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

June 9, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
841289 - T-Mobile Site ID: CT11035E
170 Ingham Hill Road, Old Saybrook, CT 06475
Latitude: 41° 18′ 35.55″ / Longitude: -72° 23′ 51.13″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 140-foot mount on the existing 150-foot Monopole Tower, located at 170 Ingham Hill Road, Old Saybrook, CT. The tower is owned by Crown Castle and the property is owned by Carol & Robert Lorenz. T-Mobile now intends to replace six (6) existing antennas with three (3) new 600/700 MHz antennas and three (3) new 1900/2100 MHz antennas. The new antennas will be installed at the 140-ft level of the tower. T-Mobile is also proposing tower mount modifications. As shown on the enclosed mount analysis.

Planned Modifications:
Tower:

Remove and Replace:
(3) LNX 6515DS-A1M Antenna **(REMOVE)** - (3) RFS-APXVAARR24_43-U-NA20 Antenna 600/700 MHz **(REPLACE)**
(3) AIR21 B2P/B4A (**REMOVE**) – (3) AIR32 B66A/B2A Antenna 1900/2100 MHz (**REPLACE**)
(3) RRUS11 B12 (**REMOVE**) – (3) Radio 4449 B12/B71 (**REPLACE**)

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

Existing to Remain:
(6) Coax
(1) Fiber
(3) AIR21 B2A/B4P Antenna 1900/2100 MHz
(3) TMA

Ground:

Upgrade to existing ground cabinet. (Internally)

The facility was approved by Siting Coucil in Docket # 051.2 on September 26, 1985. There are no conditions of approval which this exempt modification does not comply with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectman Carl Fortuna, Jr., Christine Nelson, Town Planner, Carol & Robert Lorenz as the property owners and Crown Castle is the tower owner.

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

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

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

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

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

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

Sincerely,

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

Attachments
cc:

Carl Fortuna, Jr., First Selectman *(via email only to carl.fortuna@oldsaybrookct.gov)*
Town of Old Saybrook
302 Main Street
Old Saybrook, CT 06475

Christine Nelson, Town Planner *(via email only to Christine.nelson@oldsaybrookct.gov)*
Town of Old Saybrook
302 Main Street

Old Saybrook, CT 06475

Carol & Robert Lorenz *(via email only to carol.lorenz@roadrunner.com)*
PO Box 351
Center Ossipee, NH 03814-0351

From: Zsamba, Anne Marie
To: carol.lorenz@roadrunner.com
Subject: Notice of Exempt Modification Application - 170 Ingham Hill Road, Old Saybrook
Date: Tuesday, June 9, 2020 11:29:00 AM
Attachments: EM-T-MOBILE-170 Ingham Hill Rd-Old Saybrook-841289-CT11035E_notice.pdf

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Dear Mr. & Mrs. Lorenz:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today June 9, 2020.

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

Best,
Anne Marie Zsamba

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

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

From: Zsamba, Anne Marie
To: "carl.fortuna@oldsaybrookct.gov"
Subject: Notice of Exempt Modification Application - 170 Ingham Hill Road, Old Saybrook
Date: Tuesday, June 9, 2020 11:30:00 AM
Attachments: EM-T-MOBILE-170 Ingham Hill Rd-Old Saybrook-841289-CT11035E_notice.pdf

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Dear First Selectman Fortuna:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today June 9, 2020.

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

Best,
Anne Marie Zsamba

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

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

From: Zsamba, Anne Marie
To: Christine.nelson@oldsaybrookct.gov
Subject: Notice of Exempt Modification Application - 170 Ingham Hill Road, Old Saybrook
Date: Tuesday, June 9, 2020 11:29:00 AM
Attachments: EM-T-MOBILE-170 Ingham Hill Rd-Old Saybrook-841289-CT11035E_notice.pdf

---

Dear Ms. Nelson:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today June 9, 2020.

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

Best,
Anne Marie Zsamba

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

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

Exhibit A

Original Facility Approval

DOCKET NO. 51

AN APPLICATION SUBMITTED BY THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN HARTFORD AND MIDDLESEX COUNTIES.	:	CONNECTICUT SITING COUNCIL
	:	September 26, 1985

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut be issued to Southern New England Telephone Company (SNET) for the construction, operation, and maintenance of a telecommunications tower and associated equipment building to provide cellular service at sites in Old Saybrook and Enfield, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in this matter, and subject to the following conditions:

1. The towers shall be no taller than necessary to provide the proposed service, and in no event shall exceed
   a) 150' at the Old Saybrook site; and
   b) 150' at the Enfield site;
2. A fence not lower than eight feet shall surround each tower and its associated equipment building;
3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities;
4. The applicant or its sucessor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the facilities, for due

consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing;

5. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations;
6. The applicant shall submit a development and management plan (D&M) for the Old Saybrook site pursuant to sections 16-50j-75 through 16-50j-77 of the regulations of state agencies, except that irrelevant items in section 16-50j-76 need only be identified as such. The D&M plan shall include erosion control measures, reseeding plans, and tree removal plans. The applicant shall comply with the reporting requirements of section 16-50j-77 for both sites;
7. Construction activities shall take place during daylight working hours;
8. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed, or reapplication for any new use shall be made to the Connecticut Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction;
9. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the

Hartford Courant, the Middletown Press, and the Old Saybrook Pictorial.

The parties to this proceeding are

Southern New England Telephone Company (Applicant)
227 Church Street
New Haven, Connecticut 06506
Attn: Peter J. Tyrrell
Senior Attorney
Room 314

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 26th day of September, 1985.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
Commissioner Stanley Pac Designee: Christopher Cooper	Yes
Owen L. Clark	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
Pamela B. Katz	Yes
William H. Smith	Yes
Colin C. Tait	Absent

STATE OF CONNECTICUT)
: ss. New Britain, September 26, 1985
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood, Executive Director
Connecticut Siting Council

Exhibit B

Property Card

170 INGHAM HILL RD

Location	170 INGHAM HILL RD	**MBLU**	051/ 033/ / /
Acct#	00559800	**Owner**	LORENZ CAROL J & ROBERT A
Assessment	$176,700	**Appraisal**	$303,200
PID	3322	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$163,400	$139,800	$303,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$114,400	$62,300	$176,700

Owner of Record

Owner	LORENZ CAROL J & ROBERT A	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	P O BOX 351 CENTER OSSIPEE N H, NH 03814-0351	**Book & Page**	0211/0890
		Sale Date	03/15/1984

Ownership History

Ownership History
No Data for Ownership History

Building Information

Building 1 : Section 1

Year Built: 1959
Living Area: 1,383

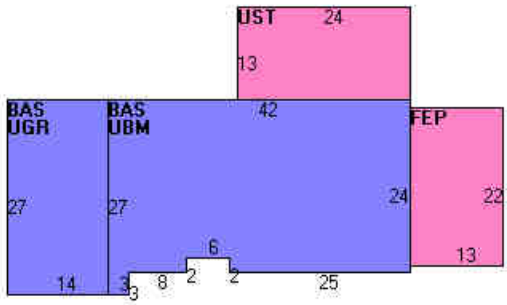
Building Attributes	
Field	**Description**
Style	Ranch
Model	Residential

Grade:	Average
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Vinyl/Asphalt
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	1
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	6 Rooms
Bath Style:	Average
Kitchen Style:	Modern
Num Kitchens	01
Cndtn	
Usrfld 103	
Usrfld 104	
Usrfld 105	
Usrfld 106	
Usrfld 107	
Num Park	
Fireplaces	
Usrfld 108	
Usrfld 101	
Usrfld 102	
Usrfld 100	
Usrfld 300	
Usrfld 301	

Building Photo

(http://images.vgsi.com/photos/OldSaybrookCTPhotos//\00\01\97\10.jpg)

Building Layout



(http://images.vgsi.com/photos/OldSaybrookCTPhotos//Sketches/3322_33

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,383	1,383
FEP	Porch, Enclosed,Framed	286	0
UBM	Basement, Unfinished	1,005	0
UGR	Garage, Unfinished	378	0
UST	Utility, Storage, Unfinished	312	0
		3,364	1,383

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #

FPL1	FIREPLACE 1 ST	1.00 UNITS	$2,300	1

Land

Land Use

Use Code	1010
Description	Single Family
Zone	AA-1

Land Line Valuation

Size (Acres)	11.8
Depth	0
Assessed Value	$62,300
Appraised Value	$139,800

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$163,400	$139,800	$303,200
2016	$147,200	$139,800	$287,000
2015	$145,700	$139,800	$285,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$114,400	$62,300	$176,700
2016	$103,000	$62,300	$165,300
2015	$102,000	$62,300	$164,300


Barley Hill Rd
Barley Hill Rd
Barley Hill Rd
Ingham Hill Rd
Oyster River
Oyster River
170 Ingham Hill Road
Ingham Hill Rd
Laurel Brook Rd
Laurel Brook Rd
Goose Pond Rd
Hay House Farm

Exhibit C

Construction Drawings

T-MOBILE SITE NAME:

OLDSAYBROOKSNETMOBILI_1

T-MOBILE SITE NUMBER:

CT11035E

CROWN BU: 841289 / APP#: 479796

67D92DB CONFIGURATION

170 INGHAM HILL ROAD
OLD SAYBROOK, CT 06475

EXISTING 150'-0" MONOPOLE

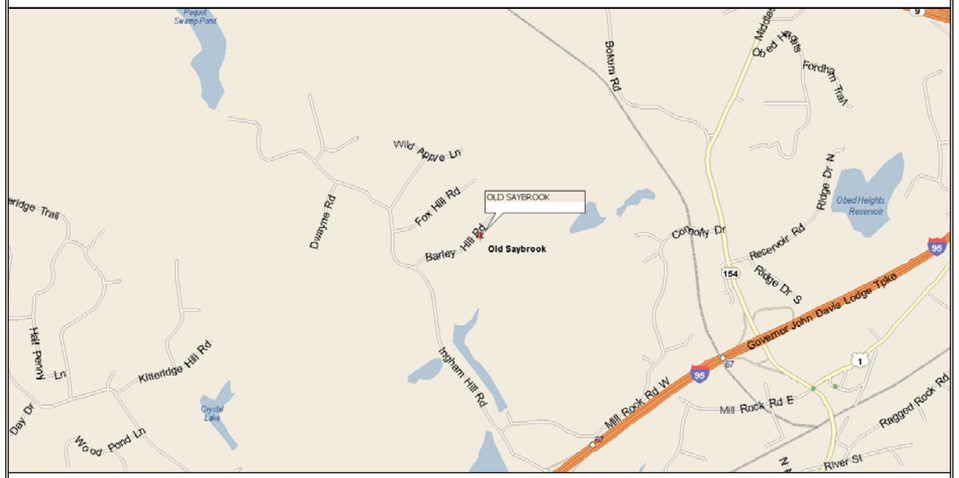
PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	170 INGHAM HILL ROAD OLD SAYBROOK, CT 06475
JURISDICTION:	MIDDLESEX COUNTY

NAD83

LATITUDE:	41.309883° N
LONGITUDE:	72.397495° W
TOWER OWNER:	CROWN CASTLE 3200 HORIZON DRIVE, SUITE 150 KING OF PRUSSIA, PA 19406 JASON SMITH (610) 635-3225
CUSTOMER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054 (973) 397-4800
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



NO SCALE

DRAWING INDEX

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

CONTACT INFORMATION

A&E FIRM:	B+T GROUP 1717 S. BOULDER, STE. 300 TULSA, OK 74119	ELECTRIC PROVIDER:	NORWICH PUBLIC UTILITIES 860-887-2555
CONTACT:	MIKE OAKES	TELCO PROVIDER:	AT&T 888-272-9234
PHONE:	(918) 587-4630		

DRIVING DIRECTIONS

DEPART FROM BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD. ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO CT-20 [BRADLEY FIELD CONNECTOR]. TAKE RAMP (RIGHT) ONTO I-91 [RICHARD P HORAN MEMORIAL HWY]. AT EXIT 22S, TAKE RAMP (LEFT) ONTO CT-9. KEEP STRAIGHT ONTO CT-17 [CT-9]. AT EXIT 13, ROAD NAME CHANGES TO CT-9. TAKE RAMP (RIGHT) ONTO I-95 [US-1]. AT EXIT 67, TURN RIGHT ONTO RAMP. BEAR RIGHT ONTO ELM ST. ROAD NAME CHANGES TO INGHAM HILL RD. TURN RIGHT ONTO BARLEY HILL RD. TURN RIGHT ONTO LOCAL ROAD(S) AND ARRIVE AT OLD SAYBROOK.

A/E DOCUMENT REVIEW STATUS

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

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

CODE COMPLIANCE

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

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

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (6) EXISTING ANTENNAS AT 140'-0".
- REMOVE (3) EXISTING RRUS AT 140'-0".
- REMOVE (1) DUS41 & (1) XMU.
- INSTALL (6) NEW ANTENNAS AT 140'-0".
- INSTALL (3) NEW RRUS AT 140'-0".
- INSTALL (2) BB 6630s.
- INSTALL (3) NEW 6x12 HCS FIBER.
- MODIFY EXISTING MOUNTS PER MOUNT ANALYSIS BY PAUL J. FORD & COMPANY DATED 5/10/19.

DO NOT SCALE DRAWINGS

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

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

811

B+T GRP

CROWN CASTLE

T-Mobile

CT11035E
BU #: 841289
OLDSAYBROOKSNETMOBILI_1
170 INGHAM HILL ROAD
OLD SAYBROOK, CT 06475
EXISTING 150'-0" MONOPOLE

PROJECT NO:	93496.027.01
CHECKED BY:	GEH

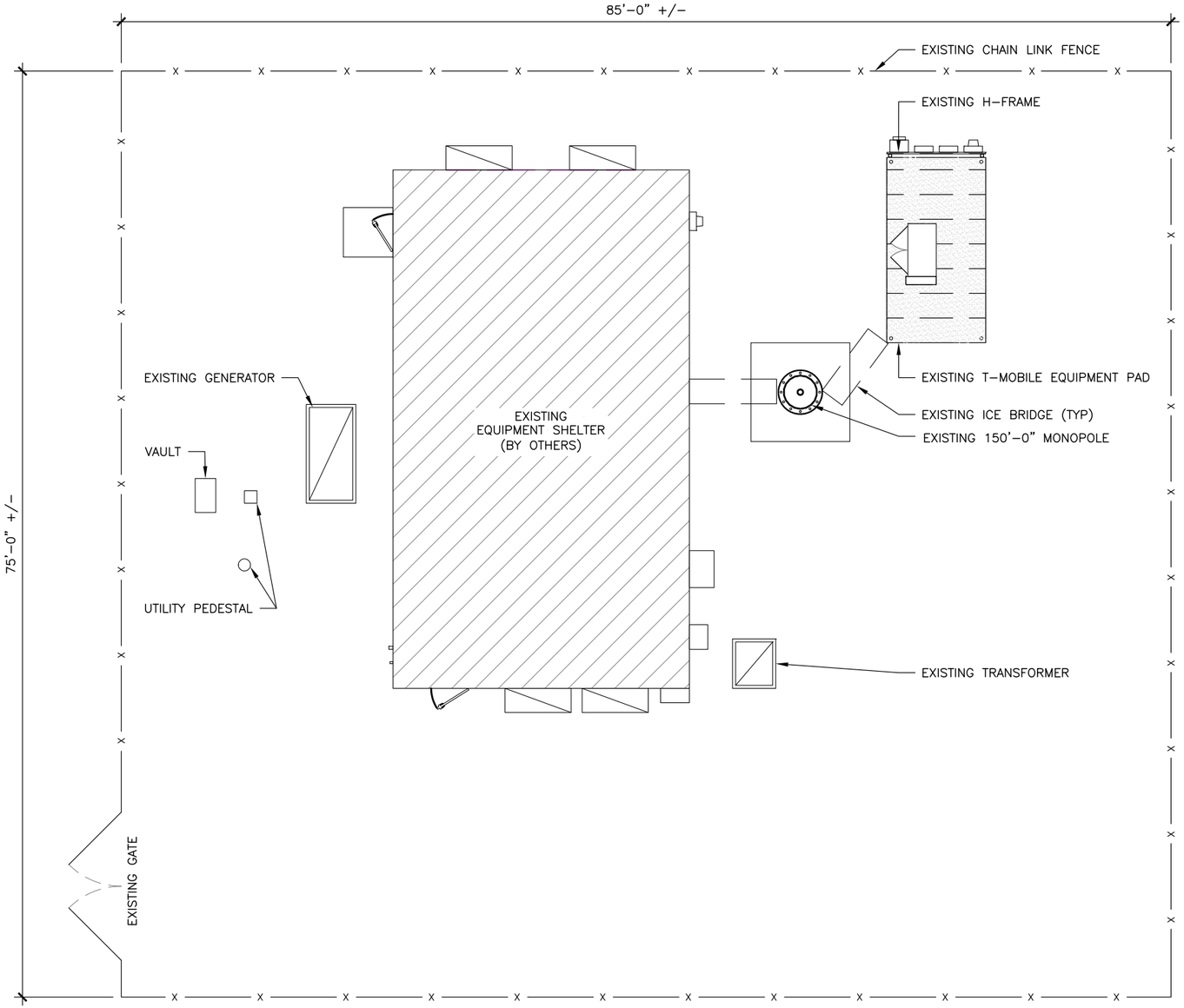
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/16/19	RFC	CONSTRUCTION
1	6/5/20	MLC	CONSTRUCTION
2	6/8/20	GEH	CONSTRUCTION

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

STATE OF CONNECTICUT
31627
LICENSED PROFESSIONAL ENGINEER
6/8/20

SHEET NUMBER: T-1
REVISION: 2



1 OVERALL SITE PLAN

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

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS SITUATED AT 170 INGHAM HILL ROAD, OLD SAYBROOK, CT 06475.

2. APPLICANT: T-MOBILE
A DELAWARE LIMITED LIABILITY COMPANY
4 SYLVAN WAY
PARSIPPANY, NEW JERSEY 07054
(973) 397-4800

   TOWER OWNER: CROWN CASTLE INTERNATIONAL

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

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

4. THE EXISTING SITE IS LOCATED AT LATITUDE OF 41.309883° N± AND LONGITUDE OF 72.397495° W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).

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

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

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

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

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

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

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

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

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

B+T GRP

CROWN CASTLE

T-Mobile

CT11035E
BU #: 841289
OLDSAYBROOKSNETMOBILL_1
170 INGHAM HILL ROAD
OLD SAYBROOK, CT 06475
EXISTING 150'-0" MONOPOLE

PROJECT NO:	93496.027.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/16/19	RFC	CONSTRUCTION
1	6/5/20	MLC	CONSTRUCTION
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
6/8/20

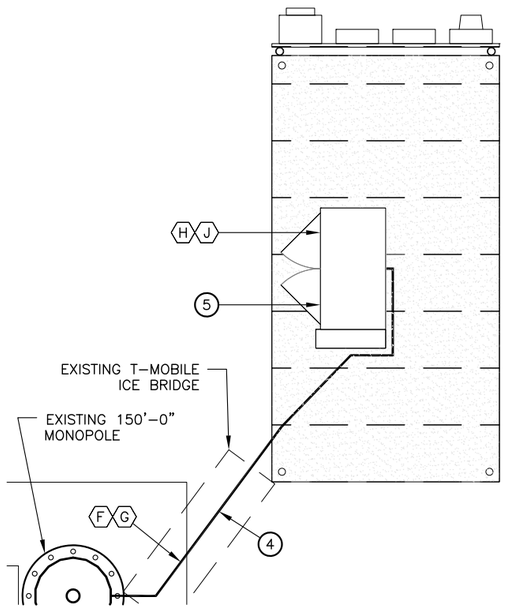
SHEET NUMBER:	REVISION:
A-1	2

LEGEND

EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL ERICSSON-AIR32 KRD901146-1_B66A_B2A 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 ERICSSON AIR21 KRC118023-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	2	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)
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 TMA TO REMAIN (TOTAL OF 3)	4	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING RRUS11 B12 TO BE REMOVED (TOTAL OF 3)	5	INSTALL (2) BB 6630s
F	EXISTING 1 1/4" COAXIAL LINES TO REMAIN (TOTAL OF 6)		
G	EXISTING (1) 9x18 HCS FIBER TO REMAIN		
H	REMOVE (1) DUS41 & (1) XMU		
J	EXISTING RUS01 B4 TO REMAIN (TOTAL OF 6)		

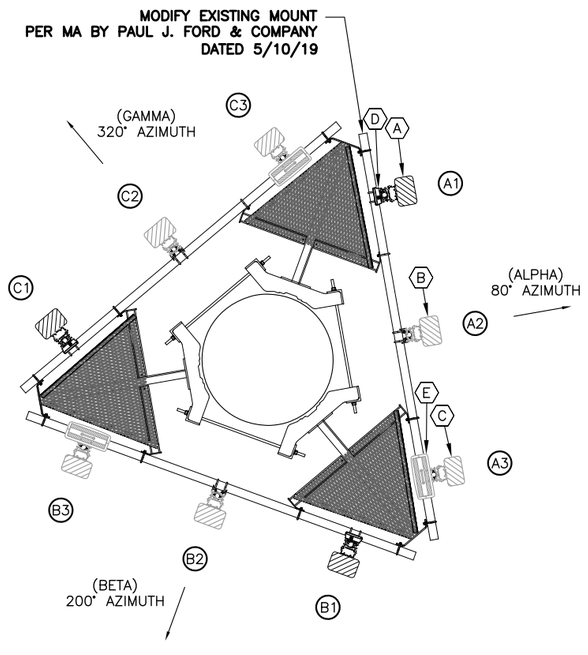
ANTENNA AND CABLE SCHEDULE

SECTOR	POSITION	PROPOSED ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
80° – ALPHA	A1	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	–	2°/2°	0°	140'-0"	1/0	(2) 1 1/4" COAX	DC/FIBER	190'-0"
	A2	**ERICSSON-AIR32 KRD901146-1_B66A_B2A**	**LTE**	–	**2°/2°**	**0°**		**0/0**	(1) 9x18 HCS FIBER	**DC/FIBER**	**190'-0"**
	A3	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER**	**DC/FIBER & 1/2" COAX**	**190'-0"**
200° – BETA	B1	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	–	2°/2°	0°	140'-0"	1/0	(2) 1 1/4" COAX	DC/FIBER	190'-0"
	B2	**ERICSSON-AIR32 KRD901146-1_B66A_B2A**	**LTE**	–	**2°/2°**	**0°**		**0/0**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER**	**190'-0"**
	B3	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER**	**DC/FIBER & 1/2" COAX**	**190'-0"**
320° – GAMMA	C1	ERICSSON AIR21 KRC118023-1_B2A_B4P	GSM UMTS	–	2°/2°	0°	140'-0"	1/0	(2) 1 1/4" COAX	DC/FIBER	190'-0"
	C2	**ERICSSON-AIR32 KRD901146-1_B66A_B2A**	**LTE**	–	**2°/2°**	**0°**		**0/0**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER**	**190'-0"**
	C3	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER**	**DC/FIBER & 1/2" COAX**	**190'-0"**



1 ENLARGED AREA PLAN
SCALE: 0' 1' 4' 8' 16'

MODIFY EXISTING MOUNT PER MA BY PAUL J. FORD & COMPANY DATED 5/10/19



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

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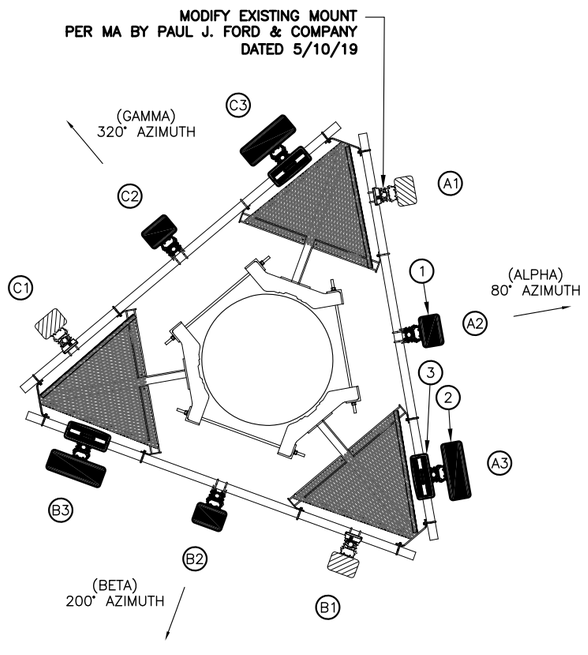
MODIFY EXISTING MOUNT PER MA BY PAUL J. FORD & COMPANY DATED 5/10/19



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

N

B+T GRP

CROWN CASTLE

T-Mobile

CT11035E
BU #: 841289
OLDSAYBROOKSNETMOBILL_1
170 INGHAM HILL ROAD
OLD SAYBROOK, CT 06475
EXISTING 150'-0" MONOPOLE

PROJECT NO:	93496.027.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/16/19	RFC	CONSTRUCTION
1	6/5/20	MLC	CONSTRUCTION
2	6/8/20	GEH	CONSTRUCTION

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6/8/20

SHEET NUMBER:	REVISION:
A-2	2

LEGEND

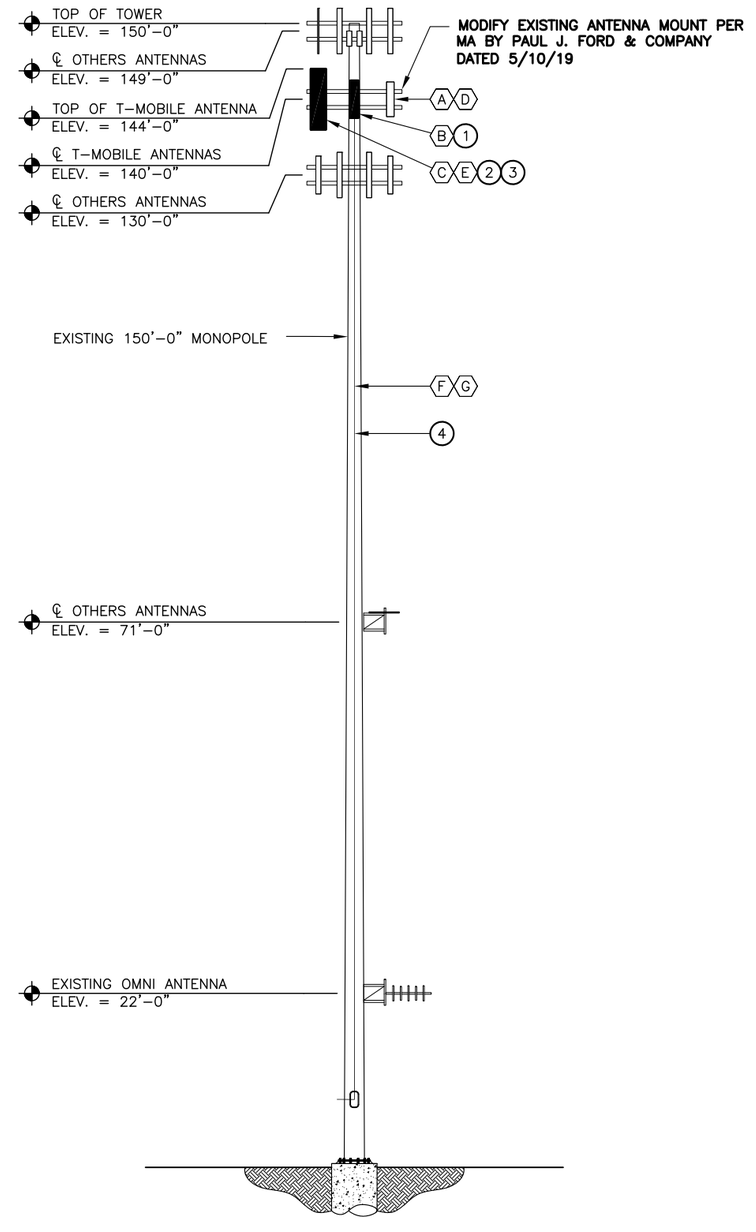
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118023-1_B2A_B4P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL ERICSSON-AIR32 KRD901146-1_B66A_B2A ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING ERICSSON AIR21 KRC118023-1_B2P_B4A ANTENNA TO BE REMOVED (TOTAL OF 3)	2	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)
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 TMA TO REMAIN (TOTAL OF 3)	4	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
E	EXISTING RRUS11 B12 TO BE REMOVED (TOTAL OF 3)		
F	EXISTING 1 1/4" COAXIAL LINES TO REMAIN (TOTAL OF 6)		
G	EXISTING (1) 9x18 HCS FIBER TO REMAIN		

EXISTING MOUNT TO BE MODIFIED PER MOUNT ANALYSIS BY PAUL J. FORD & COMPANY DATED 5/10/19.

EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY B+T GROUP DATED 5/27/20.

LEGEND:

- **NEW**
- EXISTING
- FUTURE



1 TOWER ELEVATION

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

B+T GRP

CROWN CASTLE

T···Mobile

CT11035E
BU #: 841289
OLDSAYBROOKSNETMOBILL_1
170 INGHAM HILL ROAD
OLD SAYBROOK, CT 06475
EXISTING 150'-0" MONOPOLE

PROJECT NO:	93496.027.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/16/19	RFC	CONSTRUCTION
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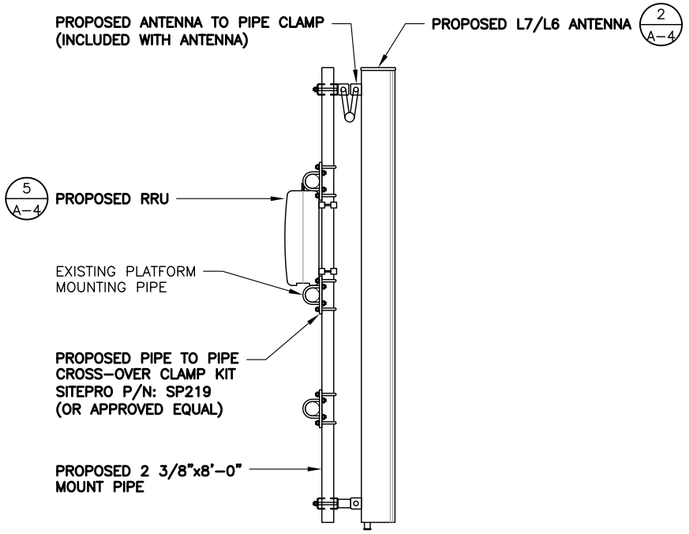
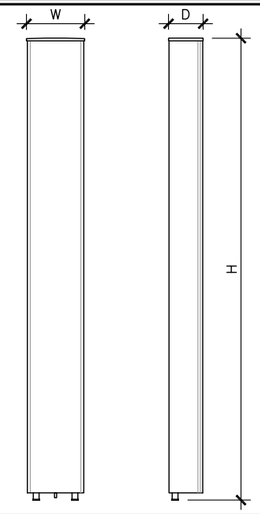
6/8/20

SHEET NUMBER:	REVISION:
A-3	2



1 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL

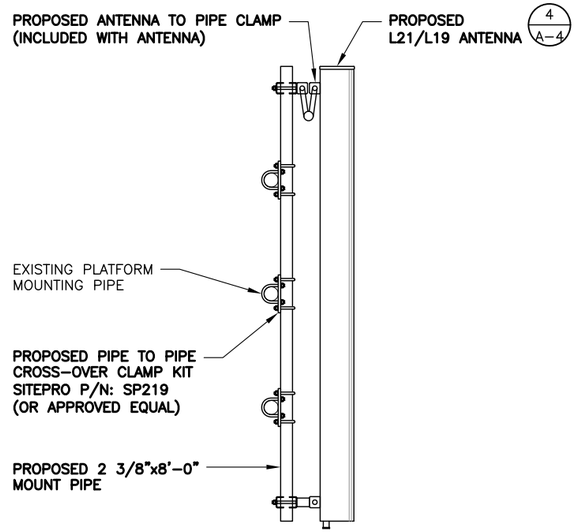
SCALE: 3/8" = 1'-0"



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

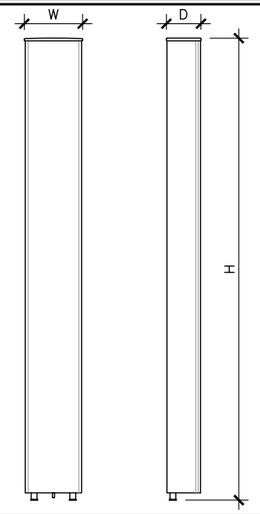
2 L7/L6 ANTENNA DETAIL

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



3 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL

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

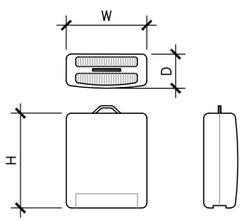


ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR-AIR32 KRD901146-1_B66A_B2A
WIDTH	12.9"
DEPTH	8.7"
HEIGHT	59.3"
WEIGHT	143.0 LBS

4 L21/L19 ANTENNA DETAIL

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

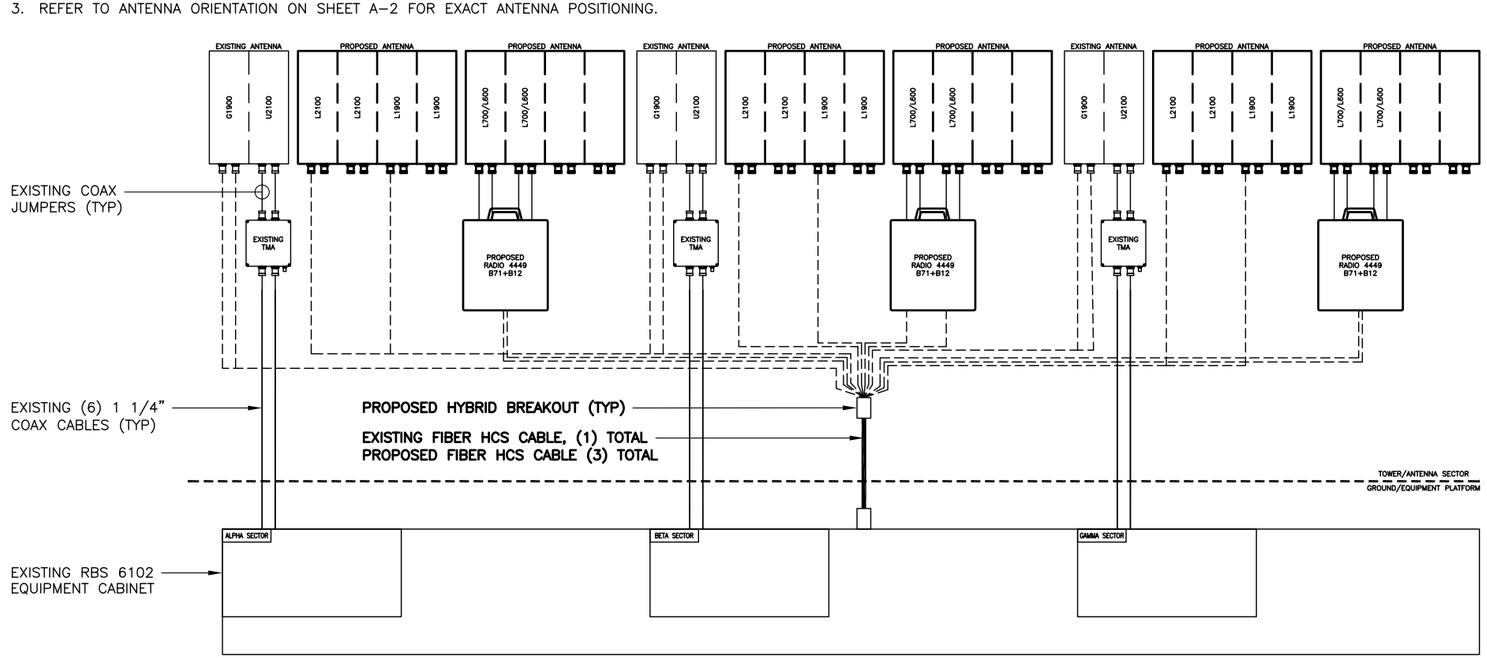
NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS.
2. SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
3. REFER TO ANTENNA ORIENTATION ON SHEET A-2 FOR EXACT ANTENNA POSITIONING.



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

5 REMOTE RADIO UNIT (RRU)

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



6 ANTENNA & CABLING SCHEMATIC

SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T-Mobile

CT11035E
BU #: 841289

OLDSAYBROOKSNETMOBILL_1

170 INGHAM HILL ROAD
OLD SAYBROOK, CT 06475

EXISTING 150'-0" MONOPOLE

PROJECT NO:	93496.027.01
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6/8/20

SHEET NUMBER: A-4

REVISION: 2

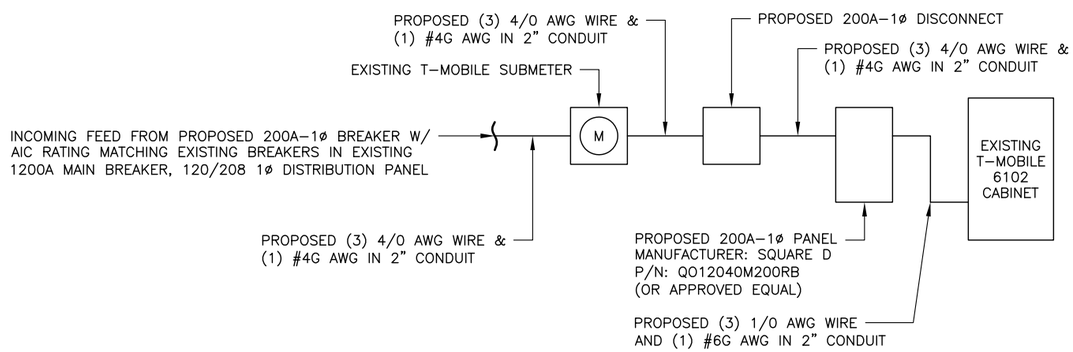
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
GFI	1	20A	1	2	**125A**	2	RBS 6102
FIBER	1	20A	3	4			
LIGHT	1	20A	5	6			

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

EXISTING 100A BREAKER PANEL TO BE REPLACED W/ NEW 200A BREAKER PANEL. SQUARE D P/N: QO12040M200RB (OR APPROVED EQUAL)
REPLACE EXISTING BREAKERS W/ NEW BREAKERS OF SAME AMPERAGE INSIDE NEW PANEL
REPLACE EXISTING WIRES FOR EXISTING 6102 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2"
UPGRADE FEEDER WIRES TO MEET AMPACITY.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.



2 ONE-LINE DIAGRAM

SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T···Mobile

CT11035E
BU #: 841289
OLDSAYBROOKSNETMOBILL_1
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6/8/20

SHEET NUMBER:	REVISION:
E-1	2

Exhibit D

Structural Analysis Report

Date: **May 27, 2020**

Chanhdara Ratsavong
Crown Castle
6325 Ardrey Kell RddSuite 600
Charlotte, NC 28277

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11035E
	Carrier Site Name:	OldSaybrookSNETMobili_1
Crown Castle Designation:	**Crown Castle BU Number:**	841289
	Crown Castle Site Name:	Old Saybrook
	Crown Castle JDE Job Number:	559265
	Crown Castle Work Order Number:	1854078
	Crown Castle Order Number:	479796 Rev. 2
Engineering Firm Designation:	**B+T Group Project Number:**	93496.029.01
Site Data:	**170 Ingham Hill Road, Old Saybrook, Middlesex County, CT** **Latitude *41° 18' 35.55"*, Longitude *-72° 23' 51.13"*** **150.167 Foot - Monopole Tower**	

Dear Chanhdara Ratsavong,

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

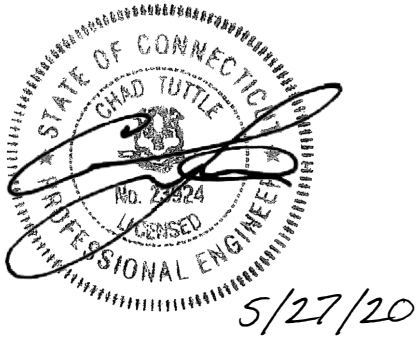
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity-94.2%**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code (2015 IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Jason Brock, E.I.

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



Chad E. Tuttle, P.E.

tnxTower Report - version 8.0.5.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150.167 ft. monopole designed by Engineered Endeavors Inc., in June of 1998. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
140.0	140.0	3	Ericsson	AIR 21 B2A/B4P	4 6	1-5/8 1-1/4
		3	Ericsson	AIR 32 B2A B66AA		
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		9	--	8' x 2.875" Pipe Mount		
		1	--	Platform Mount [LP 303-1_HR-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)
149.0	156.0	1	Andrew	KP4F-23A	12 1 4 2	1-1/4 7/8 3/4 3/8
	150.0	3	Andrew	SBNHH-1D65A		
		3	Ericsson	RADIO 8843 B2/B66A		
		3	Ericsson	RRUS 11		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4478 B5		
		1	Kathrein	80010799		
		3	Powerwave Tech.	7770.00		
		3	Powerwave Tech.	CM1007-DBPXBC-003		
		3	Powerwave Tech.	TT19-08BP111-001		
		2	Quintel Tech.	QS46512-2		
		2	Raycap	DC6-48-60-18-8C		
	149.0	1	--	Platform Mount [LP 404-1_KCKR]		
130.0	133.0	3	Antel	BXA-80080/4CF	2 6	1-5/8 1-1/4
		3	Commscope	HBXX-6517DS-A2M		
		2	Commscope	JAHH-45B-R3B		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		4	Commscope	JAHH-65B-R3B		
		1	Commscope	RC3DC-3315-PF-48		
		1	Rfs Celwave	DB-B1-6C-12AB-0Z		
		3	Rfs Celwave	FDJ85020Q4-S1		
		3	Samsung Telecom.	B5/B13 RRH-BR04C		
		3	Samsung Telecom.	PCS/AWS DULA-BAND RRH B2/B66		
	130.0	3	Commscope	BSAMNT-SBS-2-2		
		1	--	Platform Mount [LP 403-1]		
71.0	72.0	2	Kathrein	FMO	2	1/2
	71.0	2	--	Side Arm Mount [SO 305-1]		
22.0	22.0	1	Maxrad	MYA-43012N	1	5/16
		1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	T-Mobile Co-Locate, Rev. 2	479796	CCI Sites
Tower Manufacturer Drawing	EEI, Job No. 3503	5204147	CCI Sites
Tower Mapping	ReliaPOLE, Project No. 14-0703Ned	5204147	CCI Sites
Mount Analysis Report	PJF, Date: 05/10/2019	8400611	CCI Sites
Tower Modification Drawing	GPD, Job No. 2008263.44	4489382	CCI Sites
Post Modification Inspection	GPD, Project No. 2008534.00	4489415	CCI Sites
Tower Modification Drawing	GPD, Job No. 2011716.17	4478711	CCI Sites
Post Modification Inspection	HDG, Date: 03/19/2012	4468635	CCI Sites
Tower Modification Drawing	B+T Group, Project No. 93496.001.01 Date: 09/12/2014	5293057	CCI Sites
Post Modification Inspection	SGS, Project No. 145988	5874000	CCI Sites
Tower Modification Drawing	B+T Group, Project No. 93496.005.01 Date: 05/06/2016	6254746	CCI Sites
Post Modification Inspection	SGS, Project No. 163830	6444911	CCI Sites
Tower Modification Drawing	B+T Group, Project No. 93496.020.01 Date: 01/04/2019	8122612	CCI Sites
Tower Modification Drawing	B+T Group, Project No. 93496.022.01 Date: 03/21/2019	8292599	CCI Sites
Post Modification Inspection	ETS, Date: 03/31/2020	9017983	CCI Sites
Foundation Mapping	FDH, Project No. 08-04159E N1	4591935	CCI Sites
Geotech Report	FDH, Project No. 08-04159E G1	4468634	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 05/19/2020	CCI Sites

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150.17 - 145.17	Pole	TP16.31x15.53x0.25	1	-4.807	--	11.6	Pass
L2	145.17 - 140.17	Pole	TP17.09x16.31x0.25	2	-4.812	--	21.7	Pass
L3	140.17 - 135.17	Pole	TP17.87x17.09x0.25	3	-8.298	--	36.9	Pass
L4	135.17 - 130.17	Pole	TP18.65x17.87x0.25	4	-8.763	--	49.8	Pass
L5	130.17 - 125.17	Pole	TP19.43x18.65x0.25	5	-12.276	--	68.6	Pass
L6	125.17 - 123.75	Pole	TP19.651x19.43x0.25	6	-12.441	--	72.8	Pass
L7	123.75 - 123.5	Pole + Reinf.	TP19.69x19.651x0.513	7	-12.508	--	64.2	Pass
L8	123.5 - 118.5	Pole + Reinf.	TP20.47x19.69x0.5	8	-13.307	--	77.5	Pass
L9	118.5 - 113.5	Pole + Reinf.	TP21.25x20.47x0.488	9	-15.228	--	89.9	Pass
L10	113.5 - 112.17	Pole + Reinf.	TP21.458x21.25x0.488	10	-15.869	--	93.1	Pass
L11	112.17 - 111.92	Pole + Reinf.	TP21.497x21.458x0.7	11	-16.017	--	60.3	Pass
L12	111.92 - 110.17	Pole + Reinf.	TP21.77x21.497x0.7	12	-16.842	--	63.0	Pass
L13	110.17 - 109.92	Pole + Reinf.	TP21.813x21.77x0.625	13	-16.942	--	61.9	Pass
L14	109.92 - 104.92	Pole + Reinf.	TP22.672x21.813x0.6	14	-19.574	--	68.7	Pass
L15	104.92 - 99.92	Pole + Reinf.	TP23.53x22.672x0.588	15	-21.384	--	75.1	Pass
L16	99.92 - 95	Pole + Reinf.	TP24.375x23.53x0.575	16	-22.604	--	80.9	Pass
L17	95 - 94.75	Pole + Reinf.	TP24.418x24.375x0.7	17	-22.692	--	79.9	Pass
L18	94.75 - 89.75	Pole + Reinf.	TP25.277x24.418x0.688	18	-24.218	--	85.5	Pass
L19	89.75 - 85.5	Pole + Reinf.	TP26.007x25.277x0.675	19	-278.807	--	84.0	Pass
		Guy A@88.6875	1 5/8	49	188.633	--	94.2	Pass
		Guy B@88.6875	1 3/8	48	104.602	--	75.1	Pass
		Guy C@88.6875	1 3/8	47	118.809	--	85.4	Pass
L20	85.5 - 85.25	Pole + Reinf.	TP26.049x26.007x0.863	20	-279.526	--	74.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L21	85.25 - 85	Pole + Reinf.	TP26.092x26.049x0.863	21	-279.602	--	74.8	Pass
L22	85 - 84.75	Pole + Reinf.	TP26.135x26.092x0.838	22	-279.678	--	77.4	Pass
L23	84.75 - 83	Pole + Reinf.	TP26.436x26.135x0.838	23	-279.759	--	77.6	Pass
L24	83 - 82.65	Pole + Reinf.	TP26.496x26.436x0.713	24	-280.256	--	85.4	Pass
L25	82.65 - 82.42	Pole + Reinf.	TP26.536x26.496x0.713	25	-280.355	--	85.4	Pass
L26	82.42 - 77.42	Pole + Reinf.	TP27.395x26.536x0.688	26	-280.426	--	86.2	Pass
L27	77.42 - 73.75	Pole + Reinf.	TP28.64x27.395x0.688	27	-286.672	--	86.9	Pass
L28	73.75 - 69.17	Pole + Reinf.	TP28.079x27.4x0.725	28	-290.067	--	83.9	Pass
L29	69.17 - 64.17	Pole + Reinf.	TP28.821x28.079x0.713	29	-290.084	--	84.8	Pass
L30	64.17 - 59.17	Pole + Reinf.	TP29.562x28.821x0.725	30	-291.516	--	85.5	Pass
L31	59.17 - 54.17	Pole + Reinf.	TP30.304x29.562x0.713	31	-292.963	--	86.0	Pass
L32	54.17 - 49.17	Pole + Reinf.	TP31.045x30.304x0.7	32	-294.427	--	86.1	Pass
L33	49.17 - 47.17	Pole + Reinf.	TP31.342x31.045x0.7	33	-295.909	--	86.1	Pass
L34	47.17 - 46.92	Pole + Reinf.	TP31.379x31.342x0.788	34	-296.503	--	78.1	Pass
L35	46.92 - 43.42	Pole + Reinf.	TP31.898x31.379x0.775	35	-296.589	--	78.1	Pass
L36	43.42 - 43.17	Pole + Reinf.	TP31.935x31.898x0.65	36	-297.726	--	85.9	Pass
L37	43.17 - 38.17	Pole + Reinf.	TP32.677x31.935x0.65	37	-297.803	--	85.5	Pass
L38	38.17 - 35.75	Pole + Reinf.	TP33.66x32.677x0.65	38	-299.275	--	85.2	Pass
L39	35.75 - 30.54	Pole	TP33.161x32.286x0.438	39	-302.032	--	84.0	Pass
L40	30.54 - 25.54	Pole	TP34.001x33.161x0.438	40	-302.263	--	81.8	Pass
L41	25.54 - 20.54	Pole	TP34.84x34.001x0.438	41	-303.425	--	79.4	Pass
L42	20.54 - 15.54	Pole	TP35.68x34.84x0.438	42	-304.718	--	77.0	Pass
L43	15.54 - 10.54	Pole	TP36.52x35.68x0.438	43	-305.911	--	74.5	Pass
L44	10.54 - 5.54	Pole	TP37.36x36.52x0.438	44	-307.121	--	72.4	Pass
L45	5.54 - 0.54	Pole	TP38.2x37.36x0.438	45	-308.350	--	70.2	Pass
L46	0.54 - 0	Pole	TP38.29x38.2x0.438	46	-309.599	--	69.9	Pass
							Summary	
						Pole	93.1	Pass
						Guy A (L19)	94.2	Pass
						Guy B (L19)	75.1	Pass
						Guy C (L19)	85.4	Pass
						Rating =	94.2	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component		Elevation	% Capacity	Pass / Fail
1,2	Flange Connection		110.0	46.7	Pass
1,2	Bridge Stiffener			65.6	Pass
1,2	Guy Wire Bracket		88.8	94.2	Pass
1,2	Anchor Rod Bracket		Base	36.6	Pass
1,2	Anchor Rods		Base	83.8	Pass
1,2	Base Plate		Base	69.5	Pass
1,2	Base Foundation	Structure	Base	66.0	Pass
		Soil	Base	90.4	Pass
1,2	Inner Guy Anchor Foundation	Anchor Shaft	Base	93.2	Pass
		Structure	Base	82.1	Pass
		Soil	Base	81.5	Pass
1,2	Outer Guy Anchor Foundation	Anchor Shaft	Base	58.7	Pass
		Structure	Base	38.9	Pass
		Soil	Base	57.9	Pass

