



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

November 11th, 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# 842859; T-Mobile Site ID# CTHA714A
371 Terryville Avenue, Bristol, Ct. 06010
Latitude: 41.679919 / Longitude: -72.962550**

Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 158-foot mount on the existing 168.5-foot Monopole Tower located at 371 Terryville Avenue, Bristol, CT. The property is owned by Laviero Realty LLC and the Tower by Crown Castle. T-Mobile now intends to replace six (6) 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.

Planned Modifications:

Tower:

Remove and Replace:

(3) RFS APXVTM14-C-120 Antennas (**REMOVE**) – (3) RFS APXVAALL24_43-U-NA20 Antennas (**REPLACE**)

(3) RFS APXVSPP18-C-A20 Antennas (**REMOVE**) – (3) Ericsson AIR6449 B41 Antennas (**REPLACE**)

(3) Alcatel Lucent TD-RRH8X20-25 Radios (**REMOVE**) - (3) Ericsson 4480 B71+B85 RRU Radios (**REPLACE**)

(3) Alcatel Lucent 1900MHZ RRH Radios (**REMOVE**) - (3) Ericsson 4460 B25+B66 RRU Radios (**REPLACE**)

Remove:

(3) Alcatel Lucent 800 TMAs

Ground:

Install New:



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- (3) Hybrid Cables
- (1) 6160 Cabinet
- (1) RBS 6601 in 6160 cabinet
- (3) BB6648 in 6160 cabinet
- (1) DUG20 in 6160 cabinet
- (1) PSU 4813 in 6160 cabinet
- (1) IXRE V2 Router in 6160 cabinet
- (1) B160 Battery Cabinet

Remove:

- (1) BBU Cabinet
- (1) MMBTS Cabinet

The facility was approved by Connecticut Siting Council by way of a Certificate of Environmental Compatibility on October 14th, 2003.

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 Ellen Zoppo-Sassu, Mayor of the City of Bristol and Robert M. Flanagan, City Planner for the City of Bristol. A copy will also be sent to the property owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b)(2).



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Creve Coeur, MO 63141

Phone: (314) 513-0147
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Sincerely,

Colin Robinson

Colin Robinson
Project Manager
NETWORK BUILDING + CONSULTING
100 Apollo Drive Suite 303
Chelmsford, MA 01824
crobenson@nbcllc.com
(360) 561-3311

cc:

Ellen Zoppo-Sassu, Mayor (*Via Federal Express*)
Mayor's Office
3rd Floor
111 North Main St.
Bristol, CT 06010
860.584.6250

Robert M. Flanagan, City Planner (*Via Federal Express*)
Land Use Department
111 North Main St.
Bristol, CT 06010
(860) 584-6225

Laviero Realty LLC (*Via Federal Express*)
70 Maureen Dr
Bristol, CT 06010

Dear Customer,

The following is the proof-of-delivery for tracking number: 775183386114

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	T.CLERK	Delivery Location:	111 N MAIN ST
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		BRISTOL, CT, 06010
		Delivery date:	Nov 12, 2021 09:48

Shipping Information:

Tracking number:	775183386114	Ship Date:	Nov 11, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:
Ellen Zoppo-Sassu, Mayor's Office
111 North Main St.
3rd Floor
BRISTOL, CT, US, 06010

Shipper:
Colin Robinson, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100788 Bristol CT 842859



Thank you for choosing FedEx

Dear Customer,

The following is the proof-of-delivery for tracking number: 775183407436

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	T.CLERK	Delivery Location:	111 N MAIN ST
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		BRISTOL, CT, 06010
		Delivery date:	Nov 12, 2021 09:48

Shipping Information:

Tracking number:	775183407436	Ship Date:	Nov 11, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Robert M. Flanagan, Land Use Department
111 North Main St.
BRISTOL, CT, US, 06010

Shipper:
Colin Robinson, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100788 Bristol CT 842859



Thank you for choosing FedEx



November 12, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775183612408

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	Signature not required	Delivery Location:	70 MAUREEN DR
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday; Residential Delivery		BRISTOL, CT, 06010
		Delivery date:	Nov 12, 2021 10:00

Shipping Information:

Tracking number:	775183612408	Ship Date:	Nov 11, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Laviero Realty LLC,
70 Maureen Dr
BRISTOL, CT, US, 06010

Shipper:
Colin Robinson, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100788 Bristol CT 842859

Proof-of-delivery details appear below; however, no signature is available for this FedEx Express shipment because a signature was not required.

Thank you for choosing FedEx

Exhibit A

Original Facility Approval

Connecticut Siting Council^(/CSC)

[CT.gov Home](#) [./\(\)](#) [Connecticut Siting Council](#) [./CSC\)](#) DO 250 Bristol

[Decisions \(/CSC/Decisions/Decisions\)](#) >

[Meetings and Minutes \(/CSC/Common-Elements/v4-template/Council-Activity\)](#) >

[Pending Matters \(/CSC/1_Applications-and-Other-Pending-Matters/Pending-Matters\)](#) >

[About Us \(/CSC/Common-Elements/Common-Elements/Connecticut-Siting-Council---Description\)](#) >

[Contact Us \(/CSC/Common-Elements/Common-Elements/Contact-Us\)](#) >

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DOCKET NO. 250 - AT&T Wireless PCS, LLC d/b/a AT&T Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at 371 Terryville Avenue or 522 Terryville Avenue, Bristol, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	October 14, 2003

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 wireless telecommunications facility 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 AT&T Wireless PCS, LLC d/b/a AT&T Wireless (AT&T) for the construction, maintenance and operation of a wireless telecommunications facility at 371 Terryville Avenue (Site A), Bristol, Connecticut. The Council denies certification of Site B located at 522 Terryville Avenue, Bristol, 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 tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Sprint and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level.
2. The facility shall be relocated down gradient from the originally proposed Site A location, approximately 20 to 30 feet to the east onto a flat area.

3. The access road shall be relocated to use the existing driveway and parking lot on the property.
4. The Certificate Holder shall prepare a 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:
 - a. a final site plan(s) of site development to include specifications for the tower, tower location, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
 - b. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power densities of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
5. 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.
6. 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. The Certificate Holder shall provide space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function.
9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

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

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

AT&T Wireless PCS, LLC
d/b/a AT&T Wireless

Intervenor

Sprint Spectrum, L.P.
d/b/a Sprint PCS

Its Representative

Lucia Chiochio, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, NY 10601

Its Representative

Thomas J. Regan, Esquire
Brown Rudnick Berlack Israels LLP
CityPlace I, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402

Exhibit B

Property Card

TERRYVILLE AVE

Location TERRYVILLE AVE

Mblu 61 / 67-3 / /

Acct# 0272831

Owner LAVIERO REALTY LLC

Assessment \$150,290

Appraisal \$214,700

PID 101154

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$107,900	\$106,800	\$214,700

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$75,530	\$74,760	\$150,290

Owner of Record

Owner LAVIERO REALTY LLC

Sale Price \$0

Co-Owner

Certificate

Address 70 MAUREEN DR
BRISTOL, CT 06010

Book & Page 1564/0795

Sale Date 06/08/2004

Instrument 06

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
LAVIERO REALTY LLC	\$0		1564/0795	06	06/08/2004

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Replacement Cost: \$0

Building Percent Good:

Replacement Cost

Less Depreciation: \$0

Building Attributes

Field	Description
Style:	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Attic	
Bsmt	
Bsmt Gar	
Fireplaces_2	
Fin Bsmt	
Fin Bsmt Qual	
Num Park	
Fireplaces	
MHP	
Fndtn Cndtn	
Basement	

Building Photo



(http://images.vgsi.com/photos2/BristolCTPhotos///0053/DSC04022_53632)

Building Layout

 Building Layout (ParcelSketch.ashx?pid=101154&bid=40915)

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

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code 302
Description Ind Vac Lnd
Zone I
Neighborhood
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 0.63
Frontage
Depth
Assessed Value \$74,760
Appraised Value \$106,800

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CB3	PreCastConcCel			290.00 S.F.	\$0	1
FN4	Fence 8'			290.00 L.F.	\$2,900	1
CELL	Cell Tower/Site			1.00 UNITS	\$105,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$107,900	\$106,800	\$214,700
2019	\$107,900	\$106,800	\$214,700
19	\$107,900	\$106,800	\$214,700

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$75,530	\$74,760	\$150,290
2019	\$75,530	\$74,760	\$150,290
19	\$75,530	\$74,760	\$150,290

Exhibit C

Construction Drawings



T-MOBILE SITE NUMBER: CTHA714A
T-MOBILE SITE NAME: BRISTOL EMS
SITE TYPE: MONOPOLE
TOWER HEIGHT: 168'-6"

BUSINESS UNIT #: 842859
SITE ADDRESS: 371 TERRYVILLE AVENUE
BRISTOL, CT 06010
COUNTY: HARTFORD
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5A998E 6160

T-Mobile
 4 SYLVAN WAY
 PARSIPPANY, NJ 07054

CROWN CASTLE
 3530 TORINGDON WAY, SUITE 300
 CHARLOTTE, NC 28277

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER: CTHA714A
BU #: 842859
BRISTOL CENTER
 371 TERRYVILLE AVENUE
 BRISTOL, CT 06010
 EXISTING
 168'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	9/28/21	MA	CONSTRUCTION	JTS

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRISTOL CENTER
SITE ADDRESS:	371 TERRYVILLE AVENUE BRISTOL, CT 06010
COUNTY:	HARTFORD
MAP/PARCEL #:	61-67-3
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.679919°
LONGITUDE:	-72.962550°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	564 FT
CURRENT ZONING:	I - INDUSTRIAL
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	LAVIERO REALTY LLC 70 MAUREEN DR BRISTOL, CT 06010
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
ELECTRIC PROVIDER:	K-CO ELECTRIC, LLC
TELCO PROVIDER:	N/A

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277

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

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	CODE SUMMARY
T-3	CODE SUMMARY
T-4	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	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	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	MOUNT SPECS

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.

