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

July 19, 2019

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

RE: **Notice of Exempt Modification for T-Mobile:**
876314 - T-Mobile Site ID: CT11124H
100 Russian Village Road, Southbury, CT 06488
Latitude: 41° 27' 7.97"/ Longitude: -73° 15' 1.25"

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) total antennas at the 100-foot mount on the existing 132-foot Monopole Tower, located at 214 Russian Village Road, Southbury, CT. The tower is owned by Crown Castle. The property is owned by the Thomas and Mieke Crider. T-Mobile now intends to replace three (3) existing antennas with three (3) new 600/700 MHz antennas at the 100-foot mount level. T-Mobile is also proposing tower mount modifications. As shown on the enclosed mount analysis.

Planned-modifications:
Tower:

Remove and Replace:
(3) LNX 6515-DS Antenna **(REMOVE)** - (3) RFS-APXVAARR24_43U-NA20 Antenna 600/700 MHz **(REPLACE)**

Install New:
(3) 4449 B71+B12 RRU
(3) KRY 112 144/1 TMAs
(1) Hybrid Lines

Existing to Remain:
(12) 1-5/8" Coax
(6) RR90-17-XXDP Antenna (Dormant)
(3) 1A- PCS Twin Style TMA

Ground:

Upgrade:

Replace existing cabinet. Internal upgrade to cabinet.
Install (3) Radio 4415 on the ground.

This facility was approved by the by the Town of Southbury Zoning Board of Appeals on March 4, 1997. 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.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mr. Jeff Manville, First-Selectman, Town of Southbury, DeLoris Curtis, Land Use Administrator, as well as the property owner, 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
Real Estate Specialist

3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
518-373-3543
annemarie.zsamba@crowncastle.com

Attachments
cc:

Mr. Jeff Manville, First-Selectman
Town of Southbury
501 Main Street
Southbury, CT 06488

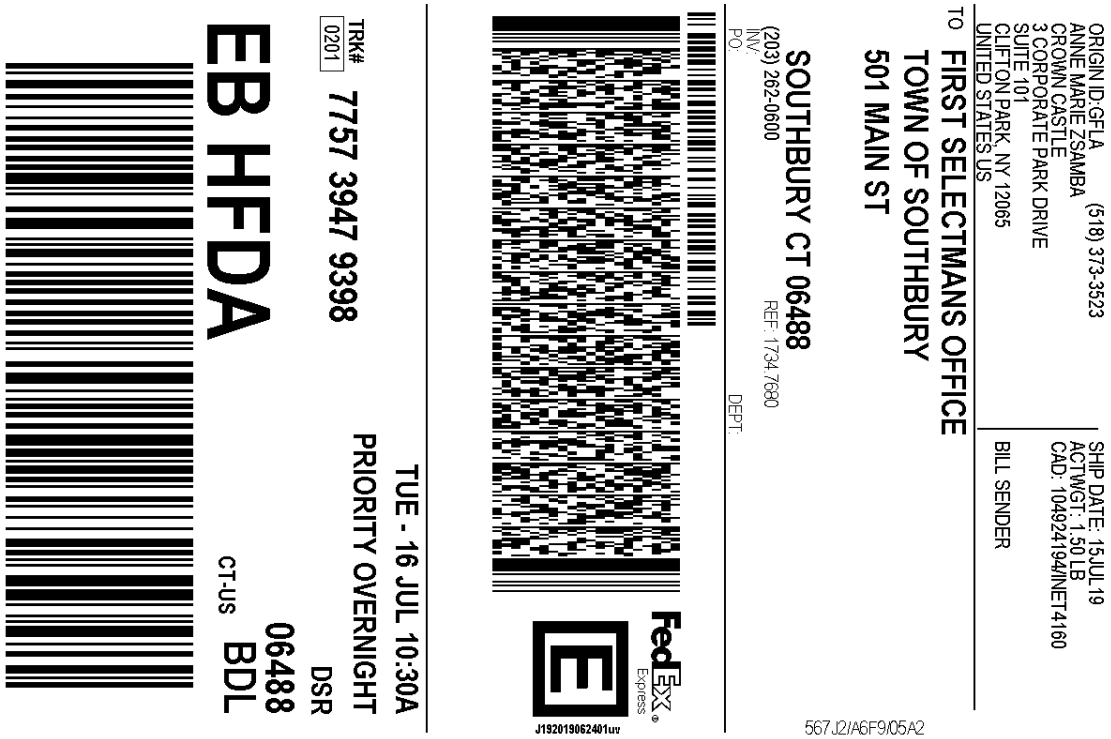
Planning Department
Town of Southburty
501 Main Street
Southbury, CT 06488

Thomas and Mieke Crider
100 Russian Village Road
Southbury, CT 06488

Crown Castle, Tower Owner

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

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



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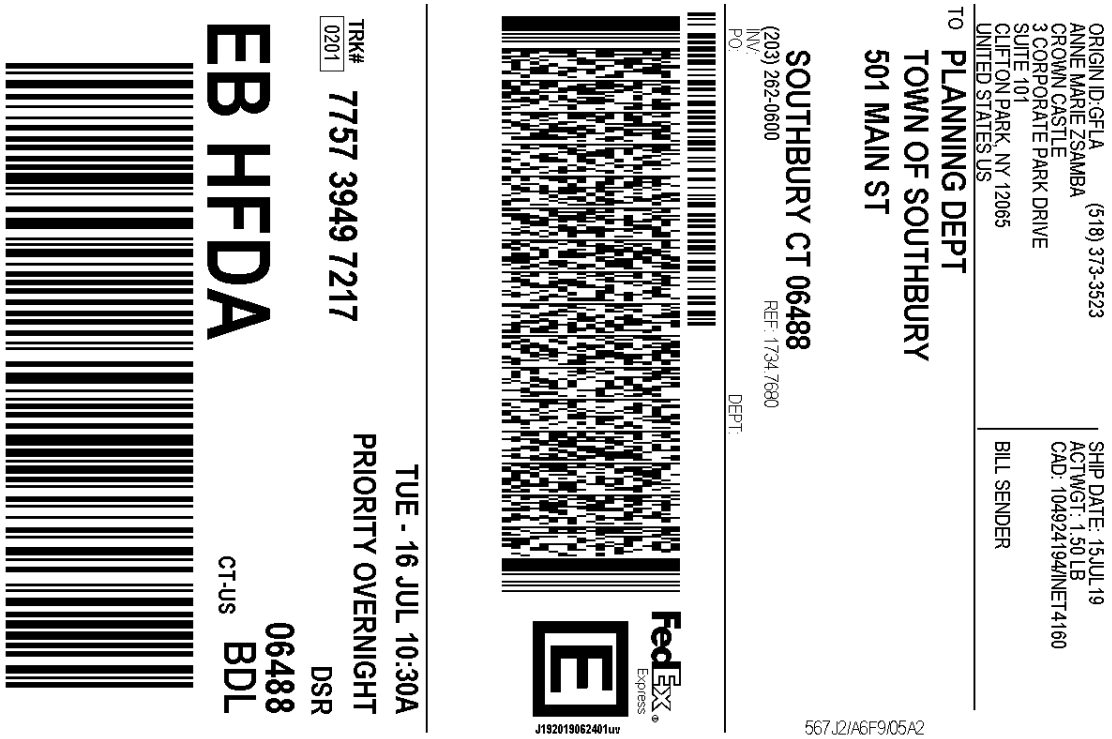

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Exhibit A

Original Facility Approval

TOWN OF SOUTHBURY

ZONING BOARD OF APPEALS

501 Main Street South
Southbury, Connecticut 06488
(203) 264-0606 - ext. 257
FAX: (203) 264-9762

February 14, 1997

Thomas and Meike Crider
100 Russian Village Road
Southbury, CT 06488

Dear Crider Family:

On **TUESDAY, March 4, 1997,** at 7:30 p.m. in Room 205A of the Southbury Town Hall, the Southbury Zoning Board of Appeals will conduct the continuation of your public hearing to consider your appeal. **It is important that you, or someone representing you, be present to state your case.**

An On-Site Inspection of the property under appeal will be conducted by the Board members during the week before the public hearing. There may be more than one group of members inspecting the property. If at all possible, please stake out where the proposed construction will be located on the property.

The Public Notice will appear in Voices on Wednesday, February 19, and Wednesday, February 26, 1997.

The Zoning Board of Appeals has 65 days after the close of the hearing in which to make a decision. You will be notified within 15 days after such decision has been rendered.

Sincerely,

Barbara Browne
Clerk

cc: Christopher Cody
Sprint PCS

HURWITZ & SAGARIN PC

LEWIS A. HURWITZ
JACOB DANIEL SAGARIN
CHRISTINE M. GONILLO
ELIAS A. ALEXIADES
DAVID A. SLOSSBERG
ANDREW C. KRUGER
JULIE M. CASHIN
JOHN W. KNUFF

MEMORANDUM

TO: Julie Reach, Sprint PCS

FROM: Lisa Dalfonso

DATE: February 6, 1997

RE: Site 017 - Southbury

* *

Attached please find a copy of the referral from the Southbury Planning Commission to the Zoning Board of Appeals on site 017. According to the letter, the Planning Commission voted to recommend approval of the Special Exception application for the PCS facility. As you know, Chris Cody of our office was present at the ZBA hearing on February 4, 1997 and a memo to Larry from Chris will follow, advising of the outcome and additional considerations for the continuation hearing. Overall, the hearing went well most of the unaddressed issues involved structural considerations. Therefore, can we please have a structural engineer available for the next hearing. I will let you know the date as soon as possible.

LAW OFFICES
147 North Broad Street, P.O. Box 112, Milford, Connecticut 06460-0112 Tel. 203-877-8000 • Fax 203-878-9800

TOWN OF SOUTHBURY
PLANNING COMMISSION
501 Main Street South
Southbury, Connecticut 06488-2295
(203) 262-0634
FAX: (203) 264-3719

January 30, 1997

TO: Zoning Board of Appeals
FROM: Planning Commission

RE: Referral - Proposed Sprint Tower on Land of Crider

The Planning Commission was presented with the proposal to erect a PCS Sprint Tower off Russian Village Road by the applicants and the land owner at their meeting on January 21, 1997. The Special Exception Application was reviewed for consistency with the Comprehensive Plan of Development and compliance with Section 7 of the Zoning Regulations. The Commission recognizes that an application also exists for the height of the tower at 128 feet but is not responding to that variance application.

During the discussion the applicant satisfied questions with regard to strength of the tower in high winds, adequate fall area, setbacks to nearest existing and potential home sites (600 feet), lighting on the tower (none is proposed), other areas of town investigated for the placement of the tower, the maximum number of additional units that could be placed on the tower (3), the maintenance of the structure and need for inspections and the utility lines needed to address this site.

The Commission recognizes the changes in the state and federal laws regarding telecommunications and the necessity of the towers. They felt that this site, in particular, is technically a good site due to the density of population and that the horizon line as outlined in the Plan was not affected. Further, the possibility of the need for additional antennae, by others, could be addressed by acknowledging that three units are possible on this type of tower.

Therefore, the Commission voted to recommend approval of the Special Exception Application of Sprint PCS for the installation of a utility tower on Russian Village Road.

H. William Davis

H. William Davis, Chairman

Exhibit B

Property card

214 RUSSIAN VILLAGE ROAD

Location	214 RUSSIAN VILLAGE ROAD	**Mblu**	19/ 92/ 45/ /
Acct#	00070700	**Owner**	CRIDER MIEKE & THOMAS S
Assessment	$133,170	**Appraisal**	$567,373
PID	859	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$0	$567,373	$567,373
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$0	$133,170	$133,170

Owner of Record

Owner	CRIDER MIEKE & THOMAS S	**Sale Price**	$0
Co-Owner	AKA MAAS MIEKE	**Certificate**	
Address	100 RUSSIAN VILLAGE ROAD SOUTHBURY, CT 06488	**Book & Page**	311/1220
		Sale Date	09/11/1996
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CRIDER MIEKE & THOMAS S	$0		311/1220	25	09/11/1996
AKA MAAS MIEKE			0/ 0	25	

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land

Building Photo

Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Percent	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Pln FPL:	
Det FPL:	
Gas Fireplace(s)	
% Attic Fin	
LF Dormer	
Foundation	
Bsmt Gar(s)	
Bsmt %	
SF FBM	
Fin Bsmt Qual	
Bsmt Access	

(http://images.vgsi.com/photos/SouthburyCTPhotos//default.jpg)

Building Layout

Building Layout

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use	Land Line Valuation

Use Code	100W	**Size (Acres)**	87.68
Description	Res Vacant	**Frontage**	0
Zone	R-60	**Depth**	0
Neighborhood	14W	**Assessed Value**	$133,170
Alt Land Appr	No	**Appraised Value**	$567,373
Category			

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2011	$80,000	$90,510	$170,510

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2011	$56,000	$63,360	$119,360

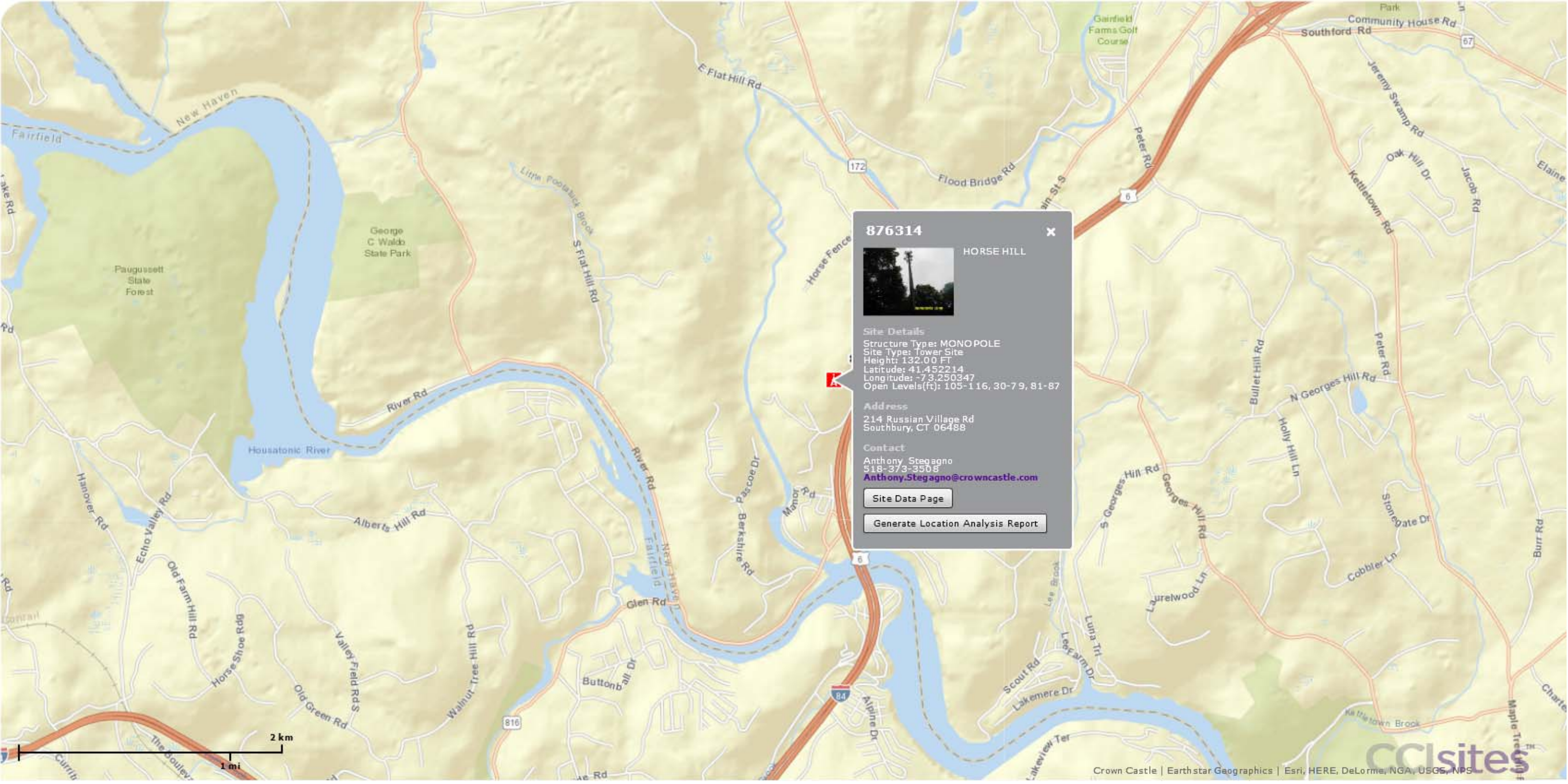

876314
HORSE HILL
Site Details
Structure Type: MONOPOLE
Site Type: Tower Site
Height: 132.00 FT
Latitude: 41.452214
Longitude: -73.250347
Open Levels(ft): 105-116, 30-79, 81-87
Address
214 Russian Village Rd
Southbury, CT 06488
Contact
Anthony Stegagno
518-373-3508
Anthony.Stegagno@crowncastle.com
Site Data Page
Generate Location Analysis Report
Paugussett State Forest
George C Waldo State Park
Housatonic River
River Rd
Flood Bridge Rd
E Flat Hill Rd
S Flat Hill Rd
Albert's Hill Rd
Glen Rd
Berkshire Rd
Kettletown Rd
N Georges Hill Rd
Southford Rd
Community House Rd
Jeremy Swamp Rd
2 km
1 mi
Crown Castle | Earthstar Geographics | Esri, HERE, DeLorme, NGA, USGS, NPS
CCIsites

Exhibit C

Construction Drawings

T-MOBILE SITE NAME:

SOUTHBURY-W/I-84

T-MOBILE SITE NUMBER:

CT11124H

CROWN BU: 876314 / APP#: 479810

67D94AR V2 CONFIGURATION

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING 132'-0" MONOPOLE

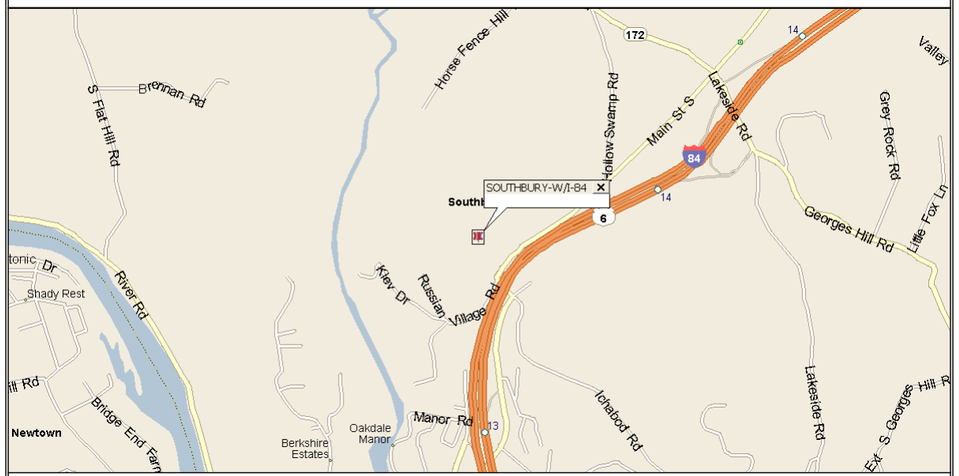
PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	214 RUSSIAN VILLAGE RD SOUTHBURY, CT 06488
JURISDICTION:	NEW HAVEN COUNTY

NAD83

LATITUDE:	41.4522643° N
LONGITUDE:	73.2498375° 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	1
A-1	OVERALL SITE PLAN	1
A-2	ANTENNA/CABLE SCHEDULE AND AZIMUTH PLANS	1
A-3	TOWER ELEVATION	1
A-4	ANTENNA AND RRU DETAILS	1
E-1	PANEL SCEHDULE AND ONE-LINE DIAGRAM	1
S-1	MOUNT MODIFICATION	0
S-2	MOUNT MODIFICATION	0
S-3	MOUNT MODIFICATION	0

CONTACT INFORMATION

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

DRIVING DIRECTIONS

DEPART BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD. ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO CT-20 [BRADLEY FIELD CONNECTOR]. TAKE RAMP (RIGHT) ONTO I-91 [RICHARD P HORAN MEMORIAL HWY]. AT EXIT 32A-32B, TURN RIGHT ONTO RAMP. TAKE RAMP (LEFT) ONTO I-84 [US-6]. AT EXIT 14, TURN RIGHT ONTO RAMP. KEEP RIGHT TO STAY ON RAMP. BEAR RIGHT ONTO CT-172 [LAKESIDE RD], THEN IMMEDIATELY TURN LEFT ONTO MAIN ST S. TURN RIGHT ONTO ACCESS ROAD AND ARRIVE AT SOUTHBURY-W/I-84.

A/E DOCUMENT REVIEW STATUS

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

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

CODE COMPLIANCE

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

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

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (3) EXISTING ANTENNAS AT 100'-0".
- REMOVE (1) DUS41 & (6) RUS01 B12 RADIOS FROM EXISTING RBS 6201 CABINET.
- RELOCATE (3) EXISTING TMAS AT 100'-0".
- INSTALL (3) NEW ANTENNAS AT 100'-0".
- INSTALL (3) NEW RRUS AT 100'-0".
- INSTALL (3) NEW TMAS AT 100'-0".
- INSTALL (1) NEW 6x12 HCS CABLE.
- INSTALL (2) BB6630 IN EXISTING RBS 6201 ODE.
- INSTALL (3) 4415 RADIOS ON GROUND.

DO NOT SCALE DRAWINGS

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

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

811

B+T GRP

CROWN CASTLE

T-Mobile

CT11124H
BU #: 876314

SOUTHBURY-W/I-84

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING 132'-0" MONOPOLE

PROJECT NO: 136923.001.01

CHECKED BY: MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/12/19	MLC	CONSTRUCTION
1	7/18/19	RMC	CONSTRUCTION

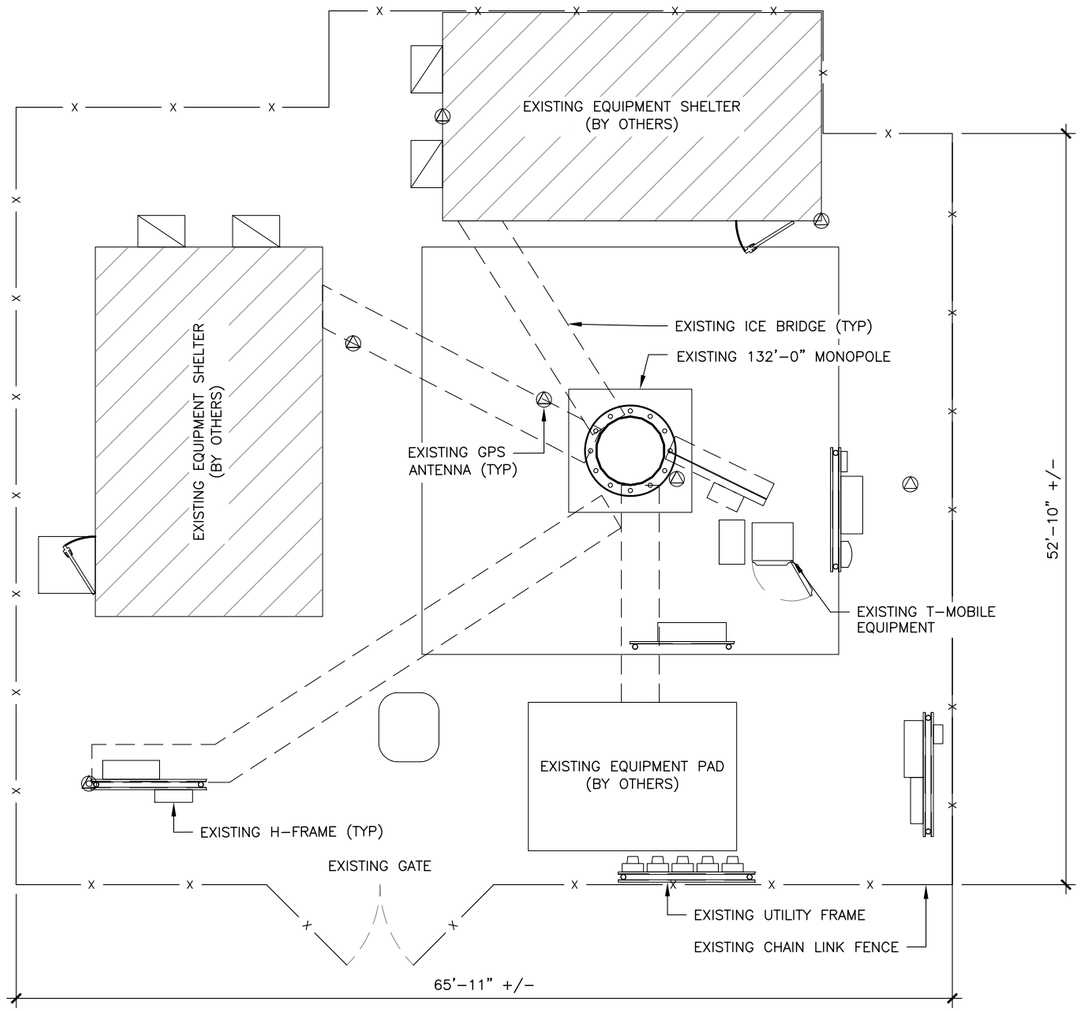
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER

7/18/19

SHEET NUMBER: T-1

REVISION: 1



1 OVERALL SITE PLAN

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

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS SITUATED AT
   214 RUSSIAN VILLAGE RD, SOUTHBURY, CT 06488.

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 THREE (3) NEW PANEL ANTENNAS, THREE (3) TMAS, THREE (3) RRUS, AND ONE (1) ADDITIONAL CABLES MOUNTED ON AN EXISTING MONOPOLE.

3. THIS FACILITY SHALL BE VISITED ON THE AVERAGE OF ONCE A MONTH FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.

4. THE EXISTING SITE IS LOCATED AT LATITUDE OF 41.4522643' N± AND LONGITUDE OF 73.2498375' W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).

5. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION"

6. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:

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

7. THE CONTRACTOR SHALL NOTIFY B+T GROUP, P.A. IMMEDIATELY IF ANY FIELD-CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE AND/OR INEFFECTIVE.

8. THE CONTRACTOR IS RESPONSIBLE TO PROTECT, REPAIR AND/OR REPLACE ANY DAMAGED STRUCTURES, UTILITIES OR LANDSCAPED AREA WHICH MAY BE DISTURBED DURING THE CONSTRUCTION OF THIS FACILITY.

9. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.

10. SITE INFORMATION SHOWN TAKEN FROM CROWN CASTLE SITE PLANS AND FROM CROWN CASTLE INSPECTION PHOTOS.

11. NO GUARANTEE IS MADE NOR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE HORIZONTAL OR VERTICAL LOCATIONS. ALL PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN PRIOR TO CONSTRUCTION ACTIVITIES.

12. ALL IMPROVEMENTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE TOWNSHIP ENGINEER WHO WILL BE GIVEN PROPER NOTIFICATION PRIOR TO THE START OF ANY CONSTRUCTION.

B+T GRP

CROWN CASTLE

T-Mobile

CT11124H
BU #: 876314

SOUTHBURY-W/I-84

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING 132'-0" MONOPOLE

PROJECT NO:	136923.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/12/19	MLC	CONSTRUCTION
1	7/18/19	RMC	CONSTRUCTION

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

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER

7/18/19

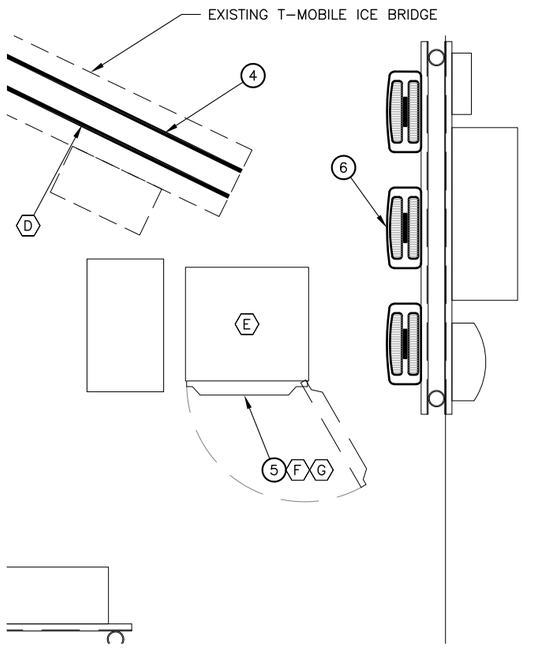
SHEET NUMBER:	REVISION:
A-1	1

LEGEND

EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING EMS RR90-17-XXDP ANTENNA TO REMAIN (TOTAL OF 6)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO BE RELOCATED (SEE INSTALLATION NOTE 2)	2	INSTALL NEW & RELOCATED TMA BEHIND ANTENNA (TYP. OF 2 PER SECTOR, TOTAL OF 6)
C	EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING 1 5/8" COAX CABLES TO REMAIN (TOTAL OF 12)	4	INSTALL (1) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING RBS 6201 ODE CABINET TO REMAIN (TOTAL OF 1)	5	INSTALL (2) BB 6630s IN EXISTING RBS 6201 ODE CABINET.
F	EXISTING DUS41 TO BE REMOVED FROM (TOTAL OF 1)	6	INSTALL (3) RADIOS 4415 B25 ON GROUND
G	EXISTING RUS01 B12 RADIOS TO BE REMOVED (TOTAL OF 6)		

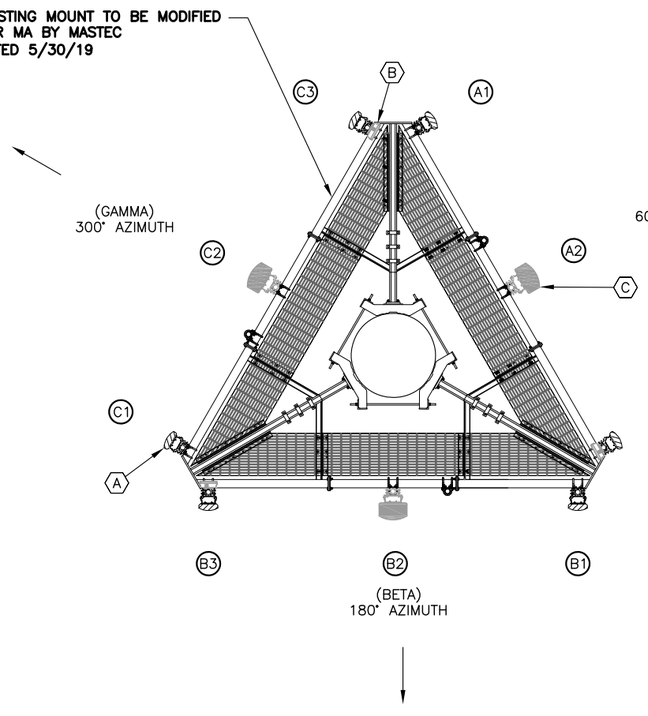
ANTENNA AND CABLE SCHEDULE

SECTOR	POSITION	EXISTING ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
60° – ALPHA	A1	EMS RR90-17-XXDP	–	–	–	–	100'-0"	–	–	–	–
	A2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°/2° /2°/2°**	**0°**		**2/1**	**(1) 6x12 HCS FIBER** (4) 1 5/8" COAX	**1/2" COAX**	150'-0"
	A3	EMS RR90-17-XXDP	–	–	–	0°		–	–	–	–
180° – BETA	B1	EMS RR90-17-XXDP	–	–	–	–	100'-0"	–	–	–	–
	B2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°/2° /2°/2°**	**0°**		**2/1**	**(1) 6x12 HCS FIBER (SHARED)** (4) 1 5/8" COAX	**1/2" COAX**	150'-0"
	B3	EMS RR90-17-XXDP	–	–	–	0°		–	–	–	–
300° – GAMMA	C1	EMS RR90-17-XXDP	–	–	–	–	100'-0"	–	–	–	–
	C2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°/2° /2°/2°**	**0°**		**2/1**	**(1) 6x12 HCS FIBER (SHARED)** (4) 1 5/8" COAX	**1/2" COAX**	150'-0"
	C3	EMS RR90-17-XXDP	–	–	–	0°		–	–	–	–



1 ENLARGED AREA PLAN

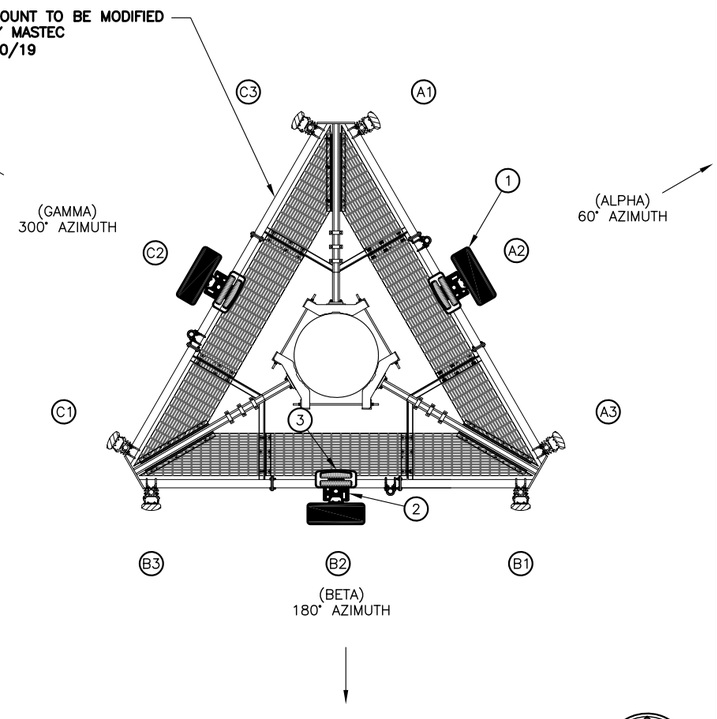
SCALE: 0' 1' 2' 4' 10'



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

CT11124H
BU #: 876314

SOUTHBURY-W/I-84

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING 132'-0" MONOPOLE

PROJECT NO:	136923.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/12/19	MLC	CONSTRUCTION
1	7/18/19	RMC	CONSTRUCTION

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PEC.0001564
Expires 2/10/20

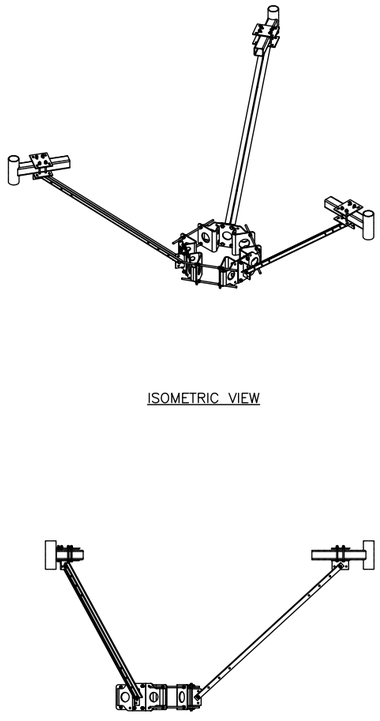
SHEET NUMBER:	REVISION:
A-2	1

LEGEND			
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING EMS RR90-17-XXDP ANTENNA TO REMAIN (TOTAL OF 6)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO BE RELOCATED (SEE INSTALLATION NOTE 2)	2	INSTALL NEW & RELOCATED TMA BEHIND ANTENNA (TYP. OF 2 PER SECTOR, TOTAL OF 6)
C	EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING 1 5/8" COAX CABLES TO REMAIN (TOTAL OF 12)	4	INSTALL (1) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING

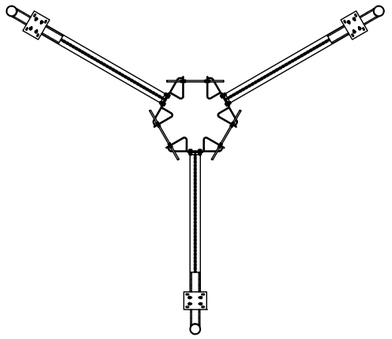
EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY TOWER ENGINEERING PROFESSIONALS DATED 6/12/19.

LEGEND:

- **NEW**
- EXISTING
- FUTURE

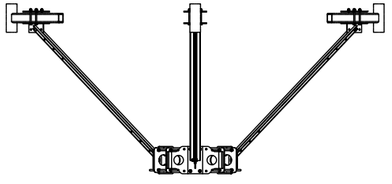


ISOMETRIC VIEW



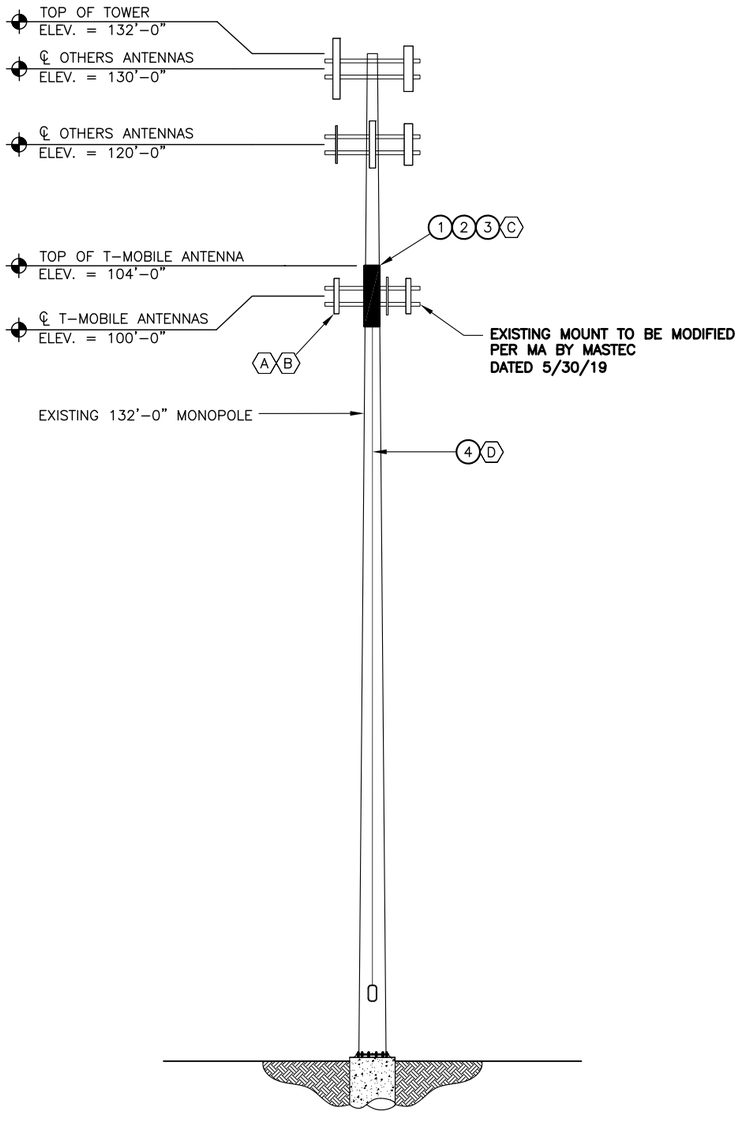
TOP VIEW

SIDE VIEW



FRONT VIEW

1 PLATFORM REINFORCEMENT KIT
SCALE: N.T.S.



2 TOWER ELEVATION
SCALE: 0' 10' 20' 30' 40' 1"=20'

B+T GRP

CROWN CASTLE

T-Mobile

CT11124H
BU #: 876314
SOUTHBURY-W/I-84
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
EXISTING 132'-0" MONOPOLE

PROJECT NO: 136923.001.01
CHECKED BY: MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/12/19	MLC	CONSTRUCTION
1	7/18/19	RMC	CONSTRUCTION

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31627
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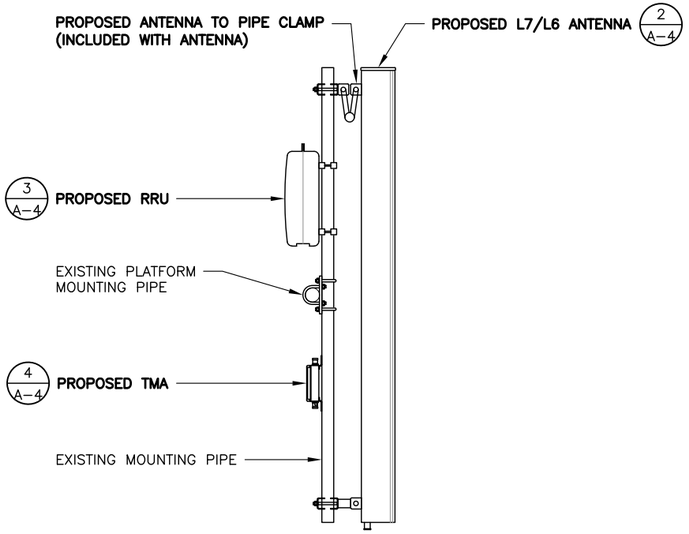
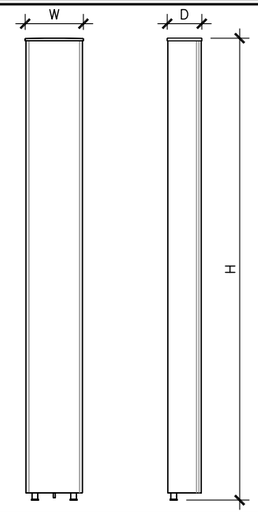
7/18/19

SHEET NUMBER: A-3
REVISION: 1



1 PROPOSED ANTENNA & RRU MOUNTING DETAIL

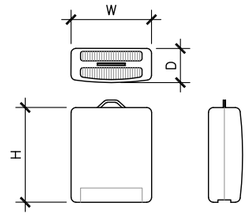
SCALE: N.T.S.



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

2 L7/L6 ANTENNA DETAIL

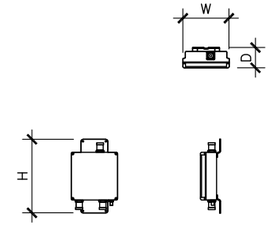
SCALE: N.T.S.



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

3 REMOTE RADIO UNIT (RRU)

SCALE: N.T.S.

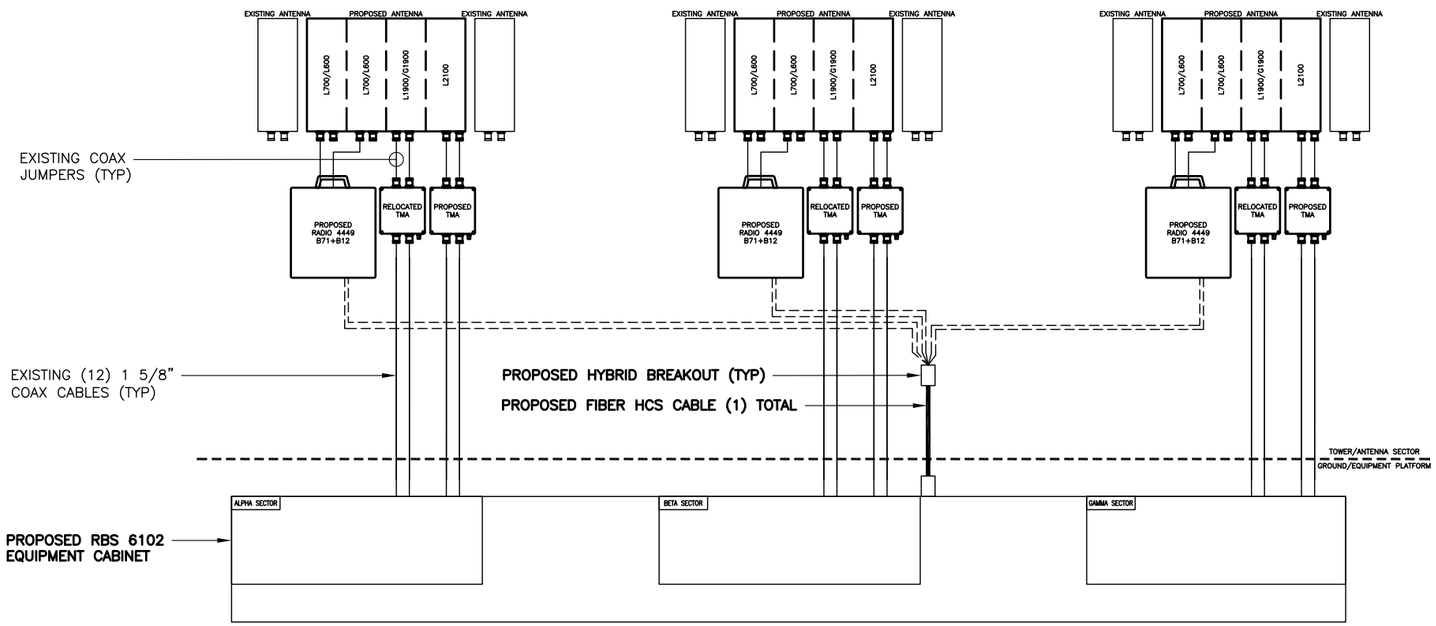


TMA SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	KRY 112 144/1
WIDTH	6.0"
DEPTH	3.0"
HEIGHT	7.0"
WEIGHT	11 LBS

4 TOWER MOUNTED AMPLIFIER (TMA)

SCALE: N.T.S.

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

CT11124H
BU #: 876314
SOUTHBURY-W/I-84
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
EXISTING 132'-0" MONOPOLE

PROJECT NO:	136923.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
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1	7/18/19	RMC	CONSTRUCTION

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31627
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7/18/19

SHEET NUMBER:	REVISION:
A-4	1

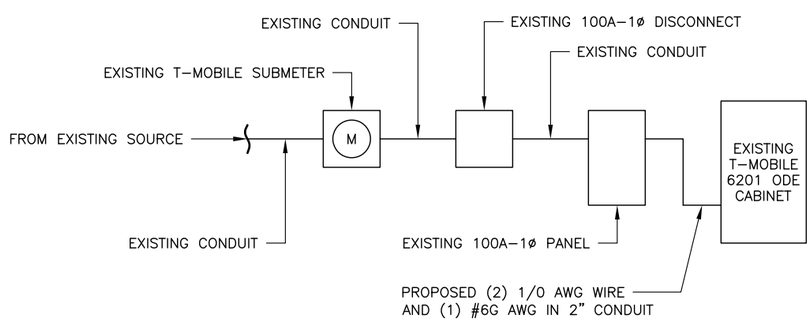
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
GFI	1	20A	1	2	**100A**	2	6102
LIGHTS	1	15A	3	4			

RATED VOLTAGE: ■120/240 □_____. 1 PHASE, 3 WIRE	BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS	
RATED AMPS: ■100 □225 □400 □_____.	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X	
□MAIN LUGS ONLY MAIN 100 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 BREAKER IN POSITION 2 AND 4 WITH A NEW 2P 100A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 6201 ODE CABINET WITH (2) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
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

CT11124H
BU #: 876314

SOUTHBURY-W/I-84

214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488

EXISTING 132'-0" MONOPOLE

PROJECT NO:	136923.001.01
CHECKED BY:	MDW

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/12/19	MLC	CONSTRUCTION
1	7/18/19	RMC	CONSTRUCTION

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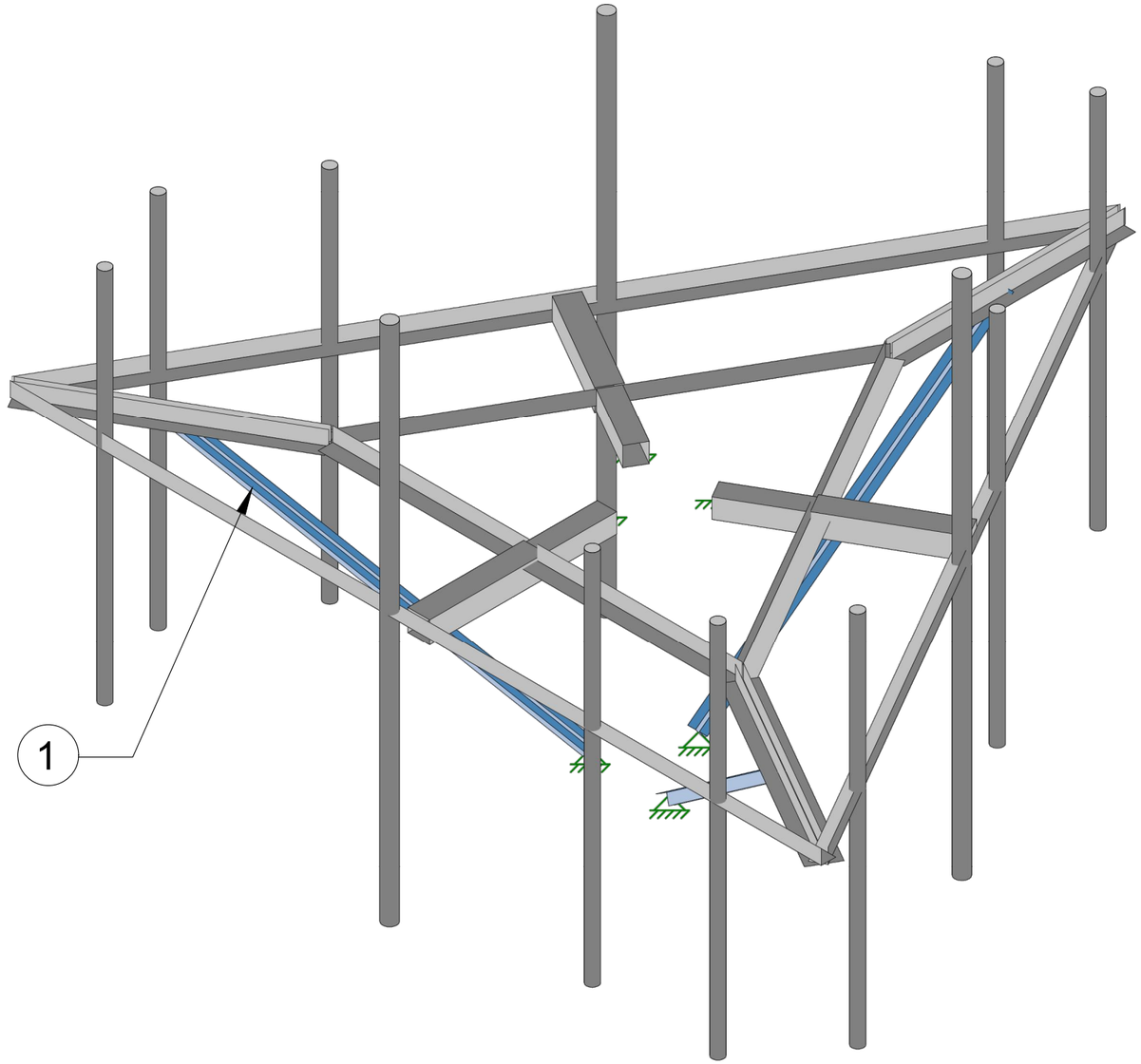
31627
LICENSED PROFESSIONAL ENGINEER
7/18/19

SHEET NUMBER:	REVISION:
E-1	1

MODIFICATION SCHEDULE

SCOPE NO.	MODIFICATION DESCRIPTION	BOTTOM ELEVATION	TOP ELEVATION	SHEET NO.
1	INSTALLATION OF NEW SABRE C10851202DP	-	100'-0" ±	S-2



NOTES:

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

NO.	DATE	DESCRIPTION	BY
0	05/31/19	FIRST ISSUE	JMB

REVISIONS

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

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.

