



March 2, 2021

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

RE: **Notice of Exempt Modification for T-Mobile
Crown Site ID# 841295; T-Mobile Site ID# CTNH516A
719 Amity Rd., Bethany, CT 06524
Latitude: 41° 26' 33.93" / Longitude: -72° 59' 32.86"**

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 122-foot mount on the existing 150-foot Monopole Tower located at 719 Amity Road in Bethany. The property is owned by the Town of Bethany and the Tower is owned by Crown Castle. T-Mobile now intends to replace three (3) existing antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. T-Mobile is also proposing mount modifications as shown on the enclosed mount analysis.

Planned Modifications:

Tower:

Remove and Replace:

(3) AIR21_KRC118023-1_B2A_B4P 1900/2100 MHz Antenna (**REMOVE**) - (3) APXVAALL24_43-U-NA20 1900 MHz Antenna (**REPLACE**)

Install New:

(3) Radio 4449 B71-B85

Remove:

(6) Coax cables

Existing to Remain:

(3) AIR21_KRC118023-1_B2A_B4P 1900/2100 MHz Antenna

Ground:

Install New:

(2) BB6630 in existing RBS 6201 cabinet
(3) RUS01 B2 radios in existing RBS 6201 cabinet
(3) TMA
(1) Hybrid cable 1 5/8"

The Foundation for a Wireless World.

CrownCastle.com

Remove:

(1) DUS41 in existing RBS 6201 cabinet

This facility was approved by the Connecticut Siting Council in Docket No. 168 on June 6, 1995. The approval included a tower height limitation of 150 ft. No changes to the approved height are proposed, hence this modification complies with the aforementioned approval.

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 Paula Cofrancesco, First Selectwoman for the Town of Bethany, as well as Robert Walsh, Building Official for the Town of Bethany.

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).

Sincerely,



Richard Zajac
Site Acquisition Specialist
4545 East River Road, Suite 320
West Henrietta, NY
(585) 445-5896
Richard.zajac@crowncastle.com

Melanie A. Bachman

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cc:

Ms. Paula Cofrancesco, First Selectwoman
Town of Bethany
Town Hall
40 Peck Road
Bethany, CT 06524
203-393-2100 x1100

Mr. Robert Walsh, Building Official
Town of Bethany
Town Hall
40 Peck Road
Bethany, CT 06524
203-393-2100 x1116

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR

WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 02MAR21
ACTWGT: 1.00 LB
CAD: 112911364/NET4340

BILL SENDER

TO PAULA COFRANCESCO

TOWN OF BETHANY

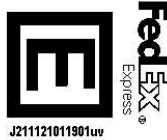
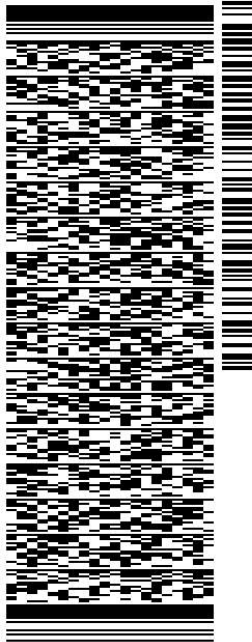
40 PECK ROAD

TOWN HALL

BETHANY CT 06524

(203) 393-2100 X 1100 REF: 799001 7630
INV/ PO: DEPT:

56DJ3/AC39/FE4A

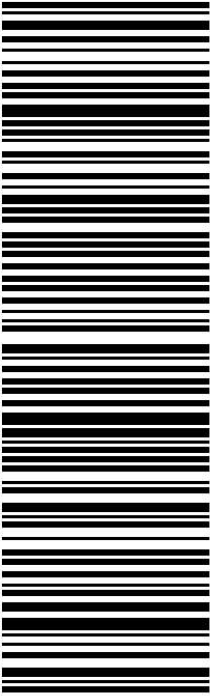


J211121011901uv

TRK# 7730 4336 0012
0201

WED - 03 MAR 4:30P
STANDARD OVERNIGHT

XE EFBA 06524
CT-US BDL



After printing this label:

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

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR

WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 02MAR21
ACTWGT: 1.00 LB
CAD: 112911364/NET4340

BILL SENDER

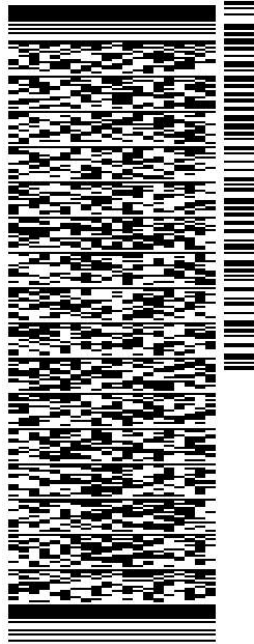
TO ROBERT WALSH

TOWN OF BETHANY
40 PECK ROAD
TOWN HALL

BETHANY CT 06524

(203) 393-2100 X 1116 REF: 799001 7630
INV/ PO: DEPT:

56DJ3/AC39/FE4A

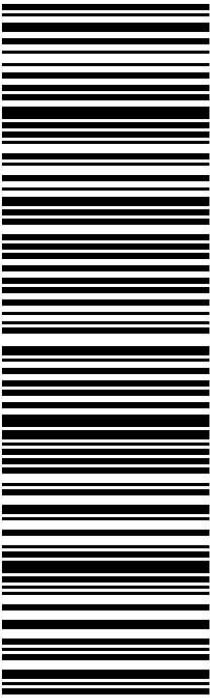


J211121011901uv

TRK# 7730 4338 9033
0201

WED - 03 MAR 4:30P
STANDARD OVERNIGHT

XE EFBA 06524
CT-US BDL



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Exhibit A

Original Facility Approval

DOCKET NO. 168 - An application of Springwich Cellular Limited Partnership for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility located on the former site of the Bethany Airport, 719 Amity Road (Route 63) in Bethany, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	July 6, 1995

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact, and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications tower and equipment building at the proposed site in Bethany, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Springwich Cellular Limited Partnership (Springwich), for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building at the proposed site located at the Bethany Airport, 719 Amity Road, Bethany, Connecticut.

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

1. The self-supporting monopole tower shall be no taller than necessary to provide the proposed communications service and the tower shall not exceed a total height of 150 feet above ground level (AGL).
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include detailed plans for the tower location and tower foundation; the placement of all antennas to be attached to this tower; equipment building, access road, utility line, and security fence; site clearing and tree trimming, and water drainage and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sedimentation Control, as amended.
3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.
7. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.
8. The Certificate Holder shall notify the Council upon completion of construction and provide the final cost to construct the facility.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The New Haven Register and Beth-Wood News.

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

The parties and intervenors to this proceeding are:

APPLICANT

Springwich Cellular Limited Partnership

ITS REPRESENTATIVES

Peter J. Tyrrell, Esq.
Springwich Cellular Limited Partnership
227 Church Street
New Haven, CT 06510

INTERVENOR

Metro Mobile CTS of Hartford, Inc.

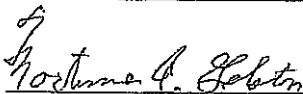
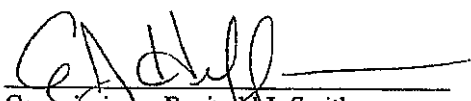
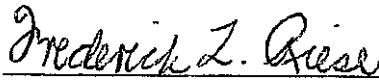
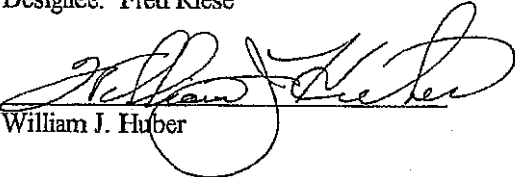
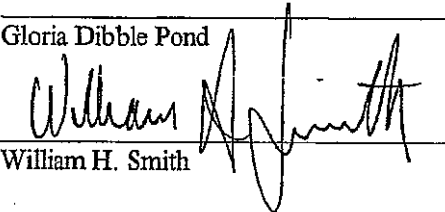
ITS REPRESENTATIVES

Metro Mobile CTS of Hartford, Inc.
20 Alexander Drive
Wallingford, CT 06492
Attn: David S. Malko, P.E., Manager
Engineering & Regulatory Services

Robinson & Cole
One Commercial Plaza
Hartford, CT 06103-3597
Attn: Brian C.S. Freeman, Esq.

CERTIFICATION

The Undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in Docket No. 168 - An application of Springwiche Cellular Limited Partnership for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility located on the former site of the Bethany Airport, 719 Amity Road (Route 63) in Bethany, Connecticut, and voted as follows:

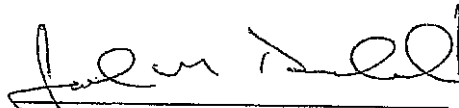
<u>Council Members</u>	<u>Vote Cast</u>
 Mortimer A. Gelston Chairman	YES
 Commissioner Reginald J. Smith Designee: Gerald J. Heffernan	YES
 Commissioner Sidney J. Holbrook Designee: Fred Riese	YES
 William J. Huber	YES
Gloria Dibble Pond	ABSENT
 William H. Smith	YES
Colin C. Tait	ABSTAIN
Edward S. Wilensky	ABSENT
 Dana J. Wright	YES

Dated at New Britain, Connecticut, July 6, 1995.

STATE OF CONNECTICUT }
ss. New Britain, Connecticut }
COUNTY OF HARTFORD
STATE OF CONNECTICUT } July 7, 1995

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

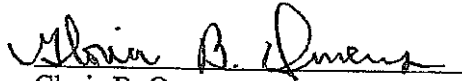
ATTEST:



Joel M. Rinebold
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 168 have been forwarded by Certified First Class Return Receipt Requested mail on July 7, 1995, to all parties and intervenors of record as listed on the attached service list, dated April 10, 1995.

ATTEST:



Gloria B. Owens
Administrative Assistant
Connecticut Siting Council

Exhibit B

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



Information on the Property Records for the Municipality of Bethany was last updated on 2/27/2021.

Parcel Information

Location:	755 AMITY RD	Property Use:	Public Use	Primary Use:	Fire Station - Volunteer
Unique ID:	00016500	Map Block Lot:	117/1	Acres:	138.50
490 Acres:	0.00	Zone:	B&I	Volume / Page:	0044/0306
Developers Map / Lot:		Census:			

Value Information

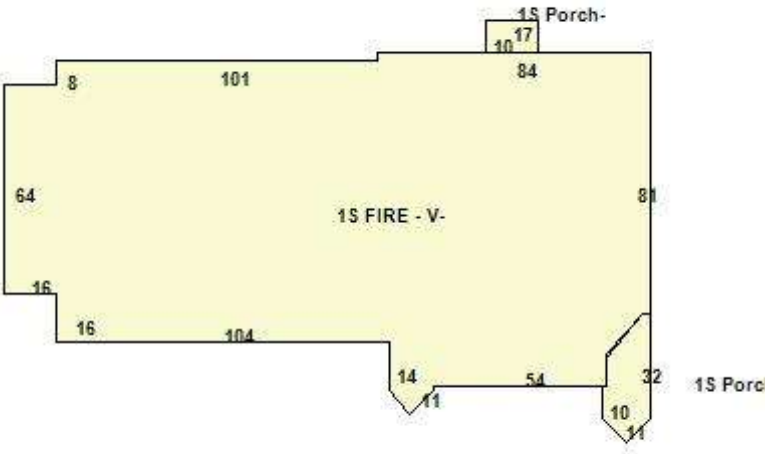
	Appraised Value	Assessed Value
Land	1,421,200	994,840
Buildings	1,878,616	1,315,030
Detached Outbuildings	150,924	105,650
Total	3,450,740	2,415,520

Owner's Information

Owner's Data

BETHANY TOWN OF
40 PECK RD
BETHANY CT 06524

Building 1



Category:	Public Use	Use:	Fire Station - Volunteer	Stories:	1.00
Above Grade:	18,387	Below Grade:	0	Below Grade Finish:	0
Construction:	Average	Year Built:	1996	Heating:	FHA

Fuel:	Oil	Cooling Percent:	100%	Siding:	Vinyl
Roof Material:	Asphalt	Beds/Units:	0		

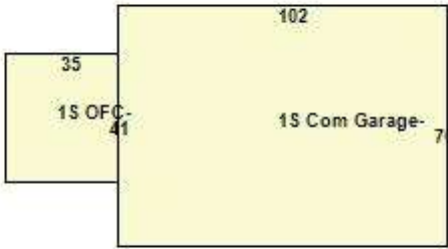
Special Features

Extra Plumbing Fixtures	6
-------------------------	---

Attached Components

Type:	Year Built:	Area:
Open Porch	2008	170
Open Porch	2008	460

Building 2



Category:	Automotive	Use:	Commercial Garage	Stories:	1.00
Above Grade:	9,187	Below Grade:	0	Below Grade Finish:	0
Construction:	Low Cost	Year Built:	2008	Heating:	
Fuel:		Cooling Percent:	20%	Siding:	
Roof Material:		Beds/Units:	0		

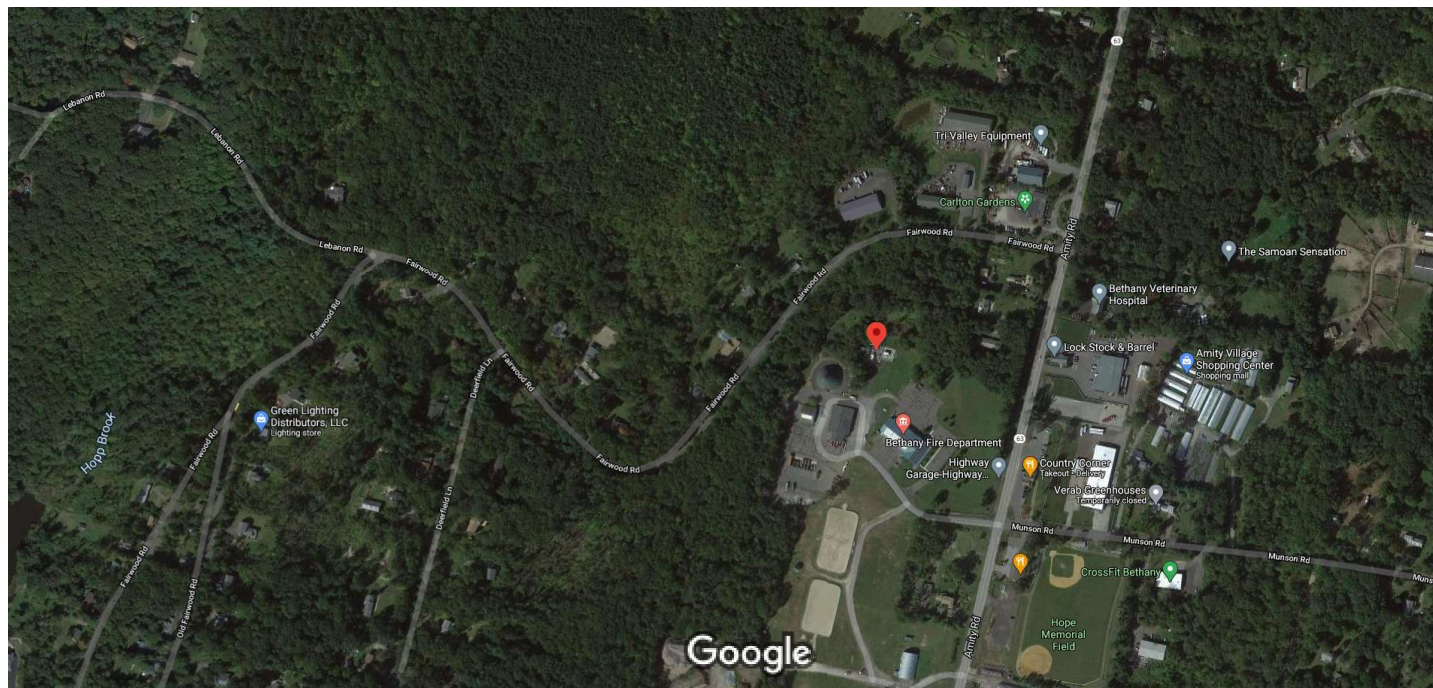
Special Features

Attached Components

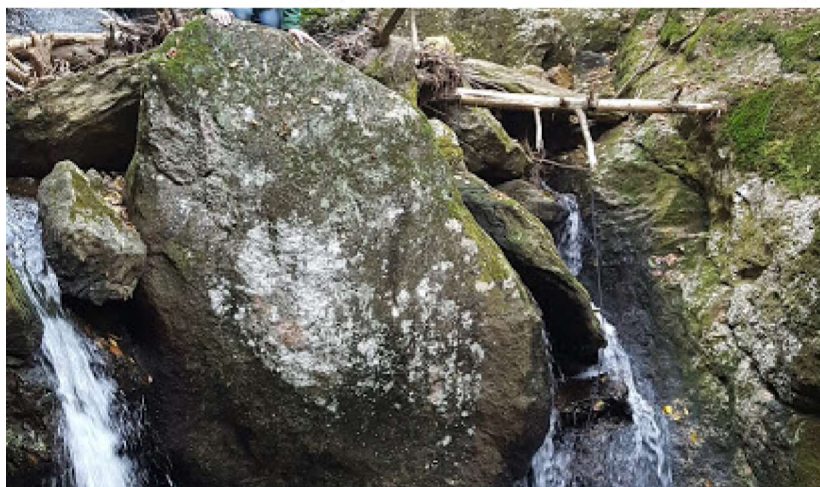
Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Paving	1996			40,000
Average Shed	2003			6,320
Average Shed	1996			3,000
Average Shed	1979			600
Frame Shed	2003			310

Information Published With Permission From The Assessor



Imagery ©2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 200 ft



41°26'33.9"N 72°59'32.9"W

41.442758, -72.992461



Directions



Save



Nearby



Send to your
phone



Share



Bethany, CT 06524



C2V5+42 Bethany, Connecticut

Photos

Exhibit C

Construction Drawings



T-MOBILE SITE NUMBER:CTNH516A

T-MOBILE SITE NAME:AT&T BETHANY MONOPOLE

SITE TYPE:MONOPOLE

TOWER HEIGHT:150'-0"

BUSINESS UNIT #:841295

SITE ADDRESS:719 AMITY ROAD
BETHANY, CT 06524

COUNTY:NEW HAVEN

JURISDICTION:TOWN OF BETHANY

T-MOBILE L600 SITE CONFIGURATION: 67D05A-V2



35 GRIFFIN ROAD
BLOOMFIELD, CT 06002



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065



FROM ZERO TO INFINIGY

the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH516A

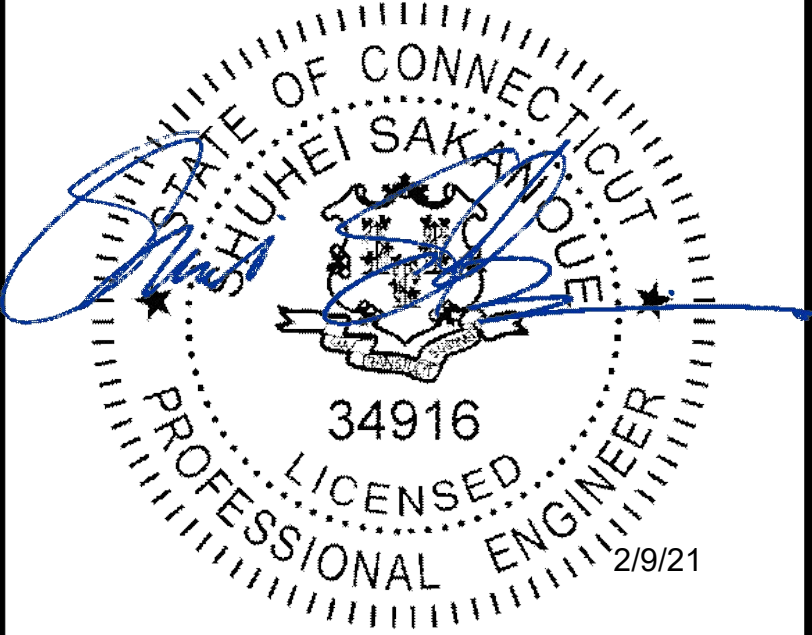
BU #: 841295
BETHANY

719 AMITY ROAD
BETHANY, CT 06524

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	01/20/20	RCD	PRELIMINARY	SS
0	02/05/21	BMM	FINAL	SS



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

SHEET NUMBER:

T-1

REVISION:

0

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BETHANY
SITE ADDRESS:	719 AMITY ROAD BETHANY, CT 06524
COUNTY:	NEW HAVEN
MAP/PARCEL #:	117/1
AREA OF CONSTRUCTION:	EXISTING
LATTITUDE:	41.44280000 (41° 26' 33.93")
LONGITUDE:	-72.99250000 (-72° 59' 32.86")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	742.0 FT
CURRENT ZONING:	B&I
JURISDICTION:	NEW HAVEN COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	BETHANY TOWN OF 40 PECK RD BETHANY, CT 06524
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	--
TELCO PROVIDER:	--

PROJECT TEAM

A&E FIRM:	INFINIGY 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 TRICIA PELON - PROJECT MANAGER 518-424-2396 JASON D'AMICO - CONSTRUCTION MANAGER 860-209-0104

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR
----. 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.

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE
BROADBAND CONNECTIVITY AND CAPACITY TO THE
EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:

- REMOVE (3) ANTENNAS
- REMOVE (6) COAX CABLES
- INSTALL (3) ANTENNAS
- INSTALL (3) RRHs
- INSTALL (1) HYBRID CABLE
- MODIFY (3) EXITING MOUNTS

GROUND SCOPE OF WORK:

- REMOVE (1) DUS41 IN (E) CABINET
- INSTALL (2) BB 6630 IN (E) CABINET
- INSTALL (3) RUS01 B2 RADIOS IN (E) CABINET
- INSTALL (3) TMA AT GROUND

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST
CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN
CONSTRUCTION MANAGER.

LOCATION MAP



APPLICABLE CODES/REFERENCE
DOCUMENTS

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	2018 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY OTHERS
DATED:	
MOUNT ANALYSIS:	INFINIGY ENGINEERING, PLLC
DATED:	11/30/2020
RFDS REVISION:	3
DATED:	09/09/2020
ORDER ID:	534543
REVISION:	0

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

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



CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!



NOTE:

1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T-MOBILE EQUIPMENT.

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH516A

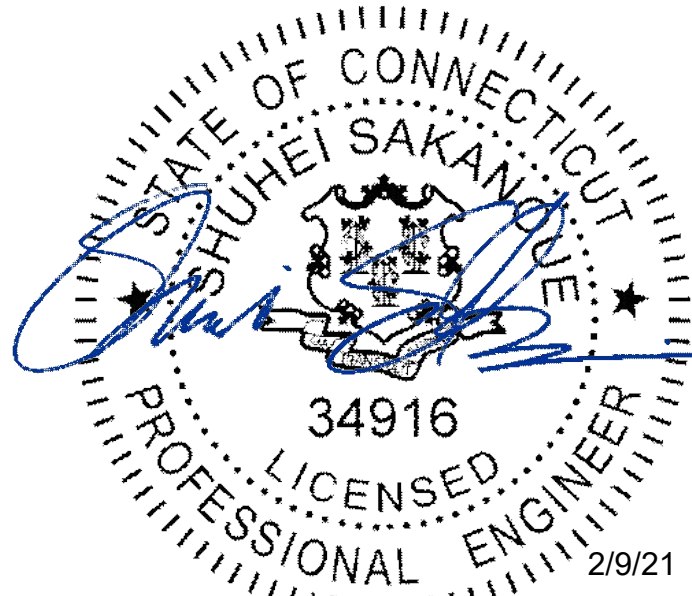
BU #: **841295**
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EXISTING 150'-0" MONOPOLE

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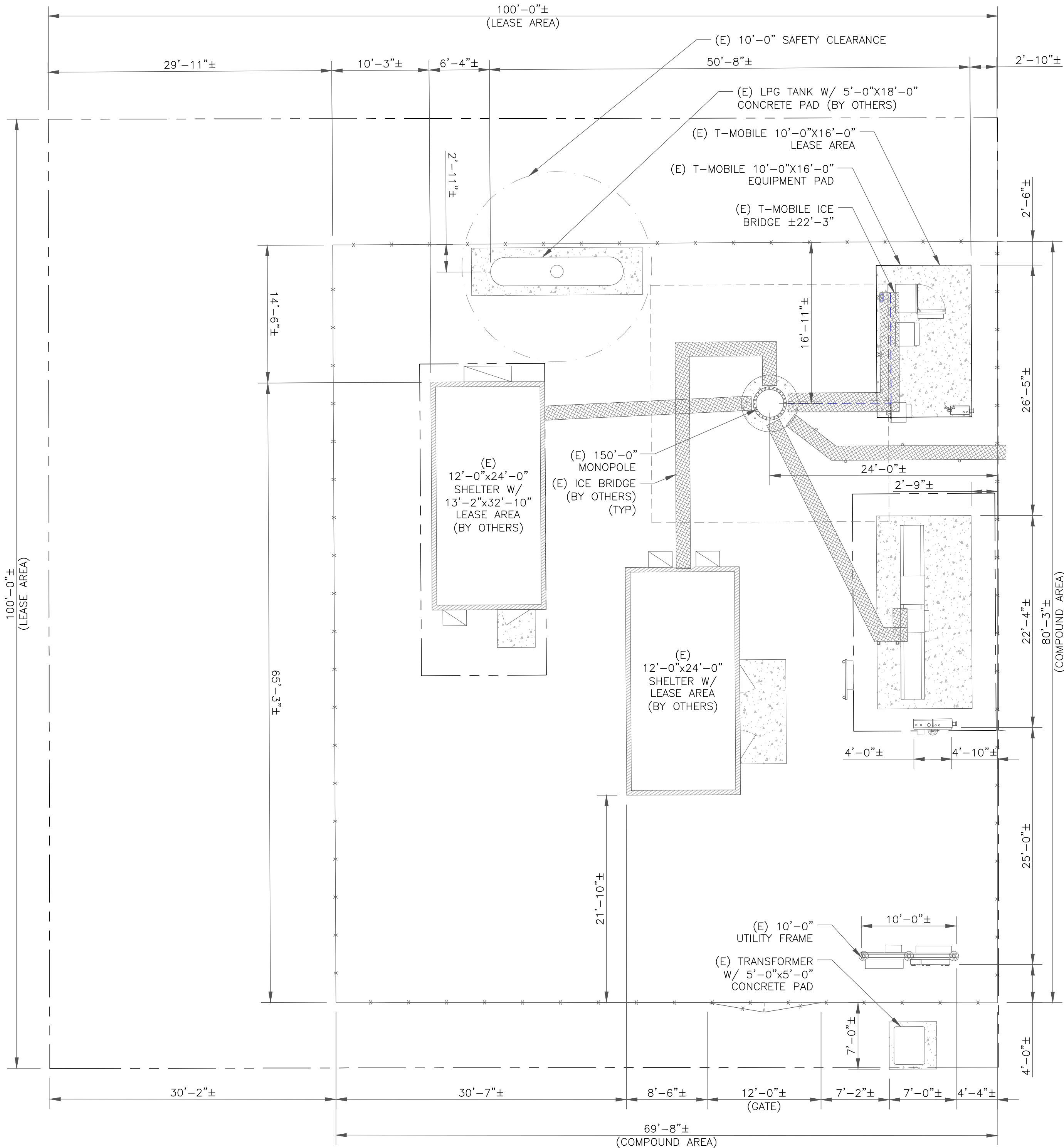
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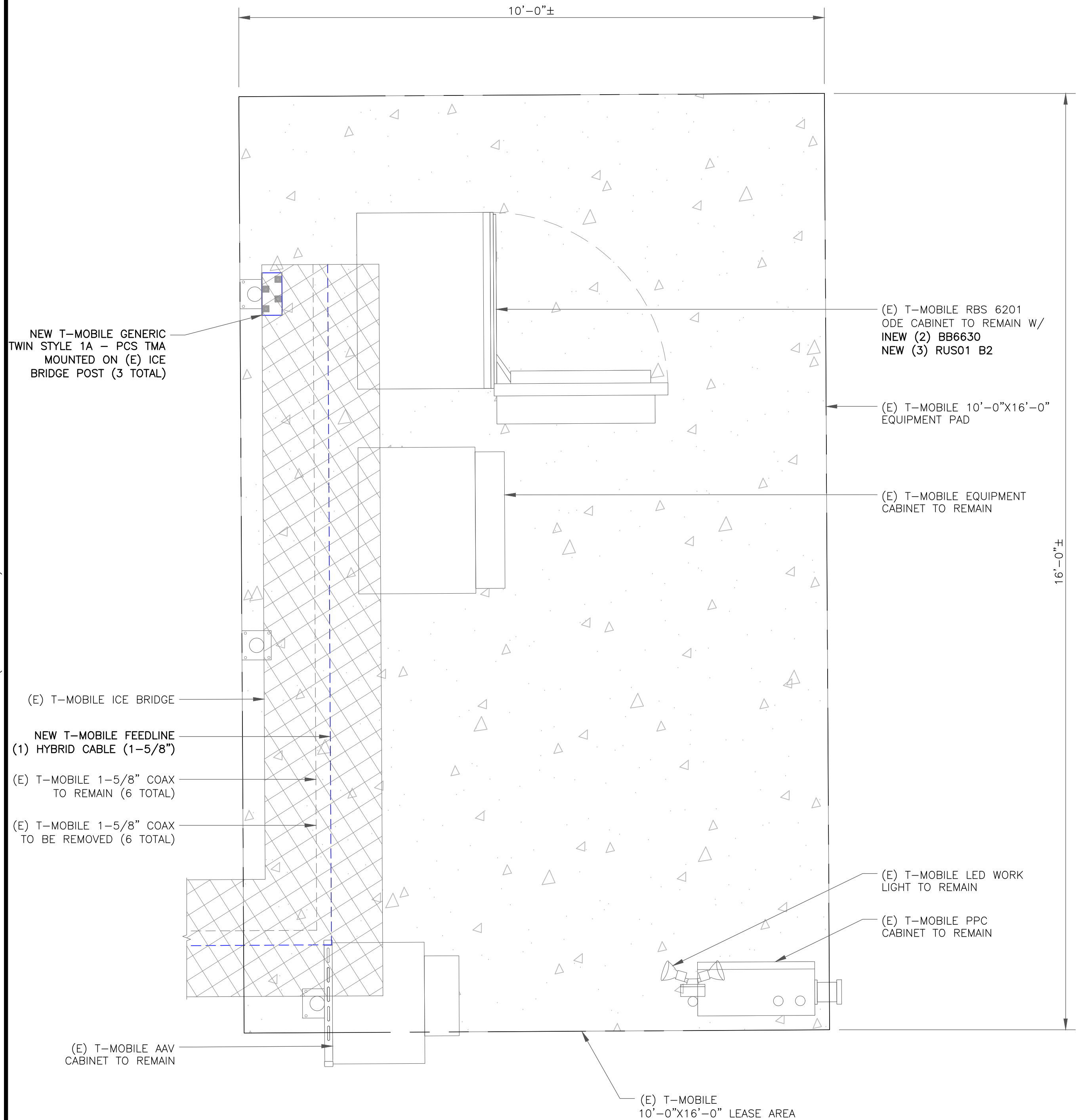
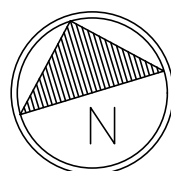
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1 SITE PLAN

SCALE: 1/8"=1'-0" (FULL SIZE)

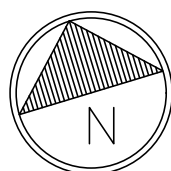
1/16"=1'-0" (11x17)



2 ENLARGED SITE PLAN

SCALE: 3/4"=1'-0" (FULL SIZE)

3/8"=1'-0" (11x17)



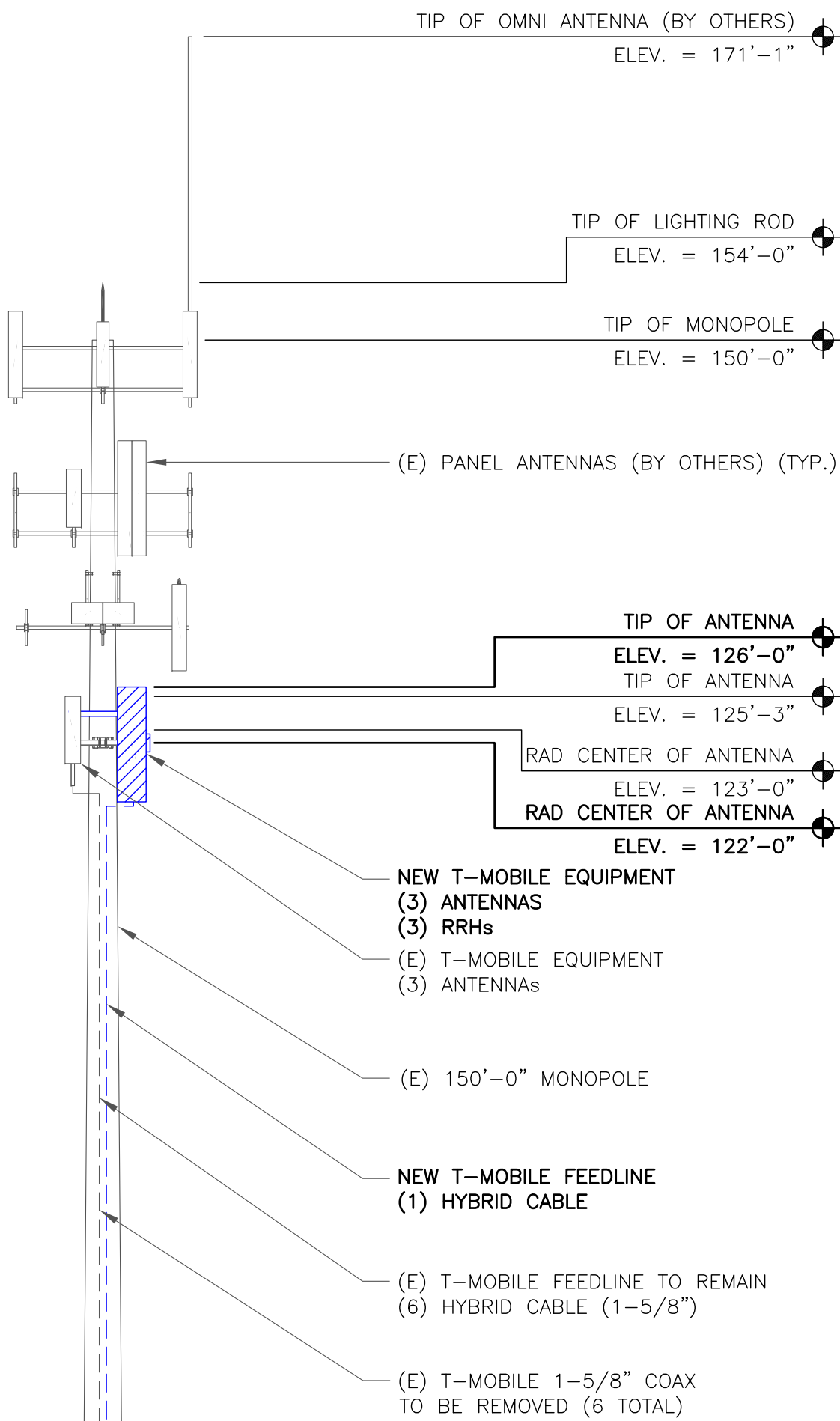
NOTES:

- ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
- INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

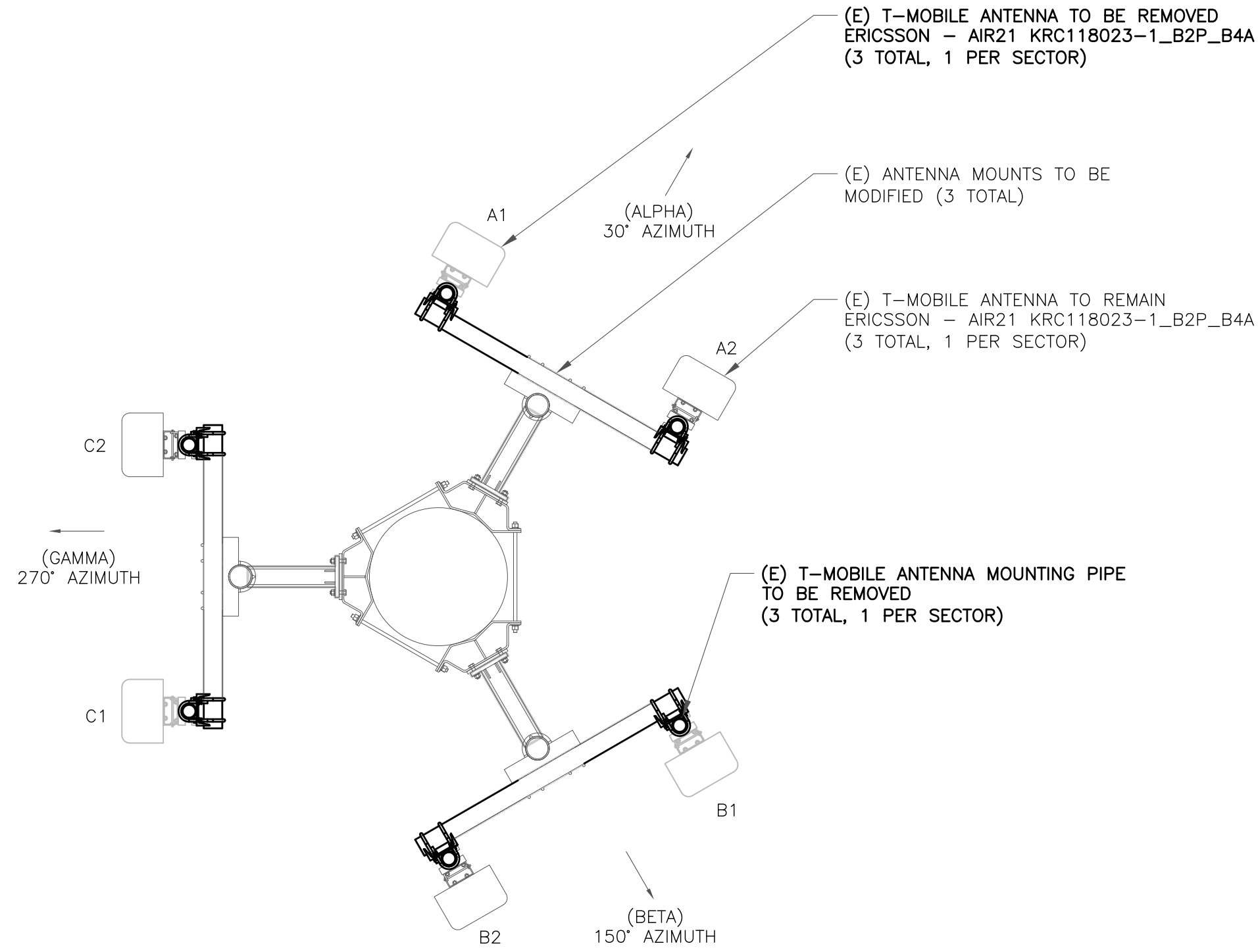
T-MOBILE EQUIPMENT

ANTENNA CL: 122'-0"
ANTENNA CL: 123'-0"
MOUNT CL: 122'-0"

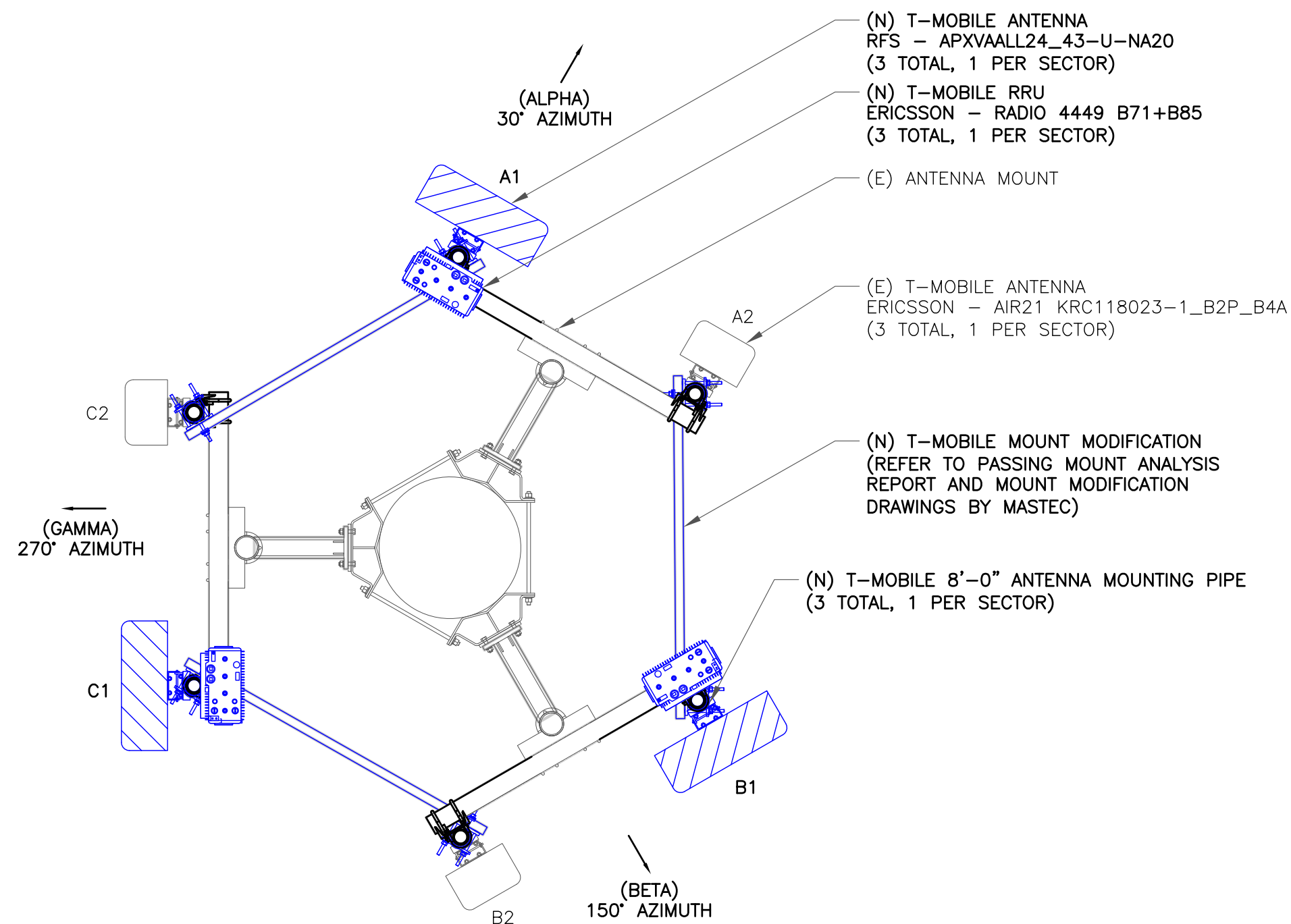
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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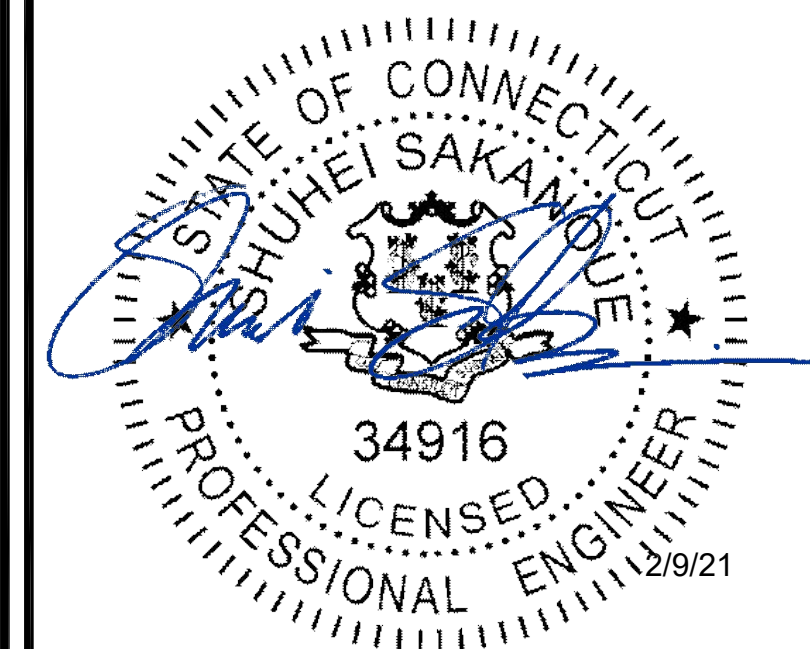
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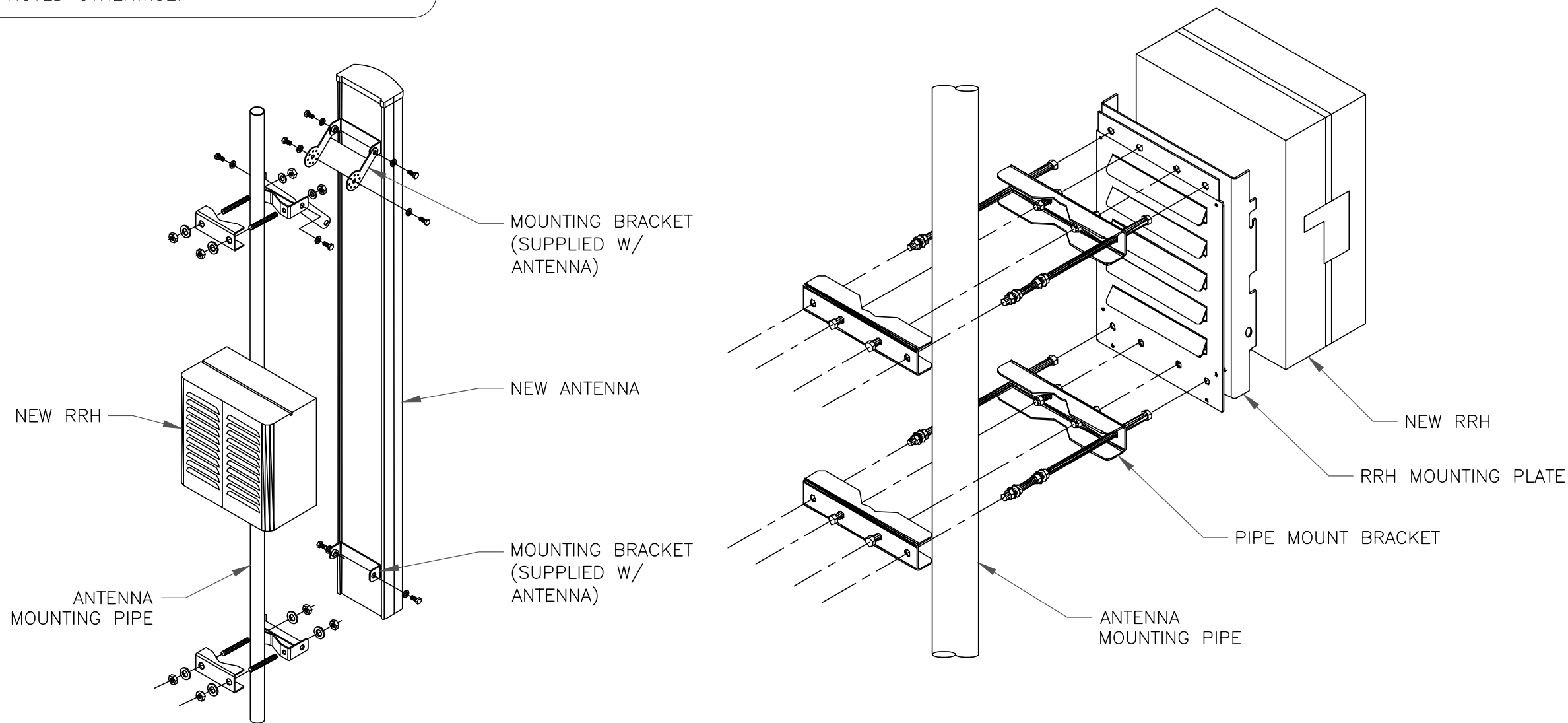
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ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L600, L700, N600, U1900	122'-0"	30°	RFS	APXVAALL24_43-U-NA20	0°	2°	(1) ERICSSON - RADIO 4449 B71+B85	(1) 6X12 HCS HYBRID (SHARED) (2) 1-5/8" COAX
ALPHA	A2	L2100	123'-0"	30°	ERICSSON	AIR21 KRC118023-1_B2P_B4A	0°	2°	-	-
BETA	B1	L600, L700, N600, U1900	122'-0"	150°	RFS	APXVAALL24_43-U-NA20	0°	2°	(1) ERICSSON - RADIO 4449 B71+B85	(1) 6X12 HCS HYBRID (SHARED) (2) 1-5/8" COAX
BETA	B2	L2100	123'-0"	150°	ERICSSON	AIR21 KRC118023-1_B2P_B4A	0°	2°	-	-
GAMMA	C1	L600, L700, N600, U1900	122'-0"	270°	RFS	APXVAALL24_43-U-NA20	0°	2°	(1) ERICSSON - RADIO 4449 B71+B85	(1) 6X12 HCS HYBRID (SHARED) (2) 1-5/8" COAX
GAMMA	C2	L2100	123'-0"	270°	ERICSSON	AIR21 KRC118023-1_B2P_B4A	0°	2°	-	-

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE..