Structure Rating (max from all components) =	94.2%

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

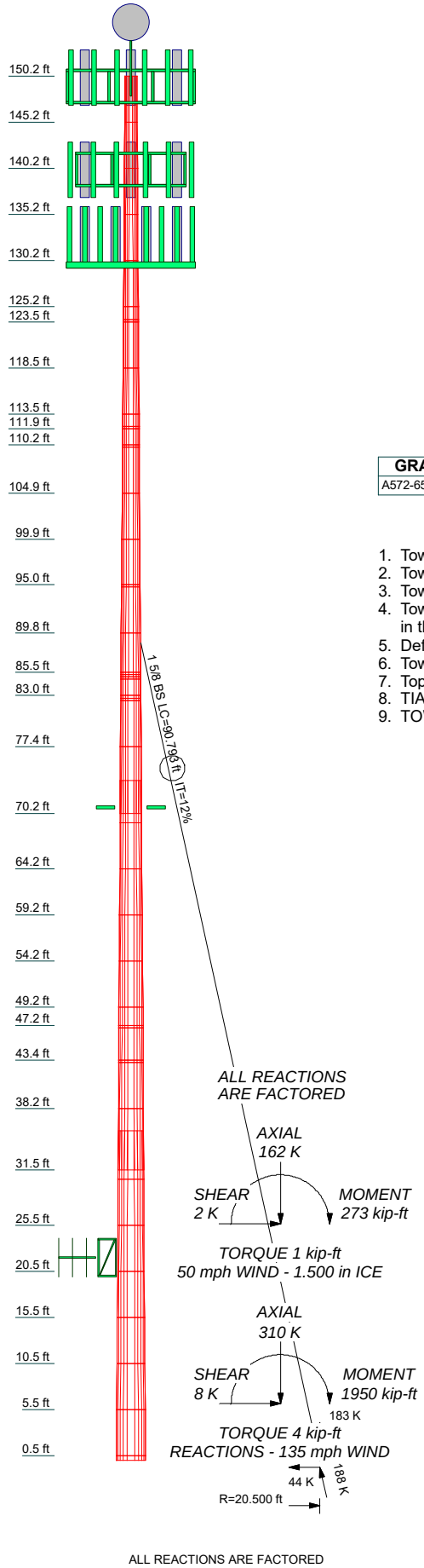
4.1) Recommendations

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

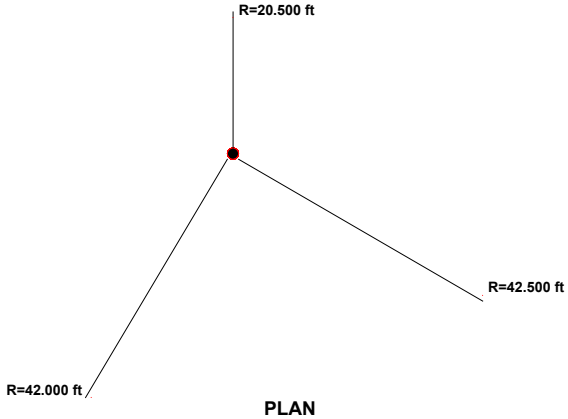
APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	12	0.250		15.530	16.310		0.2
2	5.000	12	0.250		16.310	17.090		0.2
3	5.000	12	0.250		17.090	17.870		0.2
4	5.000	12	0.250		17.870	18.650		0.2
5	5.000	12	0.250		18.650	19.430		0.3
6	5.000	12	0.250		19.430	20.210		0.3
7	5.000	12	0.250		20.210	20.990		0.3
8	5.000	12	0.500		20.990	21.770		0.5
9	5.000	12	0.487		21.770	22.550		0.5
10	5.000	12	0.475		22.550	23.330		0.5
11	5.000	12	0.463		23.330	24.110		0.5
12	5.000	12	0.450		24.110	24.890		0.5
13	5.000	12	0.438		24.890	25.670		0.5
14	5.000	12	0.600		21.812	22.672		0.8
15	5.000	12	0.588		22.672	23.530		0.8
16	5.000	12	0.575		23.530	24.375		0.8
17	5.000	12	0.700		24.375	25.227		1.0
18	5.000	12	0.688		25.227	26.077		1.0
19	5.000	12	0.675		26.077	26.927		1.0
20	5.000	12	0.663		26.927	27.777		1.0
21	5.000	12	0.650		27.777	28.627		1.0
22	5.000	12	0.638		28.627	29.477		1.0
23	5.000	12	0.625		29.477	30.327		1.0
24	5.000	12	0.613		30.327	31.177		1.0
25	5.000	12	0.600		31.177	32.027		1.0
26	5.000	12	0.688		26.530	27.395		1.0
27	4.500	12	0.688	3.580	27.395	28.640	A572-65	1.6
28		12	0.725		27.400	28.070		0.9
29	5.000	12	0.713		28.072	28.821		1.0
30	5.000	12	0.725		28.821	29.562		1.0
31	5.000	12	0.713		29.562	30.304		1.1
32	5.000	12	0.700		30.304	31.045		1.1
33	5.000	12	0.688		31.045	31.787		1.1
34	5.000	12	0.675		31.787	32.528		1.1
35	5.000	12	0.663		32.528	33.270		1.1
36	5.000	12	0.650		33.270	34.011		1.1
37	5.000	12	0.650		31.935	32.677		1.1
38	5.630	12	0.650	4.210	32.677	33.660		1.4
39	5.000	12	0.438		32.286	33.160		0.8
40	5.000	12	0.438		33.160	34.033		0.8
41	5.000	12	0.438		34.001	34.840		0.8
42	5.000	12	0.438		34.840	35.680		0.8
43	5.000	12	0.438		35.680	36.520		0.9
44	5.000	12	0.438		36.520	37.360		0.9
45	5.000	12	0.438		37.360	38.200		0.9
46	0.533	12	0.438		38.200	38.293		0.1



ALL REACTIONS ARE FACTORED



PLAN

MATERIAL STRENGTH

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

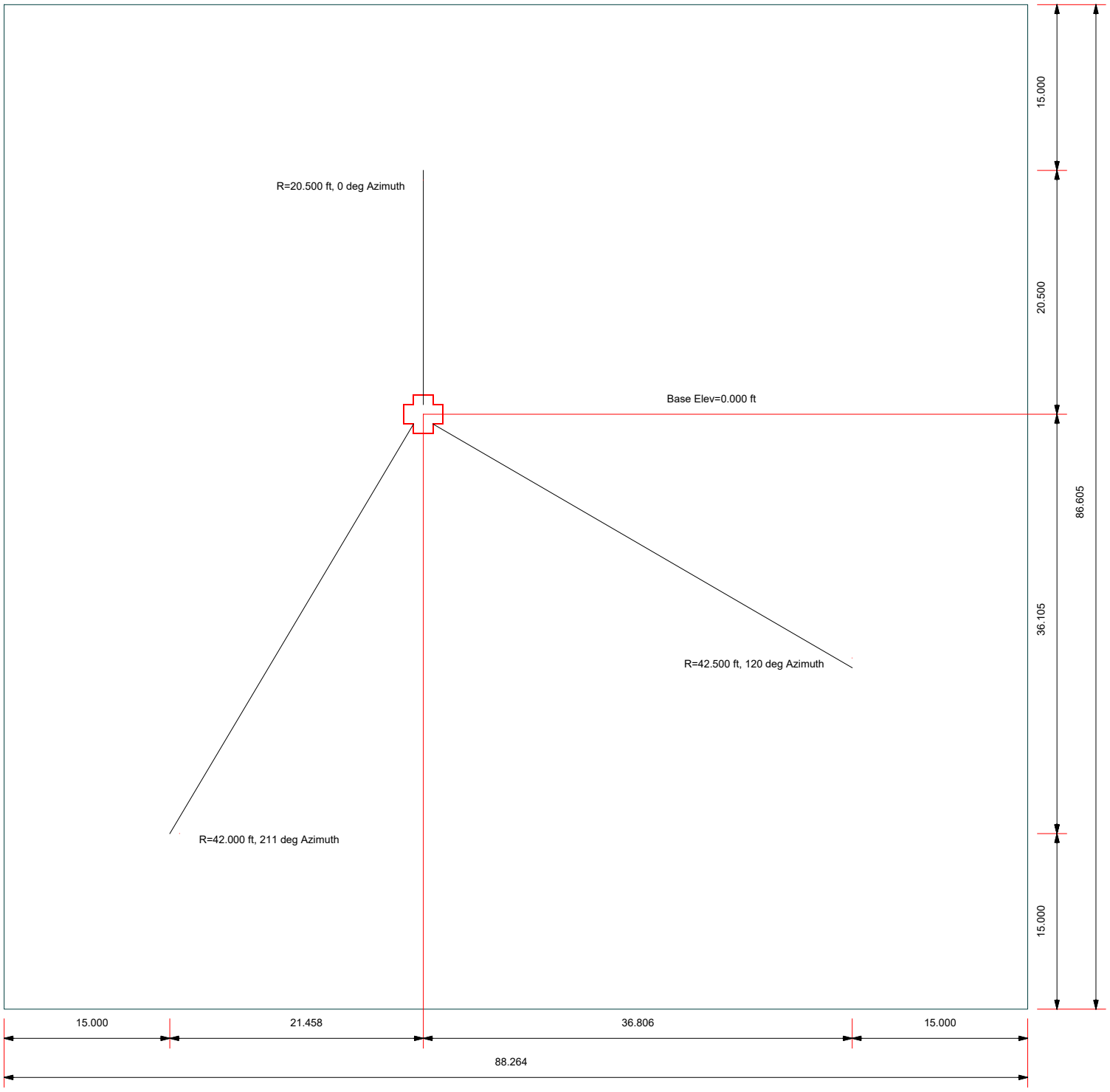
TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 93.1%

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

Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 84128			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx 029_01\CCIpole.eri		Dwg No. E-1	

Plot Plan
Total Area - 0.18 Acres



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Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 84128			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook------Nithish------Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-2	

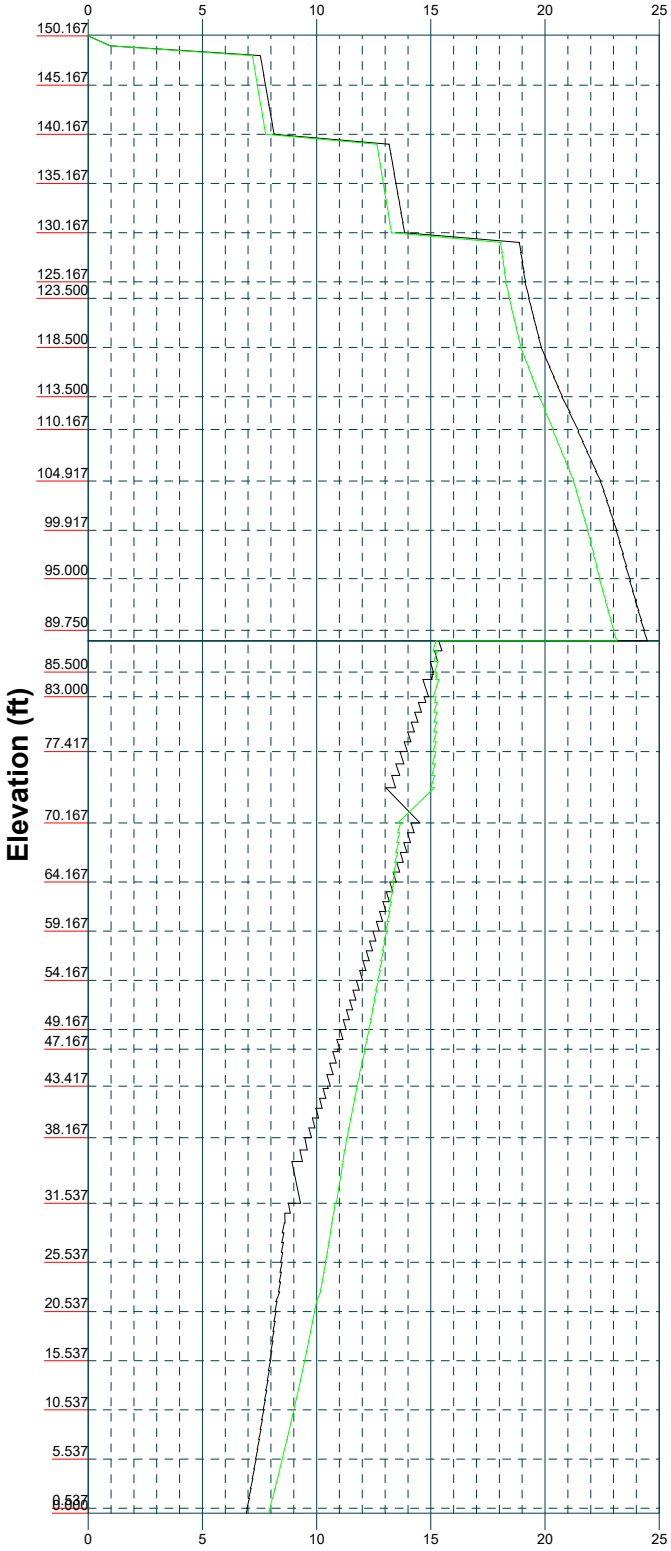
TIA-222-H - 135 mph/50 mph 1.500 in Ice Exposure B

Vx Vz

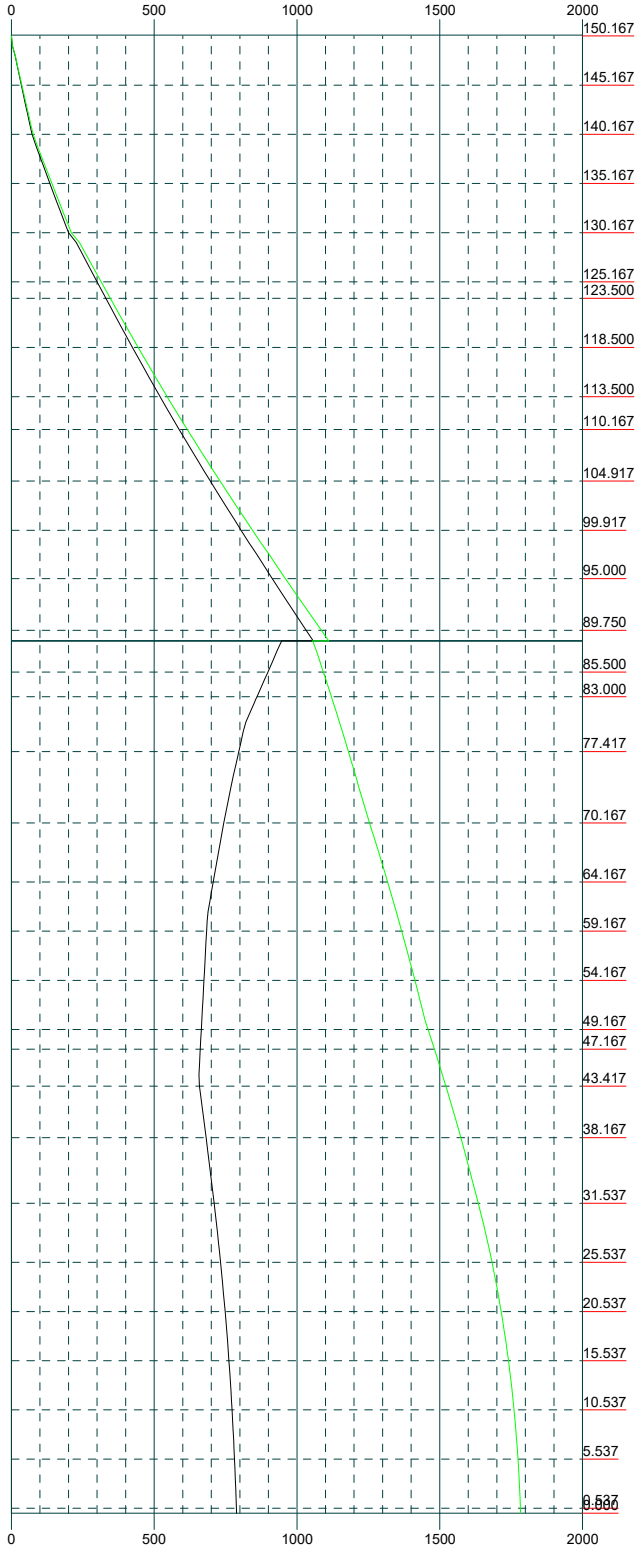
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



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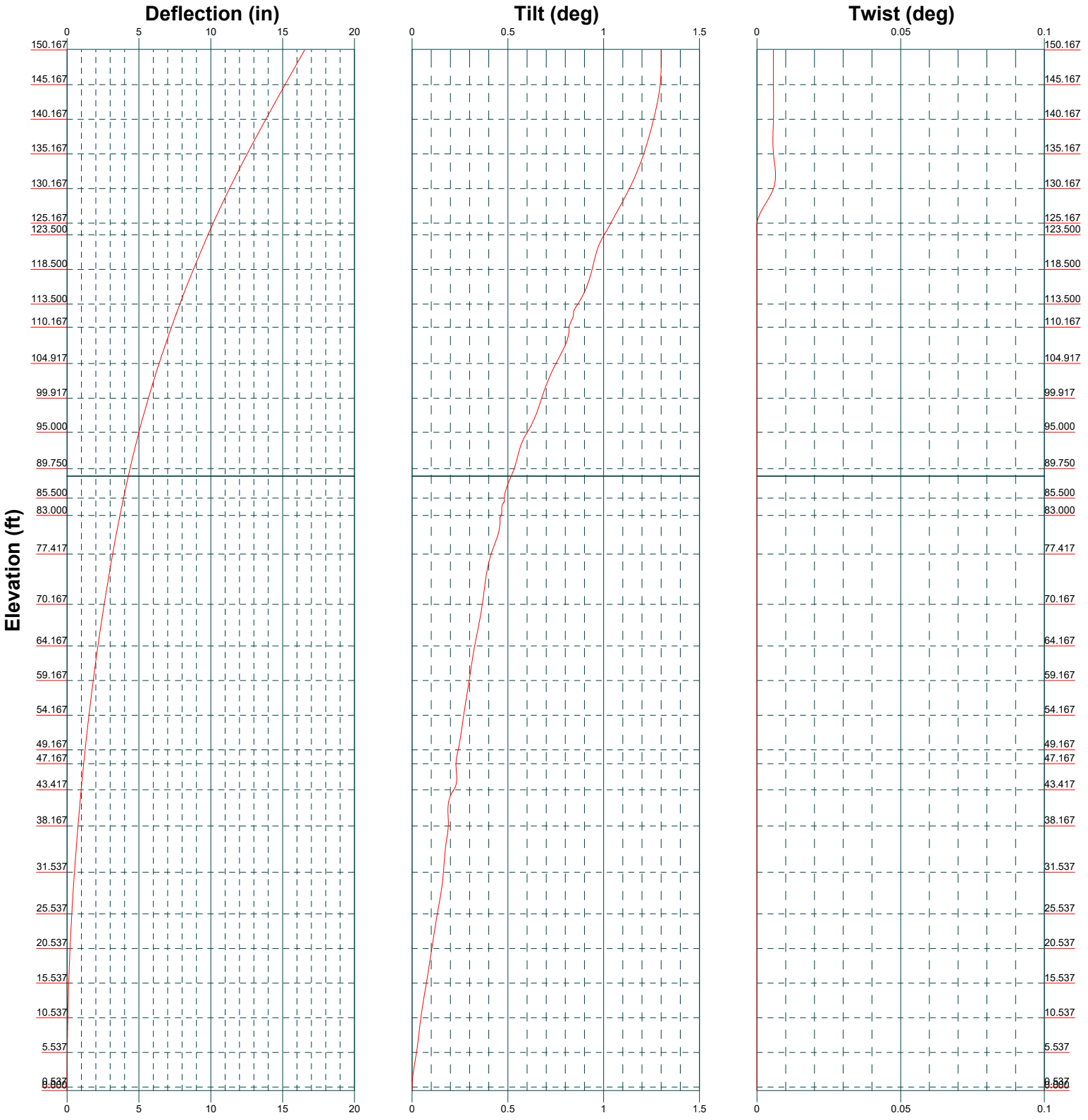
Phone: (918) 587-4630
FAX: (918) 587-4630

Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 841289			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 841289			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-5	

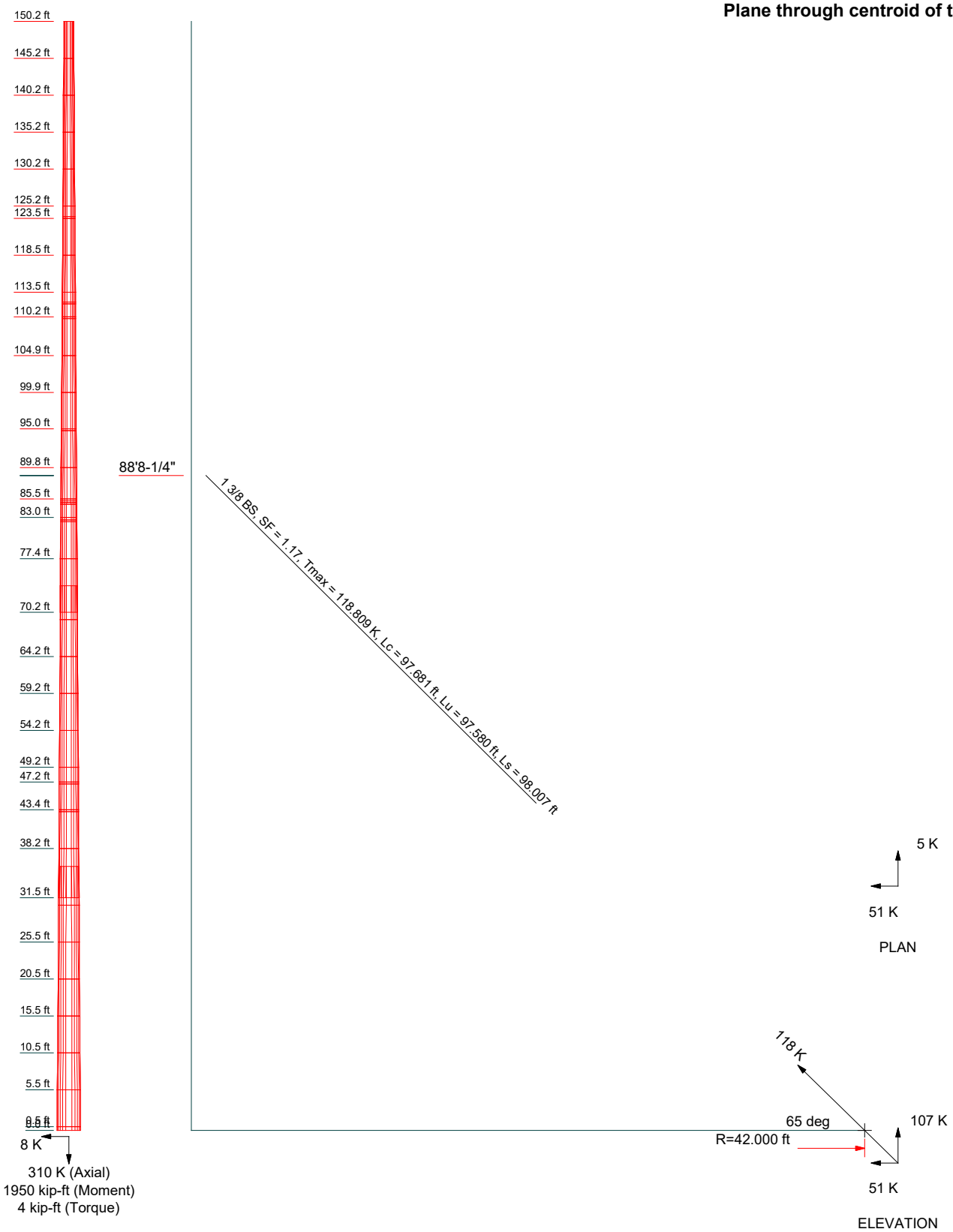
Guy Tensions and Tower Reactions

TIA-222-H - 135 mph/50 mph 1.500 in Ice Exposure B

Maximum Values

Anchor 'C'@42 ft Azimuth 211 deg Elev 0 ft

Plane through centroid of tower



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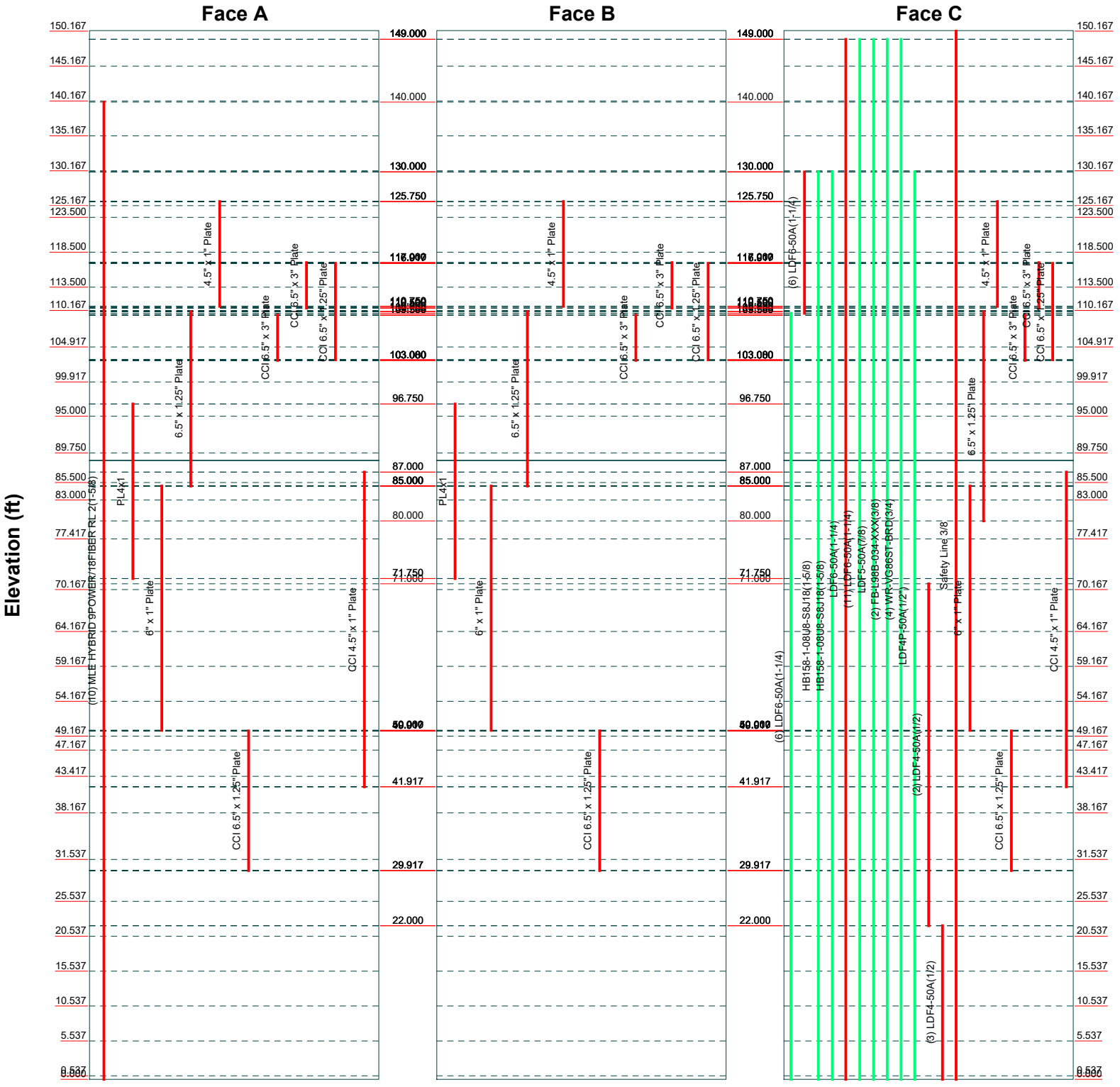
Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 84128			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-6	

Feed Line Distribution Chart
0' - 150'2"

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



B+T GRP

B+T Group
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Phone: (918) 587-4630
FAX: (918) 587-4630

Job: *93496.029.01 - OLD SAYBROOK, CT (BU# 841289*			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-7	

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 Middlesex County, Connecticut.
Tower base elevation above sea level: 133.000 ft.
Basic wind speed of 135 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
TOWER RATING: 93.1%.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Safety factor used in guy design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
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	150.167-145.167	5.000	0.000	12	15.530	16.310	0.250	1.000	A572-65 (65 ksi)
L2	145.167-140.167	5.000	0.000	12	16.310	17.090	0.250	1.000	A572-65 (65 ksi)
L3	140.167-135.167	5.000	0.000	12	17.090	17.870	0.250	1.000	A572-65 (65 ksi)
L4	135.167-130.167	5.000	0.000	12	17.870	18.650	0.250	1.000	A572-65 (65 ksi)
L5	130.167-125.167	5.000	0.000	12	18.650	19.430	0.250	1.000	A572-65 (65 ksi)
L6	125.167-123.750	1.417	0.000	12	19.430	19.651	0.250	1.000	A572-65 (65 ksi)
L7	123.750-123.500	0.250	0.000	12	19.651	19.690	0.512	2.050	A572-65 (65 ksi)
L8	123.500-118.500	5.000	0.000	12	19.690	20.470	0.500	2.000	A572-65 (65 ksi)
L9	118.500-113.500	5.000	0.000	12	20.470	21.250	0.487	1.950	A572-65 (65 ksi)
L10	113.500-112.167	1.333	0.000	12	21.250	21.458	0.487	1.950	A572-65 (65 ksi)
L11	112.167-111.917	0.250	0.000	12	21.458	21.497	0.700	2.800	A572-65 (65 ksi)
L12	111.917-110.167	1.750	0.000	12	21.497	21.770	0.700	2.800	A572-65 (65 ksi)
L13	110.167-109.917	0.250	0.000	12	21.770	21.813	0.625	2.500	A572-65 (65 ksi)
L14	109.917-104.917	5.000	0.000	12	21.813	22.672	0.600	2.400	A572-65 (65 ksi)
L15	104.917-99.917	5.000	0.000	12	22.672	23.530	0.588	2.350	A572-65 (65 ksi)
L16	99.917-95.000	4.917	0.000	12	23.530	24.375	0.575	2.300	A572-65 (65 ksi)
L17	95.000-94.750	0.250	0.000	12	24.375	24.418	0.700	2.800	A572-65 (65 ksi)
L18	94.750-89.750	5.000	0.000	12	24.418	25.277	0.688	2.750	A572-65 (65 ksi)
L19	89.750-85.500	4.250	0.000	12	25.277	26.007	0.675	2.700	A572-65 (65 ksi)
L20	85.500-85.250	0.250	0.000	12	26.007	26.049	0.863	3.450	A572-65 (65 ksi)
L21	85.250-85.000	0.250	0.000	12	26.049	26.092	0.863	3.450	A572-65 (65 ksi)
L22	85.000-84.750	0.250	0.000	12	26.092	26.135	0.838	3.350	A572-65 (65 ksi)
L23	84.750-83.000	1.750	0.000	12	26.135	26.436	0.838	3.350	A572-65 (65 ksi)
L24	83.000-82.650	0.350	0.000	12	26.436	26.496	0.713	2.850	A572-65 (65 ksi)
L25	82.650-82.417	0.233	0.000	12	26.496	26.536	0.713	2.850	A572-65 (65 ksi)
L26	82.417-77.417	5.000	0.000	12	26.536	27.395	0.688	2.750	A572-65 (65 ksi)
L27	77.417-70.167	7.250	3.580	12	27.395	28.640	0.688	2.750	A572-65 (65 ksi)
L28	70.167-69.167	4.580	0.000	12	27.400	28.079	0.725	2.900	A572-65 (65 ksi)
L29	69.167-64.167	5.000	0.000	12	28.079	28.821	0.713	2.850	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	64.167-59.167	5.000	0.000	12	28.821	29.562	0.725	2.900	A572-65 (65 ksi)
L31	59.167-54.167	5.000	0.000	12	29.562	30.304	0.713	2.850	A572-65 (65 ksi)
L32	54.167-49.167	5.000	0.000	12	30.304	31.045	0.700	2.800	A572-65 (65 ksi)
L33	49.167-47.167	2.000	0.000	12	31.045	31.342	0.700	2.800	A572-65 (65 ksi)
L34	47.167-46.917	0.250	0.000	12	31.342	31.379	0.787	3.150	A572-65 (65 ksi)
L35	46.917-43.417	3.500	0.000	12	31.379	31.898	0.775	3.100	A572-65 (65 ksi)
L36	43.417-43.167	0.250	0.000	12	31.898	31.935	0.650	2.600	A572-65 (65 ksi)
L37	43.167-38.167	5.000	0.000	12	31.935	32.677	0.650	2.600	A572-65 (65 ksi)
L38	38.167-31.537	6.630	4.210	12	32.677	33.660	0.650	2.600	A572-65 (65 ksi)
L39	31.537-30.537	5.210	0.000	12	32.286	33.161	0.438	1.750	A572-65 (65 ksi)
L40	30.537-25.537	5.000	0.000	12	33.161	34.001	0.438	1.750	A572-65 (65 ksi)
L41	25.537-20.537	5.000	0.000	12	34.001	34.840	0.438	1.750	A572-65 (65 ksi)
L42	20.537-15.537	5.000	0.000	12	34.840	35.680	0.438	1.750	A572-65 (65 ksi)
L43	15.537-10.537	5.000	0.000	12	35.680	36.520	0.438	1.750	A572-65 (65 ksi)
L44	10.537-5.537	5.000	0.000	12	36.520	37.360	0.438	1.750	A572-65 (65 ksi)
L45	5.537-0.537	5.000	0.000	12	37.360	38.200	0.438	1.750	A572-65 (65 ksi)
L46	0.537-0.000	0.537		12	38.200	38.290	0.438	1.750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	15.990	12.300	366.566	5.470	8.045	45.567	742.762	6.054	3.492	13.968
	16.797	12.928	425.616	5.749	8.449	50.377	862.414	6.363	3.701	14.804
L2	16.797	12.928	425.616	5.749	8.449	50.377	862.414	6.363	3.701	14.804
	17.605	13.556	490.691	6.029	8.853	55.429	994.273	6.672	3.910	15.64
L3	17.605	13.556	490.691	6.029	8.853	55.429	994.273	6.672	3.910	15.64
	18.412	14.184	562.082	6.308	9.257	60.722	1138.930	6.981	4.119	16.477
L4	18.412	14.184	562.082	6.308	9.257	60.722	1138.930	6.981	4.119	16.477
	19.220	14.812	640.082	6.587	9.661	66.256	1296.979	7.290	4.328	17.313
L5	19.220	14.812	640.082	6.587	9.661	66.256	1296.979	7.290	4.328	17.313
	20.027	15.440	724.983	6.866	10.065	72.032	1469.011	7.599	4.537	18.149
L6	20.027	15.440	724.983	6.866	10.065	72.032	1469.011	7.599	4.537	18.149
	20.256	15.618	750.339	6.946	10.179	73.713	1520.391	7.687	4.596	18.386
L7	20.163	31.583	1476.600	6.852	10.179	145.060	2991.992	15.544	3.893	7.596
	20.204	31.648	1485.646	6.866	10.199	145.659	3010.321	15.576	3.903	7.616
L8	20.208	30.896	1452.246	6.870	10.199	142.385	2942.645	15.206	3.937	7.874
	21.016	32.152	1636.626	7.149	10.603	154.348	3316.248	15.824	4.146	8.292
L9	21.020	31.368	1598.709	7.154	10.603	150.772	3239.417	15.438	4.179	8.573

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
	21.828	32.592	1793.324	7.433	11.008	162.918	3633.760	16.041	4.389	9.002
L10	21.828	32.592	1793.324	7.433	11.008	162.918	3633.760	16.041	4.389	9.002
	22.043	32.918	1847.748	7.507	11.115	166.236	3744.039	16.201	4.444	9.116
L11	21.968	46.789	2573.335	7.431	11.115	231.514	5214.275	23.028	3.875	5.535
	22.008	46.876	2587.867	7.445	11.135	232.399	5243.720	23.071	3.885	5.55
L12	22.008	46.876	2587.867	7.445	11.135	232.399	5243.720	23.071	3.885	5.55
	22.291	47.492	2691.123	7.543	11.277	238.641	5452.944	23.374	3.958	5.655
L13	22.317	42.554	2428.538	7.570	11.277	215.356	4920.876	20.944	4.159	6.655
	22.362	42.641	2443.362	7.585	11.299	216.244	4950.915	20.986	4.171	6.673
L14	22.371	40.983	2353.941	7.594	11.299	208.330	4769.722	20.171	4.238	7.063
	23.260	42.643	2651.549	7.902	11.744	225.780	5372.758	20.987	4.468	7.447
L15	23.264	41.778	2600.722	7.906	11.744	221.452	5269.768	20.562	4.502	7.662
	24.153	43.402	2916.062	8.214	12.189	239.242	5908.732	21.361	4.732	8.054
L16	24.158	42.502	2858.686	8.218	12.189	234.534	5792.472	20.918	4.765	8.287
	25.032	44.066	3185.934	8.520	12.626	252.327	6455.567	21.688	4.991	8.681
L17	24.988	53.363	3817.738	8.476	12.626	302.366	7735.772	26.264	4.656	6.652
	25.032	53.460	3838.547	8.491	12.648	303.480	7777.938	26.311	4.668	6.669
L18	25.037	52.533	3775.966	8.495	12.648	298.532	7651.130	25.855	4.701	6.839
	25.926	54.434	4200.911	8.803	13.093	320.845	8512.184	26.791	4.932	7.173
L19	25.930	53.472	4130.824	8.807	13.093	315.492	8370.170	26.317	4.965	7.356
	26.686	55.058	4509.530	9.069	13.471	334.748	9137.530	27.098	5.161	7.646
L20	26.620	69.831	5635.170	9.002	13.471	418.306	11418.382	34.369	4.658	5.401
	26.664	69.951	5664.088	9.017	13.494	419.760	11476.978	34.428	4.670	5.414
L21	26.664	69.951	5664.088	9.017	13.494	419.760	11476.978	34.428	4.670	5.414
	26.709	70.070	5693.105	9.032	13.516	421.216	11535.774	34.486	4.681	5.428
L22	26.717	68.106	5544.537	9.041	13.516	410.224	11234.735	33.520	4.748	5.67
	26.762	68.222	5572.865	9.057	13.538	411.642	11292.135	33.577	4.760	5.683
L23	26.762	68.222	5572.865	9.057	13.538	411.642	11292.135	33.577	4.760	5.683
	27.073	69.033	5773.867	9.164	13.694	421.641	11699.419	33.976	4.840	5.779
L24	27.117	59.016	4984.406	9.209	13.694	363.990	10099.759	29.046	5.175	7.264
	27.179	59.154	5019.432	9.231	13.725	365.716	10170.730	29.114	5.191	7.286
L25	27.179	59.154	5019.432	9.231	13.725	365.716	10170.730	29.114	5.191	7.286
	27.221	59.246	5042.870	9.245	13.746	366.869	10218.221	29.159	5.202	7.301
L26	27.230	57.222	4880.073	9.254	13.746	355.025	9888.351	28.163	5.269	7.664
	28.119	59.123	5382.792	9.561	14.191	379.323	10906.996	29.099	5.499	7.999
L27	28.119	59.123	5382.792	9.561	14.191	379.323	10906.996	29.099	5.499	7.999
	29.408	61.880	6171.298	10.007	14.836	415.981	12504.722	30.455	5.833	8.484
L28	28.661	62.273	5655.874	9.550	14.193	398.490	11460.334	30.649	5.400	7.449
	28.814	63.859	6099.014	9.793	14.545	419.317	12358.255	31.429	5.582	7.7
L29	28.819	62.786	6002.079	9.797	14.545	412.653	12161.839	30.902	5.616	7.882
	29.586	64.488	6503.303	10.063	14.929	435.609	13177.455	31.739	5.814	8.161
L30	29.582	65.590	6608.571	10.058	14.929	442.660	13390.758	32.281	5.781	7.974
	30.349	67.321	7145.749	10.324	15.313	466.636	14479.224	33.133	5.980	8.248
L31	30.354	66.189	7031.682	10.328	15.313	459.187	14248.094	32.576	6.013	8.44
	31.122	67.890	7587.933	10.594	15.697	483.387	15375.209	33.413	6.212	8.719
L32	31.126	66.727	7464.262	10.598	15.697	475.509	15124.619	32.841	6.245	8.922
	31.894	68.399	8039.320	10.864	16.082	499.910	16289.842	33.664	6.444	9.206
L33	31.894	68.399	8039.320	10.864	16.082	499.910	16289.842	33.664	6.444	9.206
	32.201	69.067	8277.404	10.970	16.235	509.843	16772.266	33.993	6.524	9.32
L34	32.170	77.479	9232.534	10.939	16.235	568.674	18707.617	38.133	6.289	7.986
	32.208	77.573	9266.184	10.952	16.254	570.072	18775.801	38.179	6.299	7.999
L35	32.213	76.373	9130.285	10.956	16.254	561.712	18500.432	37.588	6.333	8.171
	32.750	77.668	9602.770	11.142	16.523	581.166	19457.815	38.226	6.472	8.351
L36	32.794	65.402	8151.367	11.187	16.523	493.326	16516.880	32.189	6.807	10.472
	32.833	65.480	8180.416	11.200	16.542	494.510	16575.741	32.227	6.817	10.487
L37	32.833	65.480	8180.416	11.200	16.542	494.510	16575.741	32.227	6.817	10.487
	33.600	67.032	8775.981	11.466	16.927	518.473	17782.517	32.991	7.015	10.793
L38	33.600	67.032	8775.981	11.466	16.927	518.473	17782.517	32.991	7.015	10.793
	34.618	69.090	9609.300	11.818	17.436	551.122	19471.047	34.004	7.279	11.198
L39	34.002	44.866	5808.611	11.402	16.724	347.323	11769.821	22.082	7.480	17.097
	34.176	46.099	6300.710	11.715	17.177	366.805	12766.947	22.688	7.715	17.633
L40	34.176	46.099	6300.710	11.715	17.177	366.805	12766.947	22.688	7.715	17.633

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
	35.046	47.282	6798.389	12.016	17.612	386.002	13775.380	23.271	7.940	18.148
L41	35.046	47.282	6798.389	12.016	17.612	386.002	13775.380	23.271	7.940	18.148
	35.915	48.465	7321.609	12.316	18.047	405.689	14835.565	23.853	8.165	18.662
L42	35.915	48.465	7321.609	12.316	18.047	405.689	14835.565	23.853	8.165	18.662
	36.785	49.648	7871.008	12.617	18.482	425.865	15948.796	24.435	8.390	19.177
L43	36.785	49.648	7871.008	12.617	18.482	425.865	15948.796	24.435	8.390	19.177
	37.654	50.831	8447.225	12.918	18.917	446.532	17116.369	25.018	8.615	19.691
L44	37.654	50.831	8447.225	12.918	18.917	446.532	17116.369	25.018	8.615	19.691
	38.524	52.015	9050.900	13.218	19.352	467.687	18339.578	25.600	8.840	20.206
L45	38.524	52.015	9050.900	13.218	19.352	467.687	18339.578	25.600	8.840	20.206
	39.393	53.198	9682.672	13.519	19.787	489.333	19619.719	26.182	9.065	20.72
L46	39.393	53.198	9682.672	13.519	19.787	489.333	19619.719	26.182	9.065	20.72
	39.486	53.325	9752.222	13.551	19.834	491.687	19760.646	26.245	9.089	20.775

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 150.167-145.167				1	1	1			
L2 145.167-140.167				1	1	1			
L3 140.167-135.167				1	1	1			
L4 135.167-130.167				1	1	1			
L5 130.167-125.167				1	1	1			
L6 125.167-123.750				1	1	1			
L7 123.750-123.500				1	1	0.921664			
L8 123.500-118.500				1	1	0.926745			
L9 118.500-113.500				1	1	0.933492			
L10 113.500-112.167				1	1	0.929321			
L11 112.167-111.917				1	1	0.8856			
L12 111.917-110.167				1	1	0.878753			
L13 110.167-109.917				1	1	1.07983			
L14 109.917-104.917				1	1	1.10005			

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
L15 104.917-99.917				1	1	1.1007			
L16 99.917-95.000				1	1	1.10342			
L17 95.000-94.750				1	1	1.06018			
L18 94.750-89.750				1	1	1.05709			
L19 89.750-85.500				1	1	1.05845			
L20 85.500-85.250				1	1	0.962568			
L21 85.250-85.000				1	1	0.961546			
L22 85.000-84.750				1	1	0.925837			
L23 84.750-83.000				1	1	0.919348			
L24 83.000-82.650				1	1	1.03793			
L25 82.650-82.417				1	1	1.037			
L26 82.417-77.417				1	1	1.05376			
L27 77.417-70.167				1	1	1.03994			
L28 70.167-69.167				1	1	0.947274			
L29 69.167-64.167				1	1	0.95192			
L30 64.167-59.167				1	1	0.925158			
L31 59.167-54.167				1	1	0.93059			
L32 54.167-49.167				1	1	0.936763			
L33 49.167-47.167				1	1	0.93288			
L34 47.167-46.917				1	1	0.913469			
L35 46.917-43.417				1	1	0.92042			
L36 43.417-43.167				1	1	0.954778			
L37 43.167-38.167				1	1	0.94603			
L38 38.167-31.537				1	1	0.94194			
L39 31.537-30.537				1	1	1			
L40 30.537-25.537				1	1	1			
L41 25.537-20.537				1	1	1			
L42 20.537-15.537				1	1	1			
L43 15.537-10.537				1	1	1			

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
L44 10.537-5.537				1	1	1			
L45 5.537-0.537				1	1	1			
L46 0.537-0.000				1	1	1			

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
88.6875	BS	A	1 5/8	38.880	12%	24000.000	5.550	90.700	20.500	0.000	0.000	100%
		B	1 3/8	27.840	12%	24000.000	3.970	97.790	42.500	0.000	0.000	100%
		C	1 3/8	27.840	12%	24000.000	3.970	97.580	42.000	-30.000	0.000	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
88.6875	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
88.688	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
88.6875	0.503	0.388	0.387		0.584 1.3 sec/pulse	0.678 1.4 sec/pulse	0.675 1.4 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
88.6875	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
88.6875	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
88.6875	A	44.344	0.033	0.005	1.313
	B	44.344	0.033	0.005	1.313
	C	44.344	0.033	0.005	1.313