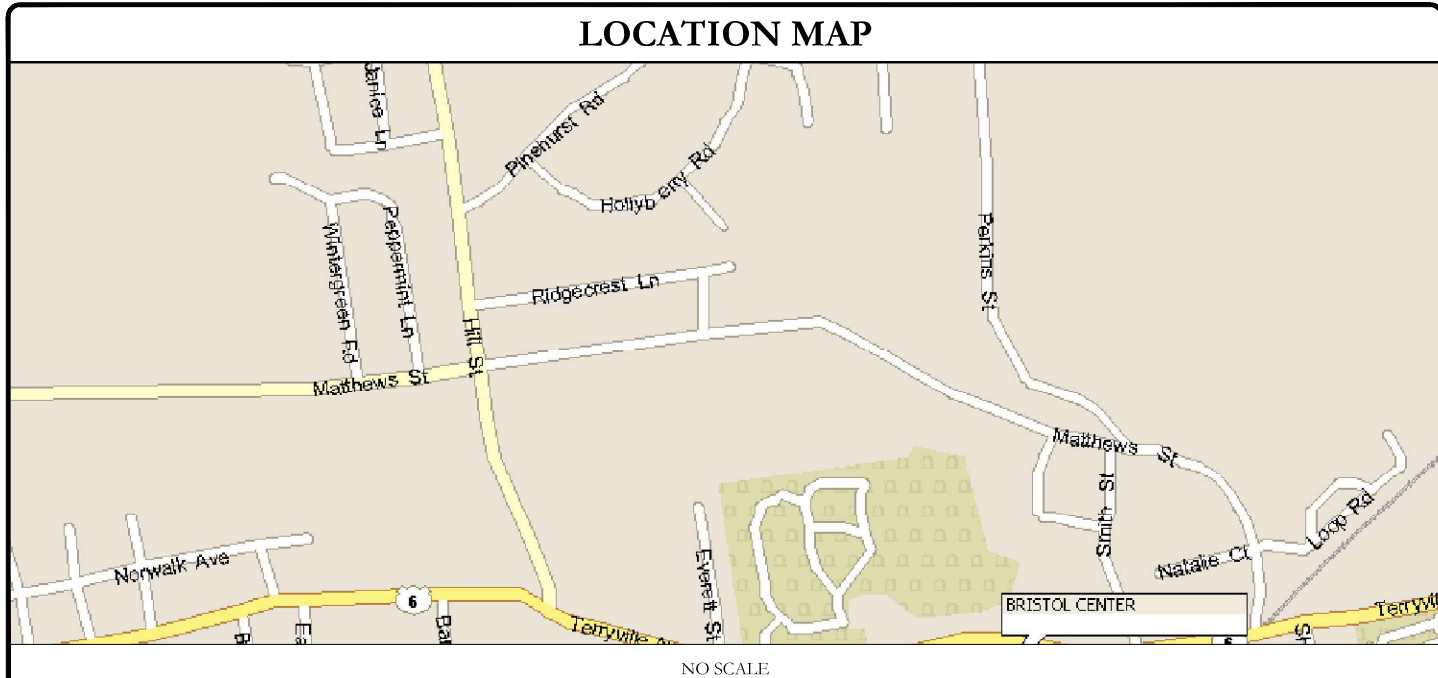
TOWER SCOPE OF WORK:

- REMOVE (6) ANTENNAS
- REMOVE (9) RADIOS
- REMOVE (3) TMA
- REMOVE (3) 1-1/4" COAX CABLES
- REMOVE (1) HYBRID CABLE
- REMOVE (3) EXISTING SECTOR MOUNTS
- INSTALL (3) SITE PRO 1 - VFA12-HD SECTOR MOUNT
- INSTALL (6) ANTENNAS
- INSTALL (6) RADIOS
- INSTALL (3) 6/24" HYBRID CABLES

GROUND SCOPE OF WORK:

- REMOVE (1) MMBTS CABINET CABINET
- REMOVE (1) BBU CABINET
- INSTALL (1) 6160 SSC CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) RBS 6601 IN 6160 CABINET
- INSTALL (3) BB 6648 IN 6160 CABINET
- INSTALL (1) PSU 4813 VOLTAGE BOOSTER IN 6160 CABINET
- INSTALL (1) DUG20 IN RBS 6601 INSIDE 6160 CABINET
- INSTALL (1) CSR IXRE V2 IN 6160 CABINET

NOTE:
 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.



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	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFELD
DATED:	9/9/21
MOUNT ANALYSIS:	TRYLON
DATED:	8/31/21
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	
RFDS REVISION:	1
DATED:	8/2/21
ORDER ID:	579393
REVISION:	0

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

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.

36778 CHAD E. TUTTLE
 LICENSED PROFESSIONAL ENGINEER
 STATE OF ARIZONA U.S.A.
 EXPIRES: 9/30/2024

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/22

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
------------------------------------	------------------------------

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
 (EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
 (Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: T-Mobile Antenna Removal and Addition
 Address: 371 TERRYVILLE AVENUE, BRISTOL, CT Zip Code 06010
 Owner/Authorized Agent: Phone # () B-Mail
 Owned By: City/County Private State
 Code Enforcement Jurisdiction: City County HARTFORD State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	Crown Castle	Andrew Fandozzi, P.E., C.P.E.	042222	(724) 416-2854	andrew.fandozzi@crownccastle.com
Civil	Crown Castle	Andrew Fandozzi, P.E., C.P.E.	042222	(724) 416-2854	andrew.fandozzi@crownccastle.com
Electrical					
Fire Alarm					
Plumbing					
Mechanical					
Sprinkler-Standpipe					
Structural	John W. Kelly P.E. Engineering, P.C.	John W. Kelly, III	042719	(918) 587-4630	
Retaining Walls >5' High					
Other					

(*Other* should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: New Building Addition Renovation
 1st Time Interior Completion
 Shell/Corc - Contact the local inspection jurisdiction for possible additional procedures and requirements
 Phased Construction - Shell/Corc - Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE EXISTING: Prescriptive Repair Chapter 14
 Alteration: Level I Level II Level III Change of Use
 Historic Property

CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): U
RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S)** (Ch. 3): U

RISK CATEGORY (Table 1004.5): Current: I II III IV
 Proposed: I II III IV

BASIC BUILDING DATA
Construction Type: I-A II-A III-A IV V-A
 (check all that apply) I-B II-B III-B V-B
Sprinklers: No Partial Yes NFPA 13 NFPA 13R NFPA 13D
Standpipes: No Yes Class I II III Wet Dry
Fire District: No Yes **Flood Hazard Area:** No Yes
Special Inspections Required: No Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

2018 NC Administrative Code and Policies

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING		DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
		REQ'D	PROVIDED				
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction including supporting beams and joists							
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof Construction, including supporting beams and joists							
Roof Ceiling Assembly							
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy/Fire Barrier Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/Sleeping Unit Separation							
Incidental Use Separation							

* Indicate section number permitting reduction

2018 NC Administrative Code and Policies

FLOOR	Gross Building Area Table		SUB-TOTAL
	EXISTING (SQ FT)	NEW (SQ FT)	
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor			
Basement			
TOTAL			

ALLOWABLE AREA

Primary Occupancy Classification(s):
 Assembly A-1 A-2 A-3 A-4 A-5
 Business
 Educational
 Factory F-1 Moderate F-2 Low
 Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
 Institutional I-1 Condition I-2 I-3 Condition I-4
 I-1 I-2 I-3 I-4
 Mercantile
 Residential R-1 R-2 R-3 R-4
 Storage S-1 Moderate S-2 Low High-piled
 Parking Garage Open Enclosed Repair Garage
 Utility and Miscellaneous

Accessory Occupancy Classification(s): _____
Incidental Uses (Table 509): _____
Special Uses (Chapter 4 - List Code Sections): _____
Special Provisions (Chapter 5 - List Code Sections): _____

Mixed Occupancy: No Yes Separation: _____ Hr. Exception: _____
 Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the heights and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
 Separated Use (508.4) - See below for area calculations for each story; the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

2018 NC Administrative Code and Policies

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: No Yes
 Exit Signs: No Yes
 Fire Alarm: No Yes
 Smoke Detection Systems: No Yes Partial _____
 Carbon Monoxide Detection: No Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

- Fire and/or smoke rated wall locations (Chapter 7)
- Assumed and real property line locations (if not on the site plan)
- Exterior wall opening area with respect to distance to assumed property lines (705.8)
- Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- Occupant loads for each area
- Exit access travel distances (1017)
- Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- Dead end lengths (1020.4)
- Clear exit widths for each exit door
- Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- Actual occupant load for each exit door
- A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- Location of doors with panic hardware (1010.1.10)
- Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- Location of doors with electromagnetic egress locks (1010.1.9.9)
- Location of doors equipped with hold-open devices
- Location of emergency escape windows (1030)
- The square footage of each fire area (202)
- The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- Note any code exceptions or table notes that may have been utilized regarding the items above

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STORY NO.	DESCRIPTION AND USE	(A)	(B)	(C)	(D)
		BLDG AREA PER STORY (ACTUAL)	TABLE 506.2 ⁴ AREA	AREA FOR FRONTAGE INCREASE ^{1,2}	ALLOWABLE AREA PER STORY OR UNLIMITED ^{1,3}

¹ Frontage area increases from Section 506.3 are computed thus:
 a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
 b. Total Building Perimeter = _____ (P)
 c. Ratio (F/P) = _____ (F/P)
 d. W = Minimum width of public way = _____ (W)
 e. Percent of frontage increase $I_f = 100[(F/P) - 0.25] \times W/30 = \text{_____} (\%)$
² Unlimited area applicable under conditions of Section 507.
³ Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
⁴ The maximum area of open parking garages must comply with Table 406.5.4.
⁵ Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE ¹
Building Height in Feet (Table 504.3) ²			
Building Height in Stories (Table 504.4) ³			

¹ Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
² The maximum height of air traffic control towers must comply with Table 412.3.1.
³ The maximum height of open parking garages must comply with Table 406.5.4.