NOTE:

1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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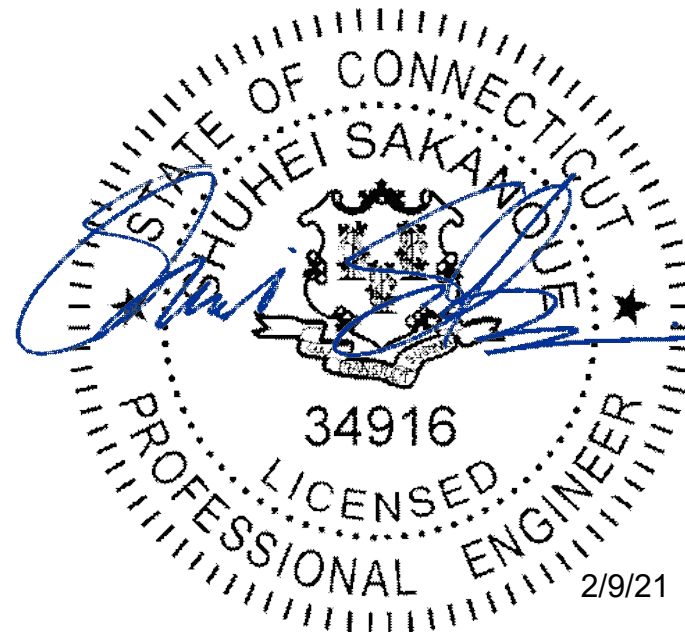
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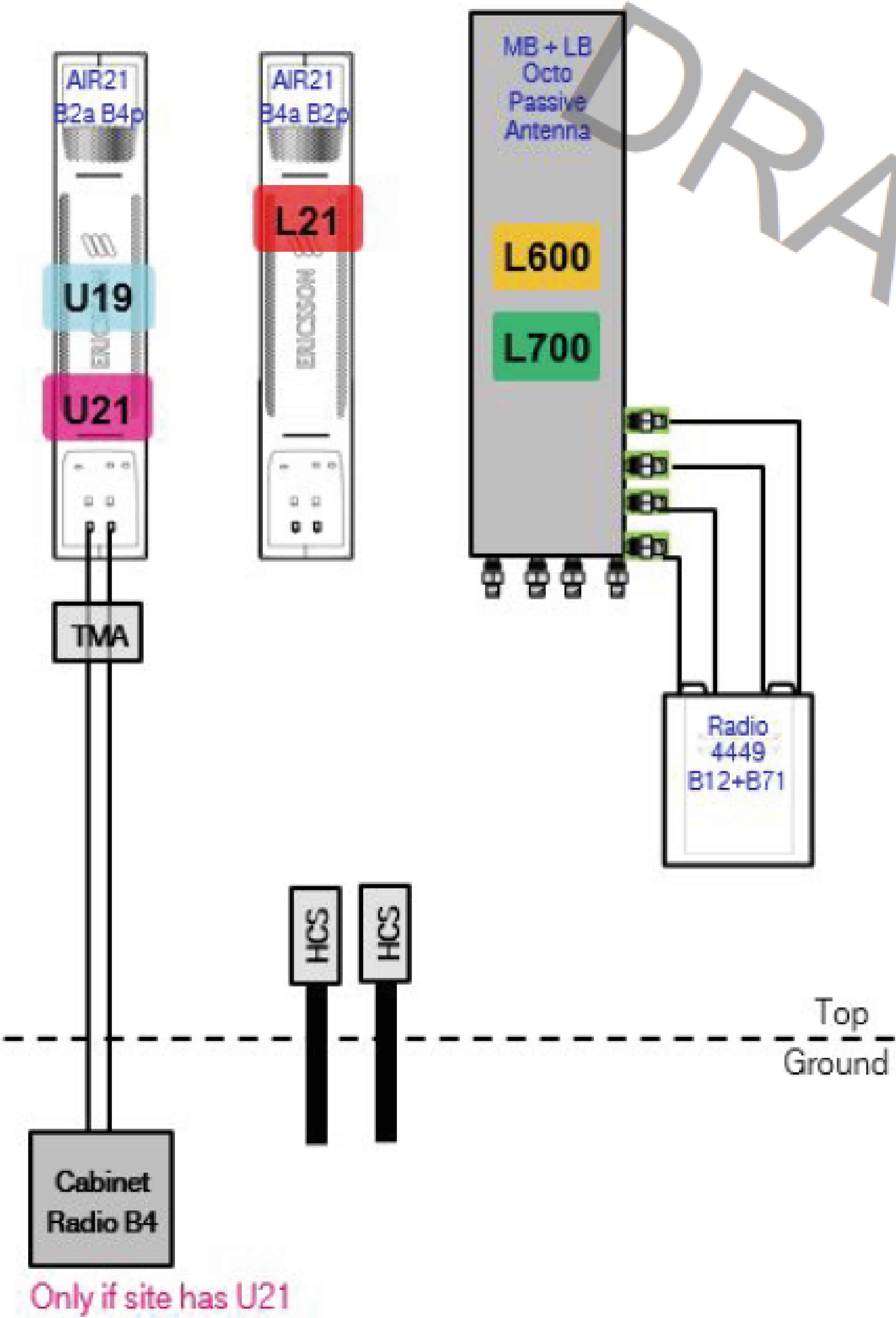
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Notes:

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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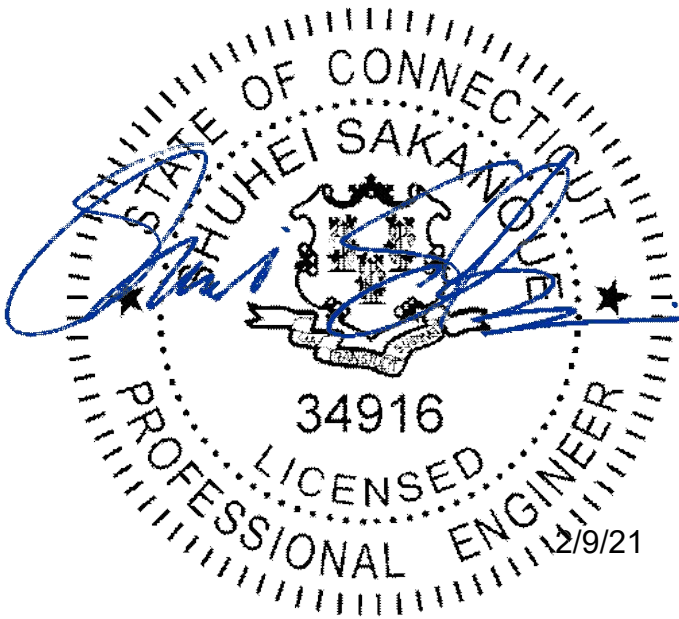
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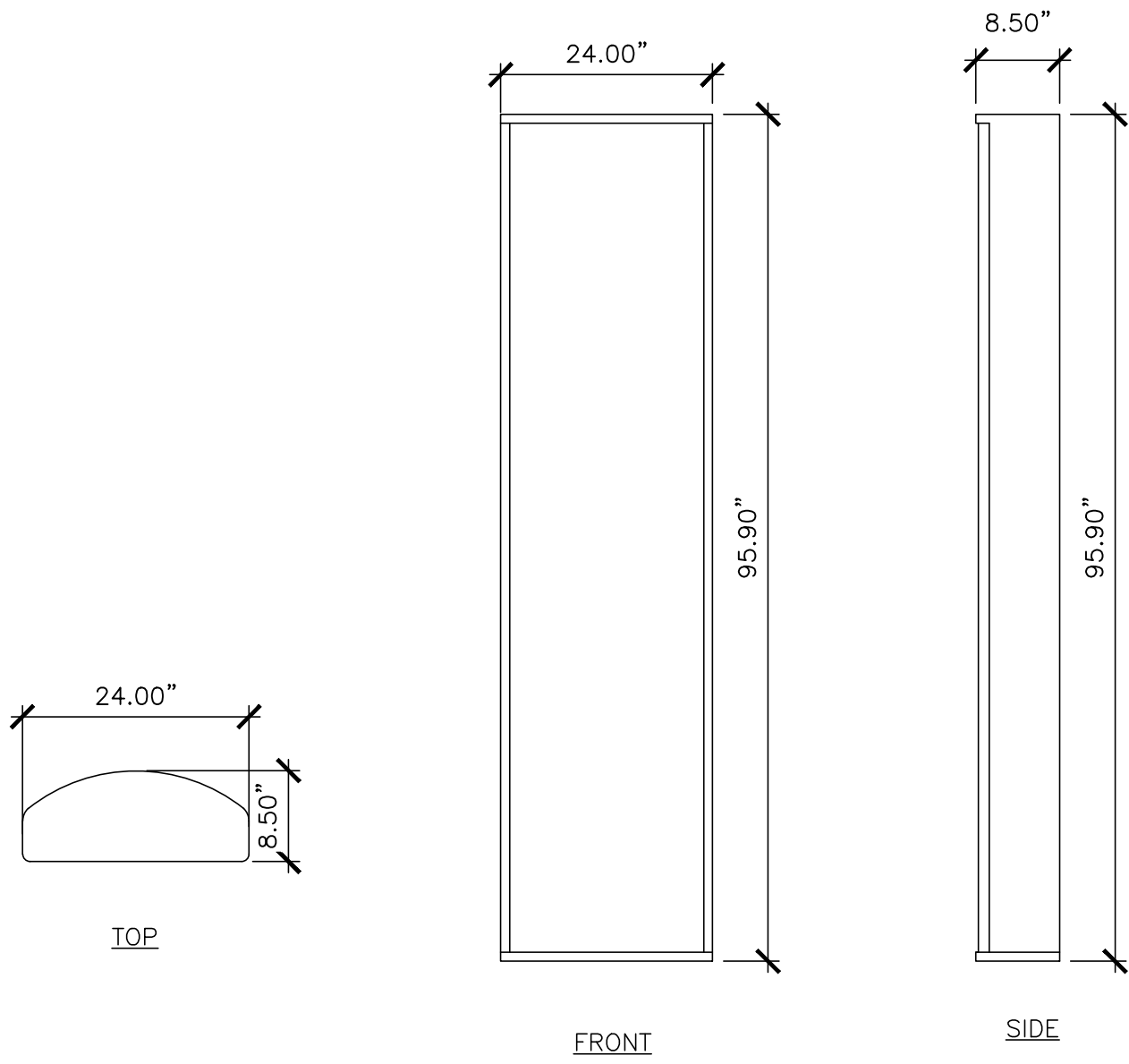
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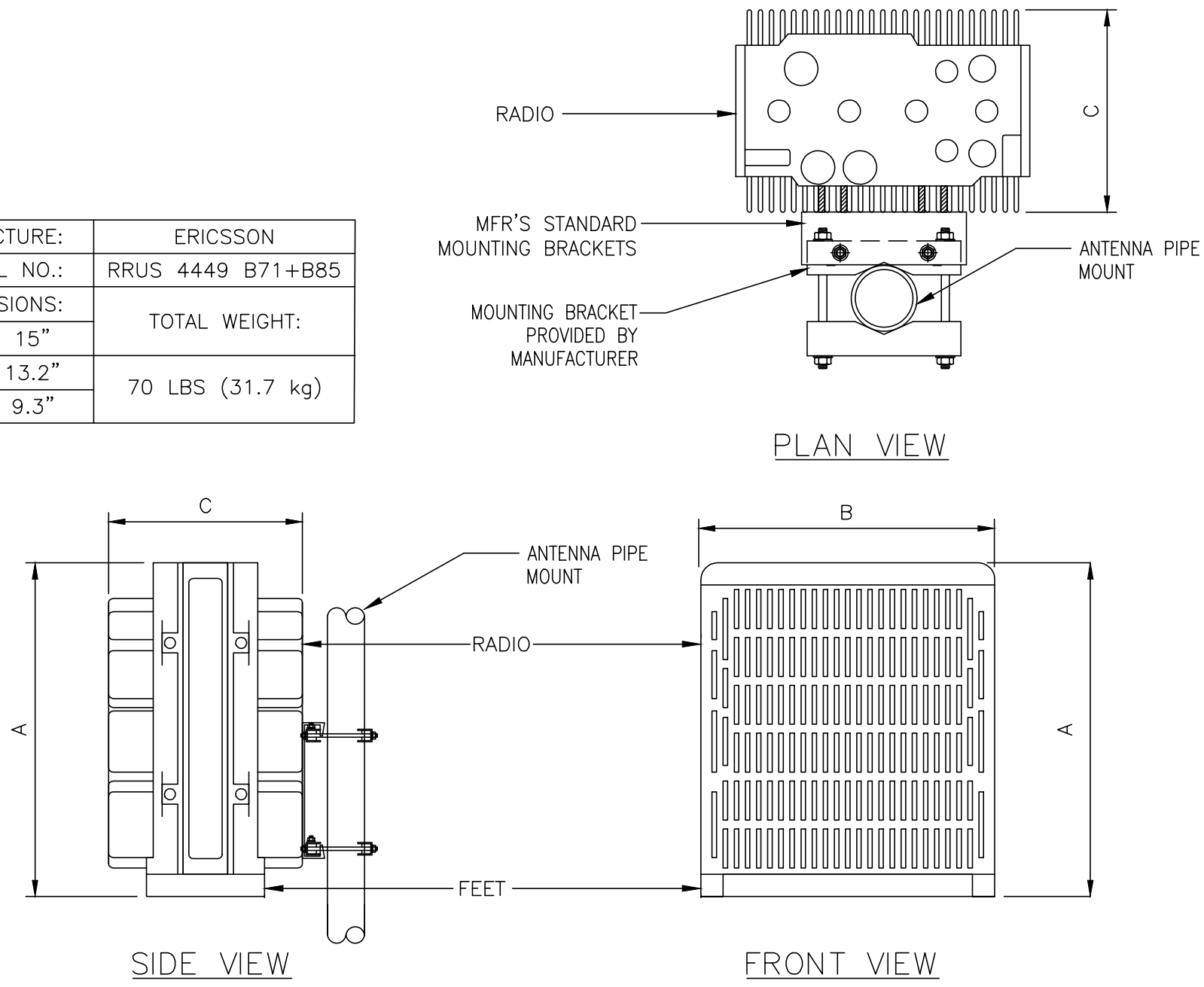
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MANUFACTURER: RFS
MODEL: APXVAALL24_43-UNA20
WEIGHT: 149.90 LBS (W/ MOUNT BRACKET)
DIMENSIONS: 95.90"H. X 24.00"W. X 8.50"D.
FREQUENCY: REFER TO RF DATA SHEET

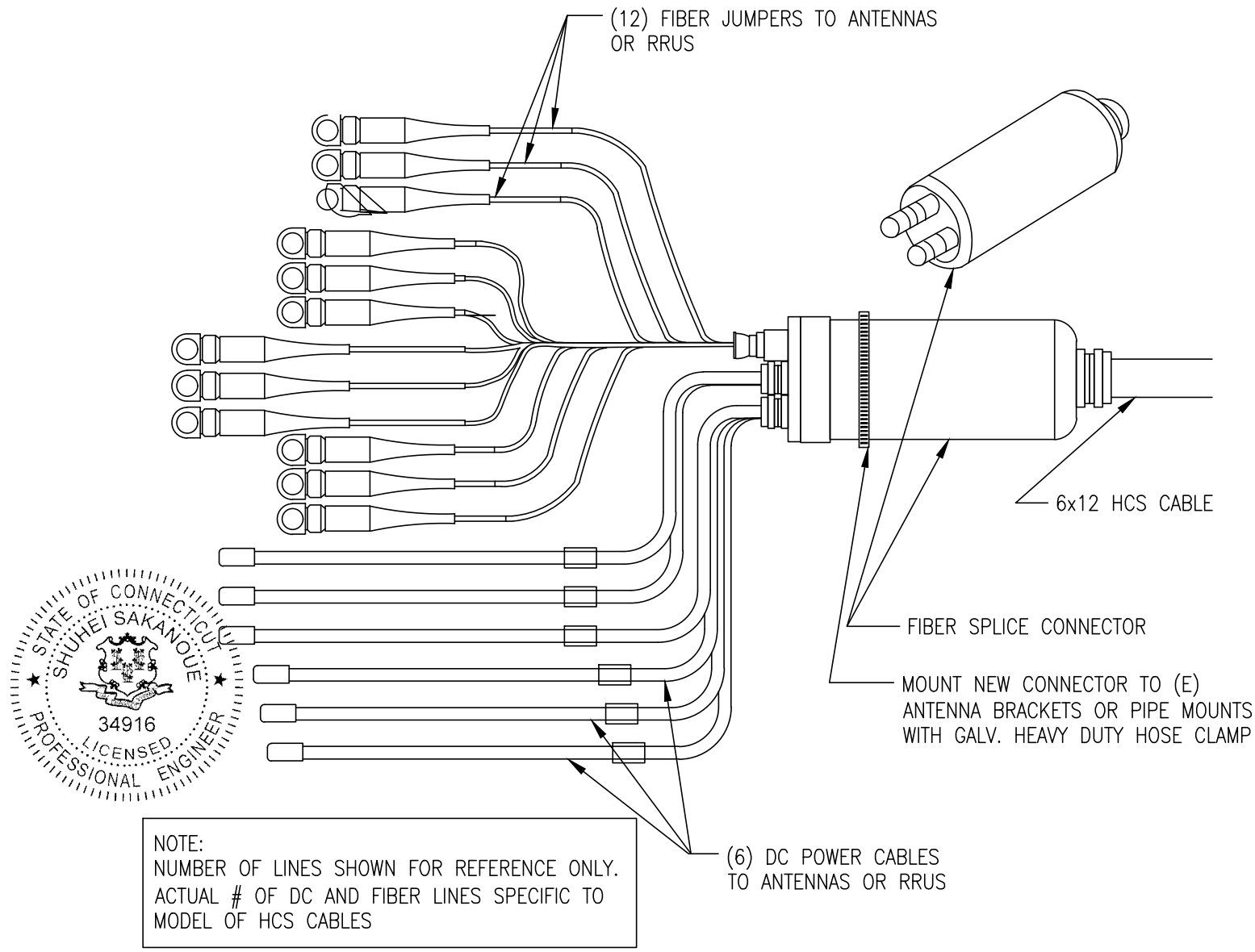


1 (N) APXVAALL24_43-UNA20 ANTENNA SPEC
SCALE: NOT TO SCALE

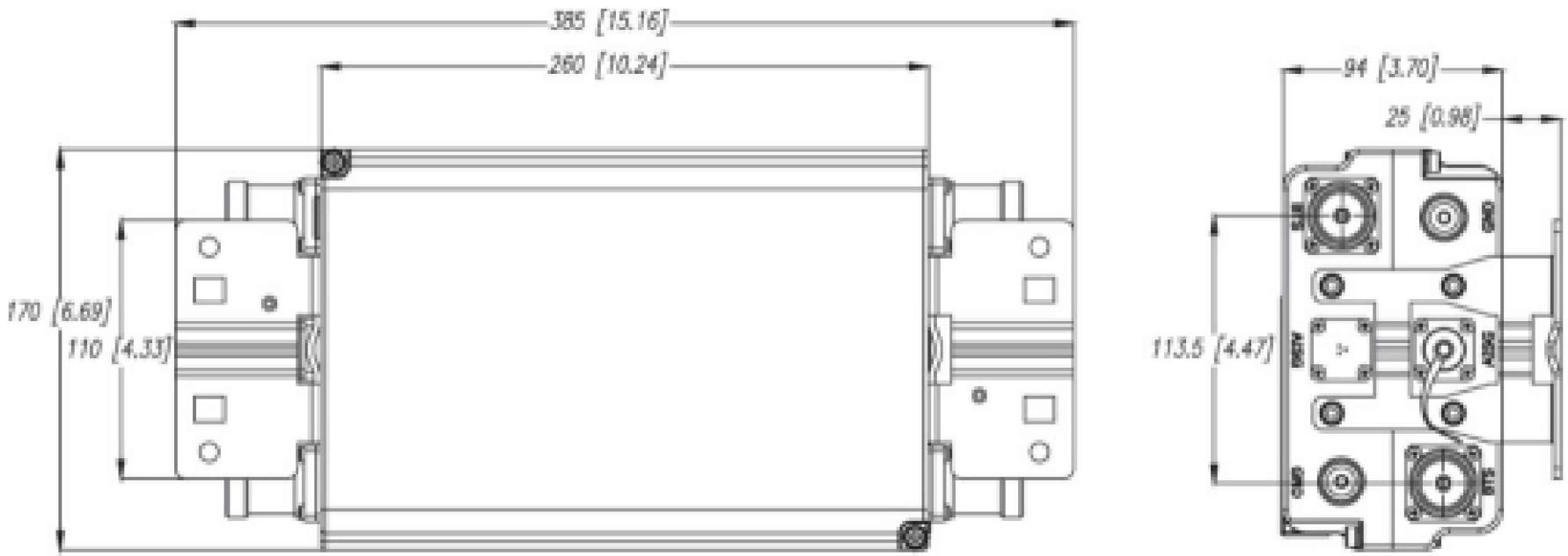
MANUFACTURE:	ERICSSON
MODEL NO.:	RRUS 4449 B71+B85
DIMENSIONS:	TOTAL WEIGHT: 70 LBS (31.7 kg)
A	15"
B	13.2"
C	9.3"



2 (N) RADIO 4449 B71+B85 DETAIL
SCALE: NOT TO SCALE



3 (N) 6X12 HCS CABLE DETAIL
SCALE: NOT TO SCALE



4 GENERIC TWIN STYLE - PCS TMA DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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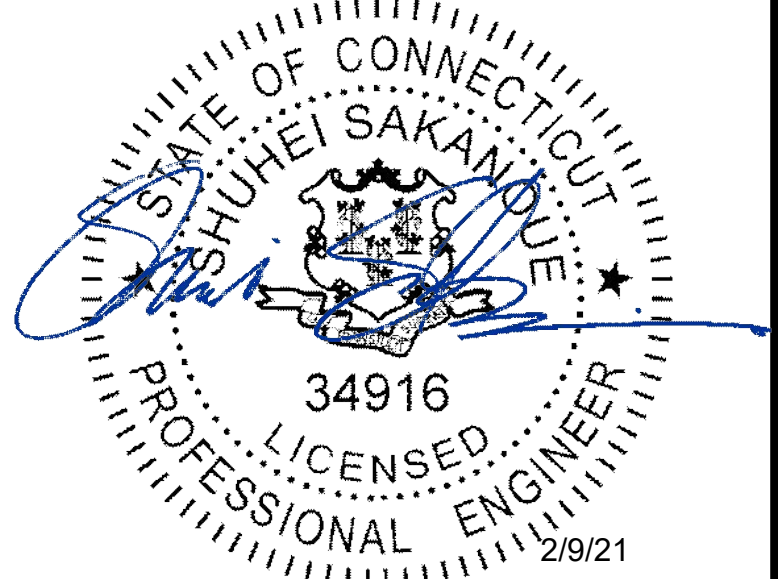
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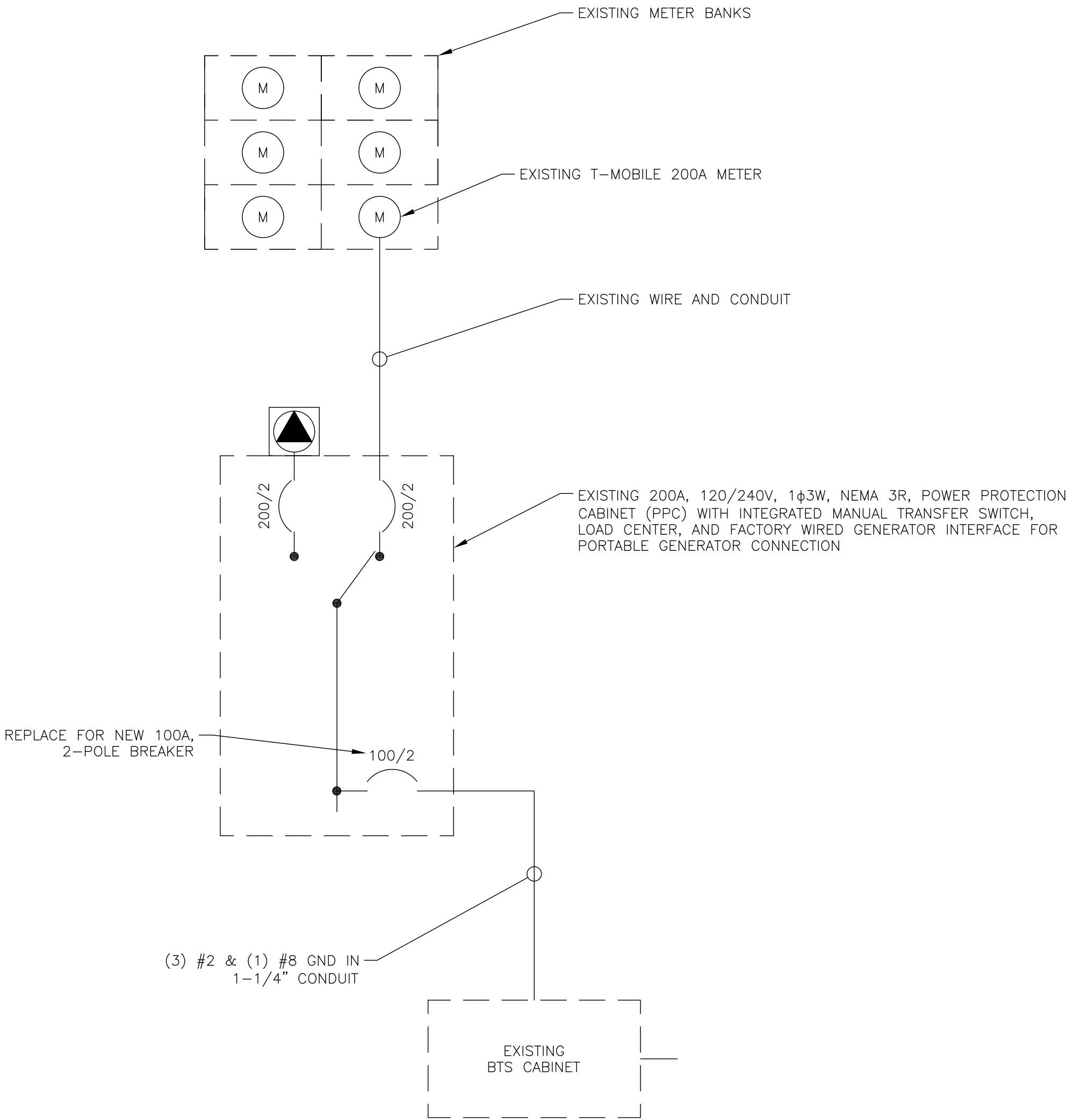
C-5

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NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER.
ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW,
OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN
ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE
ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



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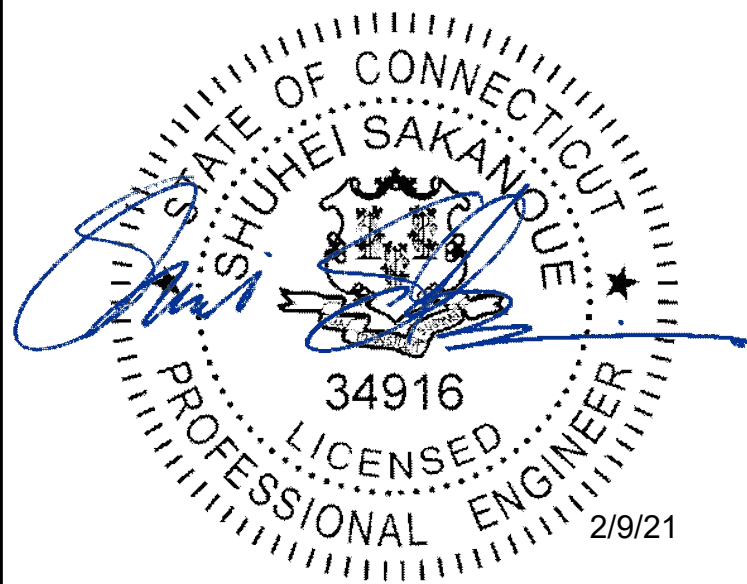
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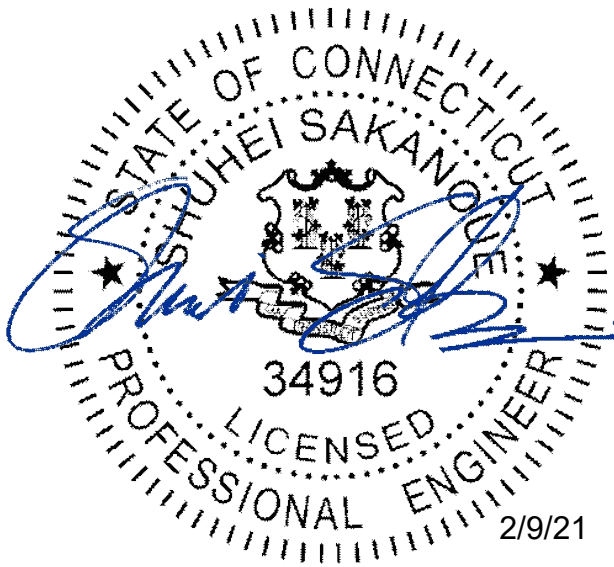
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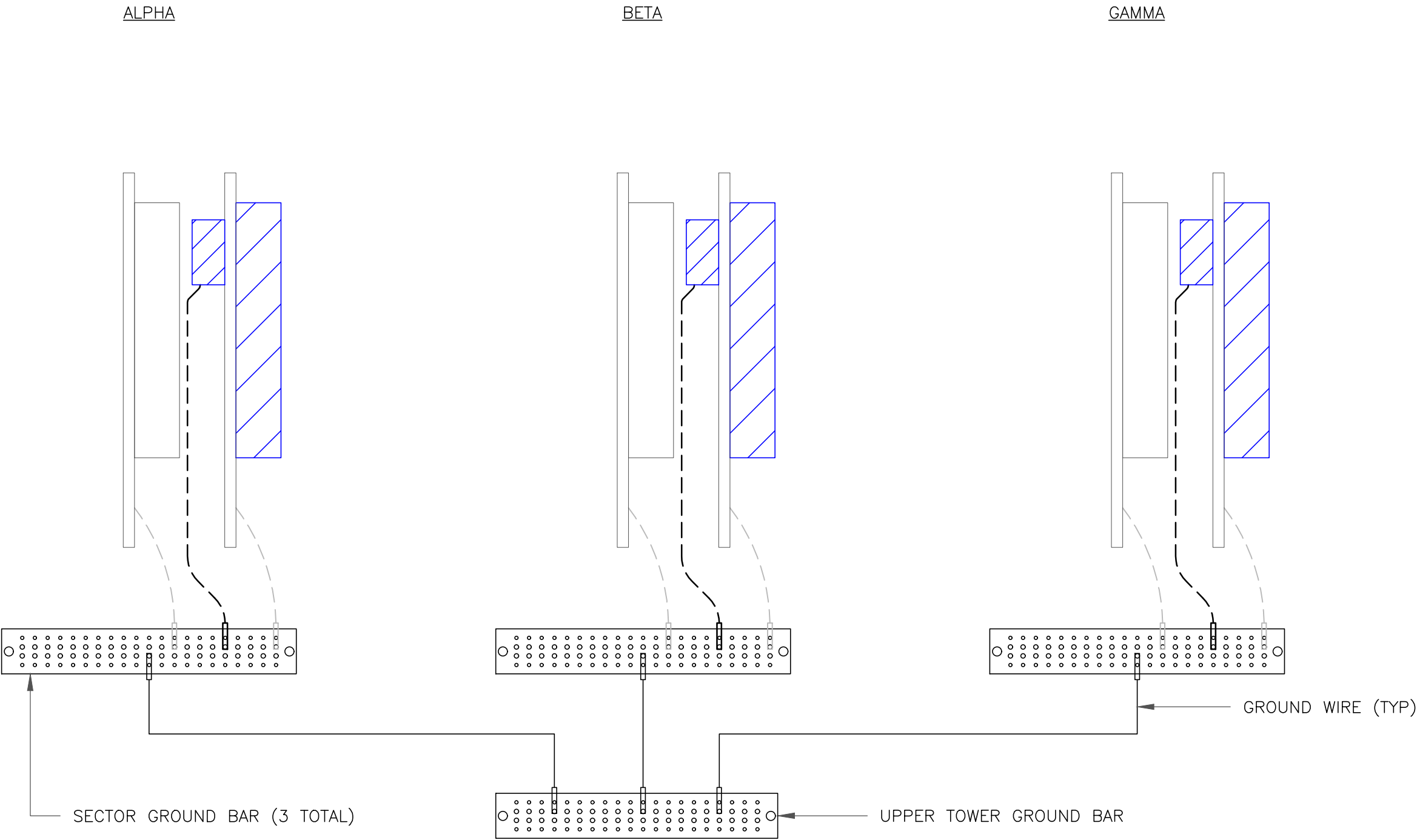
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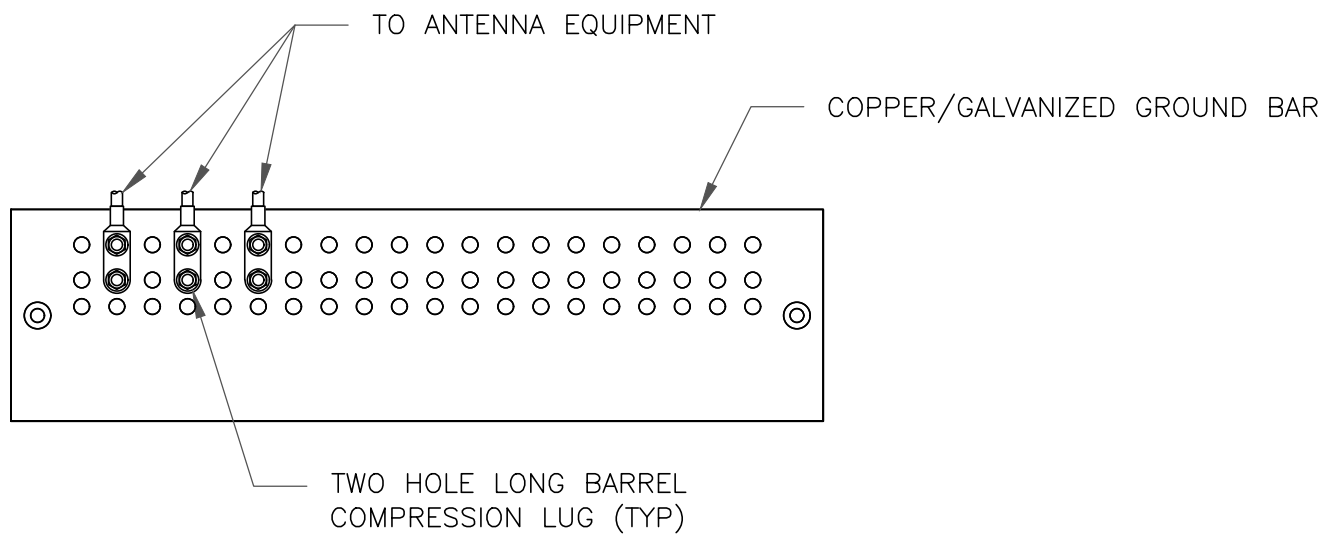
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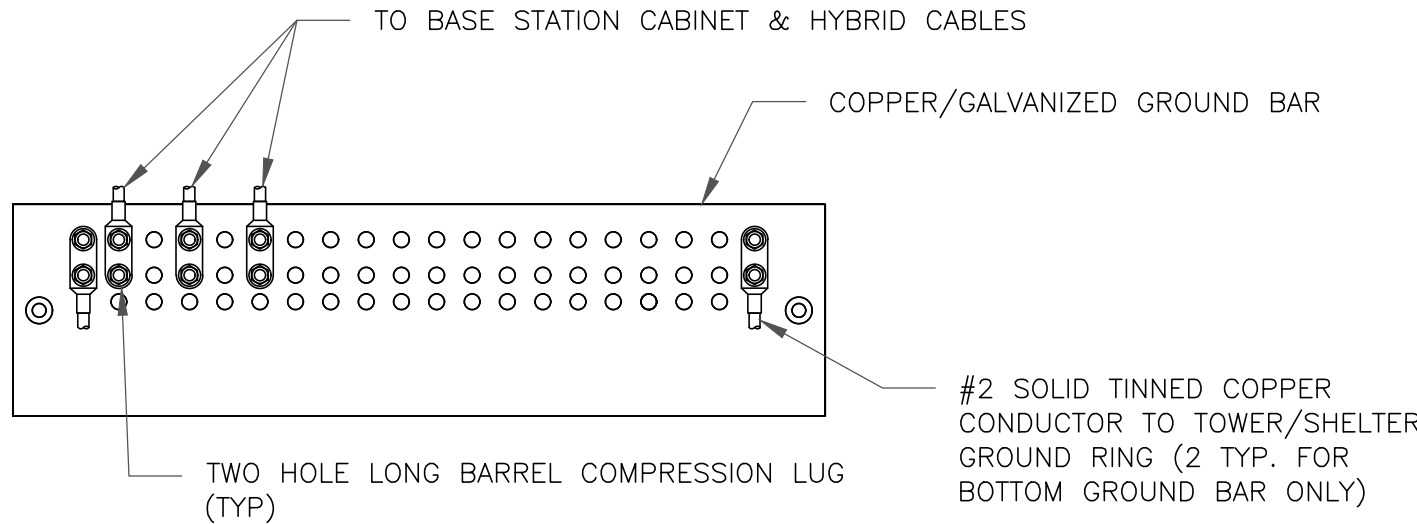
NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED
COPPER WITH GREEN INSULATION UNLESS
NOTED OTHERWISE.

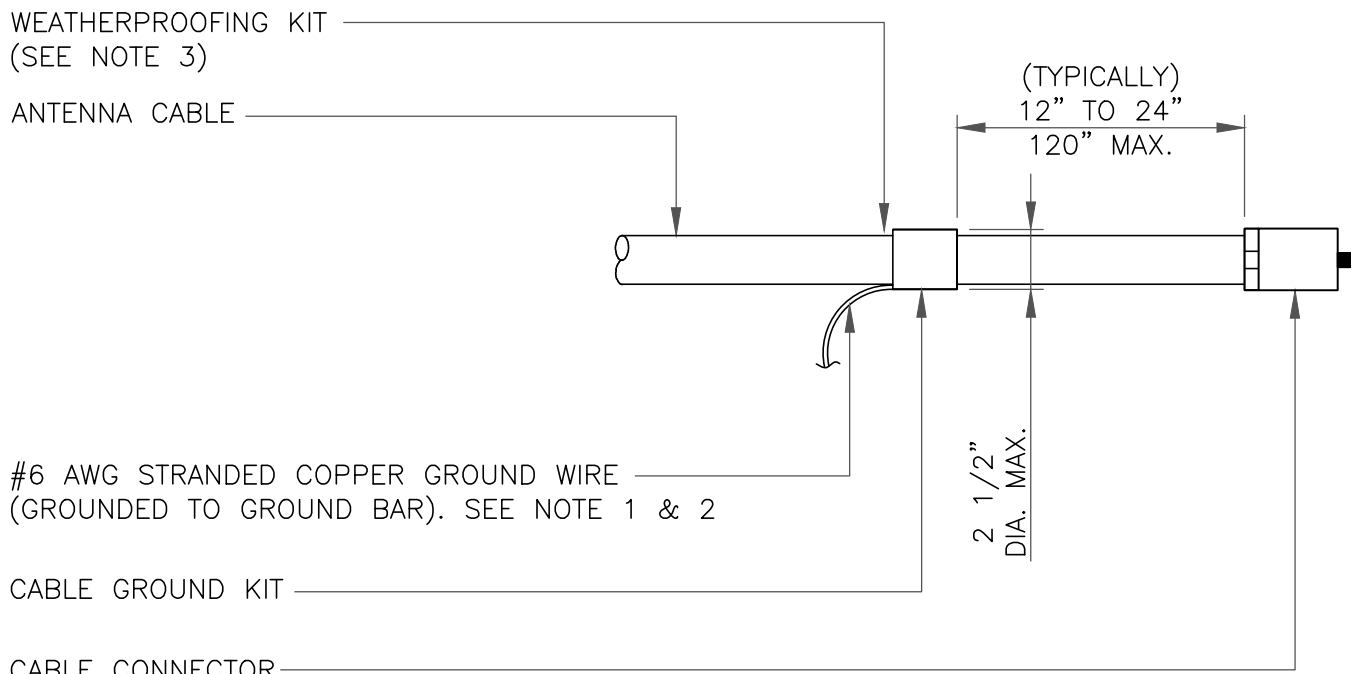
1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



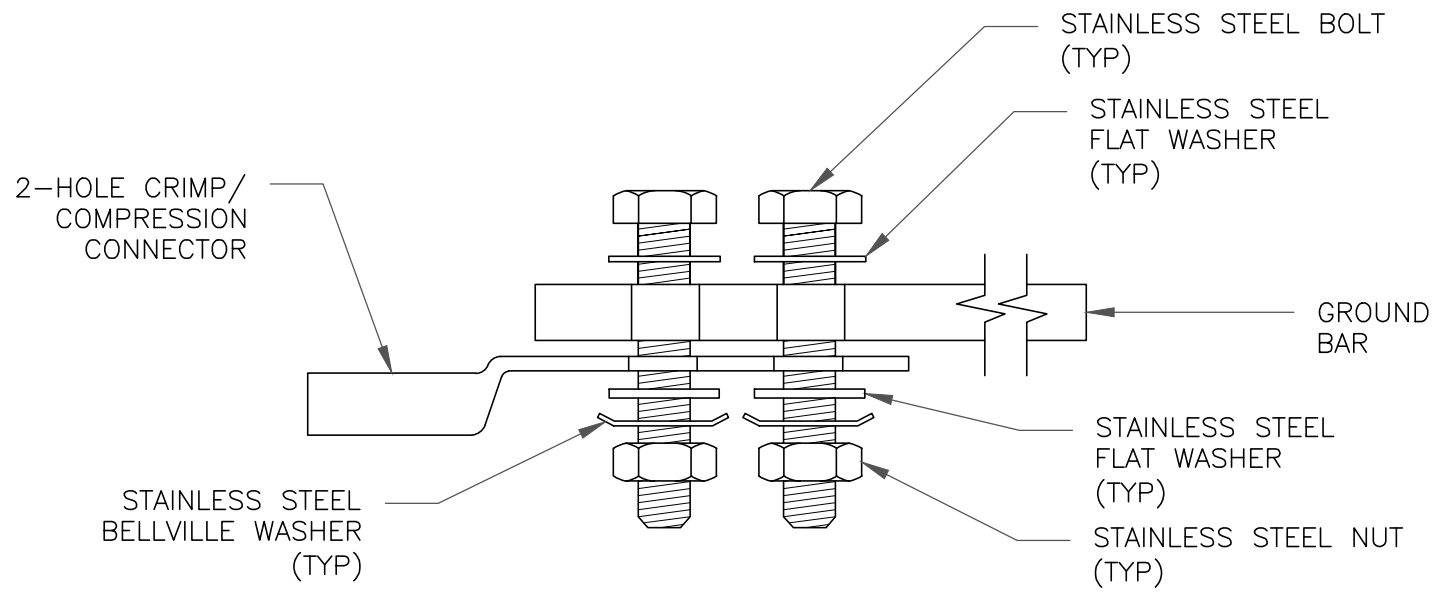
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



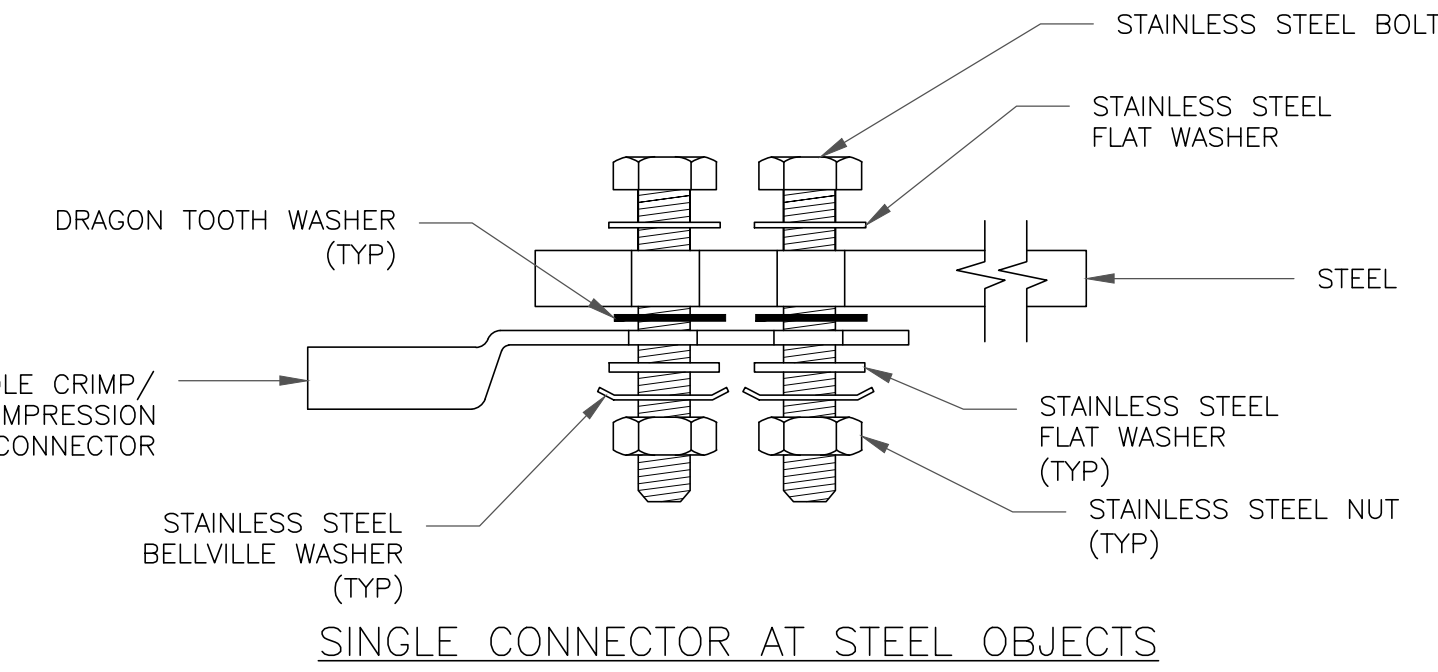
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



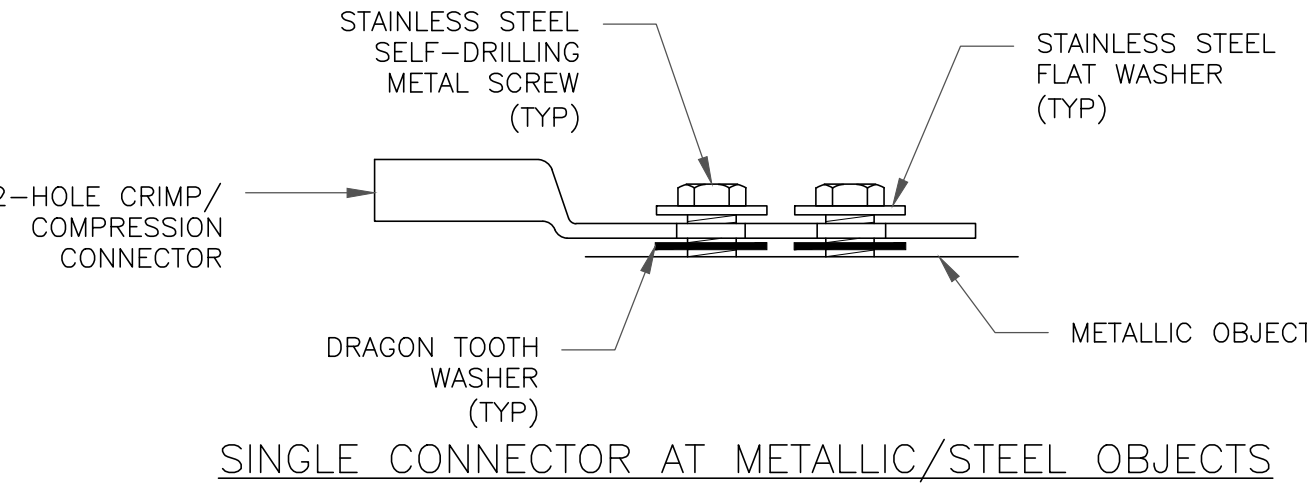
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



5 NOT USED
SCALE: NOT TO SCALE



6 NOT USED
SCALE: NOT TO SCALE

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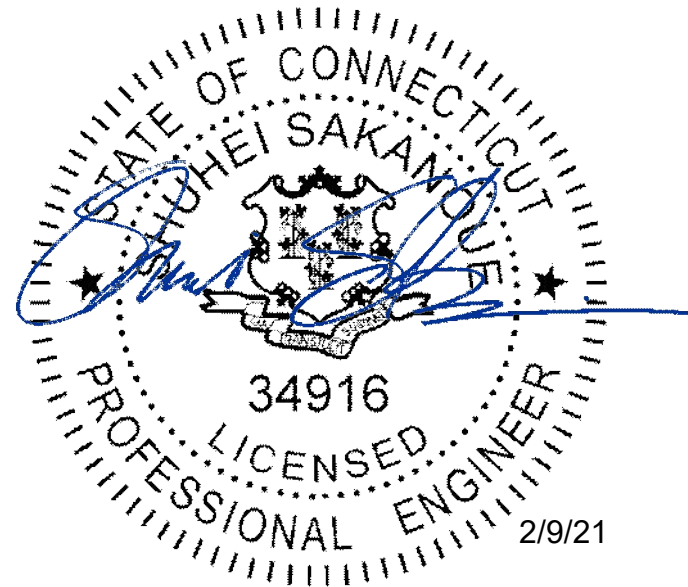
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Exhibit D

Structural Analysis Report

Date: **December 23, 2020**

Michael Murray
Crown Castle
2055 S. Stearman Drive
Chandler, AZ 85286



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

Subject: **Structural Analysis Report**

Carrier Designation: **Metro PCS Co-Locate**
Carrier Site Number: CTNH516A
Carrier Site Name: AT&T Bethany

Monopole

Crown Castle Designation: **Crown Castle BU Number:** 841295
Crown Castle Site Name: BETHANY
Crown Castle JDE Job Number: 624639
Crown Castle Work Order Number: 1902497
Crown Castle Order Number: 534543 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1902497

Site Data: **719 AMITY ROAD, BETHANY, New Haven County, CT**
Latitude 41° 26' 33.93", Longitude -72° 59' 32.86"
151 Foot - Monopole Tower

Dear Michael Murray,

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower.