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 klf
LDF6-50A(1-1/4) *	C	No	Surface Ar (CaAa)	130.000 - 109.750	6	6	-0.140 -0.070	1.550		0.001
LDF6-50A(1-1/4) *	C	No	Surface Ar (CaAa)	149.000 - 0.000	1	1	0.280 0.300	1.550		0.001
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8) *	A	No	Surface Ar (CaAa)	140.000 - 0.000	10	10	-0.480 -0.050	1.625		0.001
LDF4-50A(1/2)	C	No	Surface Ar (CaAa)	71.000 - 22.000	2	2	-0.050 0.000	0.630		0.000
LDF4-50A(1/2) *	C	No	Surface Ar (CaAa)	22.000 - 0.000	3	3	-0.050 0.000	0.630		0.000
Safety Line 3/8	C	No	Surface Ar	150.167 -	1	1	-0.210	0.375		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 klf
			(CaAa)	0.000			-0.200			
*										
2011 Mod										
PL4x1	A	No	Surface Af (CaAa)	96.750 - 71.750	1	1	0.100 0.150	4.000	10.000	0.000
PL4x1	B	No	Surface Af (CaAa)	96.750 - 71.750	1	1	0.100 0.150	4.000	10.000	0.000
*										
2014 Mod										
6" x 1" Plate	A	No	Surface Af (CaAa)	85.000 - 50.000	1	1	0.000 0.100	6.000	14.000	0.000
6" x 1" Plate	B	No	Surface Af (CaAa)	85.000 - 50.000	1	1	0.000 0.100	6.000	14.000	0.000
6" x 1" Plate	C	No	Surface Af (CaAa)	85.000 - 50.000	1	1	0.000 0.100	6.000	14.000	0.000
*										
6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	110.000 - 85.000	1	1	0.000 0.100	6.500	15.500	0.000
6.5" x 1.25" Plate	B	No	Surface Af (CaAa)	110.000 - 85.000	1	1	0.000 0.100	6.500	15.500	0.000
6.5" x 1.25" Plate	C	No	Surface Af (CaAa)	110.000 - 80.000	1	1	0.100 0.150	6.500	15.500	0.000
*										
4.5" x 1" Plate	A	No	Surface Af (CaAa)	125.750 - 110.750	1	1	0.000 0.100	4.500	11.000	0.000
4.5" x 1" Plate	B	No	Surface Af (CaAa)	125.750 - 110.750	1	1	0.000 0.100	4.500	11.000	0.000
4.5" x 1" Plate	C	No	Surface Af (CaAa)	125.750 - 110.750	1	1	0.000 0.100	4.500	11.000	0.000
*										
2016 Mod										
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	49.917 - 29.917	1	1	0.000 0.100	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	B	No	Surface Af (CaAa)	49.917 - 29.917	1	1	0.000 0.100	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	C	No	Surface Af (CaAa)	49.917 - 29.917	1	1	0.000 0.100	6.500	15.500	0.000
*										
CCI 6.5" x 3" Plate	A	No	Surface Af (CaAa)	109.500 - 103.000	1	1	0.000 0.100	6.500	19.000	0.061
CCI 6.5" x 3" Plate	B	No	Surface Af (CaAa)	109.500 - 103.000	1	1	0.000 0.100	6.500	19.000	0.061
CCI 6.5" x 3" Plate	C	No	Surface Af (CaAa)	109.500 - 103.000	1	1	0.000 0.100	6.500	19.000	0.061
*										
CCI 6.5" x 3" Plate	A	No	Surface Af (CaAa)	117.000 - 110.500	1	1	0.000 0.100	6.500	19.000	0.061
CCI 6.5" x 3" Plate	B	No	Surface Af (CaAa)	117.000 - 110.500	1	1	0.000 0.100	6.500	19.000	0.061
CCI 6.5" x 3" Plate	C	No	Surface Af (CaAa)	117.000 - 110.500	1	1	0.000 0.100	6.500	19.000	0.061
*										
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	116.917 - 103.080	1	1	0.000 0.100	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate	B	No	Surface Af (CaAa)	116.917 - 103.080	1	1	0.000 0.100	6.500	15.500	0.028
CCI 6.5" x 1.25" Plate	C	No	Surface Af (CaAa)	116.917 - 103.080	1	1	0.000 0.100	6.500	15.500	0.028
*										
CCI 4.5" x 1" Plate	A	No	Surface Af	87.000 -	1	1	0.300	4.500	11.000	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 klf
CCI 4.5" x 1" Plate	C	No	(CaAa) Surface Af (CaAa)	41.917 87.000 - 41.917	1	1	0.350 0.300 0.350	4.500	11.000	0.000
*										
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF6-50A(1-1/4)	C	No	No	Inside Pole	109.750 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB158-1-08U8-S8J 18(1-5/8)	C	No	No	Inside Pole	130.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB158-1-08U8-S8J 18(1-5/8)	C	No	No	Inside Pole	130.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
LDF6-50A(1-1/4)	C	No	No	Inside Pole	149.000 - 0.000	11	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
LDF5-50A(7/8)	C	No	No	Inside Pole	149.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	149.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	149.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
LDF4P-50A(1/2")	C	No	No	Inside Pole	130.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
*									
*									
*									
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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.167-145.167	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.782	0.000	0.039
L2	145.167-140.167	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.962	0.000	0.051
L3	140.167-135.167	A	0.000	0.000	7.854	0.000	0.052
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.962	0.000	0.051
L4	135.167-130.167	A	0.000	0.000	8.125	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.962	0.000	0.051
L5	130.167-125.167	A	0.000	0.000	8.562	0.000	0.053
		B	0.000	0.000	0.437	0.000	0.000
		C	0.000	0.000	5.894	0.000	0.082
L6	125.167-123.750	A	0.000	0.000	3.365	0.000	0.015
		B	0.000	0.000	1.063	0.000	0.000
		C	0.000	0.000	2.653	0.000	0.023
L7	123.750-123.500	A	0.000	0.000	0.594	0.000	0.003
		B	0.000	0.000	0.188	0.000	0.000
		C	0.000	0.000	0.468	0.000	0.004
L8	123.500-118.500	A	0.000	0.000	11.875	0.000	0.053
		B	0.000	0.000	3.750	0.000	0.000
		C	0.000	0.000	9.363	0.000	0.083
L9	118.500-113.500	A	0.000	0.000	18.477	0.000	0.362
		B	0.000	0.000	10.352	0.000	0.309
		C	0.000	0.000	15.964	0.000	0.392
L10	113.500-112.167	A	0.000	0.000	5.715	0.000	0.133
		B	0.000	0.000	3.548	0.000	0.119
		C	0.000	0.000	5.045	0.000	0.141
L11	112.167-111.917	A	0.000	0.000	1.072	0.000	0.025
		B	0.000	0.000	0.666	0.000	0.022
		C	0.000	0.000	0.946	0.000	0.026
L12	111.917-110.167	A	0.000	0.000	6.789	0.000	0.154
		B	0.000	0.000	3.945	0.000	0.135
		C	0.000	0.000	5.910	0.000	0.164
L13	110.167-109.917	A	0.000	0.000	0.767	0.000	0.010
		B	0.000	0.000	0.361	0.000	0.007
		C	0.000	0.000	0.641	0.000	0.011
L14	109.917-104.917	A	0.000	0.000	22.756	0.000	0.473
		B	0.000	0.000	14.631	0.000	0.419
		C	0.000	0.000	15.749	0.000	0.502
L15	104.917-99.917	A	0.000	0.000	17.120	0.000	0.222
		B	0.000	0.000	8.995	0.000	0.168
		C	0.000	0.000	9.958	0.000	0.251
L16	99.917-95.000	A	0.000	0.000	14.484	0.000	0.053
		B	0.000	0.000	6.493	0.000	0.000
		C	0.000	0.000	6.273	0.000	0.081
L17	95.000-94.750	A	0.000	0.000	0.844	0.000	0.003
		B	0.000	0.000	0.438	0.000	0.000
		C	0.000	0.000	0.319	0.000	0.004
L18	94.750-89.750	A	0.000	0.000	16.875	0.000	0.053
		B	0.000	0.000	8.750	0.000	0.000
		C	0.000	0.000	6.379	0.000	0.083
L19	89.750-85.500	A	0.000	0.000	15.469	0.000	0.045
		B	0.000	0.000	7.438	0.000	0.000
		C	0.000	0.000	6.547	0.000	0.070
L20	85.500-85.250	A	0.000	0.000	1.031	0.000	0.003
		B	0.000	0.000	0.438	0.000	0.000
		C	0.000	0.000	0.506	0.000	0.004

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L21	85.250-85.000	A	0.000	0.000	1.031	0.000	0.003
		B	0.000	0.000	0.438	0.000	0.000
		C	0.000	0.000	0.506	0.000	0.004
L22	85.000-84.750	A	0.000	0.000	1.010	0.000	0.003
		B	0.000	0.000	0.417	0.000	0.000
		C	0.000	0.000	0.756	0.000	0.004
L23	84.750-83.000	A	0.000	0.000	7.073	0.000	0.019
		B	0.000	0.000	2.917	0.000	0.000
		C	0.000	0.000	5.295	0.000	0.029
L24	83.000-82.650	A	0.000	0.000	1.415	0.000	0.004
		B	0.000	0.000	0.583	0.000	0.000
		C	0.000	0.000	1.059	0.000	0.006
L25	82.650-82.417	A	0.000	0.000	0.943	0.000	0.002
		B	0.000	0.000	0.389	0.000	0.000
		C	0.000	0.000	0.706	0.000	0.004
L26	82.417-77.417	A	0.000	0.000	20.208	0.000	0.053
		B	0.000	0.000	8.333	0.000	0.000
		C	0.000	0.000	12.331	0.000	0.083
L27	77.417-70.167	A	0.000	0.000	28.246	0.000	0.078
		B	0.000	0.000	11.028	0.000	0.000
		C	0.000	0.000	14.188	0.000	0.120
L28	70.167-69.167	A	0.000	0.000	3.375	0.000	0.011
		B	0.000	0.000	1.000	0.000	0.000
		C	0.000	0.000	2.068	0.000	0.017
L29	69.167-64.167	A	0.000	0.000	16.875	0.000	0.053
		B	0.000	0.000	5.000	0.000	0.000
		C	0.000	0.000	10.342	0.000	0.084
L30	64.167-59.167	A	0.000	0.000	16.875	0.000	0.053
		B	0.000	0.000	5.000	0.000	0.000
		C	0.000	0.000	10.342	0.000	0.084
L31	59.167-54.167	A	0.000	0.000	16.875	0.000	0.053
		B	0.000	0.000	5.000	0.000	0.000
		C	0.000	0.000	10.342	0.000	0.084
L32	54.167-49.167	A	0.000	0.000	16.855	0.000	0.053
		B	0.000	0.000	4.979	0.000	0.000
		C	0.000	0.000	10.322	0.000	0.084
L33	49.167-47.167	A	0.000	0.000	6.918	0.000	0.021
		B	0.000	0.000	2.167	0.000	0.000
		C	0.000	0.000	4.304	0.000	0.034
L34	47.167-46.917	A	0.000	0.000	0.865	0.000	0.003
		B	0.000	0.000	0.271	0.000	0.000
		C	0.000	0.000	0.538	0.000	0.004
L35	46.917-43.417	A	0.000	0.000	12.104	0.000	0.037
		B	0.000	0.000	3.792	0.000	0.000
		C	0.000	0.000	7.531	0.000	0.059
L36	43.417-43.167	A	0.000	0.000	0.865	0.000	0.003
		B	0.000	0.000	0.271	0.000	0.000
		C	0.000	0.000	0.538	0.000	0.004
L37	43.167-38.167	A	0.000	0.000	14.479	0.000	0.053
		B	0.000	0.000	5.417	0.000	0.000
		C	0.000	0.000	7.946	0.000	0.084
L38	38.167-31.537	A	0.000	0.000	17.955	0.000	0.071
		B	0.000	0.000	7.182	0.000	0.000
		C	0.000	0.000	9.294	0.000	0.112
L39	31.537-30.537	A	0.000	0.000	2.708	0.000	0.011
		B	0.000	0.000	1.083	0.000	0.000
		C	0.000	0.000	1.402	0.000	0.017
L40	30.537-25.537	A	0.000	0.000	8.797	0.000	0.053
		B	0.000	0.000	0.672	0.000	0.000
		C	0.000	0.000	2.264	0.000	0.084
L41	25.537-20.537	A	0.000	0.000	8.125	0.000	0.053

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.685	0.000	0.084
L42	20.537-15.537	A	0.000	0.000	8.125	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.908	0.000	0.085
L43	15.537-10.537	A	0.000	0.000	8.125	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.908	0.000	0.085
L44	10.537-5.537	A	0.000	0.000	8.125	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.908	0.000	0.085
L45	5.537-0.537	A	0.000	0.000	8.125	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.908	0.000	0.085
L46	0.537-0.000	A	0.000	0.000	0.873	0.000	0.006
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.205	0.000	0.009

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	150.167-145.167	A	1.481	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	3.398	0.000	0.077
L2	145.167-140.167	A	1.476	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	3.914	0.000	0.095
L3	140.167-135.167	A	1.471	0.000	0.000	11.594	0.000	0.169
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	3.904	0.000	0.095
L4	135.167-130.167	A	1.465	0.000	0.000	11.988	0.000	0.174
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	3.893	0.000	0.094
L5	130.167-125.167	A	1.460	0.000	0.000	12.586	0.000	0.179
		B		0.000	0.000	0.605	0.000	0.005
		C		0.000	0.000	11.869	0.000	0.204
L6	125.167-123.750	A	1.456	0.000	0.000	4.864	0.000	0.062
		B		0.000	0.000	1.470	0.000	0.013
		C		0.000	0.000	4.731	0.000	0.070
L7	123.750-123.500	A	1.455	0.000	0.000	0.858	0.000	0.011
		B		0.000	0.000	0.259	0.000	0.002
		C		0.000	0.000	0.835	0.000	0.012
L8	123.500-118.500	A	1.452	0.000	0.000	17.155	0.000	0.220
		B		0.000	0.000	5.184	0.000	0.047
		C		0.000	0.000	16.678	0.000	0.248
L9	118.500-113.500	A	1.446	0.000	0.000	24.832	0.000	0.616
		B		0.000	0.000	12.868	0.000	0.444
		C		0.000	0.000	24.342	0.000	0.644
L10	113.500-112.167	A	1.442	0.000	0.000	7.535	0.000	0.211
		B		0.000	0.000	4.346	0.000	0.165
		C		0.000	0.000	7.402	0.000	0.218
L11	112.167-111.917	A	1.441	0.000	0.000	1.413	0.000	0.040
		B		0.000	0.000	0.815	0.000	0.031
		C		0.000	0.000	1.388	0.000	0.041
L12	111.917-110.167	A	1.439	0.000	0.000	8.957	0.000	0.246
		B		0.000	0.000	4.772	0.000	0.186

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	8.781	0.000	0.256
L13	110.167-109.917	A	1.438	0.000	0.000	1.021	0.000	0.019
		B		0.000	0.000	0.423	0.000	0.011
		C		0.000	0.000	0.995	0.000	0.021
L14	109.917-104.917	A	1.435	0.000	0.000	29.509	0.000	0.770
		B		0.000	0.000	17.559	0.000	0.598
		C		0.000	0.000	21.645	0.000	0.726
L15	104.917-99.917	A	1.428	0.000	0.000	22.947	0.000	0.445
		B		0.000	0.000	11.006	0.000	0.274
		C		0.000	0.000	14.825	0.000	0.398
L16	99.917-95.000	A	1.421	0.000	0.000	20.122	0.000	0.239
		B		0.000	0.000	8.388	0.000	0.072
		C		0.000	0.000	10.465	0.000	0.179
L17	95.000-94.750	A	1.417	0.000	0.000	1.176	0.000	0.014
		B		0.000	0.000	0.579	0.000	0.005
		C		0.000	0.000	0.532	0.000	0.009
L18	94.750-89.750	A	1.413	0.000	0.000	23.499	0.000	0.269
		B		0.000	0.000	11.576	0.000	0.099
		C		0.000	0.000	10.618	0.000	0.181
L19	89.750-85.500	A	1.406	0.000	0.000	21.501	0.000	0.241
		B		0.000	0.000	9.827	0.000	0.084
		C		0.000	0.000	10.554	0.000	0.167
L20	85.500-85.250	A	1.402	0.000	0.000	1.431	0.000	0.016
		B		0.000	0.000	0.578	0.000	0.005
		C		0.000	0.000	0.787	0.000	0.011
L21	85.250-85.000	A	1.402	0.000	0.000	1.431	0.000	0.016
		B		0.000	0.000	0.578	0.000	0.005
		C		0.000	0.000	0.787	0.000	0.011
L22	85.000-84.750	A	1.401	0.000	0.000	1.410	0.000	0.015
		B		0.000	0.000	0.557	0.000	0.005
		C		0.000	0.000	1.107	0.000	0.014
L23	84.750-83.000	A	1.400	0.000	0.000	9.866	0.000	0.108
		B		0.000	0.000	3.896	0.000	0.033
		C		0.000	0.000	7.745	0.000	0.097
L24	83.000-82.650	A	1.398	0.000	0.000	1.973	0.000	0.021
		B		0.000	0.000	0.779	0.000	0.007
		C		0.000	0.000	1.548	0.000	0.019
L25	82.650-82.417	A	1.397	0.000	0.000	1.315	0.000	0.014
		B		0.000	0.000	0.519	0.000	0.004
		C		0.000	0.000	1.032	0.000	0.013
L26	82.417-77.417	A	1.393	0.000	0.000	28.159	0.000	0.306
		B		0.000	0.000	11.119	0.000	0.094
		C		0.000	0.000	18.575	0.000	0.246
L27	77.417-70.167	A	1.382	0.000	0.000	39.268	0.000	0.427
		B		0.000	0.000	14.597	0.000	0.121
		C		0.000	0.000	22.516	0.000	0.319
L28	70.167-69.167	A	1.374	0.000	0.000	4.679	0.000	0.053
		B		0.000	0.000	1.276	0.000	0.010
		C		0.000	0.000	3.551	0.000	0.048
L29	69.167-64.167	A	1.368	0.000	0.000	23.352	0.000	0.260
		B		0.000	0.000	6.368	0.000	0.051
		C		0.000	0.000	17.681	0.000	0.237
L30	64.167-59.167	A	1.357	0.000	0.000	23.317	0.000	0.258
		B		0.000	0.000	6.357	0.000	0.051
		C		0.000	0.000	17.626	0.000	0.236
L31	59.167-54.167	A	1.346	0.000	0.000	23.280	0.000	0.256
		B		0.000	0.000	6.346	0.000	0.050
		C		0.000	0.000	17.566	0.000	0.234
L32	54.167-49.167	A	1.333	0.000	0.000	23.197	0.000	0.254
		B		0.000	0.000	6.291	0.000	0.049
		C		0.000	0.000	17.458	0.000	0.232

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
L33	49.167-47.167	A	1.324	0.000	0.000	9.452	0.000	0.103
		B		0.000	0.000	2.697	0.000	0.021
		C		0.000	0.000	7.148	0.000	0.094
L34	47.167-46.917	A	1.321	0.000	0.000	1.181	0.000	0.013
		B		0.000	0.000	0.337	0.000	0.003
		C		0.000	0.000	0.893	0.000	0.012
L35	46.917-43.417	A	1.316	0.000	0.000	16.519	0.000	0.179
		B		0.000	0.000	4.713	0.000	0.037
		C		0.000	0.000	12.477	0.000	0.163
L36	43.417-43.167	A	1.310	0.000	0.000	1.179	0.000	0.013
		B		0.000	0.000	0.336	0.000	0.003
		C		0.000	0.000	0.890	0.000	0.012
L37	43.167-38.167	A	1.302	0.000	0.000	19.765	0.000	0.223
		B		0.000	0.000	6.719	0.000	0.052
		C		0.000	0.000	13.962	0.000	0.201
L38	38.167-31.537	A	1.282	0.000	0.000	24.473	0.000	0.278
		B		0.000	0.000	8.882	0.000	0.067
		C		0.000	0.000	16.727	0.000	0.250
L39	31.537-30.537	A	1.267	0.000	0.000	3.691	0.000	0.042
		B		0.000	0.000	1.340	0.000	0.010
		C		0.000	0.000	2.523	0.000	0.038
L40	30.537-25.537	A	1.254	0.000	0.000	12.551	0.000	0.163
		B		0.000	0.000	0.827	0.000	0.006
		C		0.000	0.000	6.654	0.000	0.142
L41	25.537-20.537	A	1.230	0.000	0.000	11.694	0.000	0.155
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	5.863	0.000	0.135
L42	20.537-15.537	A	1.200	0.000	0.000	11.656	0.000	0.152
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	6.044	0.000	0.136
L43	15.537-10.537	A	1.162	0.000	0.000	11.609	0.000	0.149
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	5.920	0.000	0.134
L44	10.537-5.537	A	1.107	0.000	0.000	11.540	0.000	0.145
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	5.741	0.000	0.130
L45	5.537-0.537	A	1.004	0.000	0.000	11.411	0.000	0.137
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	5.407	0.000	0.124
L46	0.537-0.000	A	0.788	0.000	0.000	1.197	0.000	0.013
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.505	0.000	0.012

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.167-145.167	-0.322	0.780	-0.230	1.899
L2	145.167-140.167	-0.434	0.935	-0.415	2.129
L3	140.167-135.167	-4.926	0.623	-4.065	1.200
L4	135.167-130.167	-5.104	0.631	-4.236	1.215
L5	130.167-125.167	-3.425	2.472	-2.713	2.664
L6	125.167-123.750	-2.252	1.678	-2.056	2.074
L7	123.750-123.500	-2.265	1.688	-2.068	2.086
L8	123.500-118.500	-2.295	1.711	-2.101	2.119
L9	118.500-113.500	-1.476	1.100	-1.508	1.520

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L10	113.500-112.167	-1.288	0.960	-1.354	1.364
L11	112.167-111.917	-1.295	0.965	-1.361	1.371
L12	111.917-110.167	-1.443	1.076	-1.507	1.518
L13	110.167-109.917	-1.981	1.347	-1.999	1.869
L14	109.917-104.917	-1.786	0.138	-1.983	0.451
L15	104.917-99.917	-2.532	0.158	-2.715	0.568
L16	99.917-95.000	-3.005	-0.138	-3.099	0.343
L17	95.000-94.750	-2.453	-0.674	-2.533	-0.243
L18	94.750-89.750	-2.483	-0.682	-2.569	-0.248
L19	89.750-85.500	-2.712	-0.941	-2.801	-0.523
L20	85.500-85.250	-3.011	-1.328	-3.098	-0.946
L21	85.250-85.000	-3.014	-1.330	-3.102	-0.947
L22	85.000-84.750	-3.007	0.024	-3.082	0.263
L23	84.750-83.000	-3.022	0.023	-3.099	0.264
L24	83.000-82.650	-3.036	0.023	-3.115	0.265
L25	82.650-82.417	-3.040	0.023	-3.120	0.265
L26	82.417-77.417	-2.912	-0.618	-3.013	-0.304
L27	77.417-70.167	-2.993	-1.146	-3.112	-0.688
L28	70.167-69.167	-3.669	-0.372	-3.614	0.437
L29	69.167-64.167	-3.707	-0.376	-3.660	0.436
L30	64.167-59.167	-3.771	-0.384	-3.733	0.440
L31	59.167-54.167	-3.833	-0.391	-3.806	0.444
L32	54.167-49.167	-3.899	-0.398	-3.886	0.447
L33	49.167-47.167	-3.832	-0.392	-3.855	0.439
L34	47.167-46.917	-3.847	-0.394	-3.871	0.440
L35	46.917-43.417	-3.869	-0.396	-3.898	0.440
L36	43.417-43.167	-3.889	-0.399	-3.923	0.441
L37	43.167-38.167	-3.525	0.363	-3.580	1.278
L38	38.167-31.537	-3.727	0.734	-3.499	1.622
L39	31.537-30.537	-3.718	0.732	-3.490	1.618
L40	30.537-25.537	-5.852	1.153	-4.968	2.278
L41	25.537-20.537	-6.385	1.327	-5.333	2.472
L42	20.537-15.537	-6.373	1.490	-5.371	2.583
L43	15.537-10.537	-6.427	1.504	-5.452	2.583
L44	10.537-5.537	-6.480	1.516	-5.540	2.567
L45	5.537-0.537	-6.532	1.529	-5.647	2.503
L46	0.537-0.000	-6.560	1.536	-5.781	2.308

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	7	LDF6-50A(1-1/4)	145.17 - 149.00	1.0000	1.0000
L1	23	Safety Line 3/8	145.17 - 150.17	1.0000	1.0000
L2	7	LDF6-50A(1-1/4)	140.17 - 145.17	1.0000	1.0000
L2	23	Safety Line 3/8	140.17 - 145.17	1.0000	1.0000
L3	7	LDF6-50A(1-1/4)	135.17 - 140.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L3	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	135.17 - 140.00	1.0000	1.0000
L3	23	Safety Line 3/8	135.17 - 140.17	1.0000	1.0000
L4	7	LDF6-50A(1-1/4)	130.17 - 135.17	1.0000	1.0000
L4	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	130.17 - 135.17	1.0000	1.0000
L4	23	Safety Line 3/8	130.17 - 135.17	1.0000	1.0000
L5	3	LDF6-50A(1-1/4)	125.17 - 130.00	1.0000	1.0000
L5	7	LDF6-50A(1-1/4)	125.17 - 130.17	1.0000	1.0000
L5	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	125.17 - 130.17	1.0000	1.0000
L5	23	Safety Line 3/8	125.17 - 130.17	1.0000	1.0000
L5	38	4.5" x 1" Plate	125.17 - 125.75	1.0000	1.0000
L5	39	4.5" x 1" Plate	125.17 - 125.75	1.0000	1.0000
L5	40	4.5" x 1" Plate	125.17 - 125.75	1.0000	1.0000
L6	3	LDF6-50A(1-1/4)	123.75 - 125.17	1.0000	1.0000
L6	7	LDF6-50A(1-1/4)	123.75 - 125.17	1.0000	1.0000
L6	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	123.75 - 125.17	1.0000	1.0000
L6	23	Safety Line 3/8	123.75 - 125.17	1.0000	1.0000
L6	38	4.5" x 1" Plate	123.75 - 125.17	1.0000	1.0000
L6	39	4.5" x 1" Plate	123.75 - 125.17	1.0000	1.0000
L6	40	4.5" x 1" Plate	123.75 - 125.17	1.0000	1.0000
L7	3	LDF6-50A(1-1/4)	123.50 - 123.75	1.0000	1.0000
L7	7	LDF6-50A(1-1/4)	123.50 - 123.75	1.0000	1.0000
L7	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	123.50 - 123.75	1.0000	1.0000
L7	23	Safety Line 3/8	123.50 - 123.75	1.0000	1.0000
L7	38	4.5" x 1" Plate	123.50 - 123.75	1.0000	1.0000
L7	39	4.5" x 1" Plate	123.50 - 123.75	1.0000	1.0000
L7	40	4.5" x 1" Plate	123.50 - 123.75	1.0000	1.0000
L8	3	LDF6-50A(1-1/4)	118.50 - 123.50	1.0000	1.0000
L8	7	LDF6-50A(1-1/4)	118.50 - 123.50	1.0000	1.0000
L8	14	MLE HYBRID	118.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)	123.50		
L8	23	Safety Line 3/8	118.50 - 123.50	1.0000	1.0000
L8	38	4.5" x 1" Plate	118.50 - 123.50	1.0000	1.0000
L8	39	4.5" x 1" Plate	118.50 - 123.50	1.0000	1.0000
L8	40	4.5" x 1" Plate	118.50 - 123.50	1.0000	1.0000
L9	3	LDF6-50A(1-1/4)	113.50 - 118.50	1.0000	1.0000
L9	7	LDF6-50A(1-1/4)	113.50 - 118.50	1.0000	1.0000
L9	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	113.50 - 118.50	1.0000	1.0000
L9	23	Safety Line 3/8	113.50 - 118.50	1.0000	1.0000
L9	38	4.5" x 1" Plate	113.50 - 118.50	1.0000	1.0000
L9	39	4.5" x 1" Plate	113.50 - 118.50	1.0000	1.0000
L9	40	4.5" x 1" Plate	113.50 - 118.50	1.0000	1.0000
L9	51	CCI 6.5" x 3" Plate	113.50 - 117.00	1.0000	1.0000
L9	52	CCI 6.5" x 3" Plate	113.50 - 117.00	1.0000	1.0000
L9	53	CCI 6.5" x 3" Plate	113.50 - 117.00	1.0000	1.0000
L9	55	CCI 6.5" x 1.25" Plate	113.50 - 116.92	1.0000	1.0000
L9	56	CCI 6.5" x 1.25" Plate	113.50 - 116.92	1.0000	1.0000
L9	57	CCI 6.5" x 1.25" Plate	113.50 - 116.92	1.0000	1.0000
L10	3	LDF6-50A(1-1/4)	112.17 - 113.50	1.0000	1.0000
L10	7	LDF6-50A(1-1/4)	112.17 - 113.50	1.0000	1.0000
L10	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	112.17 - 113.50	1.0000	1.0000
L10	23	Safety Line 3/8	112.17 - 113.50	1.0000	1.0000
L10	38	4.5" x 1" Plate	112.17 - 113.50	1.0000	1.0000
L10	39	4.5" x 1" Plate	112.17 - 113.50	1.0000	1.0000
L10	40	4.5" x 1" Plate	112.17 - 113.50	1.0000	1.0000
L10	51	CCI 6.5" x 3" Plate	112.17 - 113.50	1.0000	1.0000
L10	52	CCI 6.5" x 3" Plate	112.17 - 113.50	1.0000	1.0000
L10	53	CCI 6.5" x 3" Plate	112.17 - 113.50	1.0000	1.0000
L10	55	CCI 6.5" x 1.25" Plate	112.17 - 113.50	1.0000	1.0000
L10	56	CCI 6.5" x 1.25" Plate	112.17 - 113.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	57	CCI 6.5" x 1.25" Plate	112.17 - 113.50	1.0000	1.0000
L11	3	LDF6-50A(1-1/4)	111.92 - 112.17	1.0000	1.0000
L11	7	LDF6-50A(1-1/4)	111.92 - 112.17	1.0000	1.0000
L11	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	111.92 - 112.17	1.0000	1.0000
L11	23	Safety Line 3/8	111.92 - 112.17	1.0000	1.0000
L11	38	4.5" x 1" Plate	111.92 - 112.17	1.0000	1.0000
L11	39	4.5" x 1" Plate	111.92 - 112.17	1.0000	1.0000
L11	40	4.5" x 1" Plate	111.92 - 112.17	1.0000	1.0000
L11	51	CCI 6.5" x 3" Plate	111.92 - 112.17	1.0000	1.0000
L11	52	CCI 6.5" x 3" Plate	111.92 - 112.17	1.0000	1.0000
L11	53	CCI 6.5" x 3" Plate	111.92 - 112.17	1.0000	1.0000
L11	55	CCI 6.5" x 1.25" Plate	111.92 - 112.17	1.0000	1.0000
L11	56	CCI 6.5" x 1.25" Plate	111.92 - 112.17	1.0000	1.0000
L11	57	CCI 6.5" x 1.25" Plate	111.92 - 112.17	1.0000	1.0000
L12	3	LDF6-50A(1-1/4)	110.17 - 111.92	1.0000	1.0000
L12	7	LDF6-50A(1-1/4)	110.17 - 111.92	1.0000	1.0000
L12	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	110.17 - 111.92	1.0000	1.0000
L12	23	Safety Line 3/8	110.17 - 111.92	1.0000	1.0000
L12	38	4.5" x 1" Plate	110.75 - 111.92	1.0000	1.0000
L12	39	4.5" x 1" Plate	110.75 - 111.92	1.0000	1.0000
L12	40	4.5" x 1" Plate	110.75 - 111.92	1.0000	1.0000
L12	51	CCI 6.5" x 3" Plate	110.50 - 111.92	1.0000	1.0000
L12	52	CCI 6.5" x 3" Plate	110.50 - 111.92	1.0000	1.0000
L12	53	CCI 6.5" x 3" Plate	110.50 - 111.92	1.0000	1.0000
L12	55	CCI 6.5" x 1.25" Plate	110.17 - 111.92	1.0000	1.0000
L12	56	CCI 6.5" x 1.25" Plate	110.17 - 111.92	1.0000	1.0000
L12	57	CCI 6.5" x 1.25" Plate	110.17 - 111.92	1.0000	1.0000
L13	3	LDF6-50A(1-1/4)	109.92 - 110.17	1.0000	1.0000
L13	7	LDF6-50A(1-1/4)	109.92 - 110.17	1.0000	1.0000
L13	14	MLE HYBRID 9POWER/18FIBER RL	109.92 - 110.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		2(1-5/8)			
L13	23	Safety Line 3/8	109.92 - 110.17	1.0000	1.0000
L13	34	6.5" x 1.25" Plate	109.92 - 110.00	1.0000	1.0000
L13	35	6.5" x 1.25" Plate	109.92 - 110.00	1.0000	1.0000
L13	36	6.5" x 1.25" Plate	109.92 - 110.00	1.0000	1.0000
L13	55	CCI 6.5" x 1.25" Plate	109.92 - 110.17	1.0000	1.0000
L13	56	CCI 6.5" x 1.25" Plate	109.92 - 110.17	1.0000	1.0000
L13	57	CCI 6.5" x 1.25" Plate	109.92 - 110.17	1.0000	1.0000
L14	3	LDF6-50A(1-1/4)	109.75 - 109.92	1.0000	1.0000
L14	7	LDF6-50A(1-1/4)	104.92 - 109.92	1.0000	1.0000
L14	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	104.92 - 109.92	1.0000	1.0000
L14	23	Safety Line 3/8	104.92 - 109.92	1.0000	1.0000
L14	34	6.5" x 1.25" Plate	104.92 - 109.92	1.0000	1.0000
L14	35	6.5" x 1.25" Plate	104.92 - 109.92	1.0000	1.0000
L14	36	6.5" x 1.25" Plate	104.92 - 109.92	1.0000	1.0000
L14	47	CCI 6.5" x 3" Plate	104.92 - 109.50	1.0000	1.0000
L14	48	CCI 6.5" x 3" Plate	104.92 - 109.50	1.0000	1.0000
L14	49	CCI 6.5" x 3" Plate	104.92 - 109.50	1.0000	1.0000
L14	55	CCI 6.5" x 1.25" Plate	104.92 - 109.92	1.0000	1.0000
L14	56	CCI 6.5" x 1.25" Plate	104.92 - 109.92	1.0000	1.0000
L14	57	CCI 6.5" x 1.25" Plate	104.92 - 109.92	1.0000	1.0000
L15	7	LDF6-50A(1-1/4)	99.92 - 104.92	1.0000	1.0000
L15	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	99.92 - 104.92	1.0000	1.0000
L15	23	Safety Line 3/8	99.92 - 104.92	1.0000	1.0000
L15	34	6.5" x 1.25" Plate	99.92 - 104.92	1.0000	1.0000
L15	35	6.5" x 1.25" Plate	99.92 - 104.92	1.0000	1.0000
L15	36	6.5" x 1.25" Plate	99.92 - 104.92	1.0000	1.0000
L15	47	CCI 6.5" x 3" Plate	103.00 - 104.92	1.0000	1.0000
L15	48	CCI 6.5" x 3" Plate	103.00 - 104.92	1.0000	1.0000
L15	49	CCI 6.5" x 3" Plate	103.00 - 104.92	1.0000	1.0000
L15	55	CCI 6.5" x 1.25" Plate	103.08 - 104.92	1.0000	1.0000
L15	56	CCI 6.5" x 1.25" Plate	103.08 - 104.92	1.0000	1.0000
L15	57	CCI 6.5" x 1.25" Plate	103.08 - 104.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	7	LDF6-50A(1-1/4)	95.00 - 99.92	1.0000	1.0000
L16	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	95.00 - 99.92	1.0000	1.0000
L16	23	Safety Line 3/8	95.00 - 99.92	1.0000	1.0000
L16	26	PL4x1	95.00 - 96.75	1.0000	1.0000
L16	27	PL4x1	95.00 - 96.75	1.0000	1.0000
L16	34	6.5" x 1.25" Plate	95.00 - 99.92	1.0000	1.0000
L16	35	6.5" x 1.25" Plate	95.00 - 99.92	1.0000	1.0000
L16	36	6.5" x 1.25" Plate	95.00 - 99.92	1.0000	1.0000
L17	7	LDF6-50A(1-1/4)	94.75 - 95.00	1.0000	1.0000
L17	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	94.75 - 95.00	1.0000	1.0000
L17	23	Safety Line 3/8	94.75 - 95.00	1.0000	1.0000
L17	26	PL4x1	94.75 - 95.00	1.0000	1.0000
L17	27	PL4x1	94.75 - 95.00	1.0000	1.0000
L17	34	6.5" x 1.25" Plate	94.75 - 95.00	1.0000	1.0000
L17	35	6.5" x 1.25" Plate	94.75 - 95.00	1.0000	1.0000
L17	36	6.5" x 1.25" Plate	94.75 - 95.00	1.0000	1.0000
L18	7	LDF6-50A(1-1/4)	89.75 - 94.75	1.0000	1.0000
L18	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	89.75 - 94.75	1.0000	1.0000
L18	23	Safety Line 3/8	89.75 - 94.75	1.0000	1.0000
L18	26	PL4x1	89.75 - 94.75	1.0000	1.0000
L18	27	PL4x1	89.75 - 94.75	1.0000	1.0000
L18	34	6.5" x 1.25" Plate	89.75 - 94.75	1.0000	1.0000
L18	35	6.5" x 1.25" Plate	89.75 - 94.75	1.0000	1.0000
L18	36	6.5" x 1.25" Plate	89.75 - 94.75	1.0000	1.0000
L19	7	LDF6-50A(1-1/4)	85.50 - 89.75	1.0000	1.0000
L19	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	85.50 - 89.75	1.0000	1.0000
L19	23	Safety Line 3/8	85.50 - 89.75	1.0000	1.0000
L19	26	PL4x1	85.50 - 89.75	1.0000	1.0000
L19	27	PL4x1	85.50 - 89.75	1.0000	1.0000
L19	34	6.5" x 1.25" Plate	85.50 - 89.75	1.0000	1.0000
L19	35	6.5" x 1.25" Plate	85.50 - 89.75	1.0000	1.0000
L19	36	6.5" x 1.25" Plate	85.50 - 89.75	1.0000	1.0000
L19	59	CCI 4.5" x 1" Plate	85.50 - 87.00	1.0000	1.0000
L19	61	CCI 4.5" x 1" Plate	85.50 - 87.00	1.0000	1.0000
L20	7	LDF6-50A(1-1/4)	85.25 - 85.50	1.0000	1.0000
L20	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	85.25 - 85.50	1.0000	1.0000
L20	23	Safety Line 3/8	85.25 - 85.50	1.0000	1.0000
L20	26	PL4x1	85.25 - 85.50	1.0000	1.0000
L20	27	PL4x1	85.25 - 85.50	1.0000	1.0000
L20	34	6.5" x 1.25" Plate	85.25 - 85.50	1.0000	1.0000
L20	35	6.5" x 1.25" Plate	85.25 - 85.50	1.0000	1.0000
L20	36	6.5" x 1.25" Plate	85.25 - 85.50	1.0000	1.0000
L20	59	CCI 4.5" x 1" Plate	85.25 - 85.50	1.0000	1.0000
L20	61	CCI 4.5" x 1" Plate	85.25 - 85.50	1.0000	1.0000
L21	7	LDF6-50A(1-1/4)	85.00 - 85.25	1.0000	1.0000
L21	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	85.00 - 85.25	1.0000	1.0000
L21	23	Safety Line 3/8	85.00 - 85.25	1.0000	1.0000
L21	26	PL4x1	85.00 - 85.25	1.0000	1.0000
L21	27	PL4x1	85.00 - 85.25	1.0000	1.0000
L21	34	6.5" x 1.25" Plate	85.00 - 85.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	35	6.5" x 1.25" Plate	85.00 - 85.25	1.0000	1.0000
L21	36	6.5" x 1.25" Plate	85.00 - 85.25	1.0000	1.0000
L21	59	CCI 4.5" x 1" Plate	85.00 - 85.25	1.0000	1.0000
L21	61	CCI 4.5" x 1" Plate	85.00 - 85.25	1.0000	1.0000
L22	7	LDF6-50A(1-1/4)	84.75 - 85.00	1.0000	1.0000
L22	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	84.75 - 85.00	1.0000	1.0000
L22	23	Safety Line 3/8	84.75 - 85.00	1.0000	1.0000
L22	26	PL4x1	84.75 - 85.00	1.0000	1.0000
L22	27	PL4x1	84.75 - 85.00	1.0000	1.0000
L22	30	6" x 1" Plate	84.75 - 85.00	1.0000	1.0000
L22	31	6" x 1" Plate	84.75 - 85.00	1.0000	1.0000
L22	32	6" x 1" Plate	84.75 - 85.00	1.0000	1.0000
L22	36	6.5" x 1.25" Plate	84.75 - 85.00	1.0000	1.0000
L22	59	CCI 4.5" x 1" Plate	84.75 - 85.00	1.0000	1.0000
L22	61	CCI 4.5" x 1" Plate	84.75 - 85.00	1.0000	1.0000
L23	7	LDF6-50A(1-1/4)	83.00 - 84.75	1.0000	1.0000
L23	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	83.00 - 84.75	1.0000	1.0000
L23	23	Safety Line 3/8	83.00 - 84.75	1.0000	1.0000
L23	26	PL4x1	83.00 - 84.75	1.0000	1.0000
L23	27	PL4x1	83.00 - 84.75	1.0000	1.0000
L23	30	6" x 1" Plate	83.00 - 84.75	1.0000	1.0000
L23	31	6" x 1" Plate	83.00 - 84.75	1.0000	1.0000
L23	32	6" x 1" Plate	83.00 - 84.75	1.0000	1.0000
L23	36	6.5" x 1.25" Plate	83.00 - 84.75	1.0000	1.0000
L23	59	CCI 4.5" x 1" Plate	83.00 - 84.75	1.0000	1.0000
L23	61	CCI 4.5" x 1" Plate	83.00 - 84.75	1.0000	1.0000
L24	7	LDF6-50A(1-1/4)	82.65 - 83.00	1.0000	1.0000
L24	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	82.65 - 83.00	1.0000	1.0000
L24	23	Safety Line 3/8	82.65 - 83.00	1.0000	1.0000
L24	26	PL4x1	82.65 - 83.00	1.0000	1.0000
L24	27	PL4x1	82.65 - 83.00	1.0000	1.0000
L24	30	6" x 1" Plate	82.65 - 83.00	1.0000	1.0000
L24	31	6" x 1" Plate	82.65 - 83.00	1.0000	1.0000
L24	32	6" x 1" Plate	82.65 - 83.00	1.0000	1.0000
L24	36	6.5" x 1.25" Plate	82.65 - 83.00	1.0000	1.0000
L24	59	CCI 4.5" x 1" Plate	82.65 - 83.00	1.0000	1.0000
L24	61	CCI 4.5" x 1" Plate	82.65 - 83.00	1.0000	1.0000
L25	7	LDF6-50A(1-1/4)	82.42 - 82.65	1.0000	1.0000
L25	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	82.42 - 82.65	1.0000	1.0000
L25	23	Safety Line 3/8	82.42 - 82.65	1.0000	1.0000
L25	26	PL4x1	82.42 - 82.65	1.0000	1.0000
L25	27	PL4x1	82.42 - 82.65	1.0000	1.0000
L25	30	6" x 1" Plate	82.42 - 82.65	1.0000	1.0000
L25	31	6" x 1" Plate	82.42 - 82.65	1.0000	1.0000
L25	32	6" x 1" Plate	82.42 - 82.65	1.0000	1.0000
L25	36	6.5" x 1.25" Plate	82.42 - 82.65	1.0000	1.0000
L25	59	CCI 4.5" x 1" Plate	82.42 - 82.65	1.0000	1.0000
L25	61	CCI 4.5" x 1" Plate	82.42 - 82.65	1.0000	1.0000
L26	7	LDF6-50A(1-1/4)	77.42 - 82.42	1.0000	1.0000
L26	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	77.42 - 82.42	1.0000	1.0000
L26	23	Safety Line 3/8	77.42 - 82.42	1.0000	1.0000
L26	26	PL4x1	77.42 - 82.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L26	27	PL4x1	77.42 - 82.42	1.0000	1.0000
L26	30	6" x 1" Plate	77.42 - 82.42	1.0000	1.0000
L26	31	6" x 1" Plate	77.42 - 82.42	1.0000	1.0000
L26	32	6" x 1" Plate	77.42 - 82.42	1.0000	1.0000
L26	36	6.5" x 1.25" Plate	80.00 - 82.42	1.0000	1.0000
L26	59	CCI 4.5" x 1" Plate	77.42 - 82.42	1.0000	1.0000
L26	61	CCI 4.5" x 1" Plate	77.42 - 82.42	1.0000	1.0000
L27	7	LDF6-50A(1-1/4)	70.17 - 77.42	1.0000	1.0000
L27	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	70.17 - 77.42	1.0000	1.0000
L27	19	LDF4-50A(1/2)	70.17 - 71.00	1.0000	1.0000
L27	23	Safety Line 3/8	70.17 - 77.42	1.0000	1.0000
L27	26	PL4x1	71.75 - 77.42	1.0000	1.0000
L27	27	PL4x1	71.75 - 77.42	1.0000	1.0000
L27	30	6" x 1" Plate	70.17 - 77.42	1.0000	1.0000
L27	31	6" x 1" Plate	70.17 - 77.42	1.0000	1.0000
L27	32	6" x 1" Plate	70.17 - 77.42	1.0000	1.0000
L27	59	CCI 4.5" x 1" Plate	70.17 - 77.42	1.0000	1.0000
L27	61	CCI 4.5" x 1" Plate	70.17 - 77.42	1.0000	1.0000
L29	7	LDF6-50A(1-1/4)	64.17 - 69.17	1.0000	1.0000
L29	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	64.17 - 69.17	1.0000	1.0000
L29	19	LDF4-50A(1/2)	64.17 - 69.17	1.0000	1.0000
L29	23	Safety Line 3/8	64.17 - 69.17	1.0000	1.0000
L29	30	6" x 1" Plate	64.17 - 69.17	1.0000	1.0000
L29	31	6" x 1" Plate	64.17 - 69.17	1.0000	1.0000
L29	32	6" x 1" Plate	64.17 - 69.17	1.0000	1.0000
L29	59	CCI 4.5" x 1" Plate	64.17 - 69.17	1.0000	1.0000
L29	61	CCI 4.5" x 1" Plate	64.17 - 69.17	1.0000	1.0000
L30	7	LDF6-50A(1-1/4)	59.17 - 64.17	1.0000	1.0000
L30	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	59.17 - 64.17	1.0000	1.0000
L30	19	LDF4-50A(1/2)	59.17 - 64.17	1.0000	1.0000
L30	23	Safety Line 3/8	59.17 - 64.17	1.0000	1.0000
L30	30	6" x 1" Plate	59.17 - 64.17	1.0000	1.0000
L30	31	6" x 1" Plate	59.17 - 64.17	1.0000	1.0000
L30	32	6" x 1" Plate	59.17 - 64.17	1.0000	1.0000
L30	59	CCI 4.5" x 1" Plate	59.17 - 64.17	1.0000	1.0000
L30	61	CCI 4.5" x 1" Plate	59.17 - 64.17	1.0000	1.0000
L31	7	LDF6-50A(1-1/4)	54.17 - 59.17	1.0000	1.0000
L31	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	54.17 - 59.17	1.0000	1.0000
L31	19	LDF4-50A(1/2)	54.17 - 59.17	1.0000	1.0000
L31	23	Safety Line 3/8	54.17 - 59.17	1.0000	1.0000
L31	30	6" x 1" Plate	54.17 - 59.17	1.0000	1.0000
L31	31	6" x 1" Plate	54.17 - 59.17	1.0000	1.0000
L31	32	6" x 1" Plate	54.17 - 59.17	1.0000	1.0000
L31	59	CCI 4.5" x 1" Plate	54.17 - 59.17	1.0000	1.0000
L31	61	CCI 4.5" x 1" Plate	54.17 - 59.17	1.0000	1.0000
L32	7	LDF6-50A(1-1/4)	49.17 - 54.17	1.0000	1.0000
L32	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	49.17 - 54.17	1.0000	1.0000
L32	19	LDF4-50A(1/2)	49.17 - 54.17	1.0000	1.0000
L32	23	Safety Line 3/8	49.17 - 54.17	1.0000	1.0000
L32	30	6" x 1" Plate	50.00 - 54.17	1.0000	1.0000
L32	31	6" x 1" Plate	50.00 - 54.17	1.0000	1.0000
L32	32	6" x 1" Plate	50.00 - 54.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	43	CCI 6.5" x 1.25" Plate	49.17 - 49.92	1.0000	1.0000
L32	44	CCI 6.5" x 1.25" Plate	49.17 - 49.92	1.0000	1.0000
L32	45	CCI 6.5" x 1.25" Plate	49.17 - 49.92	1.0000	1.0000
L32	59	CCI 4.5" x 1" Plate	49.17 - 54.17	1.0000	1.0000
L32	61	CCI 4.5" x 1" Plate	49.17 - 54.17	1.0000	1.0000
L33	7	LDF6-50A(1-1/4)	47.17 - 49.17	1.0000	1.0000
L33	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	47.17 - 49.17	1.0000	1.0000
L33	19	LDF4-50A(1/2)	47.17 - 49.17	1.0000	1.0000
L33	23	Safety Line 3/8	47.17 - 49.17	1.0000	1.0000
L33	43	CCI 6.5" x 1.25" Plate	47.17 - 49.17	1.0000	1.0000
L33	44	CCI 6.5" x 1.25" Plate	47.17 - 49.17	1.0000	1.0000
L33	45	CCI 6.5" x 1.25" Plate	47.17 - 49.17	1.0000	1.0000
L33	59	CCI 4.5" x 1" Plate	47.17 - 49.17	1.0000	1.0000
L33	61	CCI 4.5" x 1" Plate	47.17 - 49.17	1.0000	1.0000
L34	7	LDF6-50A(1-1/4)	46.92 - 47.17	1.0000	1.0000
L34	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	46.92 - 47.17	1.0000	1.0000
L34	19	LDF4-50A(1/2)	46.92 - 47.17	1.0000	1.0000
L34	23	Safety Line 3/8	46.92 - 47.17	1.0000	1.0000
L34	43	CCI 6.5" x 1.25" Plate	46.92 - 47.17	1.0000	1.0000
L34	44	CCI 6.5" x 1.25" Plate	46.92 - 47.17	1.0000	1.0000
L34	45	CCI 6.5" x 1.25" Plate	46.92 - 47.17	1.0000	1.0000
L34	59	CCI 4.5" x 1" Plate	46.92 - 47.17	1.0000	1.0000
L34	61	CCI 4.5" x 1" Plate	46.92 - 47.17	1.0000	1.0000
L35	7	LDF6-50A(1-1/4)	43.42 - 46.92	1.0000	1.0000
L35	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	43.42 - 46.92	1.0000	1.0000
L35	19	LDF4-50A(1/2)	43.42 - 46.92	1.0000	1.0000
L35	23	Safety Line 3/8	43.42 - 46.92	1.0000	1.0000
L35	43	CCI 6.5" x 1.25" Plate	43.42 - 46.92	1.0000	1.0000
L35	44	CCI 6.5" x 1.25" Plate	43.42 - 46.92	1.0000	1.0000
L35	45	CCI 6.5" x 1.25" Plate	43.42 - 46.92	1.0000	1.0000
L35	59	CCI 4.5" x 1" Plate	43.42 - 46.92	1.0000	1.0000
L35	61	CCI 4.5" x 1" Plate	43.42 - 46.92	1.0000	1.0000
L36	7	LDF6-50A(1-1/4)	43.17 - 43.42	1.0000	1.0000
L36	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	43.17 - 43.42	1.0000	1.0000
L36	19	LDF4-50A(1/2)	43.17 - 43.42	1.0000	1.0000
L36	23	Safety Line 3/8	43.17 - 43.42	1.0000	1.0000
L36	43	CCI 6.5" x 1.25" Plate	43.17 - 43.42	1.0000	1.0000
L36	44	CCI 6.5" x 1.25" Plate	43.17 - 43.42	1.0000	1.0000
L36	45	CCI 6.5" x 1.25" Plate	43.17 - 43.42	1.0000	1.0000
L36	59	CCI 4.5" x 1" Plate	43.17 - 43.42	1.0000	1.0000
L36	61	CCI 4.5" x 1" Plate	43.17 - 43.42	1.0000	1.0000
L37	7	LDF6-50A(1-1/4)	38.17 - 43.17	1.0000	1.0000
L37	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	38.17 - 43.17	1.0000	1.0000
L37	19	LDF4-50A(1/2)	38.17 - 43.17	1.0000	1.0000
L37	23	Safety Line 3/8	38.17 - 43.17	1.0000	1.0000
L37	43	CCI 6.5" x 1.25" Plate	38.17 - 43.17	1.0000	1.0000
L37	44	CCI 6.5" x 1.25" Plate	38.17 - 43.17	1.0000	1.0000
L37	45	CCI 6.5" x 1.25" Plate	38.17 - 43.17	1.0000	1.0000
L37	59	CCI 4.5" x 1" Plate	41.92 - 43.17	1.0000	1.0000
L37	61	CCI 4.5" x 1" Plate	41.92 - 43.17	1.0000	1.0000
L38	7	LDF6-50A(1-1/4)	31.54 - 38.17	1.0000	1.0000
L38	14	MLE HYBRID	31.54 - 38.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L38	19	LDF4-50A(1/2)	31.54 - 38.17	1.0000	1.0000
L38	23	Safety Line 3/8	31.54 - 38.17	1.0000	1.0000
L38	43	CCI 6.5" x 1.25" Plate	31.54 - 38.17	1.0000	1.0000
L38	44	CCI 6.5" x 1.25" Plate	31.54 - 38.17	1.0000	1.0000
L38	45	CCI 6.5" x 1.25" Plate	31.54 - 38.17	1.0000	1.0000
L40	7	LDF6-50A(1-1/4)	25.54 - 30.54	1.0000	1.0000
L40	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	25.54 - 30.54	1.0000	1.0000
L40	19	LDF4-50A(1/2)	25.54 - 30.54	1.0000	1.0000
L40	23	Safety Line 3/8	25.54 - 30.54	1.0000	1.0000
L40	43	CCI 6.5" x 1.25" Plate	29.92 - 30.54	1.0000	1.0000
L40	44	CCI 6.5" x 1.25" Plate	29.92 - 30.54	1.0000	1.0000
L40	45	CCI 6.5" x 1.25" Plate	29.92 - 30.54	1.0000	1.0000
L41	7	LDF6-50A(1-1/4)	20.54 - 25.54	1.0000	1.0000
L41	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	20.54 - 25.54	1.0000	1.0000
L41	19	LDF4-50A(1/2)	22.00 - 25.54	1.0000	1.0000
L41	20	LDF4-50A(1/2)	20.54 - 22.00	1.0000	1.0000
L41	23	Safety Line 3/8	20.54 - 25.54	1.0000	1.0000
L42	7	LDF6-50A(1-1/4)	15.54 - 20.54	1.0000	1.0000
L42	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	15.54 - 20.54	1.0000	1.0000
L42	20	LDF4-50A(1/2)	15.54 - 20.54	1.0000	1.0000
L42	23	Safety Line 3/8	15.54 - 20.54	1.0000	1.0000
L43	7	LDF6-50A(1-1/4)	10.54 - 15.54	1.0000	1.0000
L43	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	10.54 - 15.54	1.0000	1.0000
L43	20	LDF4-50A(1/2)	10.54 - 15.54	1.0000	1.0000
L43	23	Safety Line 3/8	10.54 - 15.54	1.0000	1.0000
L44	7	LDF6-50A(1-1/4)	5.54 - 10.54	1.0000	1.0000
L44	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	5.54 - 10.54	1.0000	1.0000
L44	20	LDF4-50A(1/2)	5.54 - 10.54	1.0000	1.0000
L44	23	Safety Line 3/8	5.54 - 10.54	1.0000	1.0000
L45	7	LDF6-50A(1-1/4)	0.54 - 5.54	1.0000	1.0000
L45	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.54 - 5.54	1.0000	1.0000
L45	20	LDF4-50A(1/2)	0.54 - 5.54	1.0000	1.0000
L45	23	Safety Line 3/8	0.54 - 5.54	1.0000	1.0000
L46	7	LDF6-50A(1-1/4)	0.00 - 0.54	1.0000	1.0000
L46	14	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.00 - 0.54	1.0000	1.0000
L46	20	LDF4-50A(1/2)	0.00 - 0.54	1.0000	1.0000
L46	23	Safety Line 3/8	0.00 - 0.54	1.0000	1.0000