SITE NAME: HORSE HILL

BU NUMBER: 876314

WO NUMBER: 479810
MNS ENG. NUMBER: 18543 - MOD1

SITE ADDRESS:
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

MODIFICATION SCHEDULE

S-1

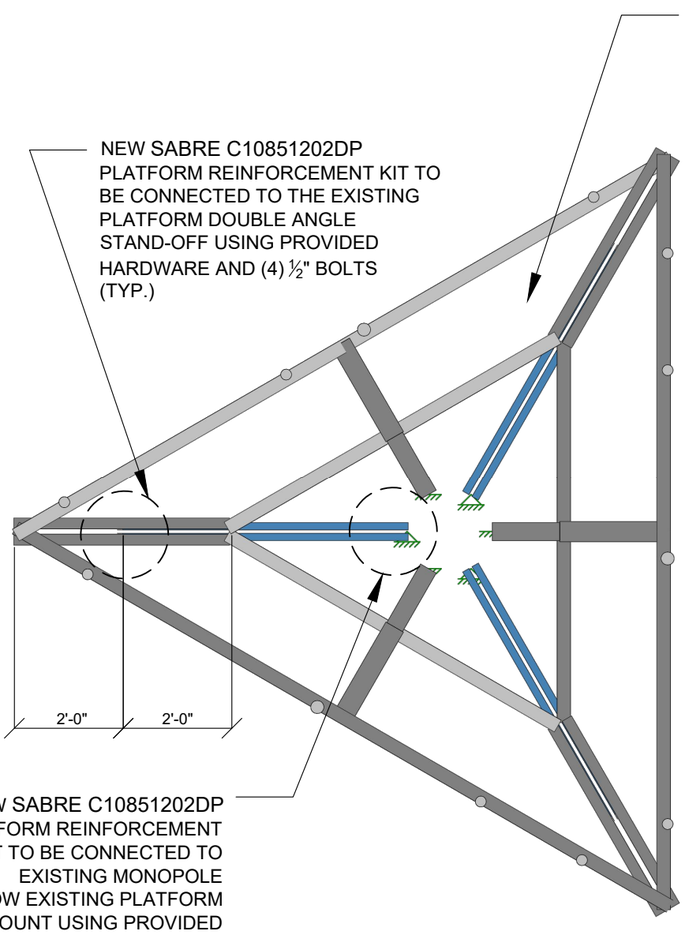
REV 0

NOTES:

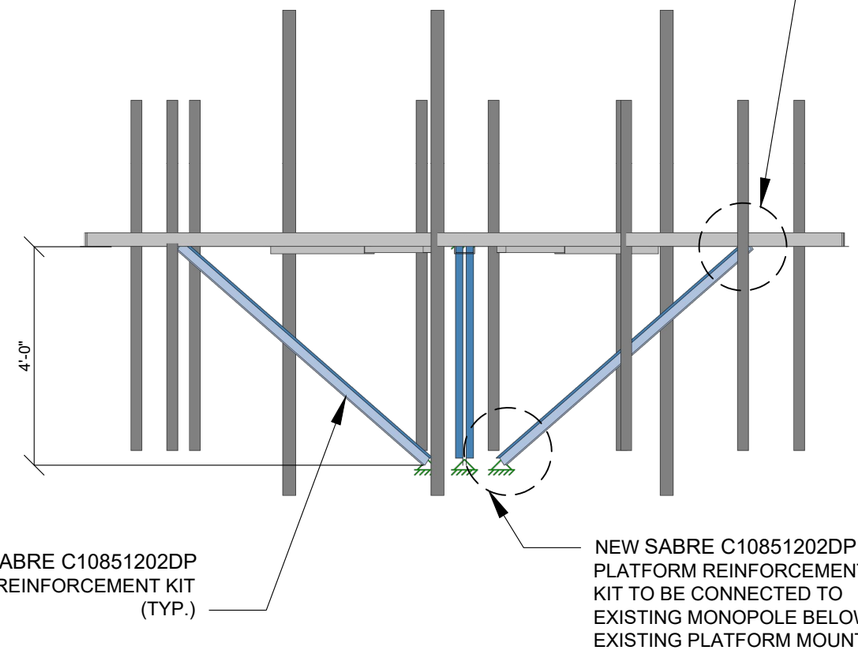
1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW ANGLES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW PLATFORM STABILIZER KIT MATERIAL LIST

SABRE PART NO.	QTY.	LENGTH	DESCRIPTION
C10851202DP	1	ADJUSTABLE	PLATFORM REINFORCEMENT KIT



1 S-2 C10851202DP INSTALLATION
PLAN VIEW
NTS



2 S-2 C10851202DP INSTALLATION
SIDE VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	05/31/19	FIRST ISSUE	JMB

REVISIONS

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

SITE NAME: HORSE HILL

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214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

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PLATFORM REINFORCEMENT DETAILS

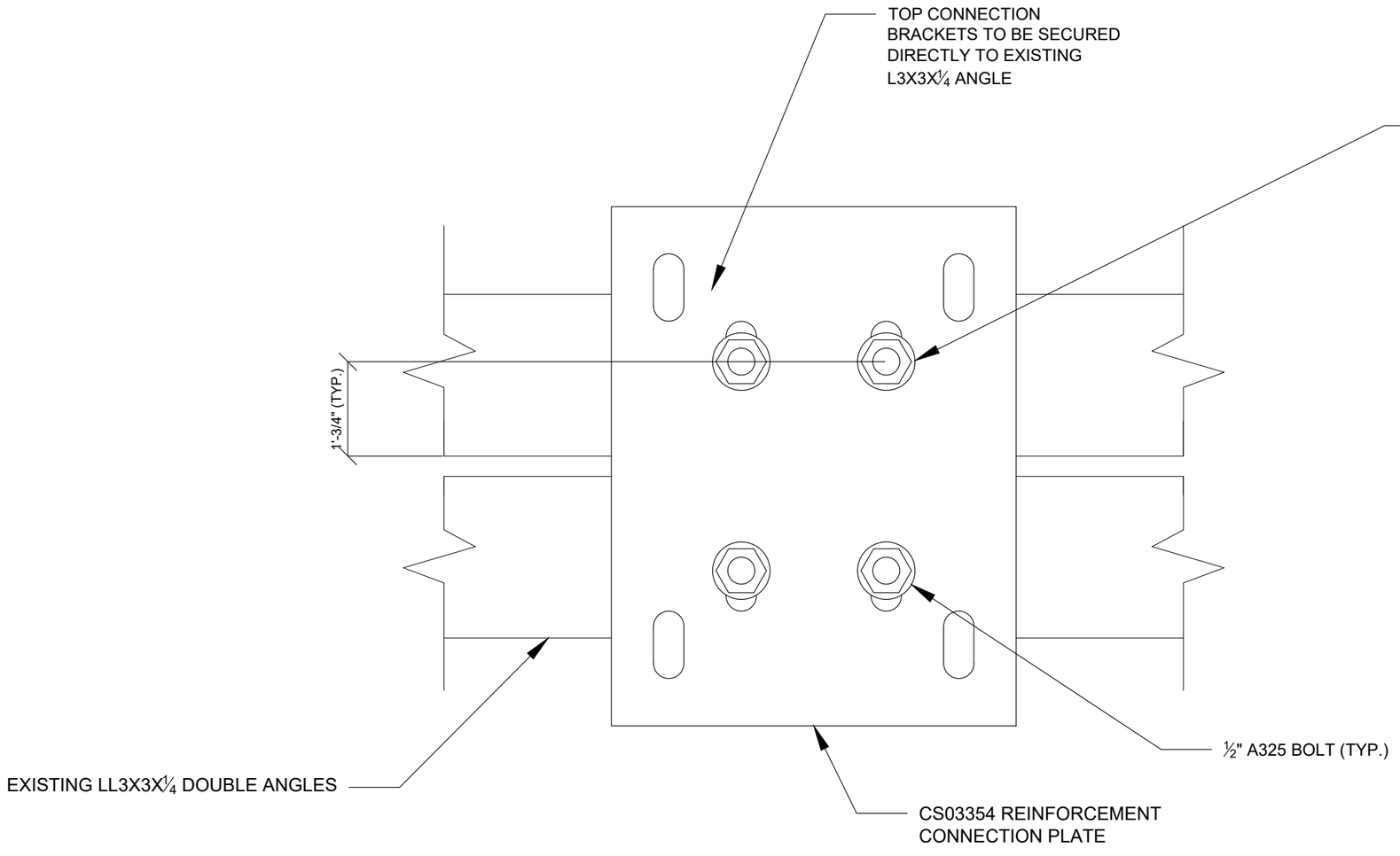
S-2 REV 0

NOTES:

1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW ANGLES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW PLATFORM STABILIZER KIT MATERIAL LIST

SABRE PART NO.	QTY.	LENGTH	DESCRIPTION
C10851202DP	1	ADJUSTABLE	PLATFORM REINFORCEMENT KIT



1 / S-3 C10851202DP INSTALLATION

TOP VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	05/31/19	FIRST ISSUE	JMB

REVISIONS

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

STATE OF CONNECTICUT
RAPHAEL MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER

SITE NAME: HORSE HILL

BU NUMBER: 876314

WO NUMBER: 479810
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SOUTHBURY, CT 06488
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

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REINFORCEMENT CONNECTION DETAILS

S-3 REV 0

Exhibit D

Structural Analysis Report

Date: **June 12, 2019**

Heather Simeone
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11124H
	Carrier Site Name:	Southbury-W/I-84
Crown Castle Designation:	**Crown Castle BU Number:**	876314
	Crown Castle Site Name:	Horse Hill
	Crown Castle JDE Job Number:	559320
	Crown Castle Work Order Number:	1729924
	Crown Castle Order Number:	479810 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	25675.265343
Site Data:	**214 Russian Village Road, Southbury, New Haven, CT 06488** **Latitude *41° 27' 7.97"*, Longitude *-73° 15' 1.25"*** **130 Foot - Monopole Tower**	

Dear Heather Simeone,

Tower Engineering Professionals 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:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

Structure Capacity	Foundation Capacity
60.1%	35.7%

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

Structural analysis prepared by: Cooper Bowen, E.I. / PRS

Respectfully submitted by:

William H. Martin, P.E., S.E.

Electronic Copy

TABLE OF CONTENTS

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

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

4) ANALYSIS RESULTS
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Table 5 - Tower Component Stresses vs. Capacity
4.1) Recommendations

5) APPENDIX A
tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 130-ft monopole tower designed by Summit Manufacturing, Inc. The tower has been modified per reinforcement drawings prepared by GPD Group in August of 2012, including a 10-ft extension, bringing the total tower height to 130-ft. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1.0
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)
100.0	100.0	6	EMS Wireless	RR90-17-02DP w/ Mount Pipe	13	1-5/8
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	KRY 112 489/2		
		3	Ericsson	RADIO 4449 B12/B71		
		1	Sabre	C10851202DP		
		1	Tower Mounts	Platform Mount [LP 1201-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	3	Kathrein	800 10121 w/ Mount Pipe	1 2 6	3/8 3/4 1-5/8
		1	Powerwave Technologies	P65-17-XLH-RR w/ Mount Pipe		
		1	Andrew	SBNH-1D6565C w/ Mount Pipe		
		1	KMW Communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		6	Kathrein	860 10025		
		6	Powerwave Technologies	LGP21401		
		1	Raycap	DC6-48-60-18-8F		
		3	Ericsson	RRUS-11		
		3	Ericsson	RRUS 12		
		1	Tower Mounts	Platform Mount [LP 303-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120.0	120.0	3	RFS Celwave	APXVTM14-ALU-I20 w/ Mount Pipe	4	1-1/4
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	Alcatel Lucent	TD-RRH8x20-25		
		9	RFS Celwave	ACU-A20-N		
		1	Tower Mounts	Platform Mount [LP 1201-1]		
118.0	119.0	3	Alcatel Lucent	1900MHz RRH (65MHz)	-	-
	118.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER		
		1	Tower Mounts	Side Arm Mount [SO 102-3]		
	117.0	3	Alcatel Lucent	800MHZ RRH w/ Mount Pipe		
90.0	90.0	-	-	-	6	1-5/8
80.0	80.0	1	GPS	GPS_A	1	1/2
		1	Tower Mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Clarence Welti Associates, Inc.	1529735	CCISites
Tower Foundation Drawings	Paul J. Ford and Company	1611741	CCISites
Tower Manufacturer Drawings	Summit Manufacturing, Inc.	1529812	CCISites
Tower Manufacturer Drawings	Summit Manufacturing, Inc.	1611677	CCISites
Tower Reinforcement Drawings	GPD Group	3797841	CCISites
Post Modification Inspection	Tower Engineering Professionals	3797830	CCISites

3.1) Analysis Method

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

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

RISA-3D, a commercially available analysis software package, was used to model and analyze the foundation. Selected output from the analysis is included in Appendix C.

3.2) Assumptions

1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
3) All tower components are in sufficient condition to carry their full design capacity.
4) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
5) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
6) When applicable, the effective projected area (EPA) of appurtenances was determined by computation fluid dynamics (CFD) testing performed by Crown Castle. TEP assumes the means and methods used to determine the EPA's yields results that follow the intent of TIA-222-H and are accurate and complete.
7) TEP assumes the steel-grout bond is sufficient to develop the tensile strength of the rock anchors in the foundation.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)[1,2]

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
130 - 125	Pole	TP16x16x0.375	Pole	4.9%	Pass
125 - 120	Pole	TP16x16x0.375	Pole	9.6%	Pass
120 - 114.9	Pole + Reinf.	TP17.249x16x0.5125	Reinf. 7 Bolt-Shaft Bearing	14.6%	Pass
114.9 - 114.67	Pole + Reinf.	TP17.305x17.249x0.5125	Reinf. 7 Tension Rupture	14.2%	Pass
114.67 - 109.67	Pole + Reinf.	TP18.53x17.305x0.4813	Reinf. 7 Tension Rupture	19.7%	Pass
109.67 - 109.42	Pole + Reinf.	TP18.591x18.53x0.4813	Reinf. 7 Tension Rupture	20.0%	Pass
109.42 - 109.17	Pole + Reinf.	TP18.652x18.591x0.425	Reinf. 10 Bolt-Shaft Bearing	22.0%	Pass
109.17 - 104.17	Pole + Reinf.	TP19.877x18.652x0.4125	Reinf. 7 Tension Rupture	26.1%	Pass
104.17 - 103.92	Pole + Reinf.	TP19.938x19.877x0.4063	Reinf. 10 Bolt-Shaft Bearing	27.6%	Pass
103.92 - 103.67	Pole + Reinf.	TP19.999x19.938x0.45	Reinf. 7 Tension Rupture	25.7%	Pass
103.67 - 98.67	Pole + Reinf.	TP21.224x19.999x0.4375	Reinf. 7 Tension Rupture	31.3%	Pass
98.67 - 96.42	Pole + Reinf.	TP21.775x21.224x0.425	Reinf. 7 Tension Rupture	34.4%	Pass
96.42 - 96.17	Pole + Reinf.	TP21.836x21.775x0.3875	Reinf. 8 Bolt-Shaft Bearing	37.6%	Pass
96.17 - 94.5	Pole + Reinf.	TP22.98x21.836x0.3813	Reinf. 7 Tension Rupture	38.2%	Pass
94.5 - 89.5	Pole + Reinf.	TP23.095x21.87x0.4375	Reinf. 7 Tension Rupture	38.9%	Pass
89.5 - 88.92	Pole + Reinf.	TP23.237x23.095x0.4375	Reinf. 7 Tension Rupture	39.5%	Pass
88.92 - 88.67	Pole + Reinf.	TP23.299x23.237x0.325	Reinf. 7 Tension Rupture	45.8%	Pass
88.67 - 88.25	Pole + Reinf.	TP23.401x23.299x0.325	Reinf. 7 Tension Rupture	46.3%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
88.25 - 88	Pole + Reinf.	TP23.463x23.401x0.4	Reinf. 7 Tension Rupture	42.3%	Pass
88 - 87.42	Pole + Reinf.	TP23.605x23.463x0.4	Reinf. 7 Tension Rupture	42.9%	Pass
87.42 - 87.17	Pole + Reinf.	TP23.666x23.605x0.2563	Pole	48.5%	Pass
87.17 - 86.92	Pole + Reinf.	TP23.727x23.666x0.2563	Pole	48.8%	Pass
86.92 - 86.67	Pole + Reinf.	TP23.789x23.727x0.4313	Reinf. 4 Tension Rupture	41.6%	Pass
86.67 - 81.67	Pole + Reinf.	TP25.014x23.789x0.4188	Reinf. 4 Tension Rupture	46.0%	Pass
81.67 - 80.75	Pole + Reinf.	TP25.239x25.014x0.4188	Reinf. 4 Tension Rupture	46.8%	Pass
80.75 - 80.5	Pole + Reinf.	TP25.3x25.239x0.3188	Reinf. 4 Tension Rupture	53.6%	Pass
80.5 - 75.5	Pole + Reinf.	TP26.525x25.3x0.3188	Reinf. 4 Tension Rupture	57.6%	Pass
75.5 - 71.83	Pole + Reinf.	TP27.424x26.525x0.3125	Reinf. 4 Tension Rupture	60.1%	Pass
71.83 - 71.58	Pole + Reinf.	TP27.485x27.424x0.4	Reinf. 4 Tension Rupture	53.3%	Pass
71.58 - 68.83	Pole + Reinf.	TP28.159x27.485x0.4	Reinf. 4 Tension Rupture	55.0%	Pass
68.83 - 68.58	Pole + Reinf.	TP28.22x28.159x0.4625	Reinf. 3 Tension Rupture	47.7%	Pass
68.58 - 68.25	Pole + Reinf.	TP29.22x28.22x0.4625	Reinf. 3 Tension Rupture	47.9%	Pass
68.25 - 63.25	Pole + Reinf.	TP29.026x27.801x0.5188	Reinf. 3 Tension Rupture	45.6%	Pass
63.25 - 58.25	Pole + Reinf.	TP30.251x29.026x0.5125	Reinf. 3 Tension Rupture	47.5%	Pass
58.25 - 53.25	Pole + Reinf.	TP31.476x30.251x0.5	Reinf. 3 Tension Rupture	49.3%	Pass
53.25 - 48.25	Pole + Reinf.	TP32.701x31.476x0.4875	Reinf. 3 Tension Rupture	50.8%	Pass
48.25 - 46.75	Pole + Reinf.	TP34.11x32.701x0.4875	Reinf. 3 Tension Rupture	51.2%	Pass
46.75 - 41.83	Pole + Reinf.	TP33.648x32.444x0.5188	Reinf. 3 Tension Rupture	51.0%	Pass
41.83 - 41.58	Pole	TP33.709x33.648x0.3438	Pole	54.0%	Pass
41.58 - 41.17	Pole	TP33.81x33.709x0.3438	Pole	54.1%	Pass
41.17 - 40.92	Pole + Reinf.	TP33.871x33.81x0.5188	Reinf. 2 Tension Rupture	51.2%	Pass
40.92 - 35.92	Pole + Reinf.	TP35.095x33.871x0.5063	Reinf. 2 Tension Rupture	52.3%	Pass
35.92 - 30.92	Pole + Reinf.	TP36.318x35.095x0.5063	Reinf. 2 Tension Rupture	53.2%	Pass
30.92 - 25.92	Pole + Reinf.	TP37.542x36.318x0.4938	Reinf. 2 Tension Rupture	54.1%	Pass
25.92 - 25.25	Pole + Reinf.	TP38.93x37.542x0.4938	Reinf. 2 Tension Rupture	54.2%	Pass
25.25 - 19.25	Pole + Reinf.	TP38.49x37.019x0.525	Reinf. 2 Tension Rupture	53.4%	Pass
19.25 - 14.15	Pole + Reinf.	TP39.74x38.49x0.5188	Reinf. 1 Tension Rupture	54.0%	Pass
14.15 - 13.92	Pole + Reinf.	TP39.797x39.74x0.5188	Reinf. 1 Tension Rupture	54.0%	Pass
13.92 - 8.92	Pole + Reinf.	TP41.023x39.797x0.5125	Reinf. 1 Tension Rupture	54.5%	Pass
8.92 - 3.92	Pole + Reinf.	TP42.249x41.023x0.5125	Reinf. 1 Tension Rupture	54.9%	Pass
3.92 - 0	Pole + Reinf.	TP43.21x42.249x0.5063	Reinf. 1 Tension Rupture	55.2%	Pass
				Summary	
			Pole	54.1%	Pass
			Reinforcement	60.1%	Pass
			Overall	**60.1%**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	120.0	32.5	Pass
1,2	Anchor Rods	-	39.1	Pass
1,2	Base Plate	-	46.7	Pass
1,2	Base Foundation Soil Interaction	-	35.7	Pass
1,2	Base Foundation Structural	-	29.2	Pass

Structure Rating (max from all components) =	**60.1%**

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

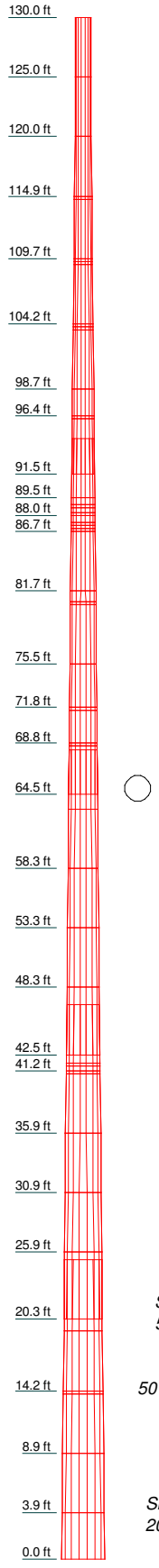
4.1) Recommendations

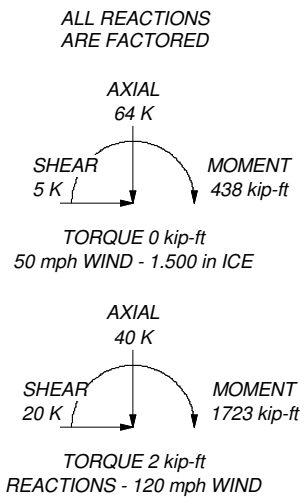
1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Length (ft)	5.00	5.00	5.10	0.23	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	4.67	0.33	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	0.25	5.00	4.25	5.00	0.25	5.00	0.25	5.00	0.25	6.67	0.25	5.10	0.23	5.00	0.25	3.92
Number of Sides	0	0	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.375	0.375	0.512	0.512	0.481	0.481	0.412	0.412	0.438	0.438	0.438	0.438	0.381	0.381	0.381	0.313	0.313	0.313	0.313	0.313	0.313	0.313	0.313	0.419	0.419	0.419	0.319	0.319	0.319	0.319	0.319	0.319	0.319	0.512	0.500	0.487	0.487	0.487	0.487	0.487	0.506	0.506	0.494	0.494	0.525	0.519	0.519	0.512	0.512	0.512	0.506
Socket Length (ft)																																																						
Top Dia (in)	16.000	16.000	16.000	16.000	15.307	15.307	14.618	14.618	13.924	13.924	13.230	13.230	12.536	12.536	12.536	11.842	11.842	11.842	11.842	11.148	11.148	11.148	11.148	10.454	10.454	10.454	9.760	9.760	9.760	9.760	9.760	9.760	9.760	29.026	31.476	32.701	32.701	32.701	32.701	32.701	33.873	35.095	36.318	37.542	37.037	38.490	38.490	39.799	39.799	41.023	42.249
Bot Dia (in)	16.000	16.000	17.249	17.249	16.555	16.555	15.861	15.861	15.167	15.167	14.473	14.473	13.779	13.779	13.779	13.085	13.085	13.085	13.085	12.391	12.391	12.391	12.391	11.697	11.697	11.697	11.003	11.003	11.003	11.003	11.003	11.003	11.003	30.251	31.476	32.701	34.110	34.110	34.110	34.110	35.095	36.318	37.542	38.930	38.490	39.748	39.748	41.023	41.023	42.249	43.210
Grade	A500-42																																																					
Weight (K)	0.3	0.3	0.4	0.0	0.4	0.0	0.4	0.0	0.5	0.0	0.2	0.0	0.4	0.5	0.0	0.4	0.0	0.0	0.0	0.5	0.0	0.1	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.3	0.0	0.6	0.8	0.8	0.8	0.8	1.0	0.0	0.0	0.0	0.9	0.9	1.0	1.1	1.3	1.1	0.1	1.1	1.0	1.1	0.9	20.9





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
800 10121 w/ Mount Pipe	130	(2) 2.4" Dia x 6-ft Pipe	120
800 10121 w/ Mount Pipe	130	Platform Mount [LP 1201-1]	120
800 10121 w/ Mount Pipe	130	800MHZ RRH w/ Mount Pipe	118
P65-17-XLH-RR w/ Mount Pipe	130	800MHZ RRH w/ Mount Pipe	118
SBNH-1D6565C w/ Mount Pipe	130	800MHZ RRH w/ Mount Pipe	118
AM-X-CD-16-65-00T-RET w/ Mount Pipe	130	1900MHz RRH (65MHz)	118
		1900MHz RRH (65MHz)	118
(2) 860 10025	130	1900MHz RRH (65MHz)	118
(2) 860 10025	130	800 EXTERNAL NOTCH FILTER	118
(2) 860 10025	130	800 EXTERNAL NOTCH FILTER	118
(2) LGP21401	130	800 EXTERNAL NOTCH FILTER	118
(2) LGP21401	130	Side Arm Mount [SO 102-3]	118
(2) LGP21401	130	APXVAARR24_43-U-NA20 w/ Mount Pipe	100
DC6-48-60-18-8F	130		
RRUS-11	130	APXVAARR24_43-U-NA20 w/ Mount Pipe	100
RRUS-11	130		
RRUS-11	130	APXVAARR24_43-U-NA20 w/ Mount Pipe	100
RRUS 12	130		
RRUS 12	130	(2) RR90-17-02DP w/ Mount Pipe	100
RRUS 12	130	(2) RR90-17-02DP w/ Mount Pipe	100
Platform Mount [LP 303-1]	130	(2) RR90-17-02DP w/ Mount Pipe	100
APXVTM14-ALU-I20 w/ Mount Pipe	120	(2) KRY 112 144/1	100
APXVTM14-ALU-I20 w/ Mount Pipe	120	KRY 112 144/1	100
APXVTM14-ALU-I20 w/ Mount Pipe	120	KRY 112 489/2	100
APXVSPP18-C-A20 w/ Mount Pipe	120	(2) KRY 112 489/2	100
APXVSPP18-C-A20 w/ Mount Pipe	120	RADIO 4449 B12/B71	100
APXVSPP18-C-A20 w/ Mount Pipe	120	RADIO 4449 B12/B71	100
TD-RRH8x20-25	120	RADIO 4449 B12/B71	100
TD-RRH8x20-25	120	2.4" Dia x 6-ft Pipe	100
TD-RRH8x20-25	120	2.4" Dia x 6-ft Pipe	100
(3) ACU-A20-N	120	2.4" Dia x 6-ft Pipe	100
(3) ACU-A20-N	120	Platform Mount [LP 1201-1]	100
(3) ACU-A20-N	120	Miscellaneous [NA 509-3]	100
(2) 2.4" Dia x 6-ft Pipe	120	GPS_A	80
(2) 2.4" Dia x 6-ft Pipe	120	Side Arm Mount [SO 701-1]	80

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-42	42 ksi	58 ksi	A607-65	65 ksi	80 ksi
A607-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

Tower Engineering Professionals

Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: **Horse Hill (BU 876314)**			
Project: **TEP No. 25675.265343**			
Client: Crown Castle	Drawn by: CJB	App'd:	
Code: TIA-222-H	Date: 06/10/19	Scale: NTS	
Path: C:\Users\cbowen\Desktop\25675\876314_1729924_LC5.en		Dwg No. E-1	

Tower Input Data

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

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 445.00 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	130.00-125.00	5.00	0.000	Round	16.000	16.000	0.375		A500-42 (42 ksi)
L2	125.00-120.00	5.00	0.000	Round	16.000	16.000	0.375		A500-42 (42 ksi)
L3	120.00-114.90	5.10	0.000	12	16.000	17.249	0.512	2.050	A607-60 (60 ksi)
L4	114.90-114.67	0.23	0.000	12	17.249	17.305	0.512	2.050	A607-60 (60 ksi)
L5	114.67-109.67	5.00	0.000	12	17.305	18.530	0.481	1.925	A607-60 (60 ksi)
L6	109.67-109.42	0.25	0.000	12	18.530	18.591	0.481	1.925	A607-60 (60 ksi)
L7	109.42-109.17	0.25	0.000	12	18.591	18.652	0.425	1.700	A607-60 (60 ksi)
L8	109.17-104.17	5.00	0.000	12	18.652	19.877	0.412	1.650	A607-60 (60 ksi)
L9	104.17-103.92	0.25	0.000	12	19.877	19.938	0.406	1.625	A607-60 (60 ksi)
L10	103.92-103.67	0.25	0.000	12	19.938	19.999	0.450	1.800	A607-60 (60 ksi)
L11	103.67-98.67	5.00	0.000	12	19.999	21.224	0.438	1.750	A607-60 (60 ksi)
L12	98.67-96.42	2.25	0.000	12	21.224	21.775	0.425	1.700	A607-60 (60 ksi)
L13	96.42-96.17	0.25	0.000	12	21.775	21.836	0.388	1.550	A607-60 (60 ksi)
L14	96.17-91.50	4.67	3.000	12	21.836	22.980	0.381	1.525	A607-60 (60 ksi)
L15	91.50-89.50	5.00	0.000	12	21.870	23.095	0.438	1.750	A607-65 (65 ksi)
L16	89.50-88.92	0.58	0.000	12	23.095	23.237	0.438	1.750	A607-65 (65 ksi)
L17	88.92-88.67	0.25	0.000	12	23.237	23.299	0.325	1.300	A607-65 (65 ksi)
L18	88.67-88.25	0.42	0.000	12	23.299	23.401	0.325	1.300	A607-65 (65 ksi)
L19	88.25-88.00	0.25	0.000	12	23.401	23.463	0.400	1.600	A607-65 (65 ksi)
L20	88.00-87.42	0.58	0.000	12	23.463	23.605	0.400	1.600	A607-65 (65 ksi)
L21	87.42-87.17	0.25	0.000	12	23.605	23.666	0.256	1.025	A607-65 (65 ksi)
L22	87.17-86.92	0.25	0.000	12	23.666	23.727	0.256	1.025	A607-65 (65 ksi)
L23	86.92-86.67	0.25	0.000	12	23.727	23.789	0.431	1.725	A607-65 (65 ksi)
L24	86.67-81.67	5.00	0.000	12	23.789	25.014	0.419	1.675	A607-65 (65 ksi)
L25	81.67-80.75	0.92	0.000	12	25.014	25.239	0.419	1.675	A607-65 (65 ksi)
L26	80.75-80.50	0.25	0.000	12	25.239	25.300	0.319	1.275	A607-65 (65 ksi)
L27	80.50-75.50	5.00	0.000	12	25.300	26.525	0.319	1.275	A607-65 (65 ksi)
L28	75.50-71.83	3.67	0.000	12	26.525	27.424	0.313	1.250	A607-65 (65 ksi)
L29	71.83-71.58	0.25	0.000	12	27.424	27.485	0.400	1.600	A607-65 (65 ksi)
L30	71.58-68.83	2.75	0.000	12	27.485	28.159	0.400	1.600	A607-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L31	68.83-68.58	0.25	0.000	12	28.159	28.220	0.463	1.850	A607-65 (65 ksi)
L32	68.58-64.50	4.08	3.750	12	28.220	29.220	0.463	1.850	A607-65 (65 ksi)
L33	64.50-63.25	5.00	0.000	12	27.801	29.026	0.519	2.075	A607-65 (65 ksi)
L34	63.25-58.25	5.00	0.000	12	29.026	30.251	0.512	2.050	A607-65 (65 ksi)
L35	58.25-53.25	5.00	0.000	12	30.251	31.476	0.500	2.000	A607-65 (65 ksi)
L36	53.25-48.25	5.00	0.000	12	31.476	32.701	0.487	1.950	A607-65 (65 ksi)
L37	48.25-42.50	5.75	4.250	12	32.701	34.110	0.487	1.950	A607-65 (65 ksi)
L38	42.50-41.83	4.92	0.000	12	32.444	33.648	0.519	2.075	A607-65 (65 ksi)
L39	41.83-41.58	0.25	0.000	12	33.648	33.709	0.344	1.375	A607-65 (65 ksi)
L40	41.58-41.17	0.41	0.000	12	33.709	33.810	0.344	1.375	A607-65 (65 ksi)
L41	41.17-40.92	0.25	0.000	12	33.810	33.871	0.519	2.075	A607-65 (65 ksi)
L42	40.92-35.92	5.00	0.000	12	33.871	35.095	0.506	2.025	A607-65 (65 ksi)
L43	35.92-30.92	5.00	0.000	12	35.095	36.318	0.506	2.025	A607-65 (65 ksi)
L44	30.92-25.92	5.00	0.000	12	36.318	37.542	0.494	1.975	A607-65 (65 ksi)
L45	25.92-20.25	5.67	5.000	12	37.542	38.930	0.494	1.975	A607-65 (65 ksi)
L46	20.25-19.25	6.00	0.000	12	37.019	38.490	0.525	2.100	A607-65 (65 ksi)
L47	19.25-14.15	5.10	0.000	12	38.490	39.740	0.519	2.075	A607-65 (65 ksi)
L48	14.15-13.92	0.23	0.000	12	39.740	39.797	0.519	2.075	A607-65 (65 ksi)
L49	13.92-8.92	5.00	0.000	12	39.797	41.023	0.512	2.050	A607-65 (65 ksi)
L50	8.92-3.92	5.00	0.000	12	41.023	42.249	0.512	2.050	A607-65 (65 ksi)
L51	3.92-0.00	3.92		12	42.249	43.210	0.506	2.025	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.000	18.408	562.084	5.526	8.000	70.261	1124.168	9.198	0.000	0
	16.000	18.408	562.084	5.526	8.000	70.261	1124.168	9.198	0.000	0
L2	16.000	18.408	562.084	5.526	8.000	70.261	1124.168	9.198	0.000	0
	16.000	18.408	562.084	5.526	8.000	70.261	1124.168	9.198	0.000	0
L3	16.384	25.558	782.492	5.545	8.288	94.413	1585.540	12.579	2.914	5.687
	17.677	27.619	987.492	5.992	8.935	110.519	2000.927	13.593	3.249	6.34
L4	17.677	27.619	987.492	5.992	8.935	110.519	2000.927	13.593	3.249	6.34
	17.735	27.712	997.497	6.012	8.964	111.276	2021.199	13.639	3.264	6.369
L5	17.746	26.071	941.913	6.023	8.964	105.075	1908.570	12.831	3.348	6.957

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	19.014	27.969	1162.920	6.461	9.599	121.156	2356.392	13.765	3.676	7.639
L6	19.014	27.969	1162.920	6.461	9.599	121.156	2356.392	13.765	3.676	7.639
	19.077	28.064	1174.796	6.483	9.630	121.990	2380.454	13.812	3.693	7.673
L7	19.097	24.860	1047.179	6.503	9.630	108.739	2121.869	12.236	3.843	9.043
	19.160	24.944	1057.803	6.525	9.662	109.481	2143.396	12.277	3.860	9.082
L8	19.165	24.227	1028.805	6.530	9.662	106.480	2084.638	11.924	3.893	9.438
	20.433	25.854	1250.239	6.968	10.296	121.426	2533.323	12.724	4.222	10.234
L9	20.435	25.470	1232.482	6.971	10.296	119.702	2497.343	12.536	4.238	10.433
	20.498	25.550	1244.146	6.992	10.328	120.464	2520.977	12.575	4.255	10.473
L10	20.483	28.238	1368.891	6.977	10.328	132.542	2773.744	13.898	4.137	9.194
	20.546	28.327	1381.834	6.999	10.360	133.386	2799.970	13.942	4.154	9.231
L11	20.551	27.558	1346.028	7.003	10.360	129.929	2727.418	13.563	4.187	9.571
	21.818	29.283	1614.963	7.442	10.994	146.895	3272.354	14.412	4.516	10.321
L12	21.823	28.463	1571.653	7.446	10.994	142.955	3184.596	14.009	4.549	10.704
	22.393	29.218	1699.912	7.643	11.279	150.709	3444.482	14.380	4.697	11.051
L13	22.406	26.686	1558.101	7.657	11.279	138.136	3157.134	13.134	4.797	12.38
	22.470	26.763	1571.521	7.679	11.311	138.935	3184.327	13.172	4.814	12.422
L14	22.472	26.339	1547.526	7.681	11.311	136.814	3135.706	12.963	4.830	12.67
	23.656	27.743	1808.443	8.090	11.904	151.924	3664.397	13.654	5.137	13.474
L15	23.248	30.193	1770.331	7.673	11.329	156.268	3587.170	14.860	4.689	10.717
	23.756	31.919	2091.551	8.111	11.963	174.830	4238.049	15.710	5.017	11.467
L16	23.756	31.919	2091.551	8.111	11.963	174.830	4238.049	15.710	5.017	11.467
	23.903	32.119	2131.149	8.162	12.037	177.051	4318.286	15.808	5.055	11.555
L17	23.942	23.978	1606.690	8.203	12.037	133.480	3255.589	11.801	5.357	16.482
	24.006	24.042	1619.609	8.225	12.069	134.200	3281.767	11.833	5.373	16.532
L18	24.006	24.042	1619.609	8.225	12.069	134.200	3281.767	11.833	5.373	16.532
	24.112	24.150	1641.469	8.261	12.122	135.413	3326.061	11.886	5.401	16.617
L19	24.086	29.626	2000.635	8.235	12.122	165.042	4053.830	14.581	5.200	12.999
	24.149	29.705	2016.660	8.256	12.154	165.930	4086.299	14.620	5.216	13.04
L20	24.149	29.705	2016.660	8.256	12.154	165.930	4086.299	14.620	5.216	13.04
	24.296	29.888	2054.165	8.307	12.227	167.998	4162.296	14.710	5.254	13.135
L21	24.347	19.265	1340.558	8.359	12.227	109.637	2716.333	9.482	5.639	22.007
	24.411	19.316	1351.135	8.381	12.259	110.216	2737.766	9.507	5.656	22.071
L22	24.411	19.316	1351.135	8.381	12.259	110.216	2737.766	9.507	5.656	22.071
	24.474	19.367	1361.768	8.403	12.291	110.796	2759.311	9.532	5.672	22.135
L23	24.412	32.349	2240.875	8.340	12.291	182.322	4540.620	15.921	5.203	12.065
	24.476	32.435	2258.596	8.362	12.322	183.291	4576.528	15.963	5.220	12.103
L24	24.480	31.511	2196.652	8.366	12.322	178.264	4451.013	15.509	5.253	12.545
	25.748	33.163	2560.495	8.805	12.957	197.615	5188.257	16.322	5.581	13.329
L25	25.748	33.163	2560.495	8.805	12.957	197.615	5188.257	16.322	5.581	13.329
	25.982	33.467	2631.537	8.886	13.074	201.284	5332.207	16.471	5.642	13.473
L26	26.017	25.577	2027.419	8.921	13.074	155.076	4108.101	12.588	5.910	18.54
	26.080	25.640	2042.405	8.943	13.105	155.844	4138.466	12.619	5.926	18.592
L27	26.080	25.640	2042.405	8.943	13.105	155.844	4138.466	12.619	5.926	18.592
	27.348	26.898	2357.824	9.382	13.740	171.603	4777.591	13.238	6.254	19.622
L28	27.351	26.376	2313.247	9.384	13.740	168.359	4687.265	12.982	6.271	20.068
	28.281	27.281	2559.545	9.706	14.206	180.177	5186.332	13.427	6.512	20.839
L29	28.251	34.807	3244.599	9.675	14.206	228.401	6574.437	17.131	6.278	15.694
	28.314	34.886	3266.710	9.697	14.237	229.445	6619.240	17.170	6.294	15.735
L30	28.314	34.886	3266.710	9.697	14.237	229.445	6619.240	17.170	6.294	15.735
	29.011	35.754	3516.593	9.938	14.586	241.086	7125.570	17.597	6.475	16.187
L31	28.989	41.247	4038.658	9.915	14.586	276.877	8183.416	20.301	6.307	13.637
	29.053	41.339	4065.510	9.937	14.618	278.113	8237.826	20.346	6.324	13.673
L32	29.053	41.339	4065.510	9.937	14.618	278.113	8237.826	20.346	6.324	13.673
	30.088	42.827	4520.713	10.295	15.136	298.674	9160.190	21.078	6.591	14.252
L33	29.550	45.572	4329.662	9.767	14.401	300.649	8773.069	22.429	6.060	11.683
	29.867	47.618	4939.449	10.206	15.036	328.517	10008.664	23.436	6.389	12.316
L34	29.869	47.055	4883.148	10.208	15.036	324.772	9894.582	23.159	6.406	12.499
	31.138	49.076	5539.935	10.646	15.670	353.534	11225.411	24.154	6.734	13.139
L35	31.142	47.900	5411.633	10.651	15.670	345.346	10965.436	23.575	6.767	13.535
	32.410	49.872	6107.999	11.090	16.305	374.616	12376.461	24.545	7.096	14.191
L36	32.415	48.645	5962.511	11.094	16.305	365.693	12081.664	23.941	7.129	14.624

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	33.683	50.568	6697.930	11.533	16.939	395.409	13571.822	24.888	7.457	15.297
L37	33.683	50.568	6697.930	11.533	16.939	395.409	13571.822	24.888	7.457	15.297
	35.141	52.779	7615.641	12.037	17.669	431.018	15431.353	25.976	7.835	16.072
L38	34.482	53.332	6937.974	11.429	16.806	412.831	14058.217	26.248	7.305	14.08
	34.652	55.344	7753.082	11.860	17.430	444.821	15709.847	27.238	7.627	14.702
L39	34.714	36.869	5219.687	11.923	17.430	299.472	10576.501	18.146	8.096	23.549
	34.777	36.937	5248.511	11.945	17.461	300.579	10634.906	18.179	8.113	23.597
L40	34.777	36.937	5248.511	11.945	17.461	300.579	10634.906	18.179	8.113	23.597
	34.881	37.048	5296.012	11.981	17.513	302.399	10731.155	18.234	8.140	23.675
L41	34.819	55.613	7867.053	11.918	17.513	449.203	15940.782	27.371	7.671	14.785
	34.883	55.716	7910.513	11.940	17.545	450.869	16028.845	27.422	7.687	14.817
L42	34.887	54.394	7728.600	11.944	17.545	440.501	15660.240	26.771	7.720	15.249
	36.154	56.389	8610.641	12.383	18.179	473.659	17447.493	27.753	8.048	15.897
L43	36.154	56.389	8610.641	12.383	18.179	473.659	17447.493	27.753	8.048	15.897
	37.421	58.384	9557.361	12.821	18.813	508.021	19365.804	28.735	8.376	16.544
L44	37.425	56.962	9331.164	12.825	18.813	495.998	18907.468	28.035	8.410	17.031
	38.692	58.908	10320.503	13.263	19.447	530.703	20912.137	28.993	8.738	17.695
L45	38.692	58.908	10320.503	13.263	19.447	530.703	20912.137	28.993	8.738	17.695
	40.129	61.115	11524.292	13.760	20.166	571.479	23351.339	30.079	9.110	18.448
L46	39.409	61.692	10486.983	13.065	19.176	546.891	21249.470	30.363	8.514	16.217
	39.662	64.180	11807.142	13.591	19.938	592.201	23924.470	31.587	8.908	16.968
L47	39.665	63.426	11672.343	13.594	19.938	585.440	23651.332	31.216	8.925	17.205
	40.959	65.515	12863.997	14.041	20.586	624.906	26065.947	32.244	9.260	17.851
L48	40.959	65.515	12863.997	14.041	20.586	624.906	26065.947	32.244	9.260	17.851
	41.018	65.609	12919.569	14.062	20.615	626.716	26178.550	32.291	9.275	17.88
L49	41.020	64.829	12770.006	14.064	20.615	619.461	25875.494	31.907	9.292	18.131
	42.289	66.852	14003.327	14.503	21.250	658.986	28374.537	32.903	9.621	18.772
L50	42.289	66.852	14003.327	14.503	21.250	658.986	28374.537	32.903	9.621	18.772
	43.558	68.875	15313.605	14.942	21.885	699.735	31029.516	33.898	9.949	19.413
L51	43.561	68.046	15133.651	14.944	21.885	691.512	30664.879	33.490	9.966	19.686
	44.556	69.612	16203.353	15.288	22.383	723.920	32832.387	34.261	10.224	20.195

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-125.00				1	1	1			
L2 125.00-120.00				1	1	1			
L3 120.00-114.90				1	1	0.902328			
L4 114.90-114.67				1	1	0.900528			
L5 114.67-109.67				1	1	0.918712			
L6 109.67-109.42				1	1	0.916923			
L7 109.42-109.17				1	1	0.915841			
L8 109.17-104.17				1	1	0.912221			
L9 104.17-103.92				1	1	0.924502			
L10 103.92-103.67				1	1	0.938408			
L11 103.67-98.67				1	1	0.933024			
L12 98.67-96.42				1	1	0.946501			

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
L13 96.42-96.17				1	1	0.925437			
L14 96.17-91.50				1	1	0.931944			
L15 91.50-89.50				1	1	0.942607			
L16 89.50-88.92				1	1	0.940294			
L17 88.92-88.67				1	1	1.13663			
L18 88.67-88.25				1	1	1.13499			
L19 88.25-88.00				1	1	1.02283			
L20 88.00-87.42				1	1	1.0204			
L21 87.42-87.17				1	1	1.12726			
L22 87.17-86.92				1	1	1.12686			
L23 86.92-86.67				1	1	0.944835			
L24 86.67-81.67				1	1	0.953816			
L25 81.67-80.75				1	1	0.950576			
L26 80.75-80.50				1	1	1.12861			
L27 80.50-75.50				1	1	1.11252			
L28 75.50-71.83				1	1	1.12341			
L29 71.83-71.58				1	1	0.963745			
L30 71.58-68.83				1	1	0.955524			
L31 68.83-68.58				1	1	0.944879			
L32 68.58-64.50				1	1	0.943705			
L33 64.50-63.25				1	1	0.954191			
L34 63.25-58.25				1	1	0.950957			
L35 58.25-53.25				1	1	0.960507			
L36 53.25-48.25				1	1	0.971668			
L37 48.25-42.50				1	1	0.967939			
L38 42.50-41.83				1	1	0.965111			
L39 41.83-41.58				1	1	1			
L40 41.58-41.17				1	1	1			
L41 41.17-40.92				1	1	0.963091			
L42				1	1	0.975621			

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
40.92-35.92									
L43				1	1	0.965486			
35.92-30.92									
L44				1	1	0.97989			
30.92-25.92									
L45				1	1	0.97864			
25.92-20.25									
L46				1	1	0.97488			
20.25-19.25									
L47				1	1	0.978059			
19.25-14.15									
L48				1	1	0.977693			
14.15-13.92									
L49 13.92-8.92				1	1	0.981658			
L50 8.92-3.92				1	1	0.974315			
L51 3.92-0.00				1	1	0.980671			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety										
Safety Line 3/8	A	No	Surface Ar (CaAa)	130.00 - 0.00	1	1	-0.250 -0.250	0.375		0.220
120										
HB114-21U3M12-XXX F(1-1/4")	A	No	Surface Ar (CaAa)	120.00 - 0.00	4	4	-0.250 -0.250	1.540		1.220
90										
LDF7-50A(1-5/8")	C	No	Surface Ar (CaAa)	90.00 - 0.00	6	6	0.000 0.000	1.980		0.820
****Mods****										
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 0.50	1	1	-0.250 -0.250	4.780	12.780	0.000
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.500 0.500	4.780	12.780	0.000
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.250 0.250	4.780	12.780	0.000
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.000 0.000	4.780	12.780	0.000
***										
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 12.67	1	1	-0.250 -0.250	4.780	9.560	0.000
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	15.50 - 12.67	1	1	0.500 0.500	4.780	9.560	0.000
(Area) Aero MP3-04 (H)	B	No	Surface Af (CaAa)	15.50 - 12.67	1	1	0.250 0.250	4.780	9.560	0.000
(Area) Aero MP3-04 (H)	C	No	Surface Af (CaAa)	15.50 - 12.67	1	1	0.000 0.000	4.780	9.560	0.000
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	42.67 - 15.50	1	1	-0.250 -0.250	4.780	12.780	0.000
(Area) Aero MP3-04 (H)	A	No	Surface Af (CaAa)	42.67 - 15.50	1	1	0.500 0.500	4.780	12.780	0.000
(Area) Aero MP3-04 (H)	B	No	Surface Af	42.67 -	1	1	0.250	4.780	12.780	0.000