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ACCESSIBLE DWELLING UNITS (SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING (SECTION 1109)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
			REGULAR WITH 5' ACCESS AISLE	15' ACCESS AISLE	8' ACCESS AISLE	
TOTAL						

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE	SPACE	WATER CLOSETS			URINALS			LAVATORIES			SHOWERS/TUBS		DRINKING FOUNTAINS	
		MALE	FEMALE	UNSEX	MALE	FEMALE	UNSEX	MALE	FEMALE	UNSEX	REGULAR	ACCESSIBLE		
EXIST'G														
NEW														
REQ'D														

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

2018 NC Administrative Code and Policies

T-Mobile
 4 SYLVAN WAY
 PARSIPPANY, NJ 07054


CROWN CASTLE
 3530 TORINGDON WAY, SUITE 300
 CHARLOTTE, NC 28277

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER:
CTHA714A
 BU #: 842859
BRISTOL CENTER
 371 TERRYVILLE AVENUE
 BRISTOL, CT 06010
 EXISTING
 168'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	9/28/21	MA	CONSTRUCTION	JTS


 EXPIRES: 9/30/2024
 B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/22
 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-2** REVISION: **0**

96712.012.01_BRISTOL_CENTER.dwg - Sheet: T-2 - User: jstikes - Sep 30, 2021 - 9:56am

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: No Yes (The remainder of this section is not applicable)

Exempt Building: No Yes (Provide code or statutory reference): _____

Climate Zone: 3A 4A 5A

Method of Compliance: Energy Code Performance Prescriptive
ASHRAE 90.1 Performance Prescriptive
(If "Other" specify source here) _____

THERMAL ENVELOPE (Prescriptive method only)

Roof/Ceiling Assembly (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Skylights in each assembly: _____
U-Value of skylight: _____
total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors over unconditioned space (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors slab on grade
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical requirement: _____
slab heated: _____

2018 NC Administrative Code and Policies

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)**

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code Performance Prescriptive
ASHRAE 90.1 Performance Prescriptive

Lighting schedule (each fixture type)
lamp type required in fixture _____
number of lamps in fixture _____
ballast type used in the fixture _____
number of ballasts in fixture _____
total wattage per fixture _____
total interior wattage specified vs. allowed (whole building or space by space) _____
total exterior wattage specified vs. allowed _____

**Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)**

C406.2 More Efficient HVAC Equipment Performance
 C406.3 Reduced Lighting Power Density
 C406.4 Enhanced Digital Lighting Controls
 C406.5 On-Site Renewable Energy
 C406.6 Dedicated Outdoor Air System
 C406.7 Reduced Energy Use in Service Water Heating

2018 NC Administrative Code and Policies

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)**

DESIGN LOADS:

Importance Factors: Snow (I_s) _____
Seismic (I_e) _____

Live Loads: Roof _____ psf
Mezzanine _____ psf
Floor _____ psf

Ground Snow Load: _____ psf

Wind Load: Ultimate Wind Speed _____ mph (ASCE-7)
Exposure Category _____

SEISMIC DESIGN CATEGORY: A B C D

Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) I II III IV
Spectral Response Acceleration S_s _____ %g S₁ _____ %g

Site Classification (ASCE 7) A B C D E F

Data Source: Field Test Presumptive Historical Data

Basic structural system
 Bearing Wall Dual w/Special Moment Frame
 Building Frame Dual w/Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum

Analysis Procedure: Simplified Equivalent Lateral Force Dynamic

Architectural, Mechanical, Components anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake Wind

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

2018 NC Administrative Code and Policies

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)**

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason: _____
Chiller
Size category. If oversized, state reason: _____

List equipment efficiencies: _____

2018 NC Administrative Code and Policies



4 SYLVAN WAY
PARSIPPANY, NJ 07054



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TO ALTER THIS DOCUMENT.

SHEET NUMBER: REVISION:

T-3 **0**

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- NOTICE TO PROCEED-- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
- "LOOK UP" -- CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANS/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANS/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED--STD--10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANS/TIA--322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH QAS--STD--10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED--STD--10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANS/TIA--1019--A--2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GREENFIELD GROUNDING NOTES:

- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE CONTRACTOR SHALL PERFORM IEEE FALL--OF--POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
- METAL CONDUIT AND TRAY SHALL BE GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL GROUNDINGS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
- BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: T-MOBILE
TOWER OWNER: CROWN CASTLE USA INC.
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE--THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER--TO--CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
#4 BARS AND SMALLER.....40 ksi
#5 BARS AND LARGER.....60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 BARS AND LARGER.....2"
#5 BARS AND SMALLER.....1-1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
SLAB AND WALLS.....3/4"
BEAMS AND COLUMNS.....1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR--CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI--CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI--CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP--STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEC AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL--CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID--TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID--TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION--TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEC AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON--PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER--ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKOUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY--COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY--COATED OR NON--CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
120/208V, 3Ø	GROUND	GREEN
	A PHASE	BLACK
	B PHASE	RED
277/480V, 3Ø	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
DC VOLTAGE	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
DC VOLTAGE	NEUTRAL	GREY
	GROUND	GREEN
	POS (+)	RED**
DC VOLTAGE	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

- PROPOSED EXCAVATION
- TEMPORARY SURVEY MARKINGS
- ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- POTABLE WATER
- RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
- SEWERS AND DRAIN LINES

ABBREVIATIONS:


- ANT ANTENNA
- (E) EXISTING
- FIF FACILITY INTERFACE FRAME
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- GSM GLOBAL SYSTEM FOR MOBILE
- LTE LONG TERM EVOLUTION
- MGB MASTER GROUND BAR
- MW MICROWAVE
- (N) NEW
- NEC NATIONAL ELECTRIC CODE
- (P) PROPOSED
- PP POWER PLANT
- QTY QUANTITY
- RECT RECTIFIER
- RBS RADIO BASE STATION
- RET REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RFH REMOTE RADIO HEAD
- RRU REMOTE RADIO UNIT
- SIAD SMART INTEGRATED DEVICE
- TMA TOWER MOUNTED AMPLIFIER
- TYP TYPICAL
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- W.P. WORK POINT



4 SYLVAN WAY
PARSIPPANY, NJ 07054



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T-MOBILE SITE NUMBER:
CTHA714A


BU #: 842859
BRISTOL CENTER

371 TERRYVILLE AVENUE
BRISTOL, CT 06010

EXISTING
168'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	9/28/21	MA	CONSTRUCTION	JTS



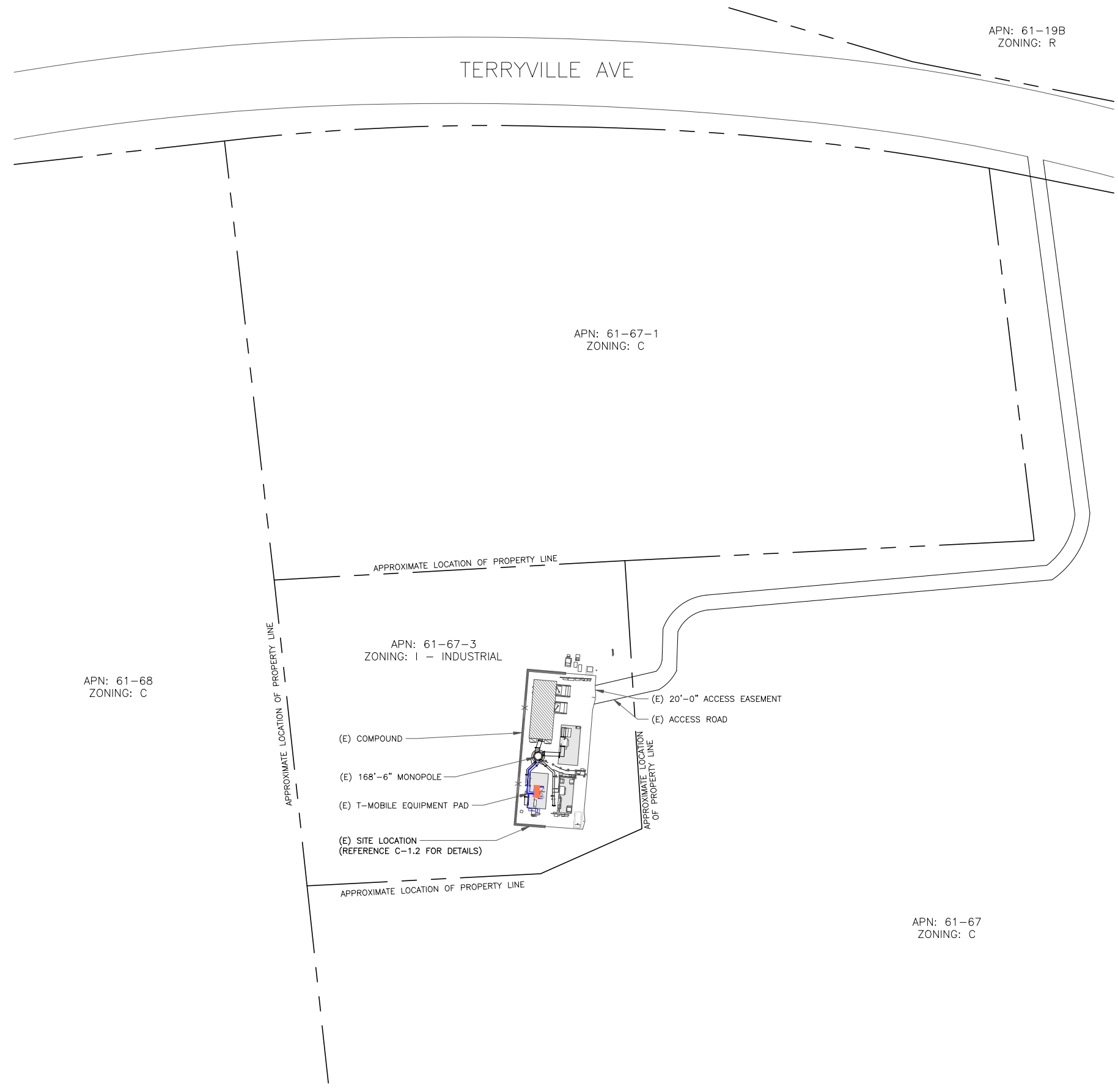
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B&T ENGINEERING, INC.
PEC.0001564
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SHEET NUMBER: **T-4** REVISION: **0**

SITE PLAN DISCLAIMER:
 PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM JURISDICTIONAL GIS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.