Discrete Tower Loads

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
Pipe Mount [PM 701-1]	C	None		0.000	151.000	No Ice	10.610	10.610	0.278
						1/2" Ice	12.540	12.540	0.370
						1" Ice	14.470	14.470	0.462
						2" Ice	18.330	18.330	0.646
*									
*									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	149.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			1.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	149.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			1.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	149.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			1.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.000	0.000	149.000	No Ice	3.040	2.450	0.054
			0.000			1/2" Ice	3.340	2.750	0.104
			1.000			1" Ice	3.650	3.050	0.162
						2" Ice	4.310	3.680	0.307
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000	0.000	149.000	No Ice	3.040	2.450	0.054
			0.000			1/2" Ice	3.340	2.750	0.104
			1.000			1" Ice	3.650	3.050	0.162
						2" Ice	4.310	3.680	0.307
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.000	0.000	149.000	No Ice	3.040	2.450	0.054
			0.000			1/2" Ice	3.340	2.750	0.104
			1.000			1" Ice	3.650	3.050	0.162
						2" Ice	4.310	3.680	0.307
QS46512-2 w/ Mount Pipe	A	From Leg	4.000	0.000	149.000	No Ice	2.950	3.330	0.095
			0.000			1/2" Ice	3.250	3.630	0.149
			1.000			1" Ice	3.550	3.940	0.212
						2" Ice	4.190	4.600	0.366
80010799 w/ Mount Pipe	B	From Leg	4.000	0.000	149.000	No Ice	9.910	6.150	0.144
			0.000			1/2" Ice	10.670	6.870	0.243
			1.000			1" Ice	11.440	7.600	0.356
						2" Ice	13.020	9.110	0.629
QS46512-2 w/ Mount Pipe	C	From Leg	4.000	0.000	149.000	No Ice	2.950	3.330	0.095
			0.000			1/2" Ice	3.250	3.630	0.149
			1.000			1" Ice	3.550	3.940	0.212
						2" Ice	4.190	4.600	0.366
TT19-08BP111-001	A	From Leg	4.000	0.000	149.000	No Ice	0.545	0.442	0.016
			0.000			1/2" Ice	0.641	0.530	0.022
			1.000			1" Ice	0.743	0.626	0.029
						2" Ice	0.971	0.840	0.049
TT19-08BP111-001	B	From Leg	4.000	0.000	149.000	No Ice	0.545	0.442	0.016
			0.000			1/2" Ice	0.641	0.530	0.022
			1.000			1" Ice	0.743	0.626	0.029
						2" Ice	0.971	0.840	0.049
TT19-08BP111-001	C	From Leg	4.000	0.000	149.000	No Ice	0.545	0.442	0.016
			0.000			1/2" Ice	0.641	0.530	0.022
			1.000			1" Ice	0.743	0.626	0.029
						2" Ice	0.971	0.840	0.049
CM1007-DBPXBC-003	A	From Leg	4.000	0.000	149.000	No Ice	0.367	0.134	0.007
			0.000			1/2" Ice	0.448	0.183	0.010

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			1" Ice	0.536	0.240	0.015
						2" Ice	0.735	0.375	0.029
CM1007-DBPXBC-003	B	From Leg	4.000	0.000	149.000	No Ice	0.367	0.134	0.007
			0.000			1/2" Ice	0.448	0.183	0.010
			1.000			1" Ice	0.536	0.240	0.015
						2" Ice	0.735	0.375	0.029
CM1007-DBPXBC-003	C	From Leg	4.000	0.000	149.000	No Ice	0.367	0.134	0.007
			0.000			1/2" Ice	0.448	0.183	0.010
			1.000			1" Ice	0.536	0.240	0.015
						2" Ice	0.735	0.375	0.029
RADIO 8843 B2/B66A	A	From Leg	4.000	0.000	149.000	No Ice	1.644	1.384	0.075
			0.000			1/2" Ice	1.804	1.532	0.093
			1.000			1" Ice	1.972	1.688	0.113
						2" Ice	2.329	2.022	0.164
RADIO 8843 B2/B66A	B	From Leg	4.000	0.000	149.000	No Ice	1.644	1.384	0.075
			0.000			1/2" Ice	1.804	1.532	0.093
			1.000			1" Ice	1.972	1.688	0.113
						2" Ice	2.329	2.022	0.164
RADIO 8843 B2/B66A	C	From Leg	4.000	0.000	149.000	No Ice	1.644	1.384	0.075
			0.000			1/2" Ice	1.804	1.532	0.093
			1.000			1" Ice	1.972	1.688	0.113
						2" Ice	2.329	2.022	0.164
DC6-48-60-18-8C	A	From Leg	1.000	0.000	149.000	No Ice	2.737	2.737	0.026
			0.000			1/2" Ice	2.963	2.963	0.052
			1.000			1" Ice	3.196	3.196	0.082
						2" Ice	3.684	3.684	0.152
DC6-48-60-18-8C	B	From Leg	1.000	0.000	149.000	No Ice	2.737	2.737	0.026
			0.000			1/2" Ice	2.963	2.963	0.052
			1.000			1" Ice	3.196	3.196	0.082
						2" Ice	3.684	3.684	0.152
RRUS 32	A	From Leg	4.000	0.000	149.000	No Ice	2.857	1.777	0.055
			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
RRUS 32	B	From Leg	4.000	0.000	149.000	No Ice	2.857	1.777	0.055
			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
RRUS 32	C	From Leg	4.000	0.000	149.000	No Ice	2.857	1.777	0.055
			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
RRUS 11	A	From Leg	4.000	0.000	149.000	No Ice	2.784	1.187	0.048
			0.000			1/2" Ice	2.992	1.334	0.068
			1.000			1" Ice	3.207	1.490	0.092
						2" Ice	3.658	1.833	0.150
RRUS 11	B	From Leg	4.000	0.000	149.000	No Ice	2.784	1.187	0.048
			0.000			1/2" Ice	2.992	1.334	0.068
			1.000			1" Ice	3.207	1.490	0.092
						2" Ice	3.658	1.833	0.150
RRUS 11	C	From Leg	4.000	0.000	149.000	No Ice	2.784	1.187	0.048
			0.000			1/2" Ice	2.992	1.334	0.068
			1.000			1" Ice	3.207	1.490	0.092
						2" Ice	3.658	1.833	0.150
RRUS 4478 B5	A	From Leg	4.000	0.000	149.000	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			1.000			1" Ice	2.190	1.342	0.094

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.566	1.656	0.140
RRUS 4478 B5	B	From Leg	4.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.843 2.012 2.190 2.566	1.059 1.197 1.342 1.656	0.060 0.076 0.094 0.140
RRUS 4478 B5	C	From Leg	4.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.843 2.012 2.190 2.566	1.059 1.197 1.342 1.656	0.060 0.076 0.094 0.140
RRUS 32 B2	A	From Leg	4.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	B	From Leg	4.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	C	From Leg	4.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
4' x 2" Pipe Mount	A	From Leg	4.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	A	From Leg	1.000 0.000 1.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	B	From Leg	1.000 0.000 0.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Leg	1.000 0.000 0.000	0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Platform Mount [LP 404-1_KCKR]	C	None		0.000	149.000	No Ice 1/2" Ice 1" Ice 2" Ice	35.820 45.850 55.760 75.770	35.820 45.850 55.760 75.770	2.318 3.016 3.886 6.142
*									
AIR 21 B2A/B4P	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice	5.924 6.288 6.659	4.219 4.562 4.913	0.083 0.124 0.170

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	7.422	5.634	0.278
AIR 21 B2A/B4P	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.924 6.288 6.659 7.422	4.219 4.562 4.913 5.634	0.083 0.124 0.170 0.278
AIR 21 B2A/B4P	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.924 6.288 6.659 7.422	4.219 4.562 4.913 5.634	0.083 0.124 0.170 0.278
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
KRY 112 144/1	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
KRY 112 144/1	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
AIR 32 B2A B66AA	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.850 7.241 7.640 8.457	4.963 5.334 5.711 6.486	0.143 0.191 0.244 0.367
AIR 32 B2A B66AA	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.850 7.241 7.640 8.457	4.963 5.334 5.711 6.486	0.143 0.191 0.244 0.367
AIR 32 B2A B66AA	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.850 7.241 7.640 8.457	4.963 5.334 5.711 6.486	0.143 0.191 0.244 0.367
APXVAARR24_43-U-NA20	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.670 15.430 16.210 17.810	5.320 5.990 6.680 8.080	0.153 0.266 0.387 0.656
APXVAARR24_43-U-NA20	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.670 15.430 16.210 17.810	5.320 5.990 6.680 8.080	0.153 0.266 0.387 0.656
APXVAARR24_43-U-NA20	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.670 15.430 16.210 17.810	5.320 5.990 6.680 8.080	0.153 0.266 0.387 0.656
RADIO 4449 B12/B71	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
RADIO 4449 B12/B71	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
RADIO 4449 B12/B71	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155

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
(3) 8' x 2.875" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.300 3.132 3.620 4.620	2.300 3.132 3.620 4.620	0.041 0.057 0.080 0.141
(3) 8' x 2.875" Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.300 3.132 3.620 4.620	2.300 3.132 3.620 4.620	0.029 0.046 0.068 0.129
(3) 8' x 2.875" Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.300 3.132 3.620 4.620	2.300 3.132 3.620 4.620	0.029 0.046 0.068 0.129
Platform Mount [LP 303-1_HR-1] *	C	None		0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice	17.090 21.470 25.720 33.960	17.090 21.470 25.720 33.960	1.495 1.881 2.346 3.518
BXA-80080/4CF w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.037 5.421 5.813 6.624	4.033 4.655 5.281 6.561	0.033 0.077 0.127 0.248
BXA-80080/4CF w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.037 5.421 5.813 6.624	4.033 4.655 5.281 6.561	0.033 0.077 0.127 0.248
BXA-80080/4CF w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.037 5.421 5.813 6.624	4.033 4.655 5.281 6.561	0.033 0.077 0.127 0.248
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.970 8.730 9.500 11.110	5.990 6.720 7.470 9.020	0.078 0.141 0.216 0.399
HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.970 8.730 9.500 11.110	5.990 6.720 7.470 9.020	0.078 0.141 0.216 0.399
HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.970 8.730 9.500 11.110	5.990 6.720 7.470 9.020	0.078 0.141 0.216 0.399
DB-B1-6C-12AB-0Z	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.364 3.597 3.838 4.343	2.192 2.395 2.606 3.049	0.021 0.050 0.082 0.158
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.500 5.970 6.450 7.440	4.380 4.840 5.300 6.260	0.096 0.169 0.254 0.457
(2) JAHH-45B-R3B w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.260 8.830 9.410 10.610	4.390 4.910 5.430 6.530	0.123 0.201 0.290 0.504
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.500 5.970 6.450 7.440	4.380 4.840 5.300 6.260	0.096 0.169 0.254 0.457

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
PCS/AWS DULA-BAND RRH B2/B66	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
PCS/AWS DULA-BAND RRH B2/B66	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
PCS/AWS DULA-BAND RRH B2/B66	C	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.250 1.393 1.543 1.865	0.084 0.103 0.124 0.175
FDJ85020Q4-S1	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.958 1.093 1.236 1.544	0.357 0.433 0.517 0.707	0.024 0.033 0.045 0.075
FDJ85020Q4-S1	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.958 1.093 1.236 1.544	0.357 0.433 0.517 0.707	0.024 0.033 0.045 0.075
FDJ85020Q4-S1	C	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.958 1.093 1.236 1.544	0.357 0.433 0.517 0.707	0.024 0.033 0.045 0.075
B5/B13 RRH-BR04C	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
B5/B13 RRH-BR04C	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
B5/B13 RRH-BR04C	C	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.875 2.045 2.223 2.601	1.013 1.145 1.284 1.585	0.070 0.087 0.106 0.153
RC3DC-3315-PF-48	B	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.792 4.044 4.303 4.844	2.512 2.725 2.945 3.414	0.032 0.063 0.099 0.181
Side Arm Mount [SO 102-3]	C	None		0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.180 4.750 5.900	3.600 4.180 4.750 5.900	0.075 0.105 0.135 0.195
Platform Mount [LP 403-1]	C	None		0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	18.940 23.310 27.740 36.770	18.940 23.310 27.740 36.770	1.500 1.902 2.374 3.530
*									
GPS (3"x7")	C	From Leg	4.000 0.000 4.000	0.000	134.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.175 0.234 0.301 0.456	0.175 0.234 0.301 0.456	0.008 0.010 0.013 0.023
*									
FMO	B	From Leg	4.000 0.000 1.000	0.000	71.000	No Ice 1/2" Ice 1" Ice	8.400 8.815 9.237	8.400 8.815 9.237	0.010 0.181 0.361

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	10.104	10.104	0.747
10' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
6' x 2" Mount Pipe	B	From Leg	1.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Side Arm Mount [SO 305-1]	B	From Leg	2.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.530 0.780 1.060 1.730	1.520 2.070 2.660 3.910	0.030 0.044 0.064 0.125
FMO	C	From Leg	4.000 0.000 1.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.400 8.815 9.237 10.104	8.400 8.815 9.237 10.104	0.010 0.181 0.361 0.747
10' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
6' x 2" Mount Pipe	C	From Leg	1.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
Side Arm Mount [SO 305-1]	C	From Leg	2.000 0.000 0.000	0.000	71.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.530 0.780 1.060 1.730	1.520 2.070 2.660 3.910	0.030 0.044 0.064 0.125
*									
*									
MYA-43012N	C	From Leg	3.000 0.000 0.000	0.000	22.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.620 1.116 1.612 2.604	0.620 1.116 1.612 2.604	0.005 0.006 0.008 0.011
4' x 2" Pipe Mount	C	From Leg	3.000 0.000 0.000	0.000	22.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.785 1.028 1.281 1.814	0.785 1.028 1.281 1.814	0.029 0.035 0.044 0.072
Side Arm Mount [SO 701-1]	C	From Leg	1.500 0.000 0.000	0.000	22.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
KP4F-23A	A	Grid	From Leg	4.000 0.000 7.000	50.000		149.000	4.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.570 13.090 16.130 22.210	0.070 0.140 0.200 0.340
*											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150.167 - 145.167	Pole	Max Tension	4	0.000	-0.001	-0.001
			Max. Compression	14	-12.463	-1.098	1.491
			Max. Mx	5	-4.517	-36.241	-0.089
			Max. My	2	-5.026	-0.490	34.629
			Max. Vy	5	7.764	-36.241	-0.089
			Max. Vx	8	7.408	-0.075	-33.871
			Max. Torque	5			1.935
L2	145.167 - 140.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-13.007	-1.192	1.404
			Max. Mx	5	-4.812	-75.993	-0.941
			Max. My	2	-5.344	-0.404	72.160
			Max. Vy	5	8.142	-75.993	-0.941
			Max. Vx	8	7.771	-0.291	-71.814
			Max. Torque	5			1.936
L3	140.167 - 135.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-21.774	-1.217	1.538
			Max. Mx	5	-8.298	-141.553	-2.051
			Max. My	2	-9.166	-0.298	134.645
			Max. Vy	5	13.479	-141.553	-2.051
			Max. Vx	8	12.926	-0.521	-134.510
			Max. Torque	5			1.936
L4	135.167 - 130.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-22.560	-1.154	1.425
			Max. Mx	5	-8.763	-209.821	-3.443
			Max. My	8	-9.464	-0.717	-200.049
			Max. Vy	5	13.855	-209.821	-3.443
			Max. Vx	8	13.282	-0.717	-200.049
			Max. Torque	5			1.934
L5	130.167 - 125.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-32.052	-2.202	1.241
			Max. Mx	5	-12.408	-314.230	-6.363
			Max. My	8	-13.372	-2.295	-299.880
			Max. Vy	5	19.150	-314.230	-6.363
			Max. Vx	8	18.306	-2.295	-299.880
			Max. Torque	5			2.121
L6	125.167 - 123.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-32.350	-2.219	1.181
			Max. Mx	5	-12.572	-341.423	-7.066
			Max. My	8	-13.540	-2.539	-325.885
			Max. Vy	5	19.284	-341.423	-7.066
			Max. Vx	8	18.433	-2.539	-325.885
			Max. Torque	5			2.124
L7	123.75 - 123.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-32.417	-2.223	1.170
			Max. Mx	5	-12.639	-346.242	-7.197
			Max. My	8	-13.605	-2.582	-330.490
			Max. Vy	5	19.308	-346.242	-7.197
			Max. Vx	8	18.437	-2.582	-330.490
			Max. Torque	5			2.126
L8	123.5 - 118.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-33.750	-2.280	0.952
			Max. Mx	5	-13.437	-444.006	-9.725
			Max. My	8	-14.424	-3.443	-423.942
			Max. Vy	5	19.845	-444.006	-9.725
			Max. Vx	8	18.954	-3.443	-423.942

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	5			2.134
L9	118.5 - 113.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-36.478	-2.338	0.719
			Max. Mx	5	-15.354	-545.424	-12.394
			Max. My	8	-16.377	-4.313	-520.700
			Max. Vy	5	20.764	-545.424	-12.394
			Max. Vx	8	19.771	-4.313	-520.700
			Max. Torque	5			2.136
L10	113.5 - 112.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-37.370	-2.355	0.654
			Max. Mx	5	-15.995	-573.251	-13.142
			Max. My	8	-17.029	-4.548	-547.194
			Max. Vy	5	21.035	-573.251	-13.142
			Max. Vx	8	20.009	-4.548	-547.194
			Max. Torque	5			2.131
L11	112.167 - 111.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-37.549	-2.360	0.641
			Max. Mx	5	-16.144	-578.512	-13.294
			Max. My	8	-17.179	-4.594	-552.197
			Max. Vy	5	21.096	-578.512	-13.294
			Max. Vx	8	20.037	-4.594	-552.197
			Max. Torque	5			2.128
L12	111.917 - 110.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-38.697	-2.381	0.554
			Max. Mx	5	-16.968	-615.673	-14.303
			Max. My	8	-18.019	-4.904	-587.531
			Max. Vy	5	21.439	-615.673	-14.303
			Max. Vx	8	20.361	-4.904	-587.531
			Max. Torque	5			2.129
L13	110.167 - 109.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-38.811	-2.386	0.540
			Max. Mx	5	-17.069	-621.032	-14.459
			Max. My	8	-18.119	-4.949	-592.620
			Max. Vy	5	21.480	-621.032	-14.459
			Max. Vx	8	20.375	-4.949	-592.620
			Max. Torque	5			2.125
L14	109.917 - 104.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-42.335	-2.450	0.366
			Max. Mx	5	-19.708	-730.685	-17.532
			Max. My	8	-20.794	-5.853	-696.661
			Max. Vy	5	22.441	-730.685	-17.532
			Max. Vx	8	21.264	-5.853	-696.661
			Max. Torque	5			2.136
L15	104.917 - 99.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-44.756	-2.521	0.180
			Max. Mx	5	-21.514	-844.519	-20.838
			Max. My	8	-22.624	-6.771	-804.442
			Max. Vy	5	23.146	-844.519	-20.838
			Max. Vx	8	21.888	-6.771	-804.442
			Max. Torque	5			2.151
L16	99.917 - 95	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-46.453	-2.597	0.003
			Max. Mx	5	-22.735	-959.559	-24.219
			Max. My	8	-23.861	-7.680	-913.228
			Max. Vy	5	23.709	-959.559	-24.219

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	8	22.409	-7.680	-913.228
			Max. Torque	5			2.167
L17	95 - 94.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-46.551	-2.602	-0.006
			Max. Mx	5	-22.823	-965.485	-24.401
			Max. My	8	-23.948	-7.727	-918.827
			Max. Vy	5	23.750	-965.485	-24.401
			Max. Vx	8	22.418	-7.727	-918.827
			Max. Torque	5			2.169
L18	94.75 - 89.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-48.515	-2.685	-0.165
			Max. Mx	5	-24.218	-1085.549	-27.953
			Max. My	8	-25.363	-8.654	-1032.343
			Max. Vy	5	24.351	-1085.549	-27.953
			Max. Vx	8	23.017	-8.654	-1032.343
			Max. Torque	5			2.182
L19	89.75 - 85.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-284.305	-978.218	-434.306
			Max. Mx	5	-24.518	-1111.461	-28.724
			Max. My	8	-25.668	-8.852	-1056.841
			Max. Vy	5	24.485	-1111.461	-28.724
			Max. Vx	8	23.142	-8.852	-1056.841
			Max. Torque	6			6.657
		Guy A	Bottom Tension	6	188.168		
			Top Tension	6	188.633		
			Top Cable Vert	6	183.372		
			Top Cable Norm	6	43.550		
			Top Cable Tan	6	7.785		
			Bot Cable Vert	6	-182.813		
			Bot Cable Norm	6	43.802		
			Bot Cable Tan	6	8.243		
		Guy B	Bottom Tension	11	104.256		
			Top Tension	11	104.602		
			Top Cable Vert	11	94.618		
			Top Cable Norm	11	44.588		
			Top Cable Tan	11	0.942		
			Bot Cable Vert	11	-94.080		
			Bot Cable Norm	11	44.909		
			Bot Cable Tan	11	1.168		
		Guy C	Bottom Tension	4	118.467		
			Top Tension	4	118.809		
			Top Cable Vert	4	107.592		
			Top Cable Norm	4	50.320		
			Top Cable Tan	4	2.744		
			Bot Cable Vert	4	-107.055		
			Bot Cable Norm	4	50.645		
			Bot Cable Tan	4	2.965		
L20	85.5 - 85.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-284.391	-981.963	-435.775
			Max. Mx	5	-279.599	-1095.257	-5.177
			Max. My	2	-154.838	2.611	898.102
			Max. Vy	6	15.108	-981.963	-435.775
			Max. Vx	2	15.256	2.611	898.102
			Max. Torque	6			6.653
L21	85.25 - 85	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-284.468	-985.686	-437.212
			Max. Mx	5	-279.676	-1098.088	-8.023
			Max. My	2	-154.911	2.472	894.290
			Max. Vy	6	15.082	-985.686	-437.212
			Max. Vx	2	15.253	2.472	894.290
			Max. Torque	6			6.653

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L22	85 - 84.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-284.541	-989.403	-438.646
			Max. Mx	5	-279.748	-1100.914	-10.869
			Max. My	2	-154.984	2.332	890.478
			Max. Vy	6	15.051	-989.403	-438.646
			Max. Vx	2	15.251	2.332	890.478
			Max. Torque	6			6.653
L23	84.75 - 83	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-285.042	-1015.218	-448.604
			Max. Mx	5	-280.245	-1120.513	-30.791
			Max. My	2	-155.045	2.190	886.668
			Max. Vy	6	14.900	-1015.218	-448.604
			Max. Vx	2	15.352	2.190	886.668
			Max. Torque	6			6.652
L24	83 - 82.65	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-285.153	-1020.352	-450.607
			Max. Mx	5	-280.351	-1124.398	-34.779
			Max. My	2	-155.536	1.212	860.024
			Max. Vy	6	14.749	-1020.352	-450.607
			Max. Vx	2	15.226	1.212	860.024
			Max. Torque	6			6.651
L25	82.65 - 82.4167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-285.221	-1023.763	-451.938
			Max. Mx	5	-280.418	-1126.978	-37.441
			Max. My	2	-155.630	1.017	854.701
			Max. Vy	6	14.783	-1023.763	-451.938
			Max. Vx	2	15.205	1.017	854.701
			Max. Torque	6			6.651
L26	82.4167 - 77.4167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-286.653	-1094.709	-479.511
			Max. Mx	5	-281.831	-1180.281	-94.262
			Max. My	2	-155.688	0.884	851.156
			Max. Vy	6	14.594	-1038.252	-457.536
			Max. Vx	2	15.273	0.884	851.156
			Max. Torque	6			6.650
L27	77.4167 - 70.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-287.721	-1144.375	-498.964
			Max. Mx	5	-282.886	-1217.149	-135.717
			Max. My	8	-197.181	-17.942	-796.303
			Max. Vy	6	13.821	-1111.488	-486.068
			Max. Vx	2	15.221	-1.920	775.230
			Max. Torque	6			6.645
L28	70.167 - 69.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-290.067	-1207.592	-524.729
			Max. Mx	5	-285.233	-1265.038	-187.493
			Max. My	8	-200.307	-23.023	-743.499
			Max. Vy	6	14.268	-1207.592	-524.729
			Max. Vx	2	13.677	-5.989	667.591
			Max. Torque	6			4.356
L29	69.167 - 64.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-291.501	-1276.141	-553.109
			Max. Mx	5	-286.652	-1317.625	-242.981
			Max. My	8	-200.579	-23.718	-737.324
			Max. Vy	6	14.110	-1221.616	-530.510
			Max. Vx	2	13.635	-6.550	653.983
			Max. Torque	6			4.355

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L30	64.167 - 59.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-292.949	-1340.897	-580.248
			Max. Mx	5	-288.088	-1366.923	-297.312
			Max. My	8	-201.948	-27.141	-706.744
			Max. Vy	6	13.332	-1289.387	-558.633
			Max. Vx	2	13.390	-9.349	586.609
			Max. Torque	6			4.352
L31	59.167 - 54.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-294.414	-1401.996	-606.209
			Max. Mx	5	-289.543	-1413.151	-350.296
			Max. My	7	-243.223	-901.864	-683.536
			Max. Vy	6	12.597	-1353.410	-585.535
			Max. Vx	2	13.076	-12.126	520.606
			Max. Torque	6			4.349
L32	54.167 - 49.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-295.897	-1459.470	-631.008
			Max. Mx	6	-295.897	-1459.470	-631.008
			Max. My	7	-244.666	-955.575	-674.213
			Max. Vy	6	11.868	-1413.781	-611.262
			Max. Vx	2	12.714	-14.874	456.270
			Max. Torque	6			4.346
L33	49.167 - 47.1667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-296.496	-1481.468	-640.613
			Max. Mx	6	-296.496	-1481.468	-640.613
			Max. My	7	-246.129	-1007.262	-664.995
			Max. Vy	6	11.150	-1470.539	-635.832
			Max. Vx	2	12.309	-17.588	393.832
			Max. Torque	6			4.343
L34	47.1667 - 46.9167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-296.582	-1484.186	-641.811
			Max. Mx	6	-296.582	-1484.186	-641.811
			Max. My	7	-246.719	-1027.370	-661.372
			Max. Vy	6	10.943	-1484.186	-641.811
			Max. Vx	2	12.120	-18.662	369.433
			Max. Torque	6			4.343
L35	46.9167 - 43.4167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-297.718	-1521.401	-658.226
			Max. Mx	6	-297.718	-1521.401	-658.226
			Max. My	7	-246.802	-1029.865	-660.928
			Max. Vy	6	10.857	-1496.739	-647.320
			Max. Vx	2	12.113	-18.796	366.409
			Max. Torque	6			4.342
L36	43.4167 - 43.1667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-297.796	-1524.012	-659.391
			Max. Mx	6	-297.796	-1524.012	-659.391
			Max. My	6	-297.796	-1524.012	-659.391
			Max. Vy	6	10.506	-1524.012	-659.391
			Max. Vx	2	11.772	-20.660	324.667
			Max. Torque	6			4.341
L37	43.1667 - 38.1667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-299.263	-1574.054	-681.842
			Max. Mx	6	-299.263	-1574.054	-681.842
			Max. My	6	-299.263	-1574.054	-681.842

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	6	10.400	-1534.330	-663.981
			Max. Vx	2	11.762	-20.793	321.730
			Max. Torque	6			4.341
L38	38.1667 - 31.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-299.985	-1596.826	-692.207
			Max. Mx	6	-299.985	-1596.826	-692.207
			Max. My	6	-299.985	-1596.826	-692.207
			Max. Vy	6	9.589	-1585.568	-687.072
			Max. Vx	4	11.321	-987.852	-165.634
			Max. Torque	6			4.339
L39	31.537 - 30.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-302.249	-1643.814	-713.861
			Max. Mx	6	-302.249	-1643.814	-713.861
			Max. My	6	-302.249	-1643.814	-713.861
			Max. Vy	6	8.849	-1643.814	-713.861
			Max. Vx	2	10.811	-26.820	190.872
			Max. Torque	6			4.337
L40	30.537 - 25.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-303.414	-1683.206	-732.452
			Max. Mx	6	-303.414	-1683.206	-732.452
			Max. My	6	-303.414	-1683.206	-732.452
			Max. Vy	7	8.617	-1191.153	-632.224
			Max. Vx	2	10.747	-27.328	180.113
			Max. Torque	6			4.336
L41	25.537 - 20.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-304.710	-1715.123	-748.452
			Max. Mx	6	-304.710	-1715.123	-748.452
			Max. My	6	-304.710	-1715.123	-748.452
			Max. Vy	11	8.488	370.763	-253.146
			Max. Vx	2	10.401	-29.813	127.310
			Max. Torque	6			4.334
L42	20.537 - 15.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-305.905	-1740.911	-761.789
			Max. Mx	6	-305.905	-1740.911	-761.789
			Max. My	6	-305.905	-1740.911	-761.789
			Max. Vy	11	8.226	329.447	-272.661
			Max. Vx	2	9.914	-31.832	76.270
			Max. Torque	6			4.025
L43	15.537 - 10.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-307.117	-1760.424	-772.665
			Max. Mx	6	-307.117	-1760.424	-772.665
			Max. My	6	-307.117	-1760.424	-772.665
			Max. Vy	11	7.985	289.096	-290.903
			Max. Vx	2	9.477	-34.074	27.827
			Max. Torque	6			4.024
L44	10.537 - 5.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-308.348	-1774.133	-781.280
			Max. Mx	6	-308.348	-1774.133	-781.280
			Max. My	6	-308.348	-1774.133	-781.280
			Max. Vy	11	7.692	250.063	-308.112
			Max. Vx	2	9.002	-36.221	-18.346
			Max. Torque	6			4.023
L45	5.537 - 0.537	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-309.598	-1782.499	-787.834
			Max. Mx	6	-309.598	-1782.499	-787.834

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	6	-309.598	-1782.499	-787.834
			Max. Vy	11	7.353	212.596	-324.291
			Max. Vx	2	8.494	-38.273	-62.071
			Max. Torque	6			4.022
L46	0.537 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	6	-309.734	-1783.098	-788.423
			Max. Mx	6	-309.734	-1783.098	-788.423
			Max. My	6	-309.734	-1783.098	-788.423
			Max. Vy	11	6.972	176.920	-339.447
			Max. Vx	2	7.955	-40.227	-103.176
			Max. Torque	6			4.022

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	6	309.734	-1.083	-1.085
	Max. H_x	3	152.383	2.730	-6.971
	Max. H_z	8	219.693	-0.342	3.145
	Max. M_x	21	-42.898	-0.538	1.058
	Max. M_z	6	1783.098	-1.083	-1.085
	Max. Torsion	6	4.022	-1.083	-1.085
	Min. Vert	33	116.187	-0.373	0.259
	Min. H_x	11	232.505	-6.918	-2.916
	Min. H_z	2	179.601	-0.399	-7.901
	Min. M_x	6	-788.424	-1.083	-1.085
	Min. M_z	9	-392.085	-1.665	2.220
	Min. Torsion	3	-1.185	2.730	-6.971
Guy C @ 42 ft Elev 0 ft Azimuth 211 deg	Max. Vert	9	-0.425	-0.036	0.058
	Max. H_x	10	-0.566	0.014	0.183
	Max. H_z	4	-107.055	-28.423	42.022
	Min. Vert	4	-107.055	-28.423	42.022
	Min. H_x	5	-102.859	-28.974	39.381
	Min. H_z	9	-0.425	-0.036	0.058
Guy B @ 42.5 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.243	-0.011	-0.004
	Max. H_x	11	-94.080	39.477	21.443
	Max. H_z	12	-91.733	37.990	21.756
	Min. Vert	11	-94.080	39.477	21.443
	Min. H_x	5	-0.323	-0.017	0.109
	Min. H_z	7	-0.368	0.103	-0.056
Guy A @ 20.5 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-3.003	-0.002	-0.441
	Max. H_x	10	-145.116	2.281	-33.938
	Max. H_z	2	-3.003	-0.002	-0.441
	Min. Vert	6	-182.813	-8.243	-43.802
	Min. H_x	6	-182.813	-8.243	-43.802
	Min. H_z	6	-182.813	-8.243	-43.802

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	120.982	0.375	0.902	67.532	-41.514	-0.012
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	179.601	0.399	7.901	107.429	-40.431	0.713
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	152.383	-2.730	6.971	124.592	-87.222	1.185
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	238.744	-0.089	7.514	530.105	-1024.756	0.872
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	304.834	0.014	4.889	787.136	-1686.403	-1.716
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	309.734	1.083	1.085	788.424	-1783.098	-4.022
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	259.860	3.896	-1.963	576.056	-1369.784	-3.922
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	219.693	0.342	-3.145	416.148	-60.332	-0.783
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	269.348	1.665	-2.220	534.770	392.085	0.534
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	276.464	5.167	0.052	508.874	344.037	0.556
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	232.505	6.918	2.916	341.009	173.200	-0.199
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	169.942	6.092	4.417	105.911	-2.199	-0.737
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	183.084	3.727	6.750	98.259	-20.920	-0.200
1.2 Dead+1.0 Ice+1.0 Temp+Guy	142.408	0.304	0.645	54.011	-32.598	-0.010
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	147.070	0.300	2.430	78.133	-31.195	0.178
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	144.379	-0.522	2.232	78.186	-36.154	0.091
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	149.938	-0.593	1.845	101.046	-109.790	-0.112
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	160.660	-0.005	1.336	136.887	-218.791	-0.197
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	161.610	0.338	0.555	134.402	-238.101	-0.325
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	151.386	0.480	-0.468	87.208	-157.371	0.150
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	141.264	0.538	-1.058	42.898	-45.000	0.669
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	146.952	1.119	-0.739	54.209	-17.090	0.482
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.026	1.746	-0.184	57.955	-19.362	0.288
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	149.684	2.074	0.555	56.381	-30.543	0.305
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	150.160	1.894	1.426	63.844	-33.190	0.502
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	149.359	1.097	2.172	73.515	-30.300	-0.079
Dead+Wind 0 deg - Service+Guy	125.695	0.385	2.145	79.420	-41.506	0.125
Dead+Wind 30 deg - Service+Guy	122.422	-0.205	1.981	77.998	-45.437	0.162
Dead+Wind 60 deg - Service+Guy	119.200	-0.546	1.501	74.133	-54.559	0.112
Dead+Wind 90 deg -	122.294	-0.265	1.113	90.931	-105.050	0.059

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Service+Guy						
Dead+Wind 120 deg - Service+Guy	122.598	-0.051	0.572	92.106	-115.996	-0.026
Dead+Wind 150 deg - Service+Guy	116.216	-0.074	-0.087	65.100	-61.487	-0.083
Dead+Wind 180 deg - Service+Guy	116.187	0.373	-0.259	58.952	-42.316	-0.150
Dead+Wind 210 deg - Service+Guy	119.479	0.917	-0.114	59.652	-36.287	-0.185
Dead+Wind 240 deg - Service+Guy	123.257	1.392	0.294	61.953	-35.096	-0.130
Dead+Wind 270 deg - Service+Guy	126.321	1.630	0.913	67.746	-36.539	-0.091
Dead+Wind 300 deg - Service+Guy	128.082	1.364	1.510	72.785	-33.662	-0.086
Dead+Wind 330 deg - Service+Guy	127.885	0.939	1.929	75.787	-36.486	-0.003

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-45.052	0.000	0.000	45.052	0.000	0.000%
2	-0.150	-53.937	-34.080	0.150	53.937	34.080	0.000%
3	17.031	-53.880	-29.527	-17.031	53.880	29.527	0.000%
4	30.557	-53.810	-17.461	-30.557	53.810	17.461	0.000%
5	35.596	-53.749	0.158	-35.596	53.749	-0.158	0.000%
6	30.037	-53.696	17.328	-30.037	53.696	-17.328	0.000%
7	17.330	-53.663	29.667	-17.330	53.663	-29.667	0.000%
8	0.151	-53.677	35.281	-0.151	53.677	-35.281	0.000%
9	-17.598	-53.734	30.554	17.598	53.734	-30.554	0.000%
10	-29.659	-53.804	16.923	29.659	53.804	-16.923	0.000%
11	-33.738	-53.865	-0.172	33.738	53.865	0.172	0.000%
12	-30.437	-53.918	-17.598	30.437	53.918	17.598	0.000%
13	-17.805	-53.950	-30.584	17.805	53.950	30.584	0.000%
14	0.000	-89.601	0.000	0.000	89.601	0.000	0.000%
15	-0.023	-89.657	-6.611	0.023	89.657	6.610	0.000%
16	3.299	-89.634	-5.723	-3.299	89.634	5.723	0.000%
17	5.883	-89.605	-3.373	-5.883	89.605	3.373	0.000%
18	6.792	-89.578	0.029	-6.792	89.578	-0.029	0.000%
19	5.817	-89.555	3.321	-5.817	89.555	-3.322	0.000%
20	3.259	-89.540	5.780	-3.259	89.540	-5.780	0.000%
21	-0.134	-89.545	6.828	0.134	89.545	-6.828	0.000%
22	-3.476	-89.568	5.879	3.476	89.568	-5.879	0.000%
23	-5.819	-89.598	3.382	5.819	89.598	-3.382	0.000%
24	-6.661	-89.624	0.106	6.661	89.624	-0.106	0.000%
25	-5.958	-89.648	-3.272	5.958	89.648	3.272	0.000%
26	-3.359	-89.662	-5.858	3.359	89.662	5.858	0.000%
27	-0.028	-45.076	-6.340	0.028	45.076	6.340	0.000%
28	3.169	-45.066	-5.493	-3.169	45.066	5.493	0.000%
29	5.685	-45.053	-3.248	-5.685	45.053	3.248	0.000%
30	6.622	-45.041	0.029	-6.622	45.041	-0.029	0.000%
31	5.588	-45.032	3.224	-5.588	45.032	-3.224	0.000%
32	3.224	-45.026	5.519	-3.224	45.026	-5.519	0.000%
33	0.028	-45.028	6.564	-0.028	45.028	-6.564	0.000%
34	-3.274	-45.039	5.684	3.274	45.039	-5.684	0.000%
35	-5.518	-45.052	3.148	5.518	45.052	-3.148	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
36	-6.277	-45.063	-0.032	6.277	45.063	0.032	0.000%
37	-5.662	-45.073	-3.274	5.662	45.073	3.274	0.000%
38	-3.312	-45.079	-5.690	3.312	45.079	5.690	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	5	0.00000001	0.00006642
2	Yes	6	0.00000001	0.00077689
3	Yes	7	0.00000001	0.00036338
4	Yes	10	0.00000001	0.00034869
5	Yes	13	0.00000001	0.00034126
6	Yes	13	0.00000001	0.00065567
7	Yes	11	0.00000001	0.00060311
8	Yes	8	0.00000001	0.00021123
9	Yes	9	0.00000001	0.00068362
10	Yes	9	0.00000001	0.00066216
11	Yes	8	0.00000001	0.00040927
12	Yes	7	0.00000001	0.00015734
13	Yes	7	0.00000001	0.00022205
14	Yes	6	0.00000001	0.00028937
15	Yes	6	0.00000001	0.00096560
16	Yes	7	0.00000001	0.00020267
17	Yes	9	0.00000001	0.00026631
18	Yes	9	0.00000001	0.00077633
19	Yes	9	0.00000001	0.00084681
20	Yes	9	0.00000001	0.00048184
21	Yes	7	0.00000001	0.00050165
22	Yes	8	0.00000001	0.00014423
23	Yes	7	0.00000001	0.00090127
24	Yes	7	0.00000001	0.00024453
25	Yes	7	0.00000001	0.00015535
26	Yes	7	0.00000001	0.00012344
27	Yes	5	0.00000001	0.00027327
28	Yes	5	0.00000001	0.00041935
29	Yes	6	0.00000001	0.00006375
30	Yes	7	0.00000001	0.00043450
31	Yes	7	0.00000001	0.00057230
32	Yes	7	0.00000001	0.00008776
33	Yes	5	0.00000001	0.00042685
34	Yes	5	0.00000001	0.00036055
35	Yes	5	0.00000001	0.00043147
36	Yes	5	0.00000001	0.00029182
37	Yes	5	0.00000001	0.00031961
38	Yes	5	0.00000001	0.00025704

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150.167 - 145.167	16.532	31	1.303	0.007
L2	145.167 - 140.167	15.171	31	1.293	0.006
L3	140.167 - 135.167	13.832	31	1.262	0.005
L4	135.167 - 130.167	12.535	31	1.211	0.004
L5	130.167 - 125.167	11.305	31	1.137	0.003
L6	125.167 - 123.75	10.164	31	1.037	0.003
L7	123.75 - 123.5	9.861	31	1.006	0.003
L8	123.5 - 118.5	9.809	31	1.003	0.003
L9	118.5 - 113.5	8.792	31	0.937	0.002
L10	113.5 - 112.167	7.849	31	0.863	0.002
L11	112.167 - 111.917	7.611	31	0.842	0.002
L12	111.917 - 110.167	7.567	31	0.840	0.002
L13	110.167 - 109.917	7.263	31	0.820	0.002
L14	109.917 - 104.917	7.221	31	0.817	0.002
L15	104.917 - 99.917	6.402	31	0.748	0.002
L16	99.917 - 95	5.657	31	0.675	0.001
L17	95 - 94.75	5.001	31	0.601	0.001
L18	94.75 - 89.75	4.970	31	0.598	0.001
L19	89.75 - 85.5	4.379	31	0.532	0.001
L20	85.5 - 85.25	3.929	31	0.483	0.001
L21	85.25 - 85	3.903	31	0.481	0.001
L22	85 - 84.75	3.878	31	0.479	0.001
L23	84.75 - 83	3.853	31	0.477	0.001
L24	83 - 82.65	3.681	31	0.463	0.001
L25	82.65 - 82.4167	3.648	31	0.460	0.001
L26	82.4167 - 77.4167	3.625	31	0.457	0.001
L27	77.4167 - 70.167	3.171	31	0.413	0.001
L28	73.747 - 69.167	2.866	31	0.383	0.001
L29	69.167 - 64.167	2.507	31	0.363	0.001
L30	64.167 - 59.167	2.146	31	0.328	0.001
L31	59.167 - 54.167	1.820	31	0.297	0.001
L32	54.167 - 49.167	1.524	31	0.268	0.001
L33	49.167 - 47.1667	1.257	31	0.242	0.000
L34	47.1667 - 46.9167	1.158	31	0.232	0.000
L35	46.9167 - 43.4167	1.146	31	0.230	0.000
L36	43.4167 - 43.1667	0.983	31	0.215	0.000
L37	43.1667 - 38.1667	0.972	31	0.214	0.000
L38	38.1667 - 31.537	0.760	31	0.190	0.000
L39	35.747 - 30.537	0.667	31	0.179	0.000
L40	30.537 - 25.537	0.480	31	0.161	0.000
L41	25.537 - 20.537	0.328	31	0.130	0.000
L42	20.537 - 15.537	0.207	31	0.101	0.000
L43	15.537 - 10.537	0.116	31	0.074	0.000
L44	10.537 - 5.537	0.052	31	0.048	0.000
L45	5.537 - 0.537	0.014	31	0.025	0.000
L46	0.537 - 0	0.000	31	0.000	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.000	KP4F-23A	31	16.532	1.303	0.009	10556
151.000	Pipe Mount [PM 701-1]	31	16.532	1.303	0.009	10556
149.000	7770.00 w/ Mount Pipe	31	16.214	1.302	0.008	10556
140.000	AIR 21 B2A/B4P	31	13.788	1.261	0.006	6057
134.000	GPS (3"x7")	31	12.241	1.195	0.005	3897

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.000	BXA-80080/4CF w/ Mount Pipe	31	11.265	1.134	0.004	3180
88.688	Guy	31	4.262	0.519	0.001	1091
71.000	FMO	31	2.648	0.371	0.001	10060
22.000	MYA-43012N	31	0.240	0.109	0.000	9954