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

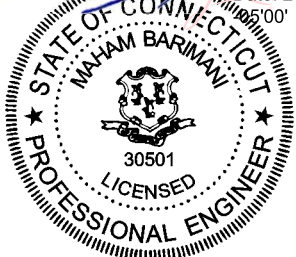
LC7: Proposed Equipment Configuration

Sufficient Capacity

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

Structural analysis prepared by: Kayla D. Weimert

Respectfully submitted by:


Digitally signed by Maham Barimani
Date: 2020.12.23 15:42:59


Maham Barimani, P.E.
Senior Project Engineer

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tnxTower Output

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Additional Calculations

1) INTRODUCTION

This tower is a 151 ft Monopole tower designed by VALMONT.

The tower has been modified per reinforcement drawings prepared by B+T Engineering in February 2012. Reinforcement includes the addition of flat plate shaft modifications from 0 ft. to 120.5 ft. as well as post-installed anchor rods and foundation modifications at 0 ft.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125
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)
122.0	123.0	3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	7	1-5/8
	122.0	3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		2	tower mounts	T-Arm Mount [TA 601-1]		
		9	site pro 1	2" SCH 40 x 5' 3" Mount Pipe		

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)
148.0	160.0	1	db spectra	DS1F03F36D-N	2	7/8
	154.3	1	generic	Mount Pipe [12.5 ft. P2.5XS STD]	6 4 2 3	1-5/8 7/8 3/4 3/8
	152.0	3	sabre	Tiebacks [C10179001]		
	151.0	3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS 8843 B2/B66A_CCIV2		
		6	powerwave technologies	LGP21401		
		2	raycap	DC6-48-60-18-8C-EV		
		1	raycap	DC6-48-60-18-8F		
	149.0	3	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		3	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	kathrein	800 10121 w/ Mount Pipe		
	148.0	1	tower mounts	Platform Mount [LP 715-1_KCKR]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
138.0	139.0	6	commscope	NHH-65C-R2B	13	1-5/8
		3	decibel	DB854DG65ESX w/ Mount Pipe		
		1	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
	138.0	1	tower mounts	Platform Mount [LP 303-1_HR-1]		
		1	tower mounts	Side Arm Mount [SO 102-3]		
132.0	132.0	1	tower mounts	Side Arm Mount [SO 104-3]	-	-
	131.0	3	alcatel lucent	1900MHZ RRH		
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER		
		3	alcatel lucent	800MHZ RRH		
130.0	133.0	1	pctel	GPS-TMG-HR-26NCM	3 1 1	1-5/8 1-1/4 1/2
	130.0	3	alcatel lucent	TD-RRH8X20-25		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		1	tower mounts	T-Arm Mount [TA 602-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	FDH Velocitel	6133951	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FDH Velocitel / Tower Engineering Professionals (MAPPING)	5135917	CCISITES
4-GEOTECHNICAL REPORTS	FDH Velocitel	5135898	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	5135907	CCISITES
4-POST-MODIFICATION INSPECTION	B+T Group	5135928	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
151 - 146	Pole	TP18.526x17.59x0.2188	Pole	8.0%	Pass
146 - 141	Pole	TP19.461x18.526x0.2188	Pole	17.2%	Pass
141 - 136	Pole	TP20.397x19.461x0.2188	Pole	28.1%	Pass
136 - 131	Pole	TP21.332x20.397x0.2188	Pole	39.6%	Pass
131 - 126	Pole	TP22.268x21.332x0.2188	Pole	52.2%	Pass
126 - 121	Pole	TP23.203x22.268x0.2188	Pole	64.4%	Pass
121 - 118.5	Pole	TP23.671x23.203x0.2188	Pole	70.9%	Pass
118.5 - 118.25	Pole + Reinf.	TP23.718x23.671x0.4938	Reinf. 9 Bolt-Shaft Bearing	47.2%	Pass
118.25 - 113.25	Pole + Reinf.	TP24.653x23.718x0.4813	Reinf. 9 Tension Rupture	54.2%	Pass
113.25 - 108.25	Pole + Reinf.	TP25.589x24.653x0.4688	Reinf. 9 Tension Rupture	61.6%	Pass
108.25 - 103.25	Pole + Reinf.	TP26.524x25.589x0.4625	Reinf. 9 Tension Rupture	68.5%	Pass
103.25 - 100.95	Pole + Reinf.	TP27.6x26.524x0.4563	Reinf. 9 Tension Rupture	71.5%	Pass
100.95 - 95.95	Pole + Reinf.	TP27.442x26.517x0.55	Reinf. 9 Tension Rupture	65.9%	Pass
95.95 - 95	Pole + Reinf.	TP27.617x27.442x0.55	Reinf. 9 Tension Rupture	66.8%	Pass
95 - 94.75	Pole + Reinf.	TP27.663x27.617x0.8	Reinf. 9 Tension Rupture	47.4%	Pass
94.75 - 92.5	Pole + Reinf.	TP28.079x27.663x0.7875	Reinf. 9 Tension Rupture	49.0%	Pass
92.5 - 92.25	Pole + Reinf.	TP28.126x28.079x0.55	Reinf. 8 Tension Rupture	69.4%	Pass
92.25 - 87.75	Pole + Reinf.	TP28.958x28.126x0.5375	Reinf. 8 Tension Rupture	73.3%	Pass
87.75 - 87.5	Pole + Reinf.	TP29.004x28.958x0.8625	Reinf. 8 Tension Rupture	47.3%	Pass
87.5 - 84	Pole + Reinf.	TP29.651x29.004x0.85	Reinf. 8 Tension Rupture	49.4%	Pass
84 - 83.75	Pole + Reinf.	TP29.697x29.651x0.6125	Reinf. 7 Tension Rupture	65.8%	Pass
83.75 - 78.75	Pole + Reinf.	TP30.622x29.697x0.6	Reinf. 7 Tension Rupture	69.3%	Pass
78.75 - 73.75	Pole + Reinf.	TP31.546x30.622x0.5875	Reinf. 7 Tension Rupture	72.5%	Pass
73.75 - 68.75	Pole + Reinf.	TP32.471x31.546x0.5875	Reinf. 7 Tension Rupture	75.5%	Pass
68.75 - 64.75	Pole + Reinf.	TP33.21x32.471x0.575	Reinf. 7 Tension Rupture	77.7%	Pass
64.75 - 64.5	Pole + Reinf.	TP33.257x33.21x0.85	Reinf. 7 Tension Rupture	53.9%	Pass
64.5 - 63.25	Pole + Reinf.	TP33.488x33.257x0.85	Reinf. 7 Tension Rupture	54.5%	Pass
63.25 - 63	Pole + Reinf.	TP33.534x33.488x0.575	Reinf. 6 Tension Rupture	78.7%	Pass
63 - 58	Pole + Reinf.	TP34.459x33.534x0.5625	Reinf. 6 Tension Rupture	81.2%	Pass
58 - 56.75	Pole + Reinf.	TP34.69x34.459x0.5625	Reinf. 6 Tension Rupture	81.8%	Pass
56.75 - 56.5	Pole + Reinf.	TP34.736x34.69x0.9125	Reinf. 6 Tension Rupture	52.3%	Pass
56.5 - 55.25	Pole + Reinf.	TP34.967x34.736x0.9125	Reinf. 6 Tension Rupture	52.7%	Pass
55.25 - 55	Pole + Reinf.	TP35.013x34.967x0.6375	Reinf. 5 Compression	69.3%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
55 - 52.05	Pole + Reinf.	TP36.4x35.013x0.6375	Reinf. 5 Compression	70.6%	Pass
52.05 - 47.05	Pole + Reinf.	TP35.88x34.934x0.7	Reinf. 5 Compression	67.7%	Pass
47.05 - 42.05	Pole + Reinf.	TP36.825x35.88x0.6875	Reinf. 5 Compression	69.3%	Pass
42.05 - 37.05	Pole + Reinf.	TP37.771x36.825x0.675	Reinf. 5 Compression	70.8%	Pass
37.05 - 34.95	Pole + Reinf.	TP38.169x37.771x0.675	Reinf. 5 Compression	71.4%	Pass
34.95 - 34.7	Pole + Reinf.	TP38.216x38.169x0.9875	Reinf. 4 Bolt Shear	51.8%	Pass
34.7 - 34.25	Pole + Reinf.	TP38.301x38.216x0.975	Reinf. 5 Bolt Shear	51.9%	Pass
34.25 - 34	Pole + Reinf.	TP38.348x38.301x0.675	Reinf. 4 Compression	71.7%	Pass
34 - 29	Pole + Reinf.	TP39.294x38.348x0.6625	Reinf. 4 Compression	73.0%	Pass
29 - 26.75	Pole + Reinf.	TP39.72x39.294x0.6625	Reinf. 4 Compression	73.5%	Pass
26.75 - 26.5	Pole + Reinf.	TP39.767x39.72x0.95	Reinf. 2 Bolt Shear	53.8%	Pass
26.5 - 25.25	Pole + Reinf.	TP40.003x39.767x0.95	Reinf. 4 Bolt Shear	54.1%	Pass
25.25 - 25	Pole + Reinf.	TP40.051x40.003x0.6625	Reinf. 2 Compression	74.0%	Pass
25 - 20	Pole + Reinf.	TP40.997x40.051x0.65	Reinf. 2 Compression	75.1%	Pass
20 - 16.75	Pole + Reinf.	TP41.611x40.997x0.65	Reinf. 2 Compression	75.8%	Pass
16.75 - 16.5	Pole + Reinf.	TP41.659x41.611x0.7625	Reinf. 3 Compression	69.7%	Pass
16.5 - 14.25	Pole + Reinf.	TP42.084x41.659x0.7625	Reinf. 3 Compression	70.2%	Pass
14.25 - 14	Pole + Reinf.	TP42.132x42.084x0.725	Reinf. 3 Compression	70.6%	Pass
14 - 9	Pole + Reinf.	TP43.077x42.132x0.7125	Reinf. 3 Compression	71.6%	Pass
9 - 4	Pole + Reinf.	TP44.023x43.077x0.7125	Reinf. 3 Compression	72.5%	Pass
4 - 0	Pole + Reinf.	TP44.78x44.023x0.7	Reinf. 3 Bolt Shear	75.8%	Pass
				Summary	
			Pole	70.9%	Pass
			Reinforcement	81.8%	Pass
			Overall	81.8%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	56.6	Pass
1	Base Plate	0	26.7	Pass
1	Base Foundation (Structure)	0	91.4	Pass
1	Base Foundation (Soil Interaction)	0	72.5	Pass

Structure Rating (max from all components) =	91.4%
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

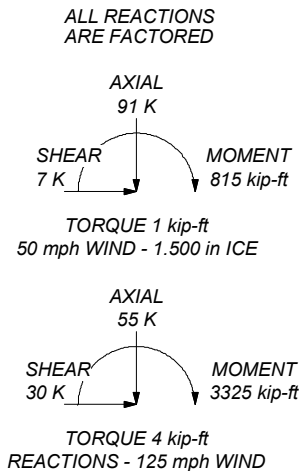
4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

MATERIAL STRENGTH

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 81.8%



 CROWN CASTLE The Pathway to Possible	Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724)416-2000 FAX:		Job: BU 841295	
	Project:			
	Client: Crown Castle		Drawn by: Kayla Weimert	App'd:
	Code: TIA-222-H		Date: 12/23/20	Scale: NTS
	FAX:		Dwg No. E-1	

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- 3) Tower is located in New Haven County, Connecticut.
- 4) Tower base elevation above sea level: 742.000 ft.
- 5) Basic wind speed of 125 mph.
- 6) Risk Category II.
- 7) Exposure Category B.
- 8) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 9) Topographic Category: 1.
- 10) Crest Height: 0.000 ft.
- 11) Nominal ice thickness of 1.500 in.
- 12) Ice thickness is considered to increase with height.
- 13) Ice density of 56.000 pcf.
- 14) A wind speed of 50 mph is used in combination with ice.
- 15) Temperature drop of 50.000 °F.
- 16) Deflections calculated using a wind speed of 60 mph.
- 17) TOWER RATING: 81.8%.
- 18) A non-linear (P-delta) analysis was used.
- 19) Pressures are calculated at each section.
- 20) Stress ratio used in pole design is 1.05.
- 21) Tower analysis based on target reliabilities in accordance with Annex S.
- 22) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 23) 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	Retention 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.
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Use TIA-222-H Tension Splice
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Exemption
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	

Poles

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

Tapered Pole Section Geometry

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

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	151.000-146.000	5.000	0.000	12	17.590	18.526	0.219	0.875	A572-65 (65 ksi)
L2	146.000-141.000	5.000	0.000	12	18.526	19.461	0.219	0.875	A572-65 (65 ksi)
L3	141.000-136.000	5.000	0.000	12	19.461	20.397	0.219	0.875	A572-65 (65 ksi)
L4	136.000-131.000	5.000	0.000	12	20.397	21.332	0.219	0.875	A572-65 (65 ksi)
L5	131.000-126.000	5.000	0.000	12	21.332	22.268	0.219	0.875	A572-65 (65 ksi)
L6	126.000-121.000	5.000	0.000	12	22.268	23.203	0.219	0.875	A572-65 (65 ksi)
L7	121.000-118.500	2.500	0.000	12	23.203	23.671	0.219	0.875	A572-65 (65 ksi)
L8	118.500-118.250	0.250	0.000	12	23.671	23.718	0.494	1.975	A572-65 (65 ksi)
L9	118.250-113.250	5.000	0.000	12	23.718	24.653	0.481	1.925	A572-65 (65 ksi)
L10	113.250-108.250	5.000	0.000	12	24.653	25.589	0.469	1.875	A572-65 (65 ksi)
L11	108.250-103.250	5.000	0.000	12	25.589	26.524	0.463	1.850	A572-65 (65 ksi)
L12	103.250-97.500	5.750	3.450	12	26.524	27.600	0.456	1.825	A572-65 (65 ksi)
L13	97.500-95.950	5.000	0.000	12	26.517	27.442	0.550	2.200	A572-65 (65 ksi)
L14	95.950-95.000	0.950	0.000	12	27.442	27.617	0.550	2.200	A572-65 (65 ksi)
L15	95.000-94.750	0.250	0.000	12	27.617	27.663	0.800	3.200	A572-65 (65 ksi)
L16	94.750-92.500	2.250	0.000	12	27.663	28.079	0.787	3.150	A572-65 (65 ksi)
L17	92.500-92.250	0.250	0.000	12	28.079	28.126	0.550	2.200	A572-65 (65 ksi)
L18	92.250-87.750	4.500	0.000	12	28.126	28.958	0.537	2.150	A572-65 (65 ksi)
L19	87.750-87.500	0.250	0.000	12	28.958	29.004	0.863	3.450	A572-65 (65 ksi)
L20	87.500-84.000	3.500	0.000	12	29.004	29.651	0.850	3.400	A572-65 (65 ksi)
L21	84.000-83.750	0.250	0.000	12	29.651	29.697	0.613	2.450	A572-65 (65 ksi)
L22	83.750-78.750	5.000	0.000	12	29.697	30.622	0.600	2.400	A572-65 (65 ksi)
L23	78.750-73.750	5.000	0.000	12	30.622	31.546	0.588	2.350	A572-65 (65 ksi)
L24	73.750-68.750	5.000	0.000	12	31.546	32.471	0.588	2.350	A572-65 (65 ksi)
L25	68.750-64.750	4.000	0.000	12	32.471	33.210	0.575	2.300	A572-65 (65 ksi)
L26	64.750-64.500	0.250	0.000	12	33.210	33.257	0.850	3.400	A572-65 (65 ksi)
L27	64.500-63.250	1.250	0.000	12	33.257	33.488	0.850	3.400	A572-65 (65 ksi)
L28	63.250-63.000	0.250	0.000	12	33.488	33.534	0.575	2.300	A572-65 (65 ksi)
L29	63.000-58.000	5.000	0.000	12	33.534	34.459	0.563	2.250	A572-65 (65 ksi)
L30	58.000-56.750	1.250	0.000	12	34.459	34.690	0.563	2.250	A572-65 (65 ksi)
L31	56.750-56.500	0.250	0.000	12	34.690	34.736	0.912	3.650	A572-65 (65 ksi)
L32	56.500-55.250	1.250	0.000	12	34.736	34.967	0.912	3.650	A572-65 (65 ksi)
L33	55.250-55.000	0.250	0.000	12	34.967	35.013	0.637	2.550	A572-65 (65 ksi)
L34	55.000-47.500	7.500	4.550	12	35.013	36.400	0.637	2.550	A572-65 (65 ksi)
L35	47.500-47.050	5.000	0.000	12	34.934	35.880	0.700	2.800	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L36	47.050-42.050	5.000	0.000	12	35.880	36.825	0.688	2.750	(65 ksi) A572-65
L37	42.050-37.050	5.000	0.000	12	36.825	37.771	0.675	2.700	(65 ksi) A572-65
L38	37.050-34.950	2.100	0.000	12	37.771	38.169	0.675	2.700	(65 ksi) A572-65
L39	34.950-34.700	0.250	0.000	12	38.169	38.216	0.988	3.950	(65 ksi) A572-65
L40	34.700-34.250	0.450	0.000	12	38.216	38.301	0.975	3.900	(65 ksi) A572-65
L41	34.250-34.000	0.250	0.000	12	38.301	38.348	0.675	2.700	(65 ksi) A572-65
L42	34.000-29.000	5.000	0.000	12	38.348	39.294	0.662	2.650	(65 ksi) A572-65
L43	29.000-26.750	2.250	0.000	12	39.294	39.720	0.662	2.650	(65 ksi) A572-65
L44	26.750-26.500	0.250	0.000	12	39.720	39.767	0.950	3.800	(65 ksi) A572-65
L45	26.500-25.250	1.250	0.000	12	39.767	40.003	0.950	3.800	(65 ksi) A572-65
L46	25.250-25.000	0.250	0.000	12	40.003	40.051	0.662	2.650	(65 ksi) A572-65
L47	25.000-20.000	5.000	0.000	12	40.051	40.997	0.650	2.600	(65 ksi) A572-65
L48	20.000-16.750	3.250	0.000	12	40.997	41.611	0.650	2.600	(65 ksi) A572-65
L49	16.750-16.500	0.250	0.000	12	41.611	41.659	0.762	3.050	(65 ksi) A572-65
L50	16.500-14.250	2.250	0.000	12	41.659	42.084	0.762	3.050	(65 ksi) A572-65
L51	14.250-14.000	0.250	0.000	12	42.084	42.132	0.725	2.900	(65 ksi) A572-65
L52	14.000-9.000	5.000	0.000	12	42.132	43.077	0.713	2.850	(65 ksi) A572-65
L53	9.000-4.000	5.000	0.000	12	43.077	44.023	0.713	2.850	(65 ksi) A572-65
L54	4.000-0.000	4.000		12	44.023	44.780	0.700	2.800	(65 ksi) A572-65

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	18.133	12.236	471.284	6.219	9.112	51.723	954.950	6.022	4.128	18.87
	19.102	12.895	551.600	6.554	9.596	57.481	1117.692	6.346	4.379	20.016
L2	19.102	12.895	551.600	6.554	9.596	57.481	1117.692	6.346	4.379	20.016
	20.070	13.554	640.559	6.889	10.081	63.542	1297.947	6.671	4.629	21.163
L3	20.070	13.554	640.559	6.889	10.081	63.542	1297.947	6.671	4.629	21.163
	21.039	14.213	738.603	7.224	10.565	69.908	1496.609	6.995	4.880	22.309
L4	21.039	14.213	738.603	7.224	10.565	69.908	1496.609	6.995	4.880	22.309
	22.007	14.872	846.172	7.559	11.050	76.577	1714.574	7.319	5.131	23.455
L5	22.007	14.872	846.172	7.559	11.050	76.577	1714.574	7.319	5.131	23.455
	22.976	15.531	963.709	7.893	11.535	83.549	1952.736	7.644	5.381	24.601
L6	22.976	15.531	963.709	7.893	11.535	83.549	1952.736	7.644	5.381	24.601
	23.944	16.190	1091.656	8.228	12.019	90.826	2211.990	7.968	5.632	25.747
L7	23.944	16.190	1091.656	8.228	12.019	90.826	2211.990	7.968	5.632	25.747
	24.429	16.519	1159.670	8.396	12.261	94.578	2349.807	8.130	5.758	26.32
L8	24.429	16.519	1159.670	8.396	12.261	94.578	2349.807	8.130	5.758	26.32
	24.332	36.849	2526.537	8.297	12.261	206.055	5119.450	18.136	5.021	10.168
	24.380	36.923	2541.865	8.314	12.286	206.896	5150.508	18.172	5.033	10.194
L9	24.385	36.008	2481.517	8.319	12.286	201.984	5028.226	17.722	5.067	10.528
	25.353	37.457	2793.469	8.654	12.770	218.747	5660.326	18.435	5.317	11.049
L10	25.357	36.503	2725.135	8.658	12.770	213.396	5521.862	17.966	5.351	11.415
	26.326	37.915	3053.772	8.993	13.255	230.388	6187.769	18.661	5.602	11.95
L11	26.328	37.419	3015.304	8.995	13.255	227.486	6109.824	18.417	5.618	12.148

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
L12	27.297	38.812	3364.804	9.330	13.740	244.900	6818.004	19.102	5.869	12.69
	27.299	38.297	3321.722	9.332	13.740	241.764	6730.709	18.849	5.886	12.9
	28.413	39.878	3750.198	9.717	14.297	262.310	7598.919	19.627	6.174	13.532
L13	27.919	45.988	3957.944	9.296	13.736	288.148	8019.867	22.634	5.633	10.241
	28.216	47.625	4395.920	9.627	14.215	309.252	8907.327	23.440	5.880	10.691
L14	28.216	47.625	4395.920	9.627	14.215	309.252	8907.327	23.440	5.880	10.691
	28.397	47.936	4482.627	9.690	14.306	313.346	9083.019	23.593	5.927	10.777
L15	28.309	69.081	6341.182	9.601	14.306	443.263	12848.954	34.000	5.257	6.572
	28.357	69.200	6374.030	9.617	14.330	444.815	12915.513	34.058	5.270	6.587
L16	28.361	68.151	6283.199	9.622	14.330	438.476	12731.464	33.542	5.303	6.734
	28.792	69.205	6579.524	9.771	14.545	452.352	13331.899	34.061	5.415	6.876
L17	28.876	48.755	4716.236	9.856	14.545	324.248	9556.372	23.996	6.051	11.002
	28.924	48.836	4740.033	9.872	14.569	325.349	9604.592	24.036	6.064	11.025
L18	28.928	47.748	4638.608	9.877	14.569	318.387	9399.076	23.500	6.097	11.344
	29.790	49.188	5071.094	10.174	15.000	338.071	10275.412	24.209	6.320	11.758
L19	29.675	78.027	7861.353	10.058	15.000	524.087	15929.233	38.403	5.449	6.318
	29.723	78.156	7900.220	10.075	15.024	525.839	16007.988	38.466	5.462	6.332
L20	29.727	77.057	7796.104	10.079	15.024	518.909	15797.020	37.925	5.495	6.465
	30.397	78.829	8346.169	10.311	15.359	543.397	16911.600	38.797	5.668	6.669
L21	30.481	57.271	6164.163	10.396	15.359	401.332	12490.266	28.187	6.305	10.294
	30.529	57.363	6193.648	10.412	15.383	402.624	12550.009	28.232	6.317	10.314
L22	30.533	56.216	6075.073	10.417	15.383	394.916	12309.744	27.668	6.351	10.585
	31.490	58.002	6672.737	10.748	15.862	420.672	13520.773	28.547	6.599	10.998
L23	31.495	56.817	6541.886	10.752	15.862	412.422	13255.634	27.964	6.632	11.289
	32.452	58.566	7164.785	11.083	16.341	438.455	14517.796	28.825	6.880	11.71
L24	32.452	58.566	7164.785	11.083	16.341	438.455	14517.796	28.825	6.880	11.71
	33.409	60.315	7826.020	11.414	16.820	465.284	15857.638	29.685	7.128	12.132
L25	33.413	59.055	7668.521	11.419	16.820	455.920	15538.503	29.065	7.161	12.454
	34.179	60.425	8214.444	11.683	17.203	477.500	16644.691	29.739	7.359	12.799
L26	34.082	88.571	11838.703	11.585	17.203	688.176	23988.421	43.592	6.622	7.791
	34.130	88.697	11889.508	11.602	17.227	690.169	24091.367	43.654	6.635	7.806
L27	34.130	88.697	11889.508	11.602	17.227	690.169	24091.367	43.654	6.635	7.806
	34.369	89.330	12145.718	11.684	17.347	700.175	24610.518	43.965	6.697	7.879
L28	34.466	60.938	8425.661	11.783	17.347	485.722	17072.674	29.992	7.434	12.928
	34.514	61.024	8461.212	11.799	17.371	487.099	17144.710	30.034	7.446	12.95
L29	34.519	59.720	8286.694	11.804	17.371	477.052	16791.089	29.392	7.480	13.297
	35.476	61.394	9003.490	12.135	17.850	504.411	18243.511	30.216	7.727	13.738
L30	35.476	61.394	9003.490	12.135	17.850	504.411	18243.511	30.216	7.727	13.738
	35.715	61.813	9188.925	12.218	17.969	511.370	18619.253	30.422	7.789	13.848
L31	35.591	99.246	14452.534	12.092	17.969	804.293	29284.752	48.846	6.851	7.508
	35.639	99.382	14511.952	12.109	17.993	806.525	29405.149	48.913	6.864	7.522
L32	35.639	99.382	14511.952	12.109	17.993	806.525	29405.149	48.913	6.864	7.522
	35.879	100.061	14811.486	12.192	18.113	817.731	30012.086	49.247	6.926	7.59
L33	35.976	70.470	10600.463	12.290	18.113	585.243	21479.413	34.683	7.663	12.02
	36.023	70.565	10643.342	12.307	18.137	586.835	21566.297	34.730	7.675	12.039
L34	36.023	70.565	10643.342	12.307	18.137	586.835	21566.297	34.730	7.675	12.039
	37.459	73.411	11984.105	12.803	18.855	635.586	24283.047	36.131	8.047	12.622
L35	36.810	77.163	11542.536	12.256	18.096	637.862	23388.308	37.977	7.486	10.695
	36.898	79.295	12525.948	12.594	18.586	673.960	25380.966	39.026	7.740	11.057
L36	36.903	77.906	12315.388	12.599	18.586	662.630	24954.316	38.343	7.773	11.306
	37.882	80.000	13335.312	12.937	19.076	699.079	27020.957	39.374	8.027	11.675
L37	37.886	78.573	13106.442	12.942	19.076	687.080	26557.206	38.671	8.060	11.941
	38.866	80.629	14162.357	13.280	19.566	723.843	28696.776	39.683	8.314	12.317
L38	38.866	80.629	14162.357	13.280	19.566	723.843	28696.776	39.683	8.314	12.317
	39.277	81.492	14622.234	13.423	19.771	739.569	29628.610	40.108	8.420	12.474
L39	39.167	118.226	20861.345	13.311	19.771	1055.133	42270.741	58.187	7.583	7.679
	39.216	118.377	20941.050	13.328	19.796	1057.854	42432.245	58.261	7.595	7.691
L40	39.220	116.917	20696.808	13.332	19.796	1045.516	41937.343	57.543	7.629	7.824
	39.308	117.185	20839.061	13.363	19.840	1050.362	42225.588	57.675	7.652	7.848
L41	39.414	81.780	14777.709	13.470	19.840	744.849	29943.646	40.250	8.456	12.527
	39.463	81.883	14833.502	13.487	19.864	746.739	30056.698	40.300	8.468	12.546
L42	39.467	80.393	14573.305	13.491	19.864	733.640	29529.466	39.567	8.502	12.833
	40.447	82.411	15698.375	13.830	20.354	771.255	31809.163	40.560	8.755	13.216
L43	40.447	82.411	15698.375	13.830	20.354	771.255	31809.163	40.560	8.755	13.216
	40.887	83.319	16222.994	13.982	20.575	788.488	32872.185	41.007	8.869	13.388
L44	40.786	118.597	22753.214	13.880	20.575	1105.878	46104.180	58.370	8.099	8.525
	40.835	118.741	22836.581	13.896	20.599	1108.609	46273.104	58.441	8.112	8.538
L45	40.835	118.741	22836.581	13.896	20.599	1108.609	46273.104	58.441	8.112	8.538
	41.080	119.465	23256.471	13.981	20.722	1122.320	47123.915	58.797	8.175	8.605
L46	41.181	83.924	16579.155	14.084	20.722	800.083	33593.864	41.305	8.945	13.503

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
L47	41.230	84.025	16639.018	14.101	20.746	802.024	33715.161	41.355	8.958	13.522
	41.234	82.466	16340.621	14.105	20.746	787.641	33110.529	40.587	8.992	13.833
	42.214	84.445	17545.912	14.444	21.236	826.225	35552.774	41.561	9.245	14.223
L48	42.214	84.445	17545.912	14.444	21.236	826.225	35552.774	41.561	9.245	14.223
	42.850	85.732	18360.292	14.664	21.555	851.800	37202.929	42.195	9.410	14.477
L49	42.810	100.294	21361.060	14.624	21.555	991.016	43283.299	49.362	9.108	11.945
	42.859	100.410	21435.338	14.641	21.579	993.333	43433.805	49.419	9.121	11.962
L50	42.859	100.410	21435.338	14.641	21.579	993.333	43433.805	49.419	9.121	11.962
	43.300	101.455	22111.601	14.793	21.800	1014.308	44804.098	49.933	9.235	12.112
L51	43.313	96.553	21081.436	14.807	21.800	967.053	42716.705	47.521	9.336	12.877
	43.362	96.664	21153.836	14.824	21.824	969.284	42863.406	47.575	9.348	12.894
L52	43.367	95.026	20807.948	14.828	21.824	953.436	42162.544	46.769	9.382	13.167
	44.346	97.196	22266.265	15.167	22.314	997.855	45117.490	47.837	9.635	13.523
L53	44.346	97.196	22266.265	15.167	22.314	997.855	45117.490	47.837	9.635	13.523
	45.325	99.366	23791.175	15.505	22.804	1043.286	48207.371	48.905	9.889	13.879
L54	45.329	97.651	23394.030	15.510	22.804	1025.870	47402.647	48.061	9.922	14.175
	46.113	99.356	24641.357	15.781	23.196	1062.309	49930.070	48.900	10.125	14.464

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L1 151.000- 146.000				1	1	1			
L2 146.000- 141.000				1	1	1			
L3 141.000- 136.000				1	1	1			
L4 136.000- 131.000				1	1	1			
L5 131.000- 126.000				1	1	1			
L6 126.000- 121.000				1	1	1			
L7 121.000- 118.500				1	1	1			
L8 118.500- 118.250				1	1	0.936483			
L9 118.250- 113.250				1	1	0.940717			
L10 113.250- 108.250				1	1	0.946734			
L11 108.250- 103.250				1	1	0.941832			
L12 103.250- 97.500				1	1	0.94679			
L13 97.500- 95.950				1	1	0.951696			
L14 95.950- 95.000				1	1	0.949207			
L15 95.000- 94.750				1	1	0.91869			
L16 94.750- 92.500				1	1	0.924668			
L17 92.500- 92.250				1	1	0.942181			
L18 92.250- 87.750				1	1	0.952464			
L19 87.750- 87.500				1	1	0.912364			
L20 87.500- 84.000				1	1	0.912838			
L21 84.000- 83.750				1	1	0.941005			
L22 83.750- 78.750				1	1	0.946667			
L23 78.750- 73.750				1	1	0.953431			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L24 73.750-68.750				1	1	0.941208			
L25 68.750-64.750				1	1	0.951824			
L26 64.750-64.500				1	1	0.924157			
L27 64.500-63.250				1	1	0.920216			
L28 63.250-63.000				1	1	0.947815			
L29 63.000-58.000				1	1	0.957247			
L30 58.000-56.750				1	1	0.954526			
L31 56.750-56.500				1	1	0.915353			
L32 56.500-55.250				1	1	0.911464			
L33 55.250-55.000				1	1	0.947191			
L34 55.000-47.500				1	1	0.940053			
L35 47.500-47.050				1	1	0.943221			
L36 47.050-42.050				1	1	0.949179			
L37 42.050-37.050				1	1	0.955946			
L38 37.050-34.950				1	1	0.951704			
L39 34.950-34.700				1	1	0.925302			
L40 34.700-34.250				1	1	0.935591			
L41 34.250-34.000				1	1	0.949814			
L42 34.000-29.000				1	1	0.957587			
L43 29.000-26.750				1	1	0.95332			
L44 26.750-26.500				1	1	0.938236			
L45 26.500-25.250				1	1	0.934945			
L46 25.250-25.000				1	1	0.950065			
L47 25.000-20.000				1	1	0.958859			
L48 20.000-16.750				1	1	0.953127			
L49 16.750-16.500				1	1	1.0263			
L50 16.500-14.250				1	1	1.02079			
L51 14.250-14.000				1	1	0.961912			
L52 14.000-9.000				1	1	0.968397			
L53 9.000-4.000				1	1	0.958743			
L54 4.000-0.000				1	1	0.968031			

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

Sabre MS-850 (8.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	20.500 - 0.500	1	1	0.150 0.175	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	20.500 - 0.500	1	1	-0.175 -0.150	8.500	19.500	0.000
*										
Sabre MS-850 (8.5" x 1.25" Plate)	A	No	Surface Af (CaAa)	30.500 - 0.500	1	1	0.100 0.125	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	B	No	Surface Af (CaAa)	30.500 - 0.500	1	1	0.100 0.125	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	30.500 - 10.500	1	1	0.100 0.125	8.500	19.500	0.000
*										
Sabre MS-850 (8.5" x 1.25" Plate)	A	No	Surface Af (CaAa)	38.700 - 21.500	1	1	0.150 0.175	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	B	No	Surface Af (CaAa)	38.700 - 21.500	1	1	0.150 0.175	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	38.700 - 21.500	1	1	0.150 0.175	8.500	19.500	0.000
*										
Sabre MS-850 (8.5" x 1.25" Plate)	A	No	Surface Af (CaAa)	60.500 - 30.500	1	1	0.100 0.125	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	B	No	Surface Af (CaAa)	60.500 - 30.500	1	1	0.100 0.125	8.500	19.500	0.000
Sabre MS-850 (8.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	60.500 - 30.500	1	1	0.100 0.125	8.500	19.500	0.000
*										
Sabre MS-650 (6.5" x 1.25" Plate)	A	No	Surface Af (CaAa)	67.500 - 52.500	1	1	0.150 0.175	6.500	15.500	0.000
Sabre MS-650 (6.5" x 1.25" Plate)	B	No	Surface Af (CaAa)	67.500 - 52.500	1	1	0.150 0.175	6.500	15.500	0.000
Sabre MS-650 (6.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	67.500 - 52.500	1	1	0.150 0.175	6.500	15.500	0.000
*										
Sabre MS-650 (6.5" x 1.25" Plate)	A	No	Surface Af (CaAa)	90.500 - 60.500	1	1	0.100 0.125	6.500	15.500	0.000
Sabre MS-650 (6.5" x 1.25" Plate)	B	No	Surface Af (CaAa)	90.500 - 60.500	1	1	0.100 0.125	6.500	15.500	0.000
Sabre MS-650 (6.5" x 1.25" Plate)	C	No	Surface Af (CaAa)	90.500 - 60.500	1	1	0.100 0.125	6.500	15.500	0.000
*										
Sabre MS-600 (6" x 1" Plate)	A	No	Surface Af (CaAa)	97.000 - 82.000	1	1	0.150 0.175	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	B	No	Surface Af (CaAa)	97.000 - 82.000	1	1	0.150 0.175	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	C	No	Surface Af (CaAa)	97.000 - 82.000	1	1	0.150 0.175	6.000	14.000	0.000
*										
Sabre MS-600 (6" x 1" Plate)	A	No	Surface Af (CaAa)	120.500 - 90.500	1	1	0.100 0.125	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	B	No	Surface Af (CaAa)	120.500 - 90.500	1	1	0.100 0.125	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	C	No	Surface Af (CaAa)	120.500 - 90.500	1	1	0.100 0.125	6.000	14.000	0.000
*										
MP3-03 (Surface Af)	A	No	Surface Af (CaAa)	126.500 - 116.500	1	1	0.200 0.225	4.060	11.260	0.010
MP3-03 (Surface Af)	B	No	Surface Af (CaAa)	126.500 - 116.500	1	1	0.200 0.225	4.060	11.260	0.010
MP3-03 (Surface Af)	C	No	Surface Af (CaAa)	126.500 - 116.500	1	1	0.200 0.225	4.060	11.260	0.010

AL7-50(1-5/8)	B	No	Surface Ar (CaAa)	122.000 - 0.000	7	4	0.000 0.250	1.960		0.001

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

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		CAAA ft ² /ft	Weight klf

Safety Line 3/8	A	No	No	CaAa (Out Of Face)	151.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.037 0.137 0.238 0.437	0.000 0.001 0.001 0.002

LDF7-50A(1-5/8)	A	No	No	Inside Pole	148.000 - 0.000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
810921-001(7/8)	A	No	No	Inside Pole	148.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
FB-L98B-034- XXX(3/8)	A	No	No	Inside Pole	148.000 - 0.000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
WR-VG66ST- BRD_CCIV2(7/8)	A	No	No	Inside Pole	148.000 - 0.000	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
WR-VG86ST- BRD(3/4)	A	No	No	Inside Pole	148.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
2" Rigid Conduit	A	No	No	Inside Pole	148.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.003 0.003 0.003 0.003

LDF7-50A(1-5/8)	B	No	No	Inside Pole	138.000 - 0.000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
HB158-1-08U8- S8J18(1-5/8)	B	No	No	Inside Pole	138.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001

LDF4-50A(1/2)	C	No	No	Inside Pole	130.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
LDF7-50A(1-5/8)	C	No	No	Inside Pole	130.000 - 0.000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
HB114-21U3M12- XXXF(1-1/4)	C	No	No	Inside Pole	130.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	151.000-146.000	A	0.000	0.000	0.000	0.188	0.033
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	146.000-141.000	A	0.000	0.000	0.000	0.188	0.082
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L3	141.000-136.000	A	0.000	0.000	0.000	0.188	0.082
		B	0.000	0.000	0.000	0.000	0.022
		C	0.000	0.000	0.000	0.000	0.000
L4	136.000-131.000	A	0.000	0.000	0.000	0.188	0.082
		B	0.000	0.000	0.000	0.000	0.056
		C	0.000	0.000	0.000	0.000	0.000
L5	131.000-126.000	A	0.000	0.000	0.338	0.188	0.087
		B	0.000	0.000	0.338	0.000	0.061
		C	0.000	0.000	0.338	0.000	0.020
L6	126.000-121.000	A	0.000	0.000	3.383	0.188	0.131
		B	0.000	0.000	4.167	0.000	0.109
		C	0.000	0.000	3.383	0.000	0.069
L7	121.000-118.500	A	0.000	0.000	3.692	0.094	0.066
		B	0.000	0.000	5.652	0.000	0.062
		C	0.000	0.000	3.692	0.000	0.034
L8	118.500-118.250	A	0.000	0.000	0.419	0.009	0.007
		B	0.000	0.000	0.615	0.000	0.006
		C	0.000	0.000	0.419	0.000	0.003
L9	118.250-113.250	A	0.000	0.000	6.184	0.188	0.099
		B	0.000	0.000	10.104	0.000	0.091
		C	0.000	0.000	6.184	0.000	0.036
L10	113.250-108.250	A	0.000	0.000	5.000	0.188	0.082
		B	0.000	0.000	8.920	0.000	0.074
		C	0.000	0.000	5.000	0.000	0.019
L11	108.250-103.250	A	0.000	0.000	5.000	0.188	0.082
		B	0.000	0.000	8.920	0.000	0.074
		C	0.000	0.000	5.000	0.000	0.019
L12	103.250-97.500	A	0.000	0.000	5.750	0.216	0.094
		B	0.000	0.000	10.258	0.000	0.085
		C	0.000	0.000	5.750	0.000	0.022
L13	97.500-95.950	A	0.000	0.000	2.600	0.058	0.025
		B	0.000	0.000	3.815	0.000	0.023
		C	0.000	0.000	2.600	0.000	0.006
L14	95.950-95.000	A	0.000	0.000	1.900	0.036	0.016
		B	0.000	0.000	2.645	0.000	0.014
		C	0.000	0.000	1.900	0.000	0.004
L15	95.000-94.750	A	0.000	0.000	0.500	0.009	0.004
		B	0.000	0.000	0.696	0.000	0.004
		C	0.000	0.000	0.500	0.000	0.001
L16	94.750-92.500	A	0.000	0.000	4.500	0.084	0.037
		B	0.000	0.000	6.264	0.000	0.033
		C	0.000	0.000	4.500	0.000	0.009
L17	92.500-92.250	A	0.000	0.000	0.500	0.009	0.004
		B	0.000	0.000	0.696	0.000	0.004
		C	0.000	0.000	0.500	0.000	0.001
L18	92.250-87.750	A	0.000	0.000	9.229	0.169	0.074
		B	0.000	0.000	12.757	0.000	0.067
		C	0.000	0.000	9.229	0.000	0.017
L19	87.750-87.500	A	0.000	0.000	0.521	0.009	0.004
		B	0.000	0.000	0.717	0.000	0.004
		C	0.000	0.000	0.521	0.000	0.001
L20	87.500-84.000	A	0.000	0.000	7.292	0.131	0.057
		B	0.000	0.000	10.036	0.000	0.052
		C	0.000	0.000	7.292	0.000	0.013
L21	84.000-83.750	A	0.000	0.000	0.521	0.009	0.004
		B	0.000	0.000	0.717	0.000	0.004

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L22	83.750-78.750	C	0.000	0.000	0.521	0.000	0.001
		A	0.000	0.000	7.167	0.188	0.082
		B	0.000	0.000	11.087	0.000	0.074
L23	78.750-73.750	C	0.000	0.000	7.167	0.000	0.019
		A	0.000	0.000	5.417	0.188	0.082
		B	0.000	0.000	9.337	0.000	0.074
L24	73.750-68.750	C	0.000	0.000	5.417	0.000	0.019
		A	0.000	0.000	5.417	0.188	0.082
		B	0.000	0.000	9.337	0.000	0.074
L25	68.750-64.750	C	0.000	0.000	5.417	0.000	0.019
		A	0.000	0.000	7.313	0.150	0.066
		B	0.000	0.000	10.448	0.000	0.059
L26	64.750-64.500	C	0.000	0.000	7.313	0.000	0.015
		A	0.000	0.000	0.542	0.009	0.004
		B	0.000	0.000	0.738	0.000	0.004
L27	64.500-63.250	C	0.000	0.000	0.542	0.000	0.001
		A	0.000	0.000	2.708	0.047	0.020
		B	0.000	0.000	3.688	0.000	0.018
L28	63.250-63.000	C	0.000	0.000	2.708	0.000	0.005
		A	0.000	0.000	0.542	0.009	0.004
		B	0.000	0.000	0.738	0.000	0.004
L29	63.000-58.000	C	0.000	0.000	0.542	0.000	0.001
		A	0.000	0.000	11.667	0.188	0.082
		B	0.000	0.000	15.587	0.000	0.074
L30	58.000-56.750	C	0.000	0.000	11.667	0.000	0.019
		A	0.000	0.000	3.125	0.047	0.020
		B	0.000	0.000	4.105	0.000	0.018
L31	56.750-56.500	C	0.000	0.000	3.125	0.000	0.005
		A	0.000	0.000	0.625	0.009	0.004
		B	0.000	0.000	0.821	0.000	0.004
L32	56.500-55.250	C	0.000	0.000	0.625	0.000	0.001
		A	0.000	0.000	3.125	0.047	0.020
		B	0.000	0.000	4.105	0.000	0.018
L33	55.250-55.000	C	0.000	0.000	3.125	0.000	0.005
		A	0.000	0.000	0.625	0.009	0.004
		B	0.000	0.000	0.821	0.000	0.004
L34	55.000-47.500	C	0.000	0.000	0.625	0.000	0.001
		A	0.000	0.000	13.333	0.281	0.123
		B	0.000	0.000	19.213	0.000	0.111
L35	47.500-47.050	C	0.000	0.000	13.333	0.000	0.029
		A	0.000	0.000	0.637	0.017	0.007
		B	0.000	0.000	0.990	0.000	0.007
L36	47.050-42.050	C	0.000	0.000	0.637	0.000	0.002
		A	0.000	0.000	7.083	0.188	0.082
		B	0.000	0.000	11.003	0.000	0.074
L37	42.050-37.050	C	0.000	0.000	7.083	0.000	0.019
		A	0.000	0.000	9.383	0.188	0.082
		B	0.000	0.000	13.303	0.000	0.074
L38	37.050-34.950	C	0.000	0.000	9.383	0.000	0.019
		A	0.000	0.000	5.902	0.079	0.034
		B	0.000	0.000	7.548	0.000	0.031
L39	34.950-34.700	C	0.000	0.000	5.902	0.000	0.008
		A	0.000	0.000	0.703	0.009	0.004
		B	0.000	0.000	0.899	0.000	0.004
L40	34.700-34.250	C	0.000	0.000	0.703	0.000	0.001
		A	0.000	0.000	1.265	0.017	0.007
		B	0.000	0.000	1.617	0.000	0.007
L41	34.250-34.000	C	0.000	0.000	1.265	0.000	0.002
		A	0.000	0.000	0.703	0.009	0.004
		B	0.000	0.000	0.899	0.000	0.004
L42	34.000-29.000	C	0.000	0.000	0.703	0.000	0.001
		A	0.000	0.000	14.051	0.188	0.082
		B	0.000	0.000	17.971	0.000	0.074
L43	29.000-26.750	C	0.000	0.000	14.051	0.000	0.019
		A	0.000	0.000	6.323	0.084	0.037
		B	0.000	0.000	8.087	0.000	0.033
L44	26.750-26.500	C	0.000	0.000	6.323	0.000	0.009
		A	0.000	0.000	0.703	0.009	0.004
		B	0.000	0.000	0.899	0.000	0.004