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CROWN CASTLE

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36778
CHAD E. TUTTLE
ARIZONA U.S.A.

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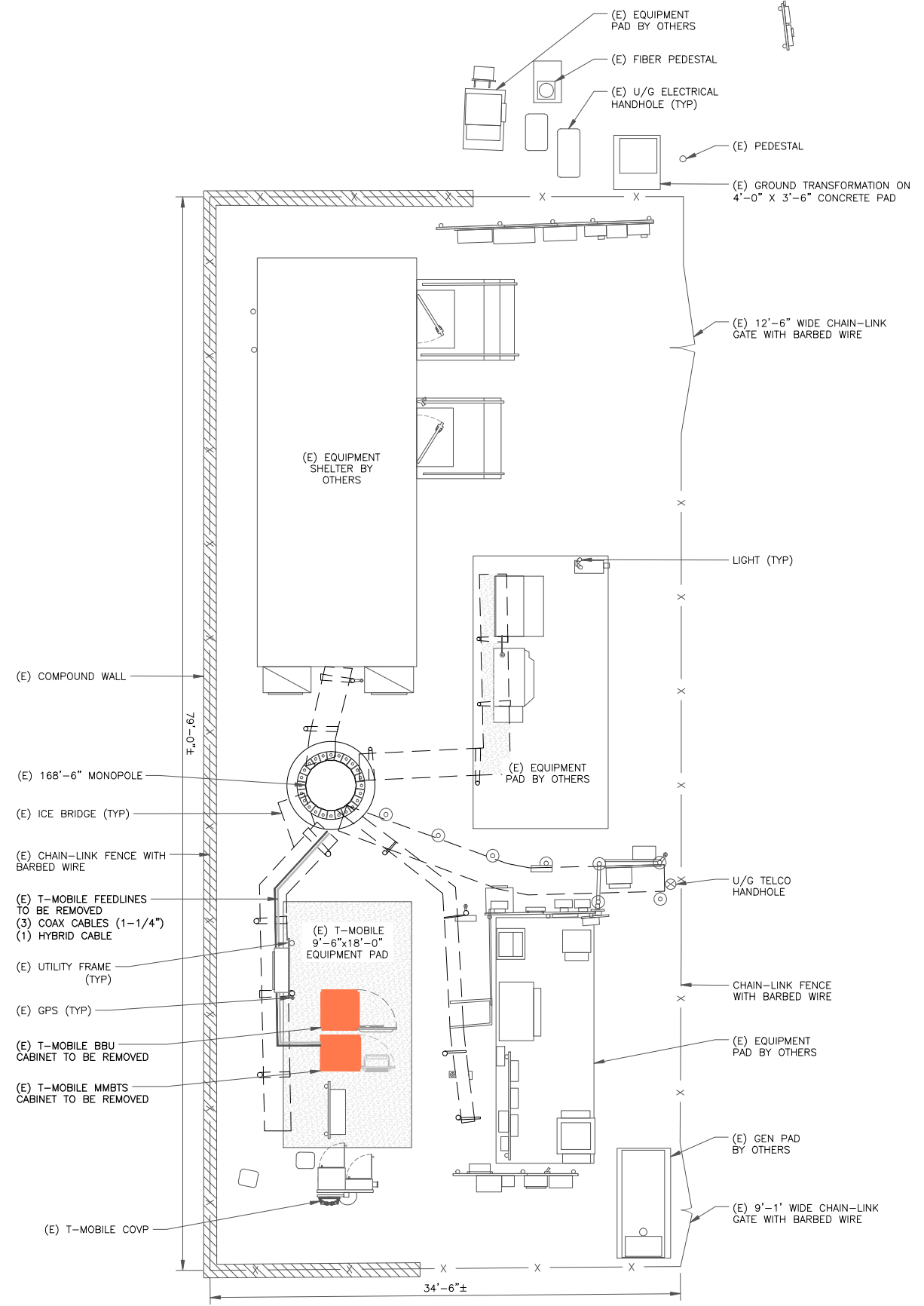
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1 OVERALL SITE PLAN
 SCALE: 1"=30'-0" (FULL SIZE)
 1"=60'-0" (11x17)

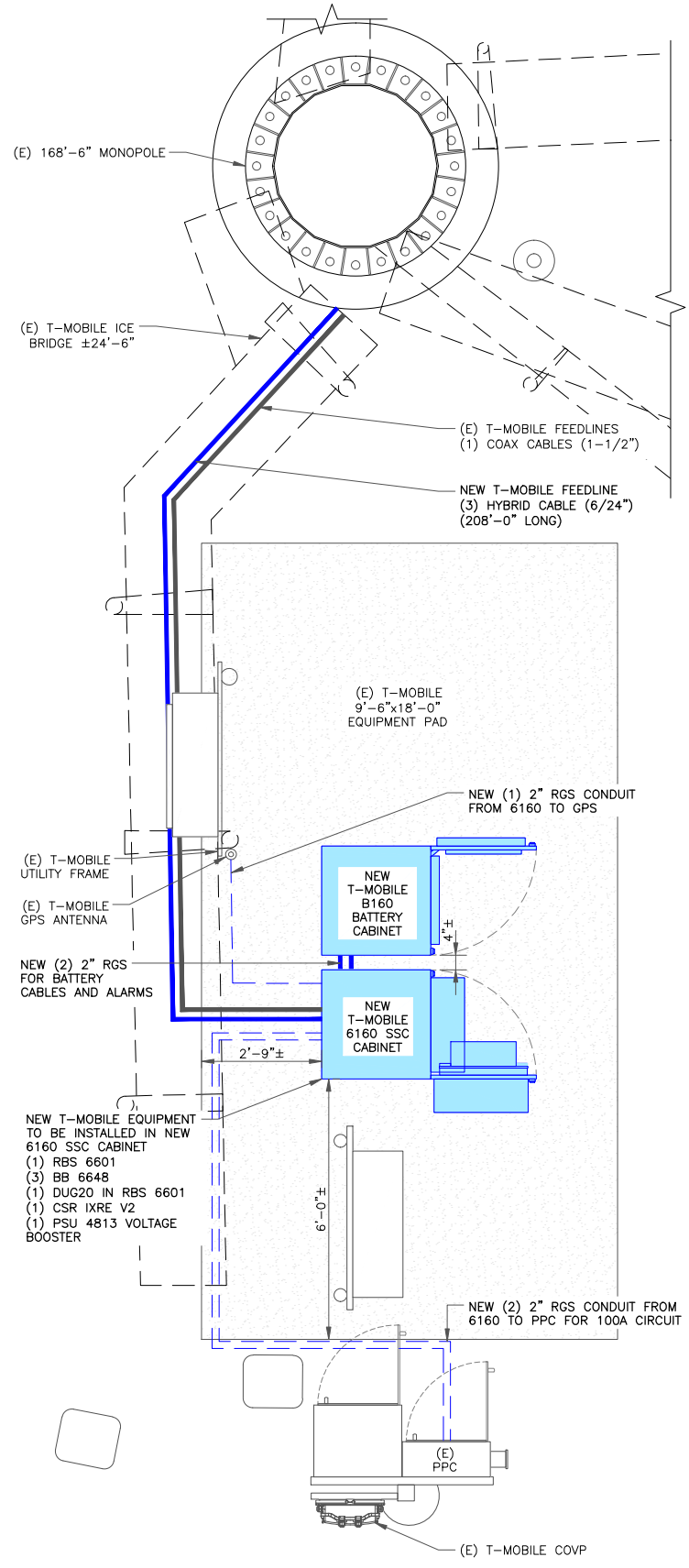


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NOTES:
 THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