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
			(CaAa)	15.50			0.250			
(Area) Aero MP3-04 (H)	C	No	Surface Af	42.67 -	1	1	0.000	4.780	12.780	0.000
			(CaAa)	15.50			0.000			
***										
(Area) Aero MP3-04 (H)	A	No	Surface Af	42.67 -	1	1	-0.250	4.780	9.560	0.000
			(CaAa)	40.33			-0.250			
(Area) Aero MP3-04 (H)	A	No	Surface Af	42.67 -	1	1	0.500	4.780	9.560	0.000
			(CaAa)	40.33			0.500			
(Area) Aero MP3-04 (H)	B	No	Surface Af	42.67 -	1	1	0.250	4.780	9.560	0.000
			(CaAa)	40.33			0.250			
(Area) Aero MP3-04 (H)	C	No	Surface Af	42.67 -	1	1	0.000	4.780	9.560	0.000
			(CaAa)	40.33			0.000			
(Area) Aero MP3-04 (H)	A	No	Surface Af	70.33 -	1	1	-0.250	4.780	12.780	0.000
			(CaAa)	42.67			-0.250			
(Area) Aero MP3-04 (H)	A	No	Surface Af	70.33 -	1	1	0.500	4.780	12.780	0.000
			(CaAa)	42.67			0.500			
(Area) Aero MP3-04 (H)	B	No	Surface Af	70.33 -	1	1	0.250	4.780	12.780	0.000
			(CaAa)	42.67			0.250			
(Area) Aero MP3-04 (H)	C	No	Surface Af	70.33 -	1	1	0.000	4.780	12.780	0.000
			(CaAa)	42.67			0.000			
***										
(Area) Aero MP3-03 (H)	A	No	Surface Af	70.33 -	1	1	-0.250	4.060	8.120	0.000
			(CaAa)	68.17			-0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	70.33 -	1	1	0.500	4.060	8.120	0.000
			(CaAa)	68.17			0.500			
(Area) Aero MP3-03 (H)	B	No	Surface Af	70.33 -	1	1	0.250	4.060	8.120	0.000
			(CaAa)	68.17			0.250			
(Area) Aero MP3-03 (H)	C	No	Surface Af	70.33 -	1	1	0.000	4.060	8.120	0.000
			(CaAa)	68.17			0.000			
(Area) Aero MP3-03 (H)	A	No	Surface Af	88.17 -	1	1	-0.250	4.060	11.260	0.000
			(CaAa)	70.33			-0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	88.17 -	1	1	0.500	4.060	11.260	0.000
			(CaAa)	70.33			0.500			
(Area) Aero MP3-03 (H)	B	No	Surface Af	88.17 -	1	1	0.250	4.060	11.260	0.000
			(CaAa)	70.33			0.250			
(Area) Aero MP3-03 (H)	C	No	Surface Af	73.08 -	1	1	0.000	4.060	11.260	0.000
			(CaAa)	70.33			0.000			
(Area) Aero MP3-03 (H)	C	No	Surface Af	89.50 -	1	1	0.000	4.060	11.260	0.000
			(CaAa)	79.50			0.000			
***										
(Area) Aero MP3-03 (H)	C	No	Surface Af	89.50 -	1	1	0.000	4.060	8.120	0.000
			(CaAa)	86.17			0.000			
(Area) Aero MP3-03 (H)	C	No	Surface Af	116.17 -	1	1	0.000	4.060	11.260	0.000
			(CaAa)	89.50			0.000			
(Area) Aero MP3-03 (H)	A	No	Surface Af	88.17 -	1	1	0.500	4.060	8.120	0.000
			(CaAa)	86.17			0.500			
(Area) Aero MP3-03 (H)	B	No	Surface Af	88.17 -	1	1	0.250	4.060	8.120	0.000
			(CaAa)	86.17			0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	116.17 -	1	1	0.500	4.060	11.260	0.000
			(CaAa)	88.17			0.500			
(Area) Aero MP3-03 (H)	B	No	Surface Af	116.17 -	1	1	0.250	4.060	11.260	0.000
			(CaAa)	88.17			0.250			
**										
(Area) Aero MP3-03 (H)	A	No	Surface Af	88.17 -	1	1	-0.250	4.060	8.120	0.000
			(CaAa)	87.67			-0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	97.67 -	1	1	-0.250	4.060	11.260	0.000
			(CaAa)	88.17			-0.250			
(Area) Aero MP3-03 (H)	C	No	Surface Af	103.92 -	1	1	0.000	4.060	8.120	0.000
			(CaAa)	95.17			0.000			
(Area) Aero MP3-03 (H)	A	No	Surface Af	97.67 -	1	1	-0.250	4.060	8.120	0.000

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
			(CaAa)	95.17			-0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	103.92 -	1	1	-0.250	4.060	11.260	0.000
			(CaAa)	97.67			-0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	109.42 -	1	1	-0.250	4.060	11.260	0.000
			(CaAa)	103.92			-0.250			
(Area) Aero MP3-03 (H)	A	No	Surface Af	116.17 -	1	1	-0.250	4.060	11.260	0.000
			(CaAa)	109.42			-0.250			
(Area) Aero MP3-03 (H)	C	No	Surface Af	116.17 -	1	1	0.000	4.060	8.120	0.000
			(CaAa)	109.42			0.000			
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
130									
CR 50 1873(1-5/8")	A	No	No	Inside Pole	130.00 - 0.00	6	No Ice	0.00	0.830
							1/2" Ice	0.00	0.830
							1" Ice	0.00	0.830
							2" Ice	0.00	0.830
FB-L98B-002-75000 (3/8")	A	No	No	Inside Pole	130.00 - 0.00	1	No Ice	0.00	0.059
							1/2" Ice	0.00	0.059
							1" Ice	0.00	0.059
							2" Ice	0.00	0.059
2" Flexible Conduit	A	No	No	Inside Pole	130.00 - 0.00	1	No Ice	0.00	0.340
							1/2" Ice	0.00	0.340
							1" Ice	0.00	0.340
							2" Ice	0.00	0.340
WR-VG86ST-BRD(3/4")	A	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.584
							1/2" Ice	0.00	0.584
							1" Ice	0.00	0.584
							2" Ice	0.00	0.584
100									
LDF7-50A(1-5/8")	B	No	No	Inside Pole	100.00 - 0.00	13	No Ice	0.00	0.820
							1/2" Ice	0.00	0.820
							1" Ice	0.00	0.820
							2" Ice	0.00	0.820
80									
LDF4-50A(1/2")	C	No	No	Inside Pole	80.00 - 0.00	1	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
*									

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

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	0.000	0.000	0.188	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	125.00-120.00	A	0.000	0.000	0.188	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	120.00-114.90	A	0.000	0.000	4.960	0.000	0.06
		B	0.000	0.000	0.859	0.000	0.00
		C	0.000	0.000	1.646	0.000	0.00
L4	114.90-114.67	A	0.000	0.000	0.445	0.000	0.00
		B	0.000	0.000	0.156	0.000	0.00
		C	0.000	0.000	0.298	0.000	0.00
L5	114.67-109.67	A	0.000	0.000	9.674	0.000	0.06
		B	0.000	0.000	3.383	0.000	0.00
		C	0.000	0.000	6.482	0.000	0.00
L6	109.67-109.42	A	0.000	0.000	0.484	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.324	0.000	0.00
L7	109.42-109.17	A	0.000	0.000	0.474	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.169	0.000	0.00
L8	109.17-104.17	A	0.000	0.000	9.479	0.000	0.06
		B	0.000	0.000	3.383	0.000	0.00
		C	0.000	0.000	3.383	0.000	0.00
L9	104.17-103.92	A	0.000	0.000	0.474	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.169	0.000	0.00
L10	103.92-103.67	A	0.000	0.000	0.480	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.338	0.000	0.00
L11	103.67-98.67	A	0.000	0.000	9.596	0.000	0.06
		B	0.000	0.000	3.383	0.000	0.01
		C	0.000	0.000	6.767	0.000	0.00
L12	98.67-96.42	A	0.000	0.000	5.025	0.000	0.03
		B	0.000	0.000	1.523	0.000	0.02
		C	0.000	0.000	3.045	0.000	0.00
L13	96.42-96.17	A	0.000	0.000	0.621	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.338	0.000	0.00
L14	96.17-91.50	A	0.000	0.000	9.850	0.000	0.05
		B	0.000	0.000	3.160	0.000	0.05
		C	0.000	0.000	3.837	0.000	0.00
L15	91.50-89.50	A	0.000	0.000	4.014	0.000	0.02
		B	0.000	0.000	1.353	0.000	0.02
		C	0.000	0.000	1.947	0.000	0.00
L16	89.50-88.92	A	0.000	0.000	1.164	0.000	0.01
		B	0.000	0.000	0.392	0.000	0.01
		C	0.000	0.000	1.375	0.000	0.00
L17	88.92-88.67	A	0.000	0.000	0.502	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.593	0.000	0.00
L18	88.67-88.25	A	0.000	0.000	0.843	0.000	0.00
		B	0.000	0.000	0.284	0.000	0.00
		C	0.000	0.000	0.996	0.000	0.00
L19	88.25-88.00	A	0.000	0.000	0.648	0.000	0.00
		B	0.000	0.000	0.247	0.000	0.00
		C	0.000	0.000	0.593	0.000	0.00
L20	88.00-87.42	A	0.000	0.000	1.563	0.000	0.01
		B	0.000	0.000	0.658	0.000	0.01
		C	0.000	0.000	1.375	0.000	0.00
L21	87.42-87.17	A	0.000	0.000	0.616	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.283	0.000	0.00
		C	0.000	0.000	0.593	0.000	0.00
L22	87.17-86.92	A	0.000	0.000	0.616	0.000	0.00
		B	0.000	0.000	0.283	0.000	0.00
		C	0.000	0.000	0.593	0.000	0.00
L23	86.92-86.67	A	0.000	0.000	0.616	0.000	0.00
		B	0.000	0.000	0.283	0.000	0.00
		C	0.000	0.000	0.593	0.000	0.00
L24	86.67-81.67	A	0.000	0.000	10.263	0.000	0.06
		B	0.000	0.000	3.612	0.000	0.05
		C	0.000	0.000	9.576	0.000	0.02
L25	81.67-80.75	A	0.000	0.000	1.846	0.000	0.01
		B	0.000	0.000	0.623	0.000	0.01
		C	0.000	0.000	1.715	0.000	0.00
L26	80.75-80.50	A	0.000	0.000	0.502	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.466	0.000	0.00
L27	80.50-75.50	A	0.000	0.000	10.034	0.000	0.06
		B	0.000	0.000	3.383	0.000	0.05
		C	0.000	0.000	6.617	0.000	0.03
L28	75.50-71.83	A	0.000	0.000	7.365	0.000	0.04
		B	0.000	0.000	2.483	0.000	0.04
		C	0.000	0.000	4.960	0.000	0.02
L29	71.83-71.58	A	0.000	0.000	0.502	0.000	0.00
		B	0.000	0.000	0.169	0.000	0.00
		C	0.000	0.000	0.417	0.000	0.00
L30	71.58-68.83	A	0.000	0.000	7.272	0.000	0.03
		B	0.000	0.000	2.737	0.000	0.03
		C	0.000	0.000	5.759	0.000	0.01
L31	68.83-68.58	A	0.000	0.000	0.794	0.000	0.00
		B	0.000	0.000	0.315	0.000	0.00
		C	0.000	0.000	0.612	0.000	0.00
L32	68.58-64.50	A	0.000	0.000	9.548	0.000	0.05
		B	0.000	0.000	3.441	0.000	0.04
		C	0.000	0.000	8.288	0.000	0.02
L33	64.50-63.25	A	0.000	0.000	2.809	0.000	0.01
		B	0.000	0.000	0.996	0.000	0.01
		C	0.000	0.000	2.481	0.000	0.01
L34	63.25-58.25	A	0.000	0.000	11.234	0.000	0.06
		B	0.000	0.000	3.983	0.000	0.05
		C	0.000	0.000	9.923	0.000	0.03
L35	58.25-53.25	A	0.000	0.000	11.234	0.000	0.06
		B	0.000	0.000	3.983	0.000	0.05
		C	0.000	0.000	9.923	0.000	0.03
L36	53.25-48.25	A	0.000	0.000	11.234	0.000	0.06
		B	0.000	0.000	3.983	0.000	0.05
		C	0.000	0.000	9.923	0.000	0.03
L37	48.25-42.50	A	0.000	0.000	13.102	0.000	0.07
		B	0.000	0.000	4.672	0.000	0.06
		C	0.000	0.000	11.503	0.000	0.03
L38	42.50-41.83	A	0.000	0.000	2.226	0.000	0.01
		B	0.000	0.000	0.894	0.000	0.01
		C	0.000	0.000	1.690	0.000	0.00
L39	41.83-41.58	A	0.000	0.000	0.831	0.000	0.00
		B	0.000	0.000	0.334	0.000	0.00
		C	0.000	0.000	0.631	0.000	0.00
L40	41.58-41.17	A	0.000	0.000	1.362	0.000	0.00
		B	0.000	0.000	0.547	0.000	0.00
		C	0.000	0.000	1.034	0.000	0.00
L41	41.17-40.92	A	0.000	0.000	0.831	0.000	0.00
		B	0.000	0.000	0.334	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.631	0.000	0.00
L42	40.92-35.92	A	0.000	0.000	11.869	0.000	0.06
		B	0.000	0.000	4.301	0.000	0.05
		C	0.000	0.000	10.241	0.000	0.03
L43	35.92-30.92	A	0.000	0.000	11.234	0.000	0.06
		B	0.000	0.000	3.983	0.000	0.05
		C	0.000	0.000	9.923	0.000	0.03
L44	30.92-25.92	A	0.000	0.000	11.234	0.000	0.06
		B	0.000	0.000	3.983	0.000	0.05
		C	0.000	0.000	9.923	0.000	0.03
L45	25.92-20.25	A	0.000	0.000	12.740	0.000	0.07
		B	0.000	0.000	4.517	0.000	0.06
		C	0.000	0.000	11.253	0.000	0.03
L46	20.25-19.25	A	0.000	0.000	2.247	0.000	0.01
		B	0.000	0.000	0.797	0.000	0.01
		C	0.000	0.000	1.985	0.000	0.01
L47	19.25-14.15	A	0.000	0.000	12.968	0.000	0.06
		B	0.000	0.000	4.818	0.000	0.05
		C	0.000	0.000	10.877	0.000	0.03
L48	14.15-13.92	A	0.000	0.000	0.774	0.000	0.00
		B	0.000	0.000	0.312	0.000	0.00
		C	0.000	0.000	0.585	0.000	0.00
L49	13.92-8.92	A	0.000	0.000	12.632	0.000	0.06
		B	0.000	0.000	4.682	0.000	0.05
		C	0.000	0.000	10.622	0.000	0.03
L50	8.92-3.92	A	0.000	0.000	11.234	0.000	0.06
		B	0.000	0.000	3.983	0.000	0.05
		C	0.000	0.000	9.923	0.000	0.03
L51	3.92-0.00	A	0.000	0.000	8.011	0.000	0.05
		B	0.000	0.000	2.725	0.000	0.04
		C	0.000	0.000	7.382	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-125.00	A	1.460	0.000	0.000	1.647	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	125.00-120.00	A	1.454	0.000	0.000	1.641	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	120.00-114.90	A	1.448	0.000	0.000	9.634	0.000	0.16
		B		0.000	0.000	1.227	0.000	0.01
		C		0.000	0.000	2.206	0.000	0.02
L4	114.90-114.67	A	1.444	0.000	0.000	0.732	0.000	0.01
		B		0.000	0.000	0.222	0.000	0.00
		C		0.000	0.000	0.399	0.000	0.00
L5	114.67-109.67	A	1.441	0.000	0.000	15.906	0.000	0.22
		B		0.000	0.000	4.824	0.000	0.05
		C		0.000	0.000	8.676	0.000	0.08
L6	109.67-109.42	A	1.438	0.000	0.000	0.795	0.000	0.01
		B		0.000	0.000	0.241	0.000	0.00
		C		0.000	0.000	0.434	0.000	0.00
L7	109.42-109.17	A	1.437	0.000	0.000	0.785	0.000	0.01
		B		0.000	0.000	0.241	0.000	0.00
		C		0.000	0.000	0.241	0.000	0.00

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
L8	109.17-104.17	A	1.434	0.000	0.000	15.688	0.000	0.22
		B		0.000	0.000	4.817	0.000	0.05
		C		0.000	0.000	4.817	0.000	0.05
L9	104.17-103.92	A	1.430	0.000	0.000	0.784	0.000	0.01
		B		0.000	0.000	0.241	0.000	0.00
		C		0.000	0.000	0.241	0.000	0.00
L10	103.92-103.67	A	1.430	0.000	0.000	0.789	0.000	0.01
		B		0.000	0.000	0.241	0.000	0.00
		C		0.000	0.000	0.449	0.000	0.00
L11	103.67-98.67	A	1.426	0.000	0.000	15.774	0.000	0.22
		B		0.000	0.000	4.809	0.000	0.06
		C		0.000	0.000	8.972	0.000	0.08
L12	98.67-96.42	A	1.421	0.000	0.000	7.996	0.000	0.11
		B		0.000	0.000	2.162	0.000	0.04
		C		0.000	0.000	4.034	0.000	0.04
L13	96.42-96.17	A	1.419	0.000	0.000	0.969	0.000	0.01
		B		0.000	0.000	0.240	0.000	0.00
		C		0.000	0.000	0.448	0.000	0.00
L14	96.17-91.50	A	1.415	0.000	0.000	15.783	0.000	0.21
		B		0.000	0.000	4.482	0.000	0.09
		C		0.000	0.000	5.314	0.000	0.05
L15	91.50-89.50	A	1.410	0.000	0.000	6.492	0.000	0.09
		B		0.000	0.000	1.920	0.000	0.04
		C		0.000	0.000	2.839	0.000	0.03
L16	89.50-88.92	A	1.408	0.000	0.000	1.879	0.000	0.03
		B		0.000	0.000	0.556	0.000	0.01
		C		0.000	0.000	1.944	0.000	0.02
L17	88.92-88.67	A	1.408	0.000	0.000	0.810	0.000	0.01
		B		0.000	0.000	0.240	0.000	0.00
		C		0.000	0.000	0.838	0.000	0.01
L18	88.67-88.25	A	1.407	0.000	0.000	1.361	0.000	0.02
		B		0.000	0.000	0.402	0.000	0.01
		C		0.000	0.000	1.407	0.000	0.02
L19	88.25-88.00	A	1.407	0.000	0.000	1.030	0.000	0.01
		B		0.000	0.000	0.342	0.000	0.01
		C		0.000	0.000	0.838	0.000	0.01
L20	88.00-87.42	A	1.406	0.000	0.000	2.486	0.000	0.03
		B		0.000	0.000	0.907	0.000	0.02
		C		0.000	0.000	1.943	0.000	0.02
L21	87.42-87.17	A	1.405	0.000	0.000	0.990	0.000	0.01
		B		0.000	0.000	0.391	0.000	0.01
		C		0.000	0.000	0.837	0.000	0.01
L22	87.17-86.92	A	1.405	0.000	0.000	0.990	0.000	0.01
		B		0.000	0.000	0.391	0.000	0.01
		C		0.000	0.000	0.837	0.000	0.01
L23	86.92-86.67	A	1.404	0.000	0.000	0.990	0.000	0.01
		B		0.000	0.000	0.391	0.000	0.01
		C		0.000	0.000	0.837	0.000	0.01
L24	86.67-81.67	A	1.400	0.000	0.000	17.057	0.000	0.22
		B		0.000	0.000	5.086	0.000	0.10
		C		0.000	0.000	13.779	0.000	0.16
L25	81.67-80.75	A	1.395	0.000	0.000	3.079	0.000	0.04
		B		0.000	0.000	0.879	0.000	0.02
		C		0.000	0.000	2.473	0.000	0.03
L26	80.75-80.50	A	1.394	0.000	0.000	0.836	0.000	0.01
		B		0.000	0.000	0.239	0.000	0.00
		C		0.000	0.000	0.672	0.000	0.01
L27	80.50-75.50	A	1.389	0.000	0.000	16.710	0.000	0.22
		B		0.000	0.000	4.773	0.000	0.10
		C		0.000	0.000	10.016	0.000	0.12
L28	75.50-71.83	A	1.382	0.000	0.000	12.240	0.000	0.16

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	3.497	0.000	0.07
		C		0.000	0.000	7.501	0.000	0.10
L29	71.83-71.58	A	1.378	0.000	0.000	0.833	0.000	0.01
		B		0.000	0.000	0.238	0.000	0.00
		C		0.000	0.000	0.614	0.000	0.01
L30	71.58-68.83	A	1.375	0.000	0.000	11.341	0.000	0.14
		B		0.000	0.000	3.710	0.000	0.07
		C		0.000	0.000	8.332	0.000	0.10
L31	68.83-68.58	A	1.372	0.000	0.000	1.196	0.000	0.01
		B		0.000	0.000	0.420	0.000	0.01
		C		0.000	0.000	0.877	0.000	0.01
L32	68.58-64.50	A	1.368	0.000	0.000	15.036	0.000	0.19
		B		0.000	0.000	4.615	0.000	0.09
		C		0.000	0.000	12.069	0.000	0.14
L33	64.50-63.25	A	1.362	0.000	0.000	4.454	0.000	0.06
		B		0.000	0.000	1.338	0.000	0.03
		C		0.000	0.000	3.621	0.000	0.04
L34	63.25-58.25	A	1.355	0.000	0.000	17.764	0.000	0.22
		B		0.000	0.000	5.339	0.000	0.10
		C		0.000	0.000	14.458	0.000	0.16
L35	58.25-53.25	A	1.344	0.000	0.000	17.714	0.000	0.22
		B		0.000	0.000	5.327	0.000	0.10
		C		0.000	0.000	14.431	0.000	0.16
L36	53.25-48.25	A	1.331	0.000	0.000	17.661	0.000	0.21
		B		0.000	0.000	5.314	0.000	0.10
		C		0.000	0.000	14.403	0.000	0.16
L37	48.25-42.50	A	1.316	0.000	0.000	20.468	0.000	0.25
		B		0.000	0.000	6.209	0.000	0.11
		C		0.000	0.000	16.640	0.000	0.18
L38	42.50-41.83	A	1.307	0.000	0.000	3.264	0.000	0.04
		B		0.000	0.000	1.163	0.000	0.02
		C		0.000	0.000	2.379	0.000	0.03
L39	41.83-41.58	A	1.305	0.000	0.000	1.215	0.000	0.01
		B		0.000	0.000	0.433	0.000	0.01
		C		0.000	0.000	0.886	0.000	0.01
L40	41.58-41.17	A	1.304	0.000	0.000	1.992	0.000	0.02
		B		0.000	0.000	0.710	0.000	0.01
		C		0.000	0.000	1.453	0.000	0.02
L41	41.17-40.92	A	1.303	0.000	0.000	1.214	0.000	0.01
		B		0.000	0.000	0.433	0.000	0.01
		C		0.000	0.000	0.886	0.000	0.01
L42	40.92-35.92	A	1.294	0.000	0.000	18.301	0.000	0.22
		B		0.000	0.000	5.675	0.000	0.10
		C		0.000	0.000	14.718	0.000	0.16
L43	35.92-30.92	A	1.277	0.000	0.000	17.430	0.000	0.21
		B		0.000	0.000	5.260	0.000	0.10
		C		0.000	0.000	14.281	0.000	0.15
L44	30.92-25.92	A	1.256	0.000	0.000	17.342	0.000	0.20
		B		0.000	0.000	5.239	0.000	0.10
		C		0.000	0.000	14.234	0.000	0.15
L45	25.92-20.25	A	1.230	0.000	0.000	19.541	0.000	0.23
		B		0.000	0.000	5.912	0.000	0.11
		C		0.000	0.000	16.076	0.000	0.17
L46	20.25-19.25	A	1.211	0.000	0.000	3.446	0.000	0.04
		B		0.000	0.000	1.043	0.000	0.02
		C		0.000	0.000	2.835	0.000	0.03
L47	19.25-14.15	A	1.191	0.000	0.000	19.246	0.000	0.22
		B		0.000	0.000	6.197	0.000	0.10
		C		0.000	0.000	15.289	0.000	0.15
L48	14.15-13.92	A	1.171	0.000	0.000	1.094	0.000	0.01
		B		0.000	0.000	0.393	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.802	0.000	0.01
L49	13.92-8.92	A	1.147	0.000	0.000	18.566	0.000	0.20
		B		0.000	0.000	5.974	0.000	0.10
		C		0.000	0.000	14.833	0.000	0.15
L50	8.92-3.92	A	1.082	0.000	0.000	16.604	0.000	0.18
		B		0.000	0.000	5.066	0.000	0.09
		C		0.000	0.000	13.843	0.000	0.13
L51	3.92-0.00	A	0.961	0.000	0.000	11.624	0.000	0.12
		B		0.000	0.000	3.382	0.000	0.06
		C		0.000	0.000	10.145	0.000	0.09

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-125.00	-0.367	0.000	-1.214	0.000
L2	125.00-120.00	-0.367	0.000	-1.211	0.000
L3	120.00-114.90	-1.413	0.880	-2.060	0.681
L4	114.90-114.67	0.068	1.870	-0.375	1.629
L5	114.67-109.67	0.073	1.919	-0.383	1.678
L6	109.67-109.42	0.077	1.967	-0.390	1.726
L7	109.42-109.17	0.165	1.119	-0.390	1.003
L8	109.17-104.17	0.172	1.144	-0.396	1.029
L9	104.17-103.92	0.178	1.168	-0.402	1.055
L10	103.92-103.67	0.113	2.134	-0.386	1.882
L11	103.67-98.67	0.118	2.181	-0.392	1.930
L12	98.67-96.42	-0.403	2.394	-0.848	2.139
L13	96.42-96.17	-0.792	2.526	-1.186	2.269
L14	96.17-91.50	-0.227	1.643	-0.743	1.482
L15	91.50-89.50	-0.036	1.905	-0.561	1.791
L16	89.50-88.92	-0.028	3.797	-0.441	3.474
L17	88.92-88.67	-0.028	3.806	-0.442	3.485
L18	88.67-88.25	-0.028	3.815	-0.443	3.495
L19	88.25-88.00	0.454	3.395	-0.078	3.177
L20	88.00-87.42	0.898	3.179	0.291	3.002
L21	87.42-87.17	1.246	3.113	0.598	2.938
L22	87.17-86.92	1.249	3.119	0.600	2.944
L23	86.92-86.67	1.252	3.126	0.601	2.951
L24	86.67-81.67	0.124	3.368	-0.481	3.147
L25	81.67-80.75	-0.027	3.448	-0.632	3.230
L26	80.75-80.50	-0.026	3.458	-0.634	3.242
L27	80.50-75.50	-0.027	2.675	-0.685	2.611
L28	75.50-71.83	-0.025	2.807	-0.698	2.740
L29	71.83-71.58	-0.023	3.360	-0.678	3.214
L30	71.58-68.83	0.498	3.508	-0.153	3.428
L31	68.83-68.58	0.818	3.612	0.186	3.564
L32	68.58-64.50	0.277	3.758	-0.422	3.650
L33	64.50-63.25	0.201	3.779	-0.505	3.667
L34	63.25-58.25	0.207	3.853	-0.510	3.737
L35	58.25-53.25	0.216	3.971	-0.519	3.845
L36	53.25-48.25	0.225	4.087	-0.528	3.951
L37	48.25-42.50	0.265	4.210	-0.506	4.065
L38	42.50-41.83	1.021	4.059	0.315	4.074
L39	41.83-41.58	1.023	4.066	0.318	4.084
L40	41.58-41.17	1.025	4.073	0.319	4.091
L41	41.17-40.92	1.027	4.081	0.320	4.100

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L42	40.92-35.92	0.362	4.306	-0.421	4.156
L43	35.92-30.92	0.250	4.418	-0.547	4.254
L44	30.92-25.92	0.259	4.526	-0.551	4.352
L45	25.92-20.25	0.268	4.640	-0.555	4.455
L46	20.25-19.25	0.268	4.651	-0.556	4.465
L47	19.25-14.15	0.578	4.730	-0.251	4.547
L48	14.15-13.92	1.182	4.538	0.430	4.631
L49	13.92-8.92	0.571	4.835	-0.264	4.642
L50	8.92-3.92	0.290	4.926	-0.533	4.715
L51	3.92-0.00	0.047	5.056	-0.746	4.774

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	3	Safety Line 3/8	125.00 - 130.00	1.0000	1.0000
L2	3	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L3	3	Safety Line 3/8	114.90 - 120.00	1.0000	1.0000
L3	10	HB114-21U3M12-XXXF(1-1/4")	114.90 - 120.00	1.0000	1.0000
L3	54	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	57	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	58	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	66	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L3	67	(Area) Aero MP3-03 (H)	114.90 - 116.17	1.0000	1.0000
L4	3	Safety Line 3/8	114.67 - 114.90	1.0000	1.0000
L4	10	HB114-21U3M12-XXXF(1-1/4")	114.67 - 114.90	1.0000	1.0000
L4	54	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	57	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	58	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	66	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L4	67	(Area) Aero MP3-03 (H)	114.67 - 114.90	1.0000	1.0000
L5	3	Safety Line 3/8	109.67 - 114.67	1.0000	1.0000
L5	10	HB114-21U3M12-XXXF(1-1/4")	109.67 - 114.67	1.0000	1.0000
L5	54	(Area) Aero MP3-03 (H)	109.67 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L5	57	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	58	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	66	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L5	67	(Area) Aero MP3-03 (H)	109.67 - 114.67	1.0000	1.0000
L6	3	Safety Line 3/8	109.42 - 109.67	1.0000	1.0000
L6	10	HB114-21U3M12-XXXF(1-1/4")	109.42 - 109.67	1.0000	1.0000
L6	54	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	57	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	58	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	66	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L6	67	(Area) Aero MP3-03 (H)	109.42 - 109.67	1.0000	1.0000
L7	3	Safety Line 3/8	109.17 - 109.42	1.0000	1.0000
L7	10	HB114-21U3M12-XXXF(1-1/4")	109.17 - 109.42	1.0000	1.0000
L7	54	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L7	57	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L7	58	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L7	65	(Area) Aero MP3-03 (H)	109.17 - 109.42	1.0000	1.0000
L8	3	Safety Line 3/8	104.17 - 109.17	1.0000	1.0000
L8	10	HB114-21U3M12-XXXF(1-1/4")	104.17 - 109.17	1.0000	1.0000
L8	54	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L8	57	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L8	58	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L8	65	(Area) Aero MP3-03 (H)	104.17 - 109.17	1.0000	1.0000
L9	3	Safety Line 3/8	103.92 - 104.17	1.0000	1.0000
L9	10	HB114-21U3M12-XXXF(1-1/4")	103.92 - 104.17	1.0000	1.0000
L9	54	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L9	57	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L9	58	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L9	65	(Area) Aero MP3-03 (H)	103.92 - 104.17	1.0000	1.0000
L10	3	Safety Line 3/8	103.67 - 103.92	1.0000	1.0000
L10	10	HB114-21U3M12-XXXF(1-1	103.67 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		/4")	103.92		
L10	54	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	57	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	58	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	62	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L10	64	(Area) Aero MP3-03 (H)	103.67 - 103.92	1.0000	1.0000
L11	3	Safety Line 3/8	98.67 - 103.67	1.0000	1.0000
L11	10	HB114-21U3M12-XXXF(1-1/4")	98.67 - 103.67	1.0000	1.0000
L11	54	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	57	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	58	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	62	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L11	64	(Area) Aero MP3-03 (H)	98.67 - 103.67	1.0000	1.0000
L12	3	Safety Line 3/8	96.42 - 98.67	1.0000	1.0000
L12	10	HB114-21U3M12-XXXF(1-1/4")	96.42 - 98.67	1.0000	1.0000
L12	54	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	57	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	58	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	61	(Area) Aero MP3-03 (H)	96.42 - 97.67	1.0000	1.0000
L12	62	(Area) Aero MP3-03 (H)	96.42 - 98.67	1.0000	1.0000
L12	63	(Area) Aero MP3-03 (H)	96.42 - 97.67	1.0000	1.0000
L12	64	(Area) Aero MP3-03 (H)	97.67 - 98.67	1.0000	1.0000
L13	3	Safety Line 3/8	96.17 - 96.42	1.0000	1.0000
L13	10	HB114-21U3M12-XXXF(1-1/4")	96.17 - 96.42	1.0000	1.0000
L13	54	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	57	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	58	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	61	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	62	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L13	63	(Area) Aero MP3-03 (H)	96.17 - 96.42	1.0000	1.0000
L14	3	Safety Line 3/8	91.50 - 96.17	1.0000	1.0000
L14	10	HB114-21U3M12-XXXF(1-1/4")	91.50 - 96.17	1.0000	1.0000
L14	54	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	57	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	58	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	61	(Area) Aero MP3-03 (H)	91.50 - 96.17	1.0000	1.0000
L14	62	(Area) Aero MP3-03 (H)	95.17 - 96.17	1.0000	1.0000
L14	63	(Area) Aero MP3-03 (H)	95.17 - 96.17	1.0000	1.0000
L14	16	LDF7-50A(1-5/8")	91.50 - 90.00	1.0000	1.0000
L16	3	Safety Line 3/8	88.92 - 89.50	1.0000	1.0000
L16	10	HB114-21U3M12-XXXF(1-1/4")	88.92 - 89.50	1.0000	1.0000
L16	16	LDF7-50A(1-5/8")	88.92 - 89.50	1.0000	1.0000
L16	51	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	53	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	57	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	58	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L16	61	(Area) Aero MP3-03 (H)	88.92 - 89.50	1.0000	1.0000
L17	3	Safety Line 3/8	88.67 - 88.92	1.0000	1.0000
L17	10	HB114-21U3M12-XXXF(1-1/4")	88.67 - 88.92	1.0000	1.0000
L17	16	LDF7-50A(1-5/8")	88.67 - 88.92	1.0000	1.0000
L17	51	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	53	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	57	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	58	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L17	61	(Area) Aero MP3-03 (H)	88.67 - 88.92	1.0000	1.0000
L18	3	Safety Line 3/8	88.25 - 88.67	1.0000	1.0000
L18	10	HB114-21U3M12-XXXF(1-1/4")	88.25 - 88.67	1.0000	1.0000
L18	16	LDF7-50A(1-5/8")	88.25 - 88.67	1.0000	1.0000
L18	51	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	53	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	57	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	58	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L18	61	(Area) Aero MP3-03 (H)	88.25 - 88.67	1.0000	1.0000
L19	3	Safety Line 3/8	88.00 - 88.25	1.0000	1.0000
L19	10	HB114-21U3M12-XXXF(1-1/4")	88.00 - 88.25	1.0000	1.0000
L19	16	LDF7-50A(1-5/8")	88.00 - 88.25	1.0000	1.0000
L19	47	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	48	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	49	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	51	(Area) Aero MP3-03 (H)	88.00 - 88.25	1.0000	1.0000
L19	53	(Area) Aero MP3-03 (H)	88.00 - 88.25	1.0000	1.0000
L19	55	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	56	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	57	(Area) Aero MP3-03 (H)	88.17 - 88.25	1.0000	1.0000
L19	58	(Area) Aero MP3-03 (H)	88.17 - 88.25	1.0000	1.0000
L19	60	(Area) Aero MP3-03 (H)	88.00 - 88.17	1.0000	1.0000
L19	61	(Area) Aero MP3-03 (H)	88.17 - 88.25	1.0000	1.0000
L20	3	Safety Line 3/8	87.42 - 88.00	1.0000	1.0000
L20	10	HB114-21U3M12-XXXF(1-1/4")	87.42 - 88.00	1.0000	1.0000
L20	16	LDF7-50A(1-5/8")	87.42 - 88.00	1.0000	1.0000
L20	47	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	48	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	49	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	51	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	53	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	55	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	56	(Area) Aero MP3-03 (H)	87.42 - 88.00	1.0000	1.0000
L20	60	(Area) Aero MP3-03 (H)	87.67 - 88.00	1.0000	1.0000
L21	3	Safety Line 3/8	87.17 - 87.42	1.0000	1.0000
L21	10	HB114-21U3M12-XXXF(1-1/4")	87.17 - 87.42	1.0000	1.0000
L21	16	LDF7-50A(1-5/8")	87.17 - 87.42	1.0000	1.0000
L21	47	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	48	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	49	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	51	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	53	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	55	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L21	56	(Area) Aero MP3-03 (H)	87.17 - 87.42	1.0000	1.0000
L22	3	Safety Line 3/8	86.92 - 87.17	1.0000	1.0000
L22	10	HB114-21U3M12-XXXF(1-1/4")	86.92 - 87.17	1.0000	1.0000
L22	16	LDF7-50A(1-5/8")	86.92 - 87.17	1.0000	1.0000
L22	47	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	48	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	49	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	51	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	53	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	55	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000
L22	56	(Area) Aero MP3-03 (H)	86.92 - 87.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L23	3	Safety Line 3/8	86.67 - 86.92	1.0000	1.0000
L23	10	HB114-21U3M12-XXXF(1-1/4")	86.67 - 86.92	1.0000	1.0000
L23	16	LDF7-50A(1-5/8")	86.67 - 86.92	1.0000	1.0000
L23	47	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	48	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	49	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	51	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	53	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	55	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L23	56	(Area) Aero MP3-03 (H)	86.67 - 86.92	1.0000	1.0000
L24	3	Safety Line 3/8	81.67 - 86.67	1.0000	1.0000
L24	10	HB114-21U3M12-XXXF(1-1/4")	81.67 - 86.67	1.0000	1.0000
L24	16	LDF7-50A(1-5/8")	81.67 - 86.67	1.0000	1.0000
L24	47	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	48	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	49	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	51	(Area) Aero MP3-03 (H)	81.67 - 86.67	1.0000	1.0000
L24	53	(Area) Aero MP3-03 (H)	86.17 - 86.67	1.0000	1.0000
L24	55	(Area) Aero MP3-03 (H)	86.17 - 86.67	1.0000	1.0000
L24	56	(Area) Aero MP3-03 (H)	86.17 - 86.67	1.0000	1.0000
L25	3	Safety Line 3/8	80.75 - 81.67	1.0000	1.0000
L25	10	HB114-21U3M12-XXXF(1-1/4")	80.75 - 81.67	1.0000	1.0000
L25	16	LDF7-50A(1-5/8")	80.75 - 81.67	1.0000	1.0000
L25	47	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L25	48	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L25	49	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L25	51	(Area) Aero MP3-03 (H)	80.75 - 81.67	1.0000	1.0000
L26	3	Safety Line 3/8	80.50 - 80.75	1.0000	1.0000
L26	10	HB114-21U3M12-XXXF(1-1/4")	80.50 - 80.75	1.0000	1.0000
L26	16	LDF7-50A(1-5/8")	80.50 - 80.75	1.0000	1.0000
L26	47	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L26	48	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L26	49	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L26	51	(Area) Aero MP3-03 (H)	80.50 - 80.75	1.0000	1.0000
L27	3	Safety Line 3/8	75.50 - 80.50	1.0000	1.0000
L27	10	HB114-21U3M12-XXXF(1-1/4")	75.50 - 80.50	1.0000	1.0000
L27	16	LDF7-50A(1-5/8")	75.50 - 80.50	1.0000	1.0000
L27	47	(Area) Aero MP3-03 (H)	75.50 - 80.50	1.0000	1.0000
L27	48	(Area) Aero MP3-03 (H)	75.50 - 80.50	1.0000	1.0000
L27	49	(Area) Aero MP3-03 (H)	75.50 - 80.50	1.0000	1.0000
L27	51	(Area) Aero MP3-03 (H)	79.50 - 80.50	1.0000	1.0000
L28	3	Safety Line 3/8	71.83 - 75.50	1.0000	1.0000
L28	10	HB114-21U3M12-XXXF(1-1/4")	71.83 - 75.50	1.0000	1.0000
L28	16	LDF7-50A(1-5/8")	71.83 - 75.50	1.0000	1.0000
L28	47	(Area) Aero MP3-03 (H)	71.83 - 75.50	1.0000	1.0000
L28	48	(Area) Aero MP3-03 (H)	71.83 - 75.50	1.0000	1.0000
L28	49	(Area) Aero MP3-03 (H)	71.83 - 75.50	1.0000	1.0000
L28	50	(Area) Aero MP3-03 (H)	71.83 - 73.08	1.0000	1.0000
L29	3	Safety Line 3/8	71.58 - 71.83	1.0000	1.0000
L29	10	HB114-21U3M12-XXXF(1-1/4")	71.58 - 71.83	1.0000	1.0000
L29	16	LDF7-50A(1-5/8")	71.58 - 71.83	1.0000	1.0000
L29	47	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L29	48	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L29	49	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000
L29	50	(Area) Aero MP3-03 (H)	71.58 - 71.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L30	3	Safety Line 3/8	68.83 - 71.58	1.0000	1.0000
L30	10	HB114-21U3M12-XXXF(1-1/4")	68.83 - 71.58	1.0000	1.0000
L30	16	LDF7-50A(1-5/8")	68.83 - 71.58	1.0000	1.0000
L30	38	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	39	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	40	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	41	(Area) Aero MP3-04 (H)	68.83 - 70.33	1.0000	1.0000
L30	43	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	44	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	45	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	46	(Area) Aero MP3-03 (H)	68.83 - 70.33	1.0000	1.0000
L30	47	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L30	48	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L30	49	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L30	50	(Area) Aero MP3-03 (H)	70.33 - 71.58	1.0000	1.0000
L31	3	Safety Line 3/8	68.58 - 68.83	1.0000	1.0000
L31	10	HB114-21U3M12-XXXF(1-1/4")	68.58 - 68.83	1.0000	1.0000
L31	16	LDF7-50A(1-5/8")	68.58 - 68.83	1.0000	1.0000
L31	38	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	39	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	40	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	41	(Area) Aero MP3-04 (H)	68.58 - 68.83	1.0000	1.0000
L31	43	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L31	44	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L31	45	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L31	46	(Area) Aero MP3-03 (H)	68.58 - 68.83	1.0000	1.0000
L32	3	Safety Line 3/8	64.50 - 68.58	1.0000	1.0000
L32	10	HB114-21U3M12-XXXF(1-1/4")	64.50 - 68.58	1.0000	1.0000
L32	16	LDF7-50A(1-5/8")	64.50 - 68.58	1.0000	1.0000
L32	38	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	39	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	40	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	41	(Area) Aero MP3-04 (H)	64.50 - 68.58	1.0000	1.0000
L32	43	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L32	44	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L32	45	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L32	46	(Area) Aero MP3-03 (H)	68.17 - 68.58	1.0000	1.0000
L34	3	Safety Line 3/8	58.25 - 63.25	1.0000	1.0000
L34	10	HB114-21U3M12-XXXF(1-1/4")	58.25 - 63.25	1.0000	1.0000
L34	16	LDF7-50A(1-5/8")	58.25 - 63.25	1.0000	1.0000
L34	38	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L34	39	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L34	40	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L34	41	(Area) Aero MP3-04 (H)	58.25 - 63.25	1.0000	1.0000
L35	3	Safety Line 3/8	53.25 - 58.25	1.0000	1.0000
L35	10	HB114-21U3M12-XXXF(1-1/4")	53.25 - 58.25	1.0000	1.0000
L35	16	LDF7-50A(1-5/8")	53.25 - 58.25	1.0000	1.0000
L35	38	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L35	39	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L35	40	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L35	41	(Area) Aero MP3-04 (H)	53.25 - 58.25	1.0000	1.0000
L36	3	Safety Line 3/8	48.25 - 53.25	1.0000	1.0000
L36	10	HB114-21U3M12-XXXF(1-1/4")	48.25 - 53.25	1.0000	1.0000
L36	16	LDF7-50A(1-5/8")	48.25 - 53.25	1.0000	1.0000
L36	38	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L36	39	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L36	40	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L36	41	(Area) Aero MP3-04 (H)	48.25 - 53.25	1.0000	1.0000
L37	3	Safety Line 3/8	42.50 - 48.25	1.0000	1.0000
L37	10	HB114-21U3M12-XXXF(1-1/4")	42.50 - 48.25	1.0000	1.0000
L37	16	LDF7-50A(1-5/8")	42.50 - 48.25	1.0000	1.0000
L37	29	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	30	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	31	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	32	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	34	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	35	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	36	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	37	(Area) Aero MP3-04 (H)	42.50 - 42.67	1.0000	1.0000
L37	38	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L37	39	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L37	40	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L37	41	(Area) Aero MP3-04 (H)	42.67 - 48.25	1.0000	1.0000
L39	3	Safety Line 3/8	41.58 - 41.83	1.0000	1.0000
L39	10	HB114-21U3M12-XXXF(1-1/4")	41.58 - 41.83	1.0000	1.0000
L39	16	LDF7-50A(1-5/8")	41.58 - 41.83	1.0000	1.0000
L39	29	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	30	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	31	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	32	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	34	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	35	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	36	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L39	37	(Area) Aero MP3-04 (H)	41.58 - 41.83	1.0000	1.0000
L40	3	Safety Line 3/8	41.17 - 41.58	1.0000	1.0000
L40	10	HB114-21U3M12-XXXF(1-1/4")	41.17 - 41.58	1.0000	1.0000
L40	16	LDF7-50A(1-5/8")	41.17 - 41.58	1.0000	1.0000
L40	29	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	30	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	31	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	32	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	34	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	35	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	36	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L40	37	(Area) Aero MP3-04 (H)	41.17 - 41.58	1.0000	1.0000
L41	3	Safety Line 3/8	40.92 - 41.17	1.0000	1.0000
L41	10	HB114-21U3M12-XXXF(1-1/4")	40.92 - 41.17	1.0000	1.0000
L41	16	LDF7-50A(1-5/8")	40.92 - 41.17	1.0000	1.0000
L41	29	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	30	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	31	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	32	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	34	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	35	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	36	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L41	37	(Area) Aero MP3-04 (H)	40.92 - 41.17	1.0000	1.0000
L42	3	Safety Line 3/8	35.92 - 40.92	1.0000	1.0000
L42	10	HB114-21U3M12-XXXF(1-1/4")	35.92 - 40.92	1.0000	1.0000
L42	16	LDF7-50A(1-5/8")	35.92 - 40.92	1.0000	1.0000
L42	29	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	30	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	31	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000
L42	32	(Area) Aero MP3-04 (H)	35.92 - 40.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L42	34	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L42	35	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L42	36	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L42	37	(Area) Aero MP3-04 (H)	40.33 - 40.92	1.0000	1.0000
L43	3	Safety Line 3/8	30.92 - 35.92	1.0000	1.0000
L43	10	HB114-21U3M12-XXXF(1-1/4")	30.92 - 35.92	1.0000	1.0000
L43	16	LDF7-50A(1-5/8")	30.92 - 35.92	1.0000	1.0000
L43	29	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L43	30	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L43	31	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L43	32	(Area) Aero MP3-04 (H)	30.92 - 35.92	1.0000	1.0000
L44	3	Safety Line 3/8	25.92 - 30.92	1.0000	1.0000
L44	10	HB114-21U3M12-XXXF(1-1/4")	25.92 - 30.92	1.0000	1.0000
L44	16	LDF7-50A(1-5/8")	25.92 - 30.92	1.0000	1.0000
L44	29	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L44	30	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L44	31	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L44	32	(Area) Aero MP3-04 (H)	25.92 - 30.92	1.0000	1.0000
L45	3	Safety Line 3/8	20.25 - 25.92	1.0000	1.0000
L45	10	HB114-21U3M12-XXXF(1-1/4")	20.25 - 25.92	1.0000	1.0000
L45	16	LDF7-50A(1-5/8")	20.25 - 25.92	1.0000	1.0000
L45	29	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L45	30	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L45	31	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L45	32	(Area) Aero MP3-04 (H)	20.25 - 25.92	1.0000	1.0000
L47	3	Safety Line 3/8	14.15 - 19.25	1.0000	1.0000
L47	10	HB114-21U3M12-XXXF(1-1/4")	14.15 - 19.25	1.0000	1.0000
L47	16	LDF7-50A(1-5/8")	14.15 - 19.25	1.0000	1.0000
L47	20	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	21	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	22	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	23	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	25	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	26	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	27	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	28	(Area) Aero MP3-04 (H)	14.15 - 15.50	1.0000	1.0000
L47	29	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L47	30	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L47	31	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L47	32	(Area) Aero MP3-04 (H)	15.50 - 19.25	1.0000	1.0000
L48	3	Safety Line 3/8	13.92 - 14.15	1.0000	1.0000
L48	10	HB114-21U3M12-XXXF(1-1/4")	13.92 - 14.15	1.0000	1.0000
L48	16	LDF7-50A(1-5/8")	13.92 - 14.15	1.0000	1.0000
L48	20	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	21	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	22	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	23	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	25	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	26	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	27	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L48	28	(Area) Aero MP3-04 (H)	13.92 - 14.15	1.0000	1.0000
L49	3	Safety Line 3/8	8.92 - 13.92	1.0000	1.0000
L49	10	HB114-21U3M12-XXXF(1-1/4")	8.92 - 13.92	1.0000	1.0000
L49	16	LDF7-50A(1-5/8")	8.92 - 13.92	1.0000	1.0000
L49	20	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	21	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L49	22	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	23	(Area) Aero MP3-04 (H)	8.92 - 13.92	1.0000	1.0000
L49	25	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L49	26	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L49	27	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L49	28	(Area) Aero MP3-04 (H)	12.67 - 13.92	1.0000	1.0000
L50	3	Safety Line 3/8	3.92 - 8.92	1.0000	1.0000
L50	10	HB114-21U3M12-XXXF(1-1/4")	3.92 - 8.92	1.0000	1.0000
L50	16	LDF7-50A(1-5/8")	3.92 - 8.92	1.0000	1.0000
L50	20	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L50	21	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L50	22	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L50	23	(Area) Aero MP3-04 (H)	3.92 - 8.92	1.0000	1.0000
L51	3	Safety Line 3/8	0.00 - 3.92	1.0000	1.0000
L51	10	HB114-21U3M12-XXXF(1-1/4")	0.00 - 3.92	1.0000	1.0000
L51	16	LDF7-50A(1-5/8")	0.00 - 3.92	1.0000	1.0000
L51	20	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000
L51	21	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000
L51	22	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000
L51	23	(Area) Aero MP3-04 (H)	0.50 - 3.92	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
130									
800 10121 w/ Mount Pipe	A	From Centroid-Face	4.00 -6.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.39 5.81 6.23 7.10	4.60 5.35 6.05 7.48	0.07 0.11 0.17 0.30
800 10121 w/ Mount Pipe	B	From Centroid-Face	4.00 -6.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.39 5.81 6.23 7.10	4.60 5.35 6.05 7.48	0.07 0.11 0.17 0.30
800 10121 w/ Mount Pipe	C	From Centroid-Face	4.00 -6.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.39 5.81 6.23 7.10	4.60 5.35 6.05 7.48	0.07 0.11 0.17 0.30
P65-17-XLH-RR w/ Mount Pipe	A	From Centroid-Face	4.00 6.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.70 12.42 13.15 14.52	8.94 10.45 11.99 14.31	0.09 0.18 0.27 0.50
SBNH-1D6565C w/ Mount Pipe	B	From Centroid-Face	4.00 6.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.56 6.07 6.59 7.65	4.47 4.97 5.47 6.52	0.08 0.17 0.26 0.50
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Centroid-Fa	4.00 6.000	-10.000	130.00	No Ice 1/2" Ice	4.63 5.06	3.27 3.69	0.07 0.13