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L45	26.500-25.250	C	0.000	0.000	0.703	0.000	0.001
		A	0.000	0.000	3.513	0.047	0.020
		B	0.000	0.000	4.493	0.000	0.018
L46	25.250-25.000	C	0.000	0.000	3.513	0.000	0.005
		A	0.000	0.000	0.703	0.009	0.004
		B	0.000	0.000	0.899	0.000	0.004
L47	25.000-20.000	C	0.000	0.000	0.703	0.000	0.001
		A	0.000	0.000	11.961	0.188	0.082
		B	0.000	0.000	15.881	0.000	0.074
L48	20.000-16.750	C	0.000	0.000	13.378	0.000	0.019
		A	0.000	0.000	4.604	0.122	0.053
		B	0.000	0.000	7.152	0.000	0.048
L49	16.750-16.500	C	0.000	0.000	13.813	0.000	0.012
		A	0.000	0.000	0.354	0.009	0.004
		B	0.000	0.000	0.550	0.000	0.004
L50	16.500-14.250	C	0.000	0.000	1.063	0.000	0.001
		A	0.000	0.000	3.188	0.084	0.037
		B	0.000	0.000	4.952	0.000	0.033
L51	14.250-14.000	C	0.000	0.000	9.563	0.000	0.009
		A	0.000	0.000	0.354	0.009	0.004
		B	0.000	0.000	0.550	0.000	0.004
L52	14.000-9.000	C	0.000	0.000	1.063	0.000	0.001
		A	0.000	0.000	7.083	0.188	0.082
		B	0.000	0.000	11.003	0.000	0.074
L53	9.000-4.000	C	0.000	0.000	19.125	0.000	0.019
		A	0.000	0.000	7.083	0.188	0.082
		B	0.000	0.000	11.003	0.000	0.074
L54	4.000-0.000	C	0.000	0.000	14.167	0.000	0.019
		A	0.000	0.000	4.958	0.150	0.066
		B	0.000	0.000	8.094	0.000	0.059
		C	0.000	0.000	9.917	0.000	0.015

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 _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	151.000-146.000	A	1.482	0.000	0.000	0.000	1.669	0.041
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	146.000-141.000	A	1.477	0.000	0.000	0.000	1.664	0.090
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L3	141.000-136.000	A	1.472	0.000	0.000	0.000	1.659	0.090
		B		0.000	0.000	0.000	0.000	0.022
		C		0.000	0.000	0.000	0.000	0.000
L4	136.000-131.000	A	1.466	0.000	0.000	0.000	1.654	0.090
		B		0.000	0.000	0.000	0.000	0.056
		C		0.000	0.000	0.000	0.000	0.000
L5	131.000-126.000	A	1.461	0.000	0.000	0.431	1.648	0.099
		B		0.000	0.000	0.431	0.000	0.065
		C		0.000	0.000	0.431	0.000	0.025
L6	126.000-121.000	A	1.455	0.000	0.000	4.304	1.642	0.187
		B		0.000	0.000	5.647	0.000	0.173
		C		0.000	0.000	4.304	0.000	0.116
L7	121.000-118.500	A	1.450	0.000	0.000	4.731	0.819	0.115
		B		0.000	0.000	8.087	0.000	0.148
		C		0.000	0.000	4.731	0.000	0.080
L8	118.500-118.250	A	1.449	0.000	0.000	0.537	0.082	0.012
		B		0.000	0.000	0.873	0.000	0.015
		C		0.000	0.000	0.537	0.000	0.009
L9	118.250-113.250	A	1.445	0.000	0.000	7.950	1.633	0.178
		B		0.000	0.000	14.657	0.000	0.244
		C		0.000	0.000	7.950	0.000	0.108
L10	113.250-108.250	A	1.439	0.000	0.000	6.439	1.627	0.144
		B		0.000	0.000	13.138	0.000	0.209

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L11	108.250-103.250	C	1.432	0.000	0.000	6.439	0.000	0.074
		A		0.000	0.000	6.432	1.620	0.144
		B		0.000	0.000	13.123	0.000	0.209
L12	103.250-97.500	C	1.425	0.000	0.000	6.432	0.000	0.073
		A		0.000	0.000	7.389	1.854	0.165
		B		0.000	0.000	15.072	0.000	0.239
L13	97.500-95.950	C	1.420	0.000	0.000	7.389	0.000	0.084
		A		0.000	0.000	3.278	0.500	0.056
		B		0.000	0.000	5.349	0.000	0.076
L14	95.950-95.000	C	1.418	0.000	0.000	3.278	0.000	0.034
		A		0.000	0.000	2.382	0.305	0.037
		B		0.000	0.000	3.649	0.000	0.049
L15	95.000-94.750	C	1.417	0.000	0.000	2.382	0.000	0.024
		A		0.000	0.000	0.627	0.080	0.010
		B		0.000	0.000	0.960	0.000	0.013
L16	94.750-92.500	C	1.415	0.000	0.000	0.627	0.000	0.006
		A		0.000	0.000	5.639	0.721	0.088
		B		0.000	0.000	8.640	0.000	0.117
L17	92.500-92.250	C	1.413	0.000	0.000	5.639	0.000	0.057
		A		0.000	0.000	0.626	0.080	0.010
		B		0.000	0.000	0.960	0.000	0.013
L18	92.250-87.750	C	1.410	0.000	0.000	0.626	0.000	0.006
		A		0.000	0.000	11.500	1.437	0.178
		B		0.000	0.000	17.495	0.000	0.235
L19	87.750-87.500	C	1.406	0.000	0.000	11.500	0.000	0.115
		A		0.000	0.000	0.647	0.080	0.010
		B		0.000	0.000	0.980	0.000	0.013
L20	87.500-84.000	C	1.403	0.000	0.000	0.647	0.000	0.006
		A		0.000	0.000	9.051	1.113	0.139
		B		0.000	0.000	13.708	0.000	0.184
L21	84.000-83.750	C	1.400	0.000	0.000	9.051	0.000	0.090
		A		0.000	0.000	0.646	0.079	0.010
		B		0.000	0.000	0.979	0.000	0.013
L22	83.750-78.750	C	1.395	0.000	0.000	0.646	0.000	0.006
		A		0.000	0.000	8.949	1.583	0.164
		B		0.000	0.000	15.593	0.000	0.227
L23	78.750-73.750	C	1.386	0.000	0.000	8.949	0.000	0.094
		A		0.000	0.000	6.803	1.574	0.145
		B		0.000	0.000	13.436	0.000	0.208
L24	73.750-68.750	C	1.377	0.000	0.000	6.803	0.000	0.075
		A		0.000	0.000	6.794	1.564	0.145
		B		0.000	0.000	13.415	0.000	0.207
L25	68.750-64.750	C	1.368	0.000	0.000	6.794	0.000	0.075
		A		0.000	0.000	8.911	1.244	0.146
		B		0.000	0.000	14.199	0.000	0.195
L26	64.750-64.500	C	1.364	0.000	0.000	8.911	0.000	0.090
		A		0.000	0.000	0.656	0.078	0.010
		B		0.000	0.000	0.986	0.000	0.013
L27	64.500-63.250	C	1.362	0.000	0.000	0.656	0.000	0.006
		A		0.000	0.000	3.277	0.387	0.050
		B		0.000	0.000	4.928	0.000	0.065
L28	63.250-63.000	C	1.360	0.000	0.000	3.277	0.000	0.032
		A		0.000	0.000	0.655	0.077	0.010
		B		0.000	0.000	0.985	0.000	0.013
L29	63.000-58.000	C	1.355	0.000	0.000	0.655	0.000	0.006
		A		0.000	0.000	13.931	1.542	0.203
		B		0.000	0.000	20.525	0.000	0.264
L30	58.000-56.750	C	1.348	0.000	0.000	13.931	0.000	0.133
		A		0.000	0.000	3.688	0.384	0.052
		B		0.000	0.000	5.335	0.000	0.067
L31	56.750-56.500	C	1.346	0.000	0.000	3.688	0.000	0.034
		A		0.000	0.000	0.738	0.077	0.010
		B		0.000	0.000	1.067	0.000	0.013
L32	56.500-55.250	C	1.344	0.000	0.000	0.738	0.000	0.007
		A		0.000	0.000	3.687	0.383	0.052
		B		0.000	0.000	5.332	0.000	0.067
L33	55.250-55.000	C	1.342	0.000	0.000	3.687	0.000	0.034
		A		0.000	0.000	0.737	0.076	0.010
		B		0.000	0.000	1.066	0.000	0.013

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L34	55.000-47.500	C	1.332	0.000	0.000	0.737	0.000	0.007
		A		0.000	0.000	15.781	2.280	0.256
		B		0.000	0.000	25.629	0.000	0.345
L35	47.500-47.050	C	1.322	0.000	0.000	15.781	0.000	0.151
		A		0.000	0.000	0.757	0.137	0.014
		B		0.000	0.000	1.348	0.000	0.019
L36	47.050-42.050	C	1.314	0.000	0.000	0.757	0.000	0.007
		A		0.000	0.000	8.397	1.501	0.151
		B		0.000	0.000	14.939	0.000	0.210
L37	42.050-37.050	C	1.298	0.000	0.000	8.397	0.000	0.082
		A		0.000	0.000	10.909	1.486	0.171
		B		0.000	0.000	17.432	0.000	0.229
L38	37.050-34.950	C	1.286	0.000	0.000	10.909	0.000	0.101
		A		0.000	0.000	6.729	0.619	0.088
		B		0.000	0.000	9.462	0.000	0.113
L39	34.950-34.700	C	1.282	0.000	0.000	6.729	0.000	0.059
		A		0.000	0.000	0.801	0.073	0.011
		B		0.000	0.000	1.126	0.000	0.013
L40	34.700-34.250	C	1.281	0.000	0.000	0.801	0.000	0.007
		A		0.000	0.000	1.441	0.132	0.019
		B		0.000	0.000	2.026	0.000	0.024
L41	34.250-34.000	C	1.279	0.000	0.000	1.441	0.000	0.013
		A		0.000	0.000	0.801	0.073	0.010
		B		0.000	0.000	1.126	0.000	0.013
L42	34.000-29.000	C	1.269	0.000	0.000	0.801	0.000	0.007
		A		0.000	0.000	15.996	1.457	0.209
		B		0.000	0.000	22.482	0.000	0.265
L43	29.000-26.750	C	1.254	0.000	0.000	15.920	0.000	0.139
		A		0.000	0.000	7.188	0.649	0.093
		B		0.000	0.000	10.098	0.000	0.118
L44	26.750-26.500	C	1.248	0.000	0.000	7.078	0.000	0.062
		A		0.000	0.000	0.798	0.072	0.010
		B		0.000	0.000	1.121	0.000	0.013
L45	26.500-25.250	C	1.244	0.000	0.000	0.786	0.000	0.007
		A		0.000	0.000	3.990	0.358	0.051
		B		0.000	0.000	5.603	0.000	0.065
L46	25.250-25.000	C	1.241	0.000	0.000	3.930	0.000	0.034
		A		0.000	0.000	0.798	0.071	0.010
		B		0.000	0.000	1.120	0.000	0.013
L47	25.000-20.000	C	1.227	0.000	0.000	0.786	0.000	0.007
		A		0.000	0.000	13.646	1.415	0.186
		B		0.000	0.000	20.080	0.000	0.241
L48	20.000-16.750	C	1.202	0.000	0.000	15.030	0.000	0.129
		A		0.000	0.000	5.386	0.903	0.094
		B		0.000	0.000	9.548	0.000	0.128
L49	16.750-16.500	C	1.191	0.000	0.000	15.729	0.000	0.122
		A		0.000	0.000	0.414	0.069	0.007
		B		0.000	0.000	0.733	0.000	0.010
L50	16.500-14.250	C	1.181	0.000	0.000	1.209	0.000	0.009
		A		0.000	0.000	3.719	0.616	0.064
		B		0.000	0.000	6.588	0.000	0.088
L51	14.250-14.000	C	1.171	0.000	0.000	10.875	0.000	0.083
		A		0.000	0.000	0.413	0.068	0.007
		B		0.000	0.000	0.731	0.000	0.010
L52	14.000-9.000	C	1.147	0.000	0.000	1.208	0.000	0.009
		A		0.000	0.000	8.231	1.335	0.141
		B		0.000	0.000	14.565	0.000	0.192
L53	9.000-4.000	C	1.084	0.000	0.000	21.703	0.000	0.163
		A		0.000	0.000	8.167	1.271	0.137
		B		0.000	0.000	14.422	0.000	0.185
L54	4.000-0.000	C	0.963	0.000	0.000	16.011	0.000	0.119
		A		0.000	0.000	5.632	0.920	0.100
		B		0.000	0.000	10.515	0.000	0.133
		C		0.000	0.000	11.121	0.000	0.076

Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L1	151.000-146.000	0.000	-0.224	0.000	-1.210
L2	146.000-141.000	0.000	-0.224	0.000	-1.222
L3	141.000-136.000	0.000	-0.224	0.000	-1.233
L4	136.000-131.000	0.000	-0.225	0.000	-1.243
L5	131.000-126.000	0.000	-0.202	0.000	-1.148
L6	126.000-121.000	0.502	-0.239	0.591	-0.787
L7	121.000-118.500	1.350	-0.419	1.664	-0.806
L8	118.500-118.250	1.262	-0.392	1.563	-0.757
L9	118.250-113.250	1.516	-0.471	1.854	-0.899
L10	113.250-108.250	1.743	-0.542	2.087	-1.013
L11	108.250-103.250	1.784	-0.555	2.131	-1.035
L12	103.250-97.500	1.827	-0.569	2.177	-1.058
L13	97.500-95.950	1.375	-0.428	1.723	-0.838
L14	95.950-95.000	1.236	-0.385	1.572	-0.764
L15	95.000-94.750	1.240	-0.386	1.578	-0.767
L16	94.750-92.500	1.247	-0.388	1.586	-0.771
L17	92.500-92.250	1.254	-0.390	1.593	-0.775
L18	92.250-87.750	1.245	-0.388	1.591	-0.773
L19	87.750-87.500	1.246	-0.388	1.596	-0.776
L20	87.500-84.000	1.256	-0.391	1.608	-0.782
L21	84.000-83.750	1.266	-0.395	1.619	-0.787
L22	83.750-78.750	1.613	-0.503	1.990	-0.968
L23	78.750-73.750	1.911	-0.596	2.291	-1.114
L24	73.750-68.750	1.947	-0.608	2.328	-1.131
L25	68.750-64.750	1.475	-0.460	1.869	-0.908
L26	64.750-64.500	1.334	-0.417	1.722	-0.836
L27	64.500-63.250	1.338	-0.418	1.726	-0.838
L28	63.250-63.000	1.341	-0.419	1.729	-0.839
L29	63.000-58.000	1.295	-0.405	1.684	-0.817
L30	58.000-56.750	1.256	-0.392	1.645	-0.797
L31	56.750-56.500	1.260	-0.394	1.650	-0.800
L32	56.500-55.250	1.264	-0.395	1.654	-0.802
L33	55.250-55.000	1.267	-0.396	1.657	-0.803
L34	55.000-47.500	1.606	-0.502	2.019	-0.977
L35	47.500-47.050	1.839	-0.575	2.252	-1.090
L36	47.050-42.050	1.856	-0.580	2.268	-1.094
L37	42.050-37.050	1.604	-0.502	2.027	-0.976
L38	37.050-34.950	1.246	-0.390	1.652	-0.794
L39	34.950-34.700	1.252	-0.392	1.659	-0.796
L40	34.700-34.250	1.254	-0.392	1.661	-0.797
L41	34.250-34.000	1.255	-0.393	1.661	-0.797
L42	34.000-29.000	1.268	-0.397	1.684	-0.820
L43	29.000-26.750	1.286	-0.402	1.724	-0.868
L44	26.750-26.500	1.292	-0.404	1.731	-0.870
L45	26.500-25.250	1.295	-0.405	1.734	-0.871
L46	25.250-25.000	1.298	-0.406	1.736	-0.871
L47	25.000-20.000	1.425	-0.022	1.870	-0.554
L48	20.000-16.750	1.514	3.989	1.924	2.941
L49	16.750-16.500	1.523	4.014	1.932	2.965
L50	16.500-14.250	1.529	4.031	1.936	2.982
L51	14.250-14.000	1.535	4.048	1.941	2.999
L52	14.000-9.000	1.990	3.454	2.347	2.454
L53	9.000-4.000	3.201	1.820	3.412	0.995
L54	4.000-0.000	3.288	1.654	3.482	0.874

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
L5	36	MP3-03 (Surface Af)	126.00 - 126.50	1.0000	1.0000
L5	37	MP3-03 (Surface Af)	126.00 - 126.50	1.0000	1.0000
L5	38	MP3-03 (Surface Af)	126.00 - 126.50	1.0000	1.0000
L6	36	MP3-03 (Surface Af)	121.00 - 126.00	1.0000	1.0000
L6	37	MP3-03 (Surface Af)	121.00 - 126.00	1.0000	1.0000
L6	38	MP3-03 (Surface Af)	121.00 - 126.00	1.0000	1.0000
L6	59	AL7-50(1-5/8)	121.00 - 122.00	1.0000	1.0000
L7	32	Sabre MS-600 (6" x 1" Plate)	118.50 - 120.50	1.0000	1.0000
L7	33	Sabre MS-600 (6" x 1" Plate)	118.50 - 120.50	1.0000	1.0000
L7	34	Sabre MS-600 (6" x 1" Plate)	118.50 - 120.50	1.0000	1.0000
L7	36	MP3-03 (Surface Af)	118.50 - 121.00	1.0000	1.0000
L7	37	MP3-03 (Surface Af)	118.50 - 121.00	1.0000	1.0000
L7	38	MP3-03 (Surface Af)	118.50 - 121.00	1.0000	1.0000
L7	59	AL7-50(1-5/8)	118.50 - 121.00	1.0000	1.0000
L8	32	Sabre MS-600 (6" x 1" Plate)	118.25 - 118.50	1.0000	1.0000
L8	33	Sabre MS-600 (6" x 1" Plate)	118.25 - 118.50	1.0000	1.0000
L8	34	Sabre MS-600 (6" x 1" Plate)	118.25 - 118.50	1.0000	1.0000
L8	36	MP3-03 (Surface Af)	118.25 - 118.50	1.0000	1.0000
L8	37	MP3-03 (Surface Af)	118.25 - 118.50	1.0000	1.0000
L8	38	MP3-03 (Surface Af)	118.25 - 118.50	1.0000	1.0000
L8	59	AL7-50(1-5/8)	118.25 - 118.50	1.0000	1.0000
L9	32	Sabre MS-600 (6" x 1" Plate)	113.25 - 118.25	1.0000	1.0000
L9	33	Sabre MS-600 (6" x 1" Plate)	113.25 - 118.25	1.0000	1.0000
L9	34	Sabre MS-600 (6" x 1" Plate)	113.25 - 118.25	1.0000	1.0000
L9	36	MP3-03 (Surface Af)	116.50 - 118.25	1.0000	1.0000
L9	37	MP3-03 (Surface Af)	116.50 - 118.25	1.0000	1.0000
L9	38	MP3-03 (Surface Af)	116.50 - 118.25	1.0000	1.0000
L9	59	AL7-50(1-5/8)	113.25 - 118.25	1.0000	1.0000
L10	32	Sabre MS-600 (6" x 1" Plate)	108.25 - 113.25	1.0000	1.0000
L10	33	Sabre MS-600 (6" x 1" Plate)	108.25 - 113.25	1.0000	1.0000
L10	34	Sabre MS-600 (6" x 1" Plate)	108.25 - 113.25	1.0000	1.0000
L10	59	AL7-50(1-5/8)	108.25 - 113.25	1.0000	1.0000
L11	32	Sabre MS-600 (6" x 1" Plate)	103.25 - 108.25	1.0000	1.0000
L11	33	Sabre MS-600 (6" x 1" Plate)	103.25 - 108.25	1.0000	1.0000
L11	34	Sabre MS-600 (6" x 1" Plate)	103.25 - 108.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L11	59	Plate) AL7-50(1-5/8)	108.25 103.25 - 108.25	1.0000	1.0000
L12	32	Sabre MS-600 (6" x 1"	97.50 -	1.0000	1.0000
L12	33	Plate) Sabre MS-600 (6" x 1"	103.25 97.50 -	1.0000	1.0000
L12	34	Plate) Sabre MS-600 (6" x 1"	103.25 97.50 -	1.0000	1.0000
L12	59	Plate) AL7-50(1-5/8)	103.25 97.50 - 103.25	1.0000	1.0000
L13	28	Sabre MS-600 (6" x 1"	95.95 -	1.0000	1.0000
L13	29	Plate) Sabre MS-600 (6" x 1"	97.00 95.95 -	1.0000	1.0000
L13	30	Plate) Sabre MS-600 (6" x 1"	97.00 95.95 -	1.0000	1.0000
L13	32	Plate) Sabre MS-600 (6" x 1"	97.00 95.95 -	1.0000	1.0000
L13	33	Plate) Sabre MS-600 (6" x 1"	97.50 95.95 -	1.0000	1.0000
L13	34	Plate) Sabre MS-600 (6" x 1"	97.50 95.95 -	1.0000	1.0000
L13	59	Plate) AL7-50(1-5/8)	97.50 95.95 - 97.50	1.0000	1.0000
L14	28	Sabre MS-600 (6" x 1"	95.00 -	1.0000	1.0000
L14	29	Plate) Sabre MS-600 (6" x 1"	95.95 95.00 -	1.0000	1.0000
L14	30	Plate) Sabre MS-600 (6" x 1"	95.95 95.00 -	1.0000	1.0000
L14	32	Plate) Sabre MS-600 (6" x 1"	95.95 95.00 -	1.0000	1.0000
L14	33	Plate) Sabre MS-600 (6" x 1"	95.95 95.00 -	1.0000	1.0000
L14	34	Plate) Sabre MS-600 (6" x 1"	95.95 95.00 -	1.0000	1.0000
L14	59	Plate) AL7-50(1-5/8)	95.95 95.00 - 95.95	1.0000	1.0000
L15	28	Sabre MS-600 (6" x 1"	94.75 -	1.0000	1.0000
L15	29	Plate) Sabre MS-600 (6" x 1"	95.00 94.75 -	1.0000	1.0000
L15	30	Plate) Sabre MS-600 (6" x 1"	95.00 94.75 -	1.0000	1.0000
L15	32	Plate) Sabre MS-600 (6" x 1"	95.00 94.75 -	1.0000	1.0000
L15	33	Plate) Sabre MS-600 (6" x 1"	95.00 94.75 -	1.0000	1.0000
L15	34	Plate) Sabre MS-600 (6" x 1"	95.00 94.75 -	1.0000	1.0000
L15	59	Plate) AL7-50(1-5/8)	95.00 94.75 - 95.00	1.0000	1.0000
L16	28	Sabre MS-600 (6" x 1"	92.50 -	1.0000	1.0000
L16	29	Plate) Sabre MS-600 (6" x 1"	94.75 92.50 -	1.0000	1.0000
L16	30	Plate) Sabre MS-600 (6" x 1"	94.75 92.50 -	1.0000	1.0000
L16	32	Plate) Sabre MS-600 (6" x 1"	94.75 92.50 -	1.0000	1.0000
L16	33	Plate) Sabre MS-600 (6" x 1"	94.75 92.50 -	1.0000	1.0000
L16	34	Plate) Sabre MS-600 (6" x 1"	94.75 92.50 -	1.0000	1.0000
L16	59	Plate) AL7-50(1-5/8)	94.75 92.50 - 94.75	1.0000	1.0000
L17	28	Sabre MS-600 (6" x 1"	92.25 -	1.0000	1.0000
		Plate)	92.50		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L17	29	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	1.0000	1.0000
L17	30	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	1.0000	1.0000
L17	32	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	1.0000	1.0000
L17	33	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	1.0000	1.0000
L17	34	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	1.0000	1.0000
L17	59	AL7-50(1-5/8)	92.25 - 92.50	1.0000	1.0000
L18	24	Sabre MS-650 (6.5" x 1.25" Plate)	87.75 - 90.50	1.0000	1.0000
L18	25	Sabre MS-650 (6.5" x 1.25" Plate)	87.75 - 90.50	1.0000	1.0000
L18	26	Sabre MS-650 (6.5" x 1.25" Plate)	87.75 - 90.50	1.0000	1.0000
L18	28	Sabre MS-600 (6" x 1" Plate)	87.75 - 92.25	1.0000	1.0000
L18	29	Sabre MS-600 (6" x 1" Plate)	87.75 - 92.25	1.0000	1.0000
L18	30	Sabre MS-600 (6" x 1" Plate)	87.75 - 92.25	1.0000	1.0000
L18	32	Sabre MS-600 (6" x 1" Plate)	90.50 - 92.25	1.0000	1.0000
L18	33	Sabre MS-600 (6" x 1" Plate)	90.50 - 92.25	1.0000	1.0000
L18	34	Sabre MS-600 (6" x 1" Plate)	90.50 - 92.25	1.0000	1.0000
L18	59	AL7-50(1-5/8)	87.75 - 92.25	1.0000	1.0000
L19	24	Sabre MS-650 (6.5" x 1.25" Plate)	87.50 - 87.75	1.0000	1.0000
L19	25	Sabre MS-650 (6.5" x 1.25" Plate)	87.50 - 87.75	1.0000	1.0000
L19	26	Sabre MS-650 (6.5" x 1.25" Plate)	87.50 - 87.75	1.0000	1.0000
L19	28	Sabre MS-600 (6" x 1" Plate)	87.50 - 87.75	1.0000	1.0000
L19	29	Sabre MS-600 (6" x 1" Plate)	87.50 - 87.75	1.0000	1.0000
L19	30	Sabre MS-600 (6" x 1" Plate)	87.50 - 87.75	1.0000	1.0000
L19	59	AL7-50(1-5/8)	87.50 - 87.75	1.0000	1.0000
L20	24	Sabre MS-650 (6.5" x 1.25" Plate)	84.00 - 87.50	1.0000	1.0000
L20	25	Sabre MS-650 (6.5" x 1.25" Plate)	84.00 - 87.50	1.0000	1.0000
L20	26	Sabre MS-650 (6.5" x 1.25" Plate)	84.00 - 87.50	1.0000	1.0000
L20	28	Sabre MS-600 (6" x 1" Plate)	84.00 - 87.50	1.0000	1.0000
L20	29	Sabre MS-600 (6" x 1" Plate)	84.00 - 87.50	1.0000	1.0000
L20	30	Sabre MS-600 (6" x 1" Plate)	84.00 - 87.50	1.0000	1.0000
L20	59	AL7-50(1-5/8)	84.00 - 87.50	1.0000	1.0000
L21	24	Sabre MS-650 (6.5" x 1.25" Plate)	83.75 - 84.00	1.0000	1.0000
L21	25	Sabre MS-650 (6.5" x 1.25" Plate)	83.75 - 84.00	1.0000	1.0000
L21	26	Sabre MS-650 (6.5" x 1.25" Plate)	83.75 - 84.00	1.0000	1.0000
L21	28	Sabre MS-600 (6" x 1" Plate)	83.75 - 84.00	1.0000	1.0000
L21	29	Sabre MS-600 (6" x 1" Plate)	83.75 - 84.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L21	30	Sabre MS-600 (6" x 1" Plate)	84.00	1.0000	1.0000
L21	59	AL7-50(1-5/8) Plate)	83.75 - 84.00	1.0000	1.0000
L22	24	Sabre MS-650 (6.5" x 1.25" Plate)	78.75 - 83.75	1.0000	1.0000
L22	25	Sabre MS-650 (6.5" x 1.25" Plate)	78.75 - 83.75	1.0000	1.0000
L22	26	Sabre MS-650 (6.5" x 1.25" Plate)	78.75 - 83.75	1.0000	1.0000
L22	28	Sabre MS-600 (6" x 1" Plate)	82.00 - 83.75	1.0000	1.0000
L22	29	Sabre MS-600 (6" x 1" Plate)	82.00 - 83.75	1.0000	1.0000
L22	30	Sabre MS-600 (6" x 1" Plate)	82.00 - 83.75	1.0000	1.0000
L22	59	AL7-50(1-5/8)	78.75 - 83.75	1.0000	1.0000
L23	24	Sabre MS-650 (6.5" x 1.25" Plate)	73.75 - 78.75	1.0000	1.0000
L23	25	Sabre MS-650 (6.5" x 1.25" Plate)	73.75 - 78.75	1.0000	1.0000
L23	26	Sabre MS-650 (6.5" x 1.25" Plate)	73.75 - 78.75	1.0000	1.0000
L23	59	AL7-50(1-5/8)	73.75 - 78.75	1.0000	1.0000
L24	24	Sabre MS-650 (6.5" x 1.25" Plate)	68.75 - 73.75	1.0000	1.0000
L24	25	Sabre MS-650 (6.5" x 1.25" Plate)	68.75 - 73.75	1.0000	1.0000
L24	26	Sabre MS-650 (6.5" x 1.25" Plate)	68.75 - 73.75	1.0000	1.0000
L24	59	AL7-50(1-5/8)	68.75 - 73.75	1.0000	1.0000
L25	20	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 67.50	1.0000	1.0000
L25	21	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 67.50	1.0000	1.0000
L25	22	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 67.50	1.0000	1.0000
L25	24	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 68.75	1.0000	1.0000
L25	25	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 68.75	1.0000	1.0000
L25	26	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 68.75	1.0000	1.0000
L25	59	AL7-50(1-5/8)	64.75 - 68.75	1.0000	1.0000
L26	20	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	1.0000	1.0000
L26	21	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	1.0000	1.0000
L26	22	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	1.0000	1.0000
L26	24	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	1.0000	1.0000
L26	25	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	1.0000	1.0000
L26	26	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	1.0000	1.0000
L26	59	AL7-50(1-5/8)	64.50 - 64.75	1.0000	1.0000
L27	20	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	1.0000	1.0000
L27	21	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	1.0000	1.0000
L27	22	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L27	24	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	1.0000	1.0000
L27	25	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	1.0000	1.0000
L27	26	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	1.0000	1.0000
L27	59	AL7-50(1-5/8)	63.25 - 64.50	1.0000	1.0000
L28	20	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	1.0000	1.0000
L28	21	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	1.0000	1.0000
L28	22	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	1.0000	1.0000
L28	24	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	1.0000	1.0000
L28	25	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	1.0000	1.0000
L28	26	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	1.0000	1.0000
L28	59	AL7-50(1-5/8)	63.00 - 63.25	1.0000	1.0000
L29	16	Sabre MS-850 (8.5" x 1.25" Plate)	58.00 - 60.50	1.0000	1.0000
L29	17	Sabre MS-850 (8.5" x 1.25" Plate)	58.00 - 60.50	1.0000	1.0000
L29	18	Sabre MS-850 (8.5" x 1.25" Plate)	58.00 - 60.50	1.0000	1.0000
L29	20	Sabre MS-650 (6.5" x 1.25" Plate)	58.00 - 63.00	1.0000	1.0000
L29	21	Sabre MS-650 (6.5" x 1.25" Plate)	58.00 - 63.00	1.0000	1.0000
L29	22	Sabre MS-650 (6.5" x 1.25" Plate)	58.00 - 63.00	1.0000	1.0000
L29	24	Sabre MS-650 (6.5" x 1.25" Plate)	60.50 - 63.00	1.0000	1.0000
L29	25	Sabre MS-650 (6.5" x 1.25" Plate)	60.50 - 63.00	1.0000	1.0000
L29	26	Sabre MS-650 (6.5" x 1.25" Plate)	60.50 - 63.00	1.0000	1.0000
L29	59	AL7-50(1-5/8)	58.00 - 63.00	1.0000	1.0000
L30	16	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 - 58.00	1.0000	1.0000
L30	17	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 - 58.00	1.0000	1.0000
L30	18	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 - 58.00	1.0000	1.0000
L30	20	Sabre MS-650 (6.5" x 1.25" Plate)	56.75 - 58.00	1.0000	1.0000
L30	21	Sabre MS-650 (6.5" x 1.25" Plate)	56.75 - 58.00	1.0000	1.0000
L30	22	Sabre MS-650 (6.5" x 1.25" Plate)	56.75 - 58.00	1.0000	1.0000
L30	59	AL7-50(1-5/8)	56.75 - 58.00	1.0000	1.0000
L31	16	Sabre MS-850 (8.5" x 1.25" Plate)	56.50 - 56.75	1.0000	1.0000
L31	17	Sabre MS-850 (8.5" x 1.25" Plate)	56.50 - 56.75	1.0000	1.0000
L31	18	Sabre MS-850 (8.5" x 1.25" Plate)	56.50 - 56.75	1.0000	1.0000
L31	20	Sabre MS-650 (6.5" x 1.25" Plate)	56.50 - 56.75	1.0000	1.0000
L31	21	Sabre MS-650 (6.5" x 1.25" Plate)	56.50 - 56.75	1.0000	1.0000
L31	22	Sabre MS-650 (6.5" x 1.25" Plate)	56.50 - 56.75	1.0000	1.0000
L31	59	AL7-50(1-5/8)	56.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L32	16	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 55.25 - 56.50	1.0000	1.0000
L32	17	Sabre MS-850 (8.5" x 1.25" Plate)	55.25 - 56.50	1.0000	1.0000
L32	18	Sabre MS-850 (8.5" x 1.25" Plate)	55.25 - 56.50	1.0000	1.0000
L32	20	Sabre MS-650 (6.5" x 1.25" Plate)	55.25 - 56.50	1.0000	1.0000
L32	21	Sabre MS-650 (6.5" x 1.25" Plate)	55.25 - 56.50	1.0000	1.0000
L32	22	Sabre MS-650 (6.5" x 1.25" Plate)	55.25 - 56.50	1.0000	1.0000
L32	59	AL7-50(1-5/8)	55.25 - 56.50	1.0000	1.0000
L33	16	Sabre MS-850 (8.5" x 1.25" Plate)	55.00 - 55.25	1.0000	1.0000
L33	17	Sabre MS-850 (8.5" x 1.25" Plate)	55.00 - 55.25	1.0000	1.0000
L33	18	Sabre MS-850 (8.5" x 1.25" Plate)	55.00 - 55.25	1.0000	1.0000
L33	20	Sabre MS-650 (6.5" x 1.25" Plate)	55.00 - 55.25	1.0000	1.0000
L33	21	Sabre MS-650 (6.5" x 1.25" Plate)	55.00 - 55.25	1.0000	1.0000
L33	22	Sabre MS-650 (6.5" x 1.25" Plate)	55.00 - 55.25	1.0000	1.0000
L33	59	AL7-50(1-5/8)	55.00 - 55.25	1.0000	1.0000
L34	16	Sabre MS-850 (8.5" x 1.25" Plate)	47.50 - 55.00	1.0000	1.0000
L34	17	Sabre MS-850 (8.5" x 1.25" Plate)	47.50 - 55.00	1.0000	1.0000
L34	18	Sabre MS-850 (8.5" x 1.25" Plate)	47.50 - 55.00	1.0000	1.0000
L34	20	Sabre MS-650 (6.5" x 1.25" Plate)	52.50 - 55.00	1.0000	1.0000
L34	21	Sabre MS-650 (6.5" x 1.25" Plate)	52.50 - 55.00	1.0000	1.0000
L34	22	Sabre MS-650 (6.5" x 1.25" Plate)	52.50 - 55.00	1.0000	1.0000
L34	59	AL7-50(1-5/8)	47.50 - 55.00	1.0000	1.0000
L35	16	Sabre MS-850 (8.5" x 1.25" Plate)	47.05 - 47.50	1.0000	1.0000
L35	17	Sabre MS-850 (8.5" x 1.25" Plate)	47.05 - 47.50	1.0000	1.0000
L35	18	Sabre MS-850 (8.5" x 1.25" Plate)	47.05 - 47.50	1.0000	1.0000
L35	59	AL7-50(1-5/8)	47.05 - 47.50	1.0000	1.0000
L36	16	Sabre MS-850 (8.5" x 1.25" Plate)	42.05 - 47.05	1.0000	1.0000
L36	17	Sabre MS-850 (8.5" x 1.25" Plate)	42.05 - 47.05	1.0000	1.0000
L36	18	Sabre MS-850 (8.5" x 1.25" Plate)	42.05 - 47.05	1.0000	1.0000
L36	59	AL7-50(1-5/8)	42.05 - 47.05	1.0000	1.0000
L37	12	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 38.70	1.0000	1.0000
L37	13	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 38.70	1.0000	1.0000
L37	14	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 38.70	1.0000	1.0000
L37	16	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 42.05	1.0000	1.0000
L37	17	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 42.05	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L37	18	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 42.05	1.0000	1.0000
L37	59	AL7-50(1-5/8)	37.05 - 42.05	1.0000	1.0000
L38	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	1.0000	1.0000
L38	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	1.0000	1.0000
L38	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	1.0000	1.0000
L38	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	1.0000	1.0000
L38	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	1.0000	1.0000
L38	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	1.0000	1.0000
L38	59	AL7-50(1-5/8)	34.95 - 37.05	1.0000	1.0000
L39	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	1.0000	1.0000
L39	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	1.0000	1.0000
L39	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	1.0000	1.0000
L39	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	1.0000	1.0000
L39	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	1.0000	1.0000
L39	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	1.0000	1.0000
L39	59	AL7-50(1-5/8)	34.70 - 34.95	1.0000	1.0000
L40	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	1.0000	1.0000
L40	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	1.0000	1.0000
L40	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	1.0000	1.0000
L40	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	1.0000	1.0000
L40	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	1.0000	1.0000
L40	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	1.0000	1.0000
L40	59	AL7-50(1-5/8)	34.25 - 34.70	1.0000	1.0000
L41	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	1.0000	1.0000
L41	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	1.0000	1.0000
L41	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	1.0000	1.0000
L41	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	1.0000	1.0000
L41	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	1.0000	1.0000
L41	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	1.0000	1.0000
L41	59	AL7-50(1-5/8)	34.00 - 34.25	1.0000	1.0000
L42	8	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 30.50	1.0000	1.0000
L42	9	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 30.50	1.0000	1.0000
L42	10	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 30.50	1.0000	1.0000
L42	12	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 34.00	1.0000	1.0000
L42	13	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 34.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L42	14	1.25" Plate) Sabre MS-850 (8.5" x	34.00 29.00 -	1.0000	1.0000
L42	16	1.25" Plate) Sabre MS-850 (8.5" x	34.00 30.50 -	1.0000	1.0000
L42	17	1.25" Plate) Sabre MS-850 (8.5" x	34.00 30.50 -	1.0000	1.0000
L42	18	1.25" Plate) Sabre MS-850 (8.5" x	34.00 30.50 -	1.0000	1.0000
L42	59	1.25" Plate) AL7-50(1-5/8)	34.00 29.00 -	1.0000	1.0000
L43	8	1.25" Plate) Sabre MS-850 (8.5" x	34.00 26.75 -	1.0000	1.0000
L43	9	1.25" Plate) Sabre MS-850 (8.5" x	29.00 26.75 -	1.0000	1.0000
L43	10	1.25" Plate) Sabre MS-850 (8.5" x	29.00 26.75 -	1.0000	1.0000
L43	12	1.25" Plate) Sabre MS-850 (8.5" x	29.00 26.75 -	1.0000	1.0000
L43	13	1.25" Plate) Sabre MS-850 (8.5" x	29.00 26.75 -	1.0000	1.0000
L43	14	1.25" Plate) Sabre MS-850 (8.5" x	29.00 26.75 -	1.0000	1.0000
L43	59	1.25" Plate) AL7-50(1-5/8)	29.00 26.75 -	1.0000	1.0000
L44	8	1.25" Plate) Sabre MS-850 (8.5" x	26.50 - 26.75	1.0000	1.0000
L44	9	1.25" Plate) Sabre MS-850 (8.5" x	26.50 - 26.75	1.0000	1.0000
L44	10	1.25" Plate) Sabre MS-850 (8.5" x	26.50 - 26.75	1.0000	1.0000
L44	12	1.25" Plate) Sabre MS-850 (8.5" x	26.50 - 26.75	1.0000	1.0000
L44	13	1.25" Plate) Sabre MS-850 (8.5" x	26.50 - 26.75	1.0000	1.0000
L44	14	1.25" Plate) Sabre MS-850 (8.5" x	26.50 - 26.75	1.0000	1.0000
L44	59	1.25" Plate) AL7-50(1-5/8)	26.50 - 26.75	1.0000	1.0000
L45	8	1.25" Plate) Sabre MS-850 (8.5" x	25.25 - 26.50	1.0000	1.0000
L45	9	1.25" Plate) Sabre MS-850 (8.5" x	25.25 - 26.50	1.0000	1.0000
L45	10	1.25" Plate) Sabre MS-850 (8.5" x	25.25 - 26.50	1.0000	1.0000
L45	12	1.25" Plate) Sabre MS-850 (8.5" x	25.25 - 26.50	1.0000	1.0000
L45	13	1.25" Plate) Sabre MS-850 (8.5" x	25.25 - 26.50	1.0000	1.0000
L45	14	1.25" Plate) Sabre MS-850 (8.5" x	25.25 - 26.50	1.0000	1.0000
L45	59	1.25" Plate) AL7-50(1-5/8)	25.25 - 26.50	1.0000	1.0000
L46	8	1.25" Plate) Sabre MS-850 (8.5" x	25.00 - 25.25	1.0000	1.0000
L46	9	1.25" Plate) Sabre MS-850 (8.5" x	25.00 - 25.25	1.0000	1.0000
L46	10	1.25" Plate) Sabre MS-850 (8.5" x	25.00 - 25.25	1.0000	1.0000
L46	12	1.25" Plate) Sabre MS-850 (8.5" x	25.00 - 25.25	1.0000	1.0000
L46	13	1.25" Plate) Sabre MS-850 (8.5" x	25.00 - 25.25	1.0000	1.0000
L46	14	1.25" Plate) Sabre MS-850 (8.5" x	25.00 - 25.25	1.0000	1.0000
L46	59	1.25" Plate) AL7-50(1-5/8)	25.00 - 25.25	1.0000	1.0000
L47	5	1.25" Plate) Sabre MS-850 (8.5" x	20.00 - 20.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L47	6	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 20.50	1.0000	1.0000
L47	8	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 25.00	1.0000	1.0000
L47	9	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 25.00	1.0000	1.0000
L47	10	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 25.00	1.0000	1.0000
L47	12	Sabre MS-850 (8.5" x 1.25" Plate)	21.50 - 25.00	1.0000	1.0000
L47	13	Sabre MS-850 (8.5" x 1.25" Plate)	21.50 - 25.00	1.0000	1.0000
L47	14	Sabre MS-850 (8.5" x 1.25" Plate)	21.50 - 25.00	1.0000	1.0000
L47	59	AL7-50(1-5/8)	20.00 - 25.00	1.0000	1.0000
L48	5	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	1.0000	1.0000
L48	6	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	1.0000	1.0000
L48	8	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	1.0000	1.0000
L48	9	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	1.0000	1.0000
L48	10	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	1.0000	1.0000
L48	59	AL7-50(1-5/8)	16.75 - 20.00	1.0000	1.0000
L49	5	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	1.0000	1.0000
L49	6	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	1.0000	1.0000
L49	8	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	1.0000	1.0000
L49	9	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	1.0000	1.0000
L49	10	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	1.0000	1.0000
L49	59	AL7-50(1-5/8)	16.50 - 16.75	1.0000	1.0000
L50	5	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	1.0000	1.0000
L50	6	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	1.0000	1.0000
L50	8	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	1.0000	1.0000
L50	9	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	1.0000	1.0000
L50	10	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	1.0000	1.0000
L50	59	AL7-50(1-5/8)	14.25 - 16.50	1.0000	1.0000
L51	5	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	1.0000	1.0000
L51	6	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	1.0000	1.0000
L51	8	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	1.0000	1.0000
L51	9	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	1.0000	1.0000
L51	10	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	1.0000	1.0000
L51	59	AL7-50(1-5/8)	14.00 - 14.25	1.0000	1.0000
L52	5	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	1.0000	1.0000
L52	6	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	1.0000	1.0000
L52	8	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L52	9	1.25" Plate) Sabre MS-850 (8.5" x	9.00 - 14.00	1.0000	1.0000
L52	10	1.25" Plate) Sabre MS-850 (8.5" x	10.50 - 14.00	1.0000	1.0000
L52	59	AL7-50(1-5/8)	9.00 - 14.00	1.0000	1.0000
L53	5	Sabre MS-850 (8.5" x	4.00 - 9.00	1.0000	1.0000
L53	6	1.25" Plate) Sabre MS-850 (8.5" x	4.00 - 9.00	1.0000	1.0000
L53	8	1.25" Plate) Sabre MS-850 (8.5" x	4.00 - 9.00	1.0000	1.0000
L53	9	1.25" Plate) Sabre MS-850 (8.5" x	4.00 - 9.00	1.0000	1.0000
L53	59	AL7-50(1-5/8)	4.00 - 9.00	1.0000	1.0000
L54	5	Sabre MS-850 (8.5" x	0.50 - 4.00	1.0000	1.0000
L54	6	1.25" Plate) Sabre MS-850 (8.5" x	0.50 - 4.00	1.0000	1.0000
L54	8	1.25" Plate) Sabre MS-850 (8.5" x	0.50 - 4.00	1.0000	1.0000
L54	9	1.25" Plate) Sabre MS-850 (8.5" x	0.50 - 4.00	1.0000	1.0000
L54	59	AL7-50(1-5/8)	0.00 - 4.00	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L5	36	MP3-03 (Surface Af)	126.00 - 126.50	Auto	0.0000
L5	37	MP3-03 (Surface Af)	126.00 - 126.50	Auto	0.0000
L5	38	MP3-03 (Surface Af)	126.00 - 126.50	Auto	0.0000
L6	36	MP3-03 (Surface Af)	121.00 - 126.00	Auto	0.0000
L6	37	MP3-03 (Surface Af)	121.00 - 126.00	Auto	0.0000
L6	38	MP3-03 (Surface Af)	121.00 - 126.00	Auto	0.0000
L7	32	Sabre MS-600 (6" x 1" Plate)	118.50 - 120.50	Auto	0.0488
L7	33	Sabre MS-600 (6" x 1" Plate)	118.50 - 120.50	Auto	0.0488
L7	34	Sabre MS-600 (6" x 1" Plate)	118.50 - 120.50	Auto	0.0488
L7	36	MP3-03 (Surface Af)	118.50 - 121.00	Auto	0.0000
L7	37	MP3-03 (Surface Af)	118.50 - 121.00	Auto	0.0000
L7	38	MP3-03 (Surface Af)	118.50 - 121.00	Auto	0.0000
L8	32	Sabre MS-600 (6" x 1" Plate)	118.25 - 118.50	Auto	0.1622
L8	33	Sabre MS-600 (6" x 1" Plate)	118.25 - 118.50	Auto	0.1622
L8	34	Sabre MS-600 (6" x 1" Plate)	118.25 - 118.50	Auto	0.1622