1 SITE PLAN
 SCALE: 3/16"=1'-0" (FULL SIZE)
 3/32"=1'-0" (11x17)



2 ENLARGED SITE PLAN
 SCALE: 1/2"=1'-0" (FULL SIZE)
 1/4"=1'-0" (11x17)

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 EXISTING
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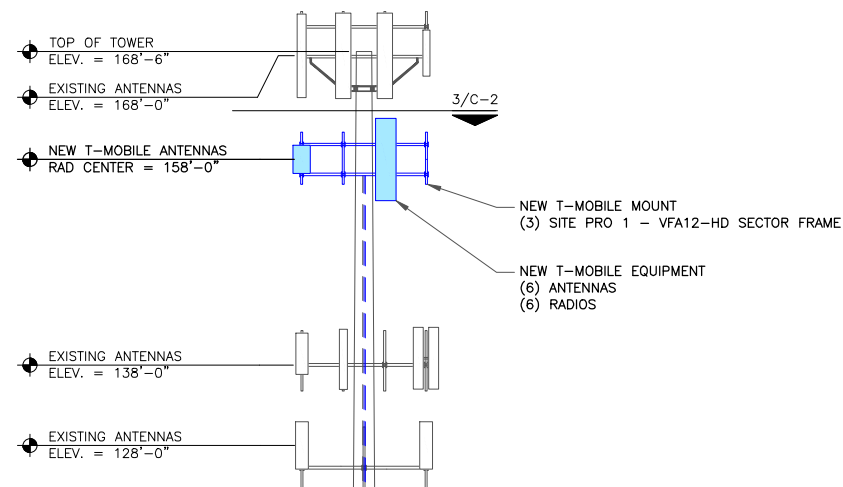
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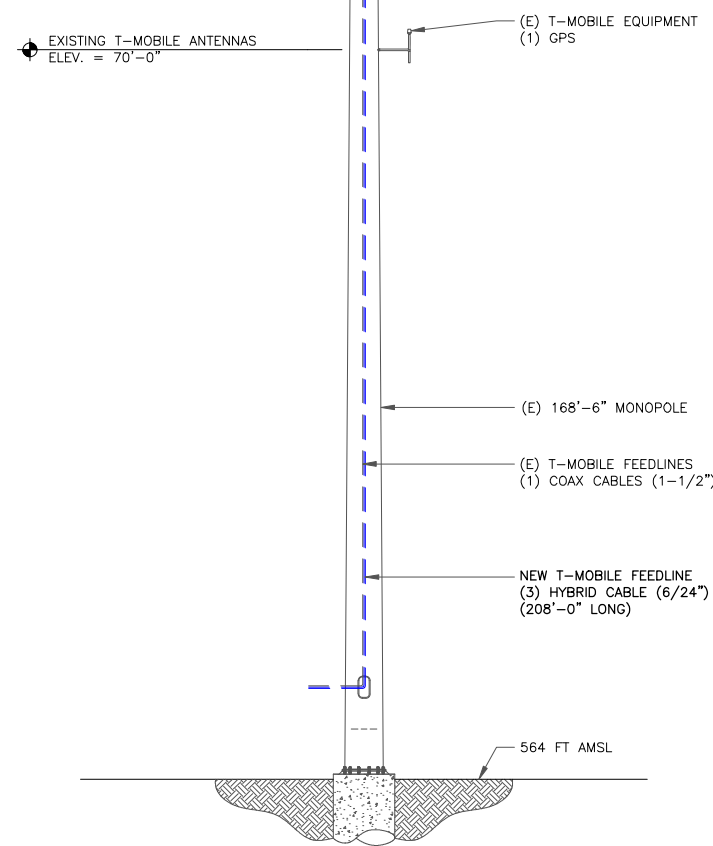
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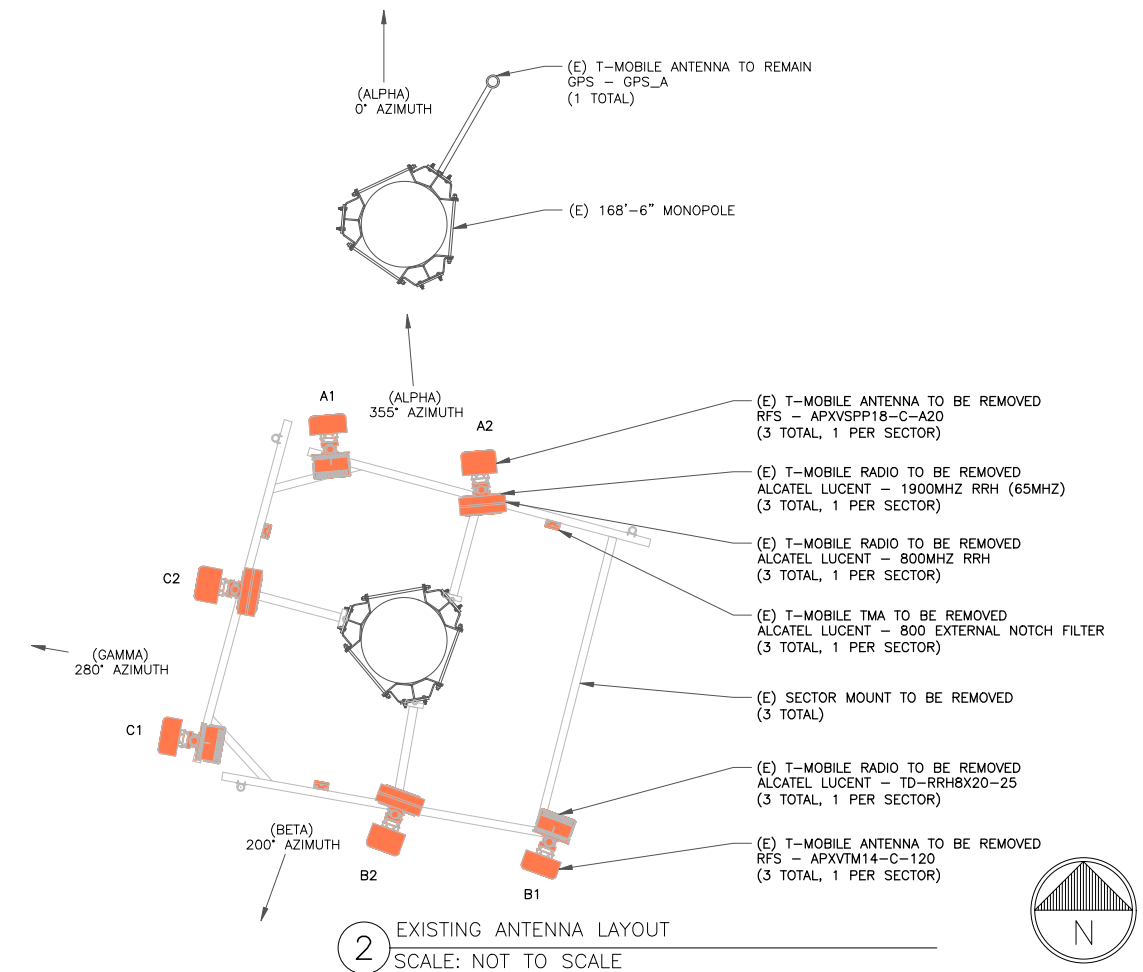


T-MOBILE EQUIPMENT
ANTENNA CL: 158'-0"
MOUNT CL: 158'-0"

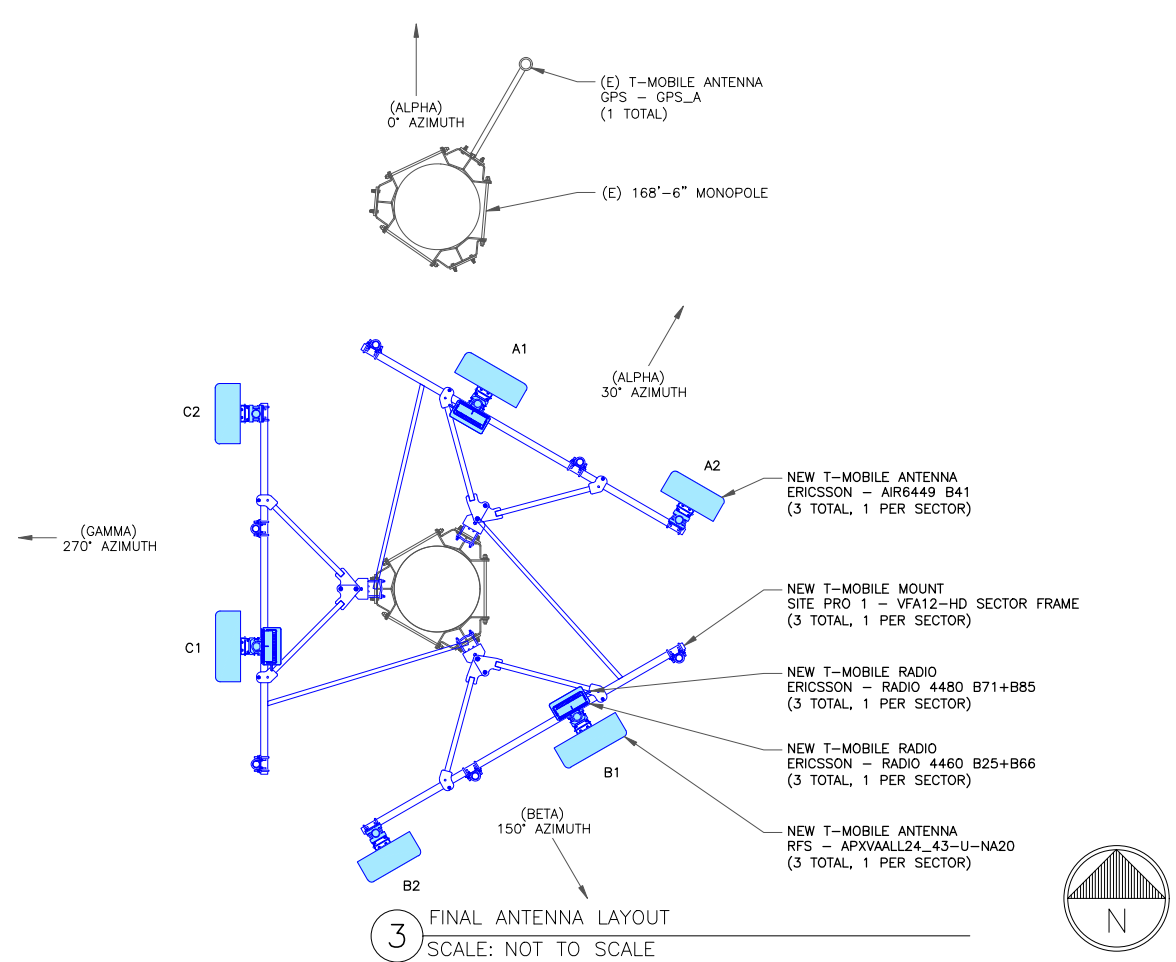
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