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150.167 - 145.167	150.141	6	9.711	0.122
L2	145.167 - 140.167	140.071	6	9.654	0.127
L3	140.167 - 135.167	130.121	6	9.484	0.129
L4	135.167 - 130.167	120.401	6	9.195	0.126
L5	130.167 - 125.167	111.044	6	8.783	0.119
L6	125.167 - 123.75	102.179	6	8.230	0.107
L7	123.75 - 123.5	99.776	6	8.054	0.104
L8	123.5 - 118.5	99.357	6	8.038	0.103
L9	118.5 - 113.5	91.170	6	7.675	0.095
L10	113.5 - 112.167	83.383	6	7.260	0.085
L11	112.167 - 111.917	81.381	6	7.145	0.082
L12	111.917 - 110.167	81.009	6	7.130	0.082
L13	110.167 - 109.917	78.427	6	7.019	0.079
L14	109.917 - 104.917	78.061	6	7.001	0.079
L15	104.917 - 99.917	70.957	6	6.618	0.069
L16	99.917 - 95	64.260	6	6.212	0.059
L17	95 - 94.75	58.095	6	5.796	0.049
L18	94.75 - 89.75	57.792	6	5.778	0.048
L19	89.75 - 85.5	51.947	6	5.414	0.039
L20	85.5 - 85.25	47.273	6	5.117	0.032
L21	85.25 - 85	47.006	6	5.104	0.031
L22	85 - 84.75	46.739	6	5.091	0.031
L23	84.75 - 83	46.474	6	5.077	0.031
L24	83 - 82.65	44.634	6	4.982	0.029
L25	82.65 - 82.4167	44.271	6	4.960	0.028
L26	82.4167 - 77.4167	44.029	6	4.945	0.028
L27	77.4167 - 70.167	39.029	6	4.624	0.022
L28	73.747 - 69.167	35.569	6	4.396	0.018
L29	69.167 - 64.167	31.430	6	4.224	0.016
L30	64.167 - 59.167	27.174	6	3.916	0.012
L31	59.167 - 54.167	23.234	6	3.621	0.010
L32	54.167 - 49.167	19.599	6	3.330	0.007
L33	49.167 - 47.1667	16.266	6	3.043	0.006
L34	47.1667 - 46.9167	15.016	6	2.932	0.005
L35	46.9167 - 43.4167	14.863	6	2.919	0.005
L36	43.4167 - 43.1667	12.788	6	2.745	0.004
L37	43.1667 - 38.1667	12.645	6	2.731	0.004
L38	38.1667 - 31.537	9.937	6	2.447	0.003
L39	35.747 - 30.537	8.731	6	2.314	0.003
L40	30.537 - 25.537	6.305	6	2.095	0.002
L41	25.537 - 20.537	4.320	6	1.701	0.002
L42	20.537 - 15.537	2.737	6	1.327	0.001
L43	15.537 - 10.537	1.534	6	0.974	0.001
L44	10.537 - 5.537	0.691	6	0.640	0.001
L45	5.537 - 0.537	0.187	6	0.326	0.000
L46	0.537 - 0	0.002	6	0.031	0.000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.000	KP4F-23A	6	150.141	9.711	0.200	2202
151.000	Pipe Mount [PM 701-1]	6	150.141	9.711	0.200	2202
149.000	7770.00 w/ Mount Pipe	6	147.786	9.703	0.199	2202
140.000	AIR 21 B2A/B4P	6	129.792	9.476	0.184	1246
134.000	GPS (3"x7")	6	118.180	9.109	0.169	777
130.000	BXA-80080/4CF w/ Mount Pipe	6	110.739	8.768	0.156	618
88.688	Guy	6	50.753	5.333	0.046	834
71.000	FMO	6	33.062	4.293	0.024	1210
22.000	MYA-43012N	6	3.159	1.431	0.004	771

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
L19	88.688 (A) (49)	1 5/8 BS	38.880	324.001	188.633	194.400	1.000	1.031 ✔
	88.688 (B) (48)	1 3/8 BS	27.840	232.000	104.602	139.200	1.000	1.331 ✔
	88.688 (C) (47)	1 3/8 BS	27.840	232.000	118.809	139.200	1.000	1.172 ✔

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	150.167 - 149.167	TP16.31x15.53x0.25	5.000	0.000	0.0	12.426	-0.379	726.920	0.001
	149.167 - 148.167					12.552	-4.643	734.266	0.006
	148.167 - 147.167					12.677	-4.696	741.613	0.006
	147.167 - 146.167					12.803	-4.751	748.959	0.006
	146.167 - 145.167					12.928	-4.807	756.306	0.006
L2	145.167 -	TP17.09x16.31x0.25	5.000	0.000	0.0	13.054	-4.573	763.652	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	144.167								
	144.167 - 143.167					13.179	-4.631	770.998	0.006
	143.167 - 142.167					13.305	-4.690	778.345	0.006
	142.167 - 141.167					13.431	-4.751	785.691	0.006
	141.167 - 140.167					13.556	-4.812	793.038	0.006
L3	140.167 - 139.167	TP17.87x17.09x0.25	5.000	0.000	0.0	13.682	-7.965	800.384	0.010
	139.167 - 138.167					13.807	-8.046	807.731	0.010
	138.167 - 137.167					13.933	-8.128	815.077	0.010
	137.167 - 136.167					14.059	-8.212	822.423	0.010
	136.167 - 135.167					14.184	-8.298	829.770	0.010
L4	135.167 - 134.167	TP18.65x17.87x0.25	5.000	0.000	0.0	14.310	-8.386	837.116	0.010
	134.167 - 133.167					14.435	-8.484	844.463	0.010
	133.167 - 132.167					14.561	-8.575	851.809	0.010
	132.167 - 131.167					14.686	-8.669	859.156	0.010
	131.167 - 130.167					14.812	-8.763	866.502	0.010
L5	130.167 - 129.167	TP19.43x18.65x0.25	5.000	0.000	0.0	14.938	-11.929	873.848	0.014
	129.167 - 128.167					15.063	-12.045	881.195	0.014
	128.167 - 127.167					15.189	-12.164	888.541	0.014
	127.167 - 126.167					15.314	-12.285	895.888	0.014
	126.167 - 125.167					15.440	-12.276	903.234	0.014
L6	125.167 - 123.75 (6)	TP19.651x19.43x0.25	1.417	0.000	0.0	15.618	-12.441	913.644	0.014
L7	123.75 - 123.5 (7)	TP19.69x19.651x0.513	0.250	0.000	0.0	31.648	-12.508	1851.390	0.007
L8	123.5 - 122.5	TP20.47x19.69x0.5	5.000	0.000	0.0	31.147	-12.657	1822.110	0.007
	122.5 - 121.5					31.398	-12.817	1836.800	0.007
	121.5 - 120.5					31.649	-12.979	1851.490	0.007
	120.5 - 119.5					31.901	-13.142	1866.190	0.007
	119.5 - 118.5					32.152	-13.307	1880.880	0.007
L9	118.5 - 117.5	TP21.25x20.47x0.488	5.000	0.000	0.0	31.612	-13.687	1849.330	0.007
	117.5 - 116.5					31.857	-14.070	1863.660	0.008
	116.5 - 115.5					32.102	-14.454	1877.980	0.008
	115.5 - 114.5					32.347	-14.840	1892.310	0.008
	114.5 - 113.5					32.592	-15.228	1906.630	0.008
L10	113.5 - 112.167 (10)	TP21.458x21.25x0.488	1.333	0.000	0.0	32.918	-15.869	1925.730	0.008
L11	112.167 - 111.917 (11)	TP21.497x21.458x0.7	0.250	0.000	0.0	46.876	-16.017	2742.270	0.006
L12	111.917 - 110.167 (12)	TP21.77x21.497x0.7	1.750	0.000	0.0	47.492	-16.842	2778.270	0.006
L13	110.167 -	TP21.813x21.77x0.625	0.250	0.000	0.0	42.641	-16.942	2494.480	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	109.917 (13)								
L14	109.917 - 108.917	TP22.672x21.813x0.6	5.000	0.000	0.0	41.315	-17.456	2416.940	0.007
	108.917 - 107.917					41.647	-17.982	2436.350	0.007
	107.917 - 106.917					41.979	-18.511	2455.760	0.008
	106.917 - 105.917					42.311	-19.041	2475.170	0.008
	105.917 - 104.917					42.643	-19.574	2494.590	0.008
L15	104.917 - 103.917	TP23.53x22.672x0.588	5.000	0.000	0.0	42.103	-19.932	2463.010	0.008
	103.917 - 102.917					42.428	-20.292	2482.010	0.008
	102.917 - 101.917					42.752	-20.654	2501.020	0.008
	101.917 - 100.917					43.077	-21.018	2520.030	0.008
	100.917 - 99.917					43.402	-21.384	2539.030	0.008
L16	99.917 - 98.6877	TP24.375x23.53x0.575	4.917	0.000	0.0	42.893	-21.682	2509.230	0.009
	98.6877 - 97.4585					43.284	-21.986	2532.100	0.009
	97.4585 - 96.2292					43.675	-22.294	2554.970	0.009
	96.2292 - 95					44.066	-22.604	2577.840	0.009
L17	95 - 94.75 (17)	TP24.418x24.375x0.7	0.250	0.000	0.0	53.460	-22.692	3127.410	0.007
L18	94.75 - 93.75	TP25.277x24.418x0.688	5.000	0.000	0.0	52.913	-22.958	3095.430	0.007
	93.75 - 92.75					53.293	-23.237	3117.670	0.007
	92.75 - 91.75					53.674	-23.518	3139.910	0.007
	91.75 - 90.75					54.054	-23.801	3162.160	0.008
	90.75 - 89.75					54.434	-24.218	3184.400	0.008
L19	89.75 - 88.6875	TP26.007x25.277x0.675	4.250	0.000	0.0	53.868	-24.518	3151.290	0.008
	88.6875 - 87.625					53.868	-278.807	3151.290	0.088
	87.625 - 86.5625					54.265	-279.093	3174.500	0.088
	86.5625 - 85.5					54.661	-279.380	3197.700	0.087
L20	85.5 - 85.25 (20)	TP26.049x26.007x0.863	0.250	0.000	0.0	69.831	-279.526	4085.130	0.068
L21	85.25 - 85 (21)	TP26.092x26.049x0.863	0.250	0.000	0.0	69.951	-279.602	4092.110	0.068
L22	85 - 84.75 (22)	TP26.135x26.092x0.838	0.250	0.000	0.0	68.106	-279.678	3984.220	0.070
L23	84.75 - 83 (23)	TP26.436x26.135x0.838	1.750	0.000	0.0	68.222	-279.759	3990.990	0.070
L24	83 - 82.65 (24)	TP26.496x26.436x0.713	0.350	0.000	0.0	59.016	-280.256	3452.440	0.081
L25	82.65 - 82.4167 (25)	TP26.536x26.496x0.713	0.233	0.000	0.0	59.154	-280.355	3460.500	0.081
L26	82.4167 - 81.4167	TP27.395x26.536x0.688	5.000	0.000	0.0	57.222	-280.426	3347.510	0.084
	81.4167 - 80.4167					57.603	-280.706	3369.750	0.083
	80.4167 - 79.4167					57.983	-285.803	3391.990	0.084
	79.4167 - 78.4167					58.363	-286.090	3414.240	0.084
	78.4167 - 77.4167					58.743	-286.379	3436.480	0.083
L27	77.4167 -	TP28.64x27.395x0.688	7.250	0.000	0.0	59.123	-286.672	3458.720	0.083

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	76.1935								
	76.1935 - 74.9702					59.589	-287.025	3485.930	0.082
	74.9702 - 73.747					60.054	-287.381	3513.140	0.082
	73.747 - 70.167					60.519	-141.855	3540.340	0.040
L28	73.747 - 70.167	TP28.079x27.4x0.725	4.580	0.000	0.0	62.273	-145.889	3642.980	0.040
	70.167 - 69.167					63.859	-290.067	3735.740	0.078
L29	69.167 - 68.167	TP28.821x28.079x0.713	5.000	0.000	0.0	62.786	-290.084	3673.010	0.079
	68.167 - 67.167					63.127	-290.368	3692.910	0.079
	67.167 - 66.167					63.467	-290.653	3712.810	0.078
	66.167 - 65.167					63.807	-290.940	3732.720	0.078
	65.167 - 64.167					64.147	-291.227	3752.620	0.078
L30	64.167 - 63.167	TP29.562x28.821x0.725	5.000	0.000	0.0	65.590	-291.516	3837.000	0.076
	63.167 - 62.167					65.936	-291.803	3857.260	0.076
	62.167 - 61.167					66.282	-292.091	3877.510	0.075
	61.167 - 60.167					66.629	-292.380	3897.770	0.075
	60.167 - 59.167					66.975	-292.671	3918.020	0.075
L31	59.167 - 58.167	TP30.304x29.562x0.713	5.000	0.000	0.0	66.189	-292.963	3872.050	0.076
	58.167 - 57.167					66.529	-293.253	3891.950	0.075
	57.167 - 56.167					66.869	-293.545	3911.860	0.075
	56.167 - 55.167					67.210	-293.838	3931.760	0.075
	55.167 - 54.167					67.550	-294.132	3951.670	0.074
L32	54.167 - 53.167	TP31.045x30.304x0.7	5.000	0.000	0.0	66.727	-294.427	3903.540	0.075
	53.167 - 52.167					67.062	-294.721	3923.100	0.075
	52.167 - 51.167					67.396	-295.016	3942.650	0.075
	51.167 - 50.167					67.730	-295.313	3962.210	0.075
	50.167 - 49.167					68.064	-295.610	3981.760	0.074
L33	49.167 - 48.1668	TP31.342x31.045x0.7	2.000	0.000	0.0	68.399	-295.909	4001.320	0.074
	48.1668 - 47.1667					68.733	-296.208	4020.870	0.074
L34	47.1667 - 46.9167 (34)	TP31.379x31.342x0.788	0.250	0.000	0.0	77.479	-296.503	4532.510	0.065
L35	46.9167 - 45.75	TP31.898x31.379x0.775	3.500	0.000	0.0	76.373	-296.589	4467.800	0.066
	45.75 -					76.804	-296.968	4493.060	0.066

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	44.5834								
	44.5834 - 43.4167					77.236	-297.348	4518.320	0.066
L36	43.4167 - 43.1667 (36)	TP31.935x31.898x0.65	0.250	0.000	0.0	65.402	-297.726	3826.050	0.078
L37	43.1667 - 42.1667	TP32.677x31.935x0.65	5.000	0.000	0.0	65.480	-297.803	3830.590	0.078
	42.1667 - 41.1667					65.790	-298.095	3848.740	0.077
	41.1667 - 40.1667					66.101	-298.388	3866.900	0.077
	40.1667 - 39.1667					66.411	-298.682	3885.060	0.077
	39.1667 - 38.1667					66.722	-298.977	3903.220	0.077
L38	38.1667 - 36.9569	TP33.66x32.677x0.65	6.630	0.000	0.0	67.032	-299.275	3921.380	0.076
	36.9569 - 35.747					67.408	-299.635	3943.350	0.076
	35.747 - 31.537					67.783	-180.401	3965.310	0.045
L39	35.747 - 31.537	TP33.161x32.286x0.438	5.210	0.000	0.0	44.866	-119.601	2624.670	0.046
	31.537 - 30.537					45.862	-302.032	2682.940	0.113
L40	30.537 - 29.537	TP34.001x33.161x0.438	5.000	0.000	0.0	46.099	-302.263	2696.790	0.112
	29.537 - 28.537					46.335	-302.494	2710.630	0.112
	28.537 - 27.537					46.572	-302.726	2724.470	0.111
	27.537 - 26.537					46.809	-302.959	2738.310	0.111
	26.537 - 25.537					47.045	-303.192	2752.160	0.110
L41	25.537 - 24.537	TP34.84x34.001x0.438	5.000	0.000	0.0	47.282	-303.425	2766.000	0.110
	24.537 - 23.537					47.519	-303.659	2779.840	0.109
	23.537 - 22.537					47.755	-303.894	2793.680	0.109
	22.537 - 21.537					47.992	-304.129	2807.530	0.108
	21.537 - 20.537					48.229	-304.481	2821.370	0.108
L42	20.537 - 19.537	TP35.68x34.84x0.438	5.000	0.000	0.0	48.465	-304.718	2835.210	0.107
	19.537 - 18.537					48.702	-304.955	2849.050	0.107
	18.537 - 17.537					48.938	-305.193	2862.900	0.107
	17.537 - 16.537					49.175	-305.432	2876.740	0.106
	16.537 - 15.537					49.412	-305.671	2890.580	0.106
L43	15.537 - 14.537	TP36.52x35.68x0.438	5.000	0.000	0.0	49.648	-305.911	2904.420	0.105
	14.537 - 13.537					49.885	-306.152	2918.270	0.105
	13.537 -					50.121	-306.393	2932.110	0.104

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	12.537								
	12.537 - 11.537					50.358	-306.635	2945.950	0.104
	11.537 - 10.537					50.595	-306.878	2959.790	0.104
L44	10.537 - 9.537	TP37.36x36.52x0.438	5.000	0.000	0.0	50.831	-307.121	2973.640	0.103
	9.537 - 8.537					51.068	-307.366	2987.480	0.103
	8.537 - 7.537					51.305	-307.611	3001.320	0.102
	7.537 - 6.537					51.541	-307.857	3015.160	0.102
	6.537 - 5.537					51.778	-308.103	3029.010	0.102
L45	5.537 - 4.537	TP38.2x37.36x0.438	5.000	0.000	0.0	52.014	-308.350	3042.850	0.101
	4.537 - 3.537					52.251	-308.599	3056.690	0.101
	3.537 - 2.537					52.488	-308.848	3070.530	0.101
	2.537 - 1.537					52.724	-309.097	3084.380	0.100
	1.537 - 0.537					52.961	-309.348	3098.220	0.100
L46	0.537 - 0 (46)	TP38.29x38.2x0.438	0.537	0.000	0.0	53.198	-309.599	3112.060	0.099

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	150.167 - 149.167	TP16.31x15.53x0.25	3.923	285.687	0.014	0.000	285.687	0.000
	149.167 - 148.167		13.880	291.537	0.048	0.000	291.537	0.000
	148.167 - 147.167		21.275	297.446	0.072	0.000	297.446	0.000
	147.167 - 146.167		28.743	303.414	0.095	0.000	303.414	0.000
	146.167 - 145.167		36.284	309.443	0.117	0.000	309.443	0.000
L2	145.167 - 144.167	TP17.09x16.31x0.25	44.042	315.530	0.140	0.000	315.530	0.000
	144.167 - 143.167		51.917	321.677	0.161	0.000	321.677	0.000
	143.167 - 142.167		59.869	327.882	0.183	0.000	327.882	0.000
	142.167 - 141.167		67.896	334.147	0.203	0.000	334.147	0.000
	141.167 - 140.167		75.999	340.472	0.223	0.000	340.472	0.000
L3	140.167 - 139.167	TP17.87x17.09x0.25	88.295	346.856	0.255	0.000	346.856	0.000
	139.167 - 138.167		101.502	353.299	0.287	0.000	353.299	0.000
	138.167 - 137.167		114.783	359.802	0.319	0.000	359.802	0.000
	137.167 - 136.167		128.138	366.363	0.350	0.000	366.363	0.000
	136.167 - 135.167		141.568	372.984	0.380	0.000	372.984	0.000
L4	135.167 - 134.167	TP18.65x17.87x0.25	155.072	379.664	0.408	0.000	379.664	0.000
	134.167 - 133.167		168.653	386.404	0.436	0.000	386.404	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 $\frac{M_{uy}}{\phi M_{ny}}$
	133.167 - 132.167		182.312	393.203	0.464	0.000	393.203	0.000
	132.167 - 131.167		196.044	400.062	0.490	0.000	400.062	0.000
	131.167 - 130.167		209.850	406.979	0.516	0.000	406.979	0.000
L5	130.167 - 129.167	TP19.43x18.65x0.25	238.273	413.956	0.576	0.000	413.956	0.000
	129.167 - 128.167		257.182	420.992	0.611	0.000	420.992	0.000
	128.167 - 127.167		276.155	428.087	0.645	0.000	428.087	0.000
	127.167 - 126.167		295.193	435.243	0.678	0.000	435.243	0.000
	126.167 - 125.167		314.387	442.456	0.711	0.000	442.456	0.000
L6	125.167 - 123.75 (6)	TP19.651x19.43x0.25	341.757	452.780	0.755	0.000	452.780	0.000
L7	123.75 - 123.5 (7)	TP19.69x19.651x0.513	346.627	894.717	0.387	0.000	894.717	0.000
L8	123.5 - 122.5	TP20.47x19.69x0.5	366.061	889.058	0.412	0.000	889.058	0.000
	122.5 - 121.5		385.616	903.633	0.427	0.000	903.633	0.000
	121.5 - 120.5		405.275	918.333	0.441	0.000	918.333	0.000
	120.5 - 119.5		425.037	933.150	0.455	0.000	933.150	0.000
	119.5 - 118.5		444.902	948.083	0.469	0.000	948.083	0.000
L9	118.5 - 117.5	TP21.25x20.47x0.488	464.904	940.808	0.494	0.000	940.808	0.000
	117.5 - 116.5		485.077	955.617	0.508	0.000	955.617	0.000
	116.5 - 115.5		505.423	970.533	0.521	0.000	970.533	0.000
	115.5 - 114.5		525.940	985.567	0.534	0.000	985.567	0.000
	114.5 - 113.5		546.628	1000.725	0.546	0.000	1000.725	0.000
L10	113.5 - 112.167 (10)	TP21.458x21.25x0.488	574.490	1021.100	0.563	0.000	1021.100	0.000
L11	112.167 - 111.917 (11)	TP21.497x21.458x0.7	579.783	1427.508	0.406	0.000	1427.508	0.000
L12	111.917 - 110.167 (12)	TP21.77x21.497x0.7	616.940	1465.850	0.421	0.000	1465.850	0.000
L13	110.167 - 109.917 (13)	TP21.813x21.77x0.625	622.322	1328.275	0.469	0.000	1328.275	0.000
L14	109.917 - 108.917	TP22.672x21.813x0.6	643.844	1300.758	0.495	0.000	1300.758	0.000
	108.917 - 107.917		665.588	1322.025	0.503	0.000	1322.025	0.000
	107.917 - 106.917		687.532	1343.458	0.512	0.000	1343.458	0.000
	106.917 - 105.917		709.674	1365.075	0.520	0.000	1365.075	0.000
	105.917 - 104.917		732.016	1386.858	0.528	0.000	1386.858	0.000
L15	104.917 - 103.917	TP23.53x22.672x0.588	754.520	1381.792	0.546	0.000	1381.792	0.000
	103.917 - 102.917		777.151	1403.475	0.554	0.000	1403.475	0.000
	102.917 - 101.917		799.909	1425.325	0.561	0.000	1425.325	0.000
	101.917 - 100.917		822.794	1447.350	0.568	0.000	1447.350	0.000
	100.917 - 99.917		845.808	1469.542	0.576	0.000	1469.542	0.000
L16	99.917 - 98.6877	TP24.375x23.53x0.575	874.250	1467.575	0.596	0.000	1467.575	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 $\frac{M_{uy}}{\phi M_{ny}}$
	98.6877 - 97.4585		902.850	1494.775	0.604	0.000	1494.775	0.000
	97.4585 - 96.2292		931.617	1522.225	0.612	0.000	1522.225	0.000
	96.2292 - 95		960.542	1549.917	0.620	0.000	1549.917	0.000
L17	95 - 94.75 (17)	TP24.418x24.375x0.7	966.467	1864.125	0.518	0.000	1864.125	0.000
L18	94.75 - 93.75	TP25.277x24.418x0.688	990.125	1860.750	0.532	0.000	1860.750	0.000
	93.75 - 92.75		1013.925	1887.958	0.537	0.000	1887.958	0.000
	92.75 - 91.75		1037.833	1915.375	0.542	0.000	1915.375	0.000
	91.75 - 90.75		1061.867	1942.983	0.547	0.000	1942.983	0.000
	90.75 - 89.75		1085.908	1970.792	0.551	0.000	1970.792	0.000
L19	89.75 - 88.6875	TP26.007x25.277x0.675	1111.833	1967.150	0.565	0.000	1967.150	0.000
	88.6875 - 87.625		1055.808	1967.150	0.537	0.000	1967.150	0.000
	87.625 - 86.5625		1068.075	1996.608	0.535	0.000	1996.608	0.000
	86.5625 - 85.5		1080.283	2026.292	0.533	0.000	2026.292	0.000
L20	85.5 - 85.25 (20)	TP26.049x26.007x0.863	1092.408	2569.450	0.425	0.000	2569.450	0.000
L21	85.25 - 85 (21)	TP26.092x26.049x0.863	1095.258	2578.375	0.425	0.000	2578.375	0.000
L22	85 - 84.75 (22)	TP26.135x26.092x0.838	1098.108	2519.800	0.436	0.000	2519.800	0.000
L23	84.75 - 83 (23)	TP26.436x26.135x0.838	1100.958	2528.517	0.435	0.000	2528.517	0.000
L24	83 - 82.65 (24)	TP26.496x26.436x0.713	1120.933	2235.808	0.501	0.000	2235.808	0.000
L25	82.65 - 82.4167 (25)	TP26.536x26.496x0.713	1124.925	2246.408	0.501	0.000	2246.408	0.000
L26	82.4167 - 81.4167	TP27.395x26.536x0.688	1127.592	2180.742	0.517	0.000	2180.742	0.000
	81.4167 - 80.4167		1138.975	2210.200	0.515	0.000	2210.200	0.000
	80.4167 - 79.4167		1149.958	2239.850	0.513	0.000	2239.850	0.000
	79.4167 - 78.4167		1165.167	2269.700	0.513	0.000	2269.700	0.000
	78.4167 - 77.4167		1180.217	2299.742	0.513	0.000	2299.742	0.000
L27	77.4167 - 76.1935	TP28.64x27.395x0.688	1195.108	2329.992	0.513	0.000	2329.992	0.000
	76.1935 - 74.9702		1213.117	2367.250	0.512	0.000	2367.250	0.000
	74.9702 - 73.747		1230.875	2404.817	0.512	0.000	2404.817	0.000
	73.747 - 70.167		632.107	2442.675	0.259	0.000	2442.675	0.000
L28	73.747 - 70.167	TP28.079x27.4x0.725	616.308	2447.725	0.252	0.000	2447.725	0.000
	70.167 - 69.167		1316.667	2575.658	0.511	0.000	2575.658	0.000
L29	69.167 - 68.167	TP28.821x28.079x0.713	1316.658	2534.717	0.519	0.000	2534.717	0.000
	68.167 - 67.167		1331.825	2562.617	0.520	0.000	2562.617	0.000
	67.167 - 66.167		1346.825	2590.667	0.520	0.000	2590.667	0.000
	66.167 - 65.167		1361.658	2618.867	0.520	0.000	2618.867	0.000
	65.167 - 64.167		1376.333	2647.225	0.520	0.000	2647.225	0.000
L30	64.167 - 63.167	TP29.562x28.821x0.725	1390.842	2719.042	0.512	0.000	2719.042	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 $\frac{M_{uy}}{\phi M_{ny}}$
	63.167 - 62.167		1405.192	2748.183	0.511	0.000	2748.183	0.000
	62.167 - 61.167		1419.383	2777.483	0.511	0.000	2777.483	0.000
	61.167 - 60.167		1433.425	2806.942	0.511	0.000	2806.942	0.000
	60.167 - 59.167		1447.317	2836.550	0.510	0.000	2836.550	0.000
L31	59.167 - 58.167	TP30.304x29.562x0.713	1461.050	2820.558	0.518	0.000	2820.558	0.000
	58.167 - 57.167		1474.633	2849.983	0.517	0.000	2849.983	0.000
	57.167 - 56.167		1488.058	2879.558	0.517	0.000	2879.558	0.000
	56.167 - 55.167		1501.333	2909.292	0.516	0.000	2909.292	0.000
	55.167 - 54.167		1514.458	2939.167	0.515	0.000	2939.167	0.000
L32	54.167 - 53.167	TP31.045x30.304x0.7	1527.433	2920.817	0.523	0.000	2920.817	0.000
	53.167 - 52.167		1540.258	2950.492	0.522	0.000	2950.492	0.000
	52.167 - 51.167		1552.925	2980.317	0.521	0.000	2980.317	0.000
	51.167 - 50.167		1565.442	3010.292	0.520	0.000	3010.292	0.000
	50.167 - 49.167		1577.808	3040.425	0.519	0.000	3040.425	0.000
L33	49.167 - 48.1668	TP31.342x31.045x0.7	1590.033	3070.700	0.518	0.000	3070.700	0.000
	48.1668 - 47.1667		1602.108	3101.133	0.517	0.000	3101.133	0.000
L34	47.1667 - 46.9167 (34)	TP31.379x31.342x0.788	1614.025	3493.083	0.462	0.000	3493.083	0.000
L35	46.9167 - 45.75	TP31.898x31.379x0.775	1617.000	3450.317	0.469	0.000	3450.317	0.000
	45.75 - 44.5834		1630.717	3489.925	0.467	0.000	3489.925	0.000
	44.5834 - 43.4167		1644.275	3529.758	0.466	0.000	3529.758	0.000
L36	43.4167 - 43.1667 (36)	TP31.935x31.898x0.65	1657.675	3030.258	0.547	0.000	3030.258	0.000
L37	43.1667 - 42.1667	TP32.677x31.935x0.65	1660.533	3037.525	0.547	0.000	3037.525	0.000
	42.1667 - 41.1667		1671.833	3066.683	0.545	0.000	3066.683	0.000
	41.1667 - 40.1667		1682.967	3095.983	0.544	0.000	3095.983	0.000
	40.1667 - 39.1667		1693.933	3125.425	0.542	0.000	3125.425	0.000
	39.1667 - 38.1667		1704.742	3155.008	0.540	0.000	3155.008	0.000
L38	38.1667 - 36.9569	TP33.66x32.677x0.65	1715.383	3184.725	0.539	0.000	3184.725	0.000
	36.9569 - 35.747		1728.033	3220.867	0.537	0.000	3220.867	0.000
	35.747 - 31.537		1059.358	3257.208	0.325	0.000	3257.208	0.000
L39	35.747 - 31.537	TP33.161x32.286x0.438	681.040	2133.433	0.319	0.000	2133.433	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 $\frac{M_{uy}}{\phi M_{ny}}$
	31.537 - 30.537		1782.442	2229.875	0.799	0.000	2229.875	0.000
L40	30.537 - 29.537	TP34.001x33.161x0.438	1792.125	2253.100	0.795	0.000	2253.100	0.000
	29.537 - 28.537		1801.483	2276.442	0.791	0.000	2276.442	0.000
	28.537 - 27.537		1810.508	2299.908	0.787	0.000	2299.908	0.000
	27.537 - 26.537		1819.208	2323.492	0.783	0.000	2323.492	0.000
	26.537 - 25.537		1827.600	2347.192	0.779	0.000	2347.192	0.000
L41	25.537 - 24.537	TP34.84x34.001x0.438	1835.667	2371.017	0.774	0.000	2371.017	0.000
	24.537 - 23.537		1843.425	2394.967	0.770	0.000	2394.967	0.000
	23.537 - 22.537		1850.875	2419.025	0.765	0.000	2419.025	0.000
	22.537 - 21.537		1858.017	2443.217	0.760	0.000	2443.217	0.000
	21.537 - 20.537		1864.667	2467.517	0.756	0.000	2467.517	0.000
L42	20.537 - 19.537	TP35.68x34.84x0.438	1871.317	2491.942	0.751	0.000	2491.942	0.000
	19.537 - 18.537		1877.675	2516.492	0.746	0.000	2516.492	0.000
	18.537 - 17.537		1883.750	2541.158	0.741	0.000	2541.158	0.000
	17.537 - 16.537		1889.533	2565.942	0.736	0.000	2565.942	0.000
	16.537 - 15.537		1895.050	2590.850	0.731	0.000	2590.850	0.000
L43	15.537 - 14.537	TP36.52x35.68x0.438	1900.292	2615.875	0.726	0.000	2615.875	0.000
	14.537 - 13.537		1905.258	2641.025	0.721	0.000	2641.025	0.000
	13.537 - 12.537		1909.958	2666.292	0.716	0.000	2666.292	0.000
	12.537 - 11.537		1914.408	2691.683	0.711	0.000	2691.683	0.000
	11.537 - 10.537		1918.592	2717.192	0.706	0.000	2717.192	0.000
L44	10.537 - 9.537	TP37.36x36.52x0.438	1922.525	2738.708	0.702	0.000	2738.708	0.000
	9.537 - 8.537		1926.208	2760.625	0.698	0.000	2760.625	0.000
	8.537 - 7.537		1929.650	2782.592	0.693	0.000	2782.592	0.000
	7.537 - 6.537		1932.850	2804.600	0.689	0.000	2804.600	0.000
	6.537 - 5.537		1935.808	2826.667	0.685	0.000	2826.667	0.000
L45	5.537 - 4.537	TP38.2x37.36x0.438	1938.542	2848.775	0.680	0.000	2848.775	0.000
	4.537 - 3.537		1941.042	2870.933	0.676	0.000	2870.933	0.000
	3.537 - 2.537		1943.317	2893.142	0.672	0.000	2893.142	0.000
	2.537 - 1.537		1945.375	2915.392	0.667	0.000	2915.392	0.000
	1.537 - 0.537		1947.217	2937.692	0.663	0.000	2937.692	0.000
L46	0.537 - 0 (46)	TP38.29x38.2x0.438	1948.842	2960.033	0.658	0.000	2960.033	0.000

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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	150.167 - 149.167	TP16.31x15.53x0.25	1.021	218.076	0.005	0.905	296.103	0.003
	149.167 - 148.167		7.361	220.280	0.033	1.691	302.118	0.006
	148.167 - 147.167		7.433	222.484	0.033	1.581	308.193	0.005
	147.167 - 146.167		7.506	224.688	0.033	1.581	314.330	0.005
	146.167 - 145.167		7.579	226.892	0.033	1.581	320.527	0.005
L2	145.167 - 144.167	TP17.09x16.31x0.25	7.840	229.096	0.034	1.935	326.783	0.006
	144.167 - 143.167		7.916	231.300	0.034	1.935	333.102	0.006
	143.167 - 142.167		7.992	233.503	0.034	1.935	339.479	0.006
	142.167 - 141.167		8.068	235.707	0.034	1.935	345.918	0.006
	141.167 - 140.167		8.144	237.911	0.034	1.936	352.418	0.005
L3	140.167 - 139.167	TP17.87x17.09x0.25	13.181	240.115	0.055	1.936	358.977	0.005
	139.167 - 138.167		13.257	242.319	0.055	1.931	365.597	0.005
	138.167 - 137.167		13.332	244.523	0.055	1.932	372.277	0.005
	137.167 - 136.167		13.407	246.727	0.054	1.932	379.018	0.005
	136.167 - 135.167		13.481	248.931	0.054	1.933	385.820	0.005
L4	135.167 - 134.167	TP18.65x17.87x0.25	13.555	251.135	0.054	1.933	392.682	0.005
	134.167 - 133.167		13.639	253.339	0.054	1.934	399.604	0.005
	133.167 - 132.167		13.712	255.543	0.054	1.914	406.587	0.005
	132.167 - 131.167		13.785	257.747	0.053	1.915	413.631	0.005
	131.167 - 130.167		13.858	259.951	0.053	1.916	420.735	0.005
L5	130.167 - 129.167	TP19.43x18.65x0.25	18.896	262.155	0.072	2.113	427.899	0.005
	129.167 - 128.167		18.962	264.358	0.072	2.114	435.124	0.005
	128.167 - 127.167		19.028	266.562	0.071	2.116	442.410	0.005
	127.167 - 126.167		19.093	268.766	0.071	2.118	449.756	0.005
	126.167 - 125.167		19.285	270.970	0.071	2.079	457.162	0.005
L6	125.167 - 123.75 (6)	TP19.651x19.43x0.25	19.407	274.093	0.071	2.076	467.760	0.004
L7	123.75 - 123.5 (7)	TP19.69x19.651x0.513	19.612	555.418	0.035	2.074	936.942	0.002
L8	123.5 - 122.5	TP20.47x19.69x0.5	19.533	546.632	0.036	2.073	930.225	0.002
	122.5 - 121.5		19.637	551.040	0.036	2.072	945.283	0.002
	121.5 - 120.5		19.740	555.448	0.036	2.071	960.467	0.002
	120.5 - 119.5		19.844	559.856	0.035	2.069	975.775	0.002
	119.5 - 118.5		19.947	564.264	0.035	2.067	991.200	0.002
L9	118.5 - 117.5	TP21.25x20.47x0.488	20.119	554.799	0.036	2.066	982.800	0.002

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 $\frac{T_u}{\phi T_n}$
	117.5 - 116.5		20.291	559.097	0.036	2.059	998.083	0.002
	116.5 - 115.5		20.463	563.395	0.036	2.052	1013.483	0.002
	115.5 - 114.5		20.635	567.692	0.036	2.045	1029.008	0.002
	114.5 - 113.5		20.806	571.990	0.036	2.038	1044.642	0.002
L10	113.5 - 112.167 (10)	TP21.458x21.25x0.488	21.064	577.719	0.036	2.030	1065.675	0.002
L11	112.167 - 111.917 (11)	TP21.497x21.458x0.7	21.358	822.682	0.026	2.021	1504.983	0.001
L12	111.917 - 110.167 (12)	TP21.77x21.497x0.7	21.447	833.481	0.026	2.018	1544.758	0.001
L13	110.167 - 109.917 (13)	TP21.813x21.77x0.625	21.698	748.345	0.029	2.007	1394.733	0.001
L14	109.917 - 108.917	TP22.672x21.813x0.6	21.682	725.082	0.030	2.006	1363.925	0.001
	108.917 - 107.917		21.882	730.906	0.030	2.000	1385.917	0.001
	107.917 - 106.917		22.082	736.729	0.030	1.995	1408.092	0.001
	106.917 - 105.917		22.282	742.552	0.030	1.989	1430.442	0.001
	105.917 - 104.917		22.481	748.376	0.030	1.983	1452.967	0.001
L15	104.917 - 103.917	TP23.53x22.672x0.588	22.608	738.902	0.031	1.977	1446.550	0.001
	103.917 - 102.917		22.735	744.604	0.031	1.975	1468.958	0.001
	102.917 - 101.917		22.863	750.306	0.030	1.973	1491.542	0.001
	101.917 - 100.917		22.990	756.008	0.030	1.971	1514.300	0.001
	100.917 - 99.917		23.116	761.710	0.030	1.968	1537.233	0.001
L16	99.917 - 98.6877	TP24.375x23.53x0.575	23.246	752.770	0.031	1.966	1533.992	0.001
	98.6877 - 97.4585		23.376	759.630	0.031	1.963	1562.083	0.001
	97.4585 - 96.2292		23.506	766.491	0.031	1.960	1590.425	0.001
	96.2292 - 95		23.637	773.351	0.031	1.957	1619.017	0.001
L17	95 - 94.75 (17)	TP24.418x24.375x0.7	23.881	938.224	0.025	1.956	1957.408	0.001
L18	94.75 - 93.75	TP25.277x24.418x0.688	23.782	928.629	0.026	1.954	1952.442	0.001
	93.75 - 92.75		23.898	935.301	0.026	1.952	1980.600	0.001
	92.75 - 91.75		24.014	941.974	0.025	1.950	2008.967	0.001
	91.75 - 90.75		24.131	948.647	0.025	1.948	2037.525	0.001
	90.75 - 89.75		24.363	955.320	0.026	2.182	2066.292	0.001
L19	89.75 - 88.6875	TP26.007x25.277x0.675	24.497	945.388	0.026	2.185	2061.025	0.001
	88.6875 - 87.625		16.500	952.349	0.017	4.477	2061.025	0.002
	87.625 - 86.5625		16.369	959.310	0.017	4.480	2091.483	0.002
	86.5625 - 85.5		16.239	966.270	0.017	4.483	2122.175	0.002
L20	85.5 - 85.25 (20)	TP26.049x26.007x0.863	16.260	1227.630	0.013	4.487	2710.583	0.002
L21	85.25 - 85 (21)	TP26.092x26.049x0.863	16.244	1229.730	0.013	4.487	2719.850	0.002
L22	85 - 84.75 (22)	TP26.135x26.092x0.838	16.223	1197.300	0.014	4.488	2655.275	0.002
L23	84.75 - 83 (23)	TP26.436x26.135x0.838	16.107	1211.520	0.013	4.484	2664.317	0.002
L24	83 - 82.65 (24)	TP26.496x26.436x0.713	16.004	1038.150	0.015	4.492	2343.558	0.002
L25	82.65 - 82.4167 (25)	TP26.536x26.496x0.713	16.048	1039.760	0.015	4.492	2354.525	0.002

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 $\frac{T_u}{\phi T_n}$
L26	82.4167 - 81.4167	TP27.395x26.536x0.688	15.890	1010.930	0.016	4.492	2283.392	0.002
	81.4167 - 80.4167		15.781	1017.600	0.016	4.494	2313.833	0.002
	80.4167 - 79.4167		15.331	1024.270	0.015	6.648	2344.483	0.003
	79.4167 - 78.4167		15.170	1030.940	0.015	6.647	2375.325	0.003
	78.4167 - 77.4167		15.012	1037.620	0.014	6.646	2406.375	0.003
L27	77.4167 - 76.1935	TP28.64x27.395x0.688	14.846	1045.780	0.014	6.645	2437.625	0.003
	76.1935 - 74.9702		14.653	1053.940	0.014	6.644	2476.133	0.003
	74.9702 - 73.747		14.463	1062.100	0.014	6.643	2514.933	0.003
	73.747 - 70.167		8.418	1085.990	0.008	3.617	2554.042	0.001
L28	73.747 - 70.167	TP28.079x27.4x0.725	7.294	1114.650	0.007	3.025	2564.392	0.001
	70.167 - 69.167		15.435	1120.720	0.014	4.356	2696.650	0.002
L29	69.167 - 68.167	TP28.821x28.079x0.713	15.269	1107.870	0.014	4.355	2652.575	0.002
	68.167 - 67.167		15.102	1113.840	0.014	4.354	2681.400	0.002
	67.167 - 66.167		14.937	1119.820	0.013	4.354	2710.383	0.002
	66.167 - 65.167		14.773	1125.790	0.013	4.353	2739.525	0.002
	65.167 - 64.167		14.612	1131.760	0.013	4.352	2768.817	0.002
L30	64.167 - 63.167	TP29.562x28.821x0.725	14.451	1157.180	0.012	4.352	2844.825	0.002
	63.167 - 62.167		14.294	1163.250	0.012	4.351	2874.942	0.002
	62.167 - 61.167		14.140	1169.330	0.012	4.351	2905.208	0.001
	61.167 - 60.167		13.987	1175.410	0.012	4.350	2935.642	0.001
	60.167 - 59.167		13.836	1181.480	0.012	4.349	2966.225	0.001
L31	59.167 - 58.167	TP30.304x29.562x0.713	13.681	1167.590	0.012	4.349	2947.858	0.001
	58.167 - 57.167		13.526	1173.560	0.012	4.348	2978.242	0.001
	57.167 - 56.167		13.372	1179.530	0.011	4.348	3008.783	0.001
	56.167 - 55.167		13.221	1185.500	0.011	4.347	3039.475	0.001
	55.167 - 54.167		13.072	1191.470	0.011	4.346	3070.325	0.001
L32	54.167 - 53.167	TP31.045x30.304x0.7	12.918	1176.930	0.011	4.346	3049.500	0.001
	53.167 - 52.167		12.764	1182.800	0.011	4.345	3080.133	0.001
	52.167 - 51.167		12.612	1188.660	0.011	4.345	3110.917	0.001
	51.167 - 50.167		12.463	1194.530	0.010	4.344	3141.850	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 $\frac{T_u}{\phi T_n}$
	50.167 - 49.167		12.315	1200.400	0.010	4.344	3172.942	0.001
L33	49.167 - 48.1668	TP31.342x31.045x0.7	12.168	1206.260	0.010	4.343	3204.183	0.001
	48.1668 - 47.1667		12.022	1212.130	0.010	4.343	3235.583	0.001
L34	47.1667 - 46.9167 (34)	TP31.379x31.342x0.788	11.976	1361.400	0.009	4.343	3654.567	0.001
L35	46.9167 - 45.75	TP31.898x31.379x0.775	11.863	1347.920	0.009	4.342	3608.233	0.001
	45.75 - 44.5834		11.728	1355.500	0.009	4.342	3649.150	0.001
	44.5834 - 43.4167		11.596	1363.070	0.009	4.341	3690.292	0.001
L36	43.4167 - 43.1667 (36)	TP31.935x31.898x0.65	11.516	1149.180	0.010	4.341	3154.975	0.001
L37	43.1667 - 42.1667	TP32.677x31.935x0.65	11.388	1154.620	0.010	4.341	3162.467	0.001
	42.1667 - 41.1667		11.221	1160.070	0.010	4.340	3192.525	0.001
	41.1667 - 40.1667		11.056	1165.520	0.009	4.340	3222.717	0.001
	40.1667 - 39.1667		10.894	1170.970	0.009	4.339	3253.058	0.001
	39.1667 - 38.1667		10.733	1176.410	0.009	4.339	3283.533	0.001
L38	38.1667 - 36.9569	TP33.66x32.677x0.65	10.535	1183.000	0.009	4.339	3314.158	0.001
	36.9569 - 35.747		10.309	1189.590	0.009	4.338	3351.392	0.001
	35.747 - 31.537		6.314	1212.530	0.005	2.640	3388.842	0.001
L39	35.747 - 31.537	TP33.161x32.286x0.438	3.924	804.883	0.005	1.698	2205.867	0.001
	31.537 - 30.537		9.758	809.036	0.012	4.337	2304.908	0.002
L40	30.537 - 29.537	TP34.001x33.161x0.438	9.426	813.188	0.012	4.336	2328.758	0.002
	29.537 - 28.537		9.098	817.341	0.011	4.336	2352.725	0.002
	28.537 - 27.537		8.775	821.494	0.011	4.335	2376.817	0.002
	27.537 - 26.537		8.456	825.647	0.010	4.335	2401.025	0.002
	26.537 - 25.537		8.141	829.799	0.010	4.334	2425.367	0.002
L41	25.537 - 24.537	TP34.84x34.001x0.438	7.830	833.952	0.009	4.334	2449.825	0.002
	24.537 - 23.537		7.524	838.105	0.009	4.334	2474.408	0.002
	23.537 - 22.537		7.222	842.258	0.009	4.333	2499.108	0.002
	22.537 - 21.537		7.019	846.410	0.008	4.333	2523.942	0.002
	21.537 - 20.537		6.725	850.563	0.008	4.025	2548.892	0.002
L42	20.537 - 19.537	TP35.68x34.84x0.438	6.436	854.716	0.008	4.025	2573.958	0.002
	19.537 - 18.537		6.151	858.869	0.007	4.024	2599.158	0.002

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 $\frac{T_u}{\phi T_n}$
	18.537 - 17.537		5.871	863.022	0.007	4.024	2624.475	0.002
	17.537 - 16.537		5.594	867.174	0.006	4.024	2649.917	0.002
	16.537 - 15.537		5.322	871.327	0.006	4.024	2675.483	0.002
L43	15.537 - 14.537	TP36.52x35.68x0.438	5.055	875.480	0.006	4.024	2701.167	0.001
	14.537 - 13.537		4.791	879.633	0.005	4.023	2726.975	0.001
	13.537 - 12.537		4.532	883.785	0.005	4.023	2752.908	0.001
	12.537 - 11.537		4.278	887.938	0.005	4.023	2778.958	0.001
	11.537 - 10.537		4.027	892.091	0.005	4.023	2805.142	0.001
L44	10.537 - 9.537	TP37.36x36.52x0.438	3.782	896.244	0.004	4.023	2831.442	0.001
	9.537 - 8.537		3.540	900.396	0.004	4.023	2857.858	0.001
	8.537 - 7.537		3.303	904.549	0.004	4.023	2884.408	0.001
	7.537 - 6.537		3.071	908.702	0.003	4.022	2911.075	0.001
	6.537 - 5.537		2.844	912.855	0.003	4.022	2937.867	0.001
L45	5.537 - 4.537	TP38.2x37.36x0.438	2.621	917.008	0.003	4.022	2964.775	0.001
	4.537 - 3.537		2.403	921.160	0.003	4.022	2991.817	0.001
	3.537 - 2.537		2.191	925.313	0.002	4.022	3018.975	0.001
	2.537 - 1.537		1.984	929.466	0.002	4.022	3046.258	0.001
	1.537 - 0.537		1.783	933.619	0.002	4.022	3073.658	0.001
L46	0.537 - 0 (46)	TP38.29x38.2x0.438	1.610	935.849	0.002	4.022	3101.183	0.001