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	36	MP3-03 (Surface Af)	118.25 - 118.50	Auto	0.0000
L8	37	MP3-03 (Surface Af)	118.25 - 118.50	Auto	0.0000
L8	38	MP3-03 (Surface Af)	118.25 - 118.50	Auto	0.0000
L9	32	Sabre MS-600 (6" x 1" Plate)	113.25 - 118.25	Auto	0.1347
L9	33	Sabre MS-600 (6" x 1" Plate)	113.25 - 118.25	Auto	0.1347
L9	34	Sabre MS-600 (6" x 1" Plate)	113.25 - 118.25	Auto	0.1347
L9	36	MP3-03 (Surface Af)	116.50 - 118.25	Auto	0.0000
L9	37	MP3-03 (Surface Af)	116.50 - 118.25	Auto	0.0000
L9	38	MP3-03 (Surface Af)	116.50 - 118.25	Auto	0.0000
L10	32	Sabre MS-600 (6" x 1" Plate)	108.25 - 113.25	Auto	0.0873
L10	33	Sabre MS-600 (6" x 1" Plate)	108.25 - 113.25	Auto	0.0873
L10	34	Sabre MS-600 (6" x 1" Plate)	108.25 - 113.25	Auto	0.0873
L11	32	Sabre MS-600 (6" x 1" Plate)	103.25 - 108.25	Auto	0.0427
L11	33	Sabre MS-600 (6" x 1" Plate)	103.25 - 108.25	Auto	0.0427
L11	34	Sabre MS-600 (6" x 1" Plate)	103.25 - 108.25	Auto	0.0427
L12	32	Sabre MS-600 (6" x 1" Plate)	97.50 - 103.25	Auto	0.0038
L12	33	Sabre MS-600 (6" x 1" Plate)	97.50 - 103.25	Auto	0.0038
L12	34	Sabre MS-600 (6" x 1" Plate)	97.50 - 103.25	Auto	0.0038
L13	28	Sabre MS-600 (6" x 1" Plate)	95.95 - 97.00	Auto	0.0243
L13	29	Sabre MS-600 (6" x 1" Plate)	95.95 - 97.00	Auto	0.0243
L13	30	Sabre MS-600 (6" x 1" Plate)	95.95 - 97.00	Auto	0.0243
L13	32	Sabre MS-600 (6" x 1" Plate)	95.95 - 97.50	Auto	0.0263
L13	33	Sabre MS-600 (6" x 1" Plate)	95.95 - 97.50	Auto	0.0263
L13	34	Sabre MS-600 (6" x 1" Plate)	95.95 - 97.50	Auto	0.0263
L14	28	Sabre MS-600 (6" x 1" Plate)	95.00 - 95.95	Auto	0.0160
L14	29	Sabre MS-600 (6" x 1" Plate)	95.00 - 95.95	Auto	0.0160
L14	30	Sabre MS-600 (6" x 1" Plate)	95.00 - 95.95	Auto	0.0160
L14	32	Sabre MS-600 (6" x 1" Plate)	95.00 - 95.95	Auto	0.0160
L14	33	Sabre MS-600 (6" x 1" Plate)	95.00 - 95.95	Auto	0.0160
L14	34	Sabre MS-600 (6" x 1" Plate)	95.00 - 95.95	Auto	0.0160
L15	28	Sabre MS-600 (6" x 1" Plate)	94.75 - 95.00	Auto	0.1227
L15	29	Sabre MS-600 (6" x 1" Plate)	94.75 - 95.00	Auto	0.1227
L15	30	Sabre MS-600 (6" x 1" Plate)	94.75 - 95.00	Auto	0.1227
L15	32	Sabre MS-600 (6" x 1" Plate)	94.75 - 95.00	Auto	0.1227

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L15	33	Sabre MS-600 (6" x 1" Plate)	94.75 - 95.00	Auto	0.1227
L15	34	Sabre MS-600 (6" x 1" Plate)	94.75 - 95.00	Auto	0.1227
L16	28	Sabre MS-600 (6" x 1" Plate)	92.50 - 94.75	Auto	0.1068
L16	29	Sabre MS-600 (6" x 1" Plate)	92.50 - 94.75	Auto	0.1068
L16	30	Sabre MS-600 (6" x 1" Plate)	92.50 - 94.75	Auto	0.1068
L16	32	Sabre MS-600 (6" x 1" Plate)	92.50 - 94.75	Auto	0.1068
L16	33	Sabre MS-600 (6" x 1" Plate)	92.50 - 94.75	Auto	0.1068
L16	34	Sabre MS-600 (6" x 1" Plate)	92.50 - 94.75	Auto	0.1068
L17	28	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	Auto	0.0000
L17	29	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	Auto	0.0000
L17	30	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	Auto	0.0000
L17	32	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	Auto	0.0000
L17	33	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	Auto	0.0000
L17	34	Sabre MS-600 (6" x 1" Plate)	92.25 - 92.50	Auto	0.0000
L18	24	Sabre MS-650 (6.5" x 1.25" Plate)	87.75 - 90.50	Auto	0.0381
L18	25	Sabre MS-650 (6.5" x 1.25" Plate)	87.75 - 90.50	Auto	0.0381
L18	26	Sabre MS-650 (6.5" x 1.25" Plate)	87.75 - 90.50	Auto	0.0381
L18	28	Sabre MS-600 (6" x 1" Plate)	87.75 - 92.25	Auto	0.0000
L18	29	Sabre MS-600 (6" x 1" Plate)	87.75 - 92.25	Auto	0.0000
L18	30	Sabre MS-600 (6" x 1" Plate)	87.75 - 92.25	Auto	0.0000
L18	32	Sabre MS-600 (6" x 1" Plate)	90.50 - 92.25	Auto	0.0000
L18	33	Sabre MS-600 (6" x 1" Plate)	90.50 - 92.25	Auto	0.0000
L18	34	Sabre MS-600 (6" x 1" Plate)	90.50 - 92.25	Auto	0.0000
L19	24	Sabre MS-650 (6.5" x 1.25" Plate)	87.50 - 87.75	Auto	0.1607
L19	25	Sabre MS-650 (6.5" x 1.25" Plate)	87.50 - 87.75	Auto	0.1607
L19	26	Sabre MS-650 (6.5" x 1.25" Plate)	87.50 - 87.75	Auto	0.1607
L19	28	Sabre MS-600 (6" x 1" Plate)	87.50 - 87.75	Auto	0.0908
L19	29	Sabre MS-600 (6" x 1" Plate)	87.50 - 87.75	Auto	0.0908
L19	30	Sabre MS-600 (6" x 1" Plate)	87.50 - 87.75	Auto	0.0908
L20	24	Sabre MS-650 (6.5" x 1.25" Plate)	84.00 - 87.50	Auto	0.1413
L20	25	Sabre MS-650 (6.5" x 1.25" Plate)	84.00 - 87.50	Auto	0.1413
L20	26	Sabre MS-650 (6.5" x 1.25" Plate)	84.00 - 87.50	Auto	0.1413
L20	28	Sabre MS-600 (6" x 1" Plate)	84.00 - 87.50	Auto	0.0697
L20	29	Sabre MS-600 (6" x 1" Plate)	84.00 - 87.50	Auto	0.0697

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	30	Sabre MS-600 (6" x 1" Plate)	84.00 - 87.50	Auto	0.0697
L21	24	Sabre MS-650 (6.5" x 1.25" Plate)	83.75 - 84.00	Auto	0.0290
L21	25	Sabre MS-650 (6.5" x 1.25" Plate)	83.75 - 84.00	Auto	0.0290
L21	26	Sabre MS-650 (6.5" x 1.25" Plate)	83.75 - 84.00	Auto	0.0290
L21	28	Sabre MS-600 (6" x 1" Plate)	83.75 - 84.00	Auto	0.0000
L21	29	Sabre MS-600 (6" x 1" Plate)	83.75 - 84.00	Auto	0.0000
L21	30	Sabre MS-600 (6" x 1" Plate)	83.75 - 84.00	Auto	0.0000
L22	24	Sabre MS-650 (6.5" x 1.25" Plate)	78.75 - 83.75	Auto	0.0069
L22	25	Sabre MS-650 (6.5" x 1.25" Plate)	78.75 - 83.75	Auto	0.0069
L22	26	Sabre MS-650 (6.5" x 1.25" Plate)	78.75 - 83.75	Auto	0.0069
L22	28	Sabre MS-600 (6" x 1" Plate)	82.00 - 83.75	Auto	0.0000
L22	29	Sabre MS-600 (6" x 1" Plate)	82.00 - 83.75	Auto	0.0000
L22	30	Sabre MS-600 (6" x 1" Plate)	82.00 - 83.75	Auto	0.0000
L23	24	Sabre MS-650 (6.5" x 1.25" Plate)	73.75 - 78.75	Auto	0.0000
L23	25	Sabre MS-650 (6.5" x 1.25" Plate)	73.75 - 78.75	Auto	0.0000
L23	26	Sabre MS-650 (6.5" x 1.25" Plate)	73.75 - 78.75	Auto	0.0000
L24	24	Sabre MS-650 (6.5" x 1.25" Plate)	68.75 - 73.75	Auto	0.0000
L24	25	Sabre MS-650 (6.5" x 1.25" Plate)	68.75 - 73.75	Auto	0.0000
L24	26	Sabre MS-650 (6.5" x 1.25" Plate)	68.75 - 73.75	Auto	0.0000
L25	20	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 67.50	Auto	0.0000
L25	21	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 67.50	Auto	0.0000
L25	22	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 67.50	Auto	0.0000
L25	24	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 68.75	Auto	0.0000
L25	25	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 68.75	Auto	0.0000
L25	26	Sabre MS-650 (6.5" x 1.25" Plate)	64.75 - 68.75	Auto	0.0000
L26	20	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	Auto	0.0000
L26	21	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	Auto	0.0000
L26	22	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	Auto	0.0000
L26	24	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	Auto	0.0000
L26	25	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	Auto	0.0000
L26	26	Sabre MS-650 (6.5" x 1.25" Plate)	64.50 - 64.75	Auto	0.0000
L27	20	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	Auto	0.0000
L27	21	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	Auto	0.0000
L27	22	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L27	24	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	Auto	0.0000
L27	25	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	Auto	0.0000
L27	26	Sabre MS-650 (6.5" x 1.25" Plate)	63.25 - 64.50	Auto	0.0000
L28	20	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	Auto	0.0000
L28	21	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	Auto	0.0000
L28	22	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	Auto	0.0000
L28	24	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	Auto	0.0000
L28	25	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	Auto	0.0000
L28	26	Sabre MS-650 (6.5" x 1.25" Plate)	63.00 - 63.25	Auto	0.0000
L29	16	Sabre MS-850 (8.5" x 1.25" Plate)	58.00 - 60.50	Auto	0.0982
L29	17	Sabre MS-850 (8.5" x 1.25" Plate)	58.00 - 60.50	Auto	0.0982
L29	18	Sabre MS-850 (8.5" x 1.25" Plate)	58.00 - 60.50	Auto	0.0982
L29	20	Sabre MS-650 (6.5" x 1.25" Plate)	58.00 - 63.00	Auto	0.0000
L29	21	Sabre MS-650 (6.5" x 1.25" Plate)	58.00 - 63.00	Auto	0.0000
L29	22	Sabre MS-650 (6.5" x 1.25" Plate)	58.00 - 63.00	Auto	0.0000
L29	24	Sabre MS-650 (6.5" x 1.25" Plate)	60.50 - 63.00	Auto	0.0000
L29	25	Sabre MS-650 (6.5" x 1.25" Plate)	60.50 - 63.00	Auto	0.0000
L29	26	Sabre MS-650 (6.5" x 1.25" Plate)	60.50 - 63.00	Auto	0.0000
L30	16	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 - 58.00	Auto	0.0873
L30	17	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 - 58.00	Auto	0.0873
L30	18	Sabre MS-850 (8.5" x 1.25" Plate)	56.75 - 58.00	Auto	0.0873
L30	20	Sabre MS-650 (6.5" x 1.25" Plate)	56.75 - 58.00	Auto	0.0000
L30	21	Sabre MS-650 (6.5" x 1.25" Plate)	56.75 - 58.00	Auto	0.0000
L30	22	Sabre MS-650 (6.5" x 1.25" Plate)	56.75 - 58.00	Auto	0.0000
L31	16	Sabre MS-850 (8.5" x 1.25" Plate)	56.50 - 56.75	Auto	0.1932
L31	17	Sabre MS-850 (8.5" x 1.25" Plate)	56.50 - 56.75	Auto	0.1932
L31	18	Sabre MS-850 (8.5" x 1.25" Plate)	56.50 - 56.75	Auto	0.1932
L31	20	Sabre MS-650 (6.5" x 1.25" Plate)	56.50 - 56.75	Auto	0.0000
L31	21	Sabre MS-650 (6.5" x 1.25" Plate)	56.50 - 56.75	Auto	0.0000
L31	22	Sabre MS-650 (6.5" x 1.25" Plate)	56.50 - 56.75	Auto	0.0000
L32	16	Sabre MS-850 (8.5" x 1.25" Plate)	55.25 - 56.50	Auto	0.1889
L32	17	Sabre MS-850 (8.5" x 1.25" Plate)	55.25 - 56.50	Auto	0.1889
L32	18	Sabre MS-850 (8.5" x 1.25" Plate)	55.25 - 56.50	Auto	0.1889
L32	20	Sabre MS-650 (6.5" x 1.25" Plate)	55.25 - 56.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L32	21	Sabre MS-650 (6.5" x 1.25" Plate)	55.25 - 56.50	Auto	0.0000
L32	22	Sabre MS-650 (6.5" x 1.25" Plate)	55.25 - 56.50	Auto	0.0000
L33	16	Sabre MS-850 (8.5" x 1.25" Plate)	55.00 - 55.25	Auto	0.0978
L33	17	Sabre MS-850 (8.5" x 1.25" Plate)	55.00 - 55.25	Auto	0.0978
L33	18	Sabre MS-850 (8.5" x 1.25" Plate)	55.00 - 55.25	Auto	0.0978
L33	20	Sabre MS-650 (6.5" x 1.25" Plate)	55.00 - 55.25	Auto	0.0000
L33	21	Sabre MS-650 (6.5" x 1.25" Plate)	55.00 - 55.25	Auto	0.0000
L33	22	Sabre MS-650 (6.5" x 1.25" Plate)	55.00 - 55.25	Auto	0.0000
L34	16	Sabre MS-850 (8.5" x 1.25" Plate)	47.50 - 55.00	Auto	0.0752
L34	17	Sabre MS-850 (8.5" x 1.25" Plate)	47.50 - 55.00	Auto	0.0752
L34	18	Sabre MS-850 (8.5" x 1.25" Plate)	47.50 - 55.00	Auto	0.0752
L34	20	Sabre MS-650 (6.5" x 1.25" Plate)	52.50 - 55.00	Auto	0.0000
L34	21	Sabre MS-650 (6.5" x 1.25" Plate)	52.50 - 55.00	Auto	0.0000
L34	22	Sabre MS-650 (6.5" x 1.25" Plate)	52.50 - 55.00	Auto	0.0000
L35	16	Sabre MS-850 (8.5" x 1.25" Plate)	47.05 - 47.50	Auto	0.0908
L35	17	Sabre MS-850 (8.5" x 1.25" Plate)	47.05 - 47.50	Auto	0.0908
L35	18	Sabre MS-850 (8.5" x 1.25" Plate)	47.05 - 47.50	Auto	0.0908
L36	16	Sabre MS-850 (8.5" x 1.25" Plate)	42.05 - 47.05	Auto	0.0706
L36	17	Sabre MS-850 (8.5" x 1.25" Plate)	42.05 - 47.05	Auto	0.0706
L36	18	Sabre MS-850 (8.5" x 1.25" Plate)	42.05 - 47.05	Auto	0.0706
L37	12	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 38.70	Auto	0.0268
L37	13	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 38.70	Auto	0.0268
L37	14	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 38.70	Auto	0.0268
L37	16	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 42.05	Auto	0.0368
L37	17	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 42.05	Auto	0.0368
L37	18	Sabre MS-850 (8.5" x 1.25" Plate)	37.05 - 42.05	Auto	0.0368
L38	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	Auto	0.0157
L38	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	Auto	0.0157
L38	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	Auto	0.0157
L38	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	Auto	0.0157
L38	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	Auto	0.0157
L38	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.95 - 37.05	Auto	0.0157
L39	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	Auto	0.1072
L39	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	Auto	0.1072

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L39	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	Auto	0.1072
L39	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	Auto	0.1072
L39	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	Auto	0.1072
L39	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.70 - 34.95	Auto	0.1072
L40	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	Auto	0.1011
L40	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	Auto	0.1011
L40	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	Auto	0.1011
L40	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	Auto	0.1011
L40	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	Auto	0.1011
L40	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.25 - 34.70	Auto	0.1011
L41	12	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	Auto	0.0045
L41	13	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	Auto	0.0045
L41	14	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	Auto	0.0045
L41	16	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	Auto	0.0045
L41	17	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	Auto	0.0045
L41	18	Sabre MS-850 (8.5" x 1.25" Plate)	34.00 - 34.25	Auto	0.0045
L42	8	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 30.50	Auto	0.0000
L42	9	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 30.50	Auto	0.0000
L42	10	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 30.50	Auto	0.0000
L42	12	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 34.00	Auto	0.0000
L42	13	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 34.00	Auto	0.0000
L42	14	Sabre MS-850 (8.5" x 1.25" Plate)	29.00 - 34.00	Auto	0.0000
L42	16	Sabre MS-850 (8.5" x 1.25" Plate)	30.50 - 34.00	Auto	0.0000
L42	17	Sabre MS-850 (8.5" x 1.25" Plate)	30.50 - 34.00	Auto	0.0000
L42	18	Sabre MS-850 (8.5" x 1.25" Plate)	30.50 - 34.00	Auto	0.0000
L43	8	Sabre MS-850 (8.5" x 1.25" Plate)	26.75 - 29.00	Auto	0.0000
L43	9	Sabre MS-850 (8.5" x 1.25" Plate)	26.75 - 29.00	Auto	0.0000
L43	10	Sabre MS-850 (8.5" x 1.25" Plate)	26.75 - 29.00	Auto	0.0000
L43	12	Sabre MS-850 (8.5" x 1.25" Plate)	26.75 - 29.00	Auto	0.0000
L43	13	Sabre MS-850 (8.5" x 1.25" Plate)	26.75 - 29.00	Auto	0.0000
L43	14	Sabre MS-850 (8.5" x 1.25" Plate)	26.75 - 29.00	Auto	0.0000
L44	8	Sabre MS-850 (8.5" x 1.25" Plate)	26.50 - 26.75	Auto	0.0464
L44	9	Sabre MS-850 (8.5" x 1.25" Plate)	26.50 - 26.75	Auto	0.0464
L44	10	Sabre MS-850 (8.5" x 1.25" Plate)	26.50 - 26.75	Auto	0.0464

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L44	12	Sabre MS-850 (8.5" x 1.25" Plate)	26.50 - 26.75	Auto	0.0464
L44	13	Sabre MS-850 (8.5" x 1.25" Plate)	26.50 - 26.75	Auto	0.0464
L44	14	Sabre MS-850 (8.5" x 1.25" Plate)	26.50 - 26.75	Auto	0.0464
L45	8	Sabre MS-850 (8.5" x 1.25" Plate)	25.25 - 26.50	Auto	0.0420
L45	9	Sabre MS-850 (8.5" x 1.25" Plate)	25.25 - 26.50	Auto	0.0420
L45	10	Sabre MS-850 (8.5" x 1.25" Plate)	25.25 - 26.50	Auto	0.0420
L45	12	Sabre MS-850 (8.5" x 1.25" Plate)	25.25 - 26.50	Auto	0.0420
L45	13	Sabre MS-850 (8.5" x 1.25" Plate)	25.25 - 26.50	Auto	0.0420
L45	14	Sabre MS-850 (8.5" x 1.25" Plate)	25.25 - 26.50	Auto	0.0420
L46	8	Sabre MS-850 (8.5" x 1.25" Plate)	25.00 - 25.25	Auto	0.0000
L46	9	Sabre MS-850 (8.5" x 1.25" Plate)	25.00 - 25.25	Auto	0.0000
L46	10	Sabre MS-850 (8.5" x 1.25" Plate)	25.00 - 25.25	Auto	0.0000
L46	12	Sabre MS-850 (8.5" x 1.25" Plate)	25.00 - 25.25	Auto	0.0000
L46	13	Sabre MS-850 (8.5" x 1.25" Plate)	25.00 - 25.25	Auto	0.0000
L46	14	Sabre MS-850 (8.5" x 1.25" Plate)	25.00 - 25.25	Auto	0.0000
L47	5	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 20.50	Auto	0.0000
L47	6	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 20.50	Auto	0.0000
L47	8	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 25.00	Auto	0.0000
L47	9	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 25.00	Auto	0.0000
L47	10	Sabre MS-850 (8.5" x 1.25" Plate)	20.00 - 25.00	Auto	0.0000
L47	12	Sabre MS-850 (8.5" x 1.25" Plate)	21.50 - 25.00	Auto	0.0000
L47	13	Sabre MS-850 (8.5" x 1.25" Plate)	21.50 - 25.00	Auto	0.0000
L47	14	Sabre MS-850 (8.5" x 1.25" Plate)	21.50 - 25.00	Auto	0.0000
L48	5	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	Auto	0.0000
L48	6	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	Auto	0.0000
L48	8	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	Auto	0.0000
L48	9	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	Auto	0.0000
L48	10	Sabre MS-850 (8.5" x 1.25" Plate)	16.75 - 20.00	Auto	0.0000
L49	5	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	Auto	0.0000
L49	6	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	Auto	0.0000
L49	8	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	Auto	0.0000
L49	9	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	Auto	0.0000
L49	10	Sabre MS-850 (8.5" x 1.25" Plate)	16.50 - 16.75	Auto	0.0000
L50	5	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L50	6	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	Auto	0.0000
L50	8	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	Auto	0.0000
L50	9	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	Auto	0.0000
L50	10	Sabre MS-850 (8.5" x 1.25" Plate)	14.25 - 16.50	Auto	0.0000
L51	5	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	Auto	0.0000
L51	6	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	Auto	0.0000
L51	8	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	Auto	0.0000
L51	9	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	Auto	0.0000
L51	10	Sabre MS-850 (8.5" x 1.25" Plate)	14.00 - 14.25	Auto	0.0000
L52	5	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	Auto	0.0000
L52	6	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	Auto	0.0000
L52	8	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	Auto	0.0000
L52	9	Sabre MS-850 (8.5" x 1.25" Plate)	9.00 - 14.00	Auto	0.0000
L52	10	Sabre MS-850 (8.5" x 1.25" Plate)	10.50 - 14.00	Auto	0.0000
L53	5	Sabre MS-850 (8.5" x 1.25" Plate)	4.00 - 9.00	Auto	0.0000
L53	6	Sabre MS-850 (8.5" x 1.25" Plate)	4.00 - 9.00	Auto	0.0000
L53	8	Sabre MS-850 (8.5" x 1.25" Plate)	4.00 - 9.00	Auto	0.0000
L53	9	Sabre MS-850 (8.5" x 1.25" Plate)	4.00 - 9.00	Auto	0.0000
L54	5	Sabre MS-850 (8.5" x 1.25" Plate)	0.50 - 4.00	Auto	0.0000
L54	6	Sabre MS-850 (8.5" x 1.25" Plate)	0.50 - 4.00	Auto	0.0000
L54	8	Sabre MS-850 (8.5" x 1.25" Plate)	0.50 - 4.00	Auto	0.0000
L54	9	Sabre MS-850 (8.5" x 1.25" Plate)	0.50 - 4.00	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horiz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		CA _{AA} Front ft ²	CA _{AA} Side ft ²	Weight K

Lighting Rod 5/8" x 4' on 4' Pole	C	From Leg	0.500 0.000 3.500	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.387 2.131 2.702 3.773	1.387 2.131 2.702 3.773	0.066 0.087 0.112 0.175

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
*** ***									
DS1F03F36D-N	A	From Leg	4.000 0.000 12.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.104 9.359 11.631 16.224	7.104 9.359 11.631 16.224	0.071 0.122 0.186 0.358
5' x 2" Pipe Mount	A	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.188 1.496 1.807 2.458	1.188 1.496 1.807 2.458	0.018 0.027 0.040 0.076

800 10121 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.000 4.420 5.290	2.950 3.340 3.740 4.590	0.072 0.115 0.166 0.297
800 10121 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.000 4.420 5.290	2.950 3.340 3.740 4.590	0.072 0.115 0.166 0.297
800 10121 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.600 4.000 4.420 5.290	2.950 3.340 3.740 4.590	0.072 0.115 0.166 0.297
DC6-48-60-18-8F	A	From Leg	4.000 0.000 3.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.212 1.892 2.105 2.570	1.212 1.892 2.105 2.570	0.020 0.042 0.067 0.126
OPA65R-BU6D w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.250 13.000 13.760 15.340	6.050 6.710 7.390 8.790	0.089 0.176 0.275 0.508
OPA65R-BU6D w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.250 13.000 13.760 15.340	6.050 6.710 7.390 8.790	0.089 0.176 0.275 0.508
OPA65R-BU6D w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.250 13.000 13.760 15.340	6.050 6.710 7.390 8.790	0.089 0.176 0.275 0.508
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.960 12.700 13.460 15.020	5.970 6.630 7.300 8.690	0.115 0.201 0.298 0.529
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.960 12.700 13.460 15.020	5.970 6.630 7.300 8.690	0.115 0.201 0.298 0.529
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice	11.960 12.700 13.460 15.020	5.970 6.630 7.300 8.690	0.115 0.201 0.298 0.529
(2) LGP21401	A	From Leg	4.000 0.000	0.000	148.000	No Ice 1/2"	1.104 1.239	0.207 0.274	0.014 0.021

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			3.000			Ice	1.381	0.348	0.030
						1" Ice	1.688	0.521	0.055
						2" Ice			
(2) LGP21401	B	From Leg	4.000	0.000	148.000	No Ice	1.104	0.207	0.014
			0.000			1/2"	1.239	0.274	0.021
			3.000			Ice	1.381	0.348	0.030
						1" Ice	1.688	0.521	0.055
						2" Ice			
(2) LGP21401	C	From Leg	4.000	0.000	148.000	No Ice	1.104	0.207	0.014
			0.000			1/2"	1.239	0.274	0.021
			3.000			Ice	1.381	0.348	0.030
						1" Ice	1.688	0.521	0.055
						2" Ice			
RRUS 4478 B14_CCIV2	A	From Leg	4.000	0.000	148.000	No Ice	2.021	1.246	0.059
			0.000			1/2"	2.200	1.396	0.077
			3.000			Ice	2.386	1.554	0.097
						1" Ice	2.780	1.891	0.147
						2" Ice			
RRUS 4478 B14_CCIV2	B	From Leg	4.000	0.000	148.000	No Ice	2.021	1.246	0.059
			0.000			1/2"	2.200	1.396	0.077
			3.000			Ice	2.386	1.554	0.097
						1" Ice	2.780	1.891	0.147
						2" Ice			
RRUS 4478 B14_CCIV2	C	From Leg	4.000	0.000	148.000	No Ice	2.021	1.246	0.059
			0.000			1/2"	2.200	1.396	0.077
			3.000			Ice	2.386	1.554	0.097
						1" Ice	2.780	1.891	0.147
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	148.000	No Ice	1.968	1.408	0.071
			0.000			1/2"	2.144	1.564	0.090
			3.000			Ice	2.328	1.727	0.111
						1" Ice	2.718	2.075	0.163
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	148.000	No Ice	1.968	1.408	0.071
			0.000			1/2"	2.144	1.564	0.090
			3.000			Ice	2.328	1.727	0.111
						1" Ice	2.718	2.075	0.163
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	148.000	No Ice	1.968	1.408	0.071
			0.000			1/2"	2.144	1.564	0.090
			3.000			Ice	2.328	1.727	0.111
						1" Ice	2.718	2.075	0.163
						2" Ice			
RRUS 8843 B2/B66A_CCIV2	A	From Leg	4.000	0.000	148.000	No Ice	1.980	1.695	0.075
			0.000			1/2"	2.157	1.861	0.096
			3.000			Ice	2.341	2.035	0.119
						1" Ice	2.733	2.405	0.176
						2" Ice			
RRUS 8843 B2/B66A_CCIV2	B	From Leg	4.000	0.000	148.000	No Ice	1.980	1.695	0.075
			0.000			1/2"	2.157	1.861	0.096
			3.000			Ice	2.341	2.035	0.119
						1" Ice	2.733	2.405	0.176
						2" Ice			
RRUS 8843 B2/B66A_CCIV2	C	From Leg	4.000	0.000	148.000	No Ice	1.980	1.695	0.075
			0.000			1/2"	2.157	1.861	0.096
			3.000			Ice	2.341	2.035	0.119
						1" Ice	2.733	2.405	0.176
						2" Ice			
DC6-48-60-18-8C-EV	B	From Leg	4.000	0.000	148.000	No Ice	1.145	1.145	0.026
			0.000			1/2"	1.792	1.792	0.047
			3.000			Ice	2.002	2.002	0.070
						1" Ice	2.450	2.450	0.125
						2" Ice			
DC6-48-60-18-8C-EV	C	From Leg	4.000	0.000	148.000	No Ice	1.145	1.145	0.026
			0.000			1/2"	1.792	1.792	0.047

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			3.000			Ice	2.002	2.002	0.070
						1" Ice	2.450	2.450	0.125
						2" Ice			
Platform Mount [LP 715-1_KCKR]	C	None		0.000	148.000	No Ice	57.990	57.990	2.050
						1/2"	64.470	64.470	3.301
						Ice	71.360	71.360	4.691
						1" Ice	86.460	86.460	7.895
						2" Ice			
(2) L 2.5x2.5x3/16x4.75'	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice	1.250	0.005	0.025
						1/2"	1.601	0.024	0.032
						Ice	1.959	0.049	0.044
						1" Ice	2.698	0.123	0.081
						2" Ice			
(2) L 2.5x2.5x3/16x4.75'	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice	1.250	0.005	0.025
						1/2"	1.601	0.024	0.032
						Ice	1.959	0.049	0.044
						1" Ice	2.698	0.123	0.081
						2" Ice			
(2) L 2.5x2.5x3/16x4.75'	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice	1.250	0.005	0.025
						1/2"	1.601	0.024	0.032
						Ice	1.959	0.049	0.044
						1" Ice	2.698	0.123	0.081
						2" Ice			
generic Mount Pipe [12.5 ft. P2.5XS STD]	A	From Leg	4.000 0.000 6.250	0.000	148.000	No Ice	2.969	2.969	0.036
						1/2"	4.247	4.247	0.058
						Ice	5.542	5.542	0.088
						1" Ice	8.054	8.054	0.174
						2" Ice			
(2) sabre Tiebacks [C10179001]	A	From Leg	4.000 0.000 4.000	0.000	148.000	No Ice	2.375	2.375	0.037
						1/2"	3.403	3.403	0.054
						Ice	4.448	4.448	0.079
						1" Ice	5.911	5.911	0.148
						2" Ice			
sabre Tiebacks [C10179001]	B	From Leg	2.000 0.000 4.000	0.000	148.000	No Ice	2.375	2.375	0.037
						1/2"	3.403	3.403	0.054
						Ice	4.448	4.448	0.079
						1" Ice	5.911	5.911	0.148
						2" Ice			

(2) NHH-65C-R2B	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice	5.670	3.400	0.052
						1/2"	6.200	3.910	0.117
						Ice	6.740	4.420	0.190
						1" Ice	7.850	5.490	0.361
						2" Ice			
(2) NHH-65C-R2B	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice	5.670	3.400	0.052
						1/2"	6.200	3.910	0.117
						Ice	6.740	4.420	0.190
						1" Ice	7.850	5.490	0.361
						2" Ice			
(2) NHH-65C-R2B	C	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice	5.670	3.400	0.052
						1/2"	6.200	3.910	0.117
						Ice	6.740	4.420	0.190
						1" Ice	7.850	5.490	0.361
						2" Ice			
DB854DG65ESX w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice	5.548	4.100	0.037
						1/2"	5.941	4.728	0.084
						Ice	6.342	5.356	0.137
						1" Ice	7.168	6.643	0.264
						2" Ice			
DB854DG65ESX w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice	5.548	4.100	0.037
						1/2"	5.941	4.728	0.084
						Ice	6.342	5.356	0.137
						1" Ice	7.168	6.643	0.264
						2" Ice			
DB854DG65ESX w/ Mount	C	From Leg	4.000	0.000	138.000	No Ice	5.548	4.100	0.037

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Pipe			0.000 1.000			1/2" Ice 1" Ice 2" Ice	5.941 6.342 7.168	4.728 5.356 6.643	0.084 0.137 0.264
RFV01U-D1A	A	From Leg	4.000 0.000 1.000	0.000	138.000	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
RFV01U-D1A	B	From Leg	4.000 0.000 1.000	0.000	138.000	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
RFV01U-D1A	C	From Leg	4.000 0.000 1.000	0.000	138.000	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
RFV01U-D2A	A	From Leg	4.000 0.000 1.000	0.000	138.000	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
RFV01U-D2A	B	From Leg	4.000 0.000 1.000	0.000	138.000	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
RFV01U-D2A	C	From Leg	4.000 0.000 1.000	0.000	138.000	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
DB-T1-6Z-8AB-0Z	A	From Leg	4.000 0.000 1.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 5.070 5.348 5.926	2.000 2.193 2.393 2.815	0.044 0.080 0.120 0.213
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	138.000	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
(2) 6' x 2" Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	138.000	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
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	138.000	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
(2) L 2.5x2.5x3/16x4.75'	A	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.250 1.601 1.959 2.698	0.005 0.024 0.049 0.123	0.025 0.032 0.044 0.081
(2) L 2.5x2.5x3/16x4.75'	B	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.250 1.601 1.959 2.698	0.005 0.024 0.049 0.123	0.025 0.032 0.044 0.081
(2) L 2.5x2.5x3/16x4.75'	C	From Leg	4.000	0.000	138.000	No Ice	1.250	0.005	0.025

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.000			1/2"	1.601	0.024	0.032
			0.000			Ice	1.959	0.049	0.044
						1" Ice	2.698	0.123	0.081
						2" Ice			
6' x 2" Horizontal Mount Pipe	A	From Leg	3.000	0.000	138.000	No Ice	1.140	0.010	0.016
			0.000			1/2"	1.760	0.040	0.025
			4.000			Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	B	From Leg	3.000	0.000	138.000	No Ice	1.140	0.010	0.016
			0.000			1/2"	1.760	0.040	0.025
			4.000			Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	C	From Leg	3.000	0.000	138.000	No Ice	1.140	0.010	0.016
			0.000			1/2"	1.760	0.040	0.025
			4.000			Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
8' x 3" Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	2.400	2.400	0.041
			0.000			1/2"	3.188	3.188	0.058
			1.000			Ice	3.675	3.675	0.081
						1" Ice	4.676	4.676	0.143
						2" Ice			
8' x 3" Mount Pipe	B	From Leg	4.000	0.000	138.000	No Ice	2.400	2.400	0.041
			0.000			1/2"	3.188	3.188	0.058
			1.000			Ice	3.675	3.675	0.081
						1" Ice	4.676	4.676	0.143
						2" Ice			
8' x 3" Mount Pipe	C	From Leg	4.000	0.000	138.000	No Ice	2.400	2.400	0.041
			0.000			1/2"	3.188	3.188	0.058
			1.000			Ice	3.675	3.675	0.081
						1" Ice	4.676	4.676	0.143
						2" Ice			
Platform Mount [LP 303- 1_HR-1]	C	None		0.000	138.000	No Ice	17.090	17.090	1.495
						1/2"	21.470	21.470	1.881
						Ice	25.720	25.720	2.346
						1" Ice	33.960	33.960	3.518
						2" Ice			
Side Arm Mount [SO 102- 3]	C	None		0.000	138.000	No Ice	3.600	3.600	0.075
						1/2"	4.180	4.180	0.105
						Ice	4.750	4.750	0.135
						1" Ice	5.900	5.900	0.195
						2" Ice			

1900MHZ RRH	A	From Leg	1.000	0.000	132.000	No Ice	2.492	3.258	0.044
			0.000			1/2"	2.695	3.484	0.075
			-1.000			Ice	2.906	3.718	0.110
						1" Ice	3.351	4.206	0.192
						2" Ice			
1900MHZ RRH	B	From Leg	1.000	0.000	132.000	No Ice	2.492	3.258	0.044
			0.000			1/2"	2.695	3.484	0.075
			-1.000			Ice	2.906	3.718	0.110
						1" Ice	3.351	4.206	0.192
						2" Ice			
1900MHZ RRH	C	From Leg	1.000	0.000	132.000	No Ice	2.492	3.258	0.044
			0.000			1/2"	2.695	3.484	0.075
			-1.000			Ice	2.906	3.718	0.110
						1" Ice	3.351	4.206	0.192
						2" Ice			
800 EXTERNAL NOTCH FILTER	A	From Leg	1.000	0.000	132.000	No Ice	0.660	0.321	0.011
			0.000			1/2"	0.763	0.398	0.017
			-1.000			Ice	0.873	0.483	0.024
						1" Ice	1.115	0.674	0.045
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
800 EXTERNAL NOTCH FILTER	B	From Leg	1.000 0.000 -1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.660 0.763 0.873 1.115	0.321 0.398 0.483 0.674	0.011 0.017 0.024 0.045
800 EXTERNAL NOTCH FILTER	C	From Leg	1.000 0.000 -1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.660 0.763 0.873 1.115	0.321 0.398 0.483 0.674	0.011 0.017 0.024 0.045
800MHZ RRH	A	From Leg	1.000 0.000 -1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.134 2.320 2.512 2.920	1.773 1.946 2.127 2.510	0.053 0.074 0.098 0.157
800MHZ RRH	B	From Leg	1.000 0.000 -1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.134 2.320 2.512 2.920	1.773 1.946 2.127 2.510	0.053 0.074 0.098 0.157
800MHZ RRH	C	From Leg	1.000 0.000 -1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.134 2.320 2.512 2.920	1.773 1.946 2.127 2.510	0.053 0.074 0.098 0.157
4' x 2" Pipe Mount	A	From Leg	1.000 0.000 0.000	0.000	132.000	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
4' x 2" Pipe Mount	B	From Leg	1.000 0.000 0.000	0.000	132.000	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
4' x 2" Pipe Mount	C	From Leg	1.000 0.000 0.000	0.000	132.000	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 104- 3]	C	None		0.000	132.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.620 3.300 3.980 5.350	2.620 3.300 3.980 5.350	0.288 0.408 0.528 0.768

GPS-TMG-HR-26NCM	A	From Leg	4.000 0.000 3.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.133 0.183 0.239 0.375	0.133 0.183 0.239 0.375	0.001 0.002 0.005 0.014
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	130.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	130.000	No Ice 1/2" Ice 1" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
TD-RRH8X20-25	A	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
TD-RRH8X20-25	B	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
TD-RRH8X20-25	C	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557 5.098	1.535 1.714 1.901 2.295	0.070 0.097 0.128 0.201
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	130.000	2" Ice No Ice 1/2" Ice 1" 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	130.000	2" Ice No Ice 1/2" Ice 1" 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	130.000	2" Ice No Ice 1/2" Ice 1" 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
T-Arm Mount [TA 602-3]	C	None		0.000	130.000	2" Ice No Ice 1/2" Ice 1" Ice	13.400 16.440 19.700 25.860	13.400 16.440 19.700 25.860	0.774 1.004 1.292 2.053

ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	3.000 0.000 1.000	0.000	122.000	2" Ice No Ice 1/2" Ice 1" Ice	3.140 3.450 3.770 4.430	2.590 2.880 3.190 3.840	0.111 0.163 0.224 0.374
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	3.000 0.000 1.000	0.000	122.000	2" Ice No Ice 1/2" Ice 1" Ice	3.140 3.450 3.770 4.430	2.590 2.880 3.190 3.840	0.111 0.163 0.224 0.374
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	3.000 0.000 1.000	0.000	122.000	2" Ice No Ice 1/2" Ice	3.140 3.450 3.770	2.590 2.880 3.190	0.111 0.163 0.224

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
						1" Ice	4.430	3.840	0.374
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	3.000 0.000 0.000	0.000	122.000	No Ice	14.690	6.870	0.186
						1/2"	15.460	7.550	0.315
						Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	3.000 0.000 0.000	0.000	122.000	No Ice	14.690	6.870	0.186
						1/2"	15.460	7.550	0.315
						Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	3.000 0.000 0.000	0.000	122.000	No Ice	14.690	6.870	0.186
						1/2"	15.460	7.550	0.315
						Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
						2" Ice			
RADIO 4449 B12/B71	A	From Leg	3.000 0.000 1.000	0.000	122.000	No Ice	1.650	1.163	0.074
						1/2"	1.810	1.301	0.090
						Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
						2" Ice			
RADIO 4449 B12/B71	B	From Leg	3.000 0.000 1.000	0.000	122.000	No Ice	1.650	1.163	0.074
						1/2"	1.810	1.301	0.090
						Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
						2" Ice			
RADIO 4449 B12/B71	C	From Leg	3.000 0.000 1.000	0.000	122.000	No Ice	1.650	1.163	0.074
						1/2"	1.810	1.301	0.090
						Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
						2" Ice			
6' x 2" Horizontal Mount Pipe	A	From Leg	3.000 0.000 1.500	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	B	From Leg	3.000 0.000 1.500	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	C	From Leg	3.000 0.000 1.500	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	A	From Face	3.000 0.000 1.000	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	B	From Face	3.000 0.000 1.000	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	C	From Face	3.000 0.000 1.000	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
						1" Ice	2.900	0.210	0.077
						2" Ice			
6' x 2" Horizontal Mount Pipe	A	From Face	3.000 0.000 -1.000	0.000	122.000	No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
6' x 2" Horizontal Mount Pipe	B	From Face	3.000 0.000 -1.000	0.000	122.000	1" Ice	2.900	0.210	0.077
						2" Ice			
						No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
6' x 2" Horizontal Mount Pipe	C	From Face	3.000 0.000 -1.000	0.000	122.000	1" Ice	2.900	0.210	0.077
						2" Ice			
						No Ice	1.140	0.010	0.016
						1/2"	1.760	0.040	0.025
						Ice	2.140	0.090	0.038
(2) T-Arm Mount [TA 601- 1]	C	None		0.000	122.000	1" Ice	2.900	0.210	0.077
						2" Ice			
						No Ice	7.970	2.500	0.242
						1/2"	9.600	3.200	0.314
						Ice	11.010	4.020	0.403
						1" Ice	13.750	5.990	0.641
						2" Ice			

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	151 - 146	Pole	Max Tension	2	0.000	0.000	-0.000
			Max. Compression	26	-13.677	-0.122	3.203
			Max. Mx	8	-4.335	-26.713	0.661
			Max. My	2	-4.309	-0.004	27.715
			Max. Vy	8	7.685	-26.713	0.661
			Max. Vx	2	-7.700	-0.004	27.715
			Max. Torque	8			3.092
L2	146 - 141	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-14.243	-0.131	3.283
			Max. Mx	8	-4.675	-66.054	0.702
			Max. My	2	-4.648	-0.006	67.131
			Max. Vy	8	8.055	-66.054	0.702
			Max. Vx	2	-8.070	-0.006	67.131
			Max. Torque	8			3.098
L3	141 - 136	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-22.991	-0.141	4.208
			Max. Mx	8	-8.202	-117.257	0.963
			Max. My	2	-8.152	-0.009	118.971
			Max. Vy	8	12.164	-117.257	0.963
			Max. Vx	2	-12.284	-0.009	118.971
			Max. Torque	8			3.455
L4	136 - 131	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.538	-0.155	4.309
			Max. Mx	8	-9.433	-179.261	1.007
			Max. My	2	-9.380	-0.012	181.581
			Max. Vy	8	13.337	-179.261	1.007
			Max. Vx	2	-13.460	-0.012	181.581
			Max. Torque	8			3.460
L5	131 - 126	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-30.655	-0.171	4.460
			Max. Mx	8	-11.671	-254.573	1.052
			Max. My	2	-11.612	-0.015	257.538
			Max. Vy	8	15.633	-254.573	1.052
			Max. Vx	2	-15.763	-0.015	257.538
			Max. Torque	8			3.487
L6	126 - 121	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.697	-0.208	4.567
			Max. Mx	8	-14.298	-336.585	1.091
			Max. My	2	-14.233	-0.022	340.208
			Max. Vy	8	18.466	-336.585	1.091
			Max. Vx	2	-18.603	-0.022	340.208
			Max. Torque	8			3.491
L7	121 - 118.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.353	-0.268	4.644
			Max. Mx	8	-14.708	-382.948	1.114
			Max. My	2	-14.631	-0.033	387.065

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L8	118.5 - 118.25	Pole	Max. Vy	8	18.641	-382.948	1.114
			Max. Vx	2	-18.903	-0.033	387.065
			Max. Torque	8			3.493
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.438	-0.275	4.653
L9	118.25 - 113.25	Pole	Max. Mx	8	-14.781	-387.608	1.116
			Max. My	2	-14.704	-0.034	391.792
			Max. Vy	8	18.650	-387.608	1.116
			Max. Vx	2	-18.926	-0.034	391.792
			Max. Torque	8			3.493
L10	113.25 - 108.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.951	-0.398	4.801
			Max. Mx	8	-15.790	-481.928	1.162
			Max. My	2	-15.692	-0.056	488.043
			Max. Vy	8	19.078	-481.928	1.162
L11	108.25 - 103.25	Pole	Max. Vx	2	-19.581	-0.056	488.043
			Max. Torque	8			3.499
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-40.371	-0.524	4.946
			Max. Mx	8	-16.768	-578.339	1.205
L12	103.25 - 97.5	Pole	Max. My	2	-16.665	-0.082	587.181
			Max. Vy	8	19.492	-578.339	1.205
			Max. Vx	2	-20.084	-0.082	587.181
			Max. Torque	8			3.505
			Max Tension	1	0.000	0.000	0.000
L13	97.5 - 95.95	Pole	Max. Compression	26	-41.811	-0.654	5.087
			Max. Mx	8	-17.770	-676.807	1.245
			Max. My	2	-17.663	-0.108	688.804
			Max. Vy	8	19.903	-676.807	1.245
			Max. Vx	2	-20.577	-0.108	688.804
L14	95.95 - 95	Pole	Max. Torque	8			3.511
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-42.483	-0.715	5.152
			Max. Mx	8	-18.238	-722.789	1.262
			Max. My	2	-18.130	-0.121	736.372
L15	95 - 94.75	Pole	Max. Vy	8	20.091	-722.789	1.262
			Max. Vx	2	-20.800	-0.121	736.372
			Max. Torque	8			3.513
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-44.841	-0.847	5.290
L16	94.75 - 92.5	Pole	Max. Mx	8	-19.907	-824.501	1.301
			Max. My	2	-19.795	-0.148	841.823
			Max. Vy	8	20.587	-824.501	1.301
			Max. Vx	2	-21.382	-0.148	841.823
			Max. Torque	8			3.520
L17	92.5 - 90.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.183	-0.873	5.316
			Max. Mx	8	-20.140	-844.087	1.308
			Max. My	2	-20.028	-0.153	862.173
			Max. Vy	8	20.660	-844.087	1.308
L18	90.25 - 88.0	Pole	Max. Vx	2	-21.476	-0.153	862.173
			Max. Torque	8			3.521
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.292	-0.880	5.325
			Max. Mx	8	-20.225	-849.254	1.310
L19	88.0 - 85.75	Pole	Max. My	2	-20.112	-0.155	867.544
			Max. Vy	8	20.677	-849.254	1.310
			Max. Vx	2	-21.501	-0.155	867.544
			Max. Torque	8			3.521
			Max Tension	1	0.000	0.000	0.000
L20	85.75 - 83.5	Pole	Max. Compression	26	-46.270	-0.940	5.385
			Max. Mx	8	-20.913	-896.021	1.327
			Max. My	2	-20.797	-0.167	916.209
			Max. Vy	8	20.893	-896.021	1.327
			Max. Torque	8			3.527