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
		ce	0.000			1" Ice	5.51	4.12	0.20
						2" Ice	6.43	5.00	0.38
(2) 860 10025	A	From	4.00	-10.000	130.00	No Ice	0.14	0.12	0.00
		Centroid-Fa	-6.000			1/2" Ice	0.19	0.17	0.00
		ce	0.000			1" Ice	0.25	0.23	0.01
						2" Ice	0.40	0.37	0.01
(2) 860 10025	B	From	4.00	-10.000	130.00	No Ice	0.14	0.12	0.00
		Centroid-Fa	-6.000			1/2" Ice	0.19	0.17	0.00
		ce	0.000			1" Ice	0.25	0.23	0.01
						2" Ice	0.40	0.37	0.01
(2) 860 10025	C	From	4.00	-10.000	130.00	No Ice	0.14	0.12	0.00
		Centroid-Fa	-6.000			1/2" Ice	0.19	0.17	0.00
		ce	0.000			1" Ice	0.25	0.23	0.01
						2" Ice	0.40	0.37	0.01
(2) LGP21401	A	From	4.00	-10.000	130.00	No Ice	1.10	0.21	0.01
		Centroid-Fa	-6.000			1/2" Ice	1.24	0.27	0.02
		ce	0.000			1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) LGP21401	B	From	4.00	-10.000	130.00	No Ice	1.10	0.21	0.01
		Centroid-Fa	-6.000			1/2" Ice	1.24	0.27	0.02
		ce	0.000			1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
(2) LGP21401	C	From	4.00	-10.000	130.00	No Ice	1.10	0.21	0.01
		Centroid-Fa	-6.000			1/2" Ice	1.24	0.27	0.02
		ce	0.000			1" Ice	1.38	0.35	0.03
						2" Ice	1.69	0.52	0.05
DC6-48-60-18-8F	B	From	4.00	-10.000	130.00	No Ice	1.21	1.21	0.03
		Centroid-Fa	6.000			1/2" Ice	1.89	1.89	0.05
		ce	0.000			1" Ice	2.11	2.11	0.08
						2" Ice	2.57	2.57	0.14
RRUS-11	A	From	4.00	-10.000	130.00	No Ice	2.79	1.19	0.05
		Centroid-Fa	6.000			1/2" Ice	3.00	1.34	0.07
		ce	0.000			1" Ice	3.21	1.50	0.09
						2" Ice	3.67	1.84	0.15
RRUS-11	B	From	4.00	-10.000	130.00	No Ice	2.79	1.19	0.05
		Centroid-Fa	6.000			1/2" Ice	3.00	1.34	0.07
		ce	0.000			1" Ice	3.21	1.50	0.09
						2" Ice	3.67	1.84	0.15
RRUS-11	C	From	4.00	-10.000	130.00	No Ice	2.79	1.19	0.05
		Centroid-Fa	6.000			1/2" Ice	3.00	1.34	0.07
		ce	0.000			1" Ice	3.21	1.50	0.09
						2" Ice	3.67	1.84	0.15
RRUS 12	A	From	4.00	-10.000	130.00	No Ice	3.15	1.29	0.06
		Centroid-Fa	6.000			1/2" Ice	3.36	1.44	0.08
		ce	0.000			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
RRUS 12	B	From	4.00	-10.000	130.00	No Ice	3.15	1.29	0.06
		Centroid-Fa	6.000			1/2" Ice	3.36	1.44	0.08
		ce	0.000			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
RRUS 12	C	From	4.00	-10.000	130.00	No Ice	3.15	1.29	0.06
		Centroid-Fa	6.000			1/2" Ice	3.36	1.44	0.08
		ce	0.000			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
Platform Mount [LP 303-1]	A	None		0.000	130.00	No Ice	14.66	14.66	1.25
						1/2" Ice	18.87	18.87	1.48
						1" Ice	23.08	23.08	1.71

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" Ice	31.50	31.50	2.18
120									
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Centroid-Leg	4.00 -7.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Centroid-Leg	4.00 -7.000 0.000	40.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Centroid-Leg	4.00 -7.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	40.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
TD-RRH8x20-25	A	From Centroid-Leg	4.00 -7.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.70 3.95 4.20 4.72	1.29 1.46 1.64 2.02	0.07 0.09 0.12 0.18
TD-RRH8x20-25	B	From Centroid-Leg	4.00 -7.000 0.000	40.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.70 3.95 4.20 4.72	1.29 1.46 1.64 2.02	0.07 0.09 0.12 0.18
TD-RRH8x20-25	C	From Centroid-Leg	4.00 -7.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.70 3.95 4.20 4.72	1.29 1.46 1.64 2.02	0.07 0.09 0.12 0.18
(3) ACU-A20-N	A	From Centroid-Leg	4.00 0.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.07 0.10 0.15 0.26	0.12 0.16 0.21 0.34	0.00 0.00 0.00 0.01
(3) ACU-A20-N	B	From Centroid-Leg	4.00 0.000 0.000	40.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.07 0.10 0.15 0.26	0.12 0.16 0.21 0.34	0.00 0.00 0.00 0.01
(3) ACU-A20-N	C	From Centroid-Leg	4.00 0.000 0.000	30.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.07 0.10 0.15 0.26	0.12 0.16 0.21 0.34	0.00 0.00 0.00 0.01
(2) 2.4" Dia x 6-ft Pipe	A	From Centroid-Leg	4.00 2.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.93 2.30 3.06	1.43 1.93 2.30 3.06	0.02 0.03 0.05 0.09
(2) 2.4" Dia x 6-ft Pipe	B	From Centroid-Leg	4.00 2.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 1.93 2.30	0.02 0.03 0.05

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" Ice	3.06	3.06	0.09
(2) 2.4" Dia x 6-ft Pipe	C	From Centroid-Leg	4.00 2.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.93 2.30 3.06	1.43 1.93 2.30 3.06	0.02 0.03 0.05 0.09
Platform Mount [LP 1201-1]	A	None		0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	23.10 26.80 30.50 37.90	23.10 26.80 30.50 37.90	2.10 2.50 2.90 3.70
118									
800MHZ RRH w/ Mount Pipe	A	From Leg	1.00 0.000 -1.000	30.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.72 4.18 5.14	3.20 3.87 4.42 5.57	0.07 0.11 0.15 0.25
800MHZ RRH w/ Mount Pipe	B	From Leg	1.00 0.000 -1.000	40.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.72 4.18 5.14	3.20 3.87 4.42 5.57	0.07 0.11 0.15 0.25
800MHZ RRH w/ Mount Pipe	C	From Leg	1.00 0.000 -1.000	30.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.72 4.18 5.14	3.20 3.87 4.42 5.57	0.07 0.11 0.15 0.25
1900MHz RRH (65MHz)	A	From Leg	1.00 0.000 1.000	30.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.52 2.73 3.17	2.38 2.58 2.79 3.24	0.06 0.08 0.11 0.18
1900MHz RRH (65MHz)	B	From Leg	1.00 0.000 1.000	40.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.52 2.73 3.17	2.38 2.58 2.79 3.24	0.06 0.08 0.11 0.18
1900MHz RRH (65MHz)	C	From Leg	1.00 0.000 1.000	30.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.52 2.73 3.17	2.38 2.58 2.79 3.24	0.06 0.08 0.11 0.18
800 EXTERNAL NOTCH FILTER	A	From Leg	1.00 0.000 0.000	30.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	B	From Leg	1.00 0.000 0.000	40.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	C	From Leg	1.00 0.000 0.000	30.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
Side Arm Mount [SO 102-3]	A	None		0.000	118.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.00 3.48 3.96 4.92	3.00 3.48 3.96 4.92	0.08 0.11 0.14 0.20
100									
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Face	4.00 2.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Fa	4.00 2.000	0.000	100.00	No Ice 1/2" Ice	14.69 15.46	6.87 7.55	0.19 0.31

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
		ce	0.000			1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Face	4.00 2.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
(2) RR90-17-02DP w/ Mount Pipe	A	From Centroid-Face	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.59 5.02 5.44 6.30	3.32 4.09 4.78 6.23	0.03 0.07 0.12 0.22
(2) RR90-17-02DP w/ Mount Pipe	B	From Centroid-Face	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.59 5.02 5.44 6.30	3.32 4.09 4.78 6.23	0.03 0.07 0.12 0.22
(2) RR90-17-02DP w/ Mount Pipe	C	From Centroid-Face	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.59 5.02 5.44 6.30	3.32 4.09 4.78 6.23	0.03 0.07 0.12 0.22
(2) KRY 112 144/1	A	From Centroid-Face	4.00 0.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.16 0.22 0.28 0.44	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Centroid-Face	4.00 6.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.16 0.22 0.28 0.44	0.01 0.01 0.02 0.03
KRY 112 489/2	B	From Centroid-Face	4.00 -6.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.56 0.66 0.76 1.00	0.37 0.45 0.54 0.75	0.02 0.02 0.03 0.05
(2) KRY 112 489/2	C	From Centroid-Face	4.00 -6.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.56 0.66 0.76 1.00	0.37 0.45 0.54 0.75	0.02 0.02 0.03 0.05
RADIO 4449 B12/B71	A	From Centroid-Face	4.00 -6.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.15 1.29 1.44 1.75	0.07 0.09 0.11 0.15
RADIO 4449 B12/B71	B	From Centroid-Face	4.00 -6.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.15 1.29 1.44 1.75	0.07 0.09 0.11 0.15
RADIO 4449 B12/B71	C	From Centroid-Face	4.00 -6.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.15 1.29 1.44 1.75	0.07 0.09 0.11 0.15
2.4" Dia x 6-ft Pipe	A	From Centroid-Face	4.00 -2.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.93 2.30 3.06	1.43 1.93 2.30 3.06	0.02 0.03 0.05 0.09
2.4" Dia x 6-ft Pipe	B	From Centroid-Face	4.00 -2.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.93 2.30 3.06	1.43 1.93 2.30 3.06	0.02 0.03 0.05 0.09
2.4" Dia x 6-ft Pipe	C	From Centroid-Face	4.00 -2.000 0.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 1.93 2.30	0.02 0.03 0.05

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" Ice	3.06	3.06	0.09
Platform Mount [LP 1201-1]	A	None		0.000	100.00	No Ice	23.10	23.10	2.10
						1/2" Ice	26.80	26.80	2.50
						1" Ice	30.50	30.50	2.90
						2" Ice	37.90	37.90	3.70
Miscellaneous [NA 509-3]	A	None		0.000	100.00	No Ice	11.84	11.84	0.28
						1/2" Ice	16.96	16.96	0.30
						1" Ice	22.08	22.08	0.32
						2" Ice	32.32	32.32	0.36
80									
GPS_A	A	From Leg	3.00 0.000 0.000	0.000	80.00	No Ice	0.26	0.26	0.00
						1/2" Ice	0.32	0.32	0.00
						1" Ice	0.39	0.39	0.01
						2" Ice	0.56	0.56	0.02
Side Arm Mount [SO 701-1]	A	From Leg	1.50 0.000 0.000	0.000	80.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
*****									

Load Combinations

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

Comb. No.	Description
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 Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 125	13.684	39	0.938	0.008
L2	125 - 120	12.703	39	0.934	0.007
L3	120 - 114.9	11.730	39	0.923	0.005
L4	114.9 - 114.67	10.752	39	0.907	0.005
L5	114.67 - 109.67	10.709	39	0.906	0.005
L6	109.67 - 109.42	9.772	39	0.883	0.004
L7	109.42 - 109.17	9.726	39	0.881	0.004
L8	109.17 - 104.17	9.679	39	0.880	0.004
L9	104.17 - 103.92	8.775	39	0.848	0.003
L10	103.92 - 103.67	8.730	39	0.846	0.003
L11	103.67 - 98.67	8.686	39	0.844	0.003
L12	98.67 - 96.42	7.820	39	0.810	0.003
L13	96.42 - 96.17	7.442	39	0.793	0.003
L14	96.17 - 91.5	7.400	39	0.791	0.003
L15	94.5 - 89.5	7.126	39	0.776	0.003
L16	89.5 - 88.92	6.327	39	0.745	0.002
L17	88.92 - 88.67	6.237	39	0.740	0.002
L18	88.67 - 88.25	6.198	39	0.737	0.002
L19	88.25 - 88	6.134	39	0.732	0.002
L20	88 - 87.42	6.096	39	0.729	0.002
L21	87.42 - 87.17	6.007	39	0.723	0.002
L22	87.17 - 86.92	5.970	39	0.720	0.002
L23	86.92 - 86.67	5.932	39	0.716	0.002
L24	86.67 - 81.67	5.895	39	0.713	0.002
L25	81.67 - 80.75	5.173	39	0.665	0.002
L26	80.75 - 80.5	5.046	39	0.656	0.002
L27	80.5 - 75.5	5.012	39	0.652	0.002
L28	75.5 - 71.83	4.362	39	0.587	0.001
L29	71.83 - 71.58	3.930	39	0.538	0.001
L30	71.58 - 68.83	3.902	39	0.536	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L31	68.83 - 68.58	3.601	39	0.507	0.001
L32	68.58 - 64.5	3.575	39	0.504	0.001
L33	68.25 - 63.25	3.540	39	0.501	0.001
L34	63.25 - 58.25	3.027	39	0.474	0.001
L35	58.25 - 53.25	2.553	39	0.431	0.001
L36	53.25 - 48.25	2.125	39	0.388	0.001
L37	48.25 - 42.5	1.741	39	0.344	0.001
L38	46.75 - 41.83	1.635	39	0.332	0.001
L39	41.83 - 41.58	1.304	39	0.308	0.001
L40	41.58 - 41.17	1.288	39	0.305	0.001
L41	41.17 - 40.92	1.262	39	0.300	0.001
L42	40.92 - 35.92	1.246	39	0.298	0.001
L43	35.92 - 30.92	0.956	39	0.256	0.000
L44	30.92 - 25.92	0.710	39	0.216	0.000
L45	25.92 - 20.25	0.505	39	0.175	0.000
L46	25.25 - 19.25	0.481	39	0.170	0.000
L47	19.25 - 14.15	0.283	39	0.142	0.000
L48	14.15 - 13.92	0.152	39	0.103	0.000
L49	13.92 - 8.92	0.147	39	0.102	0.000
L50	8.92 - 3.92	0.060	39	0.064	0.000
L51	3.92 - 0	0.011	39	0.028	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	800 10121 w/ Mount Pipe	39	13.684	0.938	0.008	33583
120.00	APXVTM14-ALU-I20 w/ Mount Pipe	39	11.730	0.923	0.005	20039
118.00	800MHZ RRH w/ Mount Pipe	39	11.345	0.917	0.005	17715
100.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	39	8.046	0.820	0.003	8037
80.00	GPS_A	39	4.944	0.646	0.002	4834

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 125	58.631	2	4.025	0.033
L2	125 - 120	54.425	2	4.008	0.028
L3	120 - 114.9	50.255	2	3.958	0.023
L4	114.9 - 114.67	46.064	2	3.890	0.020
L5	114.67 - 109.67	45.877	2	3.886	0.019
L6	109.67 - 109.42	41.860	2	3.786	0.017
L7	109.42 - 109.17	41.662	2	3.781	0.017
L8	109.17 - 104.17	41.465	2	3.774	0.017
L9	104.17 - 103.92	37.586	2	3.635	0.014
L10	103.92 - 103.67	37.396	2	3.627	0.014
L11	103.67 - 98.67	37.207	2	3.621	0.014
L12	98.67 - 96.42	33.494	2	3.474	0.012

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L13	96.42 - 96.17	31.875	2	3.400	0.012
L14	96.17 - 91.5	31.697	2	3.391	0.011
L15	94.5 - 89.5	30.523	2	3.327	0.011
L16	89.5 - 88.92	27.098	2	3.193	0.010
L17	88.92 - 88.67	26.712	2	3.171	0.010
L18	88.67 - 88.25	26.546	2	3.158	0.010
L19	88.25 - 88	26.270	2	3.136	0.009
L20	88 - 87.42	26.106	2	3.126	0.009
L21	87.42 - 87.17	25.728	2	3.101	0.009
L22	87.17 - 86.92	25.566	2	3.085	0.009
L23	86.92 - 86.67	25.405	2	3.068	0.009
L24	86.67 - 81.67	25.245	2	3.058	0.009
L25	81.67 - 80.75	22.153	2	2.849	0.008
L26	80.75 - 80.5	21.608	2	2.810	0.008
L27	80.5 - 75.5	21.461	2	2.796	0.008
L28	75.5 - 71.83	18.680	2	2.517	0.006
L29	71.83 - 71.58	16.826	2	2.307	0.005
L30	71.58 - 68.83	16.706	2	2.295	0.005
L31	68.83 - 68.58	15.420	2	2.171	0.005
L32	68.58 - 64.5	15.307	2	2.161	0.005
L33	68.25 - 63.25	15.158	2	2.148	0.005
L34	63.25 - 58.25	12.961	2	2.031	0.004
L35	58.25 - 53.25	10.931	2	1.847	0.004
L36	53.25 - 48.25	9.095	2	1.661	0.003
L37	48.25 - 42.5	7.453	2	1.475	0.003
L38	46.75 - 41.83	6.998	2	1.420	0.002
L39	41.83 - 41.58	5.582	2	1.319	0.002
L40	41.58 - 41.17	5.513	2	1.306	0.002
L41	41.17 - 40.92	5.402	2	1.285	0.002
L42	40.92 - 35.92	5.335	2	1.276	0.002
L43	35.92 - 30.92	4.093	2	1.097	0.002
L44	30.92 - 25.92	3.036	2	0.922	0.001
L45	25.92 - 20.25	2.161	2	0.749	0.001
L46	25.25 - 19.25	2.058	2	0.726	0.001
L47	19.25 - 14.15	1.210	2	0.609	0.001
L48	14.15 - 13.92	0.649	2	0.443	0.001
L49	13.92 - 8.92	0.627	2	0.435	0.001
L50	8.92 - 3.92	0.256	2	0.275	0.000
L51	3.92 - 0	0.049	2	0.120	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	800 10121 w/ Mount Pipe	2	58.631	4.025	0.033	8349
120.00	APXVTM14-ALU-I20 w/ Mount Pipe	2	50.255	3.958	0.023	4833
118.00	800MHZ RRH w/ Mount Pipe	2	48.602	3.934	0.021	4239
100.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	2	34.466	3.515	0.013	1883
80.00	GPS_A	2	21.170	2.768	0.007	1131

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 125 (1)	TP16x16x0.375	5.00	0.00	0.0	18.408	-2.80	695.81	0.004
L2	125 - 120 (2)	TP16x16x0.375	5.00	0.00	0.0	18.408	-3.21	695.81	0.005
L3	120 - 114.9 (3)	TP17.249x16x0.513	5.10	0.00	0.0	27.619	-7.72	1491.45	0.005
L4	114.9 - 114.67 (4)	TP17.305x17.249x0.513	0.23	0.00	0.0	27.712	-7.75	1496.47	0.005
L5	114.67 - 109.67 (5)	TP18.53x17.305x0.481	5.00	0.00	0.0	27.969	-8.29	1510.31	0.005
L6	109.67 - 109.42 (6)	TP18.591x18.53x0.481	0.25	0.00	0.0	28.064	-8.32	1515.43	0.005
L7	109.42 - 109.17 (7)	TP18.652x18.591x0.425	0.25	0.00	0.0	24.944	-8.34	1346.99	0.006
L8	109.17 - 104.17 (8)	TP19.877x18.652x0.413	5.00	0.00	0.0	25.854	-8.86	1396.10	0.006
L9	104.17 - 103.92 (9)	TP19.938x19.877x0.406	0.25	0.00	0.0	25.550	-8.89	1379.71	0.006
L10	103.92 - 103.67 (10)	TP19.999x19.938x0.45	0.25	0.00	0.0	28.327	-8.92	1529.66	0.006
L11	103.67 - 98.67 (11)	TP21.224x19.999x0.438	5.00	0.00	0.0	29.283	-13.50	1581.28	0.009
L12	98.67 - 96.42 (12)	TP21.775x21.224x0.425	2.25	0.00	0.0	29.218	-13.81	1577.75	0.009
L13	96.42 - 96.17 (13)	TP21.836x21.775x0.388	0.25	0.00	0.0	26.763	-13.85	1445.19	0.010
L14	96.17 - 91.5 (14)	TP22.98x21.836x0.381	4.67	0.00	0.0	26.841	-14.06	1449.40	0.010
L15	91.5 - 89.5 (15)	TP23.095x21.87x0.438	5.00	0.00	0.0	31.919	-15.11	1867.27	0.008
L16	89.5 - 88.92 (16)	TP23.237x23.095x0.438	0.58	0.00	0.0	32.119	-15.20	1878.98	0.008
L17	88.92 - 88.67 (17)	TP23.299x23.237x0.325	0.25	0.00	0.0	24.042	-15.24	1406.45	0.011
L18	88.67 - 88.25 (18)	TP23.401x23.299x0.325	0.42	0.00	0.0	24.149	-15.30	1412.75	0.011
L19	88.25 - 88 (19)	TP23.463x23.401x0.4	0.25	0.00	0.0	29.705	-15.34	1737.73	0.009
L20	88 - 87.42 (20)	TP23.605x23.463x0.4	0.58	0.00	0.0	29.888	-15.43	1748.44	0.009
L21	87.42 - 87.17 (21)	TP23.666x23.605x0.256	0.25	0.00	0.0	19.316	-15.46	1129.99	0.014
L22	87.17 - 86.92 (22)	TP23.727x23.666x0.256	0.25	0.00	0.0	19.367	-15.50	1132.94	0.014
L23	86.92 - 86.67 (23)	TP23.789x23.727x0.431	0.25	0.00	0.0	32.435	-15.54	1897.42	0.008
L24	86.67 - 81.67 (24)	TP25.014x23.789x0.419	5.00	0.00	0.0	33.163	-16.35	1940.03	0.008
L25	81.67 - 80.75 (25)	TP25.239x25.014x0.419	0.92	0.00	0.0	33.467	-16.50	1957.81	0.008
L26	80.75 - 80.5 (26)	TP25.3x25.239x0.319	0.25	0.00	0.0	25.640	-16.54	1499.96	0.011
L27	80.5 - 75.5 (27)	TP26.525x25.3x0.319	5.00	0.00	0.0	26.897	-17.42	1573.51	0.011
L28	75.5 - 71.83 (28)	TP27.424x26.525x0.313	3.67	0.00	0.0	27.281	-18.03	1595.95	0.011
L29	71.83 - 71.58 (29)	TP27.485x27.424x0.4	0.25	0.00	0.0	34.886	-18.08	2040.84	0.009
L30	71.58 - 68.83 (30)	TP28.159x27.485x0.4	2.75	0.00	0.0	35.754	-18.56	2091.60	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L31	68.83 - 68.58 (31)	TP28.22x28.159x0.463	0.25	0.00	0.0	41.339	-18.62	2418.30	0.008
L32	68.58 - 64.5 (32)	TP29.22x28.22x0.463	4.08	0.00	0.0	41.459	-18.68	2425.35	0.008
L33	64.5 - 63.25 (33)	TP29.026x27.801x0.519	5.00	0.00	0.0	47.618	-20.37	2785.67	0.007
L34	63.25 - 58.25 (34)	TP30.251x29.026x0.513	5.00	0.00	0.0	49.076	-21.50	2870.97	0.007
L35	58.25 - 53.25 (35)	TP31.476x30.251x0.5	5.00	0.00	0.0	49.872	-22.66	2917.50	0.008
L36	53.25 - 48.25 (36)	TP32.701x31.476x0.488	5.00	0.00	0.0	50.568	-23.84	2958.20	0.008
L37	48.25 - 42.5 (37)	TP34.11x32.701x0.488	5.75	0.00	0.0	51.144	-24.20	2991.95	0.008
L38	42.5 - 41.83 (38)	TP33.648x32.444x0.519	4.92	0.00	0.0	55.343	-26.31	3237.60	0.008
L39	41.83 - 41.58 (39)	TP33.709x33.648x0.344	0.25	0.00	0.0	36.937	-26.36	2160.80	0.012
L40	41.58 - 41.17 (40)	TP33.81x33.709x0.344	0.41	0.00	0.0	37.048	-26.44	2167.30	0.012
L41	41.17 - 40.92 (41)	TP33.871x33.81x0.519	0.25	0.00	0.0	55.716	-26.51	3259.36	0.008
L42	40.92 - 35.92 (42)	TP35.095x33.871x0.506	5.00	0.00	0.0	56.389	-27.82	3298.74	0.008
L43	35.92 - 30.92 (43)	TP36.318x35.095x0.506	5.00	0.00	0.0	58.384	-29.16	3415.46	0.009
L44	30.92 - 25.92 (44)	TP37.542x36.318x0.494	5.00	0.00	0.0	58.908	-30.53	3446.13	0.009
L45	25.92 - 20.25 (45)	TP38.93x37.542x0.494	5.67	0.00	0.0	59.169	-30.72	3461.39	0.009
L46	20.25 - 19.25 (46)	TP38.49x37.019x0.525	6.00	0.00	0.0	64.179	-33.65	3754.50	0.009
L47	19.25 - 14.15 (47)	TP39.74x38.49x0.519	5.10	0.00	0.0	65.515	-35.18	3832.62	0.009
L48	14.15 - 13.92 (48)	TP39.797x39.74x0.519	0.23	0.00	0.0	65.609	-35.25	3838.13	0.009
L49	13.92 - 8.92 (49)	TP41.023x39.797x0.513	5.00	0.00	0.0	66.852	-36.78	3910.85	0.009
L50	8.92 - 3.92 (50)	TP42.249x41.023x0.513	5.00	0.00	0.0	67.257	-37.10	3934.52	0.009
L51	3.92 - 0 (51)	TP43.21x42.249x0.506	3.92	0.00	0.0	69.612	-39.59	4072.33	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	130 - 125 (1)	TP16x16x0.375	13.63	288.45	0.047	0.00	288.45	0.000
L2	125 - 120 (2)	TP16x16x0.375	27.87	288.45	0.097	0.00	288.45	0.000
L3	120 - 114.9 (3)	TP17.249x16x0.513	57.25	626.64	0.091	0.00	626.64	0.000
L4	114.9 - 114.67 (4)	TP17.305x17.249x0.513	58.68	630.93	0.093	0.00	630.93	0.000
L5	114.67 - 109.67 (5)	TP18.53x17.305x0.481	90.83	686.96	0.132	0.00	686.96	0.000
L6	109.67 - 109.42 (6)	TP18.591x18.53x0.481	92.52	691.69	0.134	0.00	691.69	0.000
L7	109.42 -	TP18.652x18.591x0.425	94.23	620.76	0.152	0.00	620.76	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L8	109.17 (7) 109.17 - 104.17 (8)	TP19.877x18.652x0.413	129.57	688.49	0.188	0.00	688.49	0.000
L9	104.17 - 103.92 (9)	TP19.938x19.877x0.406	131.40	683.03	0.192	0.00	683.03	0.000
L10	103.92 - 103.67 (10)	TP19.999x19.938x0.45	133.24	756.30	0.176	0.00	756.30	0.000
L11	103.67 - 98.67 (11)	TP21.224x19.999x0.438	175.87	832.89	0.211	0.00	832.89	0.000
L12	98.67 - 96.42 (12)	TP21.775x21.224x0.425	201.52	854.52	0.236	0.00	854.52	0.000
L13	96.42 - 96.17 (13)	TP21.836x21.775x0.388	204.41	787.76	0.259	0.00	787.76	0.000
L14	96.17 - 91.5 (14)	TP22.98x21.836x0.381	223.82	805.86	0.278	0.00	805.86	0.000
L15	91.5 - 89.5 (15)	TP23.095x21.87x0.438	283.76	1073.89	0.264	0.00	1073.89	0.000
L16	89.5 - 88.92 (16)	TP23.237x23.095x0.438	290.88	1087.53	0.267	0.00	1087.53	0.000
L17	88.92 - 88.67 (17)	TP23.299x23.237x0.325	293.96	824.32	0.357	0.00	824.32	0.000
L18	88.67 - 88.25 (18)	TP23.401x23.299x0.325	299.15	831.77	0.360	0.00	831.77	0.000
L19	88.25 - 88 (19)	TP23.463x23.401x0.4	302.24	1019.23	0.297	0.00	1019.23	0.000
L20	88 - 87.42 (20)	TP23.605x23.463x0.4	309.45	1031.93	0.300	0.00	1031.93	0.000
L21	87.42 - 87.17 (21)	TP23.666x23.605x0.256	312.57	654.53	0.478	0.00	654.53	0.000
L22	87.17 - 86.92 (22)	TP23.727x23.666x0.256	315.70	657.39	0.480	0.00	657.39	0.000
L23	86.92 - 86.67 (23)	TP23.789x23.727x0.431	318.83	1125.87	0.283	0.00	1125.87	0.000
L24	86.67 - 81.67 (24)	TP25.014x23.789x0.419	382.80	1213.85	0.315	0.00	1213.85	0.000
L25	81.67 - 80.75 (25)	TP25.239x25.014x0.419	394.84	1236.38	0.319	0.00	1236.38	0.000
L26	80.75 - 80.5 (26)	TP25.3x25.239x0.319	398.13	957.27	0.416	0.00	957.27	0.000
L27	80.5 - 75.5 (27)	TP26.525x25.3x0.319	465.23	1053.47	0.442	0.00	1053.47	0.000
L28	75.5 - 71.83 (28)	TP27.424x26.525x0.313	515.61	1088.16	0.474	0.00	1088.16	0.000
L29	71.83 - 71.58 (29)	TP27.485x27.424x0.4	519.08	1409.37	0.368	0.00	1409.37	0.000
L30	71.58 - 68.83 (30)	TP28.159x27.485x0.4	557.60	1480.88	0.377	0.00	1480.88	0.000
L31	68.83 - 68.58 (31)	TP28.22x28.159x0.463	561.13	1708.31	0.328	0.00	1708.31	0.000
L32	68.58 - 64.5 (32)	TP29.22x28.22x0.463	565.80	1718.36	0.329	0.00	1718.36	0.000
L33	64.5 - 63.25 (33)	TP29.026x27.801x0.519	637.89	2017.92	0.316	0.00	2017.92	0.000
L34	63.25 - 58.25 (34)	TP30.251x29.026x0.513	712.17	2171.58	0.328	0.00	2171.58	0.000
L35	58.25 - 53.25 (35)	TP31.476x30.251x0.5	788.53	2301.07	0.343	0.00	2301.07	0.000
L36	53.25 - 48.25 (36)	TP32.701x31.476x0.488	866.92	2428.80	0.357	0.00	2428.80	0.000
L37	48.25 - 42.5 (37)	TP34.11x32.701x0.488	890.83	2484.95	0.358	0.00	2484.95	0.000
L38	42.5 - 41.83 (38)	TP33.648x32.444x0.519	970.64	2732.32	0.355	0.00	2732.32	0.000
L39	41.83 - 41.58	TP33.709x33.648x0.344	974.76	1747.50	0.558	0.00	1747.50	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L40	41.58 - 41.17 (40)	TP33.81x33.709x0.344	981.52	1756.15	0.559	0.00	1756.15	0.000
L41	41.17 - 40.92 (41)	TP33.871x33.81x0.519	985.64	2769.47	0.356	0.00	2769.47	0.000
L42	40.92 - 35.92 (42)	TP35.095x33.871x0.506	1069.18	2909.45	0.367	0.00	2909.45	0.000
L43	35.92 - 30.92 (43)	TP36.318x35.095x0.506	1154.55	3120.52	0.370	0.00	3120.52	0.000
L44	30.92 - 25.92 (44)	TP37.542x36.318x0.494	1241.68	3259.84	0.381	0.00	3259.84	0.000
L45	25.92 - 20.25 (45)	TP38.93x37.542x0.494	1253.49	3288.96	0.381	0.00	3288.96	0.000
L46	20.25 - 19.25 (46)	TP38.49x37.019x0.525	1360.87	3637.59	0.374	0.00	3637.59	0.000
L47	19.25 - 14.15 (47)	TP39.74x38.49x0.519	1454.26	3838.48	0.379	0.00	3838.48	0.000
L48	14.15 - 13.92 (48)	TP39.797x39.74x0.519	1458.51	3849.60	0.379	0.00	3849.60	0.000
L49	13.92 - 8.92 (49)	TP41.023x39.797x0.513	1551.94	4047.82	0.383	0.00	4047.82	0.000
L50	8.92 - 3.92 (50)	TP42.249x41.023x0.513	1570.84	4097.28	0.383	0.00	4097.28	0.000
L51	3.92 - 0 (51)	TP43.21x42.249x0.506	1723.03	4410.20	0.391	0.00	4410.20	0.000

Pole Shear Design Data

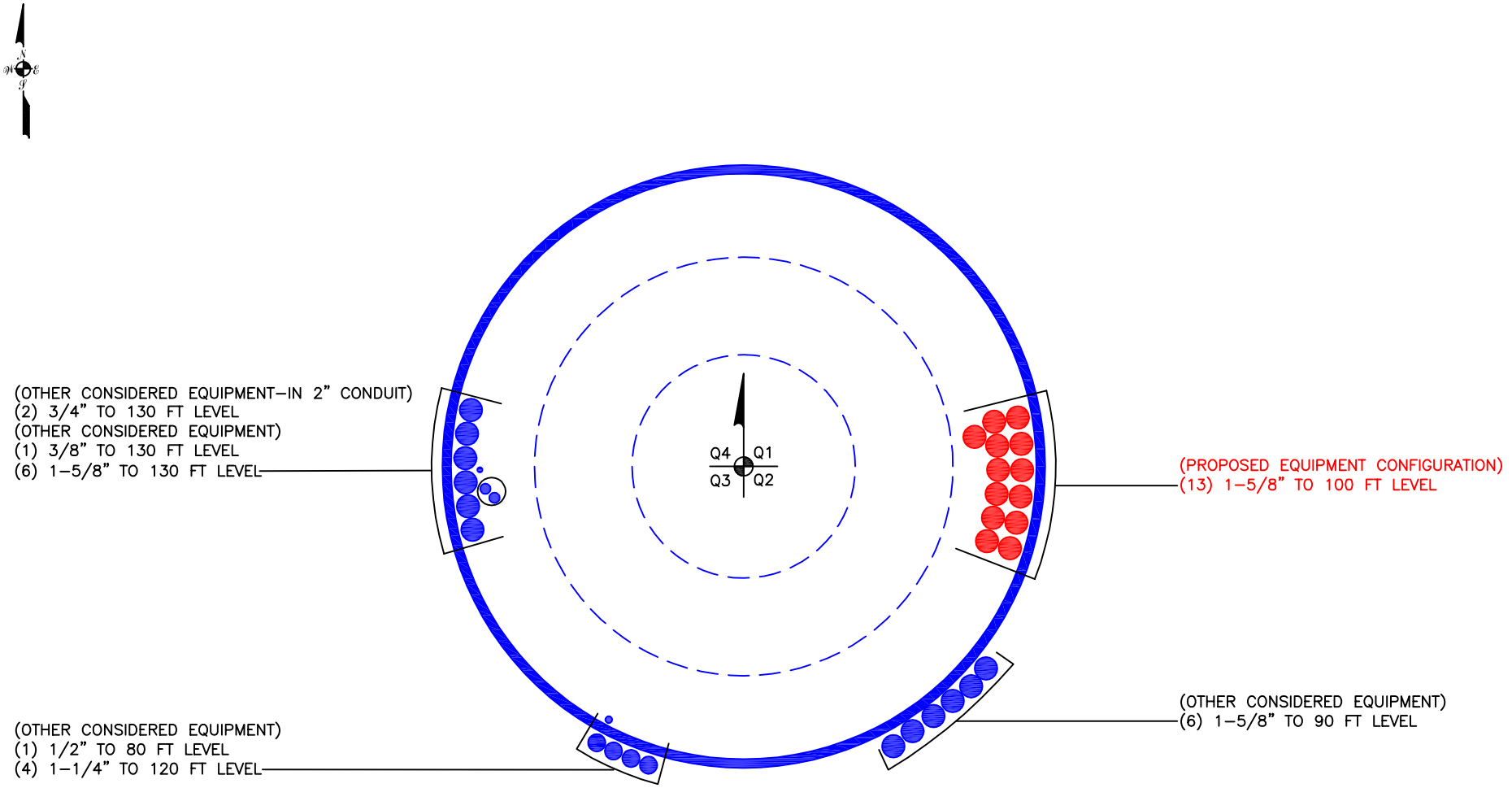
Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	130 - 125 (1)	TP16x16x0.375	2.76	208.74	0.013	1.56	286.76	0.005
L2	125 - 120 (2)	TP16x16x0.375	2.94	208.74	0.014	1.56	286.76	0.005
L3	120 - 114.9 (3)	TP17.249x16x0.513	6.20	447.44	0.014	1.46	658.71	0.002
L4	114.9 - 114.67 (4)	TP17.305x17.249x0.513	6.22	448.94	0.014	1.46	663.15	0.002
L5	114.67 - 109.67 (5)	TP18.53x17.305x0.481	6.78	446.94	0.015	0.60	719.34	0.001
L6	109.67 - 109.42 (6)	TP18.591x18.53x0.481	6.80	454.63	0.015	0.60	724.23	0.001
L7	109.42 - 109.17 (7)	TP18.652x18.591x0.425	6.83	402.74	0.017	0.60	647.90	0.001
L8	109.17 - 104.17 (8)	TP19.877x18.652x0.413	7.31	413.56	0.018	0.60	717.10	0.001
L9	104.17 - 103.92 (9)	TP19.938x19.877x0.406	7.34	412.62	0.018	0.60	711.14	0.001
L10	103.92 - 103.67 (10)	TP19.999x19.938x0.45	7.36	457.46	0.016	0.60	789.13	0.001
L11	103.67 - 98.67 (11)	TP21.224x19.999x0.438	11.28	468.80	0.024	0.79	867.38	0.001
L12	98.67 - 96.42 (12)	TP21.775x21.224x0.425	11.52	467.21	0.025	0.79	888.91	0.001
L13	96.42 - 96.17 (13)	TP21.836x21.775x0.388	11.54	432.32	0.027	0.79	817.99	0.001
L14	96.17 - 91.5 (14)	TP22.98x21.836x0.381	11.71	426.69	0.027	0.79	836.26	0.001
L15	91.5 - 89.5 (15)	TP23.095x21.87x0.438	12.25	554.12	0.022	0.79	1116.46	0.001
L16	89.5 - 88.92	TP23.237x23.095x0.438	12.31	560.18	0.022	0.79	1130.51	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(16)							
L17	88.92 - 88.67	TP23.299x23.237x0.325	12.34	420.81	0.029	0.79	852.65	0.001
	(17)							
L18	88.67 - 88.25	TP23.401x23.299x0.325	12.38	421.93	0.029	0.79	860.31	0.001
	(18)							
L19	88.25 - 88 (19)	TP23.463x23.401x0.4	12.41	519.93	0.024	0.79	1057.58	0.001
L20	88 - 87.42 (20)	TP23.605x23.463x0.4	12.47	521.32	0.024	0.79	1070.65	0.001
L21	87.42 - 87.17	TP23.666x23.605x0.256	12.49	338.11	0.037	0.79	698.06	0.001
	(21)							
L22	87.17 - 86.92	TP23.727x23.666x0.256	12.52	339.00	0.037	0.79	701.72	0.001
	(22)							
L23	86.92 - 86.67	TP23.789x23.727x0.431	12.54	567.73	0.022	0.79	1169.52	0.001
	(23)							
L24	86.67 - 81.67	TP25.014x23.789x0.419	13.06	576.21	0.023	0.79	1259.13	0.001
	(24)							
L25	81.67 - 80.75	TP25.239x25.014x0.419	13.14	582.01	0.023	0.79	1282.32	0.001
	(25)							
L26	80.75 - 80.5	TP25.3x25.239x0.319	13.15	448.88	0.029	0.79	988.82	0.001
	(26)							
L27	80.5 - 75.5 (27)	TP26.525x25.3x0.319	13.60	467.64	0.029	0.79	1088.17	0.001
L28	75.5 - 71.83	TP27.424x26.525x0.313	13.88	473.49	0.029	0.79	1141.82	0.001
	(28)							
L29	71.83 - 71.58	TP27.485x27.424x0.4	13.90	610.87	0.023	0.79	1458.70	0.001
	(29)							
L30	71.58 - 68.83	TP28.159x27.485x0.4	14.14	627.48	0.023	0.79	1532.17	0.001
	(30)							
L31	68.83 - 68.58	TP28.22x28.159x0.463	14.15	725.49	0.020	0.79	1771.41	0.000
	(31)							
L32	68.58 - 64.5	TP29.22x28.22x0.463	14.18	727.60	0.019	0.79	1781.74	0.000
	(32)							
L33	64.5 - 63.25	TP29.026x27.801x0.519	14.66	835.70	0.018	0.79	2095.61	0.000
	(33)							
L34	63.25 - 58.25	TP30.251x29.026x0.513	15.08	861.29	0.018	0.79	2253.06	0.000
	(34)							
L35	58.25 - 53.25	TP31.476x30.251x0.5	15.49	875.25	0.018	0.79	2384.85	0.000
	(35)							
L36	53.25 - 48.25	TP32.701x31.476x0.488	15.89	887.46	0.018	0.79	2514.72	0.000
	(36)							
L37	48.25 - 42.5	TP34.11x32.701x0.488	16.01	897.59	0.018	0.79	2572.43	0.000
	(37)							
L38	42.5 - 41.83	TP33.648x32.444x0.519	16.46	971.28	0.017	0.79	2830.44	0.000
	(38)							
L39	41.83 - 41.58	TP33.709x33.648x0.344	16.48	648.24	0.025	0.79	1902.53	0.000
	(39)							
L40	41.58 - 41.17	TP33.81x33.709x0.344	16.51	650.19	0.025	0.79	1913.99	0.000
	(40)							
L41	41.17 - 40.92	TP33.871x33.81x0.519	16.53	977.81	0.017	0.79	2868.63	0.000
	(41)							
L42	40.92 - 35.92	TP35.095x33.871x0.506	16.91	989.62	0.017	0.79	3010.91	0.000
	(42)							
L43	35.92 - 30.92	TP36.318x35.095x0.506	17.27	1024.64	0.017	0.79	3227.75	0.000
	(43)							
L44	30.92 - 25.92	TP37.542x36.318x0.494	17.62	1033.84	0.017	0.79	3369.17	0.000
	(44)							
L45	25.92 - 20.25	TP38.93x37.542x0.494	17.66	1038.42	0.017	0.79	3399.06	0.000
	(45)							
L46	20.25 - 19.25	TP38.49x37.019x0.525	18.15	1126.35	0.016	0.79	3761.44	0.000
	(46)							
L47	19.25 - 14.15	TP39.74x38.49x0.519	18.51	1149.78	0.016	0.79	3966.81	0.000
	(47)							

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L48	14.15 - 13.92 (48)	TP39.797x39.74x0.519	18.52	1151.44	0.016	0.79	3978.22	0.000
L49	13.92 - 8.92 (49)	TP41.023x39.797x0.513	18.88	1173.25	0.016	0.79	4180.77	0.000
L50	8.92 - 3.92 (50)	TP42.249x41.023x0.513	19.02	1187.46	0.016	0.79	4231.54	0.000
L51	3.92 - 0 (51)	TP43.21x42.249x0.506	19.51	1221.70	0.016	0.79	4589.13	0.000

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876314 TOWER ID: C_BASELEVEL

APPENDIX C

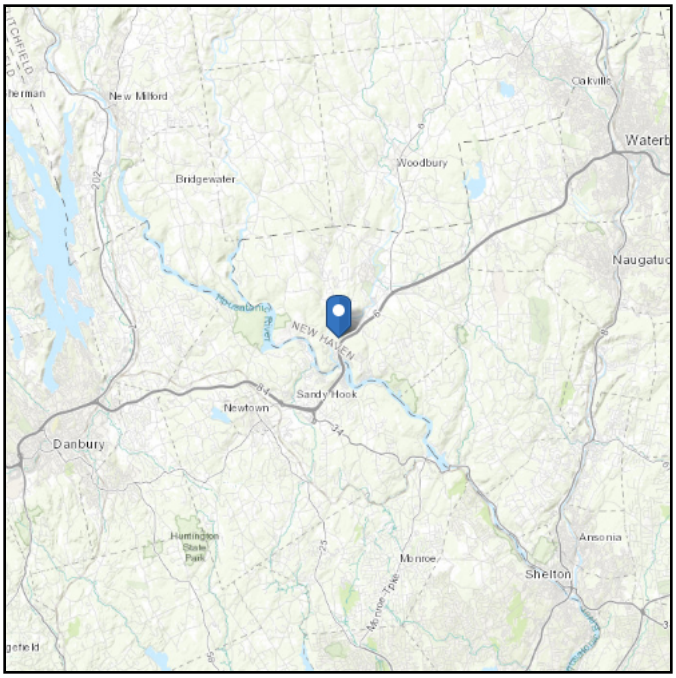
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 445.14 ft (NAVD 88)
Latitude: 41.452214
Longitude: -73.250347



Wind

Results:

Wind Speed:	119 Vmph	***Southbury, CT requires 120 mph Vult**
10-year MRI	76 Vmph	
25-year MRI	85 Vmph	
50-year MRI	91 Vmph	
100-year MRI	97 Vmph	

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Fri Jun 07 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.

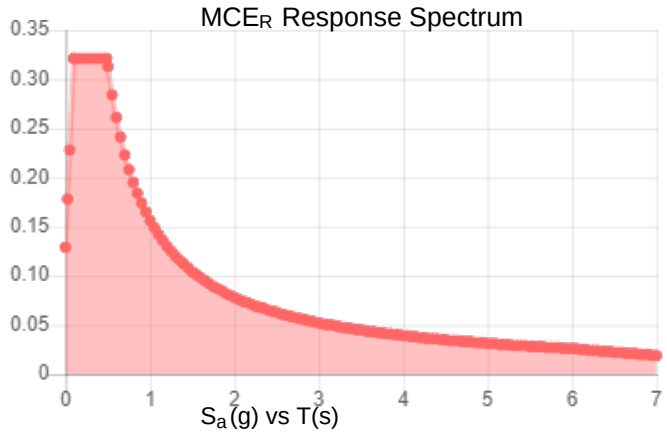
Seismic

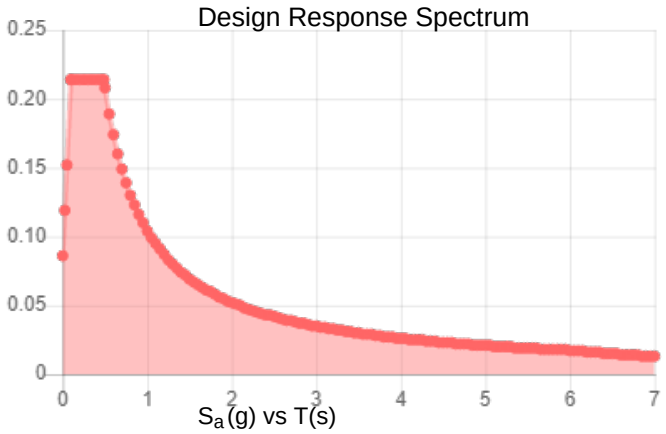
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.201	S_{DS} :	0.214
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.107
S_{MS} :	0.321	PGA_M :	0.169
S_{M1} :	0.156	F_{PGA} :	1.587
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Jun 07 2019

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Jun 07 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.