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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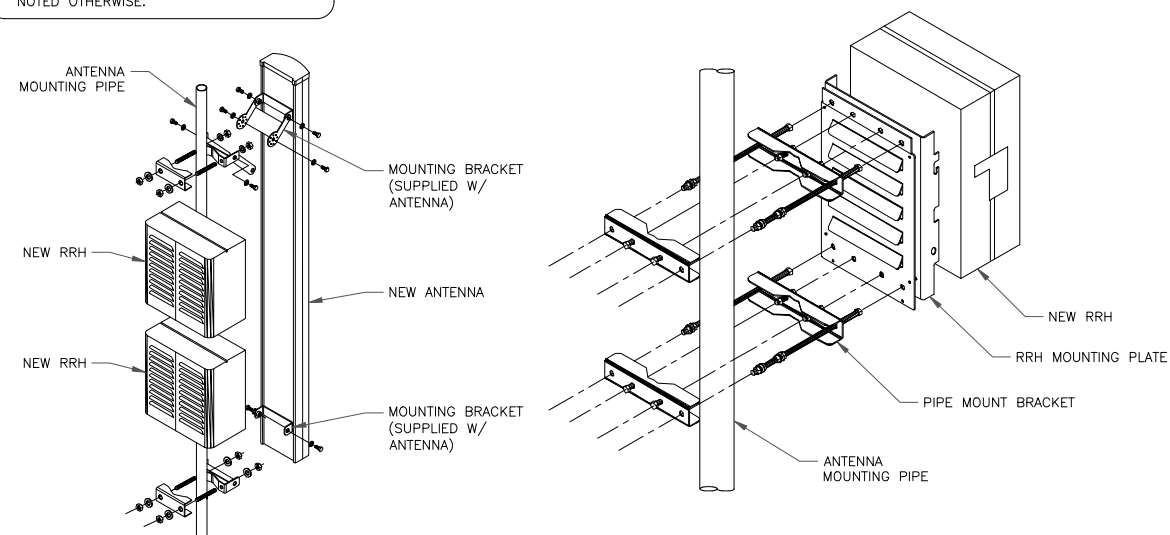
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RF SYSTEM SCHEDULE										
SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L700/L600/N600/ L2100/L1900/ G1900	RFS	APXVAALL24_43-U-NA20	30°	0°	2°/2'	158'-0"	(1) ERICSSON - 4480 B71+B85 (1) ERICSSON - 4460 B25+B66	-
	A2	L2500/N2500	ERICSSON	AIR6449 B41	30°	0°	2°/2'	158'-0"	-	(1) 6/24" HYBRID
BETA	B1	L700/L600/N600/ L2100/L1900/ G1900	RFS	APXVAALL24_43-U-NA20	150°	0°	2°/2'	158'-0"	(1) ERICSSON - 4480 B71+B85 (1) ERICSSON - 4460 B25+B66	-
	B2	L2500/N2500	ERICSSON	AIR6449 B41	150°	0°	2°/2'	158'-0"	-	(1) 6/24" HYBRID
GAMMA	C1	L700/L600/N600/ L2100/L1900/ G1900	RFS	APXVAALL24_43-U-NA20	270°	0°	2°/2'	158'-0"	(1) ERICSSON - 4480 B71+B85 (1) ERICSSON - 4460 B25+B66	-
	C2	L2500/N2500	ERICSSON	AIR6449 B41	270°	0°	2°/2'	158'-0"	-	(1) 6/24" HYBRID
-	-	-	GPS	GPS_A	0°	-	-	70'-0"	-	(1) 1/2" COAX

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.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

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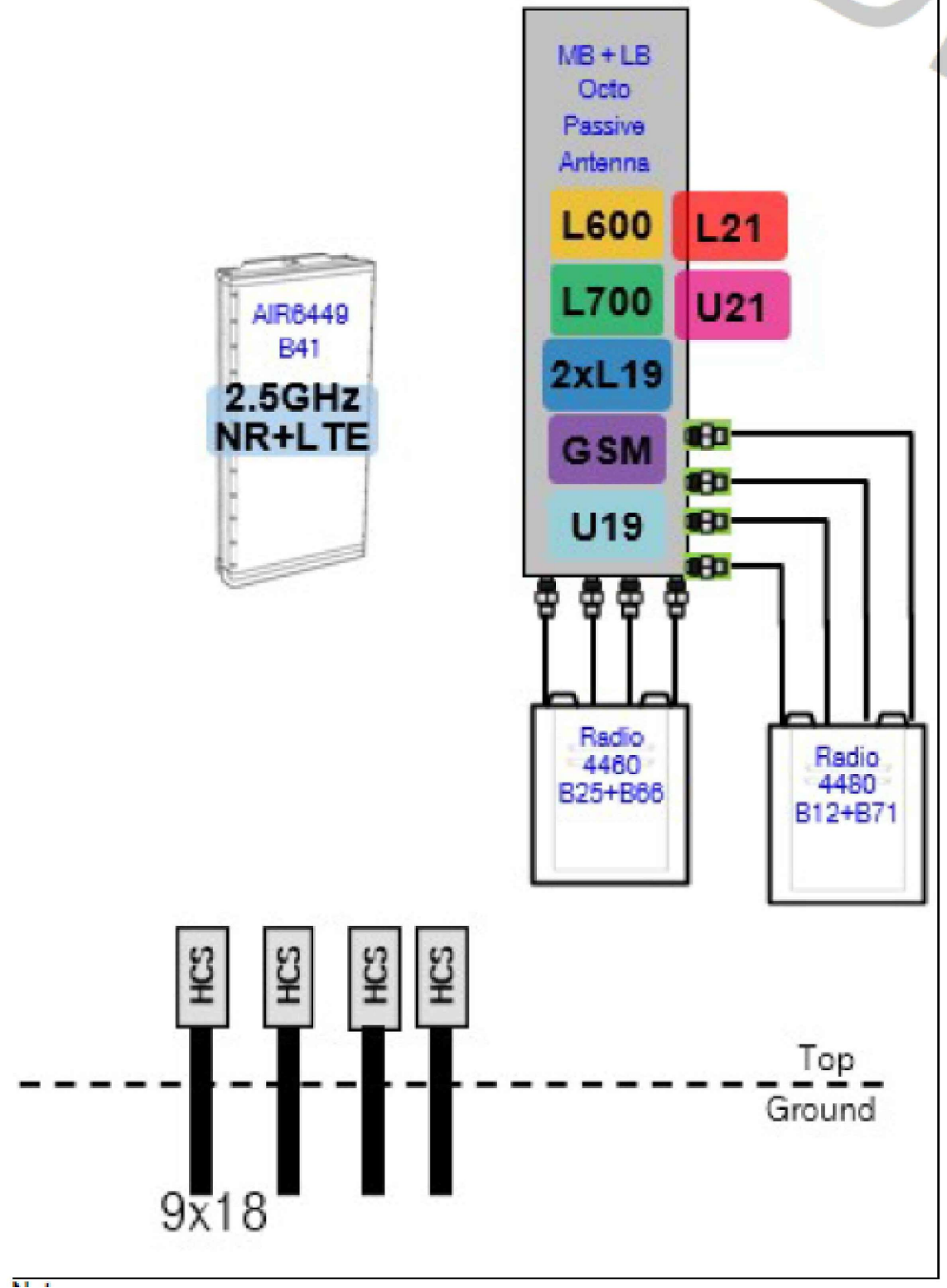
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C-3

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Final Config: 67E5A998E



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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

T-MOBILE SITE NUMBER:
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BU #: 842859
BRISTOL CENTER

371 TERRYVILLE AVENUE
BRISTOL, CT 06010

EXISTING
168'-6" MONOPOLE

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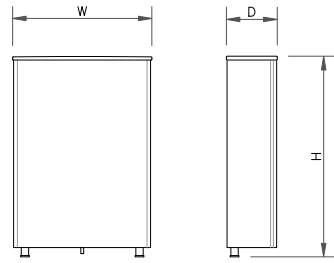
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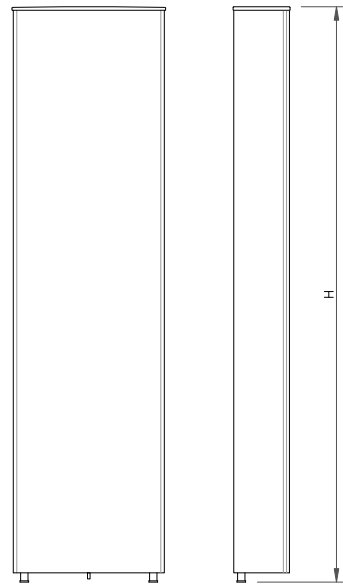
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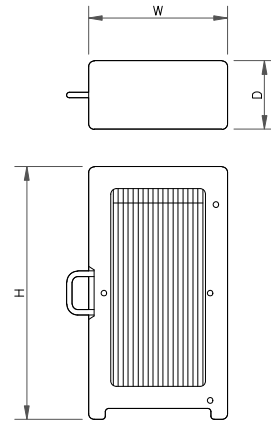
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