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L17	92.5 - 92.25	Pole	Max. Vx	2	-21.764	-0.167	916.209
			Max. Torque	8			3.525
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.360	-0.947	5.393
			Max. Mx	8	-20.979	-901.246	1.328
			Max. My	2	-20.864	-0.168	921.652
			Max. Vy	8	20.909	-901.246	1.328
L18	92.25 - 87.75	Pole	Max. Vx	2	-21.787	-0.168	921.652
			Max. Torque	8			3.525
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.007	-1.070	5.515
			Max. Mx	8	-22.070	-996.177	1.360
			Max. My	2	-21.953	-0.193	1020.730
			Max. Vy	8	21.288	-996.177	1.360
L19	87.75 - 87.5	Pole	Max. Vx	2	-22.260	-0.193	1020.730
			Max. Torque	8			3.531
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.124	-1.077	5.523
			Max. Mx	8	-22.165	-1001.500	1.362
			Max. My	2	-22.048	-0.195	1026.296
			Max. Vy	8	21.301	-1001.500	1.362
L20	87.5 - 84	Pole	Max. Vx	2	-22.282	-0.195	1026.296
			Max. Torque	8			3.531
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.767	-1.174	5.616
			Max. Mx	8	-23.348	-1076.647	1.387
			Max. My	2	-23.229	-0.215	1104.987
			Max. Vy	8	21.641	-1076.647	1.387
L21	84 - 83.75	Pole	Max. Vx	2	-22.693	-0.215	1104.987
			Max. Torque	8			3.536
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.867	-1.181	5.624
			Max. Mx	8	-23.423	-1082.059	1.388
			Max. My	2	-23.304	-0.216	1110.662
			Max. Vy	8	21.656	-1082.059	1.388
L22	83.75 - 78.75	Pole	Max. Vx	2	-22.716	-0.216	1110.662
			Max. Torque	8			3.536
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.766	-1.322	5.758
			Max. Mx	8	-24.796	-1191.403	1.422
			Max. My	2	-24.678	-0.245	1225.471
			Max. Vy	8	22.085	-1191.403	1.422
L23	78.75 - 73.75	Pole	Max. Vx	2	-23.219	-0.245	1225.471
			Max. Torque	8			3.543
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.634	-1.465	5.890
			Max. Mx	8	-26.202	-1302.832	1.454
			Max. My	2	-26.087	-0.275	1342.703
			Max. Vy	8	22.499	-1302.832	1.454
L24	73.75 - 68.75	Pole	Max. Vx	2	-23.692	-0.275	1342.703
			Max. Torque	8			3.550
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.525	-1.610	6.021
			Max. Mx	8	-27.631	-1416.311	1.485
			Max. My	2	-27.521	-0.305	1462.265
			Max. Vy	8	22.906	-1416.311	1.485
L25	68.75 - 64.75	Pole	Max. Vx	2	-24.152	-0.305	1462.265
			Max. Torque	8			3.557
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.147	-1.727	6.124
			Max. Mx	8	-28.793	-1508.544	1.508
			Max. My	2	-28.687	-0.330	1559.593
			Max. Vy	8	23.225	-1508.544	1.508
			Max. Vx	2	-24.532	-0.330	1559.593

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L26	64.75 - 64.5	Pole	Max. Torque	8			3.563
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.276	-1.735	6.132
			Max. Mx	8	-28.898	-1514.351	1.510
			Max. My	2	-28.793	-0.332	1565.727
			Max. Vy	8	23.237	-1514.351	1.510
L27	64.5 - 63.25	Pole	Max. Vx	2	-24.551	-0.332	1565.727
			Max. Torque	8			3.563
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.924	-1.771	6.162
			Max. Mx	8	-29.374	-1543.473	1.518
			Max. My	2	-29.269	-0.340	1596.498
L28	63.25 - 63	Pole	Max. Vy	8	23.360	-1543.473	1.518
			Max. Vx	2	-24.693	-0.340	1596.498
			Max. Torque	8			3.565
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.029	-1.779	6.169
			Max. Mx	8	-29.454	-1549.314	1.519
L29	63 - 58	Pole	Max. My	2	-29.350	-0.341	1602.672
			Max. Vy	8	23.372	-1549.314	1.519
			Max. Vx	2	-24.712	-0.341	1602.672
			Max. Torque	8			3.565
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.147	-1.927	6.295
L30	58 - 56.75	Pole	Max. Mx	8	-30.927	-1667.142	1.547
			Max. My	2	-30.828	-0.373	1727.374
			Max. Vy	8	23.766	-1667.142	1.547
			Max. Vx	2	-25.183	-0.373	1727.374
			Max. Torque	8			3.573
			Max Tension	1	0.000	0.000	0.000
L31	56.75 - 56.5	Pole	Max. Compression	26	-60.685	-1.964	6.326
			Max. Mx	8	-31.299	-1696.899	1.555
			Max. My	2	-31.201	-0.381	1758.910
			Max. Vy	8	23.864	-1696.899	1.555
			Max. Vx	2	-25.300	-0.381	1758.910
			Max. Torque	8			3.575
L32	56.5 - 55.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.825	-1.972	6.334
			Max. Mx	8	-31.417	-1702.865	1.556
			Max. My	2	-31.320	-0.383	1765.235
			Max. Vy	8	23.872	-1702.865	1.556
			Max. Vx	2	-25.314	-0.383	1765.235
L33	55.25 - 55	Pole	Max. Torque	8			3.575
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.527	-2.009	6.364
			Max. Mx	8	-31.939	-1732.779	1.563
			Max. My	2	-31.842	-0.391	1796.958
			Max. Vy	8	23.994	-1732.779	1.563
L34	55 - 47.5	Pole	Max. Vx	2	-25.452	-0.391	1796.958
			Max. Torque	8			3.577
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.643	-2.017	6.371
			Max. Mx	8	-32.028	-1738.779	1.564
			Max. My	2	-31.932	-0.392	1803.322
L35	47.5 - 47.05	Pole	Max. Vy	8	24.005	-1738.779	1.564
			Max. Vx	2	-25.471	-0.392	1803.322
			Max. Torque	8			3.577
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-62.947	-2.106	6.443
			Max. Mx	8	-32.992	-1809.938	1.581
			Max. My	2	-32.899	-0.412	1878.822
			Max. Vy	8	24.249	-1809.938	1.581
			Max. Vx	2	-25.736	-0.412	1878.822
			Max. Torque	8			3.582
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.840	-2.257	6.567
			Max. Mx	8	-36.020	-1932.385	1.610
			Max. My	2	-35.932	-0.445	2008.806
			Max. Vy	8	24.732	-1932.385	1.610

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L36	47.05 - 42.05	Pole	Max. Vx	2	-26.264	-0.445	2008.806
			Max. Torque	8			3.590
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.158	-2.396	6.660
			Max. Mx	8	-37.836	-2056.959	1.637
			Max. My	2	-37.755	-0.478	2141.086
			Max. Vy	8	25.106	-2056.959	1.637
			Max. Vx	2	-26.663	-0.478	2141.086
			Max. Torque	8			3.598
			Max Tension	1	0.000	0.000	0.000
L37	42.05 - 37.05	Pole	Max. Compression	26	-71.561	-2.537	6.754
			Max. Mx	8	-39.684	-2183.322	1.663
			Max. My	2	-39.612	-0.512	2275.295
			Max. Vy	8	25.456	-2183.322	1.663
			Max. Vx	2	-27.044	-0.512	2275.295
			Max. Torque	8			3.605
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.631	-2.597	6.794
			Max. Mx	8	-40.469	-2236.911	1.674
			Max. My	2	-40.401	-0.526	2332.234
L38	37.05 - 34.95	Pole	Max. Vy	8	25.599	-2236.911	1.674
			Max. Vx	2	-27.208	-0.526	2332.234
			Max. Torque	8			3.609
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.791	-2.604	6.800
			Max. Mx	8	-40.603	-2243.311	1.675
			Max. My	2	-40.535	-0.528	2339.036
			Max. Vy	8	25.605	-2243.311	1.675
			Max. Vx	2	-27.219	-0.528	2339.036
			Max. Torque	8			3.609
L39	34.95 - 34.7	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.079	-2.617	6.808
			Max. Mx	8	-40.827	-2254.843	1.678
			Max. My	2	-40.760	-0.531	2351.293
			Max. Vy	8	25.643	-2254.843	1.678
			Max. Vx	2	-27.259	-0.531	2351.293
			Max. Torque	8			3.610
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.207	-2.624	6.812
			Max. Mx	8	-40.922	-2261.256	1.679
L40	34.7 - 34.25	Pole	Max. My	2	-40.855	-0.533	2358.110
			Max. Vy	8	25.659	-2261.256	1.679
			Max. Vx	2	-27.280	-0.533	2358.110
			Max. Torque	8			3.610
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.765	-2.767	6.908
			Max. Mx	8	-42.804	-2390.358	1.704
			Max. My	2	-42.746	-0.568	2495.396
			Max. Vy	8	25.989	-2390.358	1.704
			Max. Vx	2	-27.651	-0.568	2495.396
L41	34 - 29	Pole	Max. Torque	8			3.618
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.924	-2.832	6.951
			Max. Mx	8	-43.664	-2448.970	1.715
			Max. My	2	-43.610	-0.583	2557.760
			Max. Vy	8	26.132	-2448.970	1.715
			Max. Vx	2	-27.811	-0.583	2557.760
			Max. Torque	8			3.621
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.085	-2.840	6.957
L42	29 - 26.75	Pole	Max. Mx	8	-43.800	-2455.503	1.716
			Max. My	2	-43.748	-0.585	2564.712
			Max. Vy	8	26.135	-2455.503	1.716
			Max. Vx	2	-27.818	-0.585	2564.712
			Max. Torque	8			3.622
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.085	-2.840	6.957
			Max. Mx	8	-43.800	-2455.503	1.716
			Max. My	2	-43.748	-0.585	2564.712
			Max. Vy	8	26.135	-2455.503	1.716
L43	26.75 - 26.5	Pole	Max. Vx	2	-27.818	-0.585	2564.712
			Max. Torque	8			3.622
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.085	-2.840	6.957
			Max. Mx	8	-43.800	-2455.503	1.716
			Max. My	2	-43.748	-0.585	2564.712
			Max. Vy	8	26.135	-2455.503	1.716
			Max. Vx	2	-27.818	-0.585	2564.712
			Max. Torque	8			3.622
			Max Tension	1	0.000	0.000	0.000
L44	26.5 - 25.25	Pole	Max. Compression	26	-77.085	-2.840	6.957
			Max. Mx	8	-43.800	-2455.503	1.716
			Max. My	2	-43.748	-0.585	2564.712
			Max. Vy	8	26.135	-2455.503	1.716
			Max. Vx	2	-27.818	-0.585	2564.712
			Max. Torque	8			3.622
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.085	-2.840	6.957
			Max. Mx	8	-43.800	-2455.503	1.716
			Max. My	2	-43.748	-0.585	2564.712
L45	26.5 - 25.25	Pole	Max. Vy	8	26.135	-2455.503	1.716
			Max. Vx	2	-27.818	-0.585	2564.712
			Max. Torque	8			3.622
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.085	-2.840	6.957
			Max. Mx	8	-43.800	-2455.503	1.716
			Max. My	2	-43.748	-0.585	2564.712
			Max. Vy	8	26.135	-2455.503	1.716
			Max. Vx	2	-27.818	-0.585	2564.712
			Max. Torque	8			3.622

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L46	25.25 - 25	Pole	Max. Compression	26	-77.893	-2.876	6.980
			Max. Mx	8	-44.429	-2488.234	1.723
			Max. My	2	-44.378	-0.594	2599.546
			Max. Vy	8	26.239	-2488.234	1.723
			Max. Vx	2	-27.930	-0.594	2599.546
			Max. Torque	8			3.624
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.023	-2.883	6.986
			Max. Mx	8	-44.532	-2494.794	1.724
			Max. My	2	-44.482	-0.596	2606.528
L47	25 - 20	Pole	Max. Vy	8	26.244	-2494.794	1.724
			Max. Vx	2	-27.939	-0.596	2606.528
			Max. Torque	8			3.624
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-80.568	-3.029	7.062
			Max. Mx	8	-46.461	-2626.802	1.748
			Max. My	2	-46.419	-0.632	2747.041
			Max. Vy	8	26.566	-2626.802	1.748
			Max. Vx	2	-28.283	-0.632	2747.041
			Max. Torque	8			3.632
L48	20 - 16.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.219	-3.123	6.996
			Max. Mx	8	-47.733	-2713.436	1.763
			Max. My	2	-47.699	-0.655	2839.241
			Max. Vy	8	26.769	-2713.436	1.763
			Max. Vx	2	-28.484	-0.655	2839.241
			Max. Torque	8			3.638
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.369	-3.131	6.991
			Max. Mx	8	-47.861	-2720.128	1.764
L49	16.75 - 16.5	Pole	Max. My	2	-47.828	-0.657	2846.360
			Max. Vy	8	26.771	-2720.128	1.764
			Max. Vx	2	-28.487	-0.657	2846.360
			Max. Torque	8			3.638
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.369	-3.131	6.991
			Max. Mx	8	-47.861	-2720.128	1.764
			Max. My	2	-47.828	-0.657	2846.360
			Max. Vy	8	26.771	-2720.128	1.764
			Max. Vx	2	-28.487	-0.657	2846.360
L50	16.5 - 14.25	Pole	Max. Torque	8			3.638
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.710	-3.196	6.945
			Max. Mx	8	-48.931	-2780.541	1.775
			Max. My	2	-48.901	-0.673	2910.623
			Max. Vy	8	26.936	-2780.541	1.775
			Max. Vx	2	-28.650	-0.673	2910.623
			Max. Torque	8			3.642
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.848	-3.204	6.941
L51	14.25 - 14	Pole	Max. Mx	8	-49.047	-2787.274	1.776
			Max. My	2	-49.019	-0.675	2917.785
			Max. Vy	8	26.939	-2787.274	1.776
			Max. Vx	2	-28.654	-0.675	2917.785
			Max. Torque	8			3.642
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.593	-3.355	6.872
			Max. Mx	8	-51.237	-2922.802	1.799
			Max. My	2	-51.218	-0.712	3061.849
			Max. Vy	8	27.278	-2922.802	1.799
L52	14 - 9	Pole	Max. Vx	2	-28.985	-0.712	3061.849
			Max. Torque	8			3.651
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.296	-3.517	6.874
			Max. Mx	8	-53.457	-3059.957	1.821
			Max. My	2	-53.448	-0.750	3207.507
			Max. Vy	8	27.603	-3059.957	1.821
			Max. Vx	2	-29.304	-0.750	3207.507
			Max. Torque	8			3.660
			Max Tension	1	0.000	0.000	0.000
L53	9 - 4	Pole	Max. Compression	26	-91.409	-3.636	6.887
			Max. Mx	8	-55.253	-3170.848	1.838
			Max. My	2	-55.252	-0.780	3325.172
			Max. Vy	8	27.862	-3170.848	1.838
			Max. Vx	2	-29.555	-0.780	3325.172
			Max. Torque	8			3.668
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-91.409	-3.636	6.887
			Max. Mx	8	-55.253	-3170.848	1.838
			Max. My	2	-55.252	-0.780	3325.172
L54	4 - 0	Pole	Max. Vy	8	27.862	-3170.848	1.838
			Max. Vx	2	-29.555	-0.780	3325.172
			Max. Torque	8			3.668
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-91.409	-3.636	6.887
			Max. Mx	8	-55.253	-3170.848	1.838
			Max. My	2	-55.252	-0.780	3325.172
			Max. Vy	8	27.862	-3170.848	1.838
			Max. Vx	2	-29.555	-0.780	3325.172
			Max. Torque	8			3.668

Section n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
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Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	91.409	-0.000	0.000
	Max. H _x	20	55.262	27.844	0.000
	Max. H _z	2	55.262	0.000	29.537
	Max. M _x	2	3325.172	0.000	29.537
	Max. M _z	8	3170.848	-27.844	0.000
	Max. Torsion	8	3.668	-27.844	0.000
	Min. Vert	19	41.447	24.114	-13.969
	Min. H _x	8	55.262	-27.844	0.000
	Min. H _z	14	55.262	0.000	-29.537
	Min. M _x	14	-3321.411	0.000	-29.537
	Min. M _z	20	-3169.285	27.844	0.000
	Min. Torsion	20	-3.668	27.844	0.000

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	46.052	0.000	0.000	-1.472	-0.626	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	55.262	0.000	-29.537	-3325.172	-0.780	0.192
0.9 Dead+1.0 Wind 0 deg - No Ice	41.447	0.000	-29.537	-3279.174	-0.578	0.192
1.2 Dead+1.0 Wind 30 deg - No Ice	55.262	13.922	-24.195	-2759.178	-1585.813	-1.701
0.9 Dead+1.0 Wind 30 deg - No Ice	41.447	13.922	-24.195	-2720.516	-1563.677	-1.683
1.2 Dead+1.0 Wind 60 deg - No Ice	55.262	24.114	-13.969	-1593.795	-2746.146	-3.100
0.9 Dead+1.0 Wind 60 deg - No Ice	41.447	24.114	-13.969	-1571.267	-2707.957	-3.070
1.2 Dead+1.0 Wind 90 deg - No Ice	55.262	27.844	0.000	-1.838	-3170.848	-3.668
0.9 Dead+1.0 Wind 90 deg - No Ice	41.447	27.844	0.000	-1.346	-3126.787	-3.632
1.2 Dead+1.0 Wind 120 deg - No Ice	55.262	24.129	13.978	1591.220	-2748.053	-3.252
0.9 Dead+1.0 Wind 120 deg - No Ice	41.447	24.129	13.978	1569.668	-2709.849	-3.221
1.2 Dead+1.0 Wind 150 deg - No Ice	55.262	14.625	25.412	2858.874	-1645.494	-1.978
0.9 Dead+1.0 Wind 150 deg - No Ice	41.447	14.625	25.412	2820.171	-1622.767	-1.959
1.2 Dead+1.0 Wind 180 deg - No Ice	55.262	0.000	29.537	3321.411	-0.780	-0.193
0.9 Dead+1.0 Wind 180 deg - No Ice	41.447	0.000	29.537	3276.422	-0.578	-0.192
1.2 Dead+1.0 Wind 210 deg - No Ice	55.262	-13.922	24.195	2755.438	1584.213	1.698
0.9 Dead+1.0 Wind 210 deg - No Ice	41.447	-13.922	24.195	2717.779	1562.494	1.681
1.2 Dead+1.0 Wind 240 deg - No Ice	55.262	-24.114	13.969	1590.097	2744.547	3.097
0.9 Dead+1.0 Wind 240 deg - No Ice	41.447	-24.114	13.969	1568.560	2706.773	3.067

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 270 deg	55.262	-27.844	0.000	-1.838	3169.285	3.668
- No Ice						
0.9 Dead+1.0 Wind 270 deg	41.447	-27.844	0.000	-1.346	3125.630	3.632
- No Ice						
1.2 Dead+1.0 Wind 300 deg	55.262	-24.129	-13.978	-1594.917	2746.528	3.255
- No Ice						
0.9 Dead+1.0 Wind 300 deg	41.447	-24.129	-13.978	-1572.374	2708.719	3.224
- No Ice						
1.2 Dead+1.0 Wind 330 deg	55.262	-14.625	-25.412	-2862.613	1643.971	1.981
- No Ice						
0.9 Dead+1.0 Wind 330 deg	41.447	-14.625	-25.412	-2822.908	1621.637	1.962
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	91.409	0.000	-0.000	-6.887	-3.636	-0.000
1.2 Dead+1.0 Wind 0	91.409	0.000	-6.599	-815.462	-3.704	0.067
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30	91.409	3.264	-5.667	-700.912	-403.034	-0.700
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60	91.409	5.653	-3.272	-407.639	-695.360	-1.268
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90	91.409	6.527	-0.000	-7.026	-802.355	-1.496
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120	91.409	5.653	3.272	393.583	-695.352	-1.324
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 150	91.409	3.274	5.685	689.281	-404.431	-0.801
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	91.409	0.000	6.599	801.391	-3.704	-0.068
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	91.409	-3.264	5.667	686.846	395.617	0.699
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	91.409	-5.653	3.272	393.583	687.943	1.267
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	91.409	-6.527	-0.000	-7.026	794.947	1.496
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	91.409	-5.653	-3.272	-407.640	687.952	1.323
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	91.409	-3.274	-5.685	-703.347	397.031	0.800
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	46.052	0.000	-6.409	-717.288	-0.648	0.042
Dead+Wind 30 deg - Service	46.052	3.021	-5.250	-595.294	-341.956	-0.372
Dead+Wind 60 deg - Service	46.052	5.233	-3.031	-344.349	-591.810	-0.678
Dead+Wind 90 deg - Service	46.052	6.042	0.000	-1.552	-683.262	-0.803
Dead+Wind 120 deg - Service	46.052	5.236	3.033	341.486	-592.229	-0.712
Dead+Wind 150 deg - Service	46.052	3.174	5.514	614.546	-354.863	-0.433
Dead+Wind 180 deg - Service	46.052	0.000	6.409	714.180	-0.648	-0.042
Dead+Wind 210 deg - Service	46.052	-3.021	5.250	592.187	340.658	0.372
Dead+Wind 240 deg - Service	46.052	-5.233	3.031	341.244	590.513	0.678
Dead+Wind 270 deg - Service	46.052	-6.042	0.000	-1.552	681.966	0.803
Dead+Wind 300 deg - Service	46.052	-5.236	-3.033	-344.591	590.934	0.712
Dead+Wind 330 deg - Service	46.052	-3.174	-5.514	-617.653	353.569	0.434

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-46.052	0.000	0.000	46.052	0.000	0.000%
2	0.000	-55.262	-29.537	0.000	55.262	29.537	0.000%
3	0.000	-41.447	-29.537	0.000	41.447	29.537	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
4	13.922	-55.262	-24.195	-13.922	55.262	24.195	0.000%
5	13.922	-41.447	-24.195	-13.922	41.447	24.195	0.000%
6	24.114	-55.262	-13.969	-24.114	55.262	13.969	0.000%
7	24.114	-41.447	-13.969	-24.114	41.447	13.969	0.000%
8	27.844	-55.262	0.000	-27.844	55.262	0.000	0.000%
9	27.844	-41.447	0.000	-27.844	41.447	0.000	0.000%
10	24.129	-55.262	13.978	-24.129	55.262	-13.978	0.000%
11	24.129	-41.447	13.978	-24.129	41.447	-13.978	0.000%
12	14.625	-55.262	25.412	-14.625	55.262	-25.412	0.000%
13	14.625	-41.447	25.412	-14.625	41.447	-25.412	0.000%
14	0.000	-55.262	29.537	0.000	55.262	-29.537	0.000%
15	0.000	-41.447	29.537	0.000	41.447	-29.537	0.000%
16	-13.922	-55.262	24.195	13.922	55.262	-24.195	0.000%
17	-13.922	-41.447	24.195	13.922	41.447	-24.195	0.000%
18	-24.114	-55.262	13.969	24.114	55.262	-13.969	0.000%
19	-24.114	-41.447	13.969	24.114	41.447	-13.969	0.000%
20	-27.844	-55.262	0.000	27.844	55.262	0.000	0.000%
21	-27.844	-41.447	0.000	27.844	41.447	0.000	0.000%
22	-24.129	-55.262	-13.978	24.129	55.262	13.978	0.000%
23	-24.129	-41.447	-13.978	24.129	41.447	13.978	0.000%
24	-14.625	-55.262	-25.412	14.625	55.262	25.412	0.000%
25	-14.625	-41.447	-25.412	14.625	41.447	25.412	0.000%
26	0.000	-91.409	0.000	-0.000	91.409	0.000	0.000%
27	0.000	-91.409	-6.599	-0.000	91.409	6.599	0.000%
28	3.264	-91.409	-5.667	-3.264	91.409	5.667	0.000%
29	5.653	-91.409	-3.272	-5.653	91.409	3.272	0.000%
30	6.527	-91.409	0.000	-6.527	91.409	0.000	0.000%
31	5.653	-91.409	3.272	-5.653	91.409	-3.272	0.000%
32	3.274	-91.409	5.685	-3.274	91.409	-5.685	0.000%
33	0.000	-91.409	6.599	-0.000	91.409	-6.599	0.000%
34	-3.264	-91.409	5.667	3.264	91.409	-5.667	0.000%
35	-5.653	-91.409	3.272	5.653	91.409	-3.272	0.000%
36	-6.527	-91.409	0.000	6.527	91.409	0.000	0.000%
37	-5.653	-91.409	-3.272	5.653	91.409	3.272	0.000%
38	-3.274	-91.409	-5.685	3.274	91.409	5.685	0.000%
39	0.000	-46.052	-6.409	0.000	46.052	6.409	0.000%
40	3.021	-46.052	-5.250	-3.021	46.052	5.250	0.000%
41	5.233	-46.052	-3.031	-5.233	46.052	3.031	0.000%
42	6.042	-46.052	0.000	-6.042	46.052	0.000	0.000%
43	5.236	-46.052	3.033	-5.236	46.052	-3.033	0.000%
44	3.174	-46.052	5.514	-3.174	46.052	-5.514	0.000%
45	0.000	-46.052	6.409	0.000	46.052	-6.409	0.000%
46	-3.021	-46.052	5.250	3.021	46.052	-5.250	0.000%
47	-5.233	-46.052	3.031	5.233	46.052	-3.031	0.000%
48	-6.042	-46.052	0.000	6.042	46.052	0.000	0.000%
49	-5.236	-46.052	-3.033	5.236	46.052	3.033	0.000%
50	-3.174	-46.052	-5.514	3.174	46.052	5.514	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00045403
3	Yes	5	0.00000001	0.00017816
4	Yes	7	0.00000001	0.00014802
5	Yes	6	0.00000001	0.00079055
6	Yes	7	0.00000001	0.00016059
7	Yes	6	0.00000001	0.00086042
8	Yes	6	0.00000001	0.00026059
9	Yes	6	0.00000001	0.00009112
10	Yes	7	0.00000001	0.00014417
11	Yes	6	0.00000001	0.00077033
12	Yes	7	0.00000001	0.00016413
13	Yes	6	0.00000001	0.00087432

14	Yes	5	0.00000001	0.00045320
15	Yes	5	0.00000001	0.00017794
16	Yes	7	0.00000001	0.00015617
17	Yes	6	0.00000001	0.00083654
18	Yes	7	0.00000001	0.00014424
19	Yes	6	0.00000001	0.00077093
20	Yes	6	0.00000001	0.00026052
21	Yes	6	0.00000001	0.00009111
22	Yes	7	0.00000001	0.00016115
23	Yes	6	0.00000001	0.00086356
24	Yes	7	0.00000001	0.00015415
25	Yes	6	0.00000001	0.00081888
26	Yes	5	0.00000001	0.00035219
27	Yes	7	0.00000001	0.00040973
28	Yes	7	0.00000001	0.00049009
29	Yes	7	0.00000001	0.00049983
30	Yes	7	0.00000001	0.00040472
31	Yes	7	0.00000001	0.00047210
32	Yes	7	0.00000001	0.00048199
33	Yes	7	0.00000001	0.00039480
34	Yes	7	0.00000001	0.00047510
35	Yes	7	0.00000001	0.00046824
36	Yes	7	0.00000001	0.00040134
37	Yes	7	0.00000001	0.00049605
38	Yes	7	0.00000001	0.00048772
39	Yes	5	0.00000001	0.00007282
40	Yes	5	0.00000001	0.00043490
41	Yes	5	0.00000001	0.00055286
42	Yes	5	0.00000001	0.00019997
43	Yes	5	0.00000001	0.00041229
44	Yes	5	0.00000001	0.00054636
45	Yes	5	0.00000001	0.00007216
46	Yes	5	0.00000001	0.00050145
47	Yes	5	0.00000001	0.00041133
48	Yes	5	0.00000001	0.00019963
49	Yes	5	0.00000001	0.00055737
50	Yes	5	0.00000001	0.00046104

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	151 - 146	23.422	39	1.519	0.014
L2	146 - 141	21.832	39	1.514	0.013
L3	141 - 136	20.259	39	1.488	0.011
L4	136 - 131	18.721	39	1.447	0.010
L5	131 - 126	17.235	39	1.388	0.008
L6	126 - 121	15.820	39	1.313	0.006
L7	121 - 118.5	14.491	39	1.223	0.005
L8	118.5 - 118.25	13.864	39	1.173	0.004
L9	118.25 - 113.25	13.803	39	1.171	0.004
L10	113.25 - 108.25	12.603	39	1.119	0.004
L11	108.25 - 103.25	11.461	39	1.062	0.003
L12	103.25 - 97.5	10.380	39	1.001	0.003
L13	100.95 - 95.95	9.905	39	0.971	0.003
L14	95.95 - 95	8.906	39	0.932	0.003
L15	95 - 94.75	8.722	39	0.921	0.002
L16	94.75 - 92.5	8.674	39	0.918	0.002
L17	92.5 - 92.25	8.245	39	0.899	0.002
L18	92.25 - 87.75	8.198	39	0.896	0.002
L19	87.75 - 87.5	7.379	39	0.841	0.002
L20	87.5 - 84	7.335	39	0.839	0.002
L21	84 - 83.75	6.731	39	0.811	0.002
L22	83.75 - 78.75	6.688	39	0.808	0.002
L23	78.75 - 73.75	5.872	39	0.752	0.002
L24	73.75 - 68.75	5.114	39	0.694	0.002
L25	68.75 - 64.75	4.417	39	0.637	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L26	64.75 - 64.5	3.903	39	0.590	0.001
L27	64.5 - 63.25	3.872	39	0.588	0.001
L28	63.25 - 63	3.720	39	0.578	0.001
L29	63 - 58	3.690	39	0.575	0.001
L30	58 - 56.75	3.118	39	0.516	0.001
L31	56.75 - 56.5	2.985	39	0.502	0.001
L32	56.5 - 55.25	2.958	39	0.500	0.001
L33	55.25 - 55	2.829	39	0.491	0.001
L34	55 - 47.5	2.803	39	0.488	0.001
L35	52.05 - 47.05	2.511	39	0.458	0.001
L36	47.05 - 42.05	2.045	39	0.430	0.001
L37	42.05 - 37.05	1.620	39	0.381	0.001
L38	37.05 - 34.95	1.248	39	0.331	0.001
L39	34.95 - 34.7	1.107	39	0.310	0.001
L40	34.7 - 34.25	1.090	39	0.309	0.001
L41	34.25 - 34	1.061	39	0.306	0.001
L42	34 - 29	1.046	39	0.303	0.001
L43	29 - 26.75	0.754	39	0.254	0.000
L44	26.75 - 26.5	0.639	39	0.232	0.000
L45	26.5 - 25.25	0.627	39	0.230	0.000
L46	25.25 - 25	0.568	39	0.222	0.000
L47	25 - 20	0.556	39	0.220	0.000
L48	20 - 16.75	0.352	39	0.171	0.000
L49	16.75 - 16.5	0.246	39	0.140	0.000
L50	16.5 - 14.25	0.239	39	0.138	0.000
L51	14.25 - 14	0.178	39	0.120	0.000
L52	14 - 9	0.172	39	0.118	0.000
L53	9 - 4	0.071	39	0.075	0.000
L54	4 - 0	0.014	39	0.033	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151.000	Lighting Rod 5/8" x 4' on 4' Pole	39	23.422	1.519	0.014	18166
148.000	DS1F03F36D-N	39	22.467	1.518	0.014	18166
138.000	(2) NHH-65C-R2B	39	19.331	1.465	0.010	6560
132.000	1900MHz RRH	39	17.527	1.401	0.008	4490
130.000	GPS-TMG-HR-26NCM	39	16.946	1.374	0.007	4077
122.000	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	39	14.749	1.244	0.005	3142

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	151 - 146	108.391	2	7.012	0.065
L2	146 - 141	101.071	2	6.990	0.061
L3	141 - 136	93.821	2	6.878	0.052
L4	136 - 131	86.726	2	6.692	0.044
L5	131 - 126	79.867	2	6.423	0.036
L6	126 - 121	73.326	2	6.080	0.029
L7	121 - 118.5	67.180	2	5.669	0.023
L8	118.5 - 118.25	64.276	2	5.439	0.020
L9	118.25 - 113.25	63.992	2	5.428	0.020
L10	113.25 - 108.25	58.438	2	5.191	0.018
L11	108.25 - 103.25	53.146	2	4.926	0.015
L12	103.25 - 97.5	48.140	2	4.642	0.013
L13	100.95 - 95.95	45.939	2	4.505	0.013

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L14	95.95 - 95	41.307	2	4.323	0.012
L15	95 - 94.75	40.452	2	4.271	0.011
L16	94.75 - 92.5	40.229	2	4.262	0.011
L17	92.5 - 92.25	38.244	2	4.173	0.011
L18	92.25 - 87.75	38.026	2	4.159	0.011
L19	87.75 - 87.5	34.229	2	3.903	0.010
L20	87.5 - 84	34.025	2	3.894	0.010
L21	84 - 83.75	31.221	2	3.762	0.009
L22	83.75 - 78.75	31.025	2	3.750	0.009
L23	78.75 - 73.75	27.237	2	3.489	0.008
L24	73.75 - 68.75	23.725	2	3.222	0.007
L25	68.75 - 64.75	20.492	2	2.956	0.006
L26	64.75 - 64.5	18.107	2	2.739	0.006
L27	64.5 - 63.25	17.964	2	2.730	0.005
L28	63.25 - 63	17.256	2	2.684	0.005
L29	63 - 58	17.116	2	2.670	0.005
L30	58 - 56.75	14.464	2	2.396	0.005
L31	56.75 - 56.5	13.845	2	2.329	0.004
L32	56.5 - 55.25	13.724	2	2.320	0.004
L33	55.25 - 55	13.122	2	2.277	0.004
L34	55 - 47.5	13.003	2	2.265	0.004
L35	52.05 - 47.05	11.648	2	2.124	0.004
L36	47.05 - 42.05	9.485	2	1.997	0.004
L37	42.05 - 37.05	7.516	2	1.766	0.003
L38	37.05 - 34.95	5.787	2	1.536	0.003
L39	34.95 - 34.7	5.133	2	1.440	0.002
L40	34.7 - 34.25	5.058	2	1.432	0.002
L41	34.25 - 34	4.923	2	1.418	0.002
L42	34 - 29	4.849	2	1.407	0.002
L43	29 - 26.75	3.496	2	1.178	0.002
L44	26.75 - 26.5	2.965	2	1.077	0.002
L45	26.5 - 25.25	2.909	2	1.069	0.002
L46	25.25 - 25	2.634	2	1.030	0.002
L47	25 - 20	2.580	2	1.019	0.002
L48	20 - 16.75	1.632	2	0.794	0.001
L49	16.75 - 16.5	1.140	2	0.650	0.001
L50	16.5 - 14.25	1.107	2	0.640	0.001
L51	14.25 - 14	0.825	2	0.556	0.001
L52	14 - 9	0.796	2	0.546	0.001
L53	9 - 4	0.328	2	0.348	0.001
L54	4 - 0	0.065	2	0.155	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151.000	Lighting Rod 5/8" x 4' on 4' Pole	2	108.391	7.012	0.065	4383
148.000	DS1F03F36D-N	2	103.995	7.006	0.063	4383
138.000	(2) NHH-65C-R2B	2	89.540	6.775	0.047	1500
132.000	1900MHz RRH	2	81.216	6.484	0.037	1012
130.000	GPS-TMG-HR-26NCM	2	78.531	6.359	0.034	915
122.000	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	2	68.374	5.767	0.024	697

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	151 - 146 (1)	TP18.526x17.59x0.219	5.000	0.000	0.0	12.895	-4.309	754.347	0.006
L2	146 - 141 (2)	TP19.461x18.526x0.219	5.000	0.000	0.0	13.554	-4.648	792.896	0.006
L3	141 - 136 (3)	TP20.397x19.461x0.219	5.000	0.000	0.0	14.213	-8.152	831.445	0.010
L4	136 - 131 (4)	TP21.332x20.397x0.219	5.000	0.000	0.0	14.872	-9.380	869.994	0.011
L5	131 - 126 (5)	TP22.268x21.332x0.219	5.000	0.000	0.0	15.531	-11.612	908.542	0.013
L6	126 - 121 (6)	TP23.203x22.268x0.219	5.000	0.000	0.0	16.190	-14.233	947.091	0.015
L7	121 - 118.5 (7)	TP23.671x23.203x0.219	2.500	0.000	0.0	16.519	-14.631	966.365	0.015
L8	118.5 - 118.25 (8)	TP23.718x23.671x0.494	0.250	0.000	0.0	36.923	-14.704	2160.000	0.007
L9	118.25 - 113.25 (9)	TP24.653x23.718x0.481	5.000	0.000	0.0	37.457	-15.692	2191.260	0.007
L10	113.25 - 108.25 (10)	TP25.589x24.653x0.469	5.000	0.000	0.0	37.915	-16.665	2218.050	0.008
L11	108.25 - 103.25 (11)	TP26.524x25.589x0.463	5.000	0.000	0.0	38.812	-17.663	2270.520	0.008
L12	103.25 - 97.5 (12)	TP27.6x26.524x0.456	5.750	0.000	0.0	38.929	-18.130	2277.360	0.008
L13	97.5 - 95.95 (13)	TP27.442x26.517x0.55	5.000	0.000	0.0	47.625	-19.795	2786.050	0.007
L14	95.95 - 95 (14)	TP27.617x27.442x0.55	0.950	0.000	0.0	47.936	-20.028	2804.250	0.007
L15	95 - 94.75 (15)	TP27.663x27.617x0.8	0.250	0.000	0.0	69.200	-20.112	4048.210	0.005
L16	94.75 - 92.5 (16)	TP28.079x27.663x0.788	2.250	0.000	0.0	69.205	-20.797	4048.520	0.005
L17	92.5 - 92.25 (17)	TP28.126x28.079x0.55	0.250	0.000	0.0	48.836	-20.864	2856.930	0.007
L18	92.25 - 87.75 (18)	TP28.958x28.126x0.538	4.500	0.000	0.0	49.188	-21.953	2877.510	0.008
L19	87.75 - 87.5 (19)	TP29.004x28.958x0.863	0.250	0.000	0.0	78.156	-22.048	4572.110	0.005
L20	87.5 - 84 (20)	TP29.651x29.004x0.85	3.500	0.000	0.0	78.829	-23.229	4611.470	0.005
L21	84 - 83.75 (21)	TP29.697x29.651x0.613	0.250	0.000	0.0	57.362	-23.304	3355.710	0.007
L22	83.75 - 78.75 (22)	TP30.622x29.697x0.6	5.000	0.000	0.0	58.002	-24.678	3393.130	0.007
L23	78.75 - 73.75 (23)	TP31.546x30.622x0.588	5.000	0.000	0.0	58.566	-26.087	3426.130	0.008
L24	73.75 - 68.75 (24)	TP32.471x31.546x0.588	5.000	0.000	0.0	60.315	-27.521	3528.450	0.008
L25	68.75 - 64.75 (25)	TP33.21x32.471x0.575	4.000	0.000	0.0	60.424	-28.687	3534.830	0.008
L26	64.75 - 64.5 (26)	TP33.257x33.21x0.85	0.250	0.000	0.0	88.697	-28.793	5188.780	0.006
L27	64.5 - 63.25 (27)	TP33.488x33.257x0.85	1.250	0.000	0.0	89.330	-29.269	5225.780	0.006
L28	63.25 - 63 (28)	TP33.534x33.488x0.575	0.250	0.000	0.0	61.024	-29.350	3569.880	0.008
L29	63 - 58 (29)	TP34.459x33.534x0.563	5.000	0.000	0.0	61.394	-30.828	3591.560	0.009
L30	58 - 56.75 (30)	TP34.69x34.459x0.563	1.250	0.000	0.0	61.813	-31.201	3616.050	0.009
L31	56.75 - 56.5 (31)	TP34.736x34.69x0.913	0.250	0.000	0.0	99.382	-31.320	5813.820	0.005
L32	56.5 - 55.25 (32)	TP34.967x34.736x0.913	1.250	0.000	0.0	100.06	-31.842	5853.550	0.005
L33	55.25 - 55 (33)	TP35.013x34.967x0.638	0.250	0.000	0.0	70.565	-31.932	4128.040	0.008
L34	55 - 47.5 (34)	TP36.4x35.013x0.638	7.500	0.000	0.0	71.685	-32.899	4193.540	0.008
L35	47.5 - 47.05 (35)	TP35.88x34.934x0.7	5.000	0.000	0.0	79.295	-35.932	4638.740	0.008
L36	47.05 - 42.05 (36)	TP36.825x35.88x0.688	5.000	0.000	0.0	80.000	-37.755	4680.020	0.008
L37	42.05 - 37.05 (37)	TP37.771x36.825x0.675	5.000	0.000	0.0	80.629	-39.612	4716.780	0.008
L38	37.05 - 34.95 (38)	TP38.169x37.771x0.675	2.100	0.000	0.0	81.492	-40.401	4767.290	0.008
L39	34.95 - 34.7 (39)	TP38.216x38.169x0.988	0.250	0.000	0.0	118.37	-40.535	6925.040	0.006