CCIpole

per TIA-222- H

Site BU: 876314

Work Order: 1729924

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	130	10	0	0	16	16	0.375		A500-42
2	120	28.5	3	12	16.00	22.98	0.1875	Auto	A607-60
3	94.5	30	3.75	12	21.87	29.22	0.25	Auto	A607-65
4	68.25	25.75	4.25	12	27.80	34.11	0.3125	Auto	A607-65
5	46.75	26.5	5	12	32.44	38.93	0.3438	Auto	A607-65
6	25.25	25.25	0	12	37.02	43.21	0.375	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	14.17	channel	MP3-04 (1.25in)	4			x			x			x			x
2	14.17	41.17	channel	MP3-04 (1.25in)	4	x			x			x			x		
3	41.83	68.83	channel	MP3-04 (1.25in)	4			x			x			x			x
4	68.83	86.92	channel	MP3-03 (1.25in)	3	x			x						x		
5	68.83	71.83	channel	MP3-03 (1.25in)	1							x					
6	80.75	88.25	channel	MP3-03 (1.25in)	1							x					
7	87.42	114.92	channel	MP3-03 (1.25in)	3			x						x			x
8	88.92	96.42	channel	MP3-03 (1.25in)	1						x						
9	96.42	103.92	channel	MP3-03 (1.25in)	2					x		x					
10	103.92	109.42	channel	MP3-03 (1.25in)	1						x						
11	109.42	114.92	channel	MP3-03 (1.25in)	2					x		x					
12																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.566	1.2500	A572-65
2	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.566	1.2500	A572-65
3	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.566	1.2500	A572-65
4	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
5	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
6	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
7	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
8	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
9	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
10	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
11	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	130 - 125	5		0	16.000	16.000	0.375	A500-42	1.000
2	125 - 120	5	0	0	16.000	16.000	0.375	A500-42	1.000
3	120 - 114.9	5.1		12	16.000	17.249	0.5125	A607-60	0.902
4	114.9 - 114.67	0.23		12	17.249	17.305	0.5125	A607-60	0.901
5	114.67 - 109.67	5		12	17.305	18.530	0.48125	A607-60	0.919
6	109.67 - 109.42	0.25		12	18.530	18.591	0.48125	A607-60	0.917
7	109.42 - 109.17	0.25		12	18.591	18.652	0.425	A607-60	0.916
8	109.17 - 104.17	5		12	18.652	19.877	0.4125	A607-60	0.912
9	104.17 - 103.92	0.25		12	19.877	19.938	0.40625	A607-60	0.925
10	103.92 - 103.67	0.25		12	19.938	19.999	0.45	A607-60	0.938
11	103.67 - 98.67	5		12	19.999	21.224	0.4375	A607-60	0.933
12	98.67 - 96.42	2.25		12	21.224	21.775	0.425	A607-60	0.947
13	96.42 - 96.17	0.25		12	21.775	21.836	0.3875	A607-60	0.925
14	96.17 - 94.5	4.67	3	12	21.836	22.980	0.38125	A607-60	0.932
15	94.5 - 89.5	5		12	21.870	23.095	0.4375	A607-65	0.943
16	89.5 - 88.92	0.58		12	23.095	23.237	0.4375	A607-65	0.940
17	88.92 - 88.67	0.25		12	23.237	23.299	0.325	A607-65	1.137
18	88.67 - 88.25	0.42		12	23.299	23.401	0.325	A607-65	1.135
19	88.25 - 88	0.25		12	23.401	23.463	0.4	A607-65	1.023
20	88 - 87.42	0.58		12	23.463	23.605	0.4	A607-65	1.020
21	87.42 - 87.17	0.25		12	23.605	23.666	0.25625	A607-65	1.127
22	87.17 - 86.92	0.25		12	23.666	23.727	0.25625	A607-65	1.127
23	86.92 - 86.67	0.25		12	23.727	23.789	0.43125	A607-65	0.945
24	86.67 - 81.67	5		12	23.789	25.014	0.41875	A607-65	0.954
25	81.67 - 80.75	0.92		12	25.014	25.239	0.41875	A607-65	0.951
26	80.75 - 80.5	0.25		12	25.239	25.300	0.31875	A607-65	1.129
27	80.5 - 75.5	5		12	25.300	26.525	0.31875	A607-65	1.113
28	75.5 - 71.83	3.67		12	26.525	27.424	0.3125	A607-65	1.123
29	71.83 - 71.58	0.25		12	27.424	27.485	0.4	A607-65	0.964
30	71.58 - 68.83	2.75		12	27.485	28.159	0.4	A607-65	0.956
31	68.83 - 68.58	0.25		12	28.159	28.220	0.4625	A607-65	0.945
32	68.58 - 68.25	4.08	3.75	12	28.220	29.220	0.4625	A607-65	0.944
33	68.25 - 63.25	5		12	27.801	29.026	0.51875	A607-65	0.954
34	63.25 - 58.25	5		12	29.026	30.251	0.5125	A607-65	0.951
35	58.25 - 53.25	5		12	30.251	31.476	0.5	A607-65	0.961
36	53.25 - 48.25	5		12	31.476	32.701	0.4875	A607-65	0.972
37	48.25 - 46.75	5.75	4.25	12	32.701	34.110	0.4875	A607-65	0.968
38	46.75 - 41.83	4.92		12	32.444	33.648	0.5188	A607-65	0.965
39	41.83 - 41.58	0.25		12	33.648	33.709	0.3438	A607-65	1.000
40	41.58 - 41.17	0.41		12	33.709	33.810	0.3438	A607-65	1.000
41	41.17 - 40.92	0.25		12	33.810	33.871	0.5188	A607-65	0.963
42	40.92 - 35.92	5		12	33.871	35.095	0.5063	A607-65	0.976
43	35.92 - 30.92	5		12	35.095	36.318	0.5063	A607-65	0.965
44	30.92 - 25.92	5		12	36.318	37.542	0.4938	A607-65	0.980
45	25.92 - 25.25	5.67	5	12	37.542	38.930	0.4938	A607-65	0.979
46	25.25 - 19.25	6		12	37.019	38.490	0.525	A607-65	0.975
47	19.25 - 14.15	5.1		12	38.490	39.740	0.51875	A607-65	0.978
48	14.15 - 13.92	0.23		12	39.740	39.797	0.51875	A607-65	0.978
49	13.92 - 8.92	5		12	39.797	41.023	0.5125	A607-65	0.982
50	8.92 - 3.92	5		12	41.023	42.249	0.5125	A607-65	0.974
51	3.92 - 0	3.92		12	42.249	43.210	0.50625	A607-65	0.981

TNX Section Forces

Increment (ft): 5		TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	130 - 125	2.80	13.63	2.76
2	125 - 120	3.21	27.87	2.94
3	120 - 114.9	7.72	57.25	6.20
4	114.9 - 114.67	7.75	58.68	6.22
5	114.67 - 109.67	8.29	90.83	6.78
6	109.67 - 109.42	8.32	92.52	6.80
7	109.42 - 109.17	8.34	94.23	6.83
8	109.17 - 104.17	8.86	129.57	7.31
9	104.17 - 103.92	8.89	131.40	7.34
10	103.92 - 103.67	8.92	133.24	7.36
11	103.67 - 98.67	13.50	175.87	11.28
12	98.67 - 96.42	13.81	201.52	11.52
13	96.42 - 96.17	13.85	204.41	11.54
14	96.17 - 94.5	14.06	223.82	11.71
15	94.5 - 89.5	15.11	283.76	12.25
16	89.5 - 88.92	15.20	290.88	12.31
17	88.92 - 88.67	15.24	293.96	12.34
18	88.67 - 88.25	15.30	299.15	12.38
19	88.25 - 88	15.34	302.24	12.41
20	88 - 87.42	15.43	309.46	12.47
21	87.42 - 87.17	15.46	312.57	12.49
22	87.17 - 86.92	15.50	315.70	12.52
23	86.92 - 86.67	15.54	318.83	12.54
24	86.67 - 81.67	16.35	382.80	13.06
25	81.67 - 80.75	16.50	394.84	13.14
26	80.75 - 80.5	16.54	398.13	13.15
27	80.5 - 75.5	17.42	465.23	13.60
28	75.5 - 71.83	18.03	515.61	13.88
29	71.83 - 71.58	18.08	519.08	13.90
30	71.58 - 68.83	18.56	557.60	14.14
31	68.83 - 68.58	18.62	561.13	14.15
32	68.58 - 68.25	18.68	565.80	14.18
33	68.25 - 63.25	20.37	637.89	14.66
34	63.25 - 58.25	21.50	712.17	15.08
35	58.25 - 53.25	22.66	788.53	15.49
36	53.25 - 48.25	23.84	866.92	15.89
37	48.25 - 46.75	24.20	890.83	16.01
38	46.75 - 41.83	26.31	970.65	16.46
39	41.83 - 41.58	26.36	974.76	16.48
40	41.58 - 41.17	26.44	981.52	16.51
41	41.17 - 40.92	26.51	985.65	16.53
42	40.92 - 35.92	27.82	1069.18	16.91
43	35.92 - 30.92	29.16	1154.55	17.27
44	30.92 - 25.92	30.53	1241.68	17.62
45	25.92 - 25.25	30.72	1253.49	17.66
46	25.25 - 19.25	33.65	1360.87	18.15
47	19.25 - 14.15	35.18	1454.26	18.51
48	14.15 - 13.92	35.25	1458.51	18.52
49	13.92 - 8.92	36.78	1551.94	18.88
50	8.92 - 3.92	38.34	1647.15	19.24
51	3.92 - 0	39.59	1723.02	19.51

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
130 - 125	Pole	TP16x16x0.375	Pole	4.9%	Pass
125 - 120	Pole	TP16x16x0.375	Pole	9.6%	Pass
120 - 114.9	Pole + Reinf.	TP17.249x16x0.5125	Reinf. 7 Bolt-Shaft Bearing	14.6%	Pass
114.9 - 114.67	Pole + Reinf.	TP17.305x17.249x0.5125	Reinf. 7 Tension Rupture	14.2%	Pass
114.67 - 109.67	Pole + Reinf.	TP18.53x17.305x0.4813	Reinf. 7 Tension Rupture	19.7%	Pass
109.67 - 109.42	Pole + Reinf.	TP18.591x18.53x0.4813	Reinf. 7 Tension Rupture	20.0%	Pass
109.42 - 109.17	Pole + Reinf.	TP18.652x18.591x0.425	Reinf. 10 Bolt-Shaft Bearing	22.0%	Pass
109.17 - 104.17	Pole + Reinf.	TP19.877x18.652x0.4125	Reinf. 7 Tension Rupture	26.1%	Pass
104.17 - 103.92	Pole + Reinf.	TP19.938x19.877x0.4063	Reinf. 10 Bolt-Shaft Bearing	27.6%	Pass
103.92 - 103.67	Pole + Reinf.	TP19.999x19.938x0.45	Reinf. 7 Tension Rupture	25.7%	Pass
103.67 - 98.67	Pole + Reinf.	TP21.224x19.999x0.4375	Reinf. 7 Tension Rupture	31.3%	Pass
98.67 - 96.42	Pole + Reinf.	TP21.775x21.224x0.425	Reinf. 7 Tension Rupture	34.4%	Pass
96.42 - 96.17	Pole + Reinf.	TP21.836x21.775x0.3875	Reinf. 8 Bolt-Shaft Bearing	37.6%	Pass
96.17 - 94.5	Pole + Reinf.	TP22.98x21.836x0.3813	Reinf. 7 Tension Rupture	38.2%	Pass
94.5 - 89.5	Pole + Reinf.	TP23.095x21.87x0.4375	Reinf. 7 Tension Rupture	38.9%	Pass
89.5 - 88.92	Pole + Reinf.	TP23.237x23.095x0.4375	Reinf. 7 Tension Rupture	39.5%	Pass
88.92 - 88.67	Pole + Reinf.	TP23.299x23.237x0.325	Reinf. 7 Tension Rupture	45.8%	Pass
88.67 - 88.25	Pole + Reinf.	TP23.401x23.299x0.325	Reinf. 7 Tension Rupture	46.3%	Pass
88.25 - 88	Pole + Reinf.	TP23.463x23.401x0.4	Reinf. 7 Tension Rupture	42.3%	Pass
88 - 87.42	Pole + Reinf.	TP23.605x23.463x0.4	Reinf. 7 Tension Rupture	42.9%	Pass
87.42 - 87.17	Pole + Reinf.	TP23.666x23.605x0.2563	Pole	48.5%	Pass
87.17 - 86.92	Pole + Reinf.	TP23.727x23.666x0.2563	Pole	48.8%	Pass
86.92 - 86.67	Pole + Reinf.	TP23.789x23.727x0.4313	Reinf. 4 Tension Rupture	41.6%	Pass
86.67 - 81.67	Pole + Reinf.	TP25.014x23.789x0.4188	Reinf. 4 Tension Rupture	46.0%	Pass
81.67 - 80.75	Pole + Reinf.	TP25.239x25.014x0.4188	Reinf. 4 Tension Rupture	46.8%	Pass
80.75 - 80.5	Pole + Reinf.	TP25.3x25.239x0.3188	Reinf. 4 Tension Rupture	53.6%	Pass
80.5 - 75.5	Pole + Reinf.	TP26.525x25.3x0.3188	Reinf. 4 Tension Rupture	57.6%	Pass
75.5 - 71.83	Pole + Reinf.	TP27.424x26.525x0.3125	Reinf. 4 Tension Rupture	60.1%	Pass
71.83 - 71.58	Pole + Reinf.	TP27.485x27.424x0.4	Reinf. 4 Tension Rupture	53.3%	Pass
71.58 - 68.83	Pole + Reinf.	TP28.159x27.485x0.4	Reinf. 4 Tension Rupture	55.0%	Pass
68.83 - 68.58	Pole + Reinf.	TP28.22x28.159x0.4625	Reinf. 3 Tension Rupture	47.7%	Pass
68.58 - 68.25	Pole + Reinf.	TP29.22x28.22x0.4625	Reinf. 3 Tension Rupture	47.9%	Pass
68.25 - 63.25	Pole + Reinf.	TP29.026x27.801x0.5188	Reinf. 3 Tension Rupture	45.6%	Pass
63.25 - 58.25	Pole + Reinf.	TP30.251x29.026x0.5125	Reinf. 3 Tension Rupture	47.5%	Pass
58.25 - 53.25	Pole + Reinf.	TP31.476x30.251x0.5	Reinf. 3 Tension Rupture	49.3%	Pass
53.25 - 48.25	Pole + Reinf.	TP32.701x31.476x0.4875	Reinf. 3 Tension Rupture	50.8%	Pass
48.25 - 46.75	Pole + Reinf.	TP34.11x32.701x0.4875	Reinf. 3 Tension Rupture	51.2%	Pass
46.75 - 41.83	Pole + Reinf.	TP33.648x32.444x0.5188	Reinf. 3 Tension Rupture	51.0%	Pass
41.83 - 41.58	Pole	TP33.709x33.648x0.3438	Pole	54.0%	Pass
41.58 - 41.17	Pole	TP33.81x33.709x0.3438	Pole	54.1%	Pass
41.17 - 40.92	Pole + Reinf.	TP33.871x33.81x0.5188	Reinf. 2 Tension Rupture	51.2%	Pass
40.92 - 35.92	Pole + Reinf.	TP35.095x33.871x0.5063	Reinf. 2 Tension Rupture	52.3%	Pass
35.92 - 30.92	Pole + Reinf.	TP36.318x35.095x0.5063	Reinf. 2 Tension Rupture	53.2%	Pass
30.92 - 25.92	Pole + Reinf.	TP37.542x36.318x0.4938	Reinf. 2 Tension Rupture	54.1%	Pass
25.92 - 25.25	Pole + Reinf.	TP38.93x37.542x0.4938	Reinf. 2 Tension Rupture	54.2%	Pass
25.25 - 19.25	Pole + Reinf.	TP38.49x37.019x0.525	Reinf. 2 Tension Rupture	53.4%	Pass
19.25 - 14.15	Pole + Reinf.	TP39.74x38.49x0.5188	Reinf. 1 Tension Rupture	54.0%	Pass
14.15 - 13.92	Pole + Reinf.	TP39.797x39.74x0.5188	Reinf. 1 Tension Rupture	54.0%	Pass
13.92 - 8.92	Pole + Reinf.	TP41.023x39.797x0.5125	Reinf. 1 Tension Rupture	54.5%	Pass
8.92 - 3.92	Pole + Reinf.	TP42.249x41.023x0.5125	Reinf. 1 Tension Rupture	54.9%	Pass
3.92 - 0	Pole + Reinf.	TP43.21x42.249x0.5063	Reinf. 1 Tension Rupture	55.2%	Pass
				Summary	
			Pole	54.1%	Pass
			Reinforcement	60.1%	Pass
			Overall	60.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*											
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11
130 - 125	562	n/a	562	18.41	n/a	18.41	4.9%											
125 - 120	562	n/a	562	18.41	n/a	18.41	9.6%											
120 - 114.9	390	602	992	10.29	14.60	24.89	9.8%							14.6%				12.4%
114.9 - 114.67	394	606	1000	10.32	14.60	24.92	10.0%							14.2%				12.1%
114.67 - 109.67	484	689	1172	11.06	14.60	25.66	14.3%							19.7%				16.9%
109.67 - 109.42	489	693	1182	11.10	14.60	25.70	14.5%							20.0%				17.9%
109.42 - 109.17	486	578	1064	11.13	11.68	22.81	15.2%							21.0%			22.0%	
109.17 - 104.17	589	651	1240	11.87	11.68	23.55	19.4%							26.1%			26.1%	
104.17 - 103.92	595	655	1249	11.91	11.68	23.59	19.6%							26.4%			27.6%	
103.92 - 103.67	609	795	1404	11.94	14.60	26.54	19.2%							25.7%		23.2%		
103.67 - 98.67	728	890	1618	12.68	14.60	27.28	24.0%							31.3%		27.1%		
98.67 - 96.42	787	934	1721	13.01	14.60	27.61	26.7%							34.4%		31.3%		
96.42 - 96.17	783	777	1560	13.05	11.68	24.73	27.8%							35.9%	37.6%			
96.17 - 94.5	828	805	1633	13.30	11.68	24.98	29.8%							38.2%	38.2%			
94.5 - 89.5	1227	864	2091	18.36	11.68	30.04	25.9%							38.9%	38.9%			
89.5 - 88.92	1250	874	2124	18.48	11.68	30.16	26.4%							39.5%	39.5%			
88.92 - 88.67	1292	362	1654	18.53	8.76	27.29	37.9%							45.8%				
88.67 - 88.25	1309	365	1674	18.61	8.76	27.37	38.3%							46.3%				
88.25 - 88	1288	746	2034	18.66	11.68	30.34	29.9%						39.0%	42.3%				
88 - 87.42	1312	755	2066	18.77	11.68	30.45	30.4%						39.6%	42.9%				
87.42 - 87.17	1325	24	1349	18.82	2.92	21.74	48.5%						46.5%					
87.17 - 86.92	1335	24	1359	18.87	2.92	21.79	48.8%						46.8%					
86.92 - 86.67	1342	914	2256	18.92	11.68	30.60	28.0%				41.6%		41.6%					
86.67 - 81.67	1562	1005	2568	19.91	11.68	31.59	31.6%				46.0%		46.0%					
81.67 - 80.75	1605	1023	2628	20.09	11.68	31.77	32.2%				46.8%		46.8%					
80.75 - 80.5	1653	427	2081	20.14	8.76	28.90	45.2%				53.6%							
80.5 - 75.5	1905	470	2375	21.12	8.76	29.88	49.3%				57.6%							
75.5 - 71.83	2105	503	2608	21.84	8.76	30.60	52.0%				60.1%							
71.83 - 71.58	2079	1203	3282	21.89	11.68	33.57	38.1%				53.3%	53.3%						
71.58 - 68.83	2237	1260	3497	22.43	11.68	34.11	39.8%				55.0%	55.0%						
68.83 - 68.58	2251	1799	4050	22.48	16.52	39.00	34.7%			47.7%								
68.58 - 68.25	2271	1809	4080	22.55	16.52	39.07	34.9%			47.9%								
68.25 - 63.25	3045	1898	4943	28.85	16.52	45.37	30.8%			45.6%								
63.25 - 58.25	3451	2054	5505	30.08	16.52	46.60	32.6%			47.5%								
58.25 - 53.25	3893	2216	6109	31.31	16.52	47.83	34.3%			49.3%								
53.25 - 48.25	4370	2385	6755	32.54	16.52	49.06	36.0%			50.8%								
48.25 - 46.75	4520	2437	6957	32.91	16.52	49.43	36.5%			51.2%								
46.75 - 41.83	5227	2519	7746	36.82	16.52	53.34	35.2%			51.0%								
41.83 - 41.58	5256	n/a	5256	36.88	n/a	36.88	54.0%											
41.58 - 41.17	5303	n/a	5303	36.99	n/a	36.99	54.1%											
41.17 - 40.92	5332	2552	7884	37.06	16.52	53.58	35.5%		51.2%									
40.92 - 35.92	5938	2732	8670	38.42	16.52	54.94	36.8%		52.3%									
35.92 - 30.92	6587	2919	9506	39.77	16.52	56.29	38.0%		53.2%									
30.92 - 25.92	7283	3112	10395	41.12	16.52	57.64	39.2%		54.1%									
25.92 - 25.25	7380	3138	10518	41.30	16.52	57.82	39.3%		54.2%									
25.25 - 19.25	8546	3265	11811	45.96	16.52	62.48	37.8%		53.4%									
19.25 - 14.15	9415	3473	12888	47.47	16.52	63.99	38.7%	54.0%										
14.15 - 13.92	9455	3483	12938	47.53	16.52	64.05	38.7%	54.0%										
13.92 - 8.92	10365	3694	14059	49.01	16.52	65.53	39.6%	54.5%										
8.92 - 3.92	11331	3911	15242	50.49	16.52	67.01	40.5%	54.9%										
3.92 - 0	12130	4085	16215	51.65	16.52	68.17	41.1%	55.2%										

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

Monopole Flange Plate Connection

Elevation = 120 ft.

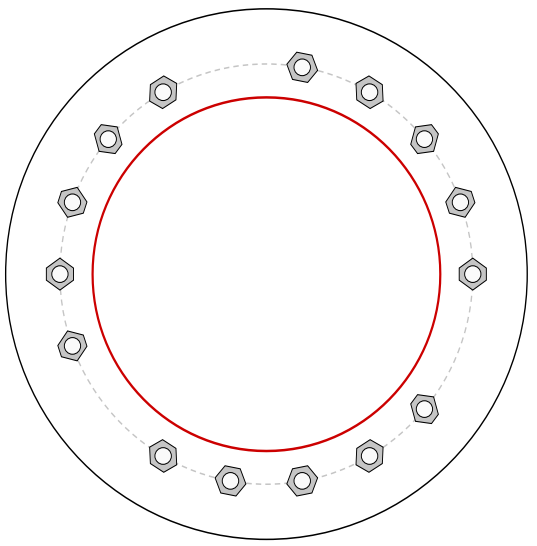
BU #	876314
Site Name	Horse Hill
Order #	479810 Rev. 0

TIA-222 Revision	H

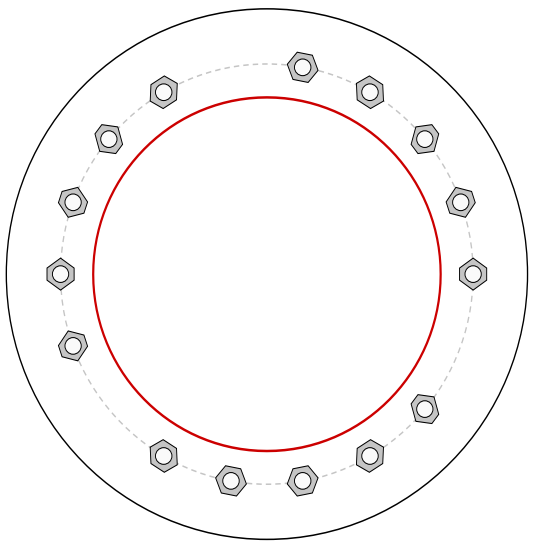
Applied Loads	
Moment (kip-ft)	27.87
Axial Force (kips)	3.21
Shear Force (kips)	2.94

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(15) 3/4" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 19" BC

Top Plate Data

24" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

16" x 0.375" round pole (A500-42; Fy=42 ksi, Fu=58 ksi)

Bottom Plate Data

24" OD x 0.75" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

16" x 0.1875" 12-sided pole (A607-60; Fy=60 ksi, Fu=75 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	4.48	
Allowable (kips)	30.06	
Stress Rating:	**14.2%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	2.76	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**8.1%**	**Pass**
Tension Side Stress Rating:	**3.4%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	11.05	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**32.5%**	**Pass**
Tension Side Stress Rating:	**13.7%**	**Pass**

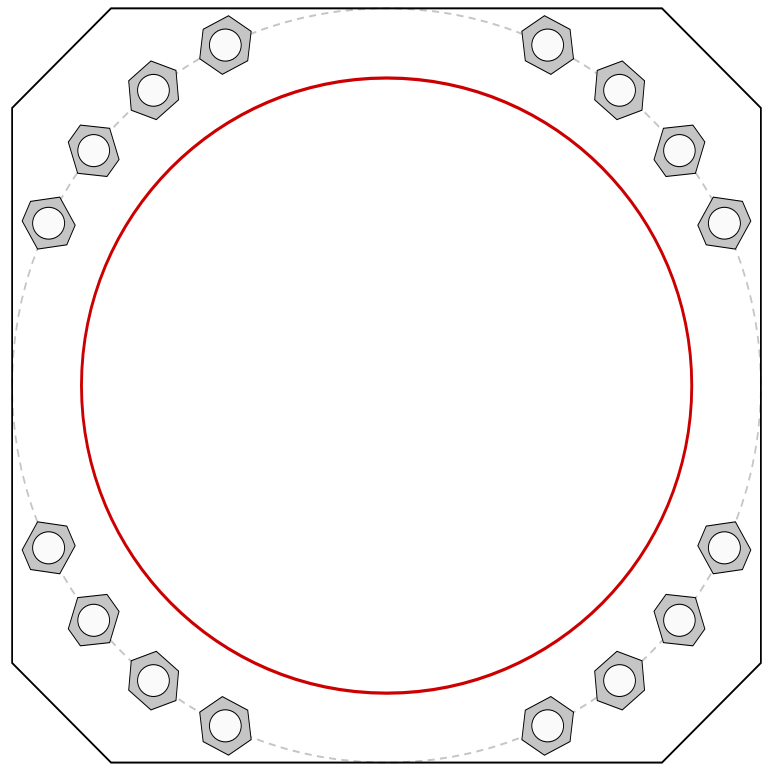
Monopole Base Plate Connection

Site Info	
BU #	876314
Site Name	Horse Hill
Order #	479810 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.25

Applied Loads	
Moment (kip-ft)	1723.02
Axial Force (kips)	39.59
Shear Force (kips)	19.51

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 53" BC

Anchor Spacing: 6 in

Base Plate Data

53" OD x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

43.21" x 0.375" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_c = 99.93	ϕPn_c = 243.75	**Stress Rating**
Vu = 1.22	ϕVn = 73.13	**39.1%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	22.05	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**46.7%**	**Pass**

Monopole on Mat Foundation with Rock Anchors - TIA-222-H

Site Data

Site Name:	Horse Hill
CCI Number:	BU 876314
TEP Job Number:	25675.265343

Factored Reactions from TNX		
Axial	40.0	k
Shear	20.0	k
Moment	1723.0	k-ft

Mat and Pier Properties		
Mat Width	16.5	ft
Mat Length	16.5	ft
Mat Thickness	4.0	ft
Pier Type	Round	
Pier Width/Diam.	6.0	ft
Pier Height	0.0	ft

Soil Properties		
q_{allow}	20.0	ksf
FS	2.0	
Subgrade Mod.	720	kcf
Rock Weight	165	pcf
Rock Cone Angle	30	deg

Rock Anchor Properties		
Type of Bar	Williams R1H Low Grade	
Bar Size	2.00	in
Net Area	2.43	in^2
Ultimate Stress, Fu	90.0	ksi
Yield Stress, Fy	70.0	ksi
Bar Diameter	2.000	in
Steel/Grout Bond[1]	270	psi
Grout/Rock Allow Bond	75	psi
FS	2	
Drilled Shaft Diam.	3.50	in
Frustum Volume	6244.10	ft^3

[1] Ultimate Bond Values

Spring Stiffness 546.6 k/in

Mat Foundation Results

Bearing Stress	11.2	ksf
Bearing Capacity, Φq_{allow}	30.0	ksf
% Capacity	35.7%	**Pass**

Mat and Pier Structural Results

Bending Moment	1315.22	kft
Flexural Capacity, ΦMn	4921.36	kft
% Capacity	25.5%	**Pass**

Rock Anchor Results

Max Tension Force	50.21	k
Anchor Capacity, ΦPn	163.8	k
% Capacity	29.2%	**Pass**

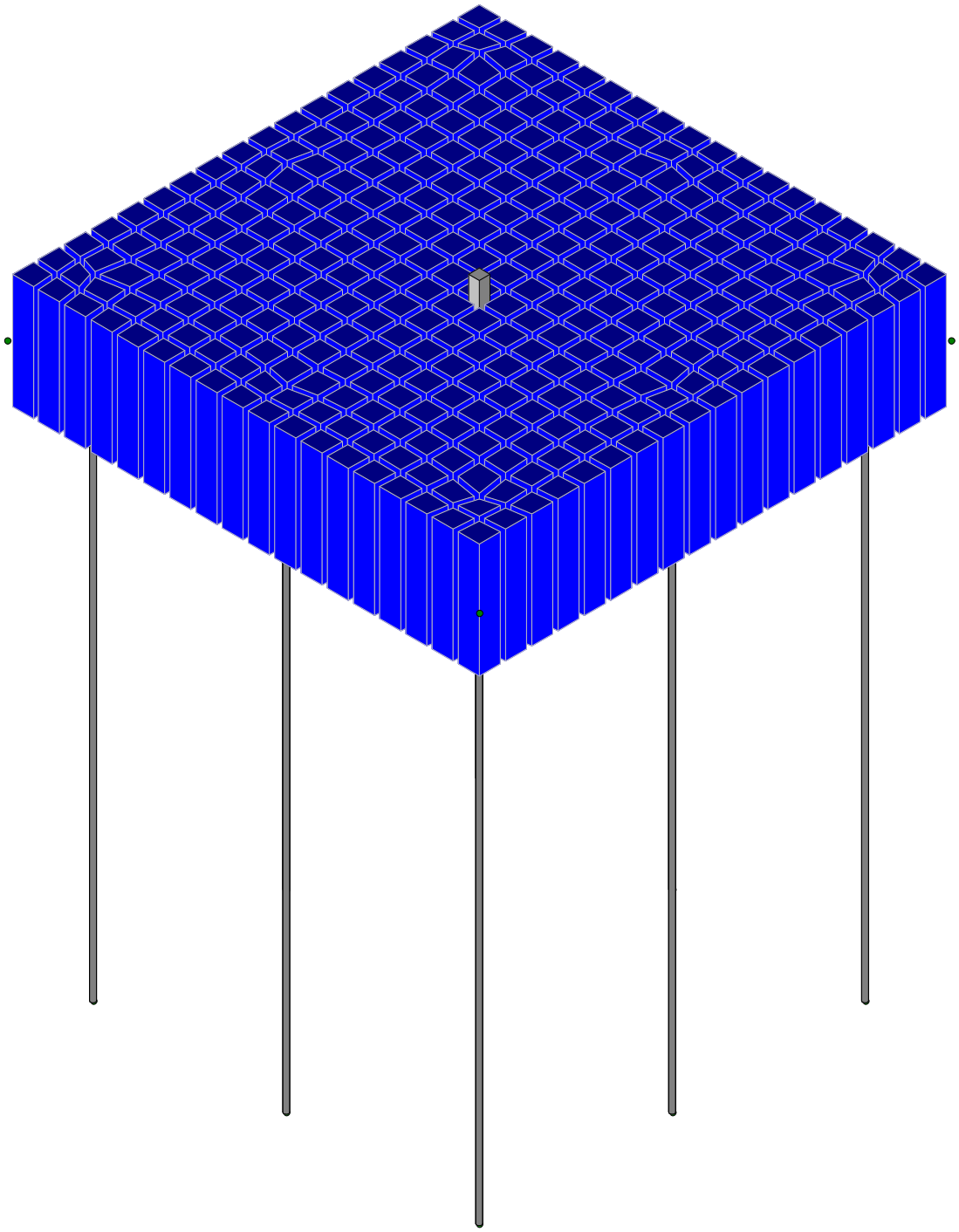
Bond Strength

Steel to Grout, ΦRn	305.36	k
Req. Bond Length, ld	10.7	ft
Grout to Rock, ΦRn	222.66	k
Req. Bond Length, ld	11.0	ft

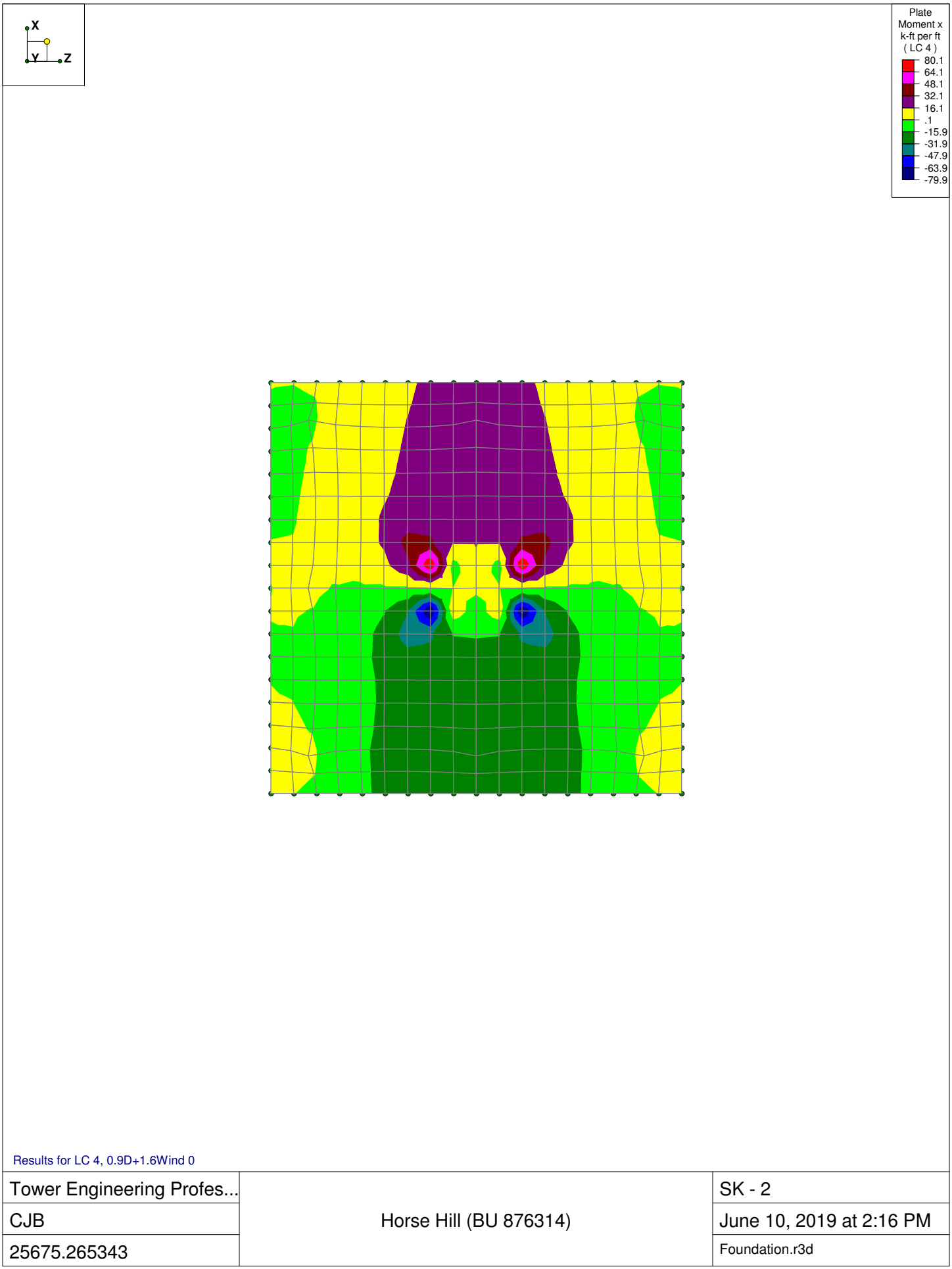
Controlling Capacity 163.82 k

Frustum Capacity

Frustum Weight	772.7	k
Applied Uplift	60.1	k
% Capacity	7.4%	**Pass**

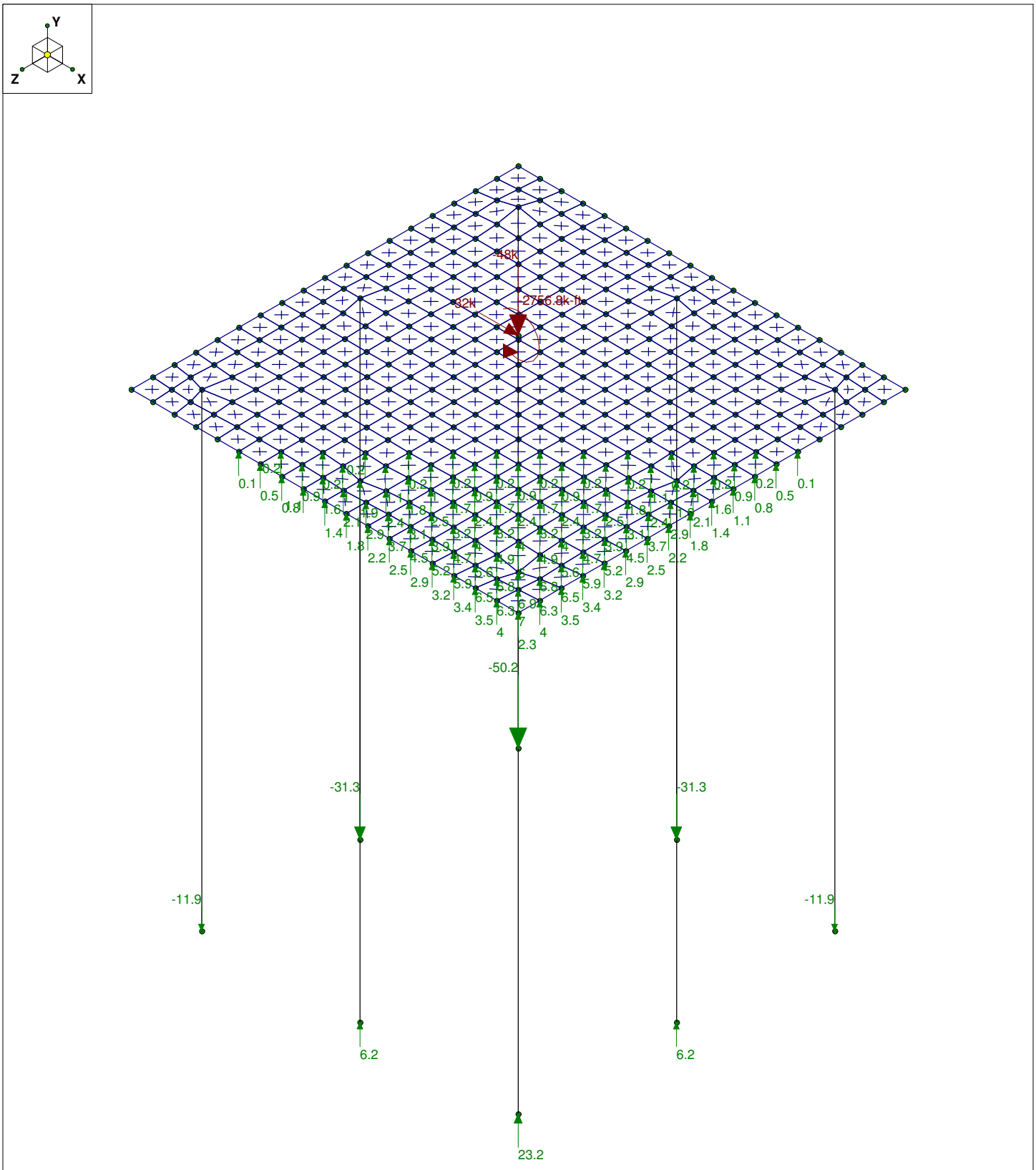


Tower Engineering Profes...	Horse Hill (BU 876314)	SK - 1
CJB		June 10, 2019 at 2:12 PM
25675.265343		Foundation.r3d



Results for LC 4, 0.9D+1.6Wind 0

Tower Engineering Profes...	Horse Hill (BU 876314)	SK - 2
CJB		June 10, 2019 at 2:16 PM
25675.265343		Foundation.r3d



Loads: LC 1, 1.2D+1.6Wind 0
Results for LC 6, 0.9D+1.6Wind 45
Y-direction Reaction Units are k and k-ft

Tower Engineering Profes...	Horse Hill (BU 876314)	SK - 3
CJB		June 10, 2019 at 2:14 PM
25675.265343		Foundation.r3d

Exhibit E

Mount Analysis

Date: **May 30, 2019**

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

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

Subject:	**Mount Modification Analysis**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11124H
	Carrier Site Name:	Southbury-W/ I-84
Crown Castle Designation:	**Crown Castle BU Number:**	876314
	Crown Castle Site Name:	HORSE HILL
	Crown Castle JDE Number:	559320
	Crown Castle Order Number:	479810 Revision 0
Engineering Firm Designation:	**MasTec Network Solutions Project Number:**	18543-MOD1
Site Data:	**214 Russian Village Rd, Southbury, New Haven County, CT 06488** **Latitude: 41° 27' 7.97" Longitude: -73° 15' 1.25"**	
Structure Information	**Tower Height & Type:**	130 ft Monopole
	Mount Elevation:	100 ft
	Mount Width & Type:	14 ft Platform Mount

Dear Charles McGuirt,

MasTec Network Solutions is pleased to submit this **"Mount Modification Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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

Platform Mount **Sufficient***

***Structure has sufficient capacity provided the proposed reinforcement is installed as recommended.**

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

Mount analysis prepared by: Elisa Mathon

Respectfully Submitted by:

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

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1) INTRODUCTION

This is a 14 ft Platform Mount mapped by P-SEC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
an ultimate:	120 mph
Exposure Category:	B
Topographic Category:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.201
Seismic S1:	0.065
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
100.0	100.0	6	ems	RR90-17-02DP	(1) Low Profile Platform
		3	rfs	APXVAARR24_43-U-NA20	
		3	ericsson	KRY 112 144/1	
		3	ericsson	KRY 112 489/2	
		3	ericsson	RADIO 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-MOUNT MAPPING	P-SEC	Project No. 19651-08	On File
4-ORDER INFORMATION	CROWN CASTLE	ORDER NO. 479810 REV. 0	CCIsites
4-MOUNT ANALYSIS	MasTec	Project No. 18543-MNT1	On File
4-MODIFICATION DRAWINGS	MasTec	Appendix E	On File

3.1) Analysis Method

RISA-3D (Version No. 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

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

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Mount Pipe	--	100	12.0	Pass
1	Interior Angle	--	100	11.8	Pass
1	Outer Standoff	--	100	13.1	Pass
1	Inner Standoff	--	100	27.3	Pass
1	Horizontal	--	100	49.0	Pass
1	Diagonals	--	100	33.5	Pass
1	Large Pipe Mount	--	100	36.1	Pass
1	MOD Angle	--	100	9.2	Pass

Structure Rating (max from all components) =	**49.0%**

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

4.1) Recommendations

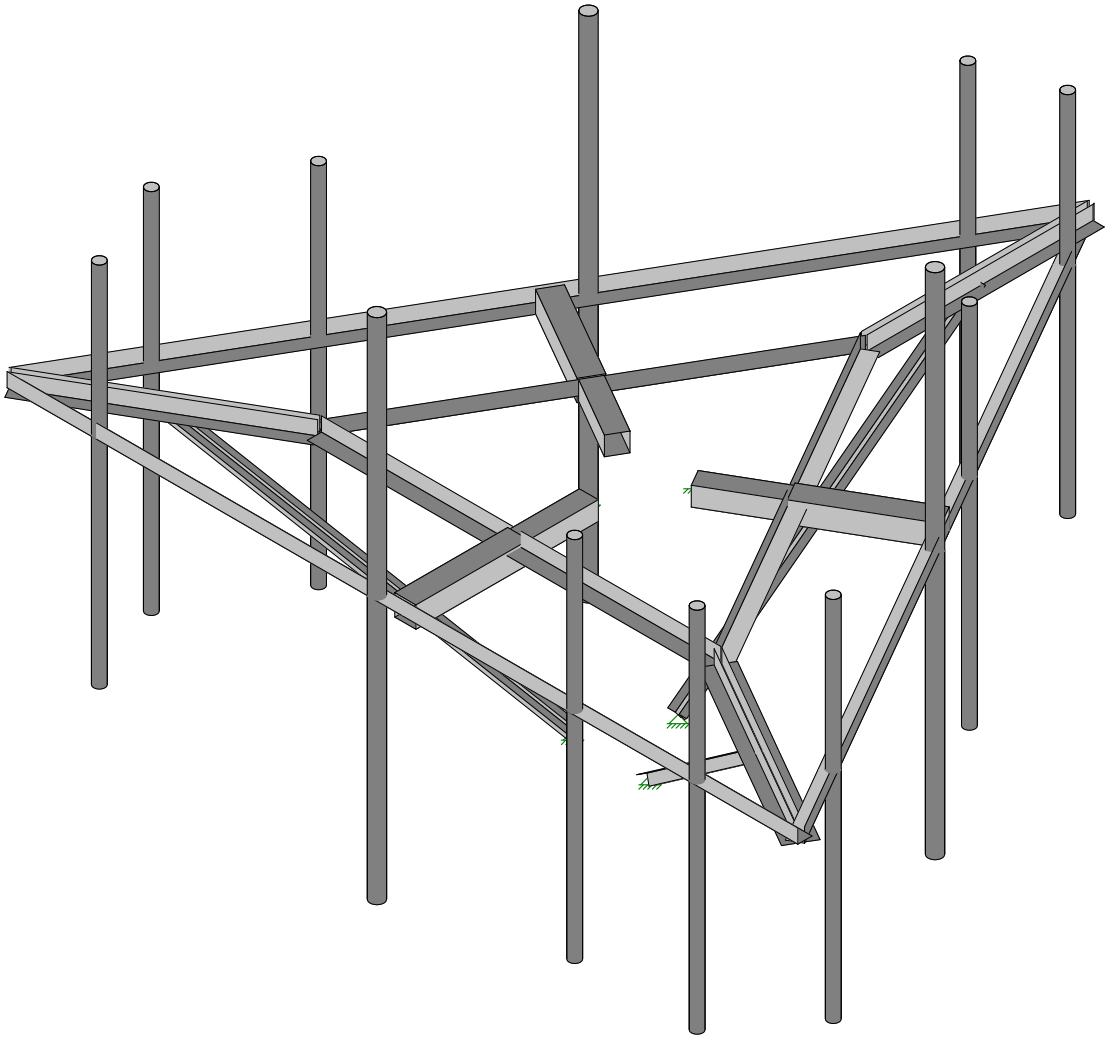
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Kicker, Sabre C10851202DP

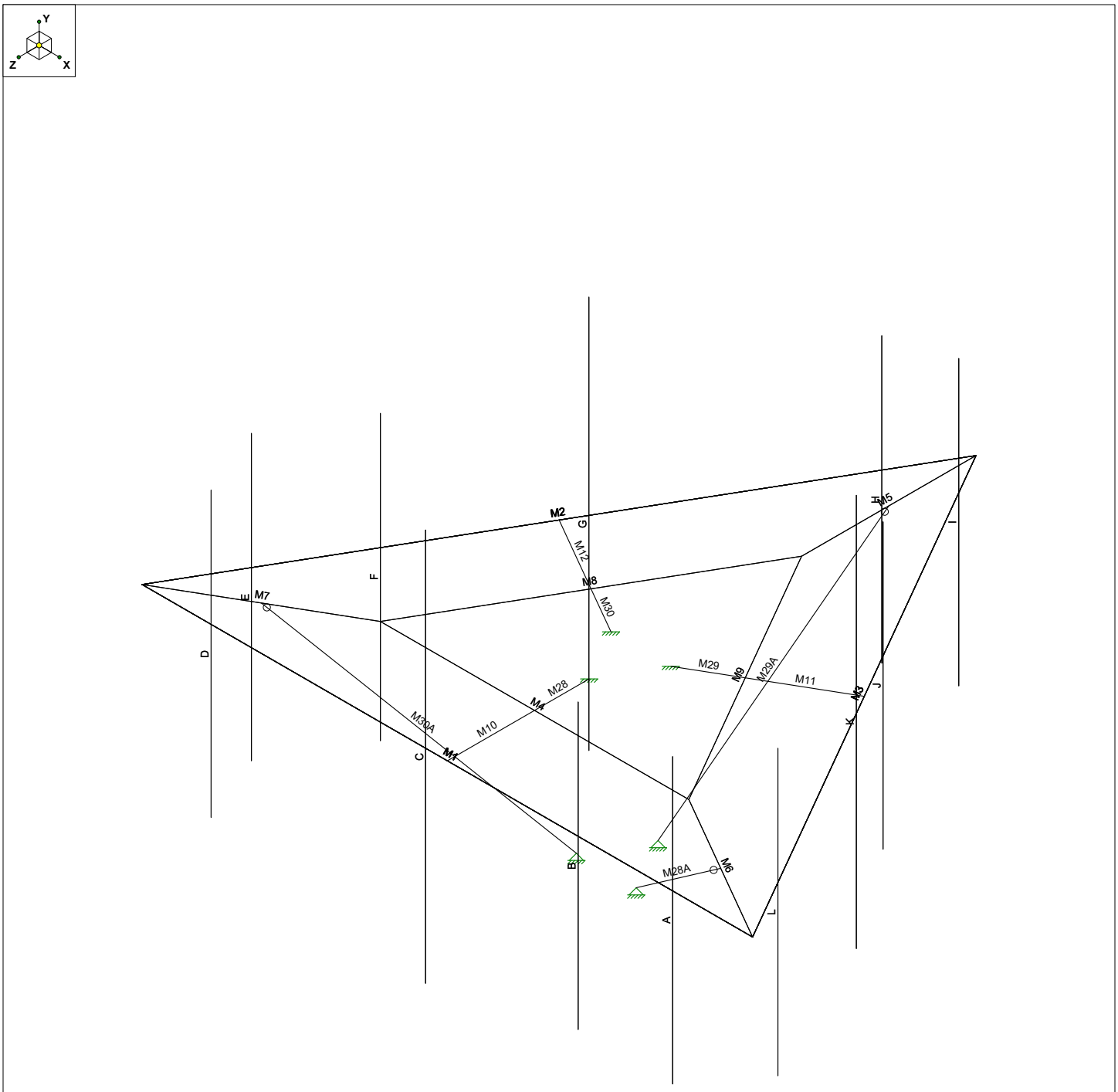
Engineering Detail Drawings have been provided in Appendix E- Mount Modification Drawings. Connection from the mount to the tower and local stresses on the tower are sufficient.