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Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150.167 - 149.167	0.001	0.014	0.000	0.005	0.003	0.014 ✔	1.050	4.8.2 ✔
	149.167 - 148.167	0.006	0.048	0.000	0.033	0.006	0.055 ✔	1.050	4.8.2 ✔
	148.167 - 147.167	0.006	0.072	0.000	0.033	0.005	0.079 ✔	1.050	4.8.2 ✔
	147.167 - 146.167	0.006	0.095	0.000	0.033	0.005	0.103 ✔	1.050	4.8.2 ✔
	146.167 - 145.167	0.006	0.117	0.000	0.033	0.005	0.125 ✔	1.050	4.8.2 ✔
L2	145.167 - 144.167	0.006	0.140	0.000	0.034	0.006	0.147 ✔	1.050	4.8.2 ✔
	144.167 - 143.167	0.006	0.161	0.000	0.034	0.006	0.169 ✔	1.050	4.8.2 ✔
	143.167 - 142.167	0.006	0.183	0.000	0.034	0.006	0.190 ✔	1.050	4.8.2 ✔
	142.167 - 141.167	0.006	0.203	0.000	0.034	0.006	0.211 ✔	1.050	4.8.2 ✔
	141.167 -	0.006	0.223	0.000	0.034	0.005	0.231	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	140.167						✔		
L3	140.167 - 139.167	0.010	0.255	0.000	0.055	0.005	0.268	1.050	4.8.2 ✔
	139.167 - 138.167	0.010	0.287	0.000	0.055	0.005	0.301	1.050	4.8.2 ✔
	138.167 - 137.167	0.010	0.319	0.000	0.055	0.005	0.333	1.050	4.8.2 ✔
	137.167 - 136.167	0.010	0.350	0.000	0.054	0.005	0.363	1.050	4.8.2 ✔
	136.167 - 135.167	0.010	0.380	0.000	0.054	0.005	0.393	1.050	4.8.2 ✔
L4	135.167 - 134.167	0.010	0.408	0.000	0.054	0.005	0.422	1.050	4.8.2 ✔
	134.167 - 133.167	0.010	0.436	0.000	0.054	0.005	0.450	1.050	4.8.2 ✔
	133.167 - 132.167	0.010	0.464	0.000	0.054	0.005	0.477	1.050	4.8.2 ✔
	132.167 - 131.167	0.010	0.490	0.000	0.053	0.005	0.504	1.050	4.8.2 ✔
	131.167 - 130.167	0.010	0.516	0.000	0.053	0.005	0.529	1.050	4.8.2 ✔
L5	130.167 - 129.167	0.014	0.576	0.000	0.072	0.005	0.595	1.050	4.8.2 ✔
	129.167 - 128.167	0.014	0.611	0.000	0.072	0.005	0.630	1.050	4.8.2 ✔
	128.167 - 127.167	0.014	0.645	0.000	0.071	0.005	0.665	1.050	4.8.2 ✔
	127.167 - 126.167	0.014	0.678	0.000	0.071	0.005	0.698	1.050	4.8.2 ✔
	126.167 - 125.167	0.014	0.711	0.000	0.071	0.005	0.730	1.050	4.8.2 ✔
L6	125.167 - 123.75 (6)	0.014	0.755	0.000	0.071	0.004	0.774	1.050	4.8.2 ✔
L7	123.75 - 123.5 (7)	0.007	0.387	0.000	0.035	0.002	0.396	1.050	4.8.2 ✔
L8	123.5 - 122.5	0.007	0.412	0.000	0.036	0.002	0.420	1.050	4.8.2 ✔
	122.5 - 121.5	0.007	0.427	0.000	0.036	0.002	0.435	1.050	4.8.2 ✔
	121.5 - 120.5	0.007	0.441	0.000	0.036	0.002	0.450	1.050	4.8.2 ✔
	120.5 - 119.5	0.007	0.455	0.000	0.035	0.002	0.464	1.050	4.8.2 ✔
	119.5 - 118.5	0.007	0.469	0.000	0.035	0.002	0.478	1.050	4.8.2 ✔
L9	118.5 - 117.5	0.007	0.494	0.000	0.036	0.002	0.503	1.050	4.8.2 ✔
	117.5 - 116.5	0.008	0.508	0.000	0.036	0.002	0.517	1.050	4.8.2 ✔
	116.5 - 115.5	0.008	0.521	0.000	0.036	0.002	0.530	1.050	4.8.2 ✔
	115.5 - 114.5	0.008	0.534	0.000	0.036	0.002	0.543	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	114.5 - 113.5	0.008	0.546	0.000	0.036	0.002	0.556 ✔	1.050	4.8.2 ✔
L10	113.5 - 112.167 (10)	0.008	0.563	0.000	0.036	0.002	0.572 ✔	1.050	4.8.2 ✔
L11	112.167 - 111.917 (11)	0.006	0.406	0.000	0.026	0.001	0.413 ✔	1.050	4.8.2 ✔
L12	111.917 - 110.167 (12)	0.006	0.421	0.000	0.026	0.001	0.428 ✔	1.050	4.8.2 ✔
L13	110.167 - 109.917 (13)	0.007	0.469	0.000	0.029	0.001	0.476 ✔	1.050	4.8.2 ✔
L14	109.917 - 108.917	0.007	0.495	0.000	0.030	0.001	0.503 ✔	1.050	4.8.2 ✔
	108.917 - 107.917	0.007	0.503	0.000	0.030	0.001	0.512 ✔	1.050	4.8.2 ✔
	107.917 - 106.917	0.008	0.512	0.000	0.030	0.001	0.520 ✔	1.050	4.8.2 ✔
	106.917 - 105.917	0.008	0.520	0.000	0.030	0.001	0.529 ✔	1.050	4.8.2 ✔
	105.917 - 104.917	0.008	0.528	0.000	0.030	0.001	0.537 ✔	1.050	4.8.2 ✔
L15	104.917 - 103.917	0.008	0.546	0.000	0.031	0.001	0.555 ✔	1.050	4.8.2 ✔
	103.917 - 102.917	0.008	0.554	0.000	0.031	0.001	0.563 ✔	1.050	4.8.2 ✔
	102.917 - 101.917	0.008	0.561	0.000	0.030	0.001	0.570 ✔	1.050	4.8.2 ✔
	101.917 - 100.917	0.008	0.568	0.000	0.030	0.001	0.578 ✔	1.050	4.8.2 ✔
	100.917 - 99.917	0.008	0.576	0.000	0.030	0.001	0.585 ✔	1.050	4.8.2 ✔
L16	99.917 - 98.6877	0.009	0.596	0.000	0.031	0.001	0.605 ✔	1.050	4.8.2 ✔
	98.6877 - 97.4585	0.009	0.604	0.000	0.031	0.001	0.614 ✔	1.050	4.8.2 ✔
	97.4585 - 96.2292	0.009	0.612	0.000	0.031	0.001	0.622 ✔	1.050	4.8.2 ✔
	96.2292 - 95	0.009	0.620	0.000	0.031	0.001	0.630 ✔	1.050	4.8.2 ✔
L17	95 - 94.75 (17)	0.007	0.518	0.000	0.025	0.001	0.526 ✔	1.050	4.8.2 ✔
L18	94.75 - 93.75	0.007	0.532	0.000	0.026	0.001	0.540 ✔	1.050	4.8.2 ✔
	93.75 - 92.75	0.007	0.537	0.000	0.026	0.001	0.545 ✔	1.050	4.8.2 ✔
	92.75 - 91.75	0.007	0.542	0.000	0.025	0.001	0.550 ✔	1.050	4.8.2 ✔
	91.75 - 90.75	0.008	0.547	0.000	0.025	0.001	0.555 ✔	1.050	4.8.2 ✔
	90.75 - 89.75	0.008	0.551	0.000	0.026	0.001	0.559 ✔	1.050	4.8.2 ✔
L19	89.75 -	0.008	0.565	0.000	0.026	0.001	0.574 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	88.6875						✔		
	88.6875 - 87.625	0.088	0.537	0.000	0.017	0.002	0.626 ✔	1.050	4.8.2 ✔
	87.625 - 86.5625	0.088	0.535	0.000	0.017	0.002	0.623 ✔	1.050	4.8.2 ✔
	86.5625 - 85.5	0.087	0.533	0.000	0.017	0.002	0.621 ✔	1.050	4.8.2 ✔
L20	85.5 - 85.25 (20)	0.068	0.425	0.000	0.013	0.002	0.494 ✔	1.050	4.8.2 ✔
L21	85.25 - 85 (21)	0.068	0.425	0.000	0.013	0.002	0.493 ✔	1.050	4.8.2 ✔
L22	85 - 84.75 (22)	0.070	0.436	0.000	0.014	0.002	0.506 ✔	1.050	4.8.2 ✔
L23	84.75 - 83 (23)	0.070	0.435	0.000	0.013	0.002	0.506 ✔	1.050	4.8.2 ✔
L24	83 - 82.65 (24)	0.081	0.501	0.000	0.015	0.002	0.583 ✔	1.050	4.8.2 ✔
L25	82.65 - 82.4167 (25)	0.081	0.501	0.000	0.015	0.002	0.582 ✔	1.050	4.8.2 ✔
L26	82.4167 - 81.4167	0.084	0.517	0.000	0.016	0.002	0.601 ✔	1.050	4.8.2 ✔
	81.4167 - 80.4167	0.083	0.515	0.000	0.016	0.002	0.599 ✔	1.050	4.8.2 ✔
	80.4167 - 79.4167	0.084	0.513	0.000	0.015	0.003	0.598 ✔	1.050	4.8.2 ✔
	79.4167 - 78.4167	0.084	0.513	0.000	0.015	0.003	0.597 ✔	1.050	4.8.2 ✔
	78.4167 - 77.4167	0.083	0.513	0.000	0.014	0.003	0.597 ✔	1.050	4.8.2 ✔
L27	77.4167 - 76.1935	0.083	0.513	0.000	0.014	0.003	0.596 ✔	1.050	4.8.2 ✔
	76.1935 - 74.9702	0.082	0.512	0.000	0.014	0.003	0.595 ✔	1.050	4.8.2 ✔
	74.9702 - 73.747	0.082	0.512	0.000	0.014	0.003	0.594 ✔	1.050	4.8.2 ✔
	73.747 - 70.167	0.040	0.259	0.000	0.008	0.001	0.299 ✔	1.050	4.8.2 ✔
L28	73.747 - 70.167	0.040	0.252	0.000	0.007	0.001	0.292 ✔	1.050	4.8.2 ✔
	70.167 - 69.167	0.078	0.511	0.000	0.014	0.002	0.589 ✔	1.050	4.8.2 ✔
L29	69.167 - 68.167	0.079	0.519	0.000	0.014	0.002	0.599 ✔	1.050	4.8.2 ✔
	68.167 - 67.167	0.079	0.520	0.000	0.014	0.002	0.599 ✔	1.050	4.8.2 ✔
	67.167 - 66.167	0.078	0.520	0.000	0.013	0.002	0.598 ✔	1.050	4.8.2 ✔
	66.167 - 65.167	0.078	0.520	0.000	0.013	0.002	0.598 ✔	1.050	4.8.2 ✔
	65.167 - 64.167	0.078	0.520	0.000	0.013	0.002	0.598 ✔	1.050	4.8.2 ✔
L30	64.167 -	0.076	0.512	0.000	0.012	0.002	0.588	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	63.167						✔		
	63.167 - 62.167	0.076	0.511	0.000	0.012	0.002	0.587 ✔	1.050	4.8.2 ✔
	62.167 - 61.167	0.075	0.511	0.000	0.012	0.001	0.587 ✔	1.050	4.8.2 ✔
	61.167 - 60.167	0.075	0.511	0.000	0.012	0.001	0.586 ✔	1.050	4.8.2 ✔
	60.167 - 59.167	0.075	0.510	0.000	0.012	0.001	0.585 ✔	1.050	4.8.2 ✔
L31	59.167 - 58.167	0.076	0.518	0.000	0.012	0.001	0.594 ✔	1.050	4.8.2 ✔
	58.167 - 57.167	0.075	0.517	0.000	0.012	0.001	0.593 ✔	1.050	4.8.2 ✔
	57.167 - 56.167	0.075	0.517	0.000	0.011	0.001	0.592 ✔	1.050	4.8.2 ✔
	56.167 - 55.167	0.075	0.516	0.000	0.011	0.001	0.591 ✔	1.050	4.8.2 ✔
	55.167 - 54.167	0.074	0.515	0.000	0.011	0.001	0.590 ✔	1.050	4.8.2 ✔
L32	54.167 - 53.167	0.075	0.523	0.000	0.011	0.001	0.599 ✔	1.050	4.8.2 ✔
	53.167 - 52.167	0.075	0.522	0.000	0.011	0.001	0.597 ✔	1.050	4.8.2 ✔
	52.167 - 51.167	0.075	0.521	0.000	0.011	0.001	0.596 ✔	1.050	4.8.2 ✔
	51.167 - 50.167	0.075	0.520	0.000	0.010	0.001	0.595 ✔	1.050	4.8.2 ✔
	50.167 - 49.167	0.074	0.519	0.000	0.010	0.001	0.593 ✔	1.050	4.8.2 ✔
L33	49.167 - 48.1668	0.074	0.518	0.000	0.010	0.001	0.592 ✔	1.050	4.8.2 ✔
	48.1668 - 47.1667	0.074	0.517	0.000	0.010	0.001	0.590 ✔	1.050	4.8.2 ✔
L34	47.1667 - 46.9167 (34)	0.065	0.462	0.000	0.009	0.001	0.528 ✔	1.050	4.8.2 ✔
L35	46.9167 - 45.75	0.066	0.469	0.000	0.009	0.001	0.535 ✔	1.050	4.8.2 ✔
	45.75 - 44.5834	0.066	0.467	0.000	0.009	0.001	0.533 ✔	1.050	4.8.2 ✔
	44.5834 - 43.4167	0.066	0.466	0.000	0.009	0.001	0.532 ✔	1.050	4.8.2 ✔
L36	43.4167 - 43.1667 (36)	0.078	0.547	0.000	0.010	0.001	0.625 ✔	1.050	4.8.2 ✔
L37	43.1667 - 42.1667	0.078	0.547	0.000	0.010	0.001	0.625 ✔	1.050	4.8.2 ✔
	42.1667 - 41.1667	0.077	0.545	0.000	0.010	0.001	0.623 ✔	1.050	4.8.2 ✔
	41.1667 - 40.1667	0.077	0.544	0.000	0.009	0.001	0.621 ✔	1.050	4.8.2 ✔
	40.1667 - 39.1667	0.077	0.542	0.000	0.009	0.001	0.619 ✔	1.050	4.8.2 ✔
	39.1667 -	0.077	0.540	0.000	0.009	0.001	0.617	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	38.1667						✔		
L38	38.1667 - 36.9569	0.076	0.539	0.000	0.009	0.001	0.615 ✔	1.050	4.8.2 ✔
	36.9569 - 35.747	0.076	0.537	0.000	0.009	0.001	0.613 ✔	1.050	4.8.2 ✔
	35.747 - 31.537	0.045	0.325	0.000	0.005	0.001	0.371 ✔	1.050	4.8.2 ✔
L39	35.747 - 31.537	0.046	0.319	0.000	0.005	0.001	0.365 ✔	1.050	4.8.2 ✔
	31.537 - 30.537	0.113	0.799	0.000	0.012	0.002	0.912 ✔	1.050	4.8.2 ✔
L40	30.537 - 29.537	0.112	0.795	0.000	0.012	0.002	0.908 ✔	1.050	4.8.2 ✔
	29.537 - 28.537	0.112	0.791	0.000	0.011	0.002	0.903 ✔	1.050	4.8.2 ✔
	28.537 - 27.537	0.111	0.787	0.000	0.011	0.002	0.898 ✔	1.050	4.8.2 ✔
	27.537 - 26.537	0.111	0.783	0.000	0.010	0.002	0.894 ✔	1.050	4.8.2 ✔
	26.537 - 25.537	0.110	0.779	0.000	0.010	0.002	0.889 ✔	1.050	4.8.2 ✔
L41	25.537 - 24.537	0.110	0.774	0.000	0.009	0.002	0.884 ✔	1.050	4.8.2 ✔
	24.537 - 23.537	0.109	0.770	0.000	0.009	0.002	0.879 ✔	1.050	4.8.2 ✔
	23.537 - 22.537	0.109	0.765	0.000	0.009	0.002	0.874 ✔	1.050	4.8.2 ✔
	22.537 - 21.537	0.108	0.760	0.000	0.008	0.002	0.869 ✔	1.050	4.8.2 ✔
	21.537 - 20.537	0.108	0.756	0.000	0.008	0.002	0.864 ✔	1.050	4.8.2 ✔
L42	20.537 - 19.537	0.107	0.751	0.000	0.008	0.002	0.859 ✔	1.050	4.8.2 ✔
	19.537 - 18.537	0.107	0.746	0.000	0.007	0.002	0.853 ✔	1.050	4.8.2 ✔
	18.537 - 17.537	0.107	0.741	0.000	0.007	0.002	0.848 ✔	1.050	4.8.2 ✔
	17.537 - 16.537	0.106	0.736	0.000	0.006	0.002	0.843 ✔	1.050	4.8.2 ✔
	16.537 - 15.537	0.106	0.731	0.000	0.006	0.002	0.837 ✔	1.050	4.8.2 ✔
L43	15.537 - 14.537	0.105	0.726	0.000	0.006	0.001	0.832 ✔	1.050	4.8.2 ✔
	14.537 - 13.537	0.105	0.721	0.000	0.005	0.001	0.826 ✔	1.050	4.8.2 ✔
	13.537 - 12.537	0.104	0.716	0.000	0.005	0.001	0.821 ✔	1.050	4.8.2 ✔
	12.537 - 11.537	0.104	0.711	0.000	0.005	0.001	0.815 ✔	1.050	4.8.2 ✔
	11.537 - 10.537	0.104	0.706	0.000	0.005	0.001	0.810 ✔	1.050	4.8.2 ✔
L44	10.537 - 9.537	0.103	0.702	0.000	0.004	0.001	0.805	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	9.537 - 8.537	0.103	0.698	0.000	0.004	0.001	0.801	1.050	4.8.2
	8.537 - 7.537	0.102	0.693	0.000	0.004	0.001	0.796	1.050	4.8.2
	7.537 - 6.537	0.102	0.689	0.000	0.003	0.001	0.791	1.050	4.8.2
	6.537 - 5.537	0.102	0.685	0.000	0.003	0.001	0.787	1.050	4.8.2
L45	5.537 - 4.537	0.101	0.680	0.000	0.003	0.001	0.782	1.050	4.8.2
	4.537 - 3.537	0.101	0.676	0.000	0.003	0.001	0.777	1.050	4.8.2
	3.537 - 2.537	0.101	0.672	0.000	0.002	0.001	0.772	1.050	4.8.2
	2.537 - 1.537	0.100	0.667	0.000	0.002	0.001	0.768	1.050	4.8.2
	1.537 - 0.537	0.100	0.663	0.000	0.002	0.001	0.763	1.050	4.8.2
L46	0.537 - 0 (46)	0.099	0.658	0.000	0.002	0.001	0.758	1.050	4.8.2

Section Capacity Table

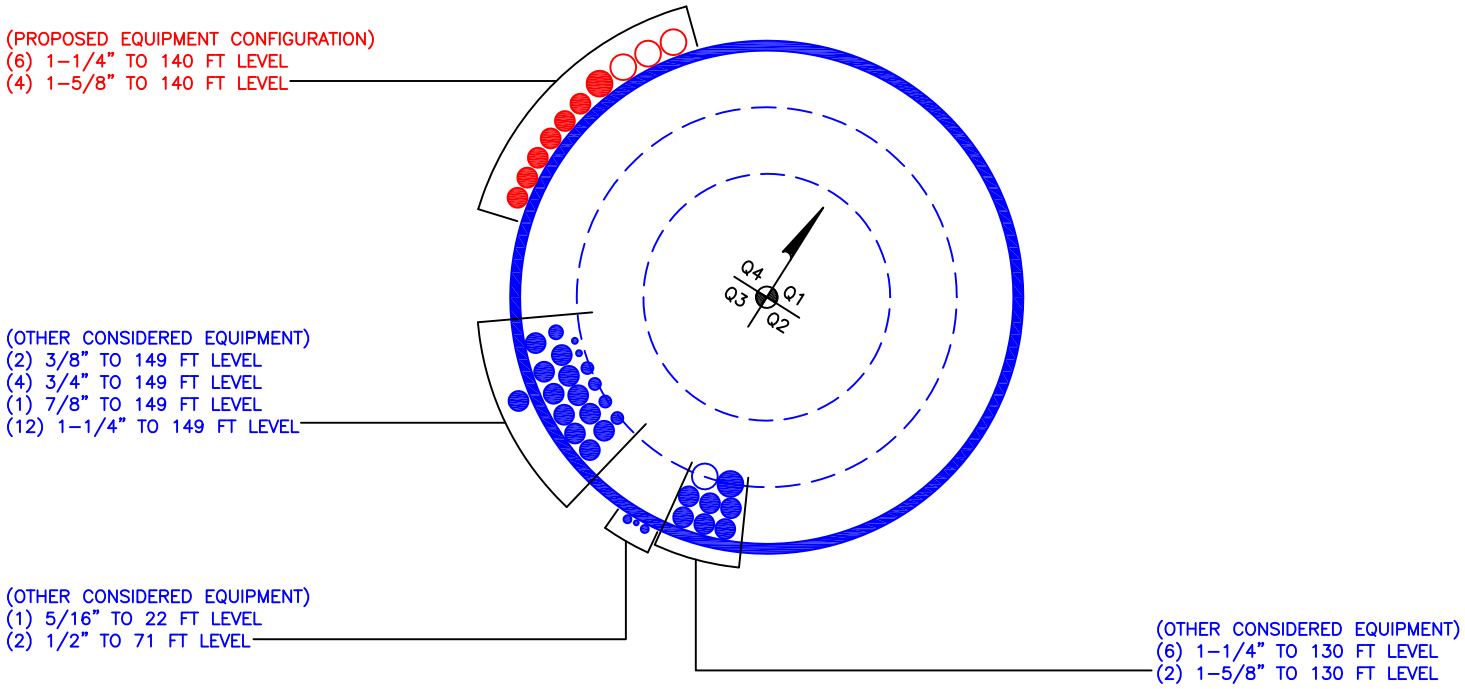
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150.167 - 145.167	Pole	TP16.31x15.53x0.25	1	-4.807	794.121	**	**
L2	145.167 - 140.167	Pole	TP17.09x16.31x0.25	2	-4.812	832.690	**	**
L3	140.167 - 135.167	Pole	TP17.87x17.09x0.25	3	-8.298	871.258	**	**
L4	135.167 - 130.167	Pole	TP18.65x17.87x0.25	4	-8.763	909.827	**	**
L5	130.167 - 125.167	Pole	TP19.43x18.65x0.25	5	-12.276	948.396	**	**
L6	125.167 - 123.75	Pole	TP19.651x19.43x0.25	6	-12.441	959.326	**	**
L7	123.75 - 123.5	Pole	TP19.69x19.651x0.513	7	-12.508	1943.959	**	**
L8	123.5 - 118.5	Pole	TP20.47x19.69x0.5	8	-13.307	1974.924	**	**
L9	118.5 - 113.5	Pole	TP21.25x20.47x0.488	9	-15.228	2001.961	**	**
L10	113.5 - 112.167	Pole	TP21.458x21.25x0.488	10	-15.869	2022.016	**	**
L11	112.167 - 111.917	Pole	TP21.497x21.458x0.7	11	-16.017	2879.383	**	**
L12	111.917 - 110.167	Pole	TP21.77x21.497x0.7	12	-16.842	2917.183	**	**
L13	110.167 - 109.917	Pole	TP21.813x21.77x0.625	13	-16.942	2619.204	**	**
L14	109.917 - 104.917	Pole	TP22.672x21.813x0.6	14	-19.574	2619.319	**	**
L15	104.917 - 99.917	Pole	TP23.53x22.672x0.588	15	-21.384	2665.981	**	**

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L16	99.917 - 95	Pole	TP24.375x23.53x0.575	16	-22.604	2706.732	**	**
L17	95 - 94.75	Pole	TP24.418x24.375x0.7	17	-22.692	3283.780	**	**
L18	94.75 - 89.75	Pole	TP25.277x24.418x0.688	18	-24.218	3343.620	**	**
L19	89.75 - 85.5	Pole	TP26.007x25.277x0.675	19	-278.807	3308.854	**	**
		Guy A@88.6875	1 5/8	49	188.633	194.400	**	**
		Guy B@88.6875	1 3/8	48	104.602	139.200	**	**
		Guy C@88.6875	1 3/8	47	118.809	139.200	**	**
L20	85.5 - 85.25	Pole	TP26.049x26.007x0.863	20	-279.526	4289.386	**	**
L21	85.25 - 85	Pole	TP26.092x26.049x0.863	21	-279.602	4296.715	**	**
L22	85 - 84.75	Pole	TP26.135x26.092x0.838	22	-279.678	4183.431	**	**
L23	84.75 - 83	Pole	TP26.436x26.135x0.838	23	-279.759	4190.539	**	**
L24	83 - 82.65	Pole	TP26.496x26.436x0.713	24	-280.256	3625.062	**	**
L25	82.65 - 82.4167	Pole	TP26.536x26.496x0.713	25	-280.355	3633.525	**	**
L26	82.4167 - 77.4167	Pole	TP27.395x26.536x0.688	26	-280.426	3514.885	**	**
L27	77.4167 - 70.167	Pole	TP28.64x27.395x0.688	27	-286.672	3631.656	**	**
L28	70.167 - 69.167	Pole	TP28.079x27.4x0.725	28	-290.067	3922.527	**	**
L29	69.167 - 64.167	Pole	TP28.821x28.079x0.713	29	-290.084	3856.660	**	**
L30	64.167 - 59.167	Pole	TP29.562x28.821x0.725	30	-291.516	4028.850	**	**
L31	59.167 - 54.167	Pole	TP30.304x29.562x0.713	31	-292.963	4065.652	**	**
L32	54.167 - 49.167	Pole	TP31.045x30.304x0.7	32	-294.427	4098.717	**	**
L33	49.167 - 47.1667	Pole	TP31.342x31.045x0.7	33	-295.909	4201.386	**	**
L34	47.1667 - 46.9167	Pole	TP31.379x31.342x0.788	34	-296.503	4759.135	**	**
L35	46.9167 - 43.4167	Pole	TP31.898x31.379x0.775	35	-296.589	4691.190	**	**
L36	43.4167 - 43.1667	Pole	TP31.935x31.898x0.65	36	-297.726	4017.352	**	**
L37	43.1667 - 38.1667	Pole	TP32.677x31.935x0.65	37	-297.803	4022.119	**	**
L38	38.1667 - 31.537	Pole	TP33.66x32.677x0.65	38	-299.275	4117.449	**	**
L39	31.537 - 30.537	Pole	TP33.161x32.286x0.438	39	-302.032	2817.087	**	**
L40	30.537 - 25.537	Pole	TP34.001x33.161x0.438	40	-302.263	2831.629	**	**
L41	25.537 - 20.537	Pole	TP34.84x34.001x0.438	41	-303.425	2904.300	**	**
L42	20.537 - 15.537	Pole	TP35.68x34.84x0.438	42	-304.718	2976.970	**	**
L43	15.537 - 10.537	Pole	TP36.52x35.68x0.438	43	-305.911	3049.641	**	**
L44	10.537 - 5.537	Pole	TP37.36x36.52x0.438	44	-307.121	3122.322	**	**
L45	5.537 - 0.537	Pole	TP38.2x37.36x0.438	45	-308.350	3194.992	**	**
L46	0.537 - 0	Pole	TP38.29x38.2x0.438	46	-309.599	3267.663	**	**
							Summary	
						Pole (L39)	**	**
						Guy A (L19)	**	**
						Guy B (L19)	**	**
						Guy C (L19)	**	**
						RATING =	**	**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 841289

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 841289

Work Order: 1854078

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	150.167	40	0	12	15.53	21.77	0.25	Auto	A572-65
2	110.167	40	3.58	12	21.77	28.64	0.3125	Auto	A572-65
3	73.747	42.21	4.21	12	27.40	33.66	0.375	Auto	A572-65
4	35.747	35.747	0	12	32.29	38.29	0.4375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	73	95	plate	PL-4x1	2			E1				E1					
2	47.1667	85	plate	CCI-SFP-060100	2		E2				E2						
3	47.1667	83	plate	CCI-SFP-060100	1										E2		
4	85	110.167	plate	CCI-SFP-065125	2		E2				E2						
5	82.6667	110.167	plate	PL-6.5x1.25	1											E2	
6	112.167	123.75	plate	CCI-AFP-045100	3		E2				E2				E2		
7	32.6667	47.1667	plate	CCI-CFP-065125	3		E3				E3				E3		
8	110.167	112.167	plate	BS-6.5x1.25	3	E2				E2				E2			
9	43.4167	85.5	plate	CCI-SFP-045100	2				E4				E4				
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4	1	4	0.5	n/a	21.000	18.000	2.750	1.1875	A572-65
2	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
3	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
4	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
5	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
6	4.5	1	4.5	0.5	24.000	24.000	20.000	3.250	1.1875	A572-65
7	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
8	6.5	1.25	8.125	0.625	30.000	30.000	16.000	6.563	1.1875	A572-65
9	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	150.167 - 145.167	5		12	15.530	16.310	0.25	A572-65	1.000
2	145.167 - 140.167	5		12	16.310	17.090	0.25	A572-65	1.000
3	140.167 - 135.167	5		12	17.090	17.870	0.25	A572-65	1.000
4	135.167 - 130.167	5		12	17.870	18.650	0.25	A572-65	1.000
5	130.167 - 125.167	5		12	18.650	19.430	0.25	A572-65	1.000
6	125.167 - 123.75	1.417		12	19.430	19.651	0.25	A572-65	1.000
7	123.75 - 123.5	0.25		12	19.651	19.690	0.5125	A572-65	0.922
8	123.5 - 118.5	5		12	19.690	20.470	0.5	A572-65	0.927
9	118.5 - 113.5	5		12	20.470	21.250	0.4875	A572-65	0.933
10	113.5 - 112.167	1.333		12	21.250	21.458	0.4875	A572-65	0.929
11	112.167 - 111.917	0.25		12	21.458	21.497	0.7	A572-65	0.886
12	111.917 - 110.167	1.75	0	12	21.497	21.770	0.7	A572-65	0.879
13	110.167 - 109.917	0.25		12	21.770	21.813	0.625	A572-65	1.080
14	109.917 - 104.917	5		12	21.813	22.672	0.6	A572-65	1.100
15	104.917 - 99.917	5		12	22.672	23.530	0.5875	A572-65	1.101
16	99.917 - 95	4.917		12	23.530	24.375	0.575	A572-65	1.103
17	95 - 94.75	0.25		12	24.375	24.418	0.7	A572-65	1.060
18	94.75 - 89.75	5		12	24.418	25.277	0.6875	A572-65	1.057
19	89.75 - 85.5	4.25		12	25.277	26.007	0.675	A572-65	1.058
20	85.5 - 85.25	0.25		12	26.007	26.049	0.8625	A572-65	0.963
21	85.25 - 85	0.25		12	26.049	26.092	0.8625	A572-65	0.962
22	85 - 84.75	0.25		12	26.092	26.135	0.8375	A572-65	0.926
23	84.75 - 83	1.75		12	26.135	26.436	0.8375	A572-65	0.919
24	83 - 82.65	0.35		12	26.436	26.496	0.7125	A572-65	1.038
25	82.65 - 82.4167	0.2333		12	26.496	26.536	0.7125	A572-65	1.037
26	82.4167 - 77.4167	5		12	26.536	27.395	0.6875	A572-65	1.054
27	77.4167 - 73.747	7.2497	3.58	12	27.395	28.640	0.6875	A572-65	1.040
28	73.747 - 69.167	4.58		12	27.400	28.079	0.725	A572-65	0.947
29	69.167 - 64.167	5		12	28.079	28.821	0.7125	A572-65	0.952
30	64.167 - 59.167	5		12	28.821	29.562	0.725	A572-65	0.925
31	59.167 - 54.167	5		12	29.562	30.304	0.7125	A572-65	0.931
32	54.167 - 49.167	5		12	30.304	31.045	0.7	A572-65	0.937
33	49.167 - 47.1667	2.0003		12	31.045	31.342	0.7	A572-65	0.933
34	47.1667 - 46.9167	0.25		12	31.342	31.379	0.7875	A572-65	0.913
35	46.9167 - 43.4167	3.5		12	31.379	31.898	0.775	A572-65	0.920
36	43.4167 - 43.1667	0.25		12	31.898	31.935	0.65	A572-65	0.955
37	43.1667 - 38.1667	5		12	31.935	32.677	0.65	A572-65	0.946
38	38.1667 - 35.747	6.6297	4.21	12	32.677	33.660	0.65	A572-65	0.942
39	35.747 - 30.537	5.21		12	32.286	33.161	0.4375	A572-65	1.000
40	30.537 - 25.537	5		12	33.161	34.001	0.4375	A572-65	1.000
41	25.537 - 20.537	5		12	34.001	34.840	0.4375	A572-65	1.000
42	20.537 - 15.537	5		12	34.840	35.680	0.4375	A572-65	1.000
43	15.537 - 10.537	5		12	35.680	36.520	0.4375	A572-65	1.000
44	10.537 - 5.537	5		12	36.520	37.360	0.4375	A572-65	1.000
45	5.537 - 0.537	5		12	37.360	38.200	0.4375	A572-65	1.000
46	0.537 - 0	0.537		12	38.200	38.290	0.4375	A572-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	150.167 - 145.167	4.81	36.28	7.58
2	145.167 - 140.167	4.81	76.00	8.14
3	140.167 - 135.167	8.30	141.57	13.48
4	135.167 - 130.167	8.76	209.85	13.86
5	130.167 - 125.167	12.28	314.39	19.28
6	125.167 - 123.75	12.44	341.76	19.41
7	123.75 - 123.5	12.51	346.63	19.61
8	123.5 - 118.5	13.31	444.90	19.95
9	118.5 - 113.5	15.23	546.63	20.81
10	113.5 - 112.167	15.87	574.49	21.06
11	112.167 - 111.917	16.02	579.78	21.36
12	111.917 - 110.167	16.84	616.94	21.45
13	110.167 - 109.917	16.94	622.32	21.70
14	109.917 - 104.917	19.57	732.02	22.48
15	104.917 - 99.917	21.38	845.81	23.12
16	99.917 - 95	22.60	960.54	23.64
17	95 - 94.75	22.69	966.47	23.88
18	94.75 - 89.75	24.09	1086.01	24.25
19	89.75 - 85.5	24.52	1111.83	24.50
20	85.5 - 85.25	279.60	1095.27	16.26
21	85.25 - 85	279.68	1098.12	16.24
22	85 - 84.75	279.75	1100.97	16.22
23	84.75 - 83	280.24	1120.94	16.11
24	83 - 82.65	280.35	1124.94	16.00
25	82.65 - 82.4167	280.42	1127.60	16.05
26	82.4167 - 77.4167	286.65	1195.12	15.01
27	77.4167 - 73.747	287.72	1248.42	14.46
28	73.747 - 69.167	290.07	1316.67	15.43
29	69.167 - 64.167	291.50	1390.85	14.61
30	64.167 - 59.167	292.95	1461.06	13.84
31	59.167 - 54.167	294.41	1527.44	13.07
32	54.167 - 49.167	295.90	1590.04	12.32
33	49.167 - 47.1667	296.50	1614.04	12.02
34	47.1667 - 46.9167	296.58	1617.01	11.98
35	46.9167 - 43.4167	297.72	1657.69	11.60
36	43.4167 - 43.1667	297.80	1660.54	11.52
37	43.1667 - 38.1667	299.26	1715.39	10.73
38	38.1667 - 35.747	299.98	1740.40	10.31
39	35.747 - 30.537	302.25	1792.13	9.76
40	30.537 - 25.537	303.41	1835.67	8.14
41	25.537 - 20.537	304.71	1871.32	6.73
42	20.537 - 15.537	305.91	1900.29	5.32
43	15.537 - 10.537	307.12	1922.53	4.03
44	10.537 - 5.537	308.35	1938.54	2.84
45	5.537 - 0.537	309.60	1948.84	1.78
46	0.537 - 0	309.73	1949.63	1.61

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150.17 - 145.17	Pole	TP16.31x15.53x0.25	Pole	11.6%	Pass
145.17 - 140.17	Pole	TP17.09x16.31x0.25	Pole	21.7%	Pass
140.17 - 135.17	Pole	TP17.87x17.09x0.25	Pole	36.9%	Pass
135.17 - 130.17	Pole	TP18.65x17.87x0.25	Pole	49.8%	Pass
130.17 - 125.17	Pole	TP19.43x18.65x0.25	Pole	68.6%	Pass
125.17 - 123.75	Pole	TP19.651x19.43x0.25	Pole	72.8%	Pass
123.75 - 123.5	Pole + Reinf.	TP19.69x19.651x0.5125	Reinf. 6 Tension Rupture	64.2%	Pass
123.5 - 118.5	Pole + Reinf.	TP20.47x19.69x0.5	Reinf. 6 Tension Rupture	77.5%	Pass
118.5 - 113.5	Pole + Reinf.	TP21.25x20.47x0.4875	Reinf. 6 Tension Rupture	89.9%	Pass
113.5 - 112.17	Pole + Reinf.	TP21.458x21.25x0.4875	Reinf. 6 Tension Rupture	93.1%	Pass
112.17 - 111.92	Pole + Reinf.	TP21.497x21.458x0.7	Reinf. 8 Tension Rupture	60.3%	Pass
111.92 - 110.17	Pole + Reinf.	TP21.77x21.497x0.7	Reinf. 8 Tension Rupture	63.0%	Pass
110.17 - 109.92	Pole + Reinf.	TP21.813x21.77x0.625	Reinf. 4 Tension Rupture	61.9%	Pass
109.92 - 104.92	Pole + Reinf.	TP22.672x21.813x0.6	Reinf. 4 Tension Rupture	68.7%	Pass
104.92 - 99.92	Pole + Reinf.	TP23.53x22.672x0.5875	Reinf. 4 Tension Rupture	75.1%	Pass
99.92 - 95	Pole + Reinf.	TP24.375x23.53x0.575	Reinf. 4 Tension Rupture	80.9%	Pass
95 - 94.75	Pole + Reinf.	TP24.418x24.375x0.7	Reinf. 1 Tension Rupture	79.9%	Pass
94.75 - 89.75	Pole + Reinf.	TP25.277x24.418x0.6875	Reinf. 1 Tension Rupture	85.5%	Pass
89.75 - 85.5	Pole + Reinf.	TP26.007x25.277x0.675	Reinf. 1 Tension Rupture	84.0%	Pass
85.5 - 85.25	Pole + Reinf.	TP26.049x26.007x0.8625	Reinf. 5 Tension Rupture	74.8%	Pass
85.25 - 85	Pole + Reinf.	TP26.092x26.049x0.8625	Reinf. 5 Tension Rupture	74.8%	Pass
85 - 84.75	Pole + Reinf.	TP26.135x26.092x0.8375	Reinf. 1 Tension Rupture	77.4%	Pass
84.75 - 83	Pole + Reinf.	TP26.436x26.135x0.8375	Reinf. 1 Tension Rupture	77.6%	Pass
83 - 82.65	Pole + Reinf.	TP26.496x26.436x0.7125	Reinf. 3 Tension Rupture	85.4%	Pass
82.65 - 82.42	Pole + Reinf.	TP26.536x26.496x0.7125	Reinf. 3 Tension Rupture	85.4%	Pass
82.42 - 77.42	Pole + Reinf.	TP27.395x26.536x0.6875	Reinf. 3 Tension Rupture	86.2%	Pass
77.42 - 73.75	Pole + Reinf.	TP28.64x27.395x0.6875	Reinf. 3 Tension Rupture	86.9%	Pass
73.75 - 69.17	Pole + Reinf.	TP28.079x27.4x0.725	Reinf. 2 Tension Rupture	83.9%	Pass
69.17 - 64.17	Pole + Reinf.	TP28.821x28.079x0.7125	Reinf. 2 Tension Rupture	84.8%	Pass
64.17 - 59.17	Pole + Reinf.	TP29.562x28.821x0.725	Reinf. 9 Tension Rupture	85.5%	Pass
59.17 - 54.17	Pole + Reinf.	TP30.304x29.562x0.7125	Reinf. 9 Tension Rupture	86.0%	Pass
54.17 - 49.17	Pole + Reinf.	TP31.045x30.304x0.7	Reinf. 9 Tension Rupture	86.1%	Pass
49.17 - 47.17	Pole + Reinf.	TP31.342x31.045x0.7	Reinf. 9 Tension Rupture	86.1%	Pass
47.17 - 46.92	Pole + Reinf.	TP31.379x31.342x0.7875	Reinf. 9 Tension Rupture	78.1%	Pass
46.92 - 43.42	Pole + Reinf.	TP31.898x31.379x0.775	Reinf. 9 Tension Rupture	78.1%	Pass
43.42 - 43.17	Pole + Reinf.	TP31.935x31.898x0.65	Reinf. 7 Tension Rupture	85.9%	Pass
43.17 - 38.17	Pole + Reinf.	TP32.677x31.935x0.65	Reinf. 7 Tension Rupture	85.5%	Pass
38.17 - 35.75	Pole + Reinf.	TP33.66x32.677x0.65	Reinf. 7 Tension Rupture	85.2%	Pass
35.75 - 30.54	Pole	TP33.161x32.286x0.4375	Pole	84.0%	Pass
30.54 - 25.54	Pole	TP34.001x33.161x0.4375	Pole	81.8%	Pass
25.54 - 20.54	Pole	TP34.84x34.001x0.4375	Pole	79.4%	Pass
20.54 - 15.54	Pole	TP35.68x34.84x0.4375	Pole	77.0%	Pass
15.54 - 10.54	Pole	TP36.52x35.68x0.4375	Pole	74.5%	Pass
10.54 - 5.54	Pole	TP37.36x36.52x0.4375	Pole	72.4%	Pass
5.54 - 0.54	Pole	TP38.2x37.36x0.4375	Pole	70.2%	Pass
0.54 - 0	Pole	TP38.29x38.2x0.4375	Pole	69.9%	Pass
				Summary	
			Pole	84.0%	Pass
			Reinforcement	93.1%	Pass
			Overall	93.1%	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
150.17 - 145.17	426	n/a	426	12.91	n/a	12.91	11.6%									
145.17 - 140.17	491	n/a	491	13.54	n/a	13.54	21.7%									
140.17 - 135.17	563	n/a	563	14.16	n/a	14.16	36.9%									
135.17 - 130.17	641	n/a	641	14.79	n/a	14.79	49.8%									
130.17 - 125.17	726	n/a	726	15.42	n/a	15.42	68.6%									
125.17 - 123.75	751	n/a	751	15.60	n/a	15.60	72.8%									
123.75 - 123.5	756	734	1490	15.63	13.50	29.13	36.2%						64.2%			
123.5 - 118.5	851	790	1640	16.25	13.50	29.75	43.8%						77.5%			
118.5 - 113.5	953	847	1800	16.88	13.50	30.38	51.2%						89.9%			
113.5 - 112.17	981	863	1845	17.05	13.50	30.55	53.2%						93.1%			
112.17 - 111.92	987	1621	2608	17.08	24.38	41.45	38.1%								60.3%	
111.92 - 110.17	1025	1659	2685	17.30	24.38	41.67	40.0%								63.0%	
110.17 - 109.92	1296	1153	2449	21.60	24.38	45.98	48.6%				61.9%	57.1%				
109.92 - 104.92	1457	1237	2694	22.47	24.38	46.84	54.0%				68.7%	63.5%				
104.92 - 99.92	1631	1324	2954	23.33	24.38	47.70	58.9%				75.1%	69.4%				
99.92 - 95	1814	1412	3227	24.18	24.38	48.55	63.4%				80.9%	74.8%				
95 - 94.75	1832	2065	3897	24.22	32.38	56.60	52.8%	79.9%			63.0%	72.9%				
94.75 - 89.75	2034	2203	4237	25.08	32.38	57.46	56.4%	85.5%			67.5%	77.9%				
89.75 - 85.5	2217	2323	4540	25.82	32.38	58.19	55.5%	84.0%			66.4%	76.5%				
85.5 - 85.25	2243	3459	5702	25.86	41.38	67.24	50.6%	71.8%			61.6%	74.8%				72.5%
85.25 - 85	2254	3470	5724	25.90	41.38	67.28	50.7%	71.8%			61.7%	74.8%				72.5%
85 - 84.75	2226	3386	5612	25.95	37.13	63.07	49.2%	77.4%	68.7%			76.6%				76.7%
84.75 - 83	2305	3460	5765	26.25	37.13	63.37	49.4%	77.6%	68.8%			76.7%				76.8%
83 - 82.65	2381	2683	5063	26.31	35.00	61.31	60.6%	78.7%	74.5%	85.4%						74.9%
82.65 - 82.42	2392	2690	5082	26.35	35.00	61.35	60.6%	78.7%	74.5%	85.4%						74.9%
82.42 - 77.42	2632	2860	5492	27.21	35.00	62.21	61.8%	79.8%	75.4%	86.2%						75.9%
77.42 - 73.75	2818	2988	5806	27.85	35.00	62.85	62.7%	80.6%	76.1%	86.9%						76.6%
73.75 - 69.17	3301	2835	6136	33.41	27.00	60.41	58.3%		83.9%	83.9%						83.7%
69.17 - 64.17	3573	2980	6553	34.30	27.00	61.30	58.9%		84.8%	84.8%						84.8%
64.17 - 59.17	3852	3327	7179	35.19	27.00	62.19	56.8%		85.4%	85.4%						85.5%
59.17 - 54.17	4152	3490	7642	36.09	27.00	63.09	57.0%		85.7%	85.7%						86.0%
54.17 - 49.17	4468	3656	8124	36.98	27.00	63.98	57.0%		85.8%	85.8%						86.1%
49.17 - 47.17	4599	3723	8322	37.34	27.00	64.34	57.1%		85.7%	85.7%						86.1%
47.17 - 46.92	4613	4639	9251	37.38	33.38	70.76	51.5%							76.2%		78.1%
46.92 - 43.42	4848	4786	9634	38.01	33.38	71.38	51.8%							76.2%		78.1%
43.42 - 43.17	4852	3400	8252	38.05	24.38	62.43	57.3%							85.9%		
43.17 - 38.17	5202	3552	8753	38.95	24.38	63.32	57.4%							85.5%		
38.17 - 35.75	5377	3626	9003	39.38	24.38	63.76	57.5%							85.2%		
35.75 - 30.54	6309	n/a	6309	46.03	n/a	46.03	84.0%									
30.54 - 25.54	6808	n/a	6808	47.21	n/a	47.21	81.8%									
25.54 - 20.54	7332	n/a	7332	48.40	n/a	48.40	79.4%									
20.54 - 15.54	7882	n/a	7882	49.58	n/a	49.58	77.0%									
15.54 - 10.54	8459	n/a	8459	50.76	n/a	50.76	74.5%									
10.54 - 5.54	9063	n/a	9063	51.94	n/a	51.94	72.4%									
5.54 - 0.54	9696	n/a	9696	53.12	n/a	53.12	70.2%									
0.54 - 0	9766	n/a	9766	53.25	n/a	53.25	69.9%									

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

PROJECT	**93496.029.01 - OLD SAYBROOK, CT**
SUBJECT	**Bolted Bridge Stiffeners at 110.167'**
DATE	**05-27-20**

V2.4.0

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

General		
TIA-222 Rev.		H
Apply TIA-222-H Section 15.5?		Yes
Analysis/Design		Analysis
Modification Qty		1
Loads	Moment	616.9 k-ft
	Axial	16.8 k
	Shear	21.5 k

Pole Properties	
Upper Diameter	21.8 in
Upper Thickness	0.250 in
Lower Diameter	21.8 in
Lower Thickness	0.313 in
Grade	A572-65
Fy	65 ksi
Fu	80 ksi

Flange Bolt Properties	
Qty	12
Diameter	1 in
Circle	25.5 in

Bridge Stiffener Properties			
Mod ID #	Mod 1	N/A	N/A
Type	Plate		
Qty	3		
Configuration	Symmetric		
Thickness	1.25 in		
Width	6.50 in		
Channel Part Number			
Diameter to Mod Centroid	29.3 in		
Unbraced Length	16.0 in		
Plate Grade	A572-65		
Fy	65 ksi		
Fu	80 ksi		
Eccentric Bolt Qty	22		
Shear-Only Bolt Qty	22		
Bolt Spacing	3.00 in		
Eccentricity	3.74 in		
Bolt Diameter	20 mm		
Shim Plate Length	71.0 in		
Shim Thickness	3 in		
Shim Weld Electrode	E80XX		
Shim Fillet Weld Size	1/8 in		

Results Summary

Checks		Capacity	Demand	Rating	Result
Mod 1	Plate Compression	394.3	271.3	65.5%	Pass
	Plate Tension	393.8	271.3	65.6%	Pass
Blind Bolts	Shear Only	30.8	12.3	38.1%	Pass
	Eccentric Shear	30.8	12.3	38.1%	Pass
	Tension	32.9	2.8	8.1%	Pass
	Combined Shear & Tens.	--	--	15.9%	Pass
	Bearing in Pole	40.3	12.3	29.2%	Pass
	Pull Out	41.6	2.8	6.4%	Pass
Shim Weld Strength		407.0	271.3	63.5%	Pass

Considered Loads at 110.167 ft

Load Type	Flange*	Bridge Stiffeners		
		Mod 1		
Moment	112.5 k-ft	504.5 k-ft		
Axial	16.8 k	0.0 k		
Shear	21.5 k	0.0 k		

*See flange tool for flange bolt and plate capacities

Monopole Flange Plate Connection

Elevation = 110.167 ft.