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u φP _n
L40	34.7 - 34.25 (40)	TP38.301x38.216x0.975	0.450	0.000	0.0	117.185	-40.760	6855.310	0.006
L41	34.25 - 34 (41)	TP38.348x38.301x0.675	0.250	0.000	0.0	81.883	-40.855	4790.140	0.009
L42	34 - 29 (42)	TP39.294x38.348x0.663	5.000	0.000	0.0	82.411	-42.746	4821.030	0.009
L43	29 - 26.75 (43)	TP39.72x39.294x0.663	2.250	0.000	0.0	83.319	-43.610	4874.150	0.009
L44	26.75 - 26.5 (44)	TP39.767x39.72x0.95	0.250	0.000	0.0	118.741	-43.748	6946.360	0.006
L45	26.5 - 25.25 (45)	TP40.003x39.767x0.95	1.250	0.000	0.0	119.465	-44.378	6988.670	0.006
L46	25.25 - 25 (46)	TP40.051x40.003x0.663	0.250	0.000	0.0	84.025	-44.481	4915.460	0.009
L47	25 - 20 (47)	TP40.997x40.051x0.65	5.000	0.000	0.0	84.445	-46.419	4940.060	0.009
L48	20 - 16.75 (48)	TP41.611x40.997x0.65	3.250	0.000	0.0	85.732	-47.699	5015.330	0.010
L49	16.75 - 16.5 (49)	TP41.659x41.611x0.763	0.250	0.000	0.0	100.410	-47.828	5874.010	0.008
L50	16.5 - 14.25 (50)	TP42.084x41.659x0.763	2.250	0.000	0.0	101.455	-48.901	5935.140	0.008
L51	14.25 - 14 (51)	TP42.132x42.084x0.725	0.250	0.000	0.0	96.664	-49.019	5654.830	0.009
L52	14 - 9 (52)	TP43.077x42.132x0.713	5.000	0.000	0.0	97.196	-51.218	5685.960	0.009
L53	9 - 4 (53)	TP44.023x43.077x0.713	5.000	0.000	0.0	99.366	-53.448	5812.900	0.009
L54	4 - 0 (54)	TP44.78x44.023x0.7	4.000	0.000	0.0	99.356	-55.252	5812.340	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} φM _{ny}
L1	151 - 146 (1)	TP18.526x17.59x0.219	27.715	351.018	0.079	0.000	351.018	0.000
L2	146 - 141 (2)	TP19.461x18.526x0.219	67.131	382.076	0.176	0.000	382.076	0.000
L3	141 - 136 (3)	TP20.397x19.461x0.219	118.971	413.796	0.288	0.000	413.796	0.000
L4	136 - 131 (4)	TP21.332x20.397x0.219	181.581	446.091	0.407	0.000	446.091	0.000
L5	131 - 126 (5)	TP22.268x21.332x0.219	257.538	478.878	0.538	0.000	478.878	0.000
L6	126 - 121 (6)	TP23.203x22.268x0.219	340.208	512.069	0.664	0.000	512.069	0.000
L7	121 - 118.5 (7)	TP23.671x23.203x0.219	387.065	528.791	0.732	0.000	528.791	0.000
L8	118.5 - 118.25 (8)	TP23.718x23.671x0.494	391.793	1270.858	0.308	0.000	1270.858	0.000
L9	118.25 - 113.25 (9)	TP24.653x23.718x0.481	488.043	1343.650	0.363	0.000	1343.650	0.000
L10	113.25 - 108.25 (10)	TP25.589x24.653x0.469	587.182	1415.158	0.415	0.000	1415.158	0.000
L11	108.25 - 103.25 (11)	TP26.524x25.589x0.463	688.804	1504.300	0.458	0.000	1504.300	0.000
L12	103.25 - 97.5 (12)	TP27.6x26.524x0.456	736.372	1534.900	0.480	0.000	1534.900	0.000
L13	97.5 - 95.95 (13)	TP27.442x26.517x0.55	841.825	1899.575	0.443	0.000	1899.575	0.000
L14	95.95 - 95 (14)	TP27.617x27.442x0.55	862.175	1924.725	0.448	0.000	1924.725	0.000
L15	95 - 94.75 (15)	TP27.663x27.617x0.8	867.542	2732.275	0.318	0.000	2732.275	0.000
L16	94.75 - 92.5 (16)	TP28.079x27.663x0.788	916.208	2778.575	0.330	0.000	2778.575	0.000
L17	92.5 - 92.25 (17)	TP28.126x28.079x0.55	921.650	1998.458	0.461	0.000	1998.458	0.000
L18	92.25 - 87.75 (18)	TP28.958x28.126x0.538	1020.733	2076.600	0.492	0.000	2076.600	0.000
L19	87.75 - 87.5 (19)	TP29.004x28.958x0.863	1026.300	3229.967	0.318	0.000	3229.967	0.000
L20	87.5 - 84 (20)	TP29.651x29.004x0.85	1104.983	3337.817	0.331	0.000	3337.817	0.000
L21	84 - 83.75	TP29.697x29.651x0.613	1110.658	2473.117	0.449	0.000	2473.117	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 $\frac{M_{uy}}{\phi M_{ny}}$
L22	(21) 83.75 - 78.75	TP30.622x29.697x0.6	1225.467	2583.975	0.474	0.000	2583.975	0.000
L23	(22) 78.75 - 73.75	TP31.546x30.622x0.588	1342.700	2693.208	0.499	0.000	2693.208	0.000
L24	(23) 73.75 - 68.75	TP32.471x31.546x0.588	1462.267	2858.008	0.512	0.000	2858.008	0.000
L25	(24) 68.75 - 64.75	TP33.21x32.471x0.575	1559.592	2933.050	0.532	0.000	2933.050	0.000
L26	(25) 64.75 - 64.5	TP33.257x33.21x0.85	1565.725	4239.367	0.369	0.000	4239.367	0.000
L27	(26) 64.5 - 63.25	TP33.488x33.257x0.85	1596.500	4300.825	0.371	0.000	4300.825	0.000
L28	(27) 63.25 - 63	TP33.534x33.488x0.575	1602.675	2992.008	0.536	0.000	2992.008	0.000
L29	(28) 63 - 58 (29)	TP34.459x33.534x0.563	1727.375	3098.342	0.558	0.000	3098.342	0.000
L30	58 - 56.75	TP34.69x34.459x0.563	1758.908	3141.092	0.560	0.000	3141.092	0.000
L31	(30) 56.75 - 56.5	TP34.736x34.69x0.913	1765.233	4954.075	0.356	0.000	4954.075	0.000
L32	(31) 56.5 - 55.25	TP34.967x34.736x0.913	1796.958	5022.908	0.358	0.000	5022.908	0.000
L33	(32) 55.25 - 55	TP35.013x34.967x0.638	1803.325	3604.633	0.500	0.000	3604.633	0.000
L34	(33) 55 - 47.5 (34)	TP36.4x35.013x0.638	1878.825	3720.992	0.505	0.000	3720.992	0.000
L35	47.5 - 47.05	TP35.88x34.934x0.7	2008.808	4139.800	0.485	0.000	4139.800	0.000
L36	(35) 47.05 - 42.05	TP36.825x35.88x0.688	2141.083	4294.092	0.499	0.000	4294.092	0.000
L37	(36) 42.05 - 37.05	TP37.771x36.825x0.675	2275.292	4446.208	0.512	0.000	4446.208	0.000
L38	(37) 37.05 - 34.95	TP38.169x37.771x0.675	2332.233	4542.800	0.513	0.000	4542.800	0.000
L39	(38) 34.95 - 34.7	TP38.216x38.169x0.988	2339.033	6497.867	0.360	0.000	6497.867	0.000
L40	(39) 34.7 - 34.25	TP38.301x38.216x0.975	2351.292	6451.850	0.364	0.000	6451.850	0.000
L41	(40) 34.25 - 34	TP38.348x38.301x0.675	2358.108	4586.842	0.514	0.000	4586.842	0.000
L42	(41) 34 - 29 (42)	TP39.294x38.348x0.663	2495.400	4737.433	0.527	0.000	4737.433	0.000
L43	29 - 26.75	TP39.72x39.294x0.663	2557.758	4843.292	0.528	0.000	4843.292	0.000
L44	(43) 26.75 - 26.5	TP39.767x39.72x0.95	2564.708	6809.633	0.377	0.000	6809.633	0.000
L45	(44) 26.5 - 25.25	TP40.003x39.767x0.95	2599.550	6893.850	0.377	0.000	6893.850	0.000
L46	(45) 25.25 - 25	TP40.051x40.003x0.663	2606.525	4926.433	0.529	0.000	4926.433	0.000
L47	(46) 25 - 20 (47)	TP40.997x40.051x0.65	2747.042	5075.083	0.541	0.000	5075.083	0.000
L48	20 - 16.75	TP41.611x40.997x0.65	2839.242	5232.183	0.543	0.000	5232.183	0.000
L49	(48) 16.75 - 16.5	TP41.659x41.611x0.763	2846.358	6101.550	0.466	0.000	6101.550	0.000
L50	(49) 16.5 - 14.25	TP42.084x41.659x0.763	2910.625	6230.391	0.467	0.000	6230.391	0.000
L51	(50) 14.25 - 14	TP42.132x42.084x0.725	2917.783	5953.833	0.490	0.000	5953.833	0.000
L52	(51) 14 - 9 (52)	TP43.077x42.132x0.713	3061.850	6129.325	0.500	0.000	6129.325	0.000
L53	9 - 4 (53)	TP44.023x43.077x0.713	3207.508	6408.383	0.501	0.000	6408.383	0.000
L54	4 - 0 (54)	TP44.78x44.023x0.7	3325.175	6525.233	0.510	0.000	6525.233	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio V_u ϕV_n	Actual T_u kip-ft	ϕT_n kip-ft	Ratio T_u ϕT_n
L1	151 - 146 (1)	TP18.526x17.59x0.219	7.700	226.304	0.034	0.157	364.422	0.000
L2	146 - 141 (2)	TP19.461x18.526x0.219	8.070	237.869	0.034	0.157	402.618	0.000
L3	141 - 136 (3)	TP20.397x19.461x0.219	12.284	249.433	0.049	0.157	442.719	0.000
L4	136 - 131 (4)	TP21.332x20.397x0.219	13.460	260.998	0.052	0.157	484.723	0.000
L5	131 - 126 (5)	TP22.268x21.332x0.219	15.763	272.563	0.058	0.157	528.630	0.000
L6	126 - 121 (6)	TP23.203x22.268x0.219	18.603	284.127	0.065	0.156	574.440	0.000
L7	121 - 118.5 (7)	TP23.671x23.203x0.219	18.903	289.910	0.065	0.169	598.059	0.000
L8	118.5 - 118.25 (8)	TP23.718x23.671x0.494	18.926	647.999	0.029	0.170	1323.758	0.000
L9	118.25 - 113.25 (9)	TP24.653x23.718x0.481	19.581	657.377	0.030	0.194	1397.733	0.000
L10	113.25 - 108.25 (10)	TP25.589x24.653x0.469	20.084	665.414	0.030	0.194	1470.317	0.000
L11	108.25 - 103.25 (11)	TP26.524x25.589x0.463	20.577	681.156	0.030	0.194	1561.525	0.000
L12	103.25 - 97.5 (12)	TP27.6x26.524x0.456	20.800	683.208	0.030	0.194	1592.467	0.000
L13	97.5 - 95.95 (13)	TP27.442x26.517x0.55	21.382	835.816	0.026	0.194	1977.083	0.000
L14	95.95 - 95 (14)	TP27.617x27.442x0.55	21.476	841.276	0.026	0.194	2003.000	0.000
L15	95 - 94.75 (15)	TP27.663x27.617x0.8	21.501	1214.460	0.018	0.194	2869.750	0.000
L16	94.75 - 92.5 (16)	TP28.079x27.663x0.788	21.764	1214.560	0.018	0.193	2915.758	0.000
L17	92.5 - 92.25 (17)	TP28.126x28.079x0.55	21.787	857.080	0.025	0.193	2078.967	0.000
L18	92.25 - 87.75 (18)	TP28.958x28.126x0.538	22.260	863.254	0.026	0.193	2158.067	0.000
L19	87.75 - 87.5 (19)	TP29.004x28.958x0.863	22.282	1371.630	0.016	0.193	3395.350	0.000
L20	87.5 - 84 (20)	TP29.651x29.004x0.85	22.693	1383.440	0.016	0.193	3504.850	0.000
L21	84 - 83.75 (21)	TP29.697x29.651x0.613	22.716	1006.710	0.023	0.193	2575.558	0.000
L22	83.75 - 78.75 (22)	TP30.622x29.697x0.6	23.219	1017.940	0.023	0.193	2688.175	0.000
L23	78.75 - 73.75 (23)	TP31.546x30.622x0.588	23.692	1027.840	0.023	0.193	2799.042	0.000
L24	73.75 - 68.75 (24)	TP32.471x31.546x0.588	24.152	1058.530	0.023	0.193	2968.717	0.000
L25	68.75 - 64.75 (25)	TP33.21x32.471x0.575	24.532	1060.450	0.023	0.193	3044.242	0.000
L26	64.75 - 64.5 (26)	TP33.257x33.21x0.85	24.551	1556.630	0.016	0.193	4437.317	0.000
L27	64.5 - 63.25 (27)	TP33.488x33.257x0.85	24.693	1567.740	0.016	0.193	4500.842	0.000
L28	63.25 - 63 (28)	TP33.534x33.488x0.575	24.712	1070.960	0.023	0.193	3104.908	0.000
L29	63 - 58 (29)	TP34.459x33.534x0.563	25.183	1077.470	0.023	0.193	3212.575	0.000
L30	58 - 56.75 (30)	TP34.69x34.459x0.563	25.300	1084.810	0.023	0.193	3256.533	0.000
L31	56.75 - 56.5 (31)	TP34.736x34.69x0.913	25.314	1744.150	0.015	0.193	5189.192	0.000
L32	56.5 - 55.25 (32)	TP34.967x34.736x0.913	25.452	1756.060	0.014	0.193	5260.358	0.000
L33	55.25 - 55 (33)	TP35.013x34.967x0.638	25.471	1238.410	0.021	0.193	3744.700	0.000
L34	55 - 47.5 (34)	TP36.4x35.013x0.638	25.736	1258.060	0.020	0.193	3864.483	0.000
L35	47.5 - 47.05 (35)	TP35.88x34.934x0.7	26.264	1391.620	0.019	0.193	4306.367	0.000
L36	47.05 - 42.05 (36)	TP36.825x35.88x0.688	26.663	1404.000	0.019	0.193	4463.042	0.000
L37	42.05 - 37.05 (37)	TP37.771x36.825x0.675	27.044	1415.030	0.019	0.193	4617.392	0.000
L38	37.05 - 34.95 (38)	TP38.169x37.771x0.675	27.208	1430.190	0.019	0.193	4716.817	0.000
L39	34.95 - 34.7 (39)	TP38.216x38.169x0.988	27.220	2077.510	0.013	0.193	6803.250	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L40	34.7 - 34.25 (40)	TP38.301x38.216x0.975	27.259	2056.590	0.013	0.193	6752.408	0.000
L41	34.25 - 34 (41)	TP38.348x38.301x0.675	27.280	1437.040	0.019	0.193	4762.142	0.000
L42	34 - 29 (42)	TP39.294x38.348x0.663	27.651	1446.310	0.019	0.193	4914.775	0.000
L43	29 - 26.75 (43)	TP39.72x39.294x0.663	27.811	1462.240	0.019	0.193	5023.667	0.000
L44	26.75 - 26.5 (44)	TP39.767x39.72x0.95	27.818	2083.910	0.013	0.193	7115.417	0.000
L45	26.5 - 25.25 (45)	TP40.003x39.767x0.95	27.930	2096.600	0.013	0.193	7202.367	0.000
L46	25.25 - 25 (46)	TP40.051x40.003x0.663	27.939	1474.640	0.019	0.193	5109.192	0.000
L47	25 - 20 (47)	TP40.997x40.051x0.65	28.283	1482.020	0.019	0.193	5259.692	0.000
L48	20 - 16.75 (48)	TP41.611x40.997x0.65	28.485	1504.600	0.019	0.193	5421.208	0.000
L49	16.75 - 16.5 (49)	TP41.659x41.611x0.763	28.487	1762.200	0.016	0.193	6339.258	0.000
L50	16.5 - 14.25 (50)	TP42.084x41.659x0.763	28.650	1780.540	0.016	0.193	6471.900	0.000
L51	14.25 - 14 (51)	TP42.132x42.084x0.725	28.654	1696.450	0.017	0.192	6178.891	0.000
L52	14 - 9 (52)	TP43.077x42.132x0.713	28.985	1705.790	0.017	0.192	6356.700	0.000
L53	9 - 4 (53)	TP44.023x43.077x0.713	29.304	1743.870	0.017	0.192	6643.708	0.000
L54	4 - 0 (54)	TP44.78x44.023x0.7	29.555	1743.700	0.017	0.192	6761.050	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	151 - 146 (1)	0.006	0.079	0.000	0.034	0.000	0.086	1.050	4.8.2
L2	146 - 141 (2)	0.006	0.176	0.000	0.034	0.000	0.183	1.050	4.8.2
L3	141 - 136 (3)	0.010	0.288	0.000	0.049	0.000	0.300	1.050	4.8.2
L4	136 - 131 (4)	0.011	0.407	0.000	0.052	0.000	0.421	1.050	4.8.2
L5	131 - 126 (5)	0.013	0.538	0.000	0.058	0.000	0.554	1.050	4.8.2
L6	126 - 121 (6)	0.015	0.664	0.000	0.065	0.000	0.684	1.050	4.8.2
L7	121 - 118.5 (7)	0.015	0.732	0.000	0.065	0.000	0.751	1.050	4.8.2
L8	118.5 - 118.25 (8)	0.007	0.308	0.000	0.029	0.000	0.316	1.050	4.8.2
L9	118.25 - 113.25 (9)	0.007	0.363	0.000	0.030	0.000	0.371	1.050	4.8.2
L10	113.25 - 108.25 (10)	0.008	0.415	0.000	0.030	0.000	0.423	1.050	4.8.2
L11	108.25 - 103.25 (11)	0.008	0.458	0.000	0.030	0.000	0.467	1.050	4.8.2
L12	103.25 - 97.5 (12)	0.008	0.480	0.000	0.030	0.000	0.489	1.050	4.8.2
L13	97.5 - 95.95 (13)	0.007	0.443	0.000	0.026	0.000	0.451	1.050	4.8.2
L14	95.95 - 95 (14)	0.007	0.448	0.000	0.026	0.000	0.456	1.050	4.8.2
L15	95 - 94.75 (15)	0.005	0.318	0.000	0.018	0.000	0.323	1.050	4.8.2
L16	94.75 - 92.5 (16)	0.005	0.330	0.000	0.018	0.000	0.335	1.050	4.8.2
L17	92.5 - 92.25 (17)	0.007	0.461	0.000	0.025	0.000	0.469	1.050	4.8.2
L18	92.25 - 87.75 (18)	0.008	0.492	0.000	0.026	0.000	0.500	1.050	4.8.2
L19	87.75 - 87.5 (19)	0.005	0.318	0.000	0.016	0.000	0.323	1.050	4.8.2

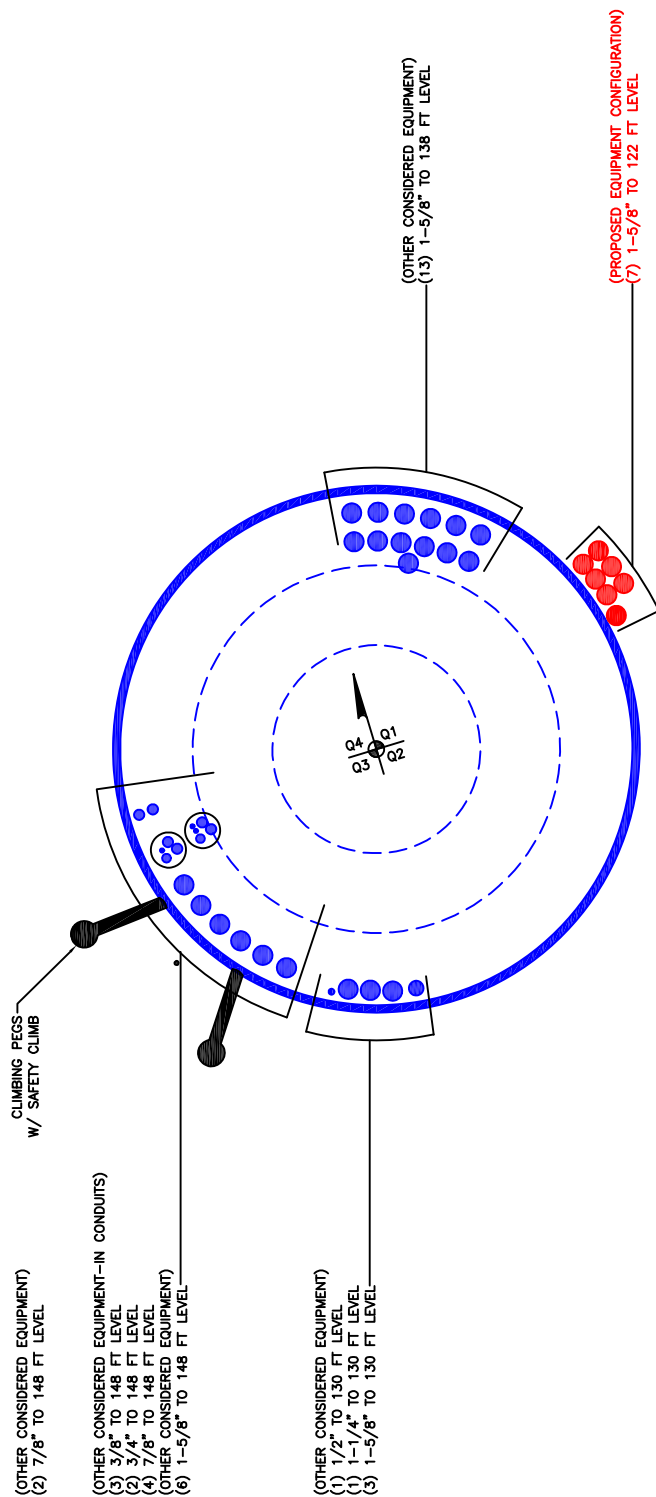
Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L20	87.5 - 84 (20)	0.005	0.331	0.000	0.016	0.000	0.336	1.050	4.8.2
L21	84 - 83.75 (21)	0.007	0.449	0.000	0.023	0.000	0.457	1.050	4.8.2
L22	83.75 - 78.75 (22)	0.007	0.474	0.000	0.023	0.000	0.482	1.050	4.8.2
L23	78.75 - 73.75 (23)	0.008	0.499	0.000	0.023	0.000	0.507	1.050	4.8.2
L24	73.75 - 68.75 (24)	0.008	0.512	0.000	0.023	0.000	0.520	1.050	4.8.2
L25	68.75 - 64.75 (25)	0.008	0.532	0.000	0.023	0.000	0.540	1.050	4.8.2
L26	64.75 - 64.5 (26)	0.006	0.369	0.000	0.016	0.000	0.375	1.050	4.8.2
L27	64.5 - 63.25 (27)	0.006	0.371	0.000	0.016	0.000	0.377	1.050	4.8.2
L28	63.25 - 63 (28)	0.008	0.536	0.000	0.023	0.000	0.544	1.050	4.8.2
L29	63 - 58 (29)	0.009	0.558	0.000	0.023	0.000	0.567	1.050	4.8.2
L30	58 - 56.75 (30)	0.009	0.560	0.000	0.023	0.000	0.569	1.050	4.8.2
L31	56.75 - 56.5 (31)	0.005	0.356	0.000	0.015	0.000	0.362	1.050	4.8.2
L32	56.5 - 55.25 (32)	0.005	0.358	0.000	0.014	0.000	0.363	1.050	4.8.2
L33	55.25 - 55 (33)	0.008	0.500	0.000	0.021	0.000	0.508	1.050	4.8.2
L34	55 - 47.5 (34)	0.008	0.505	0.000	0.020	0.000	0.513	1.050	4.8.2
L35	47.5 - 47.05 (35)	0.008	0.485	0.000	0.019	0.000	0.493	1.050	4.8.2
L36	47.05 - 42.05 (36)	0.008	0.499	0.000	0.019	0.000	0.507	1.050	4.8.2
L37	42.05 - 37.05 (37)	0.008	0.512	0.000	0.019	0.000	0.521	1.050	4.8.2
L38	37.05 - 34.95 (38)	0.008	0.513	0.000	0.019	0.000	0.522	1.050	4.8.2
L39	34.95 - 34.7 (39)	0.006	0.360	0.000	0.013	0.000	0.366	1.050	4.8.2
L40	34.7 - 34.25 (40)	0.006	0.364	0.000	0.013	0.000	0.371	1.050	4.8.2
L41	34.25 - 34 (41)	0.009	0.514	0.000	0.019	0.000	0.523	1.050	4.8.2
L42	34 - 29 (42)	0.009	0.527	0.000	0.019	0.000	0.536	1.050	4.8.2
L43	29 - 26.75 (43)	0.009	0.528	0.000	0.019	0.000	0.537	1.050	4.8.2
L44	26.75 - 26.5 (44)	0.006	0.377	0.000	0.013	0.000	0.383	1.050	4.8.2
L45	26.5 - 25.25 (45)	0.006	0.377	0.000	0.013	0.000	0.384	1.050	4.8.2
L46	25.25 - 25 (46)	0.009	0.529	0.000	0.019	0.000	0.539	1.050	4.8.2
L47	25 - 20 (47)	0.009	0.541	0.000	0.019	0.000	0.551	1.050	4.8.2
L48	20 - 16.75 (48)	0.010	0.543	0.000	0.019	0.000	0.553	1.050	4.8.2
L49	16.75 - 16.5 (49)	0.008	0.466	0.000	0.016	0.000	0.475	1.050	4.8.2
L50	16.5 - 14.25 (50)	0.008	0.467	0.000	0.016	0.000	0.476	1.050	4.8.2
L51	14.25 - 14 (51)	0.009	0.490	0.000	0.017	0.000	0.499	1.050	4.8.2
L52	14 - 9 (52)	0.009	0.500	0.000	0.017	0.000	0.509	1.050	4.8.2
L53	9 - 4 (53)	0.009	0.501	0.000	0.017	0.000	0.510	1.050	4.8.2
L54	4 - 0 (54)	0.010	0.510	0.000	0.017	0.000	0.519	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	151 - 146	Pole	TP18.526x17.59x0.219	1	-4.309	792.064	8.2	Pass
L2	146 - 141	Pole	TP19.461x18.526x0.219	2	-4.648	832.541	17.4	Pass
L3	141 - 136	Pole	TP20.397x19.461x0.219	3	-8.152	873.017	28.6	Pass
L4	136 - 131	Pole	TP21.332x20.397x0.219	4	-9.380	913.494	40.0	Pass
L5	131 - 126	Pole	TP22.268x21.332x0.219	5	-11.612	953.969	52.8	Pass
L6	126 - 121	Pole	TP23.203x22.268x0.219	6	-14.233	994.446	65.1	Pass
L7	121 - 118.5	Pole	TP23.671x23.203x0.219	7	-14.631	1014.683	71.6	Pass
L8	118.5 - 118.25	Pole	TP23.718x23.671x0.494	8	-14.704	2268.000	30.1	Pass
L9	118.25 - 113.25	Pole	TP24.653x23.718x0.481	9	-15.692	2300.823	35.4	Pass
L10	113.25 - 108.25	Pole	TP25.589x24.653x0.469	10	-16.665	2328.952	40.3	Pass
L11	108.25 - 103.25	Pole	TP26.524x25.589x0.463	11	-17.663	2384.046	44.4	Pass
L12	103.25 - 97.5	Pole	TP27.6x26.524x0.456	12	-18.130	2391.228	46.5	Pass
L13	97.5 - 95.95	Pole	TP27.442x26.517x0.55	13	-19.795	2925.352	42.9	Pass
L14	95.95 - 95	Pole	TP27.617x27.442x0.55	14	-20.028	2944.462	43.4	Pass
L15	95 - 94.75	Pole	TP27.663x27.617x0.8	15	-20.112	4250.620	30.7	Pass
L16	94.75 - 92.5	Pole	TP28.079x27.663x0.788	16	-20.797	4250.946	31.9	Pass
L17	92.5 - 92.25	Pole	TP28.126x28.079x0.55	17	-20.864	2999.776	44.7	Pass
L18	92.25 - 87.75	Pole	TP28.958x28.126x0.538	18	-21.953	3021.385	47.6	Pass
L19	87.75 - 87.5	Pole	TP29.004x28.958x0.863	19	-22.048	4800.715	30.7	Pass
L20	87.5 - 84	Pole	TP29.651x29.004x0.85	20	-23.229	4842.043	32.0	Pass
L21	84 - 83.75	Pole	TP29.697x29.651x0.613	21	-23.304	3523.495	43.5	Pass
L22	83.75 - 78.75	Pole	TP30.622x29.697x0.6	22	-24.678	3562.786	45.9	Pass
L23	78.75 - 73.75	Pole	TP31.546x30.622x0.588	23	-26.087	3597.436	48.3	Pass
L24	73.75 - 68.75	Pole	TP32.471x31.546x0.588	24	-27.521	3704.872	49.5	Pass
L25	68.75 - 64.75	Pole	TP33.21x32.471x0.575	25	-28.687	3711.571	51.5	Pass
L26	64.75 - 64.5	Pole	TP33.257x33.21x0.85	26	-28.793	5448.219	35.7	Pass
L27	64.5 - 63.25	Pole	TP33.488x33.257x0.85	27	-29.269	5487.069	35.9	Pass
L28	63.25 - 63	Pole	TP33.534x33.488x0.575	28	-29.350	3748.374	51.8	Pass
L29	63 - 58	Pole	TP34.459x33.534x0.563	29	-30.828	3771.138	54.0	Pass
L30	58 - 56.75	Pole	TP34.69x34.459x0.563	30	-31.201	3796.852	54.2	Pass
L31	56.75 - 56.5	Pole	TP34.736x34.69x0.913	31	-31.320	6104.511	34.5	Pass
L32	56.5 - 55.25	Pole	TP34.967x34.736x0.913	32	-31.842	6146.227	34.6	Pass
L33	55.25 - 55	Pole	TP35.013x34.967x0.638	33	-31.932	4334.442	48.4	Pass
L34	55 - 47.5	Pole	TP36.4x35.013x0.638	34	-32.899	4403.217	48.9	Pass
L35	47.5 - 47.05	Pole	TP35.88x34.934x0.7	35	-35.932	4870.677	47.0	Pass
L36	47.05 - 42.05	Pole	TP36.825x35.88x0.688	36	-37.755	4914.021	48.3	Pass
L37	42.05 - 37.05	Pole	TP37.771x36.825x0.675	37	-39.612	4952.619	49.6	Pass
L38	37.05 - 34.95	Pole	TP38.169x37.771x0.675	38	-40.401	5005.654	49.7	Pass
L39	34.95 - 34.7	Pole	TP38.216x38.169x0.988	39	-40.535	7271.292	34.9	Pass
L40	34.7 - 34.25	Pole	TP38.301x38.216x0.975	40	-40.760	7198.075	35.3	Pass
L41	34.25 - 34	Pole	TP38.348x38.301x0.675	41	-40.855	5029.647	49.8	Pass
L42	34 - 29	Pole	TP39.294x38.348x0.663	42	-42.746	5062.081	51.0	Pass
L43	29 - 26.75	Pole	TP39.72x39.294x0.663	43	-43.610	5117.857	51.2	Pass
L44	26.75 - 26.5	Pole	TP39.767x39.72x0.95	44	-43.748	7293.678	36.5	Pass
L45	26.5 - 25.25	Pole	TP40.003x39.767x0.95	45	-44.378	7338.103	36.5	Pass
L46	25.25 - 25	Pole	TP40.051x40.003x0.663	46	-44.481	5161.233	51.3	Pass
L47	25 - 20	Pole	TP40.997x40.051x0.65	47	-46.419	5187.063	52.5	Pass
L48	20 - 16.75	Pole	TP41.611x40.997x0.65	48	-47.699	5266.096	52.6	Pass
L49	16.75 - 16.5	Pole	TP41.659x41.611x0.763	49	-47.828	6167.710	45.2	Pass
L50	16.5 - 14.25	Pole	TP42.084x41.659x0.763	50	-48.901	6231.897	45.3	Pass
L51	14.25 - 14	Pole	TP42.132x42.084x0.725	51	-49.019	5937.571	47.5	Pass
L52	14 - 9	Pole	TP43.077x42.132x0.713	52	-51.218	5970.258	48.5	Pass
L53	9 - 4	Pole	TP44.023x43.077x0.713	53	-53.448	6103.545	48.6	Pass
L54	4 - 0	Pole	TP44.78x44.023x0.7	54	-55.252	6102.957	49.5	Pass
							Summary	
							Pole (L7)	71.6
							RATING =	71.6
								Pass

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

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS

Site BU: 841295
Work Order: 1902497

Pole Geometry

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	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	151	53.5	3.45	12	17.59	27.6	0.21875	Auto	A572-65
2	100.95	53.45	4.55	12	26.52	36.4	0.3125	Auto	A572-65
3	52.05	52.05	0	12	34.93	44.78	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	16.75	plate	MS-850 (1.1875")	2									0		0	
2	14.25	26.75	plate	MS-850 (1.1875")	1										0		
3	0	26.75	plate	MS-850 (1.1875")	2		0				0						
4	25.25	34.95	plate	MS-850 (1.1875")	3			0				0				0	
5	34.25	56.75	plate	MS-850 (1.1875")	3		0				0				0		
6	55.25	64.75	plate	MS-650 (1.1875")	3			0				0				0	
7	63.25	87.75	plate	MS-650 (1.1875")	3		0				0				0		
8	84	95	plate	MS-600 (1.1875")	3			0				0				0	
9	92.5	118.5	plate	MS-600 (1.1875")	3		0				0				0		
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.250	9.063	1.1875	A572-65
2	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.250	9.063	1.1875	A572-65
3	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.250	9.063	1.1875	A572-65
4	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.250	9.063	1.1875	A572-65
5	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.250	9.063	1.1875	A572-65
6	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.250	6.563	1.1875	A572-65
7	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.250	6.563	1.1875	A572-65
8	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
9	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65

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	151 - 146	5		12	17.590	18.526	0.21875	A572-65	1.000
2	146 - 141	5		12	18.526	19.461	0.21875	A572-65	1.000
3	141 - 136	5		12	19.461	20.397	0.21875	A572-65	1.000
4	136 - 131	5		12	20.397	21.332	0.21875	A572-65	1.000
5	131 - 126	5		12	21.332	22.268	0.21875	A572-65	1.000
6	126 - 121	5		12	22.268	23.203	0.21875	A572-65	1.000
7	121 - 118.5	2.5		12	23.203	23.671	0.21875	A572-65	1.000
8	118.5 - 118.25	0.25		12	23.671	23.718	0.49375	A572-65	0.936
9	118.25 - 113.25	5		12	23.718	24.653	0.48125	A572-65	0.941
10	113.25 - 108.25	5		12	24.653	25.589	0.46875	A572-65	0.947
11	108.25 - 103.25	5		12	25.589	26.524	0.4625	A572-65	0.942
12	103.25 - 100.95	5.75	3.45	12	26.524	27.600	0.45625	A572-65	0.947
13	100.95 - 95.95	5		12	26.517	27.442	0.55	A572-65	0.952
14	95.95 - 95	0.95		12	27.442	27.617	0.55	A572-65	0.949
15	95 - 94.75	0.25		12	27.617	27.663	0.8	A572-65	0.919
16	94.75 - 92.5	2.25		12	27.663	28.079	0.7875	A572-65	0.925
17	92.5 - 92.25	0.25		12	28.079	28.126	0.55	A572-65	0.942
18	92.25 - 87.75	4.5		12	28.126	28.958	0.5375	A572-65	0.952
19	87.75 - 87.5	0.25		12	28.958	29.004	0.8625	A572-65	0.912
20	87.5 - 84	3.5		12	29.004	29.651	0.85	A572-65	0.913
21	84 - 83.75	0.25		12	29.651	29.697	0.6125	A572-65	0.941
22	83.75 - 78.75	5		12	29.697	30.622	0.6	A572-65	0.947
23	78.75 - 73.75	5		12	30.622	31.546	0.5875	A572-65	0.953
24	73.75 - 68.75	5		12	31.546	32.471	0.5875	A572-65	0.941
25	68.75 - 64.75	4		12	32.471	33.210	0.575	A572-65	0.952
26	64.75 - 64.5	0.25		12	33.210	33.257	0.85	A572-65	0.924
27	64.5 - 63.25	1.25		12	33.257	33.488	0.85	A572-65	0.920
28	63.25 - 63	0.25		12	33.488	33.534	0.575	A572-65	0.948
29	63 - 58	5		12	33.534	34.459	0.5625	A572-65	0.957
30	58 - 56.75	1.25		12	34.459	34.690	0.5625	A572-65	0.955
31	56.75 - 56.5	0.25		12	34.690	34.736	0.9125	A572-65	0.915
32	56.5 - 55.25	1.25		12	34.736	34.967	0.9125	A572-65	0.911
33	55.25 - 55	0.25		12	34.967	35.013	0.6375	A572-65	0.947
34	55 - 52.05	7.5	4.55	12	35.013	36.400	0.6375	A572-65	0.940
35	52.05 - 47.05	5		12	34.934	35.880	0.7	A572-65	0.943
36	47.05 - 42.05	5		12	35.880	36.825	0.6875	A572-65	0.949
37	42.05 - 37.05	5		12	36.825	37.771	0.675	A572-65	0.956
38	37.05 - 34.95	2.1		12	37.771	38.169	0.675	A572-65	0.952
39	34.95 - 34.7	0.25		12	38.169	38.216	0.9875	A572-65	0.925
40	34.7 - 34.25	0.45		12	38.216	38.301	0.975	A572-65	0.936
41	34.25 - 34	0.25		12	38.301	38.348	0.675	A572-65	0.950
42	34 - 29	5		12	38.348	39.294	0.6625	A572-65	0.958
43	29 - 26.75	2.25		12	39.294	39.720	0.6625	A572-65	0.953
44	26.75 - 26.5	0.25		12	39.720	39.767	0.95	A572-65	0.938
45	26.5 - 25.25	1.25		12	39.767	40.003	0.95	A572-65	0.935
46	25.25 - 25	0.25		12	40.003	40.051	0.6625	A572-65	0.950
47	25 - 20	5		12	40.051	40.997	0.65	A572-65	0.959
48	20 - 16.75	3.25		12	40.997	41.611	0.65	A572-65	0.953
49	16.75 - 16.5	0.25		12	41.611	41.659	0.7625	A572-65	1.026
50	16.5 - 14.25	2.25		12	41.659	42.084	0.7625	A572-65	1.021
51	14.25 - 14	0.25		12	42.084	42.132	0.725	A572-65	0.962
52	14 - 9	5		12	42.132	43.077	0.7125	A572-65	0.968
53	9 - 4	5		12	43.077	44.023	0.7125	A572-65	0.959
54	4 - 0	4		12	44.023	44.780	0.7	A572-65	0.968

TNX Section Forces

Increment (ft): 5		TNX Output		
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	151 - 146	4.31	27.71	7.70
2	146 - 141	4.65	67.13	8.07
3	141 - 136	8.15	118.97	12.28
4	136 - 131	9.38	181.58	13.46
5	131 - 126	11.61	257.54	15.76
6	126 - 121	14.23	340.21	18.60
7	121 - 118.5	14.63	387.06	18.90
8	118.5 - 118.25	14.70	391.79	18.93
9	118.25 - 113.25	15.69	488.04	19.58
10	113.25 - 108.25	16.66	587.18	20.08
11	108.25 - 103.25	17.66	688.80	20.58
12	103.25 - 100.95	18.13	736.37	20.80
13	100.95 - 95.95	19.79	841.82	21.38
14	95.95 - 95	20.03	862.17	21.48
15	95 - 94.75	20.11	867.54	21.50
16	94.75 - 92.5	20.80	916.21	21.76
17	92.5 - 92.25	20.86	921.65	21.79
18	92.25 - 87.75	21.95	1020.73	22.26
19	87.75 - 87.5	22.05	1026.30	22.28
20	87.5 - 84	23.23	1104.99	22.69
21	84 - 83.75	23.30	1110.66	22.72
22	83.75 - 78.75	24.68	1225.47	23.22
23	78.75 - 73.75	26.09	1342.70	23.69
24	73.75 - 68.75	27.52	1462.27	24.15
25	68.75 - 64.75	28.69	1559.59	24.53
26	64.75 - 64.5	28.79	1565.73	24.55
27	64.5 - 63.25	29.27	1596.50	24.69
28	63.25 - 63	29.35	1602.67	24.71
29	63 - 58	30.83	1727.37	25.18
30	58 - 56.75	31.20	1758.91	25.30
31	56.75 - 56.5	31.32	1765.24	25.31
32	56.5 - 55.25	31.84	1796.96	25.45
33	55.25 - 55	31.93	1803.32	25.47
34	55 - 52.05	32.90	1878.82	25.74
35	52.05 - 47.05	35.93	2008.81	26.26
36	47.05 - 42.05	37.76	2141.09	26.66
37	42.05 - 37.05	39.61	2275.30	27.04
38	37.05 - 34.95	40.40	2332.23	27.21
39	34.95 - 34.7	40.54	2339.04	27.22
40	34.7 - 34.25	40.76	2351.29	27.26
41	34.25 - 34	40.86	2358.11	27.28
42	34 - 29	42.75	2495.40	27.65
43	29 - 26.75	43.61	2557.76	27.81
44	26.75 - 26.5	43.75	2564.71	27.82
45	26.5 - 25.25	44.38	2599.55	27.93
46	25.25 - 25	44.48	2606.53	27.94
47	25 - 20	46.42	2747.04	28.28
48	20 - 16.75	47.70	2839.24	28.48
49	16.75 - 16.5	47.83	2846.36	28.49
50	16.5 - 14.25	48.90	2910.62	28.65
51	14.25 - 14	49.02	2917.78	28.65
52	14 - 9	51.22	3061.85	28.99
53	9 - 4	53.45	3207.51	29.30
54	4 - 0	55.25	3325.17	29.56

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
151 - 146	Pole	TP18.526x17.59x0.2188	Pole	8.0%	Pass
146 - 141	Pole	TP19.461x18.526x0.2188	Pole	17.2%	Pass
141 - 136	Pole	TP20.397x19.461x0.2188	Pole	28.1%	Pass
136 - 131	Pole	TP21.332x20.397x0.2188	Pole	39.6%	Pass
131 - 126	Pole	TP22.268x21.332x0.2188	Pole	52.2%	Pass
126 - 121	Pole	TP23.203x22.268x0.2188	Pole	64.4%	Pass
121 - 118.5	Pole	TP23.671x23.203x0.2188	Pole	70.9%	Pass
118.5 - 118.25	Pole + Reinf.	TP23.718x23.671x0.4938	Reinf. 9 Bolt-Shaft Bearing	47.2%	Pass
118.25 - 113.25	Pole + Reinf.	TP24.653x23.718x0.4813	Reinf. 9 Tension Rupture	54.2%	Pass
113.25 - 108.25	Pole + Reinf.	TP25.589x24.653x0.4688	Reinf. 9 Tension Rupture	61.6%	Pass
108.25 - 103.25	Pole + Reinf.	TP26.524x25.589x0.4625	Reinf. 9 Tension Rupture	68.5%	Pass
103.25 - 100.95	Pole + Reinf.	TP27.6x26.524x0.4563	Reinf. 9 Tension Rupture	71.5%	Pass
100.95 - 95.95	Pole + Reinf.	TP27.442x26.517x0.55	Reinf. 9 Tension Rupture	65.9%	Pass
95.95 - 95	Pole + Reinf.	TP27.617x27.442x0.55	Reinf. 9 Tension Rupture	66.8%	Pass
95 - 94.75	Pole + Reinf.	TP27.663x27.617x0.8	Reinf. 9 Tension Rupture	47.4%	Pass
94.75 - 92.5	Pole + Reinf.	TP28.079x27.663x0.7875	Reinf. 9 Tension Rupture	49.0%	Pass
92.5 - 92.25	Pole + Reinf.	TP28.126x28.079x0.55	Reinf. 8 Tension Rupture	69.4%	Pass
92.25 - 87.75	Pole + Reinf.	TP28.958x28.126x0.5375	Reinf. 8 Tension Rupture	73.3%	Pass
87.75 - 87.5	Pole + Reinf.	TP29.004x28.958x0.8625	Reinf. 8 Tension Rupture	47.3%	Pass
87.5 - 84	Pole + Reinf.	TP29.651x29.004x0.85	Reinf. 8 Tension Rupture	49.4%	Pass
84 - 83.75	Pole + Reinf.	TP29.697x29.651x0.6125	Reinf. 7 Tension Rupture	65.8%	Pass
83.75 - 78.75	Pole + Reinf.	TP30.622x29.697x0.6	Reinf. 7 Tension Rupture	69.3%	Pass
78.75 - 73.75	Pole + Reinf.	TP31.546x30.622x0.5875	Reinf. 7 Tension Rupture	72.5%	Pass
73.75 - 68.75	Pole + Reinf.	TP32.471x31.546x0.5875	Reinf. 7 Tension Rupture	75.5%	Pass
68.75 - 64.75	Pole + Reinf.	TP33.21x32.471x0.575	Reinf. 7 Tension Rupture	77.7%	Pass
64.75 - 64.5	Pole + Reinf.	TP33.257x33.21x0.85	Reinf. 7 Tension Rupture	53.9%	Pass
64.5 - 63.25	Pole + Reinf.	TP33.488x33.257x0.85	Reinf. 7 Tension Rupture	54.5%	Pass
63.25 - 63	Pole + Reinf.	TP33.534x33.488x0.575	Reinf. 6 Tension Rupture	78.7%	Pass
63 - 58	Pole + Reinf.	TP34.459x33.534x0.5625	Reinf. 6 Tension Rupture	81.2%	Pass
58 - 56.75	Pole + Reinf.	TP34.69x34.459x0.5625	Reinf. 6 Tension Rupture	81.8%	Pass
56.75 - 56.5	Pole + Reinf.	TP34.736x34.69x0.9125	Reinf. 6 Tension Rupture	52.3%	Pass
56.5 - 55.25	Pole + Reinf.	TP34.967x34.736x0.9125	Reinf. 6 Tension Rupture	52.7%	Pass
55.25 - 55	Pole + Reinf.	TP35.013x34.967x0.6375	Reinf. 5 Compression	69.3%	Pass
55 - 52.05	Pole + Reinf.	TP36.4x35.013x0.6375	Reinf. 5 Compression	70.6%	Pass
52.05 - 47.05	Pole + Reinf.	TP35.88x34.934x0.7	Reinf. 5 Compression	67.7%	Pass
47.05 - 42.05	Pole + Reinf.	TP36.825x35.88x0.6875	Reinf. 5 Compression	69.3%	Pass
42.05 - 37.05	Pole + Reinf.	TP37.771x36.825x0.675	Reinf. 5 Compression	70.8%	Pass
37.05 - 34.95	Pole + Reinf.	TP38.169x37.771x0.675	Reinf. 5 Compression	71.4%	Pass
34.95 - 34.7	Pole + Reinf.	TP38.216x38.169x0.9875	Reinf. 4 Bolt Shear	51.8%	Pass
34.7 - 34.25	Pole + Reinf.	TP38.301x38.216x0.975	Reinf. 5 Bolt Shear	51.9%	Pass
34.25 - 34	Pole + Reinf.	TP38.348x38.301x0.675	Reinf. 4 Compression	71.7%	Pass
34 - 29	Pole + Reinf.	TP39.294x38.348x0.6625	Reinf. 4 Compression	73.0%	Pass
29 - 26.75	Pole + Reinf.	TP39.72x39.294x0.6625	Reinf. 4 Compression	73.5%	Pass
26.75 - 26.5	Pole + Reinf.	TP39.767x39.72x0.95	Reinf. 2 Bolt Shear	53.8%	Pass
26.5 - 25.25	Pole + Reinf.	TP40.003x39.767x0.95	Reinf. 4 Bolt Shear	54.1%	Pass
25.25 - 25	Pole + Reinf.	TP40.051x40.003x0.6625	Reinf. 2 Compression	74.0%	Pass
25 - 20	Pole + Reinf.	TP40.997x40.051x0.65	Reinf. 2 Compression	75.1%	Pass
20 - 16.75	Pole + Reinf.	TP41.611x40.997x0.65	Reinf. 2 Compression	75.8%	Pass
16.75 - 16.5	Pole + Reinf.	TP41.659x41.611x0.7625	Reinf. 3 Compression	69.7%	Pass
16.5 - 14.25	Pole + Reinf.	TP42.084x41.659x0.7625	Reinf. 3 Compression	70.2%	Pass
14.25 - 14	Pole + Reinf.	TP42.132x42.084x0.725	Reinf. 3 Compression	70.6%	Pass
14 - 9	Pole + Reinf.	TP43.077x42.132x0.7125	Reinf. 3 Compression	71.6%	Pass
9 - 4	Pole + Reinf.	TP44.023x43.077x0.7125	Reinf. 3 Compression	72.5%	Pass
4 - 0	Pole + Reinf.	TP44.78x44.023x0.7	Reinf. 3 Bolt Shear	75.8%	Pass
			Summary		
			Pole	70.9%	Pass
			Reinforcement	81.8%	Pass
			Overall	81.8%	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
151 - 146	552	n/a	552	12.88	n/a	12.88	8.0%									
146 - 141	641	n/a	641	13.53	n/a	13.53	17.2%									
141 - 136	740	n/a	740	14.19	n/a	14.19	28.1%									
136 - 131	847	n/a	847	14.85	n/a	14.85	39.6%									
131 - 126	965	n/a	965	15.51	n/a	15.51	52.2%									
126 - 121	1093	n/a	1093	16.17	n/a	16.17	64.4%									
121 - 118.5	1161	n/a	1161	16.50	n/a	16.50	70.9%									
118.5 - 118.25	1168	1402	2571	16.53	18.00	34.53	31.5%									47.2%
118.25 - 113.25	1313	1508	2822	17.19	18.00	35.19	37.7%									54.2%
113.25 - 108.25	1470	1618	3088	17.84	18.00	35.84	43.7%									61.6%
108.25 - 103.25	1639	1732	3371	18.50	18.00	36.50	49.5%									68.5%
103.25 - 100.95	1720	1786	3506	18.81	18.00	36.81	52.1%									71.5%
100.95 - 95.95	2568	1848	4416	27.26	18.00	45.26	41.9%									65.9%
95.95 - 95	2618	1870	4489	27.44	18.00	45.44	42.6%									66.8%
95 - 94.75	2631	3753	6384	27.48	36.00	63.48	30.2%								47.4%	47.4%
94.75 - 92.5	2753	3861	6614	27.90	36.00	63.90	31.4%								49.0%	49.0%
92.5 - 92.25	2767	1936	4704	27.95	18.00	45.95	44.5%								69.4%	
92.25 - 87.75	3023	2047	5070	28.78	18.00	46.78	47.5%								73.3%	
87.75 - 87.5	3038	4887	7924	28.83	42.38	71.20	30.7%							46.7%	47.3%	
87.5 - 84	3248	5095	8343	29.48	42.38	71.85	32.3%							48.8%	49.4%	
84 - 83.75	3263	2963	6226	29.53	24.38	53.90	43.6%							65.8%		
83.75 - 78.75	3581	3140	6721	30.46	24.38	54.83	46.4%							69.3%		
78.75 - 73.75	3919	3322	7241	31.38	24.38	55.76	49.2%							72.5%		
73.75 - 68.75	4277	3509	7786	32.31	24.38	56.69	51.9%							75.5%		
68.75 - 64.75	4579	3663	8242	33.06	24.38	57.43	53.9%							77.7%		
64.75 - 64.5	4598	7345	11943	33.10	48.75	81.85	37.5%						53.9%	53.9%		
64.5 - 63.25	4696	7442	12138	33.33	48.75	82.08	38.0%						54.5%	54.5%		
63.25 - 63	4716	3731	8447	33.38	24.38	57.76	54.8%						78.7%			
63 - 58	5120	3930	9050	34.31	24.38	58.69	57.3%						81.2%			
58 - 56.75	5225	3980	9205	34.54	24.38	58.92	57.9%						81.8%			
56.75 - 56.5	5246	9248	14494	34.59	56.25	90.84	37.0%					51.6%	52.3%			
56.5 - 55.25	5352	9365	14718	34.82	56.25	91.07	37.5%					50.2%	52.7%			
55.25 - 55	5374	5338	10712	34.87	31.88	66.74	51.8%					69.3%				
55 - 52.05	5631	5496	11128	35.42	31.88	67.29	53.1%					70.6%				
52.05 - 47.05	6907	5591	12498	42.81	31.88	74.69	47.6%					67.7%				
47.05 - 42.05	7474	5874	13349	43.95	31.88	75.83	49.2%					69.3%				
42.05 - 37.05	8071	6165	14236	45.09	31.88	76.97	50.8%					70.8%				
37.05 - 34.95	8331	6289	14620	45.57	31.88	77.45	51.4%					71.4%				
34.95 - 34.7	8363	12608	20970	45.63	63.75	109.38	36.0%				51.8%	50.0%				
34.7 - 34.25	8419	12661	21081	45.73	63.75	109.48	36.1%				50.1%	51.9%				
34.25 - 34	8451	6346	14796	45.79	31.88	77.66	51.7%				71.7%					
34 - 29	9098	6648	15746	46.93	31.88	78.80	53.2%				73.0%					
29 - 26.75	9400	6786	16186	47.44	31.88	79.32	53.9%				73.5%					
26.75 - 26.5	9434	13603	23036	47.50	63.75	111.25	38.0%		53.8%	53.8%	51.9%					
26.5 - 25.25	9605	13758	23362	47.78	63.75	111.53	38.3%		52.2%	52.2%	54.1%					
25.25 - 25	9639	6894	16533	47.84	31.88	79.71	54.4%		74.0%	74.0%						
25 - 20	10345	7209	17554	48.98	31.88	80.86	55.8%		75.1%	75.1%						
20 - 16.75	10822	7418	18240	49.72	31.88	81.60	56.7%		75.8%	75.8%						
16.75 - 16.5	11042	10621	21663	49.78	53.13	102.90	52.3%	53.8%	47.4%	69.7%						
16.5 - 14.25	11385	10831	22216	50.29	53.13	103.42	52.9%	52.4%	49.5%	70.2%						
14.25 - 14	11291	9973	21264	50.35	42.50	92.85	54.4%	63.2%		70.6%						
14 - 9	12075	10408	22483	51.49	42.50	93.99	55.7%	64.2%		71.6%						
9 - 4	12893	10853	23746	52.63	42.50	95.13	57.0%	65.1%		72.5%						
4 - 0	13574	11216	24790	53.54	42.50	96.04	58.0%	68.1%		75.8%						

Note: Section capacity checked using 5 degree increments.