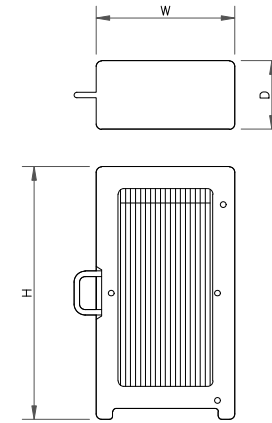
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.0"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4480 B71+B85
WIDTH	15.70"
DEPTH	7.50"
HEIGHT	22.00"
WEIGHT	81.00 LBS

3 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4460 B25+B66
WIDTH	15.10"
DEPTH	11.90"
HEIGHT	17.00"
WEIGHT	109.00 LBS

4 RRU SPECS
SCALE: NOT TO SCALE

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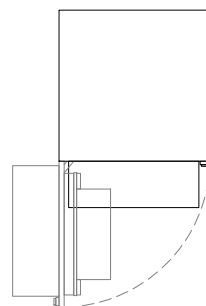
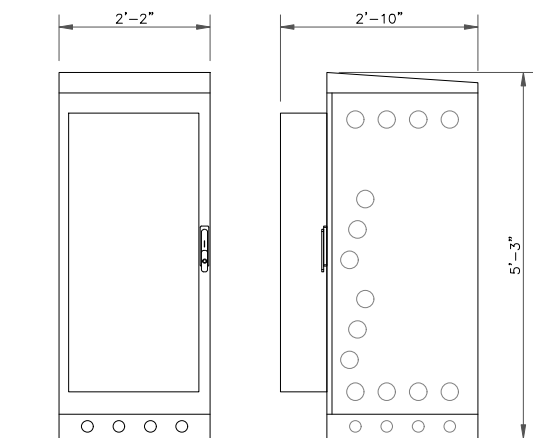
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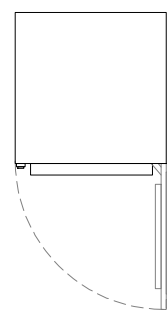
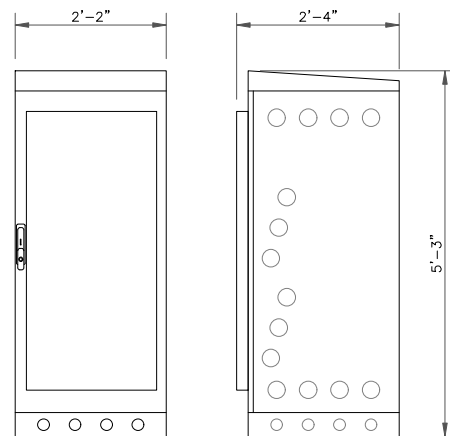
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EQUIPMENT NOTES:	
HEIGHTxWIDTHxDEPTH:	63.0" x 26.0" x 34.0" (1600.0mm x 660.0mm x 864.0mm)
WEIGHT (EMPTY):	320 LBS (145 kg)
WEIGHT (FULLY LOADED):	1000 LBS (454 kg)

5 ERICSSON 6160 SSC
SCALE: NOT TO SCALE



EQUIPMENT NOTES:	
HEIGHTxWIDTHxDEPTH:	63.0" x 26.0" x 28.0" (1600.0mm x 660.0mm x 711.0mm)
WEIGHT (EMPTY):	295 LBS (134 kg)
WEIGHT (FULLY LOADED):	2000 LBS (908 kg)

6 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE

7 NOT USED
SCALE: NOT TO SCALE



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BU #: 842859
BRISTOL CENTER

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EXISTING
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ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	9/28/21	MA	CONSTRUCTION	JTS



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E-1 0

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
SURGE PROTECTOR	2	60A	1	2	20A	1	PANEL GFI
			3	4	20A	2	3106 MAIN
			5	6			
			7	8	20A	1	RED LIGHT
			9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

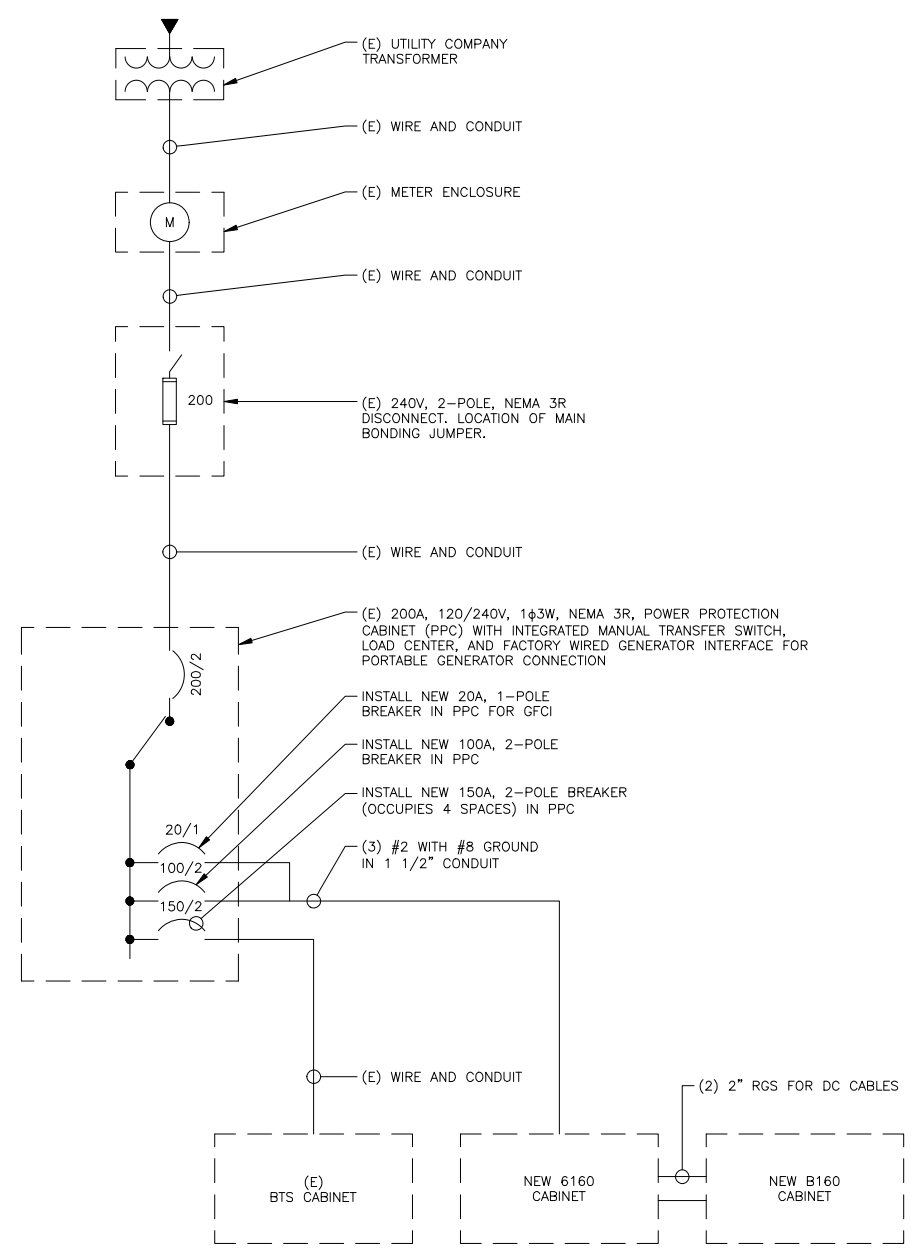
RATED VOLTAGE: 120/240 240/480 1 PHASE, 3 WIRE
 RATED AMPS: 100 200 400
 MAIN LUGS ONLY MAIN 200 AMPS BREAKER FUSED SWITCH HINGED DOOR
 FUSED CIRCUIT BREAKER BRANCH DEVICES TO BE GFCI BREAKERS FULL NEUTRAL BUS GROUND BAR
 ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

BRANCH POLES: 12 24 30 42 APPROVED MF'RS
 CABINET: SURFACE FLUSH NEMA 1 3R 4X
 HINGED DOOR KEYED DOOR LATCH

REPLACE EXISTING BREAKER IN POSITION 7 AND 5 WITH A NEW 2P 150A BREAKER
 ADD NEW BREAKER IN POSITION 10 WITH A NEW 1P 20A BREAKER
 REPLACE EXISTING WIRES FOR EXISTING 6102 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".
 REPLACE EXISTING WIRES FOR EXISTING 6102 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".
 IF 150A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (OR APPROVED EQUAL).
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE



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

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

96712.012.01_BRISTOL_CENTER.dwg - SheetE-1 - User: jsikes - Sep 30, 2021 - 9:57am

