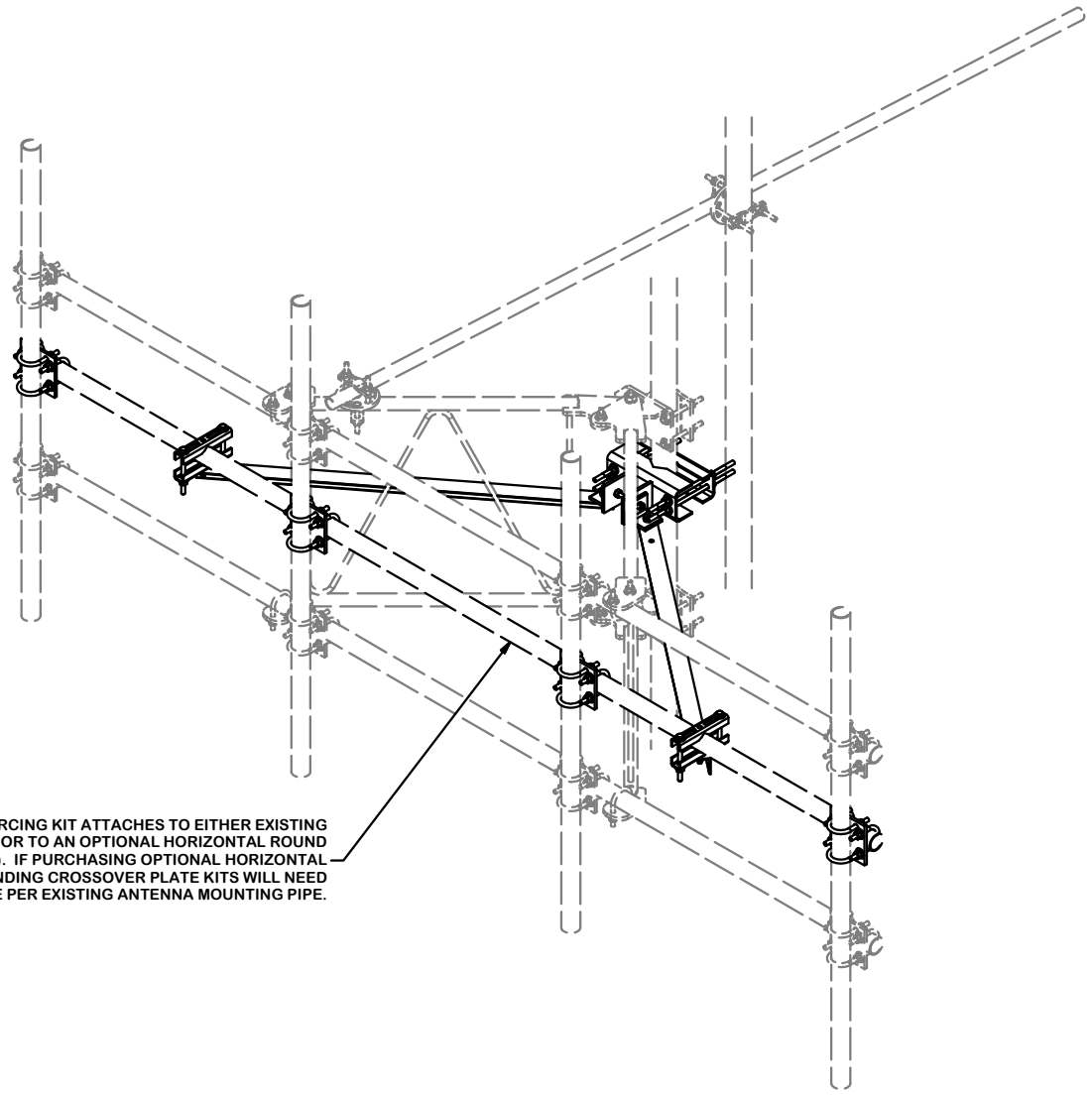
SITE PRO 1
A valmont COMPANY

Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
5563	CEK 4/29/2014		SFS-H

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 4/30/2014	SFS-H



SECTOR FRAME REINFORCING KIT ATTACHES TO EITHER EXISTING SECTOR FRAME CROSS ARMS OR TO AN OPTIONAL HORIZONTAL ROUND MEMBER (SHOWN, SOLD SEPARATELY). IF PURCHASING OPTIONAL HORIZONTAL ROUND MEMBER, CORRESPONDING CROSSOVER PLATE KITS WILL NEED TO BE PURCHASED, ONE PER EXISTING ANTENNA MOUNTING PIPE.

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")*
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Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11018F

Milford/ I-95/ X37/ Jct.
434 Boston Post Road
Milford, Connecticut 06460

July 8, 2020

EBI Project Number: 6220002963

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**38.21%**

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

July 8, 2020

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

Emissions Analysis for Site: CT11018F - Milford/ I-95/ X37/ Jct.

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **434 Boston Post Road** in **Milford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 434 Boston Post Road in Milford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

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

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

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

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

12) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-UNA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional

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

13) The antenna mounting height centerline of the proposed antennas is 112 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	25,651.93	ERP (W):	25,651.93
Antenna A1 MPE %:	**7.35%**	Antenna B1 MPE %:	**7.35%**	Antenna C1 MPE %:	**7.35%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A2 MPE %:	**1.77%**	Antenna B2 MPE %:	**1.77%**	Antenna C2 MPE %:	**1.77%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts
ERP (W):	8,466.41	ERP (W):	8,466.41	ERP (W):	8,466.41
Antenna A3 MPE %:	**4.04%**	Antenna B3 MPE %:	**4.04%**	Antenna C3 MPE %:	**4.04%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A4 MPE %:	**2.50%**	Antenna B4 MPE %:	**2.50%**	Antenna C4 MPE %:	**2.50%**

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	15.66%
Town	0.3%
Metro PCS	1.96%
XM Sat Radio	2.85%
Sprint	5.56%
Verizon	5.73%
AT&T	6.15%
Site Total MPE % :	38.21%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	15.66%
T-Mobile Sector B Total:	15.66%
T-Mobile Sector C Total:	15.66%
Site Total MPE % :	38.21%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2500 MHz LTE	2	6412.98	112.0	36.76	2500 MHz LTE	1000	3.68%
T-Mobile 2500 MHz NR	2	6412.98	112.0	36.76	2500 MHz NR	1000	3.68%
T-Mobile 1900 MHz GSM	4	1028.30	112.0	11.79	1900 MHz GSM	1000	1.18%
T-Mobile 2100 MHz UMTS	2	1028.30	112.0	5.89	2100 MHz UMTS	1000	0.59%
T-Mobile 600 MHz LTE	2	591.73	112.0	3.39	600 MHz LTE	400	0.85%
T-Mobile 600 MHz NR	1	1577.94	112.0	4.52	600 MHz NR	400	1.13%
T-Mobile 700 MHz LTE	2	648.82	112.0	3.72	700 MHz LTE	467	0.80%
T-Mobile 1900 MHz LTE	2	2203.69	112.0	12.63	1900 MHz LTE	1000	1.26%
T-Mobile 1900 MHz LTE	2	2056.61	112.0	11.79	1900 MHz LTE	1000	1.18%
T-Mobile 2100 MHz LTE	2	2307.55	112.0	13.23	2100 MHz LTE	1000	1.32%
						Total:	**15.66%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	15.66%
Sector B:	15.66%
Sector C:	15.66%
T-Mobile Maximum MPE % (Sector A):	15.66%
Site Total:	38.21%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **38.21%** 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.