Rating per TIA-222-H Section 15.5.

Monopole Base Plate Connection

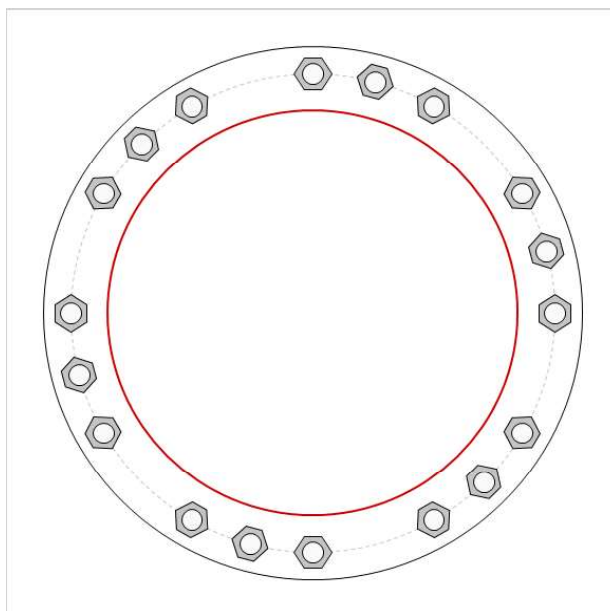


Site Info	
BU #	841295
Site Name	BETHANY
Order #	534543 Rev. 0

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

Applied Loads	
Moment (kip-ft)	3325.17
Axial Force (kips)	55.25
Shear Force (kips)	29.56

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
GROUP 1: (12) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 52.75" BC		GROUP 1:	
GROUP 2: (6) 2-1/4" ϕ bolts (Williams All-Thread Bar N; $F_y=127.7$ ksi, $F_u=125$ ksi) on 52.75" BC		$Pu_c = 159.39$	$\phi Pn_c = 268.39$ Stress Rating
		$Vu = 2.46$	$\phi Vn = 120.77$ 56.6%
		$Mu = n/a$	$\phi Mn = n/a$ Pass
Base Plate Data		GROUP 2:	
58.75" OD x 3" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)		$Pu_c = 194.31$	$\phi Pn_c = 468.91$ Stress Rating
Stiffener Data		$Vu = 0$	$\phi Vn = 211.01$ 39.5%
N/A		$Mu = n/a$	$\phi Mn = n/a$ Pass
Pole Data		Base Plate Summary	
44.78" x 0.7" 12-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)		Max Stress (ksi):	15.16 (Flexural)
		Allowable Stress (ksi):	54
		Stress Rating:	26.7% Pass

CCIplate

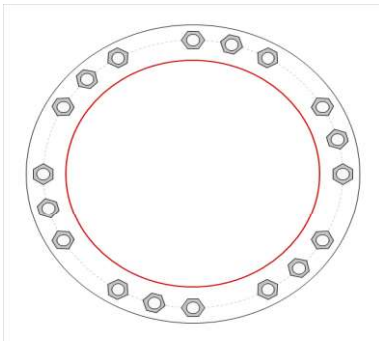
Elevation (ft) 0 (Base)

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

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

Custom Bolt Connection										
Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η	l_{ar} (in)	Thread Type	Area Override, in ²	Tension Only
1	1	0	2.25	A615-75	52.75	0.5	1.75	N-Included		No
2	1	30	2.25	A615-75	52.75	0.5	1.75	N-Included		No
3	1	60	2.25	A615-75	52.75	0.5	1.75	N-Included		No
4	1	90	2.25	A615-75	52.75	0.5	1.75	N-Included		No
5	1	120	2.25	A615-75	52.75	0.5	1.75	N-Included		No
6	1	150	2.25	A615-75	52.75	0.5	1.75	N-Included		No
7	1	180	2.25	A615-75	52.75	0.5	1.75	N-Included		No
8	1	210	2.25	A615-75	52.75	0.5	1.75	N-Included		No
9	1	240	2.25	A615-75	52.75	0.5	1.75	N-Included		No
10	1	270	2.25	A615-75	52.75	0.5	1.75	N-Included		No
11	1	300	2.25	A615-75	52.75	0.5	1.75	N-Included		No
12	1	330	2.25	A615-75	52.75	0.5	1.75	N-Included		No
13	2	15	2.25	liams All-Thread	52.75	0.5	0	N-Included	4.08	No
14	2	75	2.25	liams All-Thread	52.75	0.5	0	N-Included	4.08	No
15	2	135	2.25	liams All-Thread	52.75	0.5	0	N-Included	4.08	No
16	2	195	2.25	liams All-Thread	52.75	0.5	0	N-Included	4.08	No
17	2	255	2.25	liams All-Thread	52.75	0.5	0	N-Included	4.08	No
18	2	315	2.25	liams All-Thread	52.75	0.5	0	N-Included	4.08	No

Plot Graphic



Pier and Pad Foundation



BU #: 841295
 Site Name: BETHANY
 App. Number: 534543 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	55.26	kips
Base Shear, V_{u_comp} :	29.54	kips
Moment, M_u :	3325.17	ft-kips
Tower Height, H :	151	ft
BP Dist. Above Fdn, bp_{dist} :	4	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	6	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	11	
Pier Rebar Quantity, mc :	36	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	9	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	7.5	ft
Pad Width, W_1 :	22	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Top dir. 2), Sp_{top2} :	7	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	24	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	7	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	24	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	130	pcf
Ultimate Gross Bearing, Q_{ult} :	30.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	40	degrees
SPT Blow Count, N_{blows} :	69	
Base Friction, μ :	0.5	
Neglected Depth, N :	3.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	3.3	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	297.22	29.54	9.5%	Pass
Bearing Pressure (ksf)	22.50	3.27	14.5%	Pass
Overturing (kip*ft)	4928.56	3571.34	72.5%	Pass
Pier Flexure (Comp.) (kip*ft)	6892.07	3472.87	48.0%	Pass
Pier Compression (kip)	17184.96	84.43	0.5%	Pass
Pad Flexure (kip*ft)	2011.77	1931.19	91.4%	Pass
Pad Shear - 1-way (kips)	687.30	301.46	41.8%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	0.0%	Pass
Flexural 2-way (Comp) (kip*ft)	2700.20	2083.72	73.5%	Pass

*Rating per TIA-222-H Section 15.5

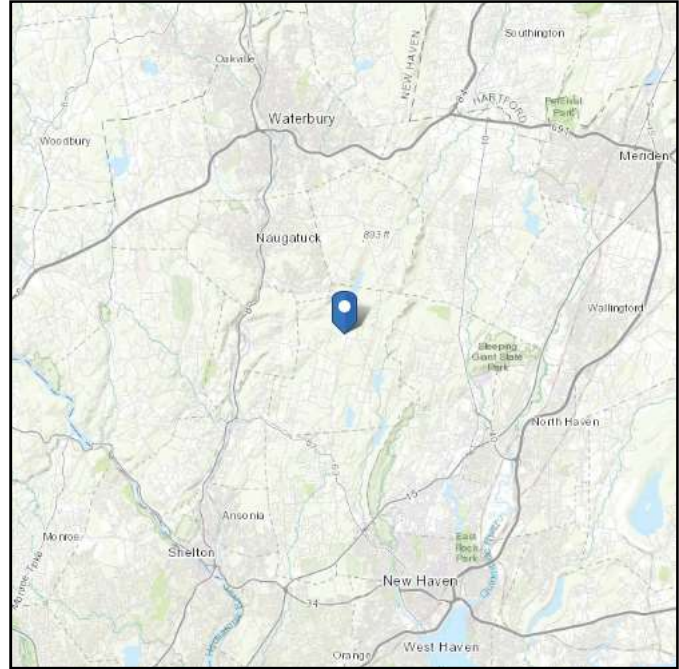
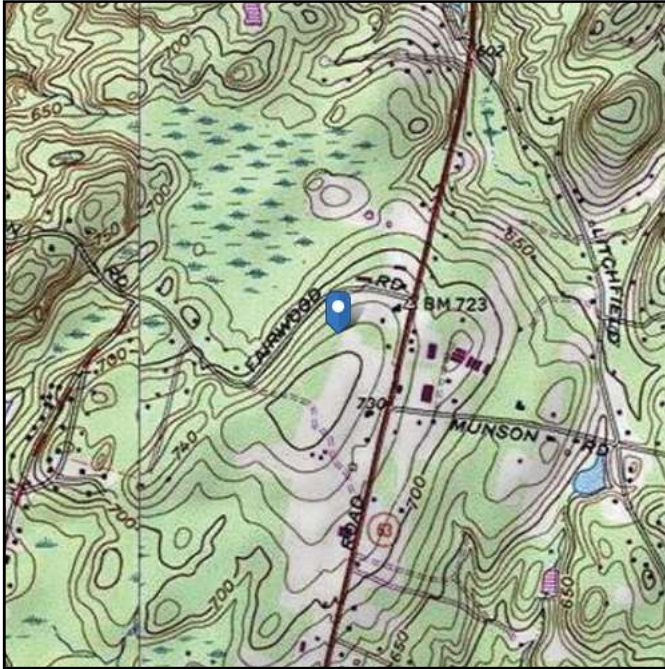
Soil Rating*:	72.5%
Structural Rating*:	91.4%

<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:

No Address at This
Location

Standard: ASCE/SEI 7-10**Risk Category:** II**Soil Class:** D - Stiff Soil**Elevation:** 741.6 ft (NAVD 88)**Latitude:** 41.442758**Longitude:** -72.992461

Wind

Results:

Wind Speed:	125 Vmph	*wind speed per jurisdiction specific requirements
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	93 Vmph	
100-year MRI	99 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 Nov 04 2020

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.

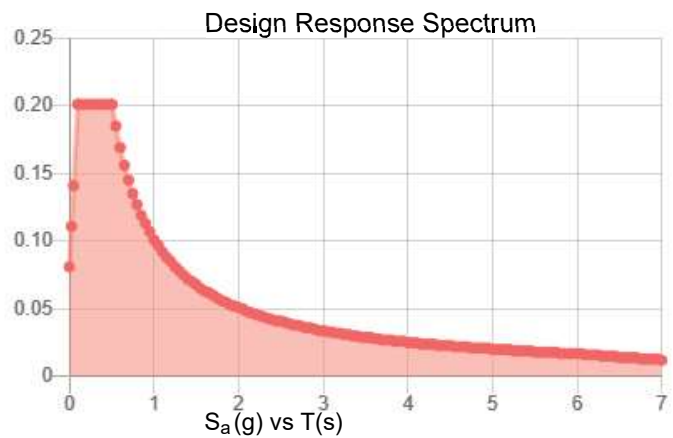
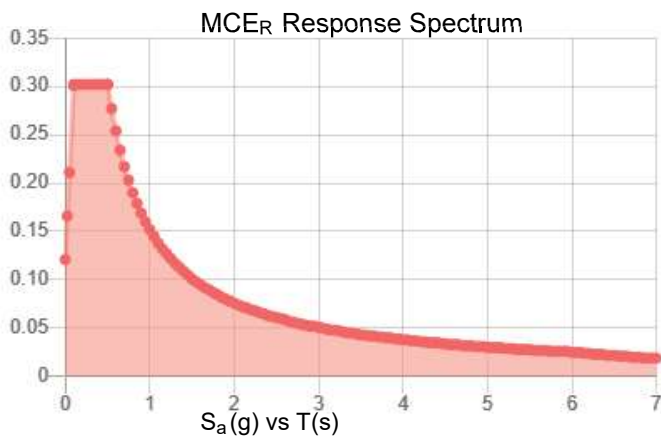
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.189	S_{DS} :	0.201
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.098
S_{MS} :	0.302	PGA_M :	0.158
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Wed Nov 04 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: Wed Nov 04 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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Exhibit E

Mount Analysis

Date: **November 30, 2020**

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6619

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject: Mount Analysis Report

Carrier Designation: Metro PCS L600
Carrier Site Number: CTNH516A
Carrier Site Name: AT&T Bethany Monopole

Crown Castle Designation: Crown Castle BU Number: 841295
Crown Castle Site Name: BETHANY
Crown Castle JDE Job Number: 624639
Crown Castle Order Number: 534543 Rev.0

Engineering Firm Designation: Infinigy Engineering, PLLC Report Designation: 1039-Z0001-B

Site Data: 719 Amity Road, Bethany, New Haven County, CT, 06524
Latitude 41°26'33.93" Longitude -72°59'32.86"

Structure Information: Tower Height & Type: 151.0 ft Monopole
Mount Elevation: 122.0 ft
Mount Type: 4.8 ft T-Arm

Dear Darcy Tarr,

Infinigy Engineering, PLLC is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of Metro PCS's 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 for fall protection or rigging is not part of this document.

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

T-Arm

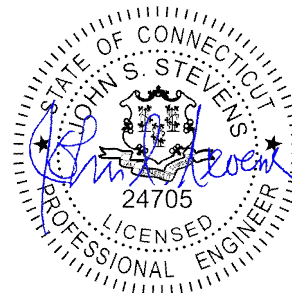
Sufficient

***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

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

Mount analysis prepared by: Alex Mercado, E.I.T.

Respectfully Submitted by:
John S. Stevens, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. PEN.0024705



11-30-2020

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Additional Calculations

1) INTRODUCTION

This is an existing 3 sector 4.8 ft T-Arm, mapped by Pier Structural Engineering.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 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
Seismic S_s:	0.189
Seismic S_1:	0.063
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
122.0	123.0	3	ERICSSON	ERICSSON AIR 21 B4A B2P	4.8 ft T-Arm / Installation of (1) 8' 2.0 STD mount pipe per sector
	122.0	3	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4449 B71 B85A_T-MOBILE	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Metro PCS Application	534543 Rev.0	CCI Sites
Mount Mapping Documents	Pier Structural Engineering	8339464	CCI Sites
Mount Modification Drawings	MasTec	8487364	CCI Sites
Loading Documents	Metro PCS	RFDS Version 3	TSA

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.4, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

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

3.2) Assumptions

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

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (T-Arm, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3	Mount Pipe(s)	MP3	122.0	73.0	Pass
	Horizontal(s)	HOR1		29.8	Pass
	Standoff(s)	SA1		36.7	Pass
	Pipe Reinforcement(s)	M34		26.3	Pass
	Mount Connection(s)	--		8.6	Pass

Structure Rating (max from all components) =	73.0%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D – Additional Calculations" for detailed mount connection calculations.
- 3) All sectors are typical

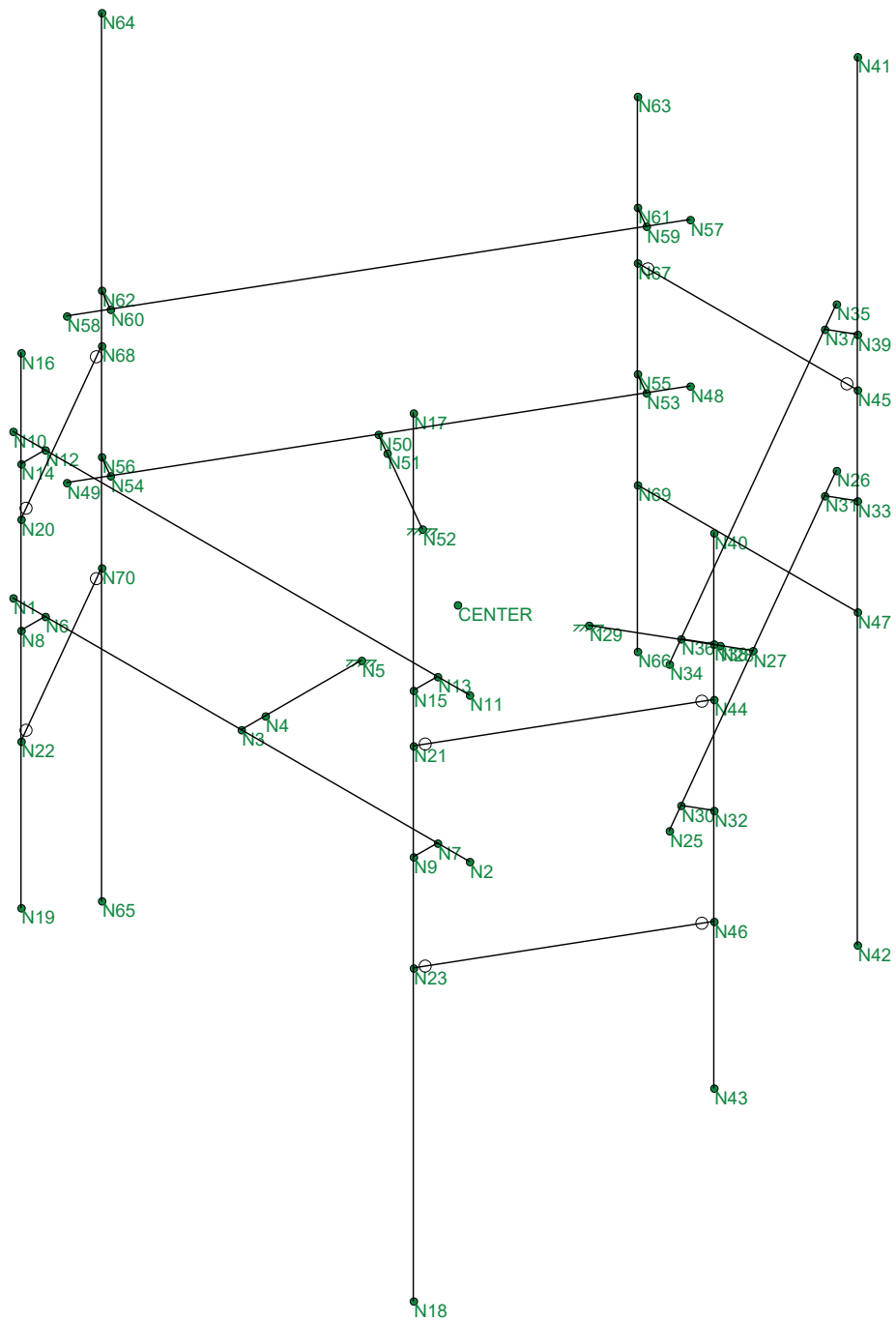
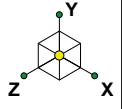
4.1) Recommendations

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

1. Installation of proposed reinforcements as shown in Document ID: 8487364 performed by MasTec referenced in Table 2

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

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Infinigy Engineering

AM

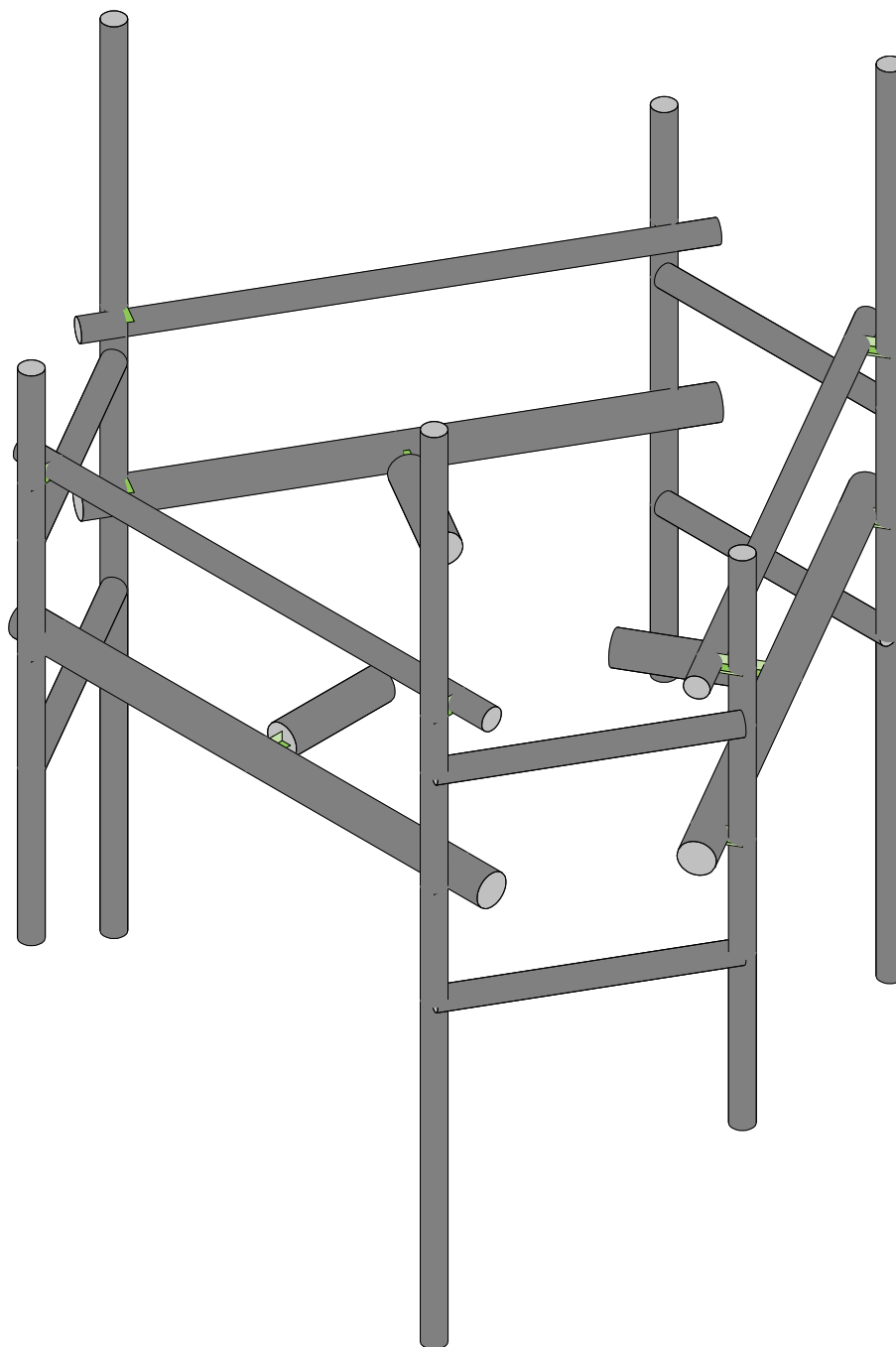
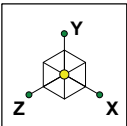
1039-Z0001-B

841295

Wireframe

Nov 24, 2020 at 9:16 AM

841295_loaded.r3d



Infinigy Engineering	841295	Rendered
AM		Nov 24, 2020 at 9:17 AM
1039-Z0001-B		841295_loaded.r3d

APPENDIX B
SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION		
Client:	Crown Castle	
Carrier:	Metro PCS	
Engineer:	Alex Mercado	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil	
Ground Elevation:	741.6	ft *Rev H

MOUNT INFORMATION		
Mount Type:	T-Arm (Multiple)	
Num Sectors:	3	
Centerline AGL:	122.0	ft
Tower Height AGL:	151.0	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.95	
Ground Ele. Factor (K_e):	0.97	*Rev H Only
Rooftop Speed-Up (K_s):	1.00	*Rev H Only
Topographic Factor (K_{zt}):	1.00	
Gust Effect Factor (G_h):	1.0	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

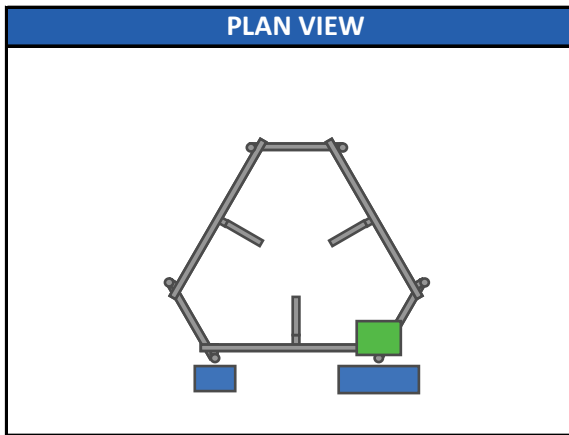
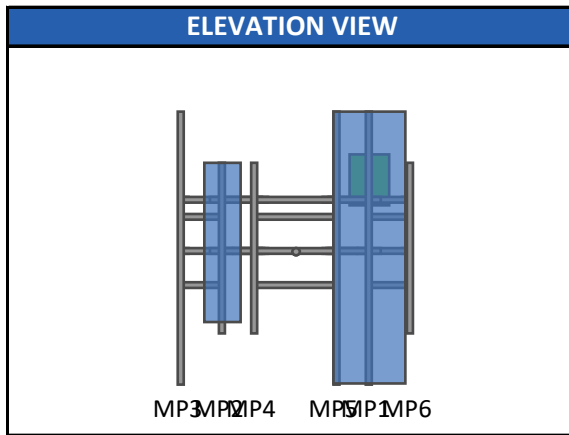
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	77.39	psf
Round Pressure:	46.43	psf
Ice Wind Pressure:	7.43	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.19	g
1-Second Accel. (S_1):	0.06	g
Short-Period Design (S_{DS}):	0.20	
1-Second Design (S_{D1}):	0.10	
Short-Period Coeff. (F_a):	1.60	
1-Second Coeff. (F_v):	2.40	
Amplification Factor (a_p):	1.00	
Response Mod. (R_p):	2.50	
Overstrength (Ω_o):	1.00	



Infinigy Load Calculator V2.1.4

Program Inputs

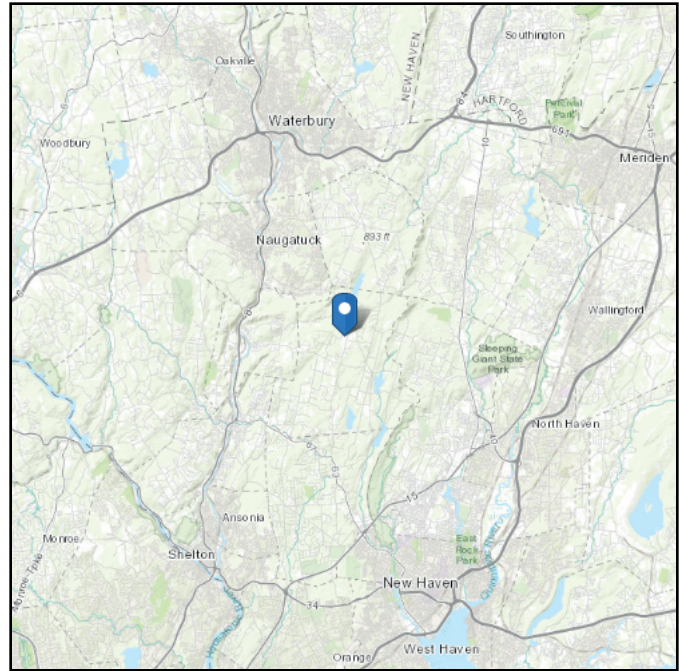
[illegible]

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 741.6 ft (NAVD 88)
Latitude: 41.44276
Longitude: -72.99246



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	93 Vmph
100-year MRI	99 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: Mon Nov 23 2020

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.

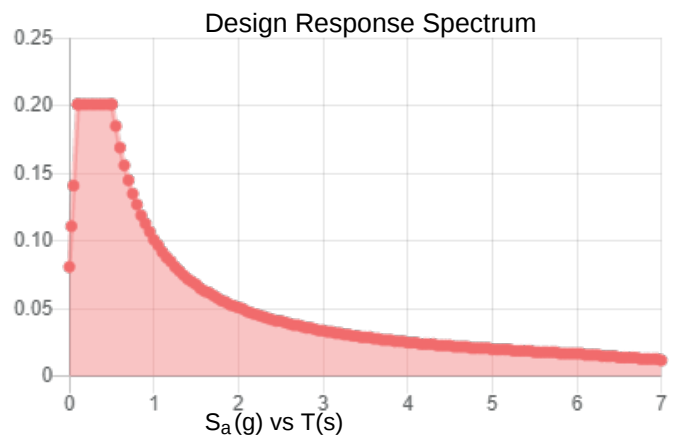
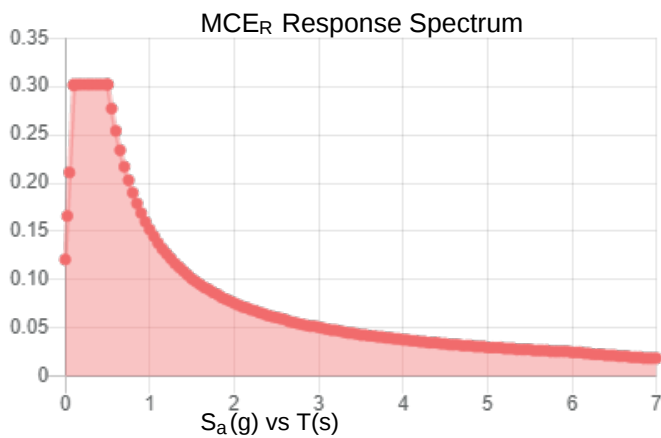
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.189	S_{DS} :	0.201
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.098
S_{MS} :	0.302	PGA _M :	0.158
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Nov 23 2020

Date Source:

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

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Mon Nov 23 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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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APPENDIX C
SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	SA1	N5	N4			Standoff	Beam	Pipe	A53 Gr.B	Typical
2	MP2	N16	N19			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
3	MP1	N17	N18			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
4	HOR1	N1	N2			Horizontal	Beam	Pipe	A53 Gr.B	Typical
5	M5	N6	N8			RIGID	None	None	RIGID	Typical
6	M6	N7	N9			RIGID	None	None	RIGID	Typical
7	M7	N4	N3			RIGID	None	None	RIGID	Typical
8	HR1	N10	N11			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
9	M9	N12	N14			RIGID	None	None	RIGID	Typical
10	M10	N13	N15			RIGID	None	None	RIGID	Typical
11	SA3	N29	N28			Standoff	Beam	Pipe	A53 Gr.B	Typical
12	MP6	N40	N43			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
13	MP5	N41	N42			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
14	HOR3	N25	N26			Horizontal	Beam	Pipe	A53 Gr.B	Typical
15	M15	N30	N32			RIGID	None	None	RIGID	Typical
16	M16	N31	N33			RIGID	None	None	RIGID	Typical
17	M17	N28	N27			RIGID	None	None	RIGID	Typical
18	HR3	N34	N35			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
19	M19	N36	N38			RIGID	None	None	RIGID	Typical
20	M20	N37	N39			RIGID	None	None	RIGID	Typical
21	SA2	N52	N51			Standoff	Beam	Pipe	A53 Gr.B	Typical
22	MP4	N63	N66			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
23	MP3	N64	N65			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
24	HOR2	N48	N49			Horizontal	Beam	Pipe	A53 Gr.B	Typical
25	M25	N53	N55			RIGID	None	None	RIGID	Typical
26	M26	N54	N56			RIGID	None	None	RIGID	Typical
27	M27	N51	N50			RIGID	None	None	RIGID	Typical
28	HR2	N57	N58			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
29	M29	N59	N61			RIGID	None	None	RIGID	Typical
30	M30	N60	N62			RIGID	None	None	RIGID	Typical
31	M31	N20	N68			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
32	M32	N22	N70			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
33	M33	N67	N45			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
34	M34	N69	N47			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
35	M35	N44	N21			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical
36	M36	N46	N23			Pipe Reinforce...	Beam	Pipe	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		15	45	0
3	Total General		15	45	0
4					
5	Hot Rolled Steel				
6	A53 Gr.B	PIPE 2.0	15	803.8	.232
7	A53 Gr.B	PIPE 3.0	6	207	.122
8	Total HR Steel		21	1010.8	.354

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
1	Self Weight	DL		-1			15			
2	Wind Load AZI 0	WLZ					30			
3	Wind Load AZI 30	None					30			

Basic Load Cases (Continued)

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(Plate/Wall)
4 Wind Load AZI 60	None					30			
5 Wind Load AZI 90	WLX					30			
6 Wind Load AZI 120	None					30			
7 Wind Load AZI 150	None					30			
8 Wind Load AZI 180	None					30			
9 Wind Load AZI 210	None					30			
10 Wind Load AZI 240	None					30			
11 Wind Load AZI 270	None					30			
12 Wind Load AZI 300	None					30			
13 Wind Load AZI 330	None					30			
14 Distr. Wind Load Z	WLZ						36		
15 Distr. Wind Load X	WLX						36		
16 Ice Weight	OL1					15	36		
17 Ice Wind Load AZI ...	OL2					30			
18 Ice Wind Load AZI ...	None					30			
19 Ice Wind Load AZI ...	None					30			
20 Ice Wind Load AZI ...	OL3					30			
21 Ice Wind Load AZI ...	None					30			
22 Ice Wind Load AZI ...	None					30			
23 Ice Wind Load AZI ...	None					30			
24 Ice Wind Load AZI ...	None					30			
25 Ice Wind Load AZI ...	None					30			
26 Ice Wind Load AZI ...	None					30			
27 Ice Wind Load AZI ...	None					30			
28 Ice Wind Load AZI ...	None					30			
29 Distr. Ice Wind Loa...	OL2						36		
30 Distr. Ice Wind Loa...	OL3						36		
31 Seismic Load Z	ELZ			-.101		15			
32 Seismic Load X	ELX	-.101				15			
33 Service Live Loads	LL				1				
34 Maintenance Load 1	LL				1				
35 Maintenance Load 2	LL				1				
36 Maintenance Load 3	LL				1				
37 Maintenance Load 4	LL				1				
38 Maintenance Load 5	LL				1				
39 Maintenance Load 6	LL				1				

Load Combinations

Description	Solve	PDelta	SRSS	BLC	Factor	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
1 1.4DL	Yes	Y		1	1.4															
2 1.2DL + 1WL AZI 0	Yes	Y		1	1.2	2	1	14	1	15										
3 1.2DL + 1WL AZI 30	Yes	Y		1	1.2	3	1	14	.866	15	.5									
4 1.2DL + 1WL AZI 60	Yes	Y		1	1.2	4	1	14	.5	15	.866									
5 1.2DL + 1WL AZI 90	Yes	Y		1	1.2	5	1	14		15	1									
6 1.2DL + 1WL AZI 120	Yes	Y		1	1.2	6	1	14	-.5	15	.866									
7 1.2DL + 1WL AZI 150	Yes	Y		1	1.2	7	1	14	-.8...	15	.5									
8 1.2DL + 1WL AZI 180	Yes	Y		1	1.2	8	1	14	-.1	15										
9 1.2DL + 1WL AZI 210	Yes	Y		1	1.2	9	1	14	-.8...	15	-.5									
10 1.2DL + 1WL AZI 240	Yes	Y		1	1.2	10	1	14	-.5	15	-.8...									
11 1.2DL + 1WL AZI 270	Yes	Y		1	1.2	11	1	14		15	-.1									
12 1.2DL + 1WL AZI 300	Yes	Y		1	1.2	12	1	14	.5	15	-.8...									
13 1.2DL + 1WL AZI 330	Yes	Y		1	1.2	13	1	14	.866	15	-.5									
14 0.9DL + 1WL AZI 0	Yes	Y		1	.9	2	1	14	1	15										
15 0.9DL + 1WL AZI 30	Yes	Y		1	.9	3	1	14	.866	15	.5									
16 0.9DL + 1WL AZI 60	Yes	Y		1	.9	4	1	14	.5	15	.866									

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	5	1	14	15	1								
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	6	1	14	15	.866								
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	7	1	14	15	.5								
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	8	1	14	15									
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	9	1	14	15	-.5								
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	10	1	14	15	-.866								
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	11	1	14	15	-1								
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	12	1	14	15	-.866								
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	13	1	14	15	-.5								
26	1.2D + 1.0Di	Yes	Y		1	1.2	16	1											
27	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	17	1	29	1	30						
28	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5					
29	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866					
30	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	20	1	29		30	1					
31	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866					
32	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	22	1	29	-.866	30	.5					
33	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	23	1	29	-1	30						
34	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	24	1	29	-.866	30	-.5					
35	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.866					
36	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	26	1	29		30	-1					
37	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.866					
38	1.2D + 1.0Di + 1.0Wi A...	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5					
39	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	1	32										
40	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	.866	32	.5									
41	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	.5	32	.866									
42	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31		32	1									
43	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	-.5	32	.866									
44	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	-.866	32	.5									
45	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	-1	32										
46	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	-.866	32	-.5									
47	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	-.5	32	-.866									
48	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31		32	-1									
49	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	.5	32	-.866									
50	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.24	31	.866	32	-.5									
51	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	1	32										
52	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	.866	32	.5									
53	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	.5	32	.866									
54	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31		32	1									
55	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	-.5	32	.866									
56	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	-.866	32	.5									
57	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	-1	32										
58	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	-.866	32	-.5									
59	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	-.5	32	-.866									
60	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31		32	-1									
61	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	.5	32	-.866									
62	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.86	31	.866	32	-.5									
63	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	2	.23	14	.23	15		33	1.5					
64	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	3	.23	14	.2	15	.115	33	1.5					
65	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	4	.23	14	.115	15	.2	33	1.5					
66	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	5	.23	14		15	.23	33	1.5					
67	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	6	.23	14	-.1	15	.2	33	1.5					
68	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	7	.23	14	-.2	15	.115	33	1.5					
69	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	8	.23	14	-.23	15		33	1.5					
70	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	9	.23	14	-.2	15	-.1	33	1.5					
71	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	10	.23	14	-.1	15	-.2	33	1.5					
72	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	11	.23	14		15	-.23	33	1.5					
73	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	12	.23	14	.115	15	-.2	33	1.5					

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...
74	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	13	.23	14	.2	15	-.1...	33	1.5		
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5								
76	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	2	.058	14	.058	15			
77	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	3	.058	14	.05	15	.029		
78	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	4	.058	14	.029	15	.05		
79	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	5	.058	14		15	.058		
80	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	6	.058	14	-.0...	15	.05		
81	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	7	.058	14	-.05	15	.029		
82	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	8	.058	14	-.0...	15			
83	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	9	.058	14	-.05	15	-.0...		
84	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	10	.058	14	-.0...	15	-.05		
85	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	11	.058	14		15	-.0...		
86	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	12	.058	14	.029	15	-.05		
87	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	13	.058	14	.05	15	-.0...		
88	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	2	.058	14	.058	15			
89	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	3	.058	14	.05	15	.029		
90	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	4	.058	14	.029	15	.05		
91	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	5	.058	14		15	.058		
92	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	6	.058	14	-.0...	15	.05		
93	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	7	.058	14	-.05	15	.029		
94	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	8	.058	14	-.0...	15			
95	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	9	.058	14	-.05	15	-.0...		
96	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	10	.058	14	-.0...	15	-.05		
97	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	11	.058	14		15	-.0...		
98	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	12	.058	14	.029	15	-.05		
99	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	13	.058	14	.05	15	-.0...		
100	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	2	.058	14	.058	15			
101	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	3	.058	14	.05	15	.029		
102	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	4	.058	14	.029	15	.05		
103	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	5	.058	14		15	.058		
104	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	6	.058	14	-.0...	15	.05		
105	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	7	.058	14	-.05	15	.029		
106	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	8	.058	14	-.0...	15			
107	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	9	.058	14	-.05	15	-.0...		
108	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	10	.058	14	-.0...	15	-.05		
109	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	11	.058	14		15	-.0...		
110	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	12	.058	14	.029	15	-.05		
111	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	13	.058	14	.05	15	-.0...		
112	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	2	.058	14	.058	15			
113	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	3	.058	14	.05	15	.029		
114	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	4	.058	14	.029	15	.05		
115	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	5	.058	14		15	.058		
116	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	6	.058	14	-.0...	15	.05		
117	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	7	.058	14	-.05	15	.029		
118	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	8	.058	14	-.0...	15			
119	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	9	.058	14	-.05	15	-.0...		
120	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	10	.058	14	-.0...	15	-.05		
121	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	11	.058	14		15	-.0...		
122	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	12	.058	14	.029	15	-.05		
123	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	13	.058	14	.05	15	-.0...		
124	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	2	.058	14	.058	15			
125	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	3	.058	14	.05	15	.029		
126	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	4	.058	14	.029	15	.05		
127	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	5	.058	14		15	.058		
128	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	6	.058	14	-.0...	15	.05		
129	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	7	.058	14	-.05	15	.029		
130	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	8	.058	14	-.0...	15			

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...
131	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	9	.058	14	-.05	15	-.0...			
132	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	10	.058	14	-.0...	15	-.05			
133	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	11	.058	14		15	-.0...			
134	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	12	.058	14	.029	15	-.05			
135	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	13	.058	14	.05	15	-.0...			
136	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	2	.058	14	.058	15				
137	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	3	.058	14	.05	15	.029			
138	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	4	.058	14	.029	15	.05			
139	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	5	.058	14		15	.058			
140	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	6	.058	14	-.0...	15	.05			
141	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	7	.058	14	-.05	15	.029			
142	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	8	.058	14	-.0...	15				
143	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	9	.058	14	-.05	15	-.0...			
144	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	10	.058	14	-.0...	15	-.05			
145	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	11	.058	14		15	-.0...			
146	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	12	.058	14	.029	15	-.05			

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N5	max	782.727	4	1438.162	38	1232.84	3	-309.219	135	1157.718	4	1421.554	86
2		min	-778.343	22	371.891	56	-1150.704	21	-1567.178	32	-1141.494	22	-929.211	92
3	N29	max	922.182	5	1323.597	139	1110.02	14	1670.012	126	1137.626	8	1732.016	145
4		min	-851.317	23	181.117	23	-1133.608	8	-91.266	22	-1128.339	14	-13.984	17
5	N52	max	1331.412	17	1591.099	36	687.115	14	1424.581	122	998.844	12	-155.436	24
6		min	-1405.756	11	246.665	17	-746.688	8	-316.626	18	-993.8	18	-1899.177	104
7	Totals:	max	2883.227	5	4313.868	34	2919.741	14						
8		min	-2883.226	23	1115.703	51	-2919.742	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	Eqn
1	MP3	PIPE_...	.730	48	10	.070	36		10	1491...	32130	1871...	1871...	H1-...
2	MP1	PIPE_...	.705	48	2	.067	36		2	1491...	32130	1871...	1871...	H1-...
3	MP5	PIPE_...	.655	48	6	.157	48		6	1491...	32130	1871...	1871...	H1-...
4	SA1	PIPE_...	.367	0	86	.343	0		86	6485...	65205	5748...	5748...	H3-6
5	MP4	PIPE_...	.350	30	10	.178	30		6	2380...	32130	1871...	1871...	H1-...
6	SA2	PIPE_...	.347	0	104	.298	0		104	6485...	65205	5748...	5748...	H3-6
7	MP6	PIPE_...	.339	30	6	.128	30		13	2380...	32130	1871...	1871...	H1-...
8	MP2	PIPE_...	.329	30	2	.135	30		9	2380...	32130	1871...	1871...	H1-...
9	SA3	PIPE_...	.320	0	127	.271	0		127	6485...	65205	5748...	5748...	H3-6
10	HOR1	PIPE_...	.298	28.5	85	.090	28.5		87	5778...	65205	5748...	5748...	H1-...
11	HOR2	PIPE_...	.297	28.5	105	.111	28.5		108	5778...	65205	5748...	5748...	H1-...
12	M34	PIPE_...	.263	27.462	12	.131	0		7	3017...	32130	1871...	1871...	H1-...
13	HOR3	PIPE_...	.258	28.5	144	.091	28.5		139	5778...	65205	5748...	5748...	H1-...
14	HR2	PIPE_...	.204	52.844	12	.120	4.156		10	2451...	32130	1871...	1871...	H1-...
15	HR1	PIPE_...	.202	52.844	4	.128	4.156		2	2451...	32130	1871...	1871...	H1-...
16	HR3	PIPE_...	.198	52.844	8	.129	4.156		6	2451...	32130	1871...	1871...	H1-...
17	M32	PIPE_...	.011	0	9	.127	0		11	3017...	32130	1871...	1871...	H1-...
18	M36	PIPE_...	.010	0	13	.140	27.462		3	3017...	32130	1871...	1871...	H1-...
19	M31	PIPE_...	.008	13.731	29	.127	0		4	3017...	32130	1871...	1871...	H1-...
20	M33	PIPE_...	.008	13.731	37	.104	0		12	3017...	32130	1871...	1871...	H1-...
21	M35	PIPE_...	.007	13.731	29	.111	27.462		8	3017...	32130	1871...	1871...	H1-...

APPENDIX D
ADDITIONAL CALCUATIONS

Bolt Calculation Tool, V1.4

PROJECT DATA	
Site Name:	BETHANY
Site Number:	841295
Job Code:	1039-Z0001-B
Connection Description:	T-Arm to Tower

APPLIED LOADS		
Bolt Tension:	1754.33	lbs
Bolt Shear:	539.60	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Tensile Usage	8.6%	
Shear Usage	3.9%	
Interaction Check	0.01	≤1.05
Result	Pass	

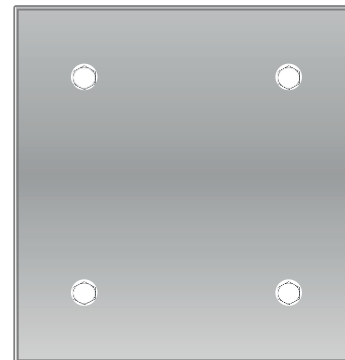


Exhibit F

Power Density/RF Emissions Report



EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH516A

AT&T Bethany Monopole
719 Amity Road
Bethany, Connecticut 06524

January 13, 2021

EBI Project Number: 6221000163

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	22.85%



January 13, 2021

T-Mobile

Attn: Jason Overbey, RF Manager

35 Griffin Road South

Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNH516A - AT&T Bethany Monopole

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **719 Amity Road in Bethany, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 719 Amity Road in Bethany, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated



- value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
 - 8) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
 - 9) The antenna mounting height centerline of the proposed antennas is 122 and 123 feet above ground level (AGL).
 - 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
 - 11) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd
Height (AGL):	122 feet	Height (AGL):	122 feet	Height (AGL):	122 feet
Channel Count:	7	Channel Count:	7	Channel Count:	7
Total TX Power (W):	260 Watts	Total TX Power (W):	260 Watts	Total TX Power (W):	260 Watts
ERP (W):	6,256.34	ERP (W):	6,256.34	ERP (W):	6,256.34
Antenna A1 MPE %:	2.89%	Antenna B1 MPE %:	2.89%	Antenna C1 MPE %:	2.89%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	123 feet	Height (AGL):	123 feet	Height (AGL):	123 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A2 MPE %:	0.98%	Antenna B2 MPE %:	0.98%	Antenna C2 MPE %:	0.98%



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Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	3.87%
Sprint	3.45%
Beth Fire Dept	0.04%
Beth Hwy Dept	0.07%
AT&T	1.86%
Verizon	13.56%
Site Total MPE % :	22.85%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	3.87%
T-Mobile Sector B Total:	3.87%
T-Mobile Sector C Total:	3.87%
Site Total MPE % :	22.85%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	122.0	2.86	600 MHz LTE	400	0.71%
T-Mobile 600 MHz NR	1	1577.94	122.0	3.81	600 MHz NR	400	0.95%
T-Mobile 700 MHz LTE	2	695.22	122.0	3.36	700 MHz LTE	467	0.72%
T-Mobile 1900 MHz UMTS	2	1052.26	122.0	5.08	1900 MHz UMTS	1000	0.51%
T-Mobile 2100 MHz LTE	2	2056.61	123.0	9.77	2100 MHz LTE	1000	0.98%
						Total:	3.87%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	3.87%
Sector B:	3.87%
Sector C:	3.87%
T-Mobile Maximum MPE % (Sector A):	3.87%
Site Total:	22.85%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **22.85%** 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.