APPENDIX A

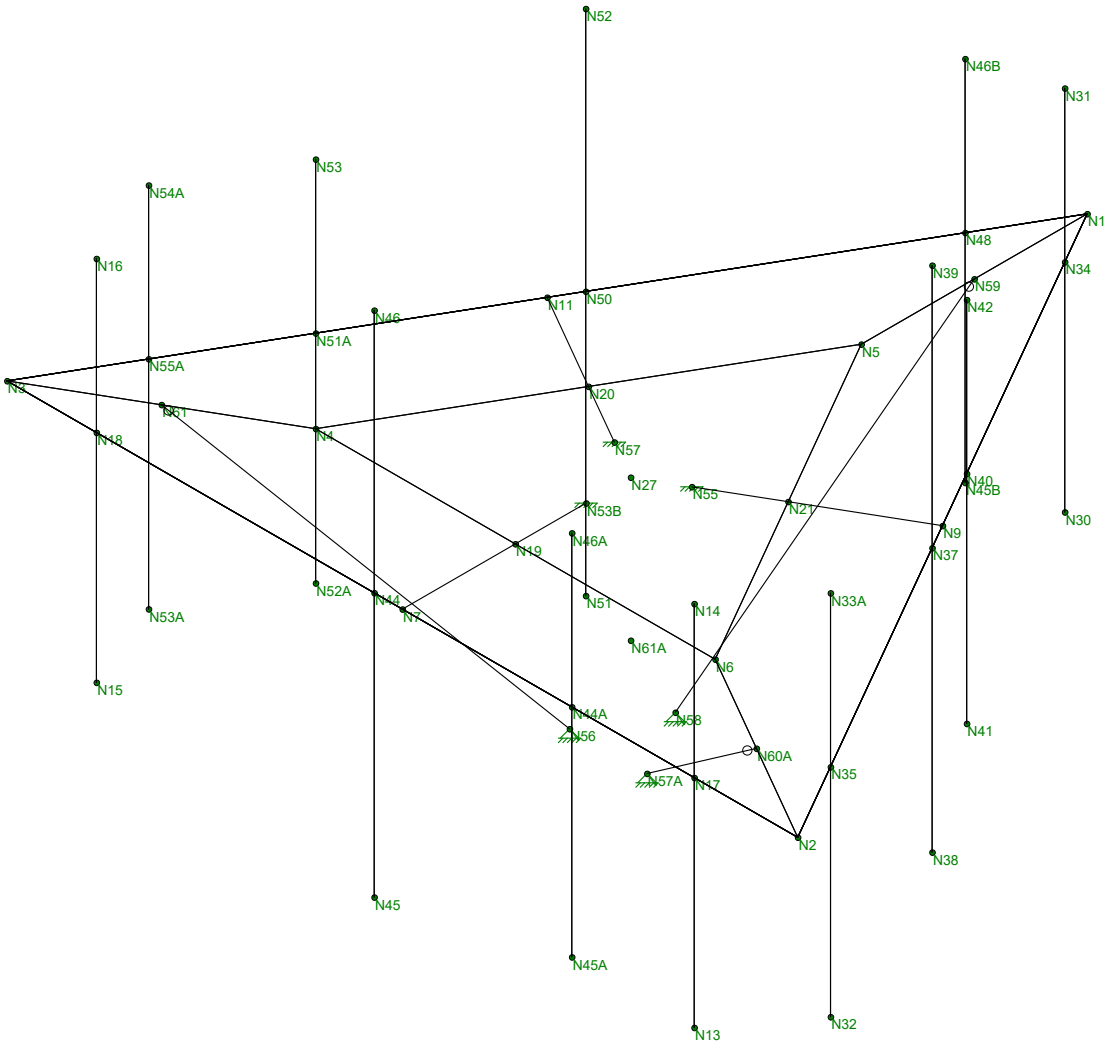
WIRE FRAME AND RENDERED MODELS



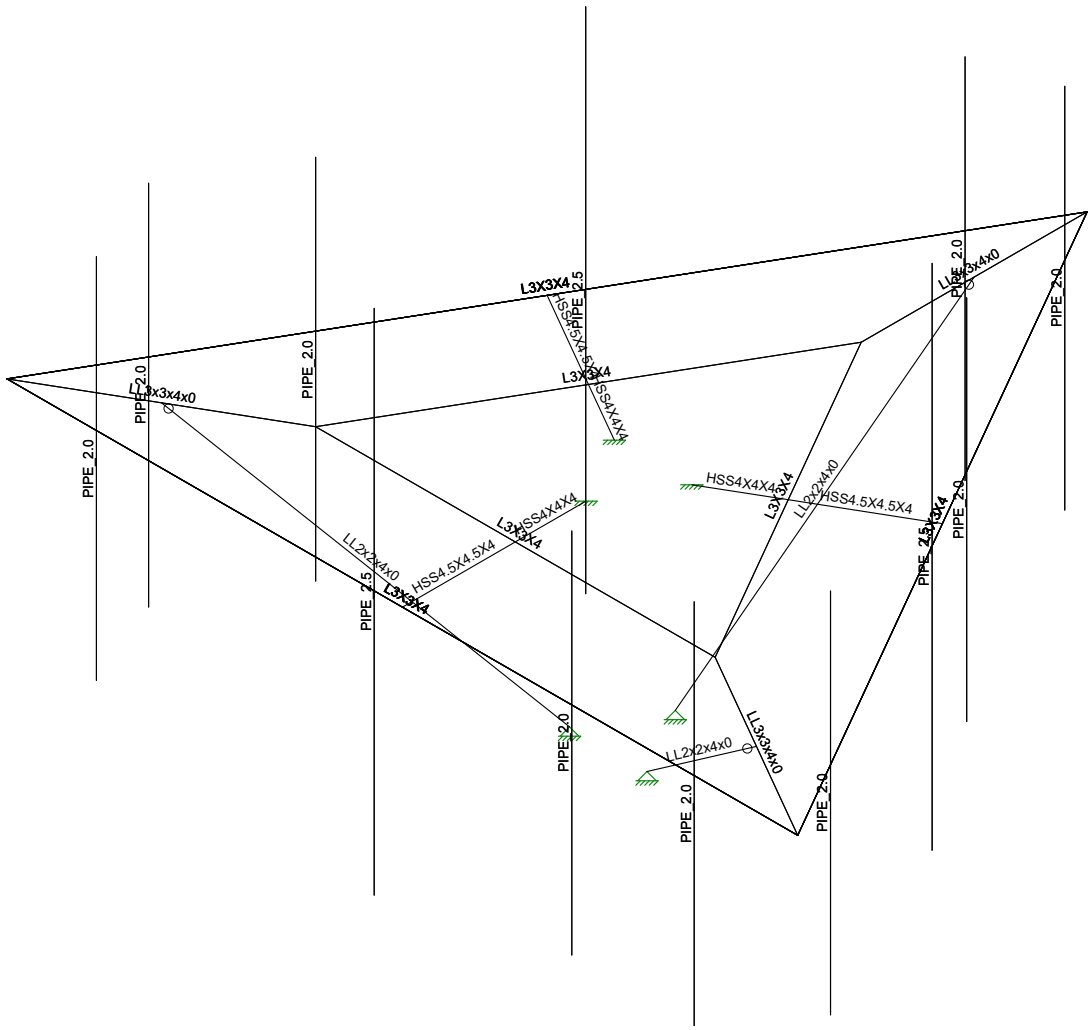
MasTec Network Solutions	876314-HORSE HILL	Rendered View
EJM		May 30, 2019 at 3:57 PM
18543-MOD1		18543 - mod.R3D



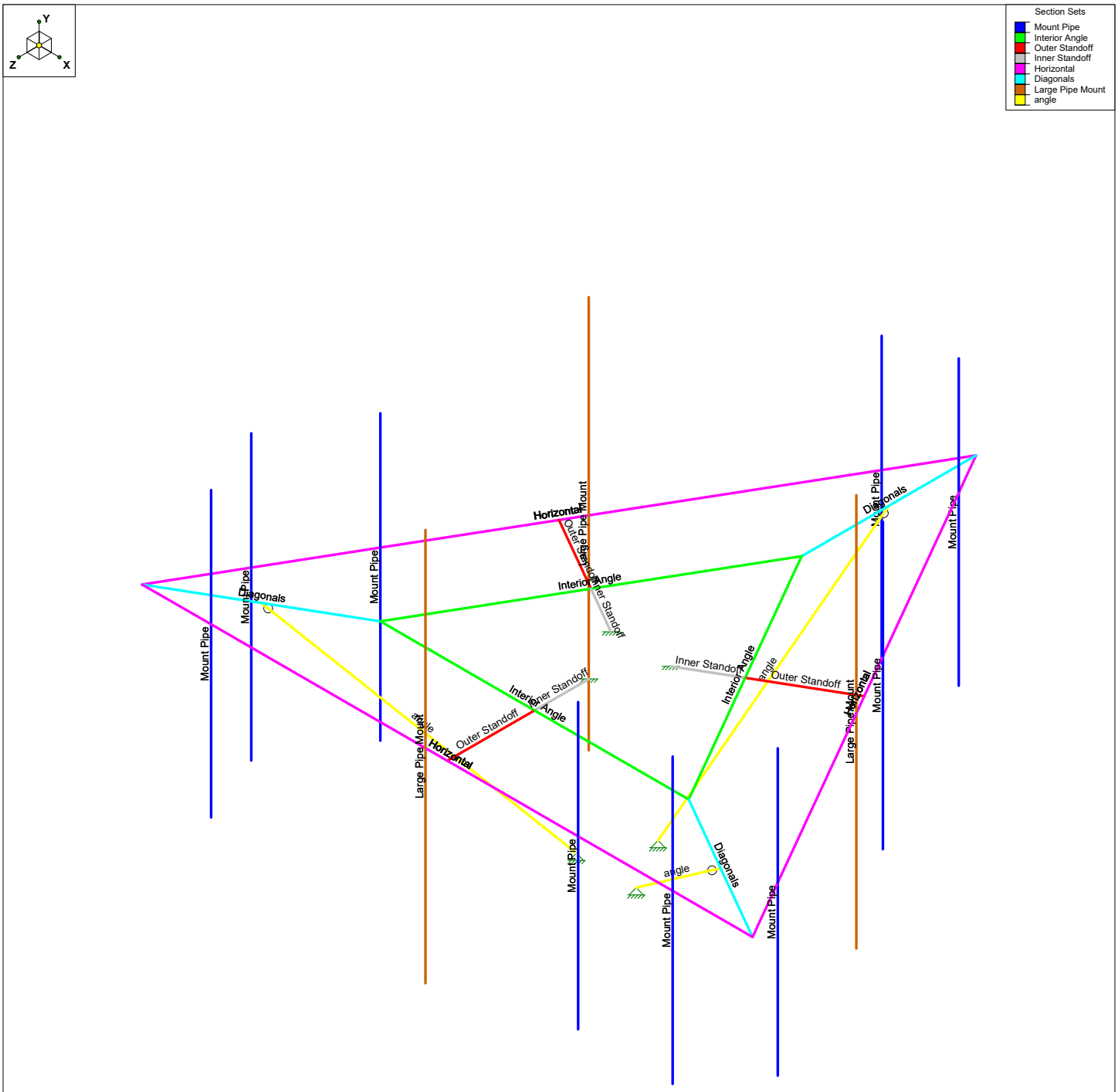
MasTec Network Solutions	876314-HORSE HILL	Member Labels
EJM		May 30, 2019 at 3:57 PM
18543-MOD1		18543 - mod.R3D



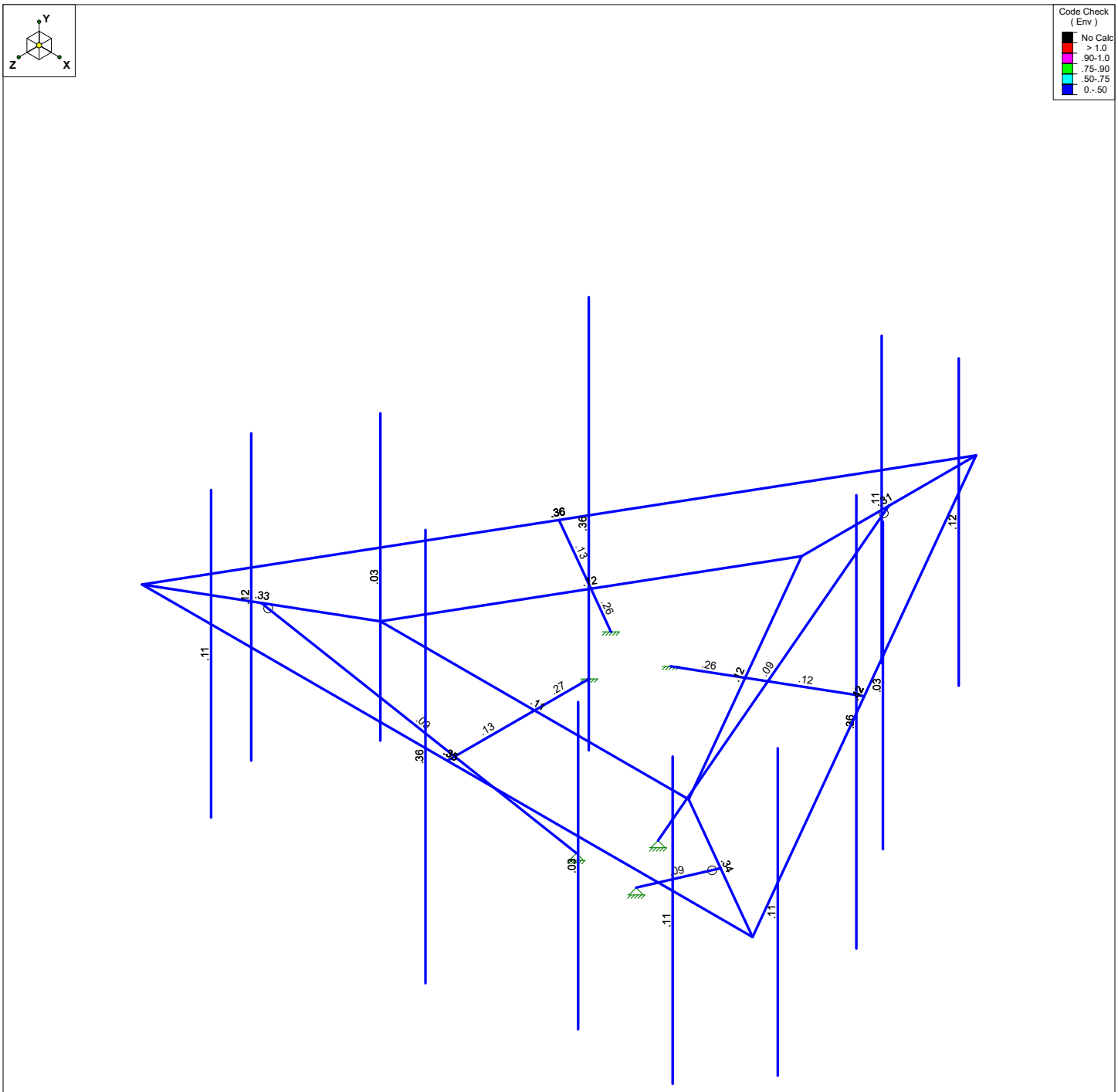
MasTec Network Solutions	876314-HORSE HILL	Node Labels
EJM		May 30, 2019 at 3:58 PM
18543-MOD1		18543 - mod.R3D



MasTec Network Solutions	876314-HORSE HILL	Member Shapes
EJM		May 30, 2019 at 3:58 PM
18543-MOD1		18543 - mod.R3D

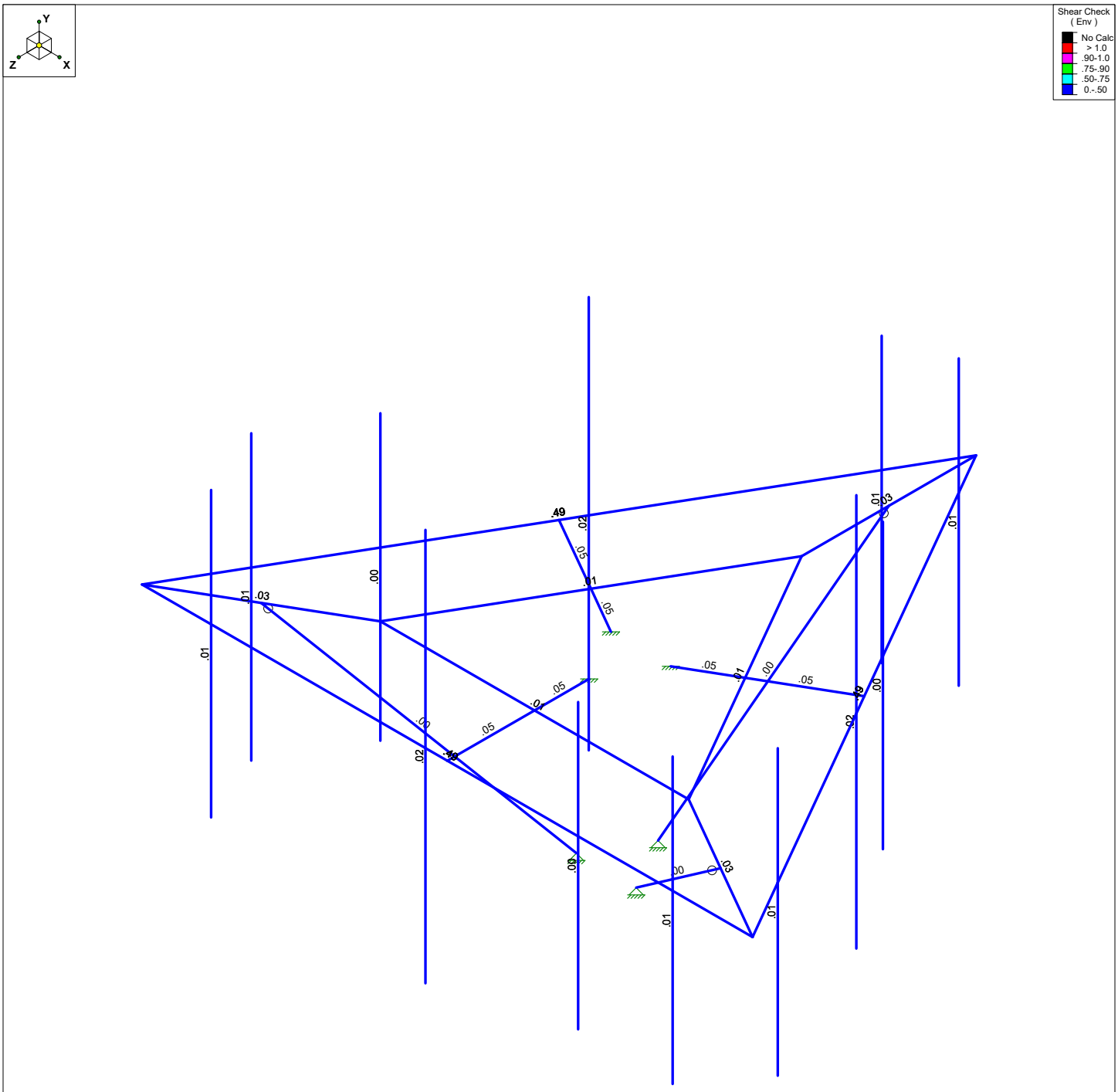


MasTec Network Solutions	876314-HORSE HILL	Section Sets
EJM		May 30, 2019 at 3:58 PM
18543-MOD1		18543 - mod.R3D



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

MasTec Network Solutions	876314-HORSE HILL	Unity Check
EJM		May 30, 2019 at 3:58 PM
18543-MOD1		18543 - mod.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

MasTec Network Solutions	876314-HORSE HILL	Shear Check
EJM		May 30, 2019 at 3:58 PM
18543-MOD1		18543 - mod.R3D

APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec Network Solutions

Mount Analysis Tool

Site Name	Horse Hill		
Site ID	876314		
Job Number	18543-MNT1	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	49.0%	PASS

Analysis Parameters		
Mount Height	100	ft
Exposure Category	B	(B,C, or D)
Ultimate Wind Speed	120	mph
Ice Wind Speed	50	mph
Design Ice Thickness, t_i	1.5	in
Maintenance Wind Speed	30	mph
Run Earthquake Analysis?	Yes	
Ground Elevation	445.14	ft, Google Earth
S_1	0.065	USGS
S_{DS}	0.214	2.7.5
Vertical Seismic Loads, E_v	0.043	2.7.6
Seismic Response Coefficient, C_s	0.107	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	0.988	2.6.5.2	K_e	0.984	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	30.746	psf, 2.6.11.6			
C/D	119.292	Table 2-9			
t_{iz}	1.676	in, 2.6.10			
q_{iz}	5.338	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D_{iz}	49.705	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	1.947	psf, 2.6.9.6	$K_{es\ (Wind)}$	1.000	Table S-1
$C/D_{Maintenance}$	29.823	Table 2-9	$K_{es\ (ice)}$	1.000	Table S-1
Ice Dead, Grating	0.015641437	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
A	100	78	2.375
B	100	78	2.375
C	100	108	2.875
D	100	78	2.375
E	100	78	2.375
F	100	78	2.375
G	100	108	2.875
H	100	78	2.375
I	100	78	2.375
J	100	78	2.375
K	100	108	2.875
L	100	78	2.375

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
Ericsson KRY 112 489/2	RRU, TMA, Etc.	11	6.1	3.94	15.4
EMS RR90-17-02DP	Antenna	56	8	2.75	13.5
RFS APXVAARR24_43-U-NA20	Antenna	95.9	24	8.7	128
Ericsson KRY 112 144/1	RRU, TMA, Etc.	7	6	3	11
Ericsson RADIO 4449 B12/B71	RRU, TMA, Etc.	14.95	13.19	9.25	75

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
A	EMS RR90-17-02DP	100	1	0	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.134	0.061	14.1%	85.9%
A	Ericsson KRY 112 144/1	100	1	90	0.0%	0.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.000	45.5%	54.5%
A	Ericsson RADIO 4449 B12/B71	100	1	90	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.018	0.051	40.4%	59.6%
A																	
A																	
A																	
B																	
B																	
B																	
B																	
B																	
B																	
C	RFS APXVAARR24_43-U-NA20	100	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.622	0.273	5.6%	94.4%
C																	
C																	
C																	
C																	
C																	
D	EMS RR90-17-02DP	100	1	0	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.134	0.061	14.1%	85.9%
D	Ericsson KRY 112 144/1	100	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.005	45.5%	54.5%
D																	
D																	
D																	
D																	
E	EMS RR90-17-02DP	100	1	120	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.079	0.116	14.1%	85.9%
E	Ericsson KRY 112 489/2	100	1	210	0.0%	0.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.000	42.9%	57.1%
E	Ericsson RADIO 4449 B12/B71	100	1	210	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.023	0.039	40.4%	59.6%
E																	
E																	
E																	
F																	
F																	
F																	
F																	
F																	
F																	
G	RFS APXVAARR24_43-U-NA20	100	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.361	0.535	5.6%	94.4%
G																	
G																	
G																	
G																	
G																	
H	EMS RR90-17-02DP	100	1	120	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.079	0.116	14.1%	85.9%
H	Ericsson KRY 112 489/2	100	1	120	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.016	42.9%	57.1%
H																	
H																	
H																	
H																	
I	EMS RR90-17-02DP	100	1	240	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.079	0.116	14.1%	85.9%
I	Ericsson KRY 112 489/2	100	1	330	0.0%	0.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.000	42.9%	57.1%
I	Ericsson RADIO 4449 B12/B71	100	1	330	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.023	0.039	40.4%	59.6%
I																	
I																	
I																	
J																	
J																	
J																	
J																	
J																	
J																	
K	RFS APXVAARR24_43-U-NA20	100	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.361	0.535	5.6%	94.4%
K																	
K																	
K																	
K																	
K																	
L	EMS RR90-17-02DP	100	1	240	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.079	0.116	14.1%	85.9%
L	Ericsson KRY 112 489/2	100	1	240	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.000	0.016	42.9%	57.1%
L																	
L																	
L																	
L																	

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	EMS RR90-17-02DP	100	1	0	100.0%	100.0%	Antenna	56.000	8.000	2.750	96.841	6.182	3.749	0.033	0.020	14.1%	85.9%
A	Ericsson KRY 112 144/1	100	1	90	0.0%	0.0%	RRU, TMA, Etc.	7.000	6.000	3.000	10.014	0.807	0.548	0.000	0.000	45.5%	54.5%
A	Ericsson RADIO 4449 B12/B71	100	1	90	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	45.369	2.523	1.922	0.005	0.013	40.4%	59.6%
A																	
A																	
A																	
B																	
B																	
B																	
B																	
B																	
B																	
C	RFS APXVAARR24_43-U-NA20	100	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	445.130	23.568	11.971	0.126	0.064	5.6%	94.4%
C																	
C																	
C																	
C																	
C																	
D	EMS RR90-17-02DP	100	1	0	100.0%	100.0%	Antenna	56.000	8.000	2.750	96.841	6.182	3.749	0.033	0.020	14.1%	85.9%
D	Ericsson KRY 112 144/1	100	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	10.014	0.807	0.548	0.000	0.003	45.5%	54.5%
D																	
D																	
D																	
D																	
E	EMS RR90-17-02DP	100	1	120	100.0%	100.0%	Antenna	56.000	8.000	2.750	96.841	6.182	3.749	0.023	0.030	14.1%	85.9%
E	Ericsson KRY 112 489/2	100	1	210	0.0%	0.0%	RRU, TMA, Etc.	11.000	6.100	3.940	16.775	1.130	0.872	0.000	0.000	42.9%	57.1%
E	Ericsson RADIO 4449 B12/B71	100	1	210	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	45.369	2.523	1.922	0.006	0.011	40.4%	59.6%
E																	
E																	
E																	
F																	
F																	
F																	
F																	
F																	
F																	
G	RFS APXVAARR24_43-U-NA20	100	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	445.130	23.568	11.971	0.079	0.110	5.6%	94.4%
G																	
G																	
G																	
G																	
G																	
H	EMS RR90-17-02DP	100	1	120	100.0%	100.0%	Antenna	56.000	8.000	2.750	96.841	6.182	3.749	0.023	0.030	14.1%	85.9%
H	Ericsson KRY 112 489/2	100	1	120	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	16.775	1.130	0.872	0.000	0.006	42.9%	57.1%
H																	
H																	
H																	
H																	
I	EMS RR90-17-02DP	100	1	240	100.0%	100.0%	Antenna	56.000	8.000	2.750	96.841	6.182	3.749	0.023	0.030	14.1%	85.9%
I	Ericsson KRY 112 489/2	100	1	330	0.0%	0.0%	RRU, TMA, Etc.	11.000	6.100	3.940	16.775	1.130	0.872	0.000	0.000	42.9%	57.1%
I	Ericsson RADIO 4449 B12/B71	100	1	330	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	45.369	2.523	1.922	0.006	0.011	40.4%	59.6%
I																	
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J																	
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J																	
J																	
J																	
J																	
K	RFS APXVAARR24_43-U-NA20	100	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	445.130	23.568	11.971	0.079	0.110	5.6%	94.4%
K																	
K																	
K																	
K																	

K																		
L	EMS RR90-17-02DP	100	1	240	100.0%	100.0%	Antenna	56.000	8.000	2.750	96.841	6.182	3.749	0.023	0.030	14.1%	85.9%
L	Ericsson KRY 112 489/2	100	1	240	0.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	16.775	1.130	0.872	0.000	0.006	42.9%	57.1%
L																		
L																		
L																		
L																		

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)
M1	Horizontal	14	Flat	3.000	4.243	31.160	2.000	0.015	0.000	0.005	0.002	0.012	0.001	0.000
M2	Horizontal	13.99999943	Flat	3.000	4.243	31.160	2.000	0.004	0.012	0.001	0.002	0.012	0.000	0.001
M3	Horizontal	13.99999943	Flat	3.000	4.243	31.160	2.000	0.004	0.012	0.001	0.002	0.012	0.000	0.001
M4	Interior Angle	7.071797	Flat	3.000	4.243	31.160	2.000	0.015	0.000	0.005	0.002	0.012	0.001	0.000
M5	Diagonals	4	Flat	6.000	6.000	40.413	2.000	0.000	0.031	0.000	0.005	0.016	0.000	0.002
M6	Diagonals	3.999999467	Flat	6.000	6.000	40.413	2.000	0.023	0.008	0.006	0.003	0.016	0.001	0.000
M7	Diagonals	4.000000333	Flat	6.000	6.000	40.413	2.000	0.023	0.008	0.006	0.003	0.016	0.001	0.000
M8	Interior Angle	7.071796012	Flat	3.000	4.243	31.160	2.000	0.004	0.012	0.001	0.002	0.012	0.000	0.001
M9	Interior Angle	7.071796512	Flat	3.000	4.243	31.160	2.000	0.004	0.012	0.001	0.002	0.012	0.000	0.001
M10	Outer Standoff	2	Flat	4.500	6.364	42.329	2.000	0.000	0.023	0.000	0.004	0.016	0.000	0.001
M11	Outer Standoff	2.000000167	Flat	4.500	6.364	42.329	2.000	0.017	0.006	0.005	0.003	0.016	0.001	0.000
M12	Outer Standoff	2.000000167	Flat	4.500	6.364	42.329	2.000	0.017	0.006	0.005	0.003	0.016	0.001	0.000
A	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
D	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
C	Large Pipe Mount	9	Flat	2.880	2.880	23.986	2.000	0.015	0.015	0.005	0.005	0.009	0.001	0.001
M28	Inner Standoff	1.25	Flat	4.000	5.657	38.606	2.000	0.000	0.020	0.000	0.004	0.015	0.000	0.001
M29	Inner Standoff	1.249999346	Flat	4.000	5.657	38.606	2.000	0.015	0.005	0.005	0.003	0.015	0.001	0.000
M30	Inner Standoff	1.250000212	Flat	4.000	5.657	38.606	2.000	0.015	0.005	0.005	0.003	0.015	0.001	0.000
B	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
I	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
L	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
K	Large Pipe Mount	9	Flat	2.880	2.880	23.986	2.000	0.015	0.015	0.005	0.005	0.009	0.001	0.001
J	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
H	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
G	Large Pipe Mount	9	Flat	2.880	2.880	23.986	2.000	0.015	0.015	0.005	0.005	0.009	0.001	0.001
E	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
F	Mount Pipe	6.5	Round	2.380	2.380	21.354	1.200	0.007	0.007	0.003	0.003	0.008	0.000	0.000
M28A	angle	6.633208608	Flat	4.000	4.000	29.883	2.000	0.018	0.014	0.005	0.004	0.012	0.001	0.001
M29A	angle	6.633209198	Flat	4.000	4.000	29.883	2.000	0.012	0.020	0.004	0.006	0.012	0.001	0.001
M30A	angle	6.633209299	Flat	4.000	4.000	29.883	2.000	0.018	0.014	0.005	0.004	0.012	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 ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Interior Angle	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
3	Outer Standoff	HSS4.5X4.5X4	Beam	SquareTube	A36 Gr.36	Typical	3.84	11.4	11.4	18.5
4	Inner Standoff	HSS4X4X4	Beam	SquareTube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
5	Horizontal	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
6	Diagonals	LL3x3x4x0	Beam	Double Angle (No G...	A36 Gr.36	Typical	2.88	4.5	2.46	.063
7	Large Pipe Mount	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	angle	LL2x2x4x0	Beam	Double Angle (No G...	A36 Gr.36	Typical	1.89	1.34	.692	.042

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	2.56702	0	6.763475	0	
2	N2	9.56702	0	18.88783	0	
3	N3	-4.43298	0	18.88783	0	
4	N4	-0.968878	0	16.88783	0	
5	N5	2.56702	0	10.763475	0	
6	N6	6.102919	0	16.88783	0	
7	N7	2.56702	0	18.88783	0	
8	N9	6.06702	0	12.825653	0	
9	N11	-0.93298	0	12.825653	0	
10	N13	7.733687	-3.833333	18.88783	0	
11	N14	7.733687	2.666667	18.88783	0	
12	N15	-2.849646	-3.833333	18.88783	0	
13	N16	-2.849646	2.666667	18.88783	0	
14	N17	7.733687	0	18.88783	0	
15	N18	-2.849646	0	18.88783	0	
16	N19	2.56702	0	16.88783	0	
17	N20	0.799071	0	13.825653	0	
18	N21	4.334969	0	13.825653	0	
19	N27	2.56702	0	14.846378	0	
20	N44	2.06702	0	18.88783	0	
21	N45	2.06702	-4.666667	18.88783	0	
22	N46	2.06702	4.333333	18.88783	0	
23	N44A	5.56702	0	18.88783	0	
24	N45A	5.56702	-3.833333	18.88783	0	
25	N46A	5.56702	2.666667	18.88783	0	
26	N30	3.108687	-3.833333	7.701669	0	
27	N31	3.108687	2.666667	7.701669	0	
28	N32	8.775354	-3.833333	17.516623	0	
29	N33A	8.775354	2.666667	17.516623	0	
30	N34	3.108687	0	7.701669	0	
31	N35	8.775354	0	17.516623	0	
32	N37	6.31702	0	13.258665	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
33	N38	6.31702	-4.666667	13.258665	0	
34	N39	6.31702	4.333333	13.258665	0	
35	N40	5.483687	0	11.81529	0	
36	N41	5.483687	-3.833333	11.81529	0	
37	N42	5.483687	2.666667	11.81529	0	
38	N45B	1.775354	-3.833333	8.134682	0	
39	N46B	1.775354	2.666667	8.134682	0	
40	N48	1.775354	0	8.134682	0	
41	N50	-0.68298	0	12.39264	0	
42	N51	-0.68298	-4.666667	12.39264	0	
43	N52	-0.68298	4.333333	12.39264	0	
44	N53A	-3.516313	-3.833333	17.300117	0	
45	N54A	-3.516313	2.666667	17.300117	0	
46	N55A	-3.516313	0	17.300117	0	
47	N51A	-2.43298	0	15.423729	0	
48	N52A	-2.43298	-3.833333	15.423729	0	
49	N53	-2.43298	2.666667	15.423729	0	
50	N53B	2.56702	0	15.63783	0	
51	N55	3.252438	0	14.450653	0	
52	N57	1.881603	0	14.450653	0	
53	N56	1.881603	-4	15.242104	0	
54	N57A	3.252438	-4	15.242104	0	
55	N58	2.56702	-4	14.054927	0	
56	N59	2.56702	0	8.763475	0	
57	N60A	7.834969	0	17.88783	0	
58	N61	-2.700929	0	17.88783	0	
59	N61A	2.56702	-2.5	14.846378	0	

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N2	N3			Horizontal	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N3	N1			Horizontal	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N2	N1		270	Horizontal	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N4	N6			Interior Angle	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N1	N5		180	Diagonals	Beam	Double Angl..	A36 Gr.36	Typical
6	M6	N2	N6		180	Diagonals	Beam	Double Angl..	A36 Gr.36	Typical
7	M7	N3	N4		180	Diagonals	Beam	Double Angl..	A36 Gr.36	Typical
8	M8	N4	N5		270	Interior Angle	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N5	N6		270	Interior Angle	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N7	N19			Outer Standoff	Beam	SquareTube	A36 Gr.36	Typical
11	M11	N9	N21			Outer Standoff	Beam	SquareTube	A36 Gr.36	Typical
12	M12	N11	N20			Outer Standoff	Beam	SquareTube	A36 Gr.36	Typical
13	A	N14	N13			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
14	D	N16	N15			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
15	C	N46	N45			Large Pipe Mount	Beam	Pipe	A53 Gr.B	Typical
16	M28	N19	N53B			Inner Standoff	Beam	SquareTube	A36 Gr.36	Typical
17	M29	N21	N55			Inner Standoff	Beam	SquareTube	A36 Gr.36	Typical
18	M30	N20	N57			Inner Standoff	Beam	SquareTube	A36 Gr.36	Typical
19	B	N46A	N45A			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
20	I	N31	N30			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
21	L	N33A	N32			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
22	K	N39	N38			Large Pipe Mount	Beam	Pipe	A53 Gr.B	Typical
23	J	N42	N41			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
24	H	N46B	N45B			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
25	G	N52	N51			Large Pipe Mount	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
26	E	N54A	N53A			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
27	F	N53	N52A			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
28	M28A	N60A	N57A			angle	Beam	Double Angl..	A36 Gr.36	Typical
29	M29A	N59	N58			angle	Beam	Double Angl..	A36 Gr.36	Typical
30	M30A	N61	N56			angle	Beam	Double Angl..	A36 Gr.36	Typical

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

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N44	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	N50	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	N37	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	N2	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	N1	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	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.014	%50
2	A	Y	-.011	%50
3	A	Y	-.075	%50
4	C	Y	-.128	%50
5	D	Y	-.014	%50
6	D	Y	-.011	%50
7	E	Y	-.014	%50
8	E	Y	-.015	%50
9	E	Y	-.075	%50
10	G	Y	-.128	%50
11	H	Y	-.014	%50
12	H	Y	-.015	%50
13	I	Y	-.014	%50
14	I	Y	-.015	%50
15	I	Y	-.075	%50
16	K	Y	-.128	%50
17	L	Y	-.014	%50
18	L	Y	-.015	%50

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.097	%50
2	A	Y	-.01	%50
3	A	Y	-.045	%50
4	C	Y	-.445	%50
5	D	Y	-.097	%50
6	D	Y	-.01	%50
7	E	Y	-.097	%50
8	E	Y	-.017	%50
9	E	Y	-.045	%50
10	G	Y	-.445	%50
11	H	Y	-.097	%50
12	H	Y	-.017	%50
13	I	Y	-.097	%50
14	I	Y	-.017	%50
15	I	Y	-.045	%50
16	K	Y	-.445	%50
17	L	Y	-.097	%50
18	L	Y	-.017	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.067	%14.1
2	A	Z	-.018	%50
3	C	Z	-.311	%5.6
4	D	Z	-.067	%14.1
5	E	Z	-.039	%14.1
6	E	Z	-.023	%50
7	G	Z	-.18	%5.6
8	H	Z	-.039	%14.1
9	I	Z	-.039	%14.1
10	I	Z	-.023	%50
11	K	Z	-.18	%5.6
12	L	Z	-.039	%14.1
13	A	Z	-.067	%85.9
14	C	Z	-.311	%94.4
15	D	Z	-.067	%85.9
16	E	Z	-.039	%85.9
17	G	Z	-.18	%94.4
18	H	Z	-.039	%85.9
19	I	Z	-.039	%85.9
20	K	Z	-.18	%94.4
21	L	Z	-.039	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.05	%14.1
2	A	Z	-.017	%50
3	C	Z	-.232	%5.6
4	D	Z	-.05	%14.1
5	E	Z	-.026	%14.1
6	E	Z	-.022	%50
7	G	Z	-.118	%5.6
8	H	Z	-.026	%14.1
9	I	Z	-.05	%14.1
10	I	Z	-.017	%50
11	K	Z	-.232	%5.6

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
12	L	Z	-.05	%14.1
13	A	Z	-.05	%85.9
14	C	Z	-.232	%94.4
15	D	Z	-.05	%85.9
16	E	Z	-.026	%85.9
17	G	Z	-.118	%94.4
18	H	Z	-.026	%85.9
19	I	Z	-.05	%85.9
20	K	Z	-.232	%94.4
21	L	Z	-.05	%85.9
22	A	X	.029	%14.1
23	A	X	.016	%50
24	C	X	.134	%5.6
25	D	X	.029	%14.1
26	D	X	.001	%50
27	E	X	.015	%14.1
28	E	X	.013	%50
29	G	X	.068	%5.6
30	H	X	.015	%14.1
31	H	X	.006	%50
32	I	X	.029	%14.1
33	I	X	.016	%50
34	K	X	.134	%5.6
35	L	X	.029	%14.1
36	L	X	.001	%50
37	A	X	.029	%85.9
38	C	X	.134	%94.4
39	D	X	.029	%85.9
40	E	X	.015	%85.9
41	G	X	.068	%94.4
42	H	X	.015	%85.9
43	I	X	.029	%85.9
44	K	X	.134	%94.4
45	L	X	.029	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.02	%14.1
2	A	Z	-.012	%50
3	C	Z	-.09	%5.6
4	D	Z	-.02	%14.1
5	E	Z	-.02	%14.1
6	E	Z	-.012	%50
7	G	Z	-.09	%5.6
8	H	Z	-.02	%14.1
9	I	Z	-.033	%14.1
10	I	Z	-.009	%50
11	K	Z	-.156	%5.6
12	L	Z	-.033	%14.1
13	A	Z	-.02	%85.9
14	C	Z	-.09	%94.4
15	D	Z	-.02	%85.9
16	E	Z	-.02	%85.9
17	G	Z	-.09	%94.4
18	H	Z	-.02	%85.9
19	I	Z	-.033	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
20	K	Z	-.156	%94.4
21	L	Z	-.033	%85.9
22	A	X	.034	%14.1
23	A	X	.024	%50
24	C	X	.156	%5.6
25	D	X	.034	%14.1
26	D	X	.003	%50
27	E	X	.034	%14.1
28	E	X	.024	%50
29	G	X	.156	%5.6
30	H	X	.034	%14.1
31	H	X	.007	%50
32	I	X	.058	%14.1
33	I	X	.031	%50
34	K	X	.269	%5.6
35	L	X	.058	%14.1
36	L	X	0	%50
37	A	X	.034	%85.9
38	C	X	.156	%94.4
39	D	X	.034	%85.9
40	E	X	.034	%85.9
41	G	X	.156	%94.4
42	H	X	.034	%85.9
43	I	X	.058	%85.9
44	K	X	.269	%94.4
45	L	X	.058	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	0	%14.1
2	A	Z	0	%50
3	C	Z	0	%5.6
4	D	Z	0	%14.1
5	E	Z	0	%14.1
6	E	Z	0	%50
7	G	Z	0	%5.6
8	H	Z	0	%14.1
9	I	Z	0	%14.1
10	I	Z	0	%50
11	K	Z	0	%5.6
12	L	Z	0	%14.1
13	A	Z	0	%85.9
14	C	Z	0	%94.4
15	D	Z	0	%85.9
16	E	Z	0	%85.9
17	G	Z	0	%94.4
18	H	Z	0	%85.9
19	I	Z	0	%85.9
20	K	Z	0	%94.4
21	L	Z	0	%85.9
22	A	X	.03	%14.1
23	A	X	.025	%50
24	C	X	.137	%5.6
25	D	X	.03	%14.1
26	D	X	.005	%50
27	E	X	.058	%14.1

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
28	E	X	.033	%50
29	G	X	.268	%5.6
30	H	X	.058	%14.1
31	H	X	.003	%50
32	I	X	.058	%14.1
33	I	X	.033	%50
34	K	X	.268	%5.6
35	L	X	.058	%14.1
36	L	X	.003	%50
37	A	X	.03	%85.9
38	C	X	.137	%94.4
39	D	X	.03	%85.9
40	E	X	.058	%85.9
41	G	X	.268	%94.4
42	H	X	.058	%85.9
43	I	X	.058	%85.9
44	K	X	.268	%94.4
45	L	X	.058	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.02	%14.1
2	A	Z	.012	%50
3	C	Z	.09	%5.6
4	D	Z	.02	%14.1
5	E	Z	.033	%14.1
6	E	Z	.009	%50
7	G	Z	.156	%5.6
8	H	Z	.033	%14.1
9	I	Z	.02	%14.1
10	I	Z	.012	%50
11	K	Z	.09	%5.6
12	L	Z	.02	%14.1
13	A	Z	.02	%85.9
14	C	Z	.09	%94.4
15	D	Z	.02	%85.9
16	E	Z	.033	%85.9
17	G	Z	.156	%94.4
18	H	Z	.033	%85.9
19	I	Z	.02	%85.9
20	K	Z	.09	%94.4
21	L	Z	.02	%85.9
22	A	X	.034	%14.1
23	A	X	.024	%50
24	C	X	.156	%5.6
25	D	X	.034	%14.1
26	D	X	.003	%50
27	E	X	.058	%14.1
28	E	X	.031	%50
29	G	X	.269	%5.6
30	H	X	.058	%14.1
31	I	X	.034	%14.1
32	I	X	.024	%50
33	K	X	.156	%5.6
34	L	X	.034	%14.1
35	L	X	.007	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
36	A	X	.034	%85.9
37	C	X	.156	%94.4
38	D	X	.034	%85.9
39	E	X	.058	%85.9
40	G	X	.269	%94.4
41	H	X	.058	%85.9
42	I	X	.034	%85.9
43	K	X	.156	%94.4
44	L	X	.034	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.05	%14.1
2	A	Z	.017	%50
3	C	Z	.232	%5.6
4	D	Z	.05	%14.1
5	E	Z	.05	%14.1
6	E	Z	.017	%50
7	G	Z	.232	%5.6
8	H	Z	.05	%14.1
9	I	Z	.026	%14.1
10	I	Z	.022	%50
11	K	Z	.118	%5.6
12	L	Z	.026	%14.1
13	A	Z	.05	%85.9
14	C	Z	.232	%94.4
15	D	Z	.05	%85.9
16	E	Z	.05	%85.9
17	G	Z	.232	%94.4
18	H	Z	.05	%85.9
19	I	Z	.026	%85.9
20	K	Z	.118	%94.4
21	L	Z	.026	%85.9
22	A	X	.029	%14.1
23	A	X	.016	%50
24	C	X	.134	%5.6
25	D	X	.029	%14.1
26	D	X	.001	%50
27	E	X	.029	%14.1
28	E	X	.016	%50
29	G	X	.134	%5.6
30	H	X	.029	%14.1
31	H	X	.001	%50
32	I	X	.015	%14.1
33	I	X	.013	%50
34	K	X	.068	%5.6
35	L	X	.015	%14.1
36	L	X	.006	%50
37	A	X	.029	%85.9
38	C	X	.134	%94.4
39	D	X	.029	%85.9
40	E	X	.029	%85.9
41	G	X	.134	%94.4
42	H	X	.029	%85.9
43	I	X	.015	%85.9
44	K	X	.068	%94.4

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
45	L	X	.015	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.016	%14.1
2	A	Z	-.005	%50
3	C	Z	-.063	%5.6
4	D	Z	-.016	%14.1
5	E	Z	-.012	%14.1
6	E	Z	-.006	%50
7	G	Z	-.04	%5.6
8	H	Z	-.012	%14.1
9	I	Z	-.012	%14.1
10	I	Z	-.006	%50
11	K	Z	-.04	%5.6
12	L	Z	-.012	%14.1
13	A	Z	-.016	%85.9
14	C	Z	-.063	%94.4
15	D	Z	-.016	%85.9
16	E	Z	-.012	%85.9
17	G	Z	-.04	%94.4
18	H	Z	-.012	%85.9
19	I	Z	-.012	%85.9
20	K	Z	-.04	%94.4
21	L	Z	-.012	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.013	%14.1
2	A	Z	-.005	%50
3	C	Z	-.048	%5.6
4	D	Z	-.013	%14.1
5	E	Z	-.009	%14.1
6	E	Z	-.006	%50
7	G	Z	-.028	%5.6
8	H	Z	-.009	%14.1
9	I	Z	-.013	%14.1
10	I	Z	-.005	%50
11	K	Z	-.048	%5.6
12	L	Z	-.013	%14.1
13	A	Z	-.013	%85.9
14	C	Z	-.048	%94.4
15	D	Z	-.013	%85.9
16	E	Z	-.009	%85.9
17	G	Z	-.028	%94.4
18	H	Z	-.009	%85.9
19	I	Z	-.013	%85.9
20	K	Z	-.048	%94.4
21	L	Z	-.013	%85.9
22	A	X	.007	%14.1
23	A	X	.005	%50
24	C	X	.028	%5.6
25	D	X	.007	%14.1
26	D	X	0	%50
27	E	X	.005	%14.1
28	E	X	.003	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
29	G	X	.016	%5.6
30	H	X	.005	%14.1
31	H	X	.002	%50
32	I	X	.007	%14.1
33	I	X	.005	%50
34	K	X	.028	%5.6
35	L	X	.007	%14.1
36	L	X	.001	%50
37	A	X	.007	%85.9
38	C	X	.028	%94.4
39	D	X	.007	%85.9
40	E	X	.005	%85.9
41	G	X	.016	%94.4
42	H	X	.005	%85.9
43	I	X	.007	%85.9
44	K	X	.028	%94.4
45	L	X	.007	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.006	%14.1
2	A	Z	-.003	%50
3	C	Z	-.02	%5.6
4	D	Z	-.006	%14.1
5	E	Z	-.006	%14.1
6	E	Z	-.003	%50
7	G	Z	-.02	%5.6
8	H	Z	-.006	%14.1
9	I	Z	-.008	%14.1
10	I	Z	-.003	%50
11	K	Z	-.031	%5.6
12	L	Z	-.008	%14.1
13	A	Z	-.006	%85.9
14	C	Z	-.02	%94.4
15	D	Z	-.006	%85.9
16	E	Z	-.006	%85.9
17	G	Z	-.02	%94.4
18	H	Z	-.006	%85.9
19	I	Z	-.008	%85.9
20	K	Z	-.031	%94.4
21	L	Z	-.008	%85.9
22	A	X	.01	%14.1
23	A	X	.007	%50
24	C	X	.034	%5.6
25	D	X	.01	%14.1
26	D	X	.002	%50
27	E	X	.01	%14.1
28	E	X	.007	%50
29	G	X	.034	%5.6
30	H	X	.01	%14.1
31	H	X	.003	%50
32	I	X	.014	%14.1
33	I	X	.009	%50
34	K	X	.054	%5.6
35	L	X	.014	%14.1
36	L	X	0	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
37	A	X	.01	%85.9
38	C	X	.034	%94.4
39	D	X	.01	%85.9
40	E	X	.01	%85.9
41	G	X	.034	%94.4
42	H	X	.01	%85.9
43	I	X	.014	%85.9
44	K	X	.054	%94.4
45	L	X	.014	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	0	%14.1
2	A	Z	0	%50
3	C	Z	0	%5.6
4	D	Z	0	%14.1
5	E	Z	0	%14.1
6	E	Z	0	%50
7	G	Z	0	%5.6
8	H	Z	0	%14.1
9	I	Z	0	%14.1
10	I	Z	0	%50
11	K	Z	0	%5.6
12	L	Z	0	%14.1
13	A	Z	0	%85.9
14	C	Z	0	%94.4
15	D	Z	0	%85.9
16	E	Z	0	%85.9
17	G	Z	0	%94.4
18	H	Z	0	%85.9
19	I	Z	0	%85.9
20	K	Z	0	%94.4
21	L	Z	0	%85.9
22	A	X	.01	%14.1
23	A	X	.007	%50
24	C	X	.032	%5.6
25	D	X	.01	%14.1
26	D	X	.003	%50
27	E	X	.015	%14.1
28	E	X	.009	%50
29	G	X	.055	%5.6
30	H	X	.015	%14.1
31	H	X	.001	%50
32	I	X	.015	%14.1
33	I	X	.009	%50
34	K	X	.055	%5.6
35	L	X	.015	%14.1
36	L	X	.001	%50
37	A	X	.01	%85.9
38	C	X	.032	%94.4
39	D	X	.01	%85.9
40	E	X	.015	%85.9
41	G	X	.055	%94.4
42	H	X	.015	%85.9
43	I	X	.015	%85.9
44	K	X	.055	%94.4