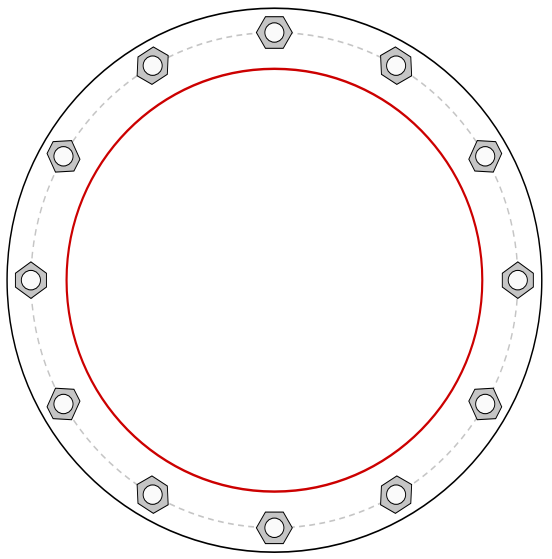
BU #	841289
Site Name	OLD SAYBROOK, CT
Order #	479796, Rev. 2

TIA-222 Revision	H

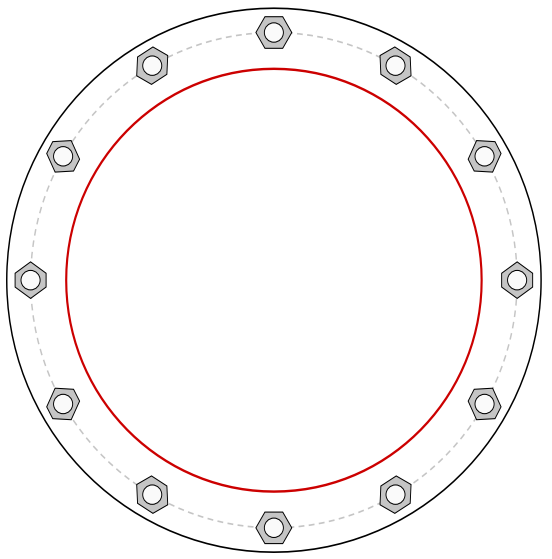
Applied Loads	
Moment (kip-ft)	112.50
Axial Force (kips)	16.80
Shear Force (kips)	21.50

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 25.5" BC

Top Plate Data

28" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

28" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

21.77" x 0.25" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Pole Data

21.77" x 0.3125" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	16.24	
Allowable (kips)	54.47	
Stress Rating:	**28.4%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	15.89	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**46.7%**	**Pass**
Tension Side Stress Rating:	**15.6%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	15.89	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**46.7%**	**Pass**
Tension Side Stress Rating:	**15.6%**	**Pass**

PROJECT	**93496.029.01 - OLD SAYBROOK, CT**
SUBJECT	**Anchor Rod Bracket Analysis**
DATE	**05/27/20**
v4.5.1	

TIA-222 Rev.	H
Apply TIA-222-H Section 15.5?	Yes

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(918) 587-4630

Analysis Criteria		
Design/Analysis	Analysis	
Load Type	Current Load	
Current load	153.81	kips
AR Capacity	227.3	kips

Tower Type	Monopole	

Manufacturers Tower Prop.		
Pole Thickness	0.4375	in
Pole Grade	A572-65	
Fy	65	ksi
Fu	80	ksi
Base Plate Gr.	A572-50	
Fy	50	ksi
Fu	65	ksi

Post-Installed Adhesive AR Mod.		
ARB Type	Welded	
Size	1.75	in
Grade	F1554-105	
Fy	105	ksi
Fu	125	ksi

Anchor Rod Bracket Analysis Checks		
Tube Bearing	36.0%	-
Tube Compression	N/A	
Gusset Shear	13.6%	-
Gusset Flexure	N/A	-
Welds: Gusset to Tower and BP	33.1%	-
Welds: Gusset to Tube	36.6%	-
Welds: Geometry	N/A	
Tower Punching	32.9%	-
Tube Punching	10.9%	-
Utilization	**36.6%**	

Bracket Properties

Gusset			Pipe/Tube			Weld - Gusset to Pipe/Tube		
Thickness	1.25	in	Size	HSS4x4x1/2		FEXX	70	ksi
Width at Tube	8.625	in	Total Length	30	in	Weld Type	Double Fillet	
Height at Pole	30	in	Length above Gusset	3	in	Fillet Size	3/8	in
Height at Tube	24	in	Length below Gusset	3	in			
Grade	A572-65		Grade	A500 Grade C (Square)				
Fy	65	ksi	Fy	50	ksi			
Fu	80	ksi	Fu	62	ksi			

Weld - Gusset to Tower			Weld - Gusset to Base Plate		
FEXX	70	ksi	FEXX	70	ksi
Weld Type	Double Fillet		Weld Type	PJP - Double Bevel	
Fillet Size	7/16	in	Fillet Size	5/8	in
			Bevel Depth	5/8	in
			Gap	1.25	in
			Notch (horiz)	0.75	in
			Notch (vert)	0.75	in
			Pipe/Tube Welded to Base/Footpad?	No	

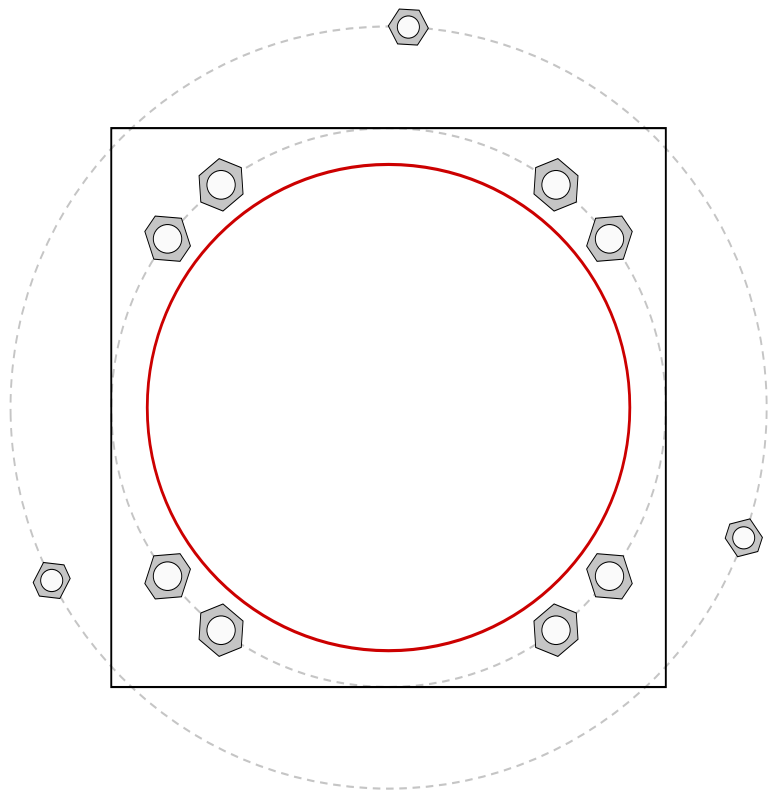
Monopole Base Plate Connection

Site Info	
BU #	841289
Site Name	OLD SAYBROOK, CT
Order #	479796, Rev. 2

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.25

Applied Loads	
Moment (kip-ft)	1949.63
Axial Force (kips)	309.73
Shear Force (kips)	1.61

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 44" BC
Anchor Spacing: 6 in
GROUP 2: (3) 1-3/4" ø bolts (F1554-105 N; Fy=105 ksi, Fu=125 ksi) on 60" BC
pos. (deg): 87, 207, 340

Base Plate Data

44" OD x 2.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

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

Analysis Results

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

GROUP 1:		
Pu_c = 236.16	ϕPn_c = 268.39	**Stress Rating**
Vu = 0.2	ϕVn = 120.77	**83.8%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 153.81	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**71.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	32.85	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**69.5%**	**Pass**

Pier and Pad Foundation

BU # :	841289
Site Name:	OLD SAYBROOK,
App. Number:	479796, Rev. 2

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	310	kips
Base Shear, Vu_comp:	8	kips
Moment, M_u:	1950	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	2.25	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	0.3	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	44	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	8.7	ft
Pad Width, **W**:	12	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Bottom), **Sp**:	7	
Pad Rebar Quantity (Bottom), **mp**:	13	
Pad Clear Cover, cc_{pad}:	3	in

*0.18% minimum steel assumed

Material Properties

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

Soil Properties

Total Soil Unit Weight, γ:	135	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	42	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.4	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	2.7	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	229.90	8.00	**3.3%**	**Pass**
Bearing Pressure (ksf)	22.50	17.24	**76.6%**	**Pass**
*Overturning (kip*ft)*	2238.06	2023.50	**90.4%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	12491.70	2002.00	**15.3%**	**Pass**
Pier Compression (kip)	22913.28	368.11	**1.5%**	**Pass**
*Pad Flexure (kip*ft)*	879.26	609.40	**66.0%**	**Pass**
Pad Shear - 1-way (kips)	303.90	0.00	**0.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1758.53	1201.20	**65.1%**	**Pass**

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

Soil Rating*:	**90.4%**
Structural Rating*:	**66.0%**

Version 3.3.2

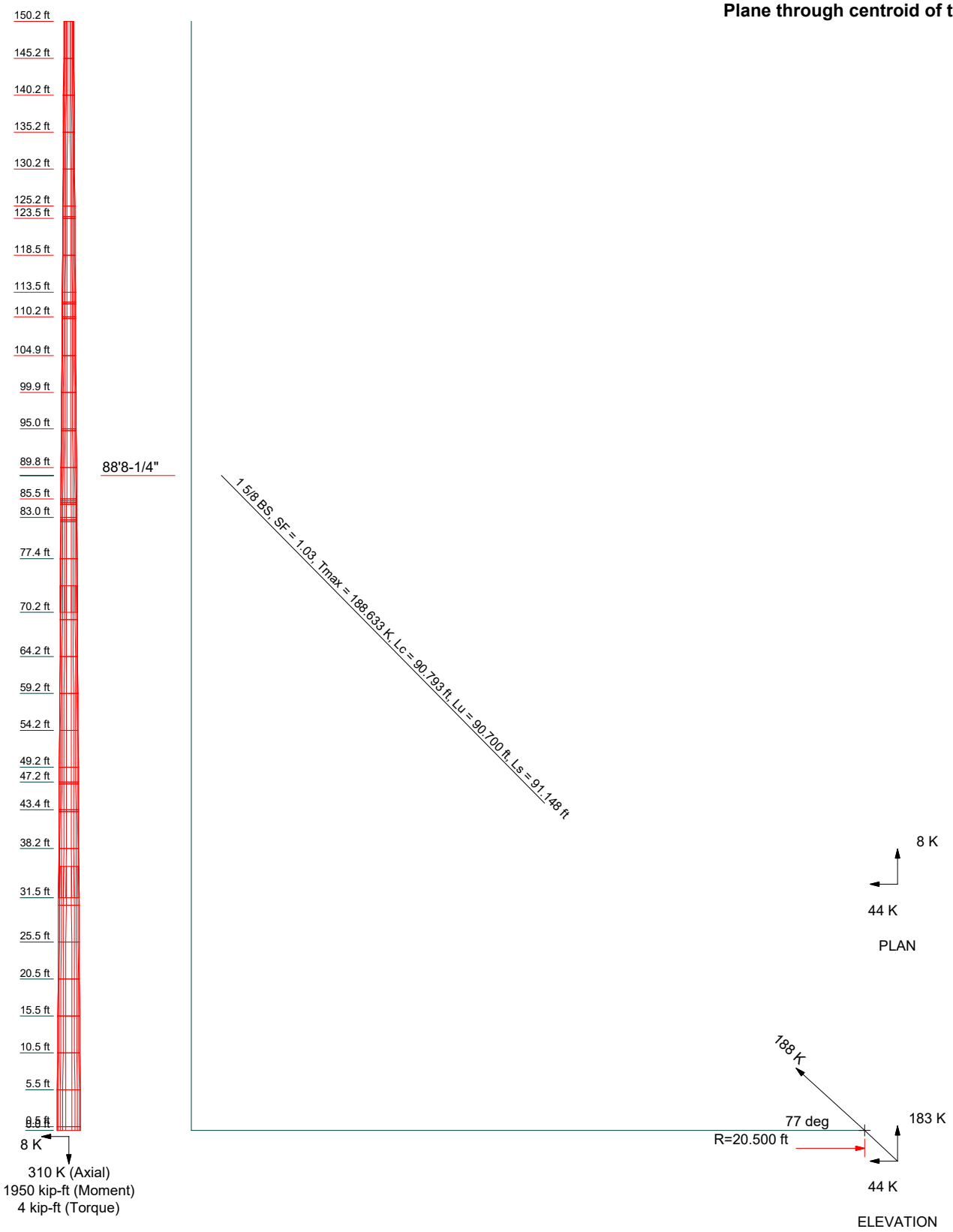
Guy Tensions and Tower Reactions

TIA-222-H - 135 mph/50 mph 1.500 in Ice Exposure B

Maximum Values

Anchor 'A'@20.5 ft Azimuth 0 deg Elev 0 ft

Plane through centroid of tower



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

Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 84128			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-6	

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#:	841289
Site Name:	OLD SAYBROOK, CT
Order Number:	479796, Rev. 2
Location:	*Inner*

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	44.00	kips
Uplift, **Ua**:	183.00	kips
Resultant Force, **Rf**:	188.2	kips
Tower Height, **H**:	150.00	ft
Guy Anchor Radius, **R**:	20.50	ft
Resultant Angle to Horizontal, **θ**:	76.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	8	ft
Anchor Width, **Wa**:	5	ft
Anchor Thickness, **Ta**:	2	ft
Anchor Length, **La**:	37	ft
Concrete Volume, **Vc**:	13.7	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	9	
No. of Bars in Top of Block:	12	
Guyed Anchor Front Rebar Size, **Saf**:	9	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	1.75	in
Anchor Shaft Quantity. **n**:	2	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	4	ksi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	50	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	65	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	243.59	44.00	**17.2%**	**Pass**
Uplift Capacity (kips):	213.85	183.00	**81.5%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	740.25	203.50	**26.2%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	981.25	846.38	**82.1%**	**Pass**
Anchor Shaft (kips):	192.42	188.22	**93.2%**	**Pass**

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

Soil Rating:	**81.5%**
Structural Rating:	**82.1%**
Anchor Shaft Rating:	**93.2%**

Neglect Depth, **Neg**:	3.33	ft
Groundwater Level, **gw**:	2.7	ft

Soil Properties:	No. of Soil Layers?			4		
Layer	**φ, deg**	**cu, ksf**	**δ, pcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	0	0.000	110	2.70	0.000	
2	0	0.000	47.6	3.33		
3	31	0.000	47.6	4.00		80
4	42	0.000	72.6	8.00		100

*key:

cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

PROJECT	BU_841289_B+T_93496.029.01_OLD SAY BROOK
SUBJECT	GUY WIRE BRACKET ANALYSIS
DATE	05/27/2020 PAGE 1 OF 6

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1717 S. BOULDER SUITE 300
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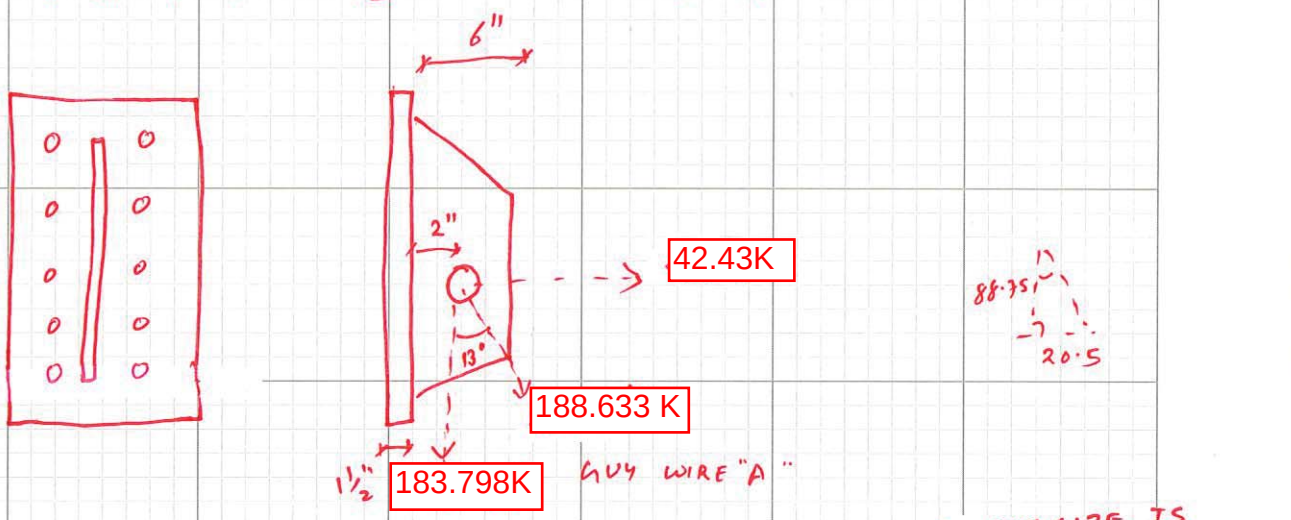
CHECK ONLY FOR 1 5/8 BS WIRE GOVERNING.

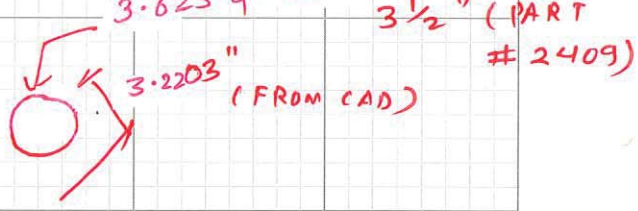


$M = 198^{K} \times 3.5^{IN}$

$= 693^{K-IN}$

SHEAR ON BOLTS = $V = 198^{K}$

TENSION " " = $T = 46^{K}$



HOLE BEARING AND TEARING CHECK. (GUY WIRE CONNECTION)

$\phi R_n = \phi\, 1.2(L_c + d/4)\, t\, F_u$

(TEARING)

$= 0.8 \times 1.2 * \left(\left(3.2203 - \frac{3.625}{2}\right) + \frac{3.5}{4}\right) * 1.5 \times 58^{KSI}$

$= 0.96 * (1.4078 + 0.875) * 1.5 * 58^{KSI}$

$= 190.66^{K}$

ϕR_n (BEARING) $= \phi\, 2.4 * d * t * F_u$

$= 0.8 * 2.4 * 3.5 * 1.5 * 58$

$= 584.6^{K}$

4.9.8 (GUY ASSEMBLY LINK PLATE)

$t = 1.5^{IN}$

$b_{eff} = 2t + 0.625^{IN}$

$= 2 * 1.5 + 0.625$

$= 3.625^{IN}$

PROJECT	BU_841289_B+T_93496.029.01
SUBJECT	EXISTING GUY WIRE BRACKET CHECK
DATE	05/27/2020
PAGE	2 OF 6

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$A_{sf} = 2t\left(a + \frac{d}{2}\right)$

$= 2 * 1.5 * \left(\left(3.2203 - \frac{3.625}{2}\right) + \frac{3.5}{2}\right)$

$= 9.4734 \text{ IN}^2$

$\phi R_{nk} = \phi\, 2t\, b_{eff} * F_u$

$= 0.75 * 2 * 1.5 * 3.625 * 58$

$= 473.06^{k}$

$\phi R_{nk} = \phi\, 0.6 A_{sf} F_u$

$= 0.75 * 0.6 * 9.4734 * 58$

$= 247.25^{k}$

$\phi R_{nk} = \phi\, 1.8 d t F_y$

$= 0.9 * 1.8 * 3.5 * 1.5 * 58$

$= 493.29^{k}$

YIELDING OF GROSS AREA IS NOT CONSIDERED

$\text{RATING} = \frac{188.633}{190.6^{k}} \times \frac{1}{1.05\ (\text{Rev. H})} = 94.25\%$

FOR GUY LUG ⇒ MIN. EDGE PER MAPPING_5204147_ IS 3.5 IN WHICH IS GREATER THAN 3.2203" USED IN ABOVE CAL. SO IT IS NOT GOVERNING.

PROJECT	BU_841289_B+T_93496.029.01
SUBJECT	EXISTING GUY WIRE BRACKET ANALYSIS
DATE	05/27/2020
PAGE	3 OF 6

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PH: (918) 587-4630
www.btgrp.com

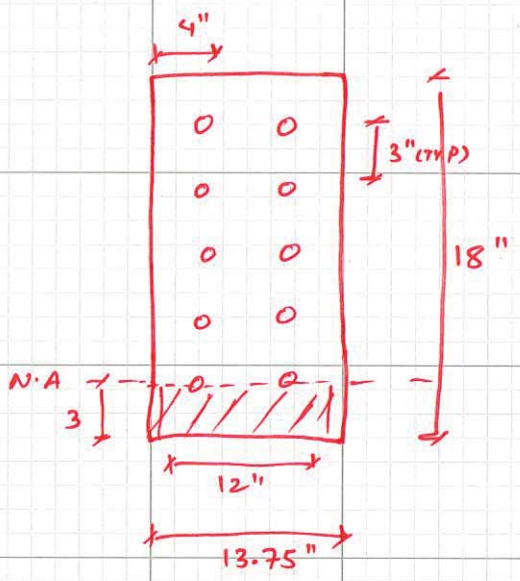
CHECK FOR TENSION / SHEAR.

CASE I: AISC 14TH EDITION (Pg 7-4)

$$r_{ut} = \left(\frac{P_u e c}{I_x}\right) A_b$$

ACC. TO AISC P7-10, A TRIAL POSITION FOR N.A. CAN BE SELECTED. AT 1/6 of total bracket depth.

$= \frac{1}{6} * 18 = 3^{IN}$



EFF. WIDTH OF COMPRESSION BLOCK

$b_{eff} = 8 * t_t < b_f$

$b_{eff} = 8 * 1.5$

$= 12^{IN}$

BRACKET THICKNESS CHECK, $t = 1.5^{IN}$ PROVIDED.

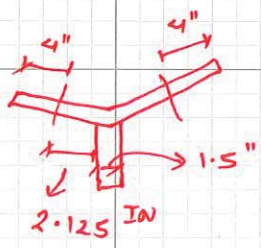
PRYING ACTION.

$$t_{MIN} = \sqrt{\frac{4Tb'}{\phi p F_u}}$$

$$= \sqrt{\frac{4 * 29.8 * 1.53}{0.9 * 3 * 58}}$$

$= 1.079 < 1.5^{IN}$ PROVIDED.

ok.



T = BOLT STRENGTH. (TENSILE)

3/4" ϕ A325N ⇒ BLIND BOLTS

$= 29.8^k$

PULL OUT CAPACITY OF MONOPOLE WALL (5/16")

$= \phi r_n = \phi F_u (0.6 \pi d_w t)$

$= 0.67 * 80 * (0.6 * \pi * 1.5 * \frac{5}{16})$

$= 47.36^k$

$b' = (b - d_b/2)$ ← BOLT DIA.

$= (2.125 - 1.1875/2)$

$= 1.53$

PROJECT	BG_841289_B+T_ 93496.029.01
SUBJECT	EXISTING GUY BRACKET ANALYSIS
DATE	05/27/2020 PAGE 4 OF 6

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$P_u = 187.5^k$

e = distance of centroid of bolt grap to center of load

$= 3.5^{IN}$

c = distance from N.A. to the most remote bolt in the grap

$= 12^{IN}$

CALCULATION OF I_x

$A_{bolt} = \frac{\pi}{4} * 0.75^2 = 0.44^{IN^2}$

$(I_{c.g.})_{BOLT} = \frac{\pi}{64} * d^4 = 0.0155^{IN^4}$

$(I_{c.g.})_{comp} = \frac{12 * 3^3}{12} = 27^{IN^4}$

$I_{N.A} = \left[27 + 12*3*\left(\frac{3}{2}\right)^2\right] + \left[8 * 0.0155 + 2*0.44*\left(3^2+6^2+9^2+12^2\right)\right]$

$= 108 + 0.124 + 237.6$

$= 345.7^{IN^4}$

$r_{ut} = \left(\frac{P_u \, @ \, c}{I_x}\right) A_b$

$= \frac{183.798^k * 3.5 * 12}{345.7^{IN^4}} * \frac{\pi}{4} * 0.75^2$

$= 9.865^k$

tension → FROM GUY WIRE

$= 42.43^k$

tension additional on each bolt $= \frac{42.43}{10} = 4.243^k$

$\therefore r_{ut} = 9.865 + 4.243$

$= 14.108^k$

AISC 14TH ED. PG. 7-22, 7-23

BLIND BOLT M20 TENSILE CAPACITY OF 3/4" Φ A325N BOLTS)

$= 29.8^k$

TENSION PULL OUT CAPACITY OF BOLT FROM POLE WALL

$\phi r_n = \phi F_u (0.6 \pi d_w t)$

d_w = dia. of part in contact with inner surface (washer dia)

$= 1.5^{IN}$

PROJECT	BU-841289_B+T_93496.029.01_OLD SAYBROOK
SUBJECT	GUY WIRE BRACKET ANAYSIS.
DATE	05/27/2020 PAGE 5 OF 6

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$\phi R_n = 0.67 * 80 * (0.6 * \pi * 1.5 * 5/16)$

$= 47.38^k$

Governing tensile capacity $= 29.8^k$

$\frac{f_{ut}}{F_{nt}} = \frac{14.108^k}{29.8^k} = 47.34$ /.

FOR SHEAR CAPACITY

POLE THICKNESS $= 5/16"$, $F_y = 65^{ksi}$, $F_u = 80^{ksi}$

POLE BEARING CAPACITY $= \phi\, 2.4 * d_{hole} * t * F_u$ ← sleeve dia

$= 0.8 * 2.4 * 1.14173 * \frac{5}{16} * 80$

$= 54.8^k$

BLIND BOLT SHEAR CAPACITY (REV. H) $= 37^k$

GOVERNING CAPACITY $= 37^k$

SHEAR LOAD ON EACH BOLT $= \frac{183.798^k}{10} = 18.37^k$

AISC 14TH ED. PG. 16.1-405

$$\left[\frac{f_t}{\phi F_{nt}}\right] + \left[\frac{f_v}{\phi F_{nv}}\right] \le 1.3$$

$$\left[\frac{14.108}{29.8}\right] + \left[\frac{18.37}{37}\right] \le 1.3$$

$$0.473 + 0.496 \le 1.3$$

$$0.969 \le 1.3$$

ok.

RATING $= \frac{0.969}{1.3} = 74.53$ %

PROJECT	BU-841289-B+T-93496.029.01-OLD SAYBROOK.
SUBJECT	GUY WIRE BRACKET ANALYSIS
DATE	05/27/2020
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VERTICAL WELD CHECK: GUY LUG TO BRACKET.

FROM TABLE 8-4 (ANGLE 15°)

$e_y = al$

$a = \frac{2}{15} = 0.133 \approx 0.15$

$k = 0$

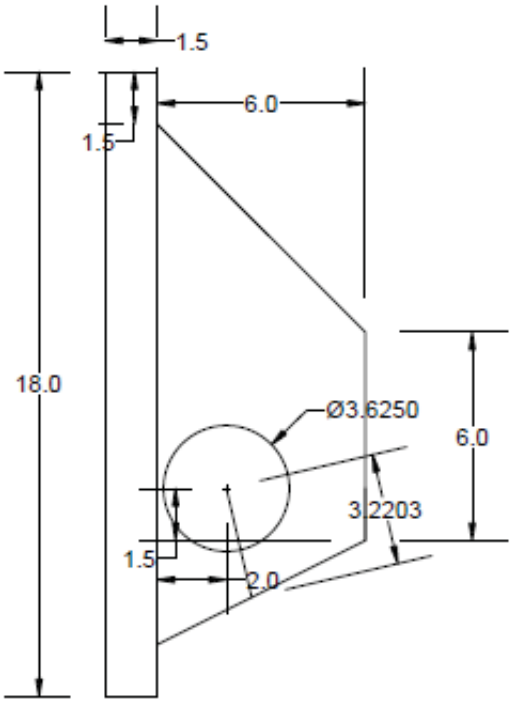
FROM TABLE $C = 3.68$

$\phi R_n = \phi C C_1 D l$

$= 0.75 * 3.68 * 1 * 12 * 15$

$= 496.8^k$

RATING = $\frac{188.633}{496.8^k} = 37.96$ %.



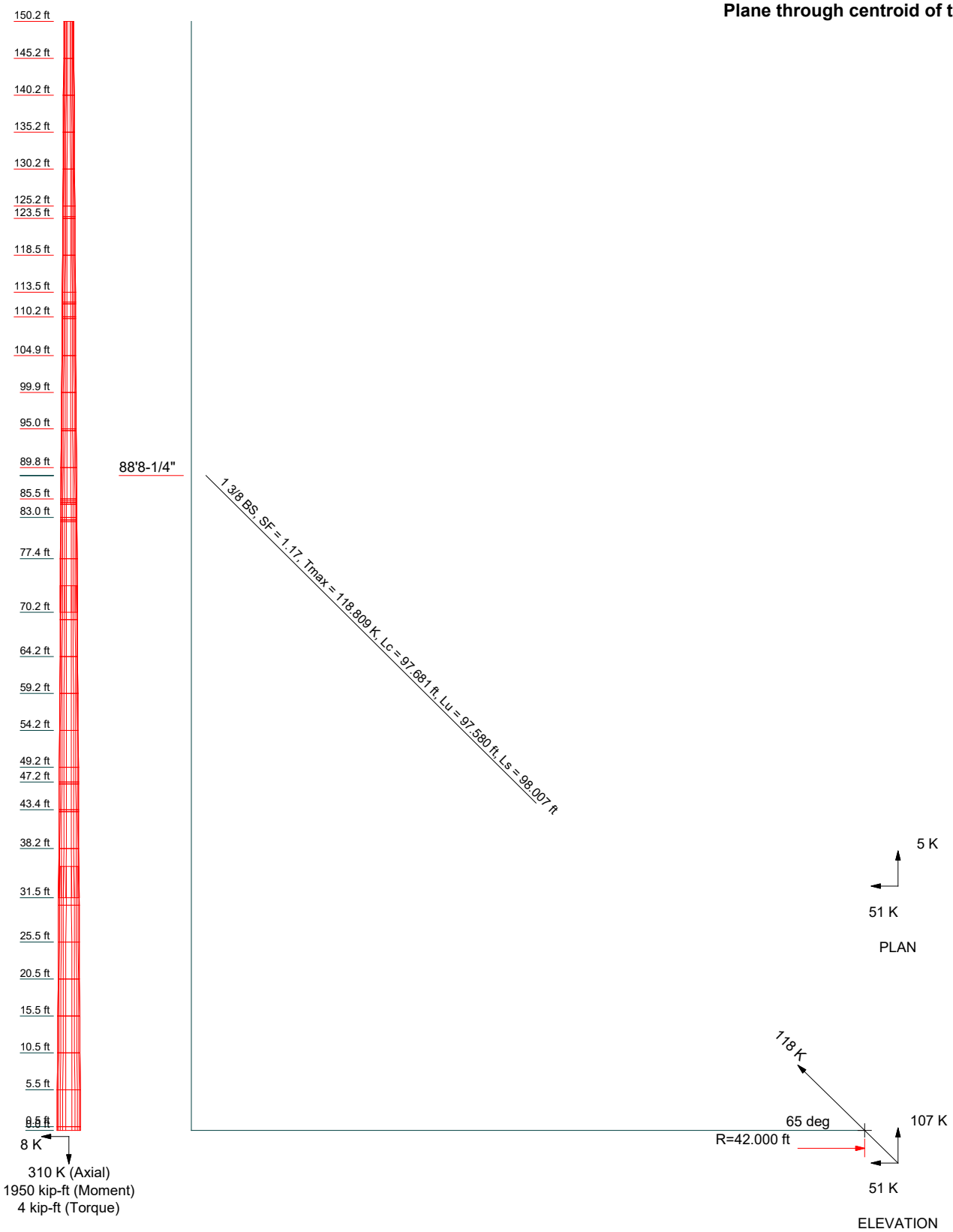
Guy Tensions and Tower Reactions

TIA-222-H - 135 mph/50 mph 1.500 in Ice Exposure B

Maximum Values

Anchor 'C'@42 ft Azimuth 211 deg Elev 0 ft

Plane through centroid of tower



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Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 587-4630

Job: 93496.029.01 - OLD SAYBROOK, CT (BU# 84128			
Project:			
Client: Crown Castle	Drawn by: Nithish Acharya	App'd:	
Code: TIA-222-H	Date: 05/27/20	Scale: NTS	
Path: C:\Users\VKAMATH\Desktop\93496_841289_Old Saybrook-----Nithish-----Anand\Tnx_029_01\CCIpole.eri		Dwg No. E-6	

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#:	841289
Site Name:	OLD SAYBROOK, CT
Order Number:	479796, Rev. 2
Location:	*Outer*

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	51.00	kips
Uplift, **Ua**:	107.00	kips
Resultant Force, **Rf**:	118.5	kips
Tower Height, **H**:	150.00	ft
Guy Anchor Radius, **R**:	42.00	ft
Resultant Angle to Horizontal, **θ**:	64.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	8	ft
Anchor Width, **Wa**:	5	ft
Anchor Thickness, **Ta**:	2	ft
Anchor Length, **La**:	30	ft
Concrete Volume, **Vc**:	11.1	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	9	
No. of Bars in Top of Block:	12	
Guyed Anchor Front Rebar Size, **Saf**:	9	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	1.75	in
Anchor Shaft Quantity. **n**:	2	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	4	ksi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	50	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	65	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	197.86	51.00	**24.5%**	**Pass**
Uplift Capacity (kips):	175.92	107.00	**57.9%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	740.25	191.25	**24.6%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	981.25	401.25	**38.9%**	**Pass**
Anchor Shaft (kips):	192.42	118.53	**58.7%**	**Pass**

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

Soil Rating:	**57.9%**
Structural Rating:	**38.9%**
Anchor Shaft Rating:	**58.7%**

Neglect Depth, **Neg**:	3.33	ft
Groundwater Level, **gw**:	2.7	ft

Soil Properties:	No. of Soil Layers?			4		
Layer	**φ, deg**	**cu, ksf**	**δ, pcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	0	0.000	110	2.70	0.000	
2	0	0.000	47.6	3.33		
3	31	0.000	47.6	4.00		80
4	42	0.000	72.6	8.00		100

*key:

cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

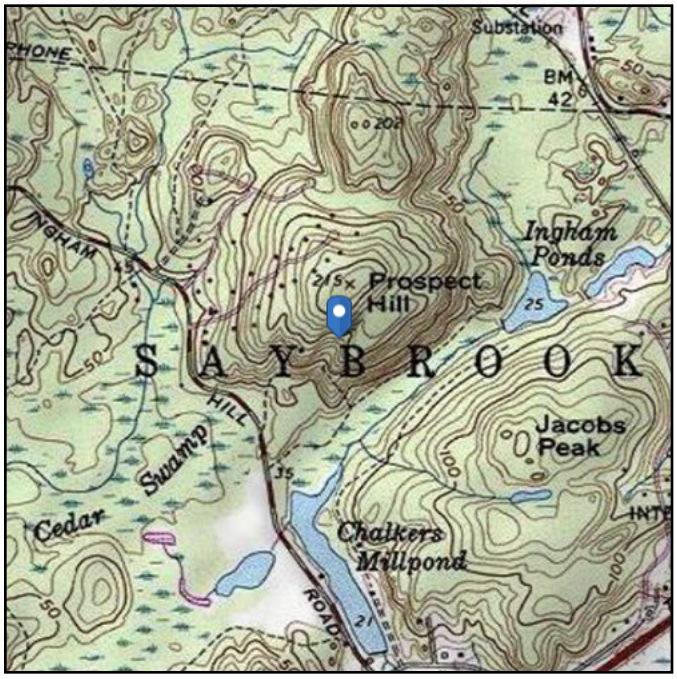
Ultimate fs = Geotechnical Report-provided skin friction / adhesion

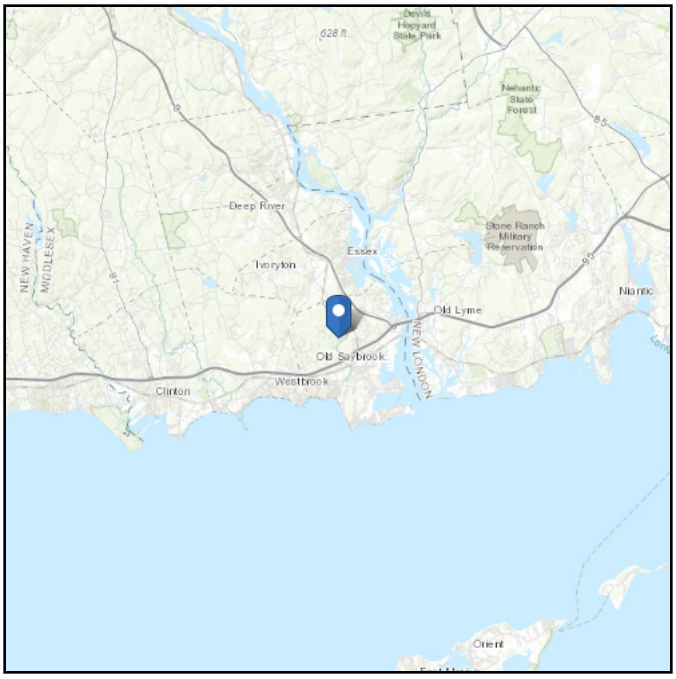
N = SPT Blow Count

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	133.08 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.309875
Soil Class:	D - Stiff Soil	**Longitude:**	-72.397536





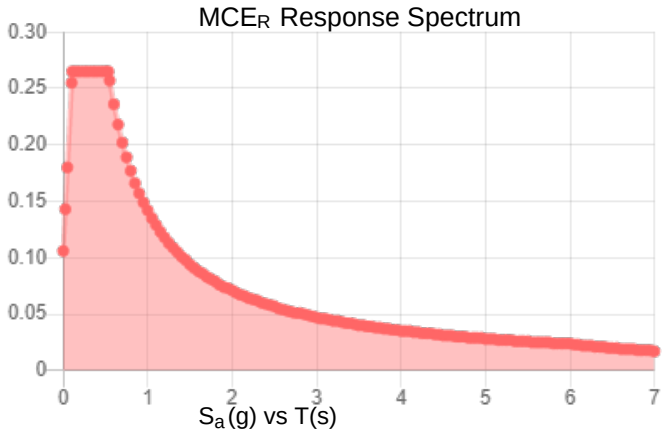
Seismic

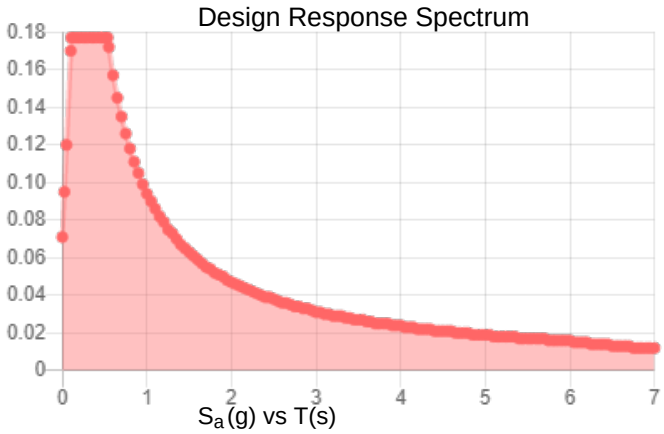
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.166	S_{DS} :	0.177
S_1 :	0.059	S_{D1} :	0.094
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.083
S_{MS} :	0.265	PGA_M :	0.133
S_{M1} :	0.142	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu May 21 2020

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu May 21 2020

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

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

Exhibit E

Mount Analysis

PAUL J. FORD & COMPANY

Date: May 10, 2019

Kevin Morrow
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	***T-Mobile* Equipment Change-out**	
	Carrier Site Number:	CT11035E
	Carrier Site Name:	OldSaybrookSNETMobili_1
Crown Castle Designation:	**Crown Castle BU Number:**	841289
	Crown Castle Site Name:	Old Saybrook
	Crown Castle JDE Job Number:	559265
	Crown Castle Purchase Order Number:	1370699
	Crown Castle Order Number:	479796 Rev. 2
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	A37519-1575.002.7190 Rev. 1
Site Data:	**170 Ingham Hill Road, Old Saybrook, Middlesex County, CT Latitude 41.309875°, Longitude -75.397536°**	
Structure Information:	**Tower Height & Type:**	**150 Foot Monopole**
	Mount Elevation:	**140 Foot**
	Mount Type:	**(1) 12.5 Foot Platform**

Dear Kevin Morrow,

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

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

12.5' Platform **SUFFICIENT***

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

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

Respectfully submitted by

Jonathan Sommer, EI
Structural Designer
jsommer@pauljford.com

STATE OF CONNECTICUT
JOSEPH PACHICARAH JACOBS
No. PEN 22731
LICENSED PROFESSIONAL ENGINEER

MAY 10 2019

TABLE OF CONTENTS

1) INTRODUCTION

The existing mount under consideration is (1) 12.5' Platform mount identified as a RMQP-3XX platform by Site Pro based on photos and Manufacturer Drawings.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
140	140	3	Ericsson	AIR 21 B2A/B4P	(1) 12.5' Platform
		3	Ericsson	AIR 32 B2A B66AA	
		3	RFS/CELWAVE	APXVAARR24_43-UNA20	
		3	Ericsson	RADIO 4449 B12/B71	
		3	Ericsson	KRY 112 144/1	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Manufacturer Drawings	Dated: 01/19/12	-	SitePro1
Photos	Dated: 02/04/19	-	CCISites
Order	ID: 479796 Rev. 2 Dated: 04/16/19	-	CCISites

3.1) Analysis Method

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

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

3.2) Assumptions

1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
5) *Steel grades are as follows, unless noted otherwise:*
   - *a) Channel, Solid Round, Angle, Plate, Unistrut* — *ASTM A36 (GR 36)*
   - *b) Pipe* — *ASTM A53 (GR 35)*
   - *c) HSS (Rectangular)* — *ASTM 500 (GR B-46)*
   - *d) HSS (Round)* — *ASTM 500 (GR B-42)*
   - *e) Threaded Rods* — *ASTM F1554 (GR 36)*
   - *f) Connection Bolts* — *ASTM A325*
   - *g) U-Bolts* — *SAE J429 (GR 2)*
6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
7) *Existing mount pipes are replaced with 8-ft long, P2.5 STD (2.88" O.D. x 0.189") mount pipes where required.*

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

4) ANALYSIS RESULTS

Table 3- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Face Horizontals	140	31.8	Pass
1	Grating Support Members		18.7	Pass
1	Supporting Rails		35.4	Pass
1	Standoff Members		46.9	Pass
1	Corner Plates		63.7	Pass
1	Mount Pipes		62.9	Pass
1	Mount to Tower Connection		72.2	Pass

Mount Rating (max from all components) =	**72.2%**

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

4.1) Recommendations

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

- Replace existing mount pipes with 8-ft long, P2.5 STD (2.88" O.D. x 0.189") mount pipes where required. See Appendix A details.

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

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

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

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

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

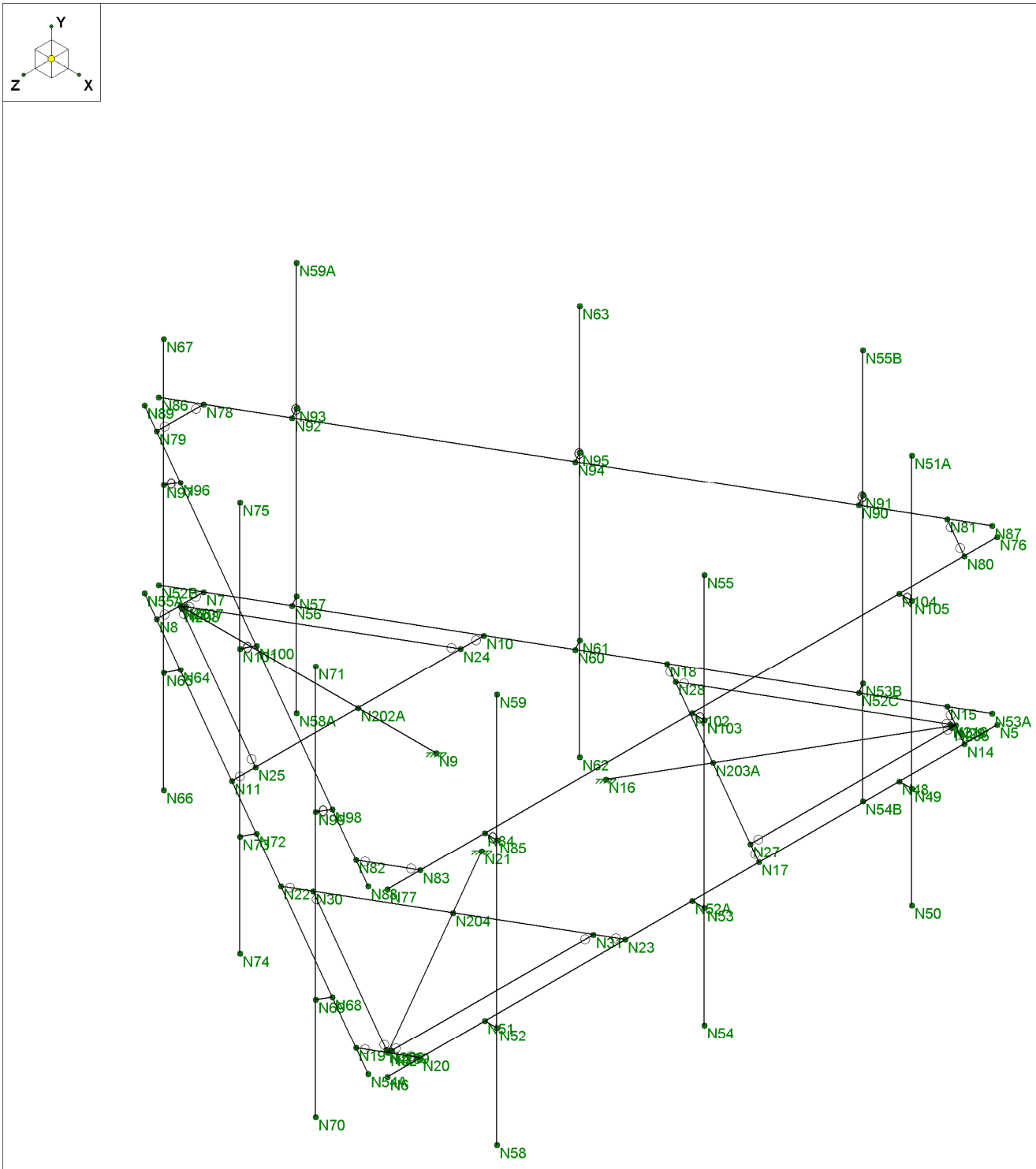
4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

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

****

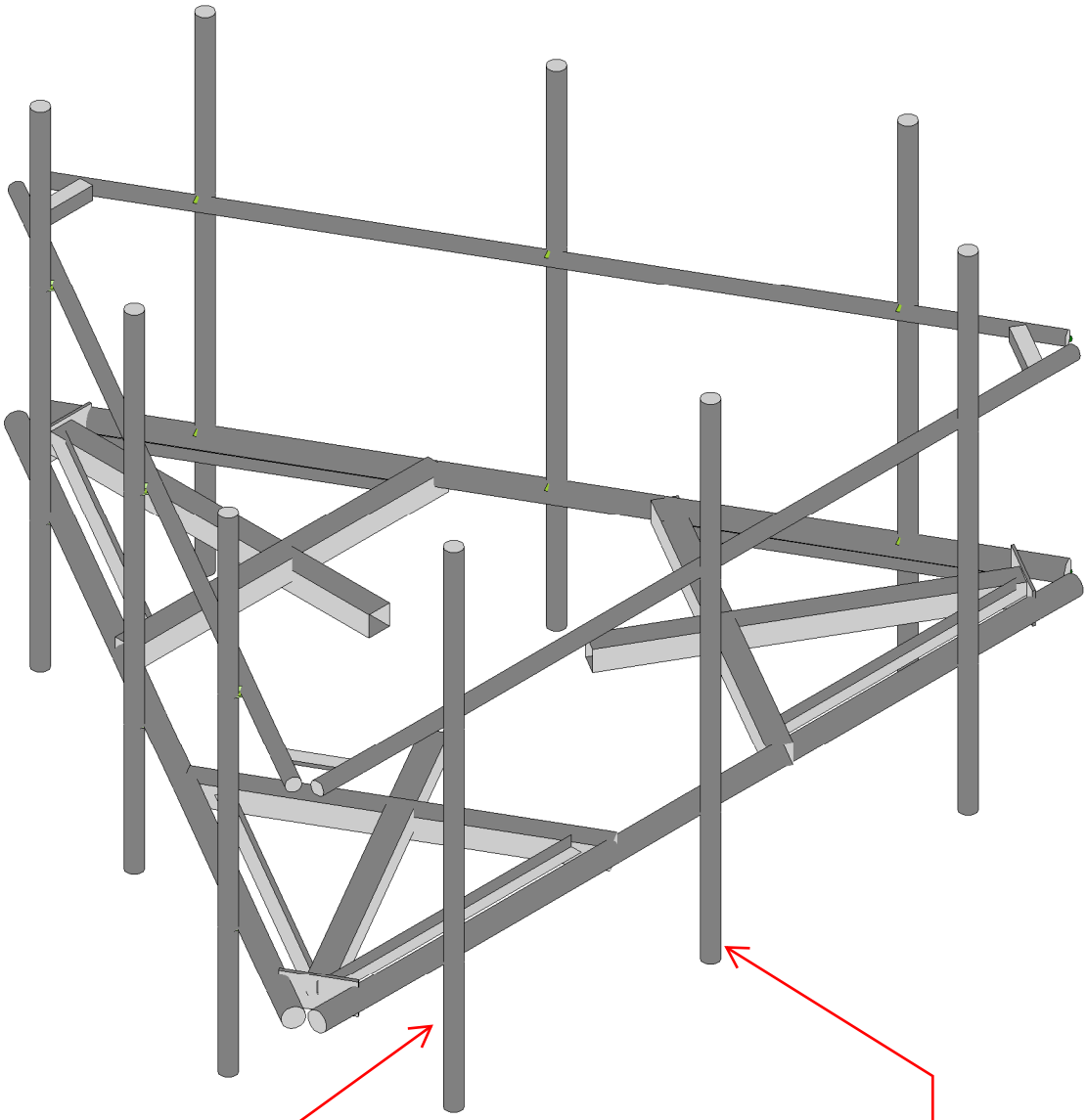
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Paul J Ford Company	841289_OLD SAYBROOK	SK - 1
LB		May 1, 2019 at 3:28 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D

ALL EXISTING MOUNT PIPES ARE TO BE REPLACED WITH NEW 8-FT LONG 2.5 STD (2.875" O.D. x 0.189") MOUNT PIPES



PROPOSED (TYP. EACH SECTOR)
(1) ERICSSON AIR 32 B2A B66AA

PROPOSED (TYP. EACH SECTOR)
(1) RFS/CELWAVE APXVAARR24_43-UNA20
(1) ERICSSON / RADIO 4449 B12/B71

Paul J Ford Company	841289_OLD SAYBROOK	SK - 2
LB		May 1, 2019 at 3:28 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D

APPENDIX B

SOFTWARE INPUT CALCULATION

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

Site Code/Name	841289 - OLD SAYBROOK
State	Connecticut
County	Middlesex
V	135 mph
V_i	50 mph
t_i	1.5 in
z_s	133 ft
z	140 ft

Structure Class	II
Exposure Category	B
Topographic Category	1
Wind direction probability factor	0.95
Gust factor	1
Wind Pressure (including Ka = 0.9)	43.19 psf
t_{iz}	1.73 in

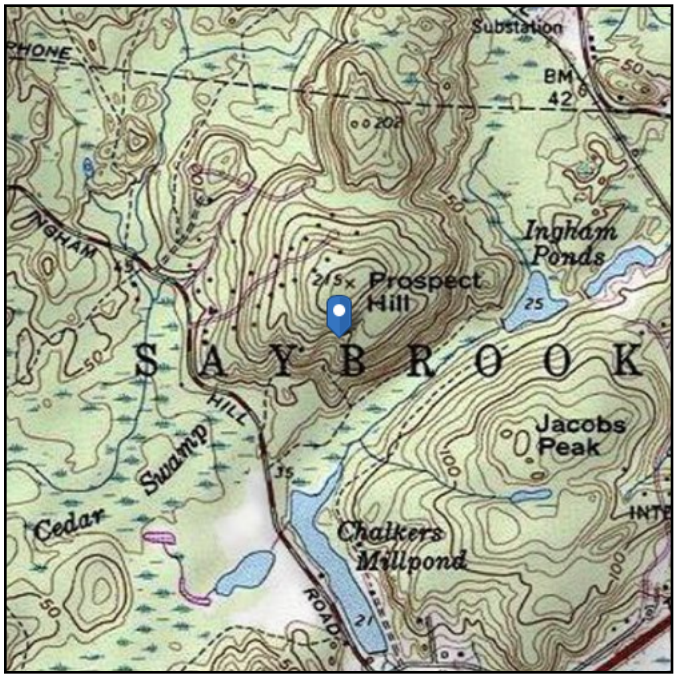
Dead and Wind Forces for Equipment									
Manufacturer	Model	L [in]	W [in]	D [in]	0° [lbs]	30° [lbs]	60° [lbs]	90° [lbs]	Weight [lbs]
ERICSSON	AIR 21 B2A/B4P	55	12	7.9	255.9	237.5	200.6	182.2	83.0
ERICSSON	AIR 32 B2A B66AA	59.25	12.87	8.66	295.8	275.5	234.7	214.4	143.0
RFS/CELWAVE	APXVAARR24_43-UNA20	95.9	24	8.7	874.3	751.7	506.5	383.9	128.0
ERICSSON	RADIO 4449 B12/B71	14.95	13.19	9.25	71.0	65.7	55.1	49.8	75.0
Commscope	TMAT7LA-11A	7.3	10.6	5.7	27.9	24.6	18.2	15.0	22.0

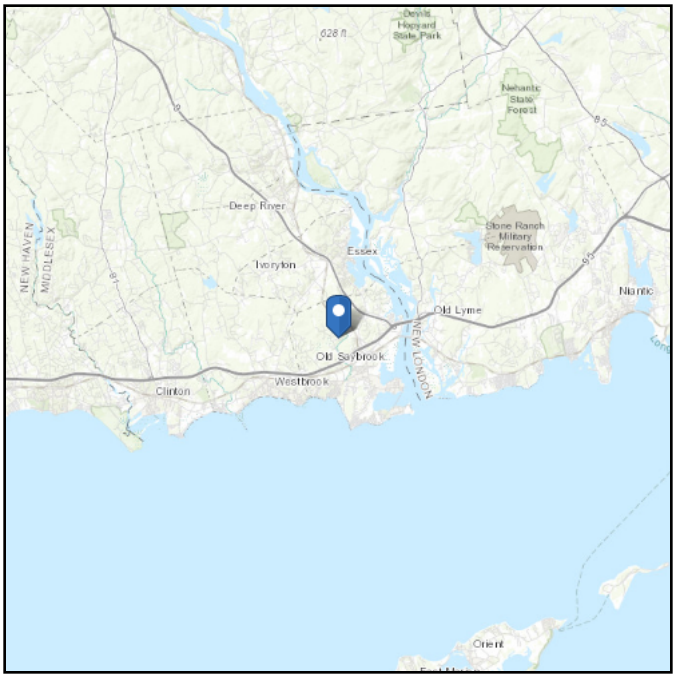
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 133.08 ft (NAVD 88)
Latitude: 41.309875
Longitude: -72.397536





Wind

Results:

Wind Speed:	132 Vmph ← Jurisdiction requires 135 mph
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	97 Vmph
100-year MRI	107 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed May 01 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.