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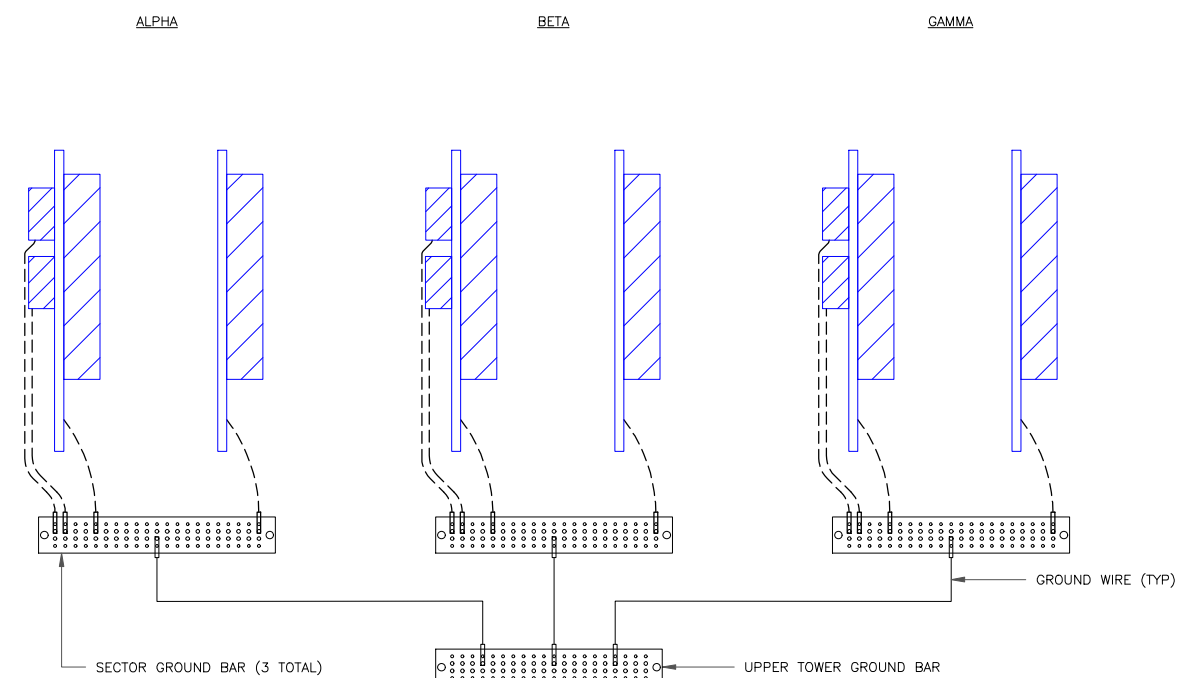
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EXISTING
168'-6" MONOPOLE

ISSUED FOR:

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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



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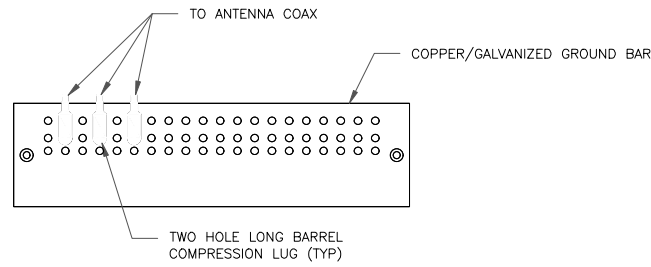
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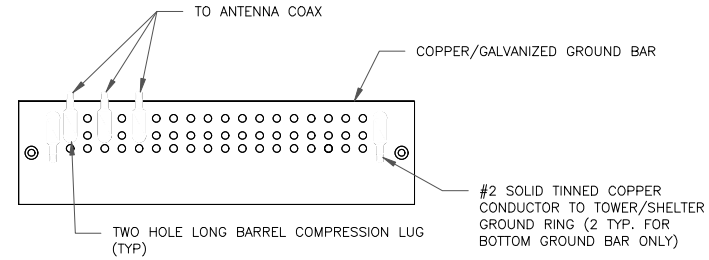
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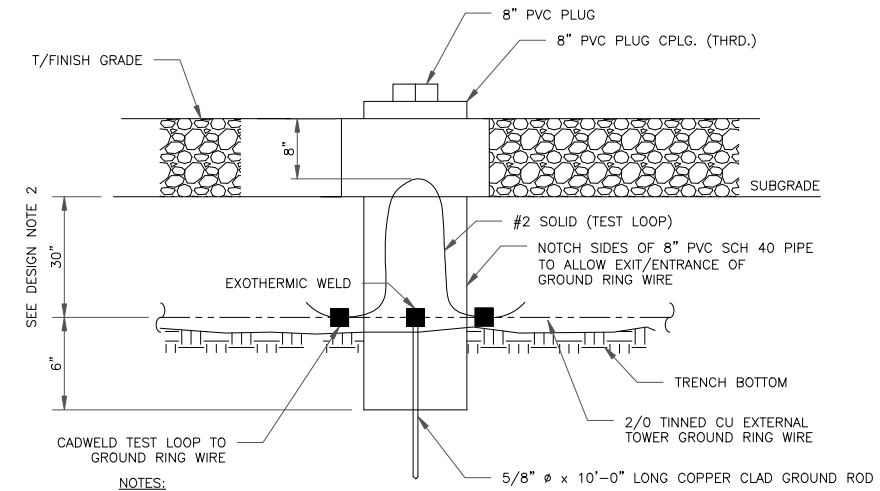
- NOTES:
- DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
 - EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 - GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



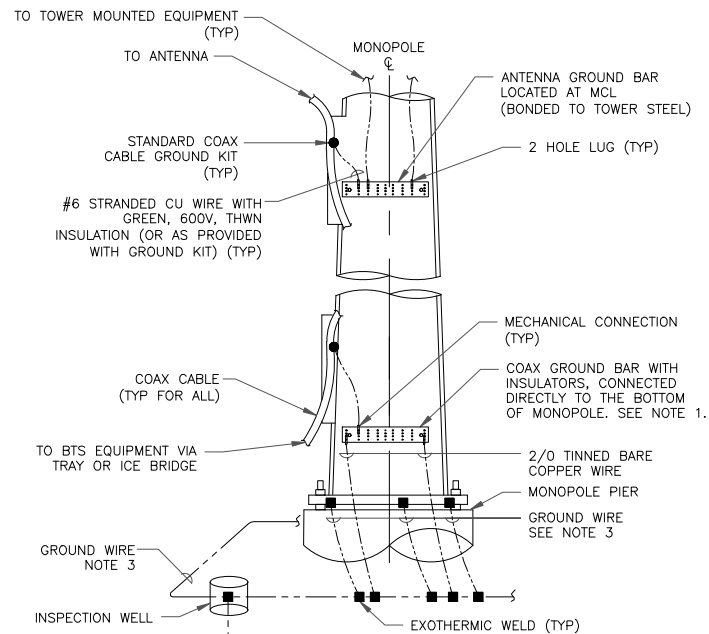
- NOTES:
- EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 - GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
 - GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

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



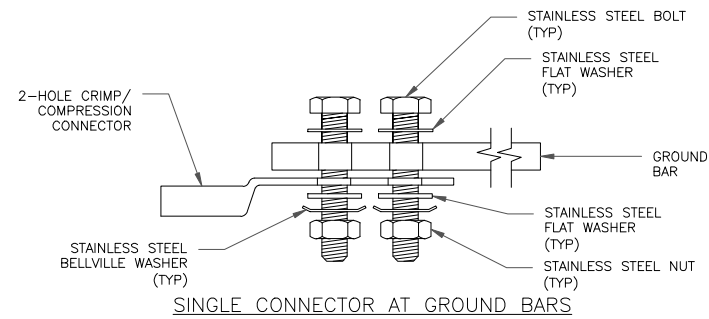
- NOTES:
- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 - GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE

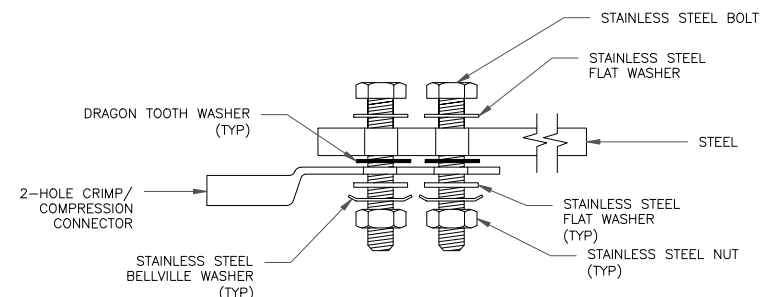


- NOTES:
- NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
 - ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
 - ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

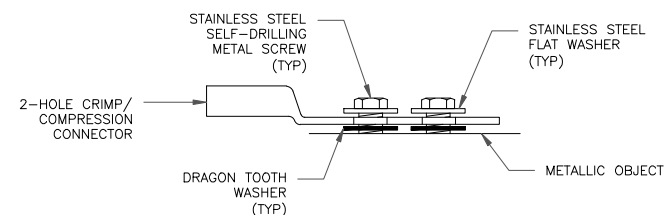
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

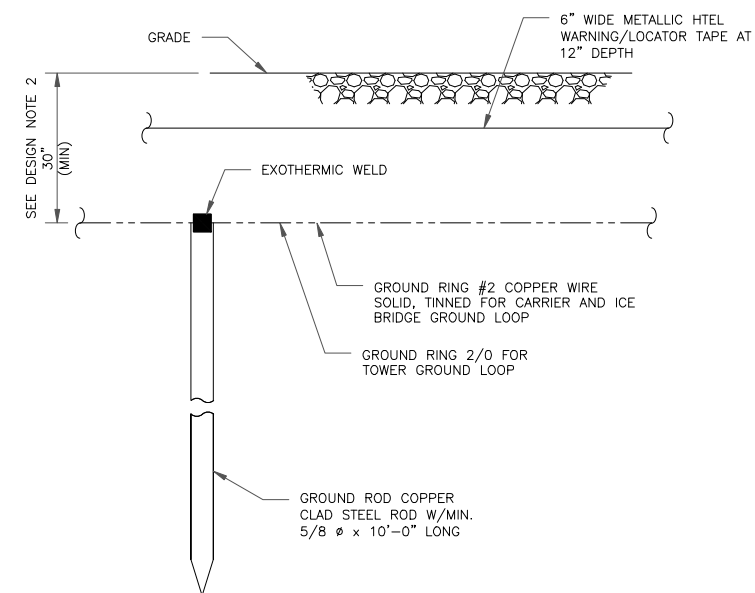


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



- NOTES:
- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 - GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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168'-6" MONOPOLE

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