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
45	L	X	.015	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.006	%14.1
2	A	Z	.003	%50
3	C	Z	.02	%5.6
4	D	Z	.006	%14.1
5	E	Z	.008	%14.1
6	E	Z	.003	%50
7	G	Z	.031	%5.6
8	H	Z	.008	%14.1
9	I	Z	.006	%14.1
10	I	Z	.003	%50
11	K	Z	.02	%5.6
12	L	Z	.006	%14.1
13	A	Z	.006	%85.9
14	C	Z	.02	%94.4
15	D	Z	.006	%85.9
16	E	Z	.008	%85.9
17	G	Z	.031	%94.4
18	H	Z	.008	%85.9
19	I	Z	.006	%85.9
20	K	Z	.02	%94.4
21	L	Z	.006	%85.9
22	A	X	.01	%14.1
23	A	X	.007	%50
24	C	X	.034	%5.6
25	D	X	.01	%14.1
26	D	X	.002	%50
27	E	X	.014	%14.1
28	E	X	.009	%50
29	G	X	.054	%5.6
30	H	X	.014	%14.1
31	I	X	.01	%14.1
32	I	X	.007	%50
33	K	X	.034	%5.6
34	L	X	.01	%14.1
35	L	X	.003	%50
36	A	X	.01	%85.9
37	C	X	.034	%94.4
38	D	X	.01	%85.9
39	E	X	.014	%85.9
40	G	X	.054	%94.4
41	H	X	.014	%85.9
42	I	X	.01	%85.9
43	K	X	.034	%94.4
44	L	X	.01	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.013	%14.1
2	A	Z	.003	%50
3	C	Z	.02	%5.6
4	D	Z	.006	%14.1
5	E	Z	.008	%14.1

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	E	Z	.003	%50
7	G	Z	.031	%5.6
8	H	Z	.008	%14.1
9	I	Z	.006	%14.1
10	I	Z	.003	%50
11	K	Z	.02	%5.6
12	L	Z	.006	%14.1
13	A	Z	.013	%85.9
14	C	Z	.02	%94.4
15	D	Z	.006	%85.9
16	E	Z	.008	%85.9
17	G	Z	.031	%94.4
18	H	Z	.008	%85.9
19	I	Z	.006	%85.9
20	K	Z	.02	%94.4
21	L	Z	.006	%85.9
22	A	X	.007	%14.1
23	A	X	.007	%50
24	C	X	.034	%5.6
25	D	X	.01	%14.1
26	D	X	.002	%50
27	E	X	.014	%14.1
28	E	X	.009	%50
29	G	X	.054	%5.6
30	H	X	.014	%14.1
31	I	X	.01	%14.1
32	I	X	.007	%50
33	K	X	.034	%5.6
34	L	X	.01	%14.1
35	L	X	.003	%50
36	A	X	.007	%85.9
37	C	X	.034	%94.4
38	D	X	.01	%85.9
39	E	X	.014	%85.9
40	G	X	.054	%94.4
41	H	X	.014	%85.9
42	I	X	.01	%85.9
43	K	X	.034	%94.4
44	L	X	.01	%85.9

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.001	%50
2	A	Z	-.001	%50
3	A	Z	-.008	%50
4	C	Z	-.014	%50
5	D	Z	-.001	%50
6	D	Z	-.001	%50
7	E	Z	-.001	%50
8	E	Z	-.002	%50
9	E	Z	-.008	%50
10	G	Z	-.014	%50
11	H	Z	-.001	%50
12	H	Z	-.002	%50
13	I	Z	-.001	%50
14	I	Z	-.002	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
15	I	Z	-.008	%50
16	K	Z	-.014	%50
17	L	Z	-.001	%50
18	L	Z	-.002	%50

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	X	.001	%50
2	A	X	.001	%50
3	A	X	.008	%50
4	C	X	.014	%50
5	D	X	.001	%50
6	D	X	.001	%50
7	E	X	.001	%50
8	E	X	.002	%50
9	E	X	.008	%50
10	G	X	.014	%50
11	H	X	.001	%50
12	H	X	.002	%50
13	I	X	.001	%50
14	I	X	.002	%50
15	I	X	.008	%50
16	K	X	.014	%50
17	L	X	.001	%50
18	L	X	.002	%50

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.003	%50
2	A	Y	-.002	%50
3	A	Y	-.015	%50
4	C	Y	-.026	%50
5	D	Y	-.003	%50
6	D	Y	-.002	%50
7	E	Y	-.003	%50
8	E	Y	-.003	%50
9	E	Y	-.015	%50
10	G	Y	-.026	%50
11	H	Y	-.003	%50
12	H	Y	-.003	%50
13	I	Y	-.003	%50
14	I	Y	-.003	%50
15	I	Y	-.015	%50
16	K	Y	-.026	%50
17	L	Y	-.003	%50
18	L	Y	-.003	%50

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	M1	Y	-.012	-.012	0	%100
2	M2	Y	-.012	-.012	0	%100
3	M3	Y	-.012	-.012	0	%100
4	M4	Y	-.012	-.012	0	%100
5	M5	Y	-.016	-.016	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,%]
6	M6	Y	-.016	-.016	0	%100
7	M7	Y	-.016	-.016	0	%100
8	M8	Y	-.012	-.012	0	%100
9	M9	Y	-.012	-.012	0	%100
10	M10	Y	-.016	-.016	0	%100
11	M11	Y	-.016	-.016	0	%100
12	M12	Y	-.016	-.016	0	%100
13	A	Y	-.008	-.008	0	%100
14	D	Y	-.008	-.008	0	%100
15	C	Y	-.009	-.009	0	%100
16	M28	Y	-.015	-.015	0	%100
17	M29	Y	-.015	-.015	0	%100
18	M30	Y	-.015	-.015	0	%100
19	B	Y	-.008	-.008	0	%100
20	I	Y	-.008	-.008	0	%100
21	L	Y	-.008	-.008	0	%100
22	K	Y	-.009	-.009	0	%100
23	J	Y	-.008	-.008	0	%100
24	H	Y	-.008	-.008	0	%100
25	G	Y	-.009	-.009	0	%100
26	E	Y	-.008	-.008	0	%100
27	F	Y	-.008	-.008	0	%100
28	M28A	Y	-.012	-.012	0	%100
29	M29A	Y	-.012	-.012	0	%100
30	M30A	Y	-.012	-.012	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	M1	Z	-.015	-.015	0	%100
2	M2	Z	-.004	-.004	0	%100
3	M3	Z	-.004	-.004	0	%100
4	M4	Z	-.015	-.015	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	-.023	-.023	0	%100
7	M7	Z	-.023	-.023	0	%100
8	M8	Z	-.004	-.004	0	%100
9	M9	Z	-.004	-.004	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	-.017	-.017	0	%100
12	M12	Z	-.017	-.017	0	%100
13	A	Z	-.007	-.007	0	%14.1
14	D	Z	-.007	-.007	0	%14.1
15	C	Z	-.015	-.015	0	%5.6
16	M28	Z	0	0	0	%100
17	M29	Z	-.015	-.015	0	%100
18	M30	Z	-.015	-.015	0	%100
19	I	Z	-.007	-.007	0	%14.1
20	L	Z	-.007	-.007	0	%14.1
21	K	Z	-.015	-.015	0	%5.6
22	H	Z	-.007	-.007	0	%14.1
23	G	Z	-.015	-.015	0	%5.6
24	E	Z	-.007	-.007	0	%14.1
25	M28A	Z	-.018	-.018	0	%100
26	M29A	Z	-.012	-.012	0	%100
27	M30A	Z	-.018	-.018	0	%100
28	A	Z	-.007	-.007	%85.9	%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,%]
29	D	Z	-.007	-.007	%85.9	%100
30	C	Z	-.015	-.015	%94.4	%100
31	B	Z	-.007	-.007	0	%100
32	I	Z	-.007	-.007	%85.9	%100
33	L	Z	-.007	-.007	%85.9	%100
34	K	Z	-.015	-.015	%94.4	%100
35	J	Z	-.007	-.007	0	%100
36	H	Z	-.007	-.007	%85.9	%100
37	G	Z	-.015	-.015	%94.4	%100
38	E	Z	-.007	-.007	%85.9	%100
39	F	Z	-.007	-.007	0	%100
40	M1	X	0	0	0	%100
41	M2	X	0	0	0	%100
42	M3	X	0	0	0	%100
43	M4	X	0	0	0	%100
44	M5	X	0	0	0	%100
45	M6	X	0	0	0	%100
46	M7	X	0	0	0	%100
47	M8	X	0	0	0	%100
48	M9	X	0	0	0	%100
49	M10	X	0	0	0	%100
50	M11	X	0	0	0	%100
51	M12	X	0	0	0	%100
52	A	X	0	0	0	%100
53	D	X	0	0	0	%100
54	C	X	0	0	0	%100
55	M28	X	0	0	0	%100
56	M29	X	0	0	0	%100
57	M30	X	0	0	0	%100
58	I	X	0	0	0	%14.1
59	L	X	0	0	0	%14.1
60	K	X	0	0	0	%5.6
61	H	X	0	0	0	%14.1
62	G	X	0	0	0	%5.6
63	E	X	0	0	0	%14.1
64	M28A	X	0	0	0	%100
65	M29A	X	0	0	0	%100
66	M30A	X	0	0	0	%100
67	B	X	0	0	0	%100
68	I	X	0	0	%85.9	%100
69	L	X	0	0	%85.9	%100
70	K	X	0	0	%94.4	%100
71	J	X	0	0	0	%100
72	H	X	0	0	%85.9	%100
73	G	X	0	0	%94.4	%100
74	E	X	0	0	%85.9	%100
75	F	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	M1	Z	-.01	-.01	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	-.01	-.01	0	%100
4	M4	Z	-.01	-.01	0	%100
5	M5	Z	-.007	-.007	0	%100
6	M6	Z	-.027	-.027	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,%]
7	M7	Z	-.007	-.007	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	-.01	-.01	0	%100
10	M10	Z	-.005	-.005	0	%100
11	M11	Z	-.005	-.005	0	%100
12	M12	Z	-.02	-.02	0	%100
13	A	Z	-.006	-.006	0	%14.1
14	D	Z	-.006	-.006	0	%14.1
15	C	Z	-.013	-.013	0	%5.6
16	M28	Z	-.004	-.004	0	%100
17	M29	Z	-.004	-.004	0	%100
18	M30	Z	-.018	-.018	0	%100
19	I	Z	-.006	-.006	0	%14.1
20	L	Z	-.006	-.006	0	%14.1
21	K	Z	-.013	-.013	0	%5.6
22	H	Z	-.006	-.006	0	%14.1
23	G	Z	-.013	-.013	0	%5.6
24	E	Z	-.006	-.006	0	%14.1
25	M28A	Z	-.018	-.018	0	%100
26	M29A	Z	-.012	-.012	0	%100
27	M30A	Z	-.012	-.012	0	%100
28	A	Z	-.006	-.006	%85.9	%100
29	D	Z	-.006	-.006	%85.9	%100
30	C	Z	-.013	-.013	%94.4	%100
31	B	Z	-.006	-.006	0	%100
32	I	Z	-.006	-.006	%85.9	%100
33	L	Z	-.006	-.006	%85.9	%100
34	K	Z	-.013	-.013	%94.4	%100
35	J	Z	-.006	-.006	0	%100
36	H	Z	-.006	-.006	%85.9	%100
37	G	Z	-.013	-.013	%94.4	%100
38	E	Z	-.006	-.006	%85.9	%100
39	F	Z	-.006	-.006	0	%100
40	M1	X	.006	.006	0	%100
41	M2	X	0	0	0	%100
42	M3	X	.006	.006	0	%100
43	M4	X	.006	.006	0	%100
44	M5	X	.004	.004	0	%100
45	M6	X	.015	.015	0	%100
46	M7	X	.004	.004	0	%100
47	M8	X	0	0	0	%100
48	M9	X	.006	.006	0	%100
49	M10	X	.003	.003	0	%100
50	M11	X	.003	.003	0	%100
51	M12	X	.012	.012	0	%100
52	A	X	.004	.004	0	%100
53	D	X	.004	.004	0	%100
54	C	X	.007	.007	0	%100
55	M28	X	.003	.003	0	%100
56	M29	X	.003	.003	0	%100
57	M30	X	.01	.01	0	%100
58	I	X	.004	.004	0	%14.1
59	L	X	.004	.004	0	%14.1
60	K	X	.007	.007	0	%5.6
61	H	X	.004	.004	0	%14.1
62	G	X	.007	.007	0	%5.6
63	E	X	.004	.004	0	%14.1

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,%]
64	M28A	X	.01	.01	0	%100
65	M29A	X	.007	.007	0	%100
66	M30A	X	.007	.007	0	%100
67	B	X	.004	.004	0	%100
68	I	X	.004	.004	%85.9	%100
69	L	X	.004	.004	%85.9	%100
70	K	X	.007	.007	%94.4	%100
71	J	X	.004	.004	0	%100
72	H	X	.004	.004	%85.9	%100
73	G	X	.007	.007	%94.4	%100
74	E	X	.004	.004	%85.9	%100
75	F	X	.004	.004	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	M1	Z	-.002	-.002	0	%100
2	M2	Z	-.002	-.002	0	%100
3	M3	Z	-.008	-.008	0	%100
4	M4	Z	-.002	-.002	0	%100
5	M5	Z	-.012	-.012	0	%100
6	M6	Z	-.012	-.012	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	-.002	-.002	0	%100
9	M9	Z	-.008	-.008	0	%100
10	M10	Z	-.009	-.009	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	-.009	-.009	0	%100
13	A	Z	-.004	-.004	0	%14.1
14	D	Z	-.004	-.004	0	%14.1
15	C	Z	-.007	-.007	0	%5.6
16	M28	Z	-.008	-.008	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	-.008	-.008	0	%100
19	I	Z	-.004	-.004	0	%14.1
20	L	Z	-.004	-.004	0	%14.1
21	K	Z	-.007	-.007	0	%5.6
22	H	Z	-.004	-.004	0	%14.1
23	G	Z	-.007	-.007	0	%5.6
24	E	Z	-.004	-.004	0	%14.1
25	M28A	Z	-.009	-.009	0	%100
26	M29A	Z	-.009	-.009	0	%100
27	M30A	Z	-.006	-.006	0	%100
28	A	Z	-.004	-.004	%85.9	%100
29	D	Z	-.004	-.004	%85.9	%100
30	C	Z	-.007	-.007	%94.4	%100
31	B	Z	-.004	-.004	0	%100
32	I	Z	-.004	-.004	%85.9	%100
33	L	Z	-.004	-.004	%85.9	%100
34	K	Z	-.007	-.007	%94.4	%100
35	J	Z	-.004	-.004	0	%100
36	H	Z	-.004	-.004	%85.9	%100
37	G	Z	-.007	-.007	%94.4	%100
38	E	Z	-.004	-.004	%85.9	%100
39	F	Z	-.004	-.004	0	%100
40	M1	X	.003	.003	0	%100
41	M2	X	.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,%]
42	M3	X	.013	.013	0	%100
43	M4	X	.003	.003	0	%100
44	M5	X	.02	.02	0	%100
45	M6	X	.02	.02	0	%100
46	M7	X	0	0	0	%100
47	M8	X	.003	.003	0	%100
48	M9	X	.013	.013	0	%100
49	M10	X	.015	.015	0	%100
50	M11	X	0	0	0	%100
51	M12	X	.015	.015	0	%100
52	A	X	.006	.006	0	%100
53	D	X	.006	.006	0	%100
54	C	X	.013	.013	0	%100
55	M28	X	.013	.013	0	%100
56	M29	X	0	0	0	%100
57	M30	X	.013	.013	0	%100
58	I	X	.006	.006	0	%14.1
59	L	X	.006	.006	0	%14.1
60	K	X	.013	.013	0	%5.6
61	H	X	.006	.006	0	%14.1
62	G	X	.013	.013	0	%5.6
63	E	X	.006	.006	0	%14.1
64	M28A	X	.016	.016	0	%100
65	M29A	X	.016	.016	0	%100
66	M30A	X	.011	.011	0	%100
67	B	X	.006	.006	0	%100
68	I	X	.006	.006	%85.9	%100
69	L	X	.006	.006	%85.9	%100
70	K	X	.013	.013	%94.4	%100
71	J	X	.006	.006	0	%100
72	H	X	.006	.006	%85.9	%100
73	G	X	.013	.013	%94.4	%100
74	E	X	.006	.006	%85.9	%100
75	F	X	.006	.006	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	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	0	0	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	0	0	0	%100
13	A	Z	0	0	0	%14.1
14	D	Z	0	0	0	%14.1
15	C	Z	0	0	0	%5.6
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	I	Z	0	0	0	%14.1

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,%]
20	L	Z	0	0	0	%14.1
21	K	Z	0	0	0	%5.6
22	H	Z	0	0	0	%14.1
23	G	Z	0	0	0	%5.6
24	E	Z	0	0	0	%14.1
25	M28A	Z	0	0	0	%100
26	M29A	Z	0	0	0	%100
27	M30A	Z	0	0	0	%100
28	A	Z	0	0	%85.9	%100
29	D	Z	0	0	%85.9	%100
30	C	Z	0	0	%94.4	%100
31	B	Z	0	0	0	%100
32	I	Z	0	0	%85.9	%100
33	L	Z	0	0	%85.9	%100
34	K	Z	0	0	%94.4	%100
35	J	Z	0	0	0	%100
36	H	Z	0	0	%85.9	%100
37	G	Z	0	0	%94.4	%100
38	E	Z	0	0	%85.9	%100
39	F	Z	0	0	0	%100
40	M1	X	0	0	0	%100
41	M2	X	.012	.012	0	%100
42	M3	X	.012	.012	0	%100
43	M4	X	0	0	0	%100
44	M5	X	.031	.031	0	%100
45	M6	X	.008	.008	0	%100
46	M7	X	.008	.008	0	%100
47	M8	X	.012	.012	0	%100
48	M9	X	.012	.012	0	%100
49	M10	X	.023	.023	0	%100
50	M11	X	.006	.006	0	%100
51	M12	X	.006	.006	0	%100
52	A	X	.007	.007	0	%100
53	D	X	.007	.007	0	%100
54	C	X	.015	.015	0	%100
55	M28	X	.02	.02	0	%100
56	M29	X	.005	.005	0	%100
57	M30	X	.005	.005	0	%100
58	I	X	.007	.007	0	%14.1
59	L	X	.007	.007	0	%14.1
60	K	X	.015	.015	0	%5.6
61	H	X	.007	.007	0	%14.1
62	G	X	.015	.015	0	%5.6
63	E	X	.007	.007	0	%14.1
64	M28A	X	.014	.014	0	%100
65	M29A	X	.02	.02	0	%100
66	M30A	X	.014	.014	0	%100
67	B	X	.007	.007	0	%100
68	I	X	.007	.007	%85.9	%100
69	L	X	.007	.007	%85.9	%100
70	K	X	.015	.015	%94.4	%100
71	J	X	.007	.007	0	%100
72	H	X	.007	.007	%85.9	%100
73	G	X	.015	.015	%94.4	%100
74	E	X	.007	.007	%85.9	%100
75	F	X	.007	.007	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	M1	Z	.002	.002	0	%100
2	M2	Z	.008	.008	0	%100
3	M3	Z	.002	.002	0	%100
4	M4	Z	.002	.002	0	%100
5	M5	Z	.012	.012	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	.012	.012	0	%100
8	M8	Z	.008	.008	0	%100
9	M9	Z	.002	.002	0	%100
10	M10	Z	.009	.009	0	%100
11	M11	Z	.009	.009	0	%100
12	M12	Z	0	0	0	%100
13	A	Z	.004	.004	0	%14.1
14	D	Z	.004	.004	0	%14.1
15	C	Z	.007	.007	0	%5.6
16	M28	Z	.008	.008	0	%100
17	M29	Z	.008	.008	0	%100
18	M30	Z	0	0	0	%100
19	I	Z	.004	.004	0	%14.1
20	L	Z	.004	.004	0	%14.1
21	K	Z	.007	.007	0	%5.6
22	H	Z	.004	.004	0	%14.1
23	G	Z	.007	.007	0	%5.6
24	E	Z	.004	.004	0	%14.1
25	M28A	Z	.006	.006	0	%100
26	M29A	Z	.009	.009	0	%100
27	M30A	Z	.009	.009	0	%100
28	A	Z	.004	.004	%85.9	%100
29	D	Z	.004	.004	%85.9	%100
30	C	Z	.007	.007	%94.4	%100
31	B	Z	.004	.004	0	%100
32	I	Z	.004	.004	%85.9	%100
33	L	Z	.004	.004	%85.9	%100
34	K	Z	.007	.007	%94.4	%100
35	J	Z	.004	.004	0	%100
36	H	Z	.004	.004	%85.9	%100
37	G	Z	.007	.007	%94.4	%100
38	E	Z	.004	.004	%85.9	%100
39	F	Z	.004	.004	0	%100
40	M1	X	.003	.003	0	%100
41	M2	X	.013	.013	0	%100
42	M3	X	.003	.003	0	%100
43	M4	X	.003	.003	0	%100
44	M5	X	.02	.02	0	%100
45	M6	X	0	0	0	%100
46	M7	X	.02	.02	0	%100
47	M8	X	.013	.013	0	%100
48	M9	X	.003	.003	0	%100
49	M10	X	.015	.015	0	%100
50	M11	X	.015	.015	0	%100
51	M12	X	0	0	0	%100
52	A	X	.006	.006	0	%100
53	D	X	.006	.006	0	%100
54	C	X	.013	.013	0	%100
55	M28	X	.013	.013	0	%100
56	M29	X	.013	.013	0	%100
57	M30	X	0	0	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,%]
58	I	X	.006	.006	0	%14.1
59	L	X	.006	.006	0	%14.1
60	K	X	.013	.013	0	%5.6
61	H	X	.006	.006	0	%14.1
62	G	X	.013	.013	0	%5.6
63	E	X	.006	.006	0	%14.1
64	M28A	X	.011	.011	0	%100
65	M29A	X	.016	.016	0	%100
66	M30A	X	.016	.016	0	%100
67	B	X	.006	.006	0	%100
68	I	X	.006	.006	%85.9	%100
69	L	X	.006	.006	%85.9	%100
70	K	X	.013	.013	%94.4	%100
71	J	X	.006	.006	0	%100
72	H	X	.006	.006	%85.9	%100
73	G	X	.013	.013	%94.4	%100
74	E	X	.006	.006	%85.9	%100
75	F	X	.006	.006	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	M1	Z	.01	.01	0	%100
2	M2	Z	.01	.01	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	.01	.01	0	%100
5	M5	Z	.007	.007	0	%100
6	M6	Z	.007	.007	0	%100
7	M7	Z	.027	.027	0	%100
8	M8	Z	.01	.01	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	.005	.005	0	%100
11	M11	Z	.02	.02	0	%100
12	M12	Z	.005	.005	0	%100
13	A	Z	.006	.006	0	%14.1
14	D	Z	.006	.006	0	%14.1
15	C	Z	.013	.013	0	%5.6
16	M28	Z	.004	.004	0	%100
17	M29	Z	.018	.018	0	%100
18	M30	Z	.004	.004	0	%100
19	I	Z	.006	.006	0	%14.1
20	L	Z	.006	.006	0	%14.1
21	K	Z	.013	.013	0	%5.6
22	H	Z	.006	.006	0	%14.1
23	G	Z	.013	.013	0	%5.6
24	E	Z	.006	.006	0	%14.1
25	M28A	Z	.012	.012	0	%100
26	M29A	Z	.012	.012	0	%100
27	M30A	Z	.018	.018	0	%100
28	A	Z	.006	.006	%85.9	%100
29	D	Z	.006	.006	%85.9	%100
30	C	Z	.013	.013	%94.4	%100
31	B	Z	.006	.006	0	%100
32	I	Z	.006	.006	%85.9	%100
33	L	Z	.006	.006	%85.9	%100
34	K	Z	.013	.013	%94.4	%100
35	J	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,%]
36	H	Z	.006	.006	%85.9	%100
37	G	Z	.013	.013	%94.4	%100
38	E	Z	.006	.006	%85.9	%100
39	F	Z	.006	.006	0	%100
40	M1	X	.006	.006	0	%100
41	M2	X	.006	.006	0	%100
42	M3	X	0	0	0	%100
43	M4	X	.006	.006	0	%100
44	M5	X	.004	.004	0	%100
45	M6	X	.004	.004	0	%100
46	M7	X	.015	.015	0	%100
47	M8	X	.006	.006	0	%100
48	M9	X	0	0	0	%100
49	M10	X	.003	.003	0	%100
50	M11	X	.012	.012	0	%100
51	M12	X	.003	.003	0	%100
52	A	X	.004	.004	0	%100
53	D	X	.004	.004	0	%100
54	C	X	.007	.007	0	%100
55	M28	X	.003	.003	0	%100
56	M29	X	.01	.01	0	%100
57	M30	X	.003	.003	0	%100
58	I	X	.004	.004	0	%14.1
59	L	X	.004	.004	0	%14.1
60	K	X	.007	.007	0	%5.6
61	H	X	.004	.004	0	%14.1
62	G	X	.007	.007	0	%5.6
63	E	X	.004	.004	0	%14.1
64	M28A	X	.007	.007	0	%100
65	M29A	X	.007	.007	0	%100
66	M30A	X	.01	.01	0	%100
67	B	X	.004	.004	0	%100
68	I	X	.004	.004	%85.9	%100
69	L	X	.004	.004	%85.9	%100
70	K	X	.007	.007	%94.4	%100
71	J	X	.004	.004	0	%100
72	H	X	.004	.004	%85.9	%100
73	G	X	.007	.007	%94.4	%100
74	E	X	.004	.004	%85.9	%100
75	F	X	.004	.004	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	M1	Z	-.005	-.005	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.001	-.001	0	%100
4	M4	Z	-.005	-.005	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	-.006	-.006	0	%100
7	M7	Z	-.006	-.006	0	%100
8	M8	Z	-.001	-.001	0	%100
9	M9	Z	-.001	-.001	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	-.005	-.005	0	%100
12	M12	Z	-.005	-.005	0	%100
13	A	Z	-.003	-.003	0	%14.1

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,%]
14	D	Z	-.003	-.003	0	%14.1
15	C	Z	-.005	-.005	0	%5.6
16	M28	Z	0	0	0	%100
17	M29	Z	-.005	-.005	0	%100
18	M30	Z	-.005	-.005	0	%100
19	I	Z	-.003	-.003	0	%14.1
20	L	Z	-.003	-.003	0	%14.1
21	K	Z	-.005	-.005	0	%5.6
22	H	Z	-.003	-.003	0	%14.1
23	G	Z	-.005	-.005	0	%5.6
24	E	Z	-.003	-.003	0	%14.1
25	M28A	Z	-.005	-.005	0	%100
26	M29A	Z	-.004	-.004	0	%100
27	M30A	Z	-.005	-.005	0	%100
28	A	Z	-.003	-.003	%85.9	%100
29	D	Z	-.003	-.003	%85.9	%100
30	C	Z	-.005	-.005	%94.4	%100
31	B	Z	-.003	-.003	0	%100
32	I	Z	-.003	-.003	%85.9	%100
33	L	Z	-.003	-.003	%85.9	%100
34	K	Z	-.005	-.005	%94.4	%100
35	J	Z	-.003	-.003	0	%100
36	H	Z	-.003	-.003	%85.9	%100
37	G	Z	-.005	-.005	%94.4	%100
38	E	Z	-.003	-.003	%85.9	%100
39	F	Z	-.003	-.003	0	%100
40	M1	X	0	0	0	%100
41	M2	X	0	0	0	%100
42	M3	X	0	0	0	%100
43	M4	X	0	0	0	%100
44	M5	X	0	0	0	%100
45	M6	X	0	0	0	%100
46	M7	X	0	0	0	%100
47	M8	X	0	0	0	%100
48	M9	X	0	0	0	%100
49	M10	X	0	0	0	%100
50	M11	X	0	0	0	%100
51	M12	X	0	0	0	%100
52	A	X	0	0	0	%100
53	D	X	0	0	0	%100
54	C	X	0	0	0	%100
55	M28	X	0	0	0	%100
56	M29	X	0	0	0	%100
57	M30	X	0	0	0	%100
58	I	X	0	0	0	%14.1
59	L	X	0	0	0	%14.1
60	K	X	0	0	0	%5.6
61	H	X	0	0	0	%14.1
62	G	X	0	0	0	%5.6
63	E	X	0	0	0	%14.1
64	M28A	X	0	0	0	%100
65	M29A	X	0	0	0	%100
66	M30A	X	0	0	0	%100
67	B	X	0	0	0	%100
68	I	X	0	0	%85.9	%100
69	L	X	0	0	%85.9	%100
70	K	X	0	0	%94.4	%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,%]
71	J	X	0	0	0	%100
72	H	X	0	0	%85.9	%100
73	G	X	0	0	%94.4	%100
74	E	X	0	0	%85.9	%100
75	F	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	M1	Z	-.003	-.003	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	-.002	-.002	0	%100
4	M4	Z	-.003	-.003	0	%100
5	M5	Z	-.001	-.001	0	%100
6	M6	Z	-.006	-.006	0	%100
7	M7	Z	-.003	-.003	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	-.002	-.002	0	%100
10	M10	Z	-.001	-.001	0	%100
11	M11	Z	-.002	-.002	0	%100
12	M12	Z	-.005	-.005	0	%100
13	A	Z	-.003	-.003	0	%14.1
14	D	Z	-.003	-.003	0	%14.1
15	C	Z	-.004	-.004	0	%5.6
16	M28	Z	-.001	-.001	0	%100
17	M29	Z	-.003	-.003	0	%100
18	M30	Z	-.005	-.005	0	%100
19	I	Z	-.003	-.003	0	%14.1
20	L	Z	-.003	-.003	0	%14.1
21	K	Z	-.004	-.004	0	%5.6
22	H	Z	-.003	-.003	0	%14.1
23	G	Z	-.004	-.004	0	%5.6
24	E	Z	-.003	-.003	0	%14.1
25	M28A	Z	-.005	-.005	0	%100
26	M29A	Z	-.004	-.004	0	%100
27	M30A	Z	-.004	-.004	0	%100
28	A	Z	-.003	-.003	%85.9	%100
29	D	Z	-.003	-.003	%85.9	%100
30	C	Z	-.004	-.004	%94.4	%100
31	B	Z	-.003	-.003	0	%100
32	I	Z	-.003	-.003	%85.9	%100
33	L	Z	-.003	-.003	%85.9	%100
34	K	Z	-.004	-.004	%94.4	%100
35	J	Z	-.003	-.003	0	%100
36	H	Z	-.003	-.003	%85.9	%100
37	G	Z	-.004	-.004	%94.4	%100
38	E	Z	-.003	-.003	%85.9	%100
39	F	Z	-.003	-.003	0	%100
40	M1	X	.002	.002	0	%100
41	M2	X	0	0	0	%100
42	M3	X	.001	.001	0	%100
43	M4	X	.002	.002	0	%100
44	M5	X	.001	.001	0	%100
45	M6	X	.003	.003	0	%100
46	M7	X	.001	.001	0	%100
47	M8	X	0	0	0	%100
48	M9	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,%]
49	M10	X	.001	.001	0	%100
50	M11	X	.001	.001	0	%100
51	M12	X	.003	.003	0	%100
52	A	X	.002	.002	0	%100
53	D	X	.002	.002	0	%100
54	C	X	.002	.002	0	%100
55	M28	X	0	0	0	%100
56	M29	X	.001	.001	0	%100
57	M30	X	.003	.003	0	%100
58	I	X	.002	.002	0	%14.1
59	L	X	.002	.002	0	%14.1
60	K	X	.002	.002	0	%5.6
61	H	X	.002	.002	0	%14.1
62	G	X	.002	.002	0	%5.6
63	E	X	.002	.002	0	%14.1
64	M28A	X	.003	.003	0	%100
65	M29A	X	.002	.002	0	%100
66	M30A	X	.002	.002	0	%100
67	B	X	.002	.002	0	%100
68	I	X	.002	.002	%85.9	%100
69	L	X	.002	.002	%85.9	%100
70	K	X	.002	.002	%94.4	%100
71	J	X	.002	.002	0	%100
72	H	X	.002	.002	%85.9	%100
73	G	X	.002	.002	%94.4	%100
74	E	X	.002	.002	%85.9	%100
75	F	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	M1	Z	-.001	-.001	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.002	-.002	0	%100
4	M4	Z	-.001	-.001	0	%100
5	M5	Z	-.002	-.002	0	%100
6	M6	Z	-.003	-.003	0	%100
7	M7	Z	-.001	-.001	0	%100
8	M8	Z	-.001	-.001	0	%100
9	M9	Z	-.002	-.002	0	%100
10	M10	Z	-.002	-.002	0	%100
11	M11	Z	-.001	-.001	0	%100
12	M12	Z	-.002	-.002	0	%100
13	A	Z	-.002	-.002	0	%14.1
14	D	Z	-.002	-.002	0	%14.1
15	C	Z	-.002	-.002	0	%5.6
16	M28	Z	-.001	-.001	0	%100
17	M29	Z	-.001	-.001	0	%100
18	M30	Z	-.002	-.002	0	%100
19	I	Z	-.002	-.002	0	%14.1
20	L	Z	-.002	-.002	0	%14.1
21	K	Z	-.002	-.002	0	%5.6
22	H	Z	-.002	-.002	0	%14.1
23	G	Z	-.002	-.002	0	%5.6
24	E	Z	-.002	-.002	0	%14.1
25	M28A	Z	-.003	-.003	0	%100
26	M29A	Z	-.003	-.003	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,%]
27	M30A	Z	-.002	-.002	0	%100
28	A	Z	-.002	-.002	%85.9	%100
29	D	Z	-.002	-.002	%85.9	%100
30	C	Z	-.002	-.002	%94.4	%100
31	B	Z	-.002	-.002	0	%100
32	I	Z	-.002	-.002	%85.9	%100
33	L	Z	-.002	-.002	%85.9	%100
34	K	Z	-.002	-.002	%94.4	%100
35	J	Z	-.002	-.002	0	%100
36	H	Z	-.002	-.002	%85.9	%100
37	G	Z	-.002	-.002	%94.4	%100
38	E	Z	-.002	-.002	%85.9	%100
39	F	Z	-.002	-.002	0	%100
40	M1	X	.002	.002	0	%100
41	M2	X	.001	.001	0	%100
42	M3	X	.003	.003	0	%100
43	M4	X	.002	.002	0	%100
44	M5	X	.003	.003	0	%100
45	M6	X	.005	.005	0	%100
46	M7	X	.001	.001	0	%100
47	M8	X	.001	.001	0	%100
48	M9	X	.003	.003	0	%100
49	M10	X	.003	.003	0	%100
50	M11	X	.002	.002	0	%100
51	M12	X	.004	.004	0	%100
52	A	X	.003	.003	0	%100
53	D	X	.003	.003	0	%100
54	C	X	.004	.004	0	%100
55	M28	X	.002	.002	0	%100
56	M29	X	.002	.002	0	%100
57	M30	X	.004	.004	0	%100
58	I	X	.003	.003	0	%14.1
59	L	X	.003	.003	0	%14.1
60	K	X	.004	.004	0	%5.6
61	H	X	.003	.003	0	%14.1
62	G	X	.004	.004	0	%5.6
63	E	X	.003	.003	0	%14.1
64	M28A	X	.004	.004	0	%100
65	M29A	X	.004	.004	0	%100
66	M30A	X	.003	.003	0	%100
67	B	X	.003	.003	0	%100
68	I	X	.003	.003	%85.9	%100
69	L	X	.003	.003	%85.9	%100
70	K	X	.004	.004	%94.4	%100
71	J	X	.003	.003	0	%100
72	H	X	.003	.003	%85.9	%100
73	G	X	.004	.004	%94.4	%100
74	E	X	.003	.003	%85.9	%100
75	F	X	.003	.003	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	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	0	0	0	%100

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,%]
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	0	0	0	%100
13	A	Z	0	0	0	%14.1
14	D	Z	0	0	0	%14.1
15	C	Z	0	0	0	%5.6
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	I	Z	0	0	0	%14.1
20	L	Z	0	0	0	%14.1
21	K	Z	0	0	0	%5.6
22	H	Z	0	0	0	%14.1
23	G	Z	0	0	0	%5.6
24	E	Z	0	0	0	%14.1
25	M28A	Z	0	0	0	%100
26	M29A	Z	0	0	0	%100
27	M30A	Z	0	0	0	%100
28	A	Z	0	0	%85.9	%100
29	D	Z	0	0	%85.9	%100
30	C	Z	0	0	%94.4	%100
31	B	Z	0	0	0	%100
32	I	Z	0	0	%85.9	%100
33	L	Z	0	0	%85.9	%100
34	K	Z	0	0	%94.4	%100
35	J	Z	0	0	0	%100
36	H	Z	0	0	%85.9	%100
37	G	Z	0	0	%94.4	%100
38	E	Z	0	0	%85.9	%100
39	F	Z	0	0	0	%100
40	M1	X	.002	.002	0	%100
41	M2	X	.002	.002	0	%100
42	M3	X	.002	.002	0	%100
43	M4	X	.002	.002	0	%100
44	M5	X	.005	.005	0	%100
45	M6	X	.003	.003	0	%100
46	M7	X	.003	.003	0	%100
47	M8	X	.002	.002	0	%100
48	M9	X	.002	.002	0	%100
49	M10	X	.004	.004	0	%100
50	M11	X	.003	.003	0	%100
51	M12	X	.003	.003	0	%100
52	A	X	.003	.003	0	%100
53	D	X	.003	.003	0	%100
54	C	X	.005	.005	0	%100
55	M28	X	.004	.004	0	%100
56	M29	X	.003	.003	0	%100
57	M30	X	.003	.003	0	%100
58	I	X	.003	.003	0	%14.1
59	L	X	.003	.003	0	%14.1
60	K	X	.005	.005	0	%5.6
61	H	X	.003	.003	0	%14.1

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,%]
62	G	X	.005	.005	0	%5.6
63	E	X	.003	.003	0	%14.1
64	M28A	X	.004	.004	0	%100
65	M29A	X	.006	.006	0	%100
66	M30A	X	.004	.004	0	%100
67	B	X	.003	.003	0	%100
68	I	X	.003	.003	%85.9	%100
69	L	X	.003	.003	%85.9	%100
70	K	X	.005	.005	%94.4	%100
71	J	X	.003	.003	0	%100
72	H	X	.003	.003	%85.9	%100
73	G	X	.005	.005	%94.4	%100
74	E	X	.003	.003	%85.9	%100
75	F	X	.003	.003	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	M1	Z	.001	.001	0	%100
2	M2	Z	.002	.002	0	%100
3	M3	Z	.001	.001	0	%100
4	M4	Z	.001	.001	0	%100
5	M5	Z	.002	.002	0	%100
6	M6	Z	.001	.001	0	%100
7	M7	Z	.003	.003	0	%100
8	M8	Z	.002	.002	0	%100
9	M9	Z	.001	.001	0	%100
10	M10	Z	.002	.002	0	%100
11	M11	Z	.002	.002	0	%100
12	M12	Z	.001	.001	0	%100
13	A	Z	.002	.002	0	%14.1
14	D	Z	.002	.002	0	%14.1
15	C	Z	.002	.002	0	%5.6
16	M28	Z	.001	.001	0	%100
17	M29	Z	.002	.002	0	%100
18	M30	Z	.001	.001	0	%100
19	I	Z	.002	.002	0	%14.1
20	L	Z	.002	.002	0	%14.1
21	K	Z	.002	.002	0	%5.6
22	H	Z	.002	.002	0	%14.1
23	G	Z	.002	.002	0	%5.6
24	E	Z	.002	.002	0	%14.1
25	M28A	Z	.002	.002	0	%100
26	M29A	Z	.003	.003	0	%100
27	M30A	Z	.003	.003	0	%100
28	A	Z	.002	.002	%85.9	%100
29	D	Z	.002	.002	%85.9	%100
30	C	Z	.002	.002	%94.4	%100
31	B	Z	.002	.002	0	%100
32	I	Z	.002	.002	%85.9	%100
33	L	Z	.002	.002	%85.9	%100
34	K	Z	.002	.002	%94.4	%100
35	J	Z	.002	.002	0	%100
36	H	Z	.002	.002	%85.9	%100
37	G	Z	.002	.002	%94.4	%100
38	E	Z	.002	.002	%85.9	%100
39	F	Z	.002	.002	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,%]
40	M1	X	.002	.002	0	%100
41	M2	X	.003	.003	0	%100
42	M3	X	.001	.001	0	%100
43	M4	X	.002	.002	0	%100
44	M5	X	.003	.003	0	%100
45	M6	X	.001	.001	0	%100
46	M7	X	.005	.005	0	%100
47	M8	X	.003	.003	0	%100
48	M9	X	.001	.001	0	%100
49	M10	X	.003	.003	0	%100
50	M11	X	.004	.004	0	%100
51	M12	X	.002	.002	0	%100
52	A	X	.003	.003	0	%100
53	D	X	.003	.003	0	%100
54	C	X	.004	.004	0	%100
55	M28	X	.002	.002	0	%100
56	M29	X	.004	.004	0	%100
57	M30	X	.002	.002	0	%100
58	I	X	.003	.003	0	%14.1
59	L	X	.003	.003	0	%14.1
60	K	X	.004	.004	0	%5.6
61	H	X	.003	.003	0	%14.1
62	G	X	.004	.004	0	%5.6
63	E	X	.003	.003	0	%14.1
64	M28A	X	.003	.003	0	%100
65	M29A	X	.004	.004	0	%100
66	M30A	X	.004	.004	0	%100
67	B	X	.003	.003	0	%100
68	I	X	.003	.003	%85.9	%100
69	L	X	.003	.003	%85.9	%100
70	K	X	.004	.004	%94.4	%100
71	J	X	.003	.003	0	%100
72	H	X	.003	.003	%85.9	%100
73	G	X	.004	.004	%94.4	%100
74	E	X	.003	.003	%85.9	%100
75	F	X	.003	.003	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	M1	Z	.003	.003	0	%100
2	M2	Z	.002	.002	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	.003	.003	0	%100
5	M5	Z	.001	.001	0	%100
6	M6	Z	.003	.003	0	%100
7	M7	Z	.006	.006	0	%100
8	M8	Z	.002	.002	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	.001	.001	0	%100
11	M11	Z	.005	.005	0	%100
12	M12	Z	.002	.002	0	%100
13	A	Z	.003	.003	0	%14.1
14	D	Z	.003	.003	0	%14.1
15	C	Z	.004	.004	0	%5.6
16	M28	Z	.001	.001	0	%100
17	M29	Z	.005	.005	0	%100

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,%]
18	M30	Z	.003	.003	0	%100
19	I	Z	.003	.003	0	%14.1
20	L	Z	.003	.003	0	%14.1
21	K	Z	.004	.004	0	%5.6
22	H	Z	.003	.003	0	%14.1
23	G	Z	.004	.004	0	%5.6
24	E	Z	.003	.003	0	%14.1
25	M28A	Z	.004	.004	0	%100
26	M29A	Z	.004	.004	0	%100
27	M30A	Z	.005	.005	0	%100
28	A	Z	.003	.003	%85.9	%100
29	D	Z	.003	.003	%85.9	%100
30	C	Z	.004	.004	%94.4	%100
31	B	Z	.003	.003	0	%100
32	I	Z	.003	.003	%85.9	%100
33	L	Z	.003	.003	%85.9	%100
34	K	Z	.004	.004	%94.4	%100
35	J	Z	.003	.003	0	%100
36	H	Z	.003	.003	%85.9	%100
37	G	Z	.004	.004	%94.4	%100
38	E	Z	.003	.003	%85.9	%100
39	F	Z	.003	.003	0	%100
40	M1	X	.002	.002	0	%100
41	M2	X	.001	.001	0	%100
42	M3	X	0	0	0	%100
43	M4	X	.002	.002	0	%100
44	M5	X	.001	.001	0	%100
45	M6	X	.001	.001	0	%100
46	M7	X	.003	.003	0	%100
47	M8	X	.001	.001	0	%100
48	M9	X	0	0	0	%100
49	M10	X	.001	.001	0	%100
50	M11	X	.003	.003	0	%100
51	M12	X	.001	.001	0	%100
52	A	X	.002	.002	0	%100
53	D	X	.002	.002	0	%100
54	C	X	.002	.002	0	%100
55	M28	X	0	0	0	%100
56	M29	X	.003	.003	0	%100
57	M30	X	.001	.001	0	%100
58	I	X	.002	.002	0	%14.1
59	L	X	.002	.002	0	%14.1
60	K	X	.002	.002	0	%5.6
61	H	X	.002	.002	0	%14.1
62	G	X	.002	.002	0	%5.6
63	E	X	.002	.002	0	%14.1
64	M28A	X	.002	.002	0	%100
65	M29A	X	.002	.002	0	%100
66	M30A	X	.003	.003	0	%100
67	B	X	.002	.002	0	%100
68	I	X	.002	.002	%85.9	%100
69	L	X	.002	.002	%85.9	%100
70	K	X	.002	.002	%94.4	%100
71	J	X	.002	.002	0	%100
72	H	X	.002	.002	%85.9	%100
73	G	X	.002	.002	%94.4	%100
74	E	X	.002	.002	%85.9	%100

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,%]
75	F	X	.002	.002	0	%100

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1			18			
2	Ice Dead	None					18	30		
3	Full Wind Antenna (0 Deg)	None					21			
4	Full Wind Antenna (30 Deg)	None					45			
5	Full Wind Antenna (60 Deg)	None					45			
6	Full Wind Antenna (90 Deg)	None					45			
7	Full Wind Antenna (120 Deg)	None					44			
8	Full Wind Antenna (150 Deg)	None					45			
9	Full Wind Members (0 Deg)	None						75		
10	Full Wind Members (30 Deg)	None						75		
11	Full Wind Members (60 Deg)	None						75		
12	Full Wind Members (90 Deg)	None						75		
13	Full Wind Members (120 Deg)	None						75		
14	Full Wind Members (150 Deg)	None						75		
15	Ice Wind Antenna (0 Deg)	None					21			
16	Ice Wind Antenna (30 Deg)	None					45			
17	Ice Wind Antenna (60 Deg)	None					45			
18	Ice Wind Antenna (90 Deg)	None					45			
19	Ice Wind Antenna (120 Deg)	None					44			
20	Ice Wind Antenna (150 Deg)	None					44			
21	Ice Wind Members (0 Deg)	None						75		
22	Ice Wind Members (30 Deg)	None						75		
23	Ice Wind Members (60 Deg)	None						75		
24	Ice Wind Members (90 Deg)	None						75		
25	Ice Wind Members (120 Deg)	None						75		
26	Ice Wind Members (150 Deg)	None						75		
27	Seismic Antenna (0 Deg)	None					18			
28	Seismic Antenna (90 Deg)	None					18			
29	Seismic Members (0 Deg)	None		-.043	-.107					
30	Seismic Members (30 Deg)	None	.053	-.043	-.093					
31	Seismic Members (60 Deg)	None	.093	-.043	-.053					
32	Seismic Members (90 Deg)	None	.107	-.043	-6.555e-...					
33	Seismic Members (120 Deg)	None	.093	-.043	.053					
34	Seismic Members (150 Deg)	None	.053	-.043	.093					
35	Seismic Members (180 Deg)	None	1.311e-17	-.043	.107					
36	Seismic Members (210 Deg)	None	-.053	-.043	.093					
37	Seismic Members (240 Deg)	None	-.093	-.043	.053					
38	Seismic Members (270 Deg)	None	-.107	-.043	1.966e-17					
39	Seismic Members (300 Deg)	None	-.093	-.043	-.053					
40	Seismic Members (330 Deg)	None	-.053	-.043	-.093					
41	Seismic Vertical Antennas	None					18			
42	Man 1 (500 lbs)	None				1				
43	Man 2 (500 lbs)	None				1				
44	Man 3 (500 lbs)	None				1				
45	Man 4 (250 lbs)	None				1				
46	Man 5 (250 lbs)	None				1				
47	Man 6 (250 lbs)	None				1				