Ice

Results:

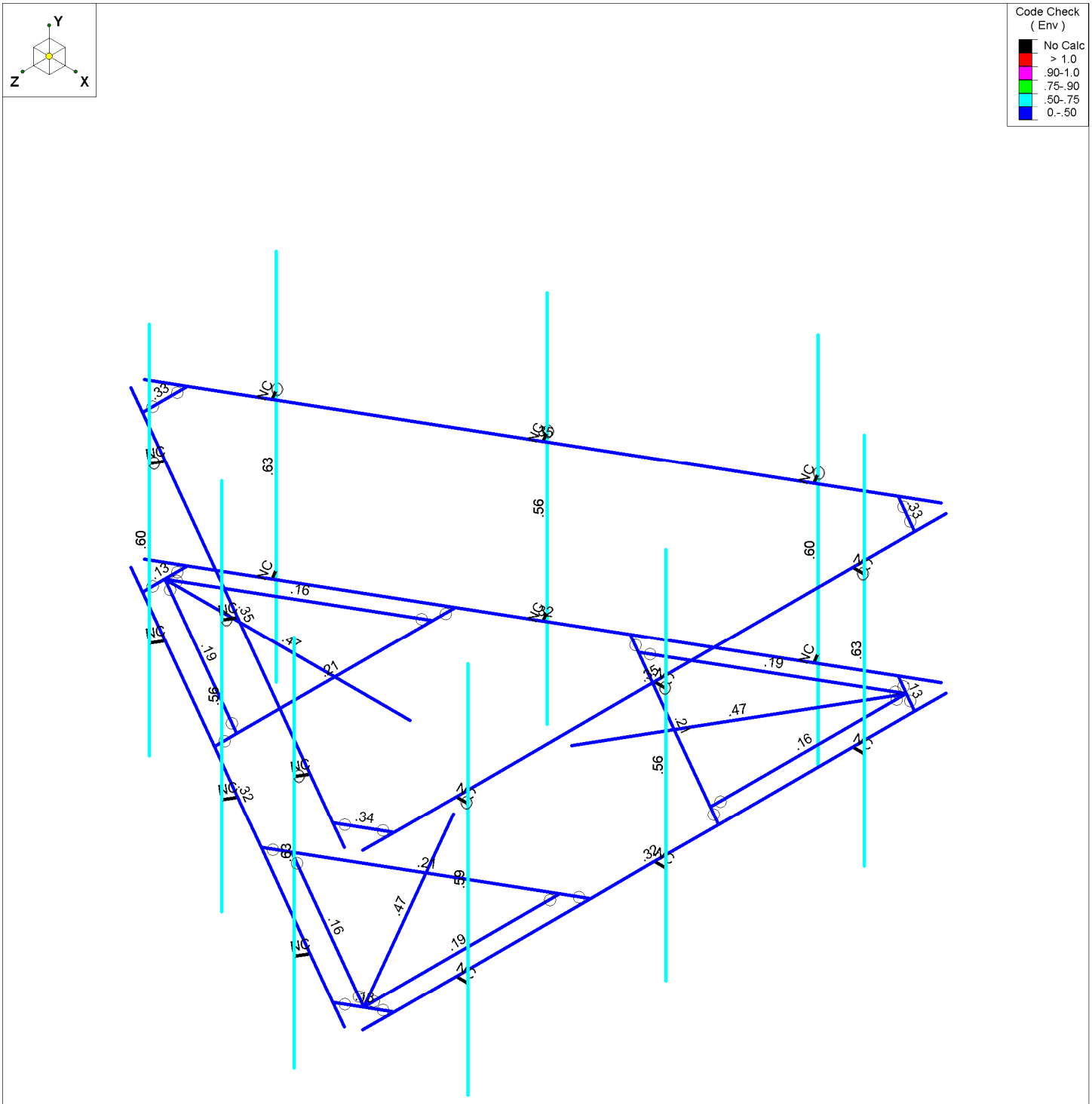
Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed May 01 2019

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

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

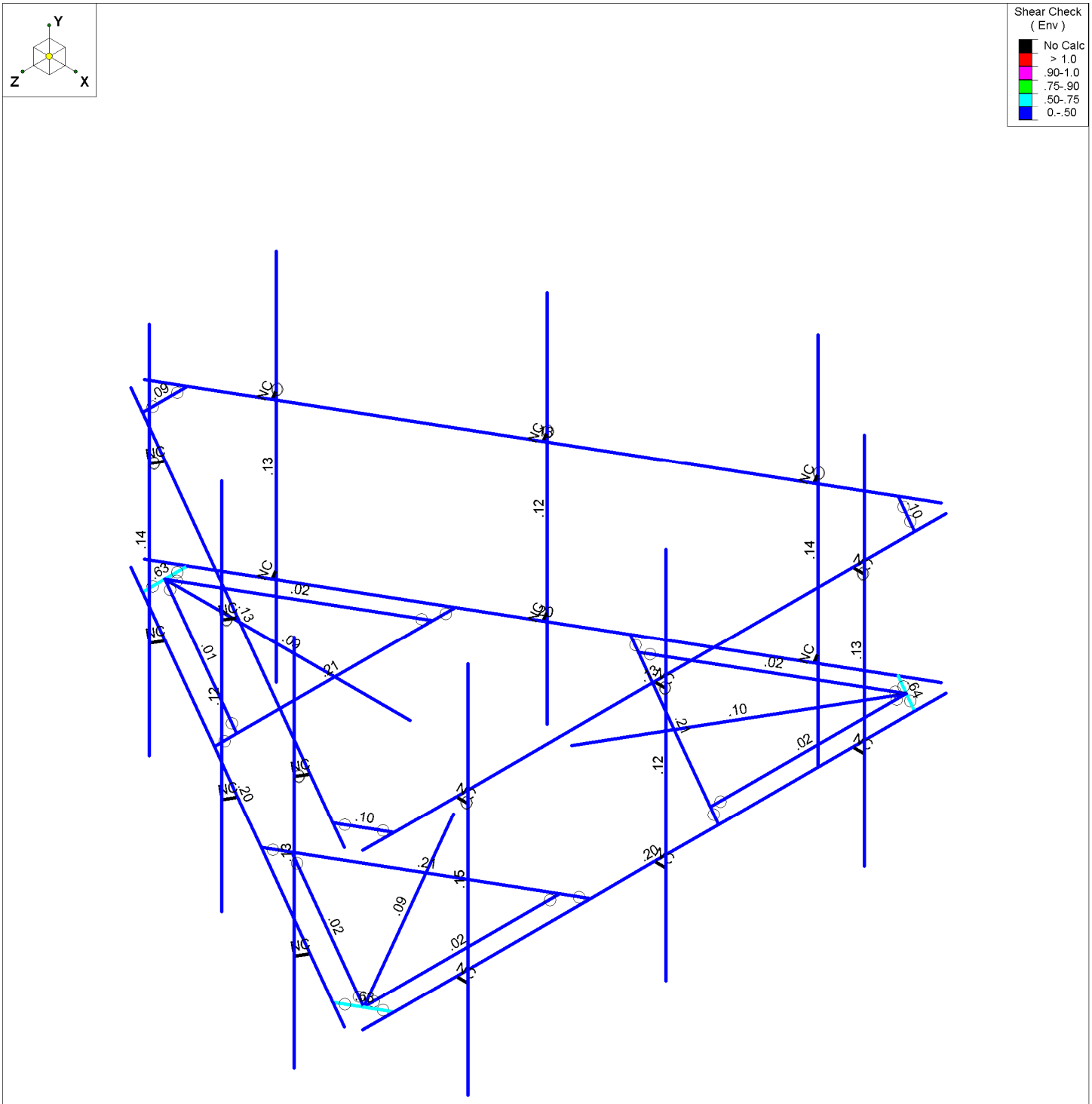
APPENDIX C

SOFTWARE ANALYSIS OUTPUT



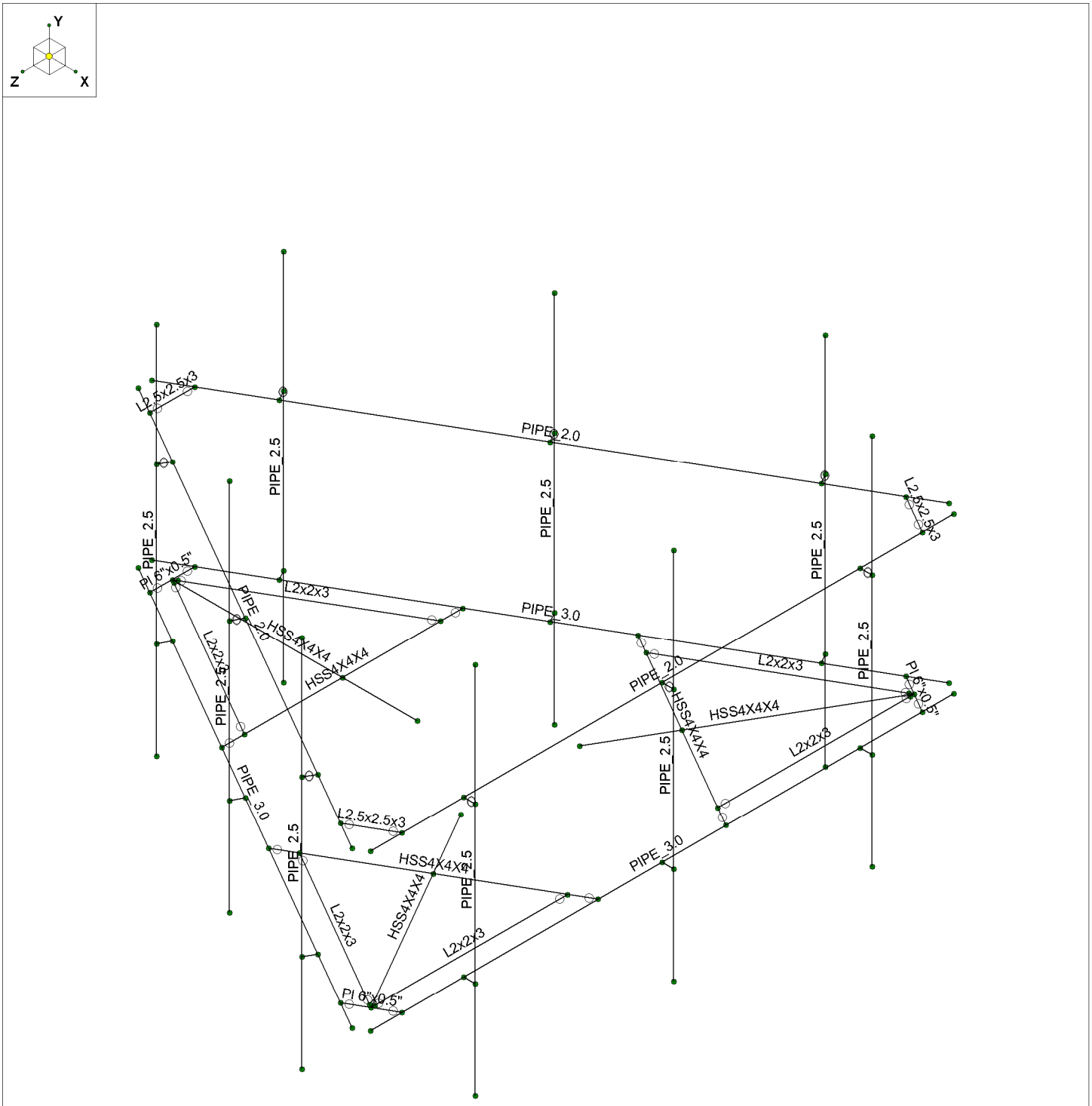
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Paul J Ford Company	841289_OLD SAYBROOK	SK - 7
LB		May 1, 2019 at 3:36 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D



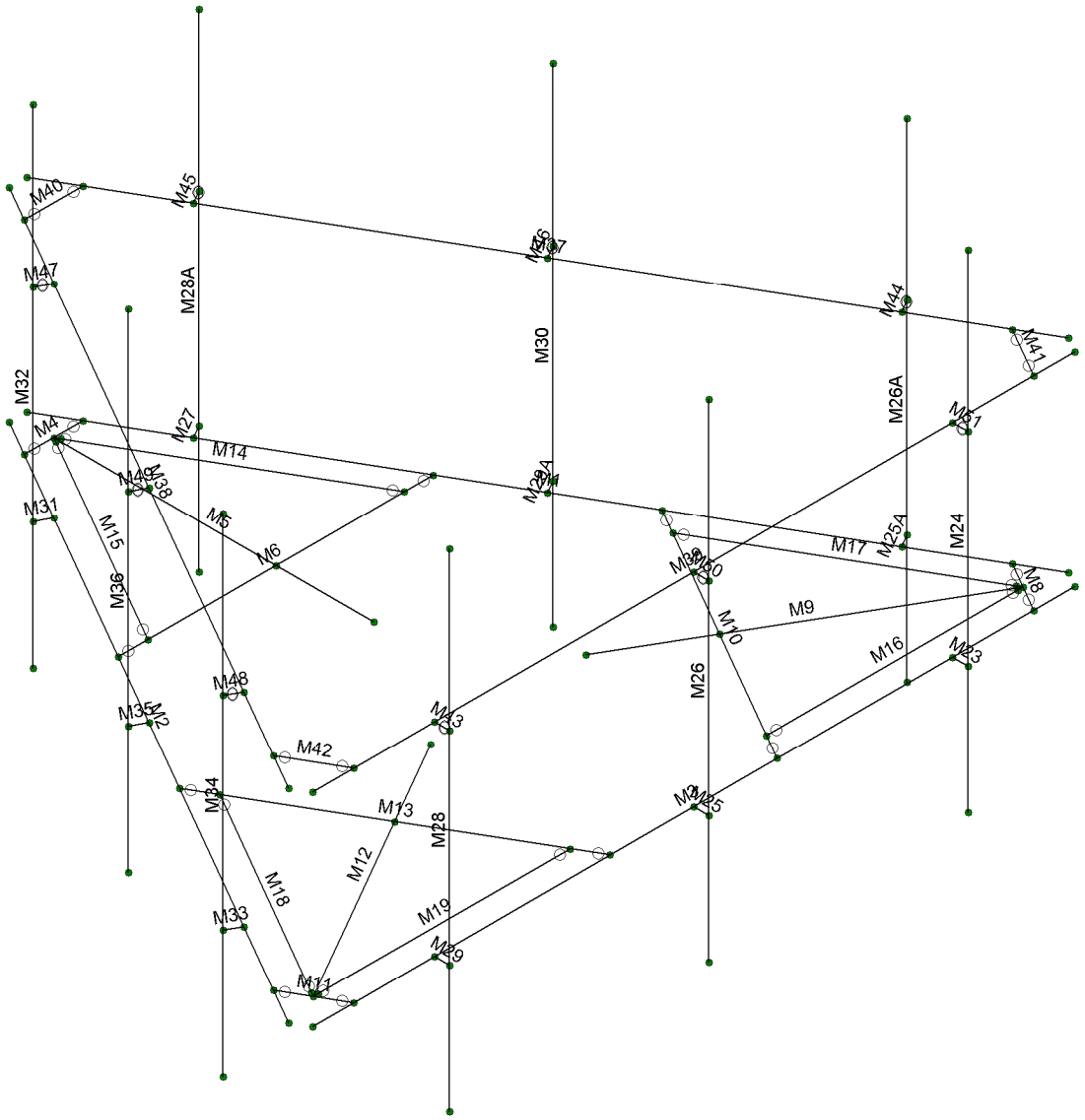
Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Paul J Ford Company	841289_OLD SAYBROOK	SK - 8
LB		May 1, 2019 at 3:36 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D



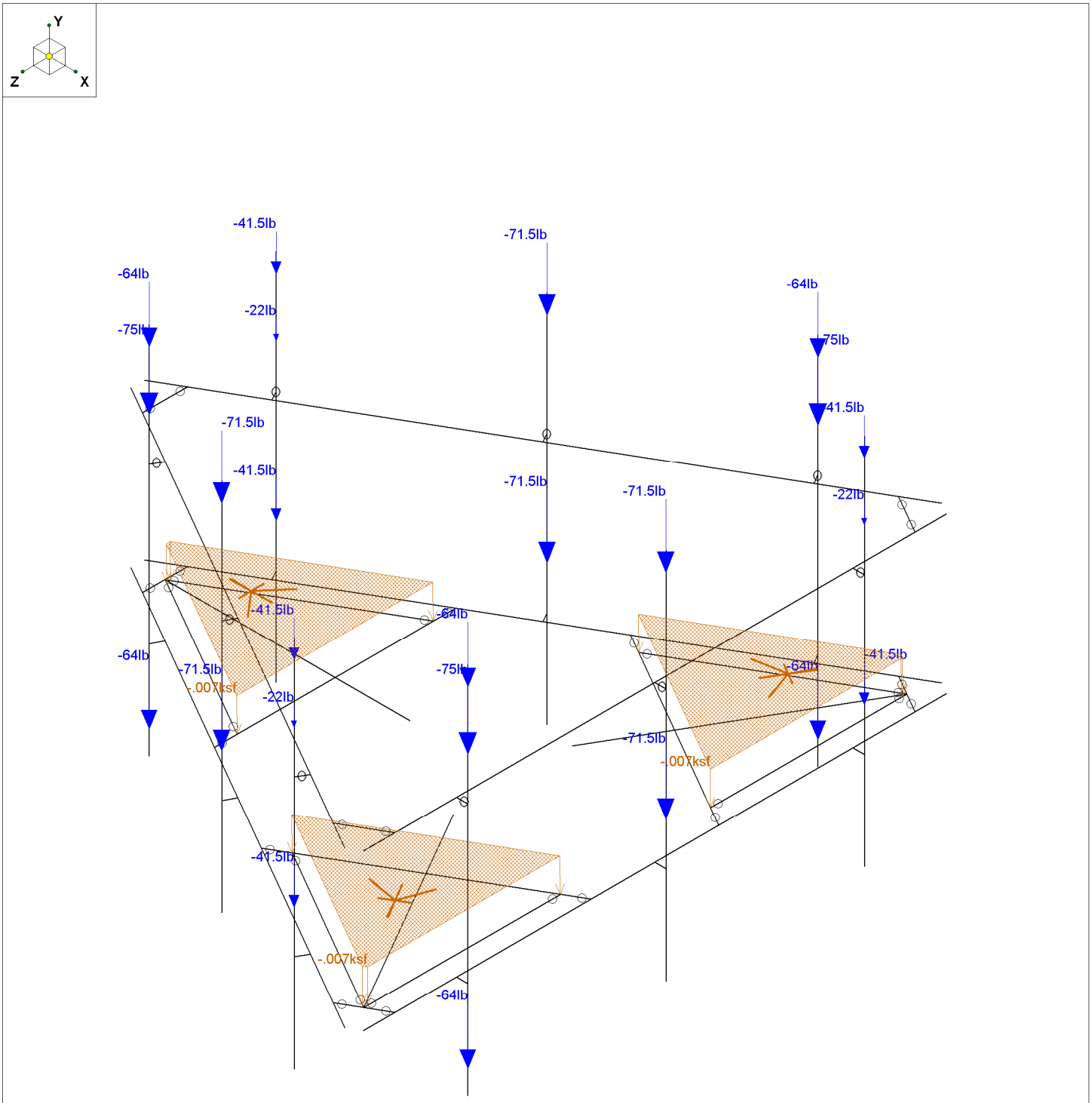
Envelope Only Solution

Paul J Ford Company	841289_OLD SAYBROOK	SK - 5
LB		May 1, 2019 at 3:29 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D



Envelope Only Solution

Paul J Ford Company	841289_OLD SAYBROOK	SK - 6
LB		May 1, 2019 at 3:29 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D



Loads: BLC 2, We
Envelope Only Solution

Paul J Ford Company	841289_OLD SAYBROOK	SK - 9
LB		May 1, 2019 at 3:36 PM
A37519-1575.002.7190		841289_OLD SAYBROOK.R3D

(Global) Model Settings

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

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

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\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 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N52B	N53A			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
2	M2	N54A	N55A			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
3	M3	N5	N6			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
4	M4	N7	N8			PI 6"x0.5"	Beam	BAR	A36 Gr.36	Typical
5	M5	N26	N9			HSS4X4X4	Beam	Tube	A500 Gr.B...	Typical
6	M6	N10	N11		180	HSS4X4X4	Beam	Tube	A500 Gr.B...	Typical
7	M8	N14	N15			PI 6"x0.5"	Beam	BAR	A36 Gr.36	Typical
8	M9	N29	N16			HSS4X4X4	Beam	Tube	A500 Gr.B...	Typical
9	M10	N17	N18		180	HSS4X4X4	Beam	Tube	A500 Gr.B...	Typical
10	M11	N19	N20			PI 6"x0.5"	Beam	BAR	A36 Gr.36	Typical
11	M12	N32	N21			HSS4X4X4	Beam	Tube	A500 Gr.B...	Typical
12	M13	N22	N23		180	HSS4X4X4	Beam	Tube	A500 Gr.B...	Typical
13	M14	N26	N24		270	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical
14	M15	N25	N26		270	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical
15	M16	N29	N27		270	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical
16	M17	N28	N29		270	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical
17	M18	N32	N30		270	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical
18	M19	N31	N32		270	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical
19	M29	N51	N52			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
20	M28	N59	N58			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
21	M23	N48	N49			RIGID	None	None	RIGID	Typical
22	M24	N51A	N50			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
23	M25	N52A	N53			RIGID	None	None	RIGID	Typical
24	M26	N55	N54			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
25	M25A	N52C	N53B			RIGID	None	None	RIGID	Typical
26	M26A	N55B	N54B			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
27	M27	N56	N57			RIGID	None	None	RIGID	Typical
28	M28A	N59A	N58A			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
29	M29A	N60	N61			RIGID	None	None	RIGID	Typical
30	M30	N63	N62			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
31	M31	N64	N65			RIGID	None	None	RIGID	Typical
32	M32	N67	N66			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
33	M33	N68	N69			RIGID	None	None	RIGID	Typical
34	M34	N71	N70			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
35	M35	N72	N73			RIGID	None	None	RIGID	Typical
36	M36	N75	N74			PIPE_2.5	Column	Pipe	A53 Gr.B	Typical
37	M37	N86	N87			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
38	M38	N88	N89			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
39	M39	N76	N77			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
40	M40	N78	N79		90	L2.5x2.5x3	Beam	BAR	A36 Gr.36	Typical
41	M41	N80	N81		90	L2.5x2.5x3	Beam	BAR	A36 Gr.36	Typical
42	M42	N82	N83		90	L2.5x2.5x3	Beam	BAR	A36 Gr.36	Typical
43	M43	N84	N85			RIGID	None	None	RIGID	Typical
44	M44	N90	N91			RIGID	None	None	RIGID	Typical
45	M45	N92	N93			RIGID	None	None	RIGID	Typical
46	M46	N94	N95			RIGID	None	None	RIGID	Typical
47	M47	N96	N97			RIGID	None	None	RIGID	Typical
48	M48	N98	N99			RIGID	None	None	RIGID	Typical
49	M49	N100	N101			RIGID	None	None	RIGID	Typical
50	M50	N102	N103			RIGID	None	None	RIGID	Typical
51	M51	N104	N105			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4	BenPIN	BenPIN				Yes	Default			None
5	M5						Yes				None
6	M6	BenPIN	BenPIN				Yes	Default			None
7	M8	BenPIN	BenPIN				Yes	Default			None
8	M9						Yes				None
9	M10	BenPIN	BenPIN				Yes	Default			None
10	M11	BenPIN	BenPIN				Yes	Default			None
11	M12						Yes				None
12	M13	BenPIN	BenPIN				Yes	Default			None
13	M14	BenPIN	BenPIN				Yes	Default			None
14	M15	BenPIN	BenPIN				Yes	Default			None
15	M16	BenPIN	BenPIN				Yes	Default			None
16	M17	BenPIN	BenPIN				Yes	Default			None
17	M18	BenPIN	BenPIN				Yes	Default			None
18	M19	BenPIN	BenPIN				Yes	Default			None
19	M29						Yes	** NA **			None
20	M28						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
21	M23						Yes	** NA **			None
22	M24						Yes	** NA **			None
23	M25						Yes	** NA **			None
24	M26						Yes	** NA **			None
25	M25A						Yes	** NA **			None
26	M26A						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28A						Yes	** NA **			None
29	M29A						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	M33						Yes	** NA **			None
34	M34						Yes	** NA **			None
35	M35						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	M37						Yes	Default			None
38	M38						Yes				None
39	M39						Yes				None
40	M40	OOOOOX	OOOOOX				Yes	Default			None
41	M41	OOOOOX	OOOOOX				Yes	Default			None
42	M42	OOOOOX	OOOOOX				Yes	Default			None
43	M43	OOOXOX					Yes	** NA **			None
44	M44	OOOXOX					Yes	** NA **			None
45	M45	OOOXOX					Yes	** NA **			None
46	M46	OOOXOX					Yes	** NA **			None
47	M47	OOOXOX					Yes	** NA **			None
48	M48	OOOXOX					Yes	** NA **			None
49	M49	OOOXOX					Yes	** NA **			None
50	M50	OOOXOX					Yes	** NA **			None
51	M51	OOOXOX					Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE_3.0	150			Lbyy						Lateral
2	M2	PIPE_3.0	150			Lbyy						Lateral
3	M3	PIPE_3.0	150			Lbyy						Lateral
4	M4	PI 6"x0.5"	11.544			Lbyy						Lateral
5	M5	HSS4X4X4	63			Lbyy						Lateral
6	M6	HSS4X4X4	62			Lbyy						Lateral
7	M8	PI 6"x0.5"	11.544			Lbyy						Lateral
8	M9	HSS4X4X4	63			Lbyy						Lateral
9	M10	HSS4X4X4	62			Lbyy						Lateral
10	M11	PI 6"x0.5"	11.544			Lbyy						Lateral
11	M12	HSS4X4X4	63			Lbyy						Lateral
12	M13	HSS4X4X4	62			Lbyy						Lateral
13	M14	L2x2x3	50.456			Lbyy						Lateral
14	M15	L2x2x3	50.456			Lbyy						Lateral
15	M16	L2x2x3	50.456			Lbyy						Lateral
16	M17	L2x2x3	50.456			Lbyy						Lateral
17	M18	L2x2x3	50.456			Lbyy						Lateral
18	M19	L2x2x3	50.456			Lbyy						Lateral
19	M28	PIPE_2.5	96			Lbyy						Lateral
20	M24	PIPE_2.5	96			Lbyy						Lateral
21	M26	PIPE_2.5	96			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
22	M26A	PIPE_2.5	96			Lbyy						Lateral
23	M28A	PIPE_2.5	96			Lbyy						Lateral
24	M30	PIPE_2.5	96			Lbyy						Lateral
25	M32	PIPE_2.5	96			Lbyy						Lateral
26	M34	PIPE_2.5	96			Lbyy						Lateral
27	M36	PIPE_2.5	96			Lbyy						Lateral
28	M37	PIPE_2.0	150			Lbyy						Lateral
29	M38	PIPE_2.0	150			Lbyy						Lateral
30	M39	PIPE_2.0	150			Lbyy						Lateral
31	M40	L2.5x2.5x3	11.544			Lbyy						Lateral
32	M41	L2.5x2.5x3	11.544			Lbyy						Lateral
33	M42	L2.5x2.5x3	11.544			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self We	DL		-1.1						
2	We	DL					24		3	
3	Ice We	DL					24	27	3	
4	W0	WL					24	27		
5	W30	WL					48	54		
6	W60	WL					48	54		
7	W90	WL					24	27		
8	W120	WL					48	54		
9	W150	WL					48	54		
10	W0 + Ice	WL					24	27		
11	W30 + Ice	WL					48	54		
12	W60 + Ice	WL					48	54		
13	W90 + Ice	WL					24	27		
14	W120 + Ice	WL					48	54		
15	W150 + Ice	WL					48	54		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL								
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				
22	BLC 2 Transient Area Loa...	None						48		
23	BLC 3 Transient Area Loa...	None						48		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Dead	Yes	Y		1	1.4	2	1.4																		
2	Dead + Wind 0°	Yes	Y		1	1.2	2	1.2	4	1																
3	Dead + Wind 30°	Yes	Y		1	1.2	2	1.2	5	1																
4	Dead + Wind 60°	Yes	Y		1	1.2	2	1.2	6	1																
5	Dead + Wind 90°	Yes	Y		1	1.2	2	1.2	7	1																
6	Dead + Wind 120°	Yes	Y		1	1.2	2	1.2	8	1																
7	Dead + Wind 150°	Yes	Y		1	1.2	2	1.2	9	1																
8	Dead + Wind 180°	Yes	Y		1	1.2	2	1.2	4	-1																
9	Dead + Wind 210°	Yes	Y		1	1.2	2	1.2	5	-1																
10	Dead + Wind 240°	Yes	Y		1	1.2	2	1.2	6	-1																
11	Dead + Wind 270°	Yes	Y		1	1.2	2	1.2	7	-1																
12	Dead + Wind 300°	Yes	Y		1	1.2	2	1.2	8	-1																
13	Dead + Wind 330°	Yes	Y		1	1.2	2	1.2	9	-1																

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
14	Dead + Ice + Wind Ice 0°	Yes	Y		1	1.2	2	1.2	10	1	3	1														
15	Dead + Ice + Wind Ice 30°	Yes	Y		1	1.2	2	1.2	11	1	3	1														
16	Dead + Ice + Wind Ice 60°	Yes	Y		1	1.2	2	1.2	12	1	3	1														
17	Dead + Ice + Wind Ice 90°	Yes	Y		1	1.2	2	1.2	13	1	3	1														
18	Dead + Ice + Wind Ice 120°	Yes	Y		1	1.2	2	1.2	14	1	3	1														
19	Dead + Ice + Wind Ice 150°	Yes	Y		1	1.2	2	1.2	15	1	3	1														
20	Dead + Ice + Wind Ice 180°	Yes	Y		1	1.2	2	1.2	10	-1	3	1														
21	Dead + Ice + Wind Ice 210°	Yes	Y		1	1.2	2	1.2	11	-1	3	1														
22	Dead + Ice + Wind Ice 240°	Yes	Y		1	1.2	2	1.2	12	-1	3	1														
23	Dead + Ice + Wind Ice 270°	Yes	Y		1	1.2	2	1.2	13	-1	3	1														
24	Dead + Ice + Wind Ice 300°	Yes	Y		1	1.2	2	1.2	14	-1	3	1														
25	Dead + Ice + Wind Ice 330°	Yes	Y		1	1.2	2	1.2	15	-1	3	1														
26	Dead + LM5001 + Wred 0°	Yes	Y		1	1.2	2	1.2	16	1.5	4	.068														
27	Dead + LM5001 + Wred 30°	Yes	Y		1	1.2	2	1.2	16	1.5	5	.068														
28	Dead + LM5001 + Wred 60°	Yes	Y		1	1.2	2	1.2	16	1.5	6	.068														
29	Dead + LM5001 + Wred 90°	Yes	Y		1	1.2	2	1.2	16	1.5	7	.068														
30	Dead + LM5001 + Wred 120°	Yes	Y		1	1.2	2	1.2	16	1.5	8	.068														
31	Dead + LM5001 + Wred 150°	Yes	Y		1	1.2	2	1.2	16	1.5	9	.068														
32	Dead + LM5001 + Wred 180°	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.0...														
33	Dead + LM5001 + Wred 210°	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.0...														
34	Dead + LM5001 + Wred 240°	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.0...														
35	Dead + LM5001 + Wred 270°	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.0...														
36	Dead + LM5001 + Wred 300°	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.0...														
37	Dead + LM5001 + Wred 330°	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.0...														
38	Dead + LM5002 + Wred 0°	Yes	Y		1	1.2	2	1.2	17	1.5	4	.068														
39	Dead + LM5002 + Wred 30°	Yes	Y		1	1.2	2	1.2	17	1.5	5	.068														
40	Dead + LM5002 + Wred 60°	Yes	Y		1	1.2	2	1.2	17	1.5	6	.068														
41	Dead + LM5002 + Wred 90°	Yes	Y		1	1.2	2	1.2	17	1.5	7	.068														
42	Dead + LM5002 + Wred 120°	Yes	Y		1	1.2	2	1.2	17	1.5	8	.068														
43	Dead + LM5002 + Wred 150°	Yes	Y		1	1.2	2	1.2	17	1.5	9	.068														
44	Dead + LM5002 + Wred 180°	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.0...														
45	Dead + LM5002 + Wred 210°	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.0...														
46	Dead + LM5002 + Wred 240°	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.0...														
47	Dead + LM5002 + Wred 270°	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.0...														
48	Dead + LM5002 + Wred 300°	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.0...														
49	Dead + LM5002 + Wred 330°	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.0...														
50	Dead + LM5003 + Wred 0°	Yes	Y		1	1.2	2	1.2	18	1.5	4	.068														
51	Dead + LM5003 + Wred 30°	Yes	Y		1	1.2	2	1.2	18	1.5	5	.068														
52	Dead + LM5003 + Wred 60°	Yes	Y		1	1.2	2	1.2	18	1.5	6	.068														
53	Dead + LM5003 + Wred 90°	Yes	Y		1	1.2	2	1.2	18	1.5	7	.068														
54	Dead + LM5003 + Wred 120°	Yes	Y		1	1.2	2	1.2	18	1.5	8	.068														
55	Dead + LM5003 + Wred 150°	Yes	Y		1	1.2	2	1.2	18	1.5	9	.068														
56	Dead + LM5003 + Wred 180°	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.0...														
57	Dead + LM5003 + Wred 210°	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.0...														
58	Dead + LM5003 + Wred 240°	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.0...														
59	Dead + LM5003 + Wred 270°	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.0...														
60	Dead + LM5003 + Wred 300°	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.0...														
61	Dead + LM5003 + Wred 330°	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.0...														
62	Dead + LM5004 + Wred 0°	Yes	Y		1	1.2	2	1.2	19	1.5	4	.068														
63	Dead + LM5004 + Wred 30°	Yes	Y		1	1.2	2	1.2	19	1.5	5	.068														
64	Dead + LM5004 + Wred 60°	Yes	Y		1	1.2	2	1.2	19	1.5	6	.068														
65	Dead + LM5004 + Wred 90°	Yes	Y		1	1.2	2	1.2	19	1.5	7	.068														
66	Dead + LM5004 + Wred 120°	Yes	Y		1	1.2	2	1.2	19	1.5	8	.068														
67	Dead + LM5004 + Wred 150°	Yes	Y		1	1.2	2	1.2	19	1.5	9	.068														
68	Dead + LM5004 + Wred 180°	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.0...														
69	Dead + LM5004 + Wred 210°	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.0...														
70	Dead + LM5004 + Wred 240°	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.0...														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
71	Dead + LM5004 + Wred 270°	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.0...														
72	Dead + LM5004 + Wred 300°	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.0...														
73	Dead + LM5004 + Wred 330°	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.0...														
74	Dead + LV2505	Yes	Y		1	1.2	2	1.2	20	1.5																
75	Dead + LV2506	Yes	Y		1	1.2	2	1.2	21	1.5																
76	Service 60mph Wind 0°	Yes	Y		1	1	2	1	4	.272																

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N21	max	1804.868	2	3251.979	17	2006.435	12	29.091	12	22.108	3	46.386	6
2		min	-1789.532	8	-443.608	12	-1975.274	6	-75.734	6	-22.203	9	-18.606	12
3	N9	max	2304.179	2	3201.953	14	1565.306	11	3.758	10	22.19	11	34.678	8
4		min	-2338.454	8	-448.809	8	-1568.674	5	-4.513	4	-22.285	5	-88.968	2
5	N16	max	1270.569	13	3252.001	23	2019.924	11	77.715	10	22.093	7	42.198	10
6		min	-1260.243	7	-434.13	4	-2045.677	5	-30.334	4	-22.194	13	-15.694	4
7	Totals:	max	5355.064	2	8601.703	15	5324.568	11						
8		min	-5355.069	8	2885.825	76	-5324.568	5						

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

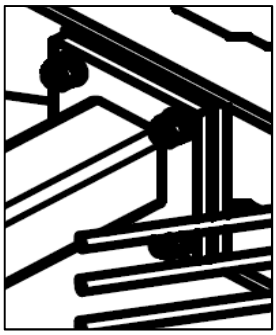
	Member	Shape	Code Check	Loc[i...	LC	Shear Check	Loc[i...	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M34	PIPE_2.5	.633	71	2	.129	31		5	30038....	50715	43.155	43.155	2...	H1-1b
2	M24	PIPE_2.5	.629	71	6	.128	31		9	30038....	50715	43.155	43.155	2...	H1-1b
3	M28A	PIPE_2.5	.628	71	10	.129	31		13	30038....	50715	43.155	43.155	2...	H1-1b
4	M26A	PIPE_2.5	.597	71	2	.144	31		11	30038....	50715	43.155	43.155	2...	H1-1b
5	M32	PIPE_2.5	.597	71	6	.143	31		3	30038....	50715	43.155	43.155	2...	H1-1b
6	M28	PIPE_2.5	.592	71	10	.145	31		7	30038....	50715	43.155	43.155	1...	H1-1b
7	M36	PIPE_2.5	.562	71	8	.116	71		5	30038....	50715	43.155	43.155	2...	H1-1b
8	M26	PIPE_2.5	.560	71	12	.116	71		9	30038....	50715	43.155	43.155	2...	H1-1b
9	M30	PIPE_2.5	.560	71	4	.116	71		13	30038....	50715	43.155	43.155	2...	H1-1b
10	M5	HSS4X4X4	.469	63	2	.095	63	y	15	124317...	139518	194.166	194.166	2...	H1-1b
11	M12	HSS4X4X4	.468	63	6	.095	63	y	19	124317...	139518	194.166	194.166	2...	H1-1b
12	M9	HSS4X4X4	.467	63	10	.098	63	y	23	124317...	139518	194.166	194.166	2...	H1-1b
13	M39	PIPE_2.0	.354	126....	8	.133	23.4...		11	6295.422	32130	22.459	22.459	1...	H1-1b
14	M38	PIPE_2.0	.345	126....	4	.134	23.4...		7	6295.422	32130	22.459	22.459	1...	H1-1b
15	M37	PIPE_2.0	.345	126....	12	.133	23.4...		3	6295.422	32130	22.459	22.459	1...	H1-1b
16	M42	L2.5x2.5x3	.336	0	7	.097	0	z	8	27742....	29192.4	10.471	23.662	1...	H2-1
17	M41	L2.5x2.5x3	.334	0	11	.095	0	z	12	27742....	29192.4	10.471	23.662	1...	H2-1
18	M40	L2.5x2.5x3	.333	0	3	.095	0	z	4	27742....	29192.4	10.471	23.662	1...	H2-1
19	M3	PIPE_3.0	.318	57.8...	7	.205	90.6...		7	28250....	65205	68.985	68.985	1...	H1-1b
20	M2	PIPE_3.0	.316	57.8...	3	.205	90.6...		3	28250....	65205	68.985	68.985	1...	H1-1b
21	M1	PIPE_3.0	.315	57.8...	11	.205	90.6...		11	28250....	65205	68.985	68.985	1...	H1-1b
22	M13	HSS4X4X4	.210	31	7	.213	56.8...	z	2	124770...	139518	194.166	194.166	1...	H1-1b
23	M6	HSS4X4X4	.209	31	3	.210	56.8...	z	10	124770...	139518	194.166	194.166	1...	H1-1b
24	M10	HSS4X4X4	.208	31	11	.211	56.8...	z	6	124770...	139518	194.166	194.166	1...	H1-1b
25	M19	L2x2x3	.189	25.7...	7	.015	50.4...	y	8	9647.886	23392.8	6.693	12.86	1...	H2-1
26	M15	L2x2x3	.188	25.7...	3	.015	50.4...	y	4	9647.886	23392.8	6.693	12.86	1...	H2-1
27	M17	L2x2x3	.187	25.7...	11	.015	50.4...	y	12	9647.886	23392.8	6.693	12.86	1...	H2-1
28	M14	L2x2x3	.160	24.7...	13	.015	0	y	12	9647.886	23392.8	6.693	12.86	1...	H2-1
29	M16	L2x2x3	.160	24.7...	9	.016	0	y	8	9647.886	23392.8	6.693	12.86	1...	H2-1
30	M18	L2x2x3	.159	24.7...	5	.015	0	y	4	9647.886	23392.8	6.693	12.86	1...	H2-1
31	M11	PI 6"x0.5"	.133	5.772	13	.633	5.772	y	9	69409.97	97200	12.15	145.8	1...	H1-1b
32	M4	PI 6"x0.5"	.132	5.772	9	.632	5.772	y	5	69409.97	97200	12.15	145.8	1...	H1-1b
33	M8	PI 6"x0.5"	.131	5.772	5	.637	5.772	y	13	69409.97	97200	12.15	145.8	1...	H1-1b

SITE DETAILS

Site Name/Code	841289 - OLD SAYBROOK
Date	5/2/2019
Engineer	LB

CONNECTION PARAMETERS

Loadcase #		2	
Number of bolts		4	
B		7	*in*
H		7	*in*
Bolt Diameter	d	5/8	*in*
Tensile Area	A_b	0.31	in^2
Tensile Area	A_n	0.23	in^2
Grade		A325	
Bolt Ultimate Strength	F_{ub}	120	*ksi*
Connection length reduction factor	R_b	1	



Connection Sketch/Photo

FLANGE LOADS

Bending Moment	Mxx	**0.54**	*kips-in*
Bending Moment	Mzz	**88.97**	*kips-in*
Torsional Moment	Myy	**2.33**	*kips-in*
Shear Force	Vx	**2.77**	*kips*
Shear Force	Vz	**0.04**	*kips*
Axial Force	Ty	**2.30**	*kips*

SOFTWARE REACTIONS TABLE

L...	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
2	N21	1804.868	344.403	517.015	3.659	16.439	-6.481
2	N9	2304.179	2769.176	-36.541	-2.333	.544	-88.968
2	N16	1246.018	349.422	-480.496	-1.321	-9.586	-4.321
2	Totals:	5355.064	3463.002	-.022			
2	COG (in):	X: 0	Y: 22.892	Z: 0			

BOLT CHECK

Bolt Tension Capacity

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

ϕR_{nt}= **20.3** *kips*

Bolt Shear Capacity

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

ϕR_{nv}= **13.8** *kips*

Maximum Bolt Tension

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

T_{ub}= **6.97** *kips*

Tension Ratio: **34.3%** PASS

Maximum Bolt Shear

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

V_{ub}= **0.81** *kips*

Shear Ratio: **5.9%** PASS

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **Ratio** **12.1%** PASS

WELD CHECK

Filler Metal Strength	**70**	ksi	
Weld Thk.	**0.25**	in	
Nominal Weld Thk.	0.177	in	
Length	**4.0**	in	
Shear	2.77	kips	
Moment	89.51	kips-in	
A	**1.41**	in^2	
S_w	**3.95**	in^3	
f_v	1.96	ksi	
f_m	22.65	ksi	
f_r	22.73	ksi	
Allowable Weld Stress	31.5	ksi	**72.2%** PASS

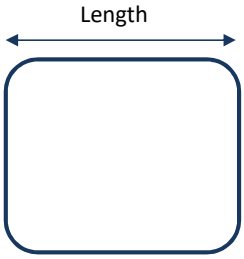


Exhibit F

Power Density/RF Emissions Report

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11035E

OldSaybrookSNETMobili_1
170 Ingham Hill Road
Old Saybrook, CT 06475

May 20, 2019

Transcom Engineering Project Number: 737001-0029

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**12.54 %**

Transcom Engineering, Inc.
Wireless Network Design and Deployment

May 20, 2019

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

Emissions Analysis for Site: **CT11035E – OldSaybrookSNETMobili_1**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **170 Ingham Hill Road, Old Saybrook, 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 **170 Ingham Hill Road, Old Saybrook, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

Table 1: Channel Data Table

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

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR32 B66A / B2A	140
A	2	Ericsson AIR21 B2A/B4P	140
A	3	RFS APXVAARR24_43-U-NA20	141
B	1	Ericsson AIR32 B66A / B2A	140
B	2	Ericsson AIR21 B2A/B4P	140
B	3	RFS APXVAARR24_43-U-NA20	141
C	1	Ericsson AIR32 B66A / B2A	140
C	2	Ericsson AIR21 B2A/B4P	140
C	3	RFS APXVAARR24_43-U-NA20	141

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since the **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **2.18 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **169 feet** of **1-1/4"** coax.

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	6	280	10,768.57	2.16
Antenna A2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,525.59	0.31
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.14
						Sector A Composite MPE%	**3.61**
Antenna B1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	6	280	10,768.57	2.16
Antenna B2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,525.59	0.31
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.14
						Sector B Composite MPE%	**3.61**
Antenna C1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	6	280	10,768.57	2.16
Antenna C2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,525.59	0.31
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	1.14
						Sector C Composite MPE%	**3.61**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**3.61 %**
AT&T	4.11 %
Verizon Wireless	4.57 %
Paging	0.25 %
Site Total MPE %:	**12.54 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.61 %
T-MOBILE Sector B Total:	3.61 %
T-MOBILE Sector C Total:	3.61 %
Site Total:	12.54 %

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	1,538.37	140	12.32	1900 MHz (PCS)	1000	1.23%
T-Mobile 2100 MHz (AWS) LTE	2	2,307.55	140	9.24	2100 MHz (AWS)	1000	0.92%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	140	1.17	1900 MHz (PCS)	1000	0.12%
T-Mobile 2100 MHz (AWS) UMTS	1	942.02	140	1.89	2100 MHz (AWS)	1000	0.19%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	141	3.11	600 MHz	400	0.78%
T-Mobile 700 MHz LTE	2	432.54	141	1.71	700 MHz	467	0.37%
						Total:	**3.61%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	3.61 %
Sector B:	3.61 %
Sector C:	3.61 %
T-MOBILE Maximum Total (per sector):	3.61 %
Site Total:	12.54 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.54 %** 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.

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