Load Combinations

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D + 1.0W 0°	Yes	Y		1	1.2	3	1	9	1														
3	1.2D + 1.0W 30°	Yes	Y		1	1.2	4	1	10	1														
4	1.2D + 1.0W 60°	Yes	Y		1	1.2	5	1	11	1														
5	1.2D + 1.0W 90°	Yes	Y		1	1.2	6	1	12	1														
6	1.2D + 1.0W 120°	Yes	Y		1	1.2	7	1	13	1														
7	1.2D + 1.0W 150°	Yes	Y		1	1.2	8	1	14	1														
8	1.2D + 1.0W 180°	Yes	Y		1	1.2	3	-1	9	-1														
9	1.2D + 1.0W 210°	Yes	Y		1	1.2	4	-1	10	-1														
10	1.2D + 1.0W 240°	Yes	Y		1	1.2	5	-1	11	-1														
11	1.2D + 1.0W 270°	Yes	Y		1	1.2	6	-1	12	-1														
12	1.2D + 1.0W 300°	Yes	Y		1	1.2	7	-1	13	-1														
13	1.2D + 1.0W 330°	Yes	Y		1	1.2	8	-1	14	-1														
14	1.2D + 1.0Di + 1.0Wi 0°	Yes	Y		1	1.2	2	1	15	1	21	1												
15	1.2D + 1.0Di + 1.0Wi 30°	Yes	Y		1	1.2	2	1	16	1	22	1												
16	1.2D + 1.0Di + 1.0Wi 60°	Yes	Y		1	1.2	2	1	17	1	23	1												
17	1.2D + 1.0Di + 1.0Wi 90°	Yes	Y		1	1.2	2	1	18	1	24	1												
18	1.2D + 1.0Di + 1.0Wi 120°	Yes	Y		1	1.2	2	1	19	1	25	1												
19	1.2D + 1.0Di + 1.0Wi 150°	Yes	Y		1	1.2	2	1	20	1	26	1												
20	1.2D + 1.0Di + 1.0Wi 180°	Yes	Y		1	1.2	2	1	15	-1	21	-1												
21	1.2D + 1.0Di + 1.0Wi 210°	Yes	Y		1	1.2	2	1	16	-1	22	-1												
22	1.2D + 1.0Di + 1.0Wi 240°	Yes	Y		1	1.2	2	1	17	-1	23	-1												
23	1.2D + 1.0Di + 1.0Wi 270°	Yes	Y		1	1.2	2	1	18	-1	24	-1												
24	1.2D + 1.0Di + 1.0Wi 300°	Yes	Y		1	1.2	2	1	19	-1	25	-1												
25	1.2D + 1.0Di + 1.0Wi 330°	Yes	Y		1	1.2	2	1	20	-1	26	-1												
26	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	3	.058	9	.058	42	1.5												
27	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	4	.058	10	.058	42	1.5												
28	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	5	.058	11	.058	42	1.5												
29	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	6	.058	12	.058	42	1.5												
30	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	7	.058	13	.058	42	1.5												
31	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	8	.058	14	.058	42	1.5												
32	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	3	-.0...	9	-.0...	42	1.5												
33	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	4	-.0...	10	-.0...	42	1.5												
34	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	5	-.0...	11	-.0...	42	1.5												
35	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	6	-.0...	12	-.0...	42	1.5												
36	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	7	-.0...	13	-.0...	42	1.5												
37	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	8	-.0...	14	-.0...	42	1.5												
38	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	3	.058	9	.058	43	1.5												
39	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	4	.058	10	.058	43	1.5												
40	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	5	.058	11	.058	43	1.5												
41	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	6	.058	12	.058	43	1.5												
42	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	7	.058	13	.058	43	1.5												
43	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	8	.058	14	.058	43	1.5												
44	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	3	-.0...	9	-.0...	43	1.5												
45	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	4	-.0...	10	-.0...	43	1.5												
46	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	5	-.0...	11	-.0...	43	1.5												
47	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	6	-.0...	12	-.0...	43	1.5												
48	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	7	-.0...	13	-.0...	43	1.5												
49	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	8	-.0...	14	-.0...	43	1.5												
50	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	3	.058	9	.058	44	1.5												
51	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	4	.058	10	.058	44	1.5												
52	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	5	.058	11	.058	44	1.5												
53	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	6	.058	12	.058	44	1.5												
54	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	7	.058	13	.058	44	1.5												
55	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	8	.058	14	.058	44	1.5												
56	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	3	-.0...	9	-.0...	44	1.5												

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
57	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	4	-.0...	10	-.0...	44	1.5												
58	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	5	-.0...	11	-.0...	44	1.5												
59	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	6	-.0...	12	-.0...	44	1.5												
60	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	7	-.0...	13	-.0...	44	1.5												
61	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	8	-.0...	14	-.0...	44	1.5												
62	1.2D + 1.5Lv_1 0°	Yes	Y		1	1.2	45	1.5																
63	1.2D + 1.5Lv_1 30°	Yes	Y		1	1.2	45	1.5																
64	1.2D + 1.5Lv_1 60°	Yes	Y		1	1.2	45	1.5																
65	1.2D + 1.5Lv_1 90°	Yes	Y		1	1.2	45	1.5																
66	1.2D + 1.5Lv_1 120°	Yes	Y		1	1.2	45	1.5																
67	1.2D + 1.5Lv_1 150°	Yes	Y		1	1.2	45	1.5																
68	1.2D + 1.5Lv_1 180°	Yes	Y		1	1.2	45	1.5																
69	1.2D + 1.5Lv_1 210°	Yes	Y		1	1.2	45	1.5																
70	1.2D + 1.5Lv_1 240°	Yes	Y		1	1.2	45	1.5																
71	1.2D + 1.5Lv_1 270°	Yes	Y		1	1.2	45	1.5																
72	1.2D + 1.5Lv_1 300°	Yes	Y		1	1.2	45	1.5																
73	1.2D + 1.5Lv_1 330°	Yes	Y		1	1.2	45	1.5																
74	1.2D + 1.5Lv_2 0°	Yes	Y		1	1.2	46	1.5																
75	1.2D + 1.5Lv_2 30°	Yes	Y		1	1.2	46	1.5																
76	1.2D + 1.5Lv_2 60°	Yes	Y		1	1.2	46	1.5																
77	1.2D + 1.5Lv_2 90°	Yes	Y		1	1.2	46	1.5																
78	1.2D + 1.5Lv_2 120°	Yes	Y		1	1.2	46	1.5																
79	1.2D + 1.5Lv_2 150°	Yes	Y		1	1.2	46	1.5																
80	1.2D + 1.5Lv_2 180°	Yes	Y		1	1.2	46	1.5																
81	1.2D + 1.5Lv_2 210°	Yes	Y		1	1.2	46	1.5																
82	1.2D + 1.5Lv_2 240°	Yes	Y		1	1.2	46	1.5																
83	1.2D + 1.5Lv_2 270°	Yes	Y		1	1.2	46	1.5																
84	1.2D + 1.5Lv_2 300°	Yes	Y		1	1.2	46	1.5																
85	1.2D + 1.5Lv_2 330°	Yes	Y		1	1.2	46	1.5																
86	1.2D + 1.5Lv_3 0°	Yes	Y		1	1.2	47	1.5																
87	1.2D + 1.5Lv_3 30°	Yes	Y		1	1.2	47	1.5																
88	1.2D + 1.5Lv_3 60°	Yes	Y		1	1.2	47	1.5																
89	1.2D + 1.5Lv_3 90°	Yes	Y		1	1.2	47	1.5																
90	1.2D + 1.5Lv_3 120°	Yes	Y		1	1.2	47	1.5																
91	1.2D + 1.5Lv_3 150°	Yes	Y		1	1.2	47	1.5																
92	1.2D + 1.5Lv_3 180°	Yes	Y		1	1.2	47	1.5																
93	1.2D + 1.5Lv_3 210°	Yes	Y		1	1.2	47	1.5																
94	1.2D + 1.5Lv_3 240°	Yes	Y		1	1.2	47	1.5																
95	1.2D + 1.5Lv_3 270°	Yes	Y		1	1.2	47	1.5																
96	1.2D + 1.5Lv_3 300°	Yes	Y		1	1.2	47	1.5																
97	1.2D + 1.5Lv_3 330°	Yes	Y		1	1.2	47	1.5																
98	1.2D + 1.0EV +1.0 EH 0°	Yes	Y		1	1.2	27	1	28		29	1	40	1										
99	1.2D + 1.0EV +1.0 EH 30°	Yes	Y		1	1.2	27	.866	28	.5	30	1	40	1										
100	1.2D + 1.0EV +1.0 EH 60°	Yes	Y		1	1.2	27	.5	28	.866	31	1	40	1										
101	1.2D + 1.0EV +1.0 EH 90°	Yes	Y		1	1.2	27		28	1	32	1	40	1										
102	1.2D + 1.0EV +1.0 EH 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	-.8...	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	-.8...	28	-.5	36	1	40	1										
106	1.2D + 1.0EV +1.0 EH 24...	Yes	Y		1	1.2	27	-.5	28	-.8...	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	-.8...	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	N53B	max	1.285	10	.988	28	.915	2	-.739	8	1.334	13	.107	4
2		min	-1.259	4	.205	86	-.897	8	-3.213	26	-1.349	7	-.165	34
3	N55	max	1.118	11	.971	57	1.243	3	1.419	59	1.187	9	2.84	58
4		min	-1.092	5	.188	62	-1.234	9	.285	5	-1.239	3	.607	4
5	N57	max	1.083	11	.987	44	1.264	13	1.75	41	1.261	13	-.647	13
6		min	-1.14	5	.204	74	-1.227	7	.324	11	-1.245	7	-2.713	43
7	N56	max	-.334	11	1.175	16	.746	15	0	109	0	109	0	109
8		min	-1.281	16	.352	10	.175	8	0	1	0	1	0	1
9	N57A	max	1.289	23	1.182	24	.75	25	0	109	0	109	0	109
10		min	.334	5	.355	6	.18	8	0	1	0	1	0	1
11	N58	max	.066	11	1.227	20	-.441	2	0	109	0	109	0	109
12		min	-.066	5	.389	2	-1.55	20	0	1	0	1	0	1
13	Totals:	max	3.596	11	6.356	25	3.337	2						
14		min	-3.596	5	2.163	2	-3.337	8						

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

	Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M1	L3X3X4	.351	0	21	.490	7	z	8	15.746	46.656	1.688	3.756	3....	H2-1
2	M2	L3X3X4	.357	7	12	.488	7	z	12	15.746	46.656	1.688	2.275	1	H2-1
3	M3	L3X3X4	.424	7	4	.489	7	y	4	3.945	46.656	1.688	2.789	1....	H2-1
4	M4	L3X3X4	.113	3.61	13	.014	0	y	16	15.459	46.656	1.688	3.436	1....	H2-1
5	M5	LL3x3x4x0	.309	0	18	.030	2	y	23	49.885	93.312	6.48	3.069	1....	H1-1b
6	M6	LL3x3x4x0	.335	0	21	.032	2	y	15	49.885	93.312	6.48	3.069	1....	H1-1b
7	M7	LL3x3x4x0	.334	0	14	.033	2	y	18	49.885	93.312	6.48	3.069	1....	H1-1b
8	M8	L3X3X4	.118	7.072	85	.015	7.072	z	21	15.459	46.656	1.688	3.533	1....	H2-1
9	M9	L3X3X4	.117	0	85	.015	0	z	20	15.459	46.656	1.688	3.538	2....	H2-1
10	M10	HSS4.5X4.5...	.126	2	35	.045	2	y	35	118.936	124.416	16.362	16.362	1....	H1-1b
11	M11	HSS4.5X4.5...	.125	2	55	.047	2	y	55	118.936	124.416	16.362	16.362	1....	H1-1b
12	M12	HSS4.5X4.5...	.131	2	15	.046	2	y	39	118.936	124.416	16.362	16.362	1....	H1-1b
13	A	PIPE_2.0	.114	2.708	8	.010	2.708		9	19.36	32.13	1.872	1.872	1....	H1-1b
14	D	PIPE_2.0	.113	2.708	2	.008	.948		2	19.36	32.13	1.872	1.872	1	H1-1b
15	C	PIPE_2.5	.361	4.406	8	.021	.563		8	26.137	50.715	3.596	3.596	1....	H1-1b
16	M28	HSS4X4X4	.273	1.25	16	.052	1.25	z	4	106.751	109.188	12.663	12.663	1....	H1-1b
17	M29	HSS4X4X4	.257	1.25	15	.051	1.25	y	54	106.751	109.188	12.663	12.663	1....	H1-1b
18	M30	HSS4X4X4	.264	1.25	20	.048	1.25	y	40	106.751	109.188	12.663	12.663	1....	H1-1b
19	B	PIPE_2.0	.028	2.708	6	.003	2.708		6	19.36	32.13	1.872	1.872	1....	H1-1b
20	I	PIPE_2.0	.120	2.708	4	.011	2.708		4	19.36	32.13	1.872	1.872	1....	H1-1b
21	L	PIPE_2.0	.113	2.708	10	.008	.948		10	19.36	32.13	1.872	1.872	1....	H1-1b
22	K	PIPE_2.5	.361	4.406	4	.021	.563		4	26.137	50.715	3.596	3.596	1....	H1-1b
23	J	PIPE_2.0	.028	2.708	13	.003	2.708		13	19.36	32.13	1.872	1.872	1....	H1-1b
24	H	PIPE_2.0	.113	2.708	12	.008	.948		12	19.36	32.13	1.872	1.872	1....	H1-1b
25	G	PIPE_2.5	.361	4.406	12	.021	.563		12	26.137	50.715	3.596	3.596	1....	H1-1b
26	E	PIPE_2.0	.117	2.708	12	.010	2.708		12	19.36	32.13	1.872	1.872	1....	H1-1b
27	F	PIPE_2.0	.028	2.708	9	.003	2.708		9	19.36	32.13	1.872	1.872	1....	H1-1b
28	M28A	LL2x2x4x0	.090	3.317	20	.004	6.633	z	9	24.624	61.236	2.894	2.114	1....	H1-1b
29	M29A	LL2x2x4x0	.092	3.317	16	.003	0	z	11	24.624	61.236	2.894	2.114	1....	H1-1b
30	M30A	LL2x2x4x0	.089	3.317	20	.004	0	z	13	24.624	61.236	2.894	2.114	1....	H1-1b

APPENDIX D

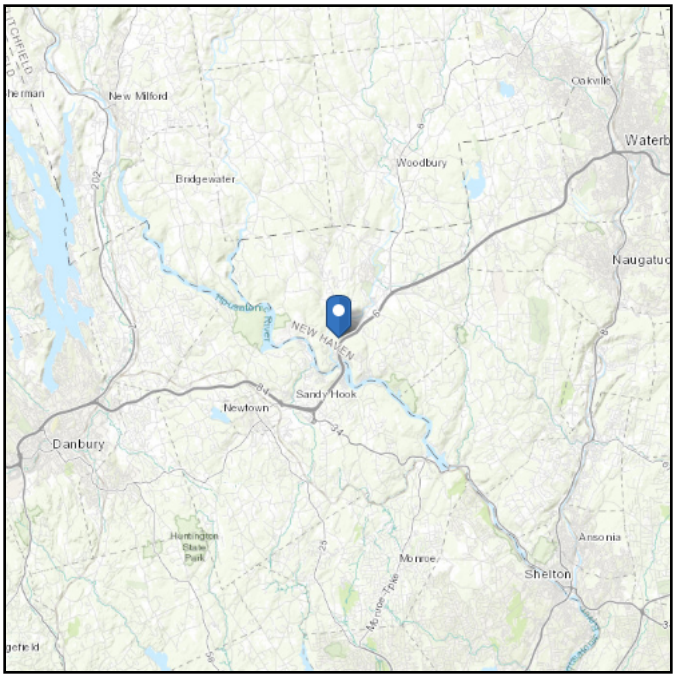
ADDITIONAL CALCUATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 445.14 ft (NAVD 88)
Latitude: 41.452214
Longitude: -73.250347



Wind

Results:

Wind Speed:	Southbury County Vult from WSEL=120mph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Thu Apr 25 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.

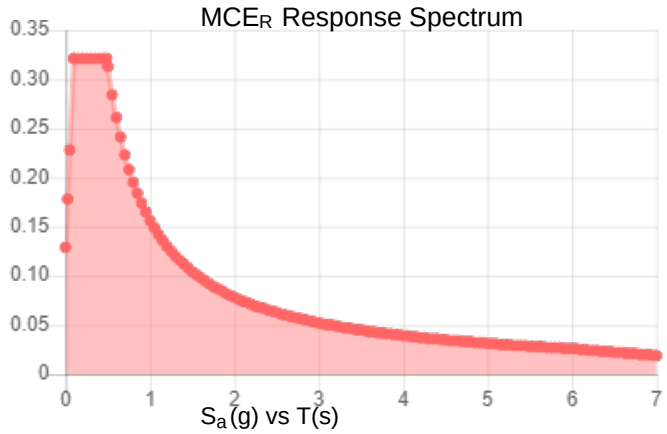
Seismic

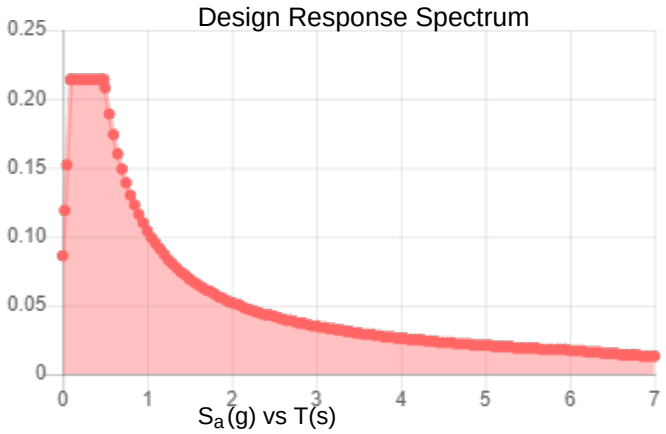
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.201	S_{DS} :	0.214
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.107
S_{MS} :	0.321	PGA_M :	0.169
S_{M1} :	0.156	F_{PGA} :	1.587
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Apr 25 2019

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Apr 25 2019

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

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

APPENDIX E

MODIFICATION DRAWINGS

MOUNT REINFORCEMENT DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: HORSE HILL
BU NUMBER: 876314

SITE ADDRESS:
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
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

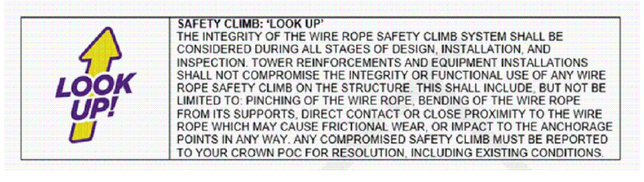
TOWER HEIGHT / TYPE:	130 FT MONOPOLE TOWER
MOUNT HEIGHT/TYPE:	100 FT 14 FT PLATFORM MOUNT
TOWER LOCATION:	LAT: 41° 27' 7.97"
	LONG: -73° 15' 1.25"
MODIFICATION DRAWINGS:	MASTEC
MASTEC PROJECT NUMBER:	18543-MOD1
MA FAILING CCI DOCUMENT ID:	8366050
MOUNT ANALYSIS DATE:	05/30/2019
ORDER NUMBER:	479810, REV. 0
JDE JOB NUMBER:	559320

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.



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	PLATFORM REINFORCEMENT DETAILS		
S-3	REINFORCEMENT CONNECTION DETAILS		
A-1	MANUFACTURER SPECIFICATIONS I		

NO.	DATE	DESCRIPTION	BY
0	05/31/19	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.

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MORRISVILLE, NC 27560

SITE NAME: HORSE HILL

BU NUMBER: 876314

WO NUMBER: 479810
MNS ENG. NUMBER: 18543 - MOD1

SITE ADDRESS:
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
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
X	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	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	05/31/19	FIRST ISSUE	JMB

REVISIONS

RAPHAEL I. MOHAMED, PE,PEng
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CT PE LICENSE NO. 25112

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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
ALL	BOLTS	A325	120 KSI	105 KSI

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NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

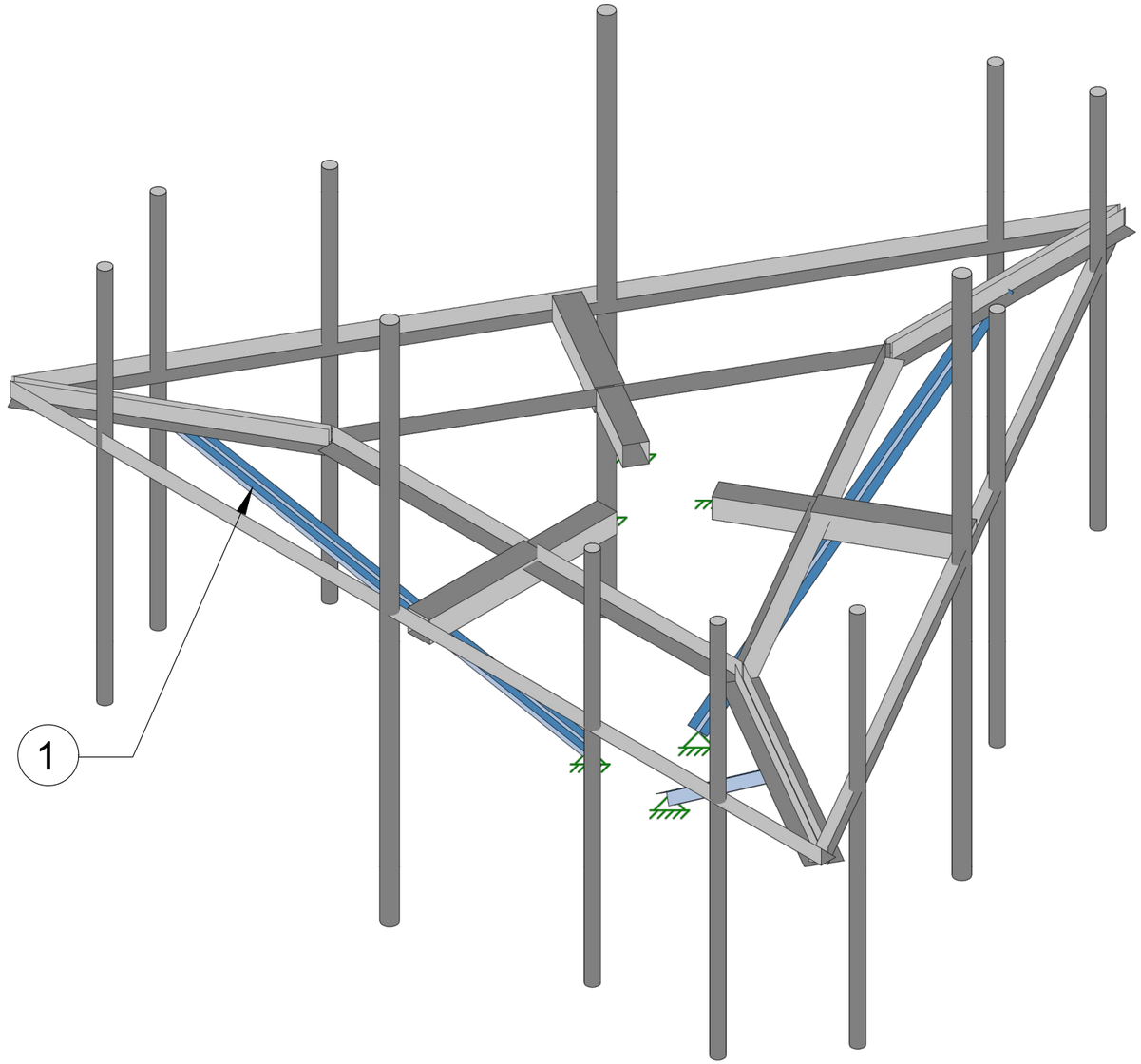
NOTES

N-2

REV 0

MODIFICATION SCHEDULE

SCOPE NO.	MODIFICATION DESCRIPTION	BOTTOM ELEVATION	TOP ELEVATION	SHEET NO.
1	INSTALLATION OF NEW SABRE C10851202DP	-	100'-0" ±	S-2



NOTES:

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

NO.	DATE	DESCRIPTION	BY
0	05/31/19	FIRST ISSUE	JMB

REVISIONS

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

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.

SITE NAME: HORSE HILL

BU NUMBER: 876314

WO NUMBER: 479810
MNS ENG. NUMBER: 18543 - MOD1

SITE ADDRESS:
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

MODIFICATION SCHEDULE

S-1

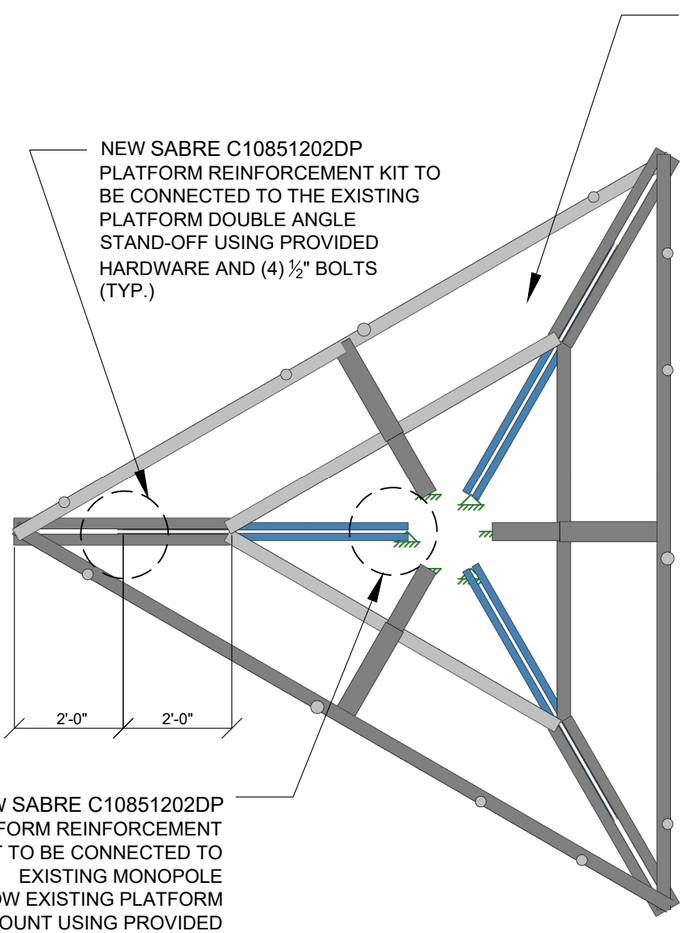
REV 0

NOTES:

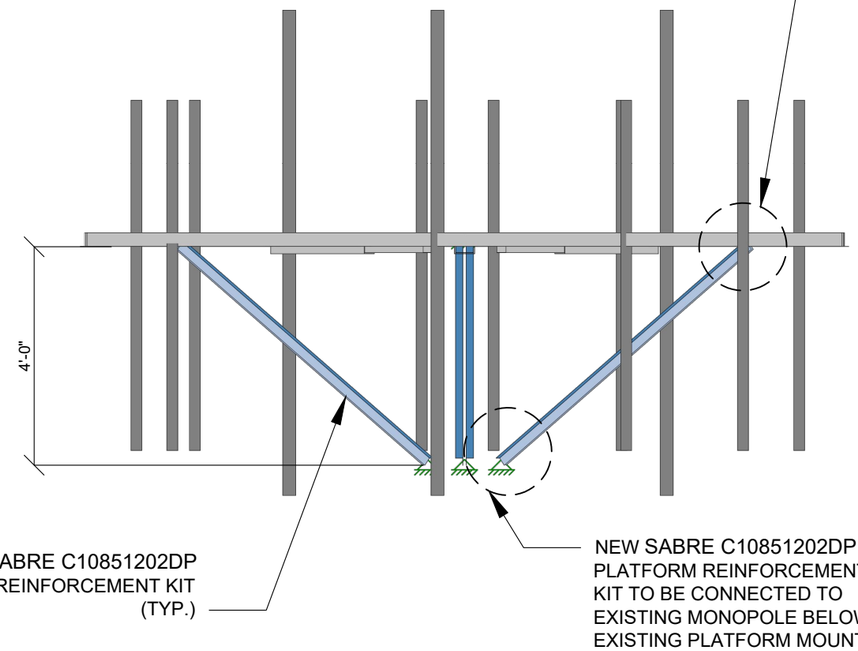
1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW ANGLES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW PLATFORM STABILIZER KIT MATERIAL LIST

SABRE PART NO.	QTY.	LENGTH	DESCRIPTION
C10851202DP	1	ADJUSTABLE	PLATFORM REINFORCEMENT KIT



1 S-2 C10851202DP INSTALLATION
PLAN VIEW
NTS



2 S-2 C10851202DP INSTALLATION
SIDE VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	05/31/19	FIRST ISSUE	JMB

REVISIONS

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

SITE NAME: HORSE HILL

BU NUMBER: 876314

WO NUMBER: 479810
MNS ENG. NUMBER: 18543 - MOD1

SITE ADDRESS:
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

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PLATFORM REINFORCEMENT DETAILS

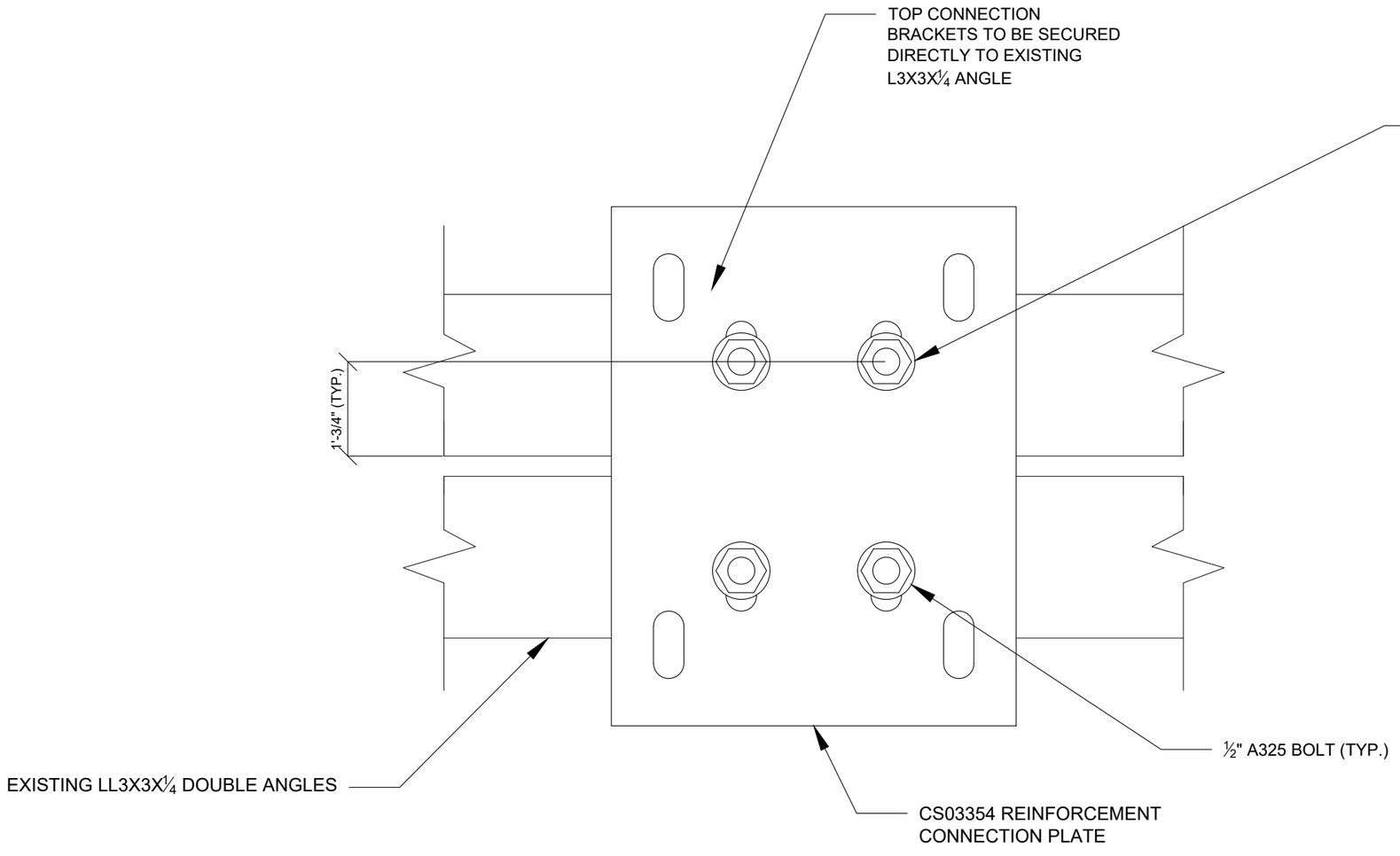
S-2 REV 0

NOTES:

1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW ANGLES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW PLATFORM STABILIZER KIT MATERIAL LIST

SABRE PART NO.	QTY.	LENGTH	DESCRIPTION
C10851202DP	1	ADJUSTABLE	PLATFORM REINFORCEMENT KIT



1 / S-3 C10851202DP INSTALLATION

TOP VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	05/31/19	FIRST ISSUE	JMB

REVISIONS

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

STATE OF CONNECTICUT
RAPHAEL MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER

SITE NAME: HORSE HILL

BU NUMBER: 876314

WO NUMBER: 479810
MNS ENG. NUMBER: 18543 - MOD1

SITE ADDRESS:
214 RUSSIAN VILLAGE RD
SOUTHBURY, CT 06488
NEW HAVEN COUNTY, USA

DRAWN BY: JMB

CHECKED BY: EJM

APPROVED BY: RIM

SCALE: N.T.S

RAPHAEL I. MOHAMED, PE,PEng
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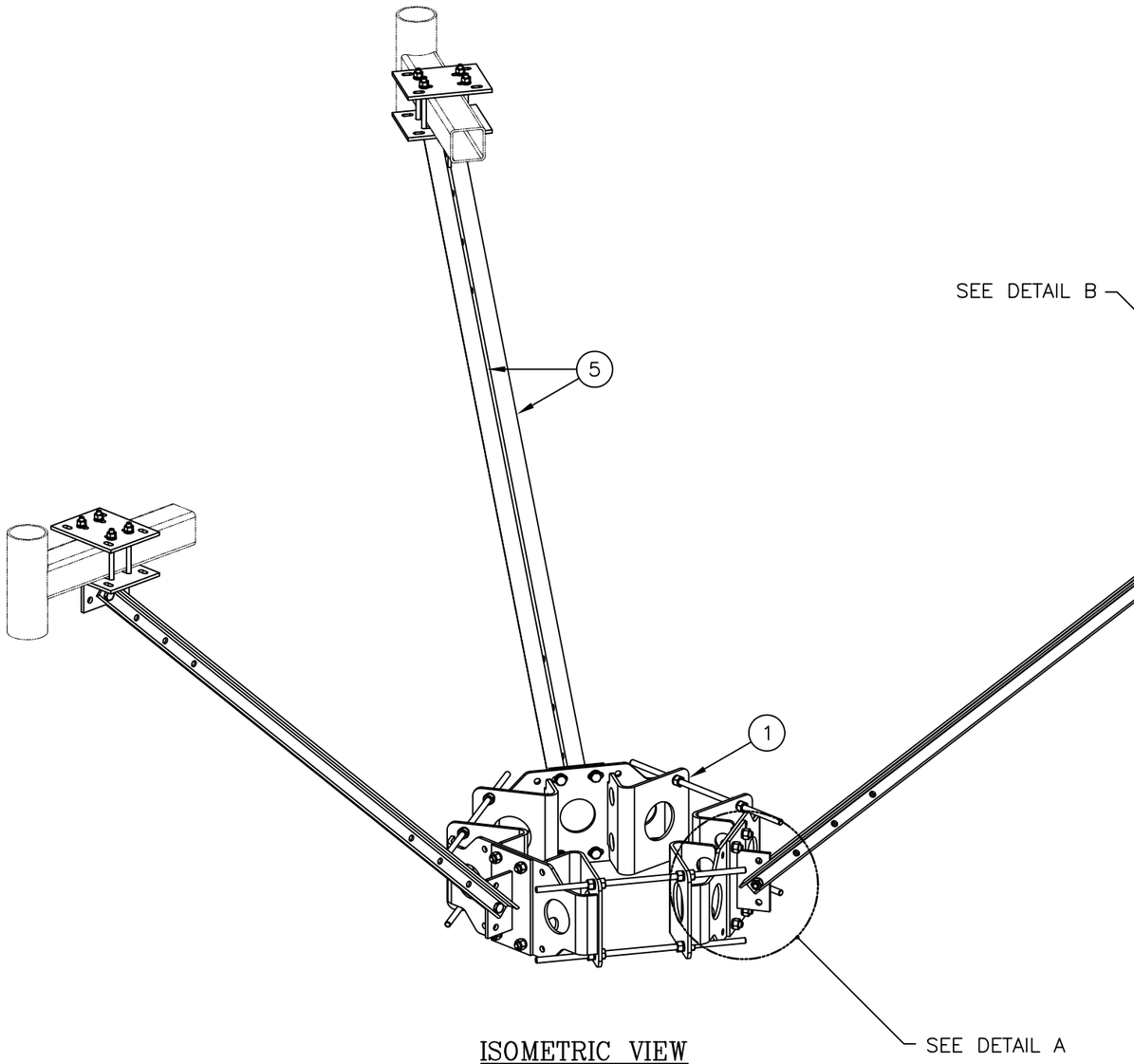
REINFORCEMENT CONNECTION DETAILS

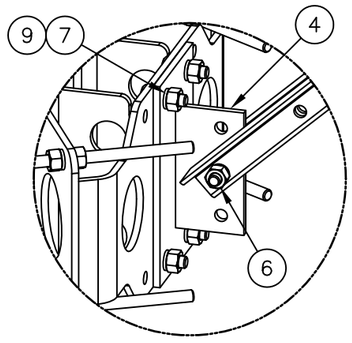
S-3 REV 0

C10851202 PLATFORM REINFORCEMENT KIT

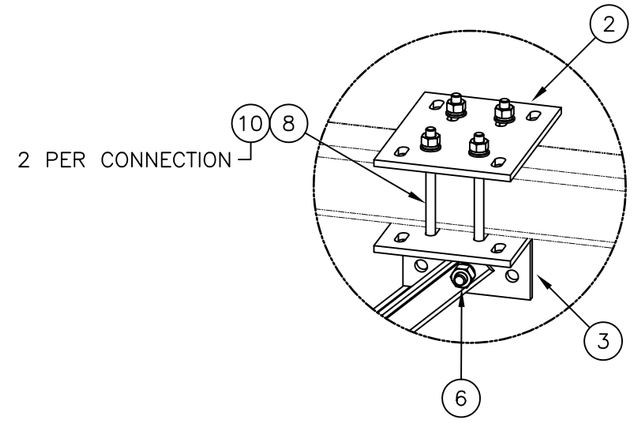
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	1	C10112300	TRI COLLAR BRACKET ASSEMBLY	193
2.	3	CS03354	PLATE, UPPER CONNECTION	22
3.	3	CW01322	WELDMENT, KICKER SUPPORT	31
4.	3	CW01291	WELDMENT, KICKER SUPPORT	32
5.	6	CS03278	ANGLE, KICKER	139
6.	6	C40026024	BOLT ASSEMBLY, 5/8 ø X 2 1/4 A325	3
7.	12	C40026023	BOLT ASSEMBLY, 5/8 ø X 2 A325	6
8.	12	C40024106	BOLT ASSEMBLY, 1/2 ø X 6 1/2 GR5 FULL THD	5
9.	12	C40031003	FLATWASHER, 5/8 ø HARDENED ASTM F436	1
10.	24	C40031002	FLATWASHER, 1/2 ø HARDENED ASTM F436	1
			TOTAL WEIGHT	433



ISOMETRIC VIEW



DETAIL A



DETAIL B

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	02/18/16	WRF	KLE	CHANGED ITEMS 2 AND 3

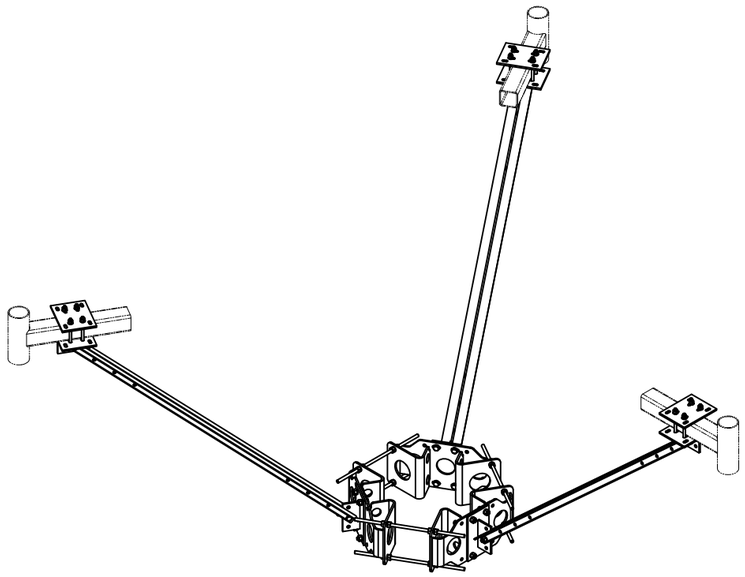
Sabre Industries™
Towers and Poles

PLATFORM REINFORCEMENT KIT (LONG) FOR 10" TO 40" DIA. POLES

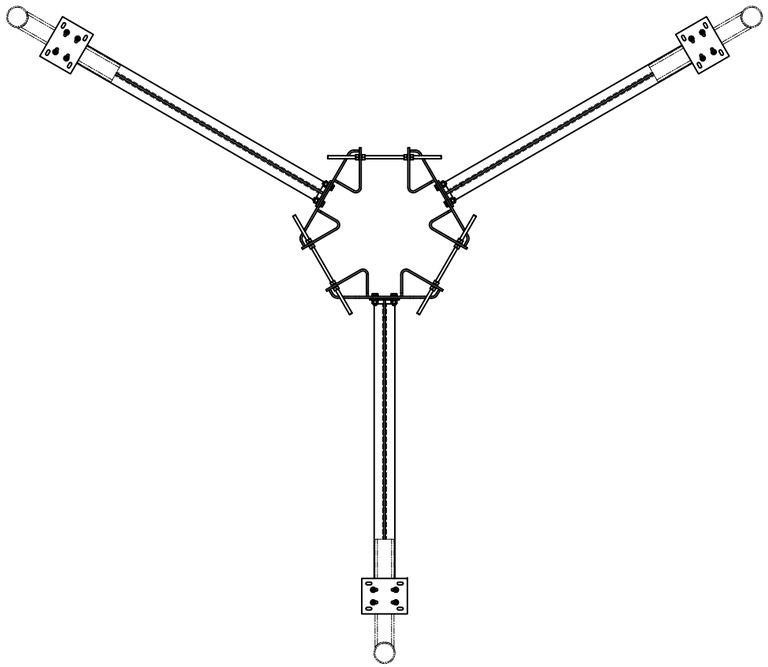
DATE	07/23/15
DRAWN BY	WRF
CHECKED BY	KLE

SIZE	DRAWING NO.	REV
B	C10851202	1

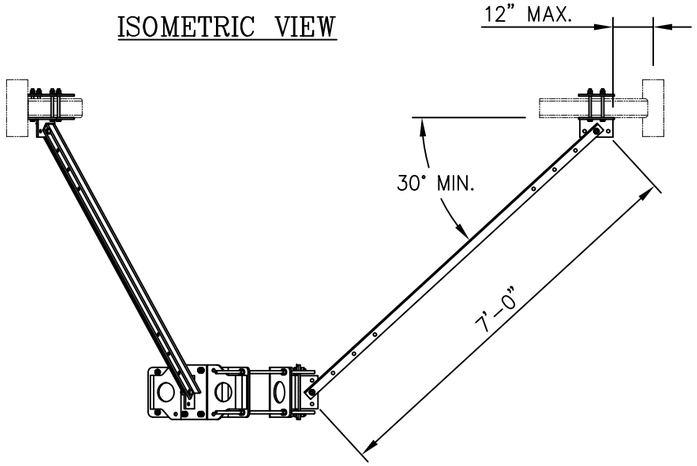
SCALE	PAGE
None	1 OF 2



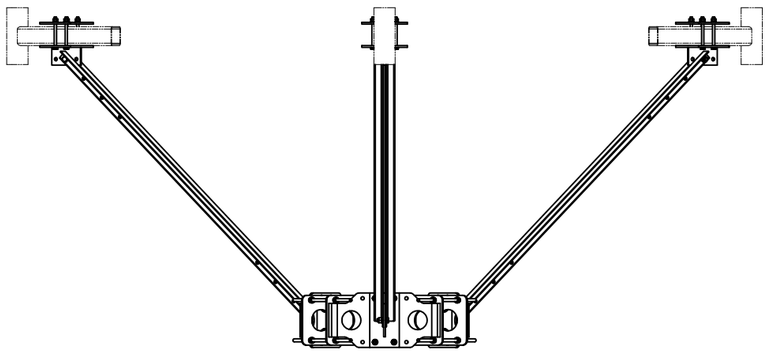
ISOMETRIC VIEW



TOP VIEW



SIDE VIEW



FRONT VIEW

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"	MATERIAL: TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	02/18/16	WRF	KLE	CHANGED ITEMS 2 AND 3

Sabre Industries™
Towers and Poles

PLATFORM REINFORCEMENT KIT (LONG) FOR 10" TO 40" DIA. POLES

DATE	07/23/15
DRAWN BY	WRF
CHECKED BY	KLE

SIZE	DRAWING NO.	REV
B	C10851202	1

SCALE	PAGE
None	2 OF 2

Exhibit F

Power Density/RF Emissions Report

Transcom Engineering, Inc.
Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11124H

Southbury-W/ I-84
214 Russian Village Road
Southbury, CT 06488

July 19, 2019

Transcom Engineering Project Number: 737001-0012

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**14.60 %**

July 19, 2019

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

Emissions Analysis for Site: **CT11124H – Southbury-W/ I-84**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **214 Russian Village Road, Southbury, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **214 Russian Village Road, Southbury, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

Table 1: Channel Data Table

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

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAARR24_43-U-NA20	100
A	2	EMS RR90-17-XXDP (Dormant)	100
A	3	EMS RR90-17-XXDP (Dormant)	100
B	1	RFS APXVAARR24_43-U-NA20	100
B	2	EMS RR90-17-XXDP (Dormant)	100
B	3	EMS RR90-17-XXDP (Dormant)	100
C	1	RFS APXVAARR24_43-U-NA20	100
C	2	EMS RR90-17-XXDP (Dormant)	100
C	3	EMS RR90-17-XXDP (Dormant)	100

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **1900 MHz (PCS)** and **2100 MHz (AWS)** radios are ground mounted the following cable loss values were used. For each ground mounted **1900 MHz (PCS)** radio there was **1.24 dB** of cable loss calculated into the system gains / losses for this site. For each ground mounted **2100 MHz (AWS)** radio there was 1.27 dB of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **120 feet** of **1-5/8”** coax.

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAARR24_43-U-NA20	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	15.65 / 16.35 / 12.95 / 13.35	11	415	11,139.32	5.90
Antenna A2	EMS RR90-17-XXDP (Dormant)	N/A	N/A	0	0	0.00	0.00
Antenna A2	EMS RR90-17-XXDP (Dormant)	N/A	N/A	0	0	0.00	0.00
						Sector A Composite MPE%	**5.90**
Antenna B1	RFS APXVAARR24_43-U-NA20	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	15.65 / 16.35 / 12.95 / 13.35	11	415	11,139.32	5.90
Antenna B2	EMS RR90-17-XXDP (Dormant)	N/A	N/A	0	0	0.00	0.00
Antenna B2	EMS RR90-17-XXDP (Dormant)	N/A	N/A	0	0	0.00	0.00
						Sector B Composite MPE%	**5.90**
Antenna C1	RFS APXVAARR24_43-U-NA20	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	15.65 / 16.35 / 12.95 / 13.35	11	415	11,139.32	5.90
Antenna C2	EMS RR90-17-XXDP (Dormant)	N/A	N/A	0	0	0.00	0.00
Antenna C2	EMS RR90-17-XXDP (Dormant)	N/A	N/A	0	0	0.00	0.00
						Sector C Composite MPE%	**5.90**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**5.90 %**
MetroPCS	0.96 %
Sprint	4.09 %
AT&T	0.00 %
Site Total MPE %:	**14.60 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	5.90 %
T-MOBILE Sector B Total:	5.90 %
T-MOBILE Sector C Total:	5.90 %
Site Total:	14.60 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,104.23	100	17.97	1900 MHz (PCS)	1000	1.80%
T-Mobile 1900 MHz (PCS) GSM	1	414.09	100	1.68	1900 MHz (PCS)	1000	0.17%
T-Mobile 2100 MHz (AWS) LTE	2	1,932.64	100	15.73	2100 MHz (AWS)	1000	1.57%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	100	6.42	600 MHz	400	1.61%
T-Mobile 700 MHz LTE	2	432.54	100	3.52	700 MHz	467	0.75%
						Total:	**5.90%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	5.90 %
Sector B:	5.90 %
Sector C:	5.90 %
T-MOBILE Maximum Total (per sector):	5.90 %
Site Total:	14.60 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.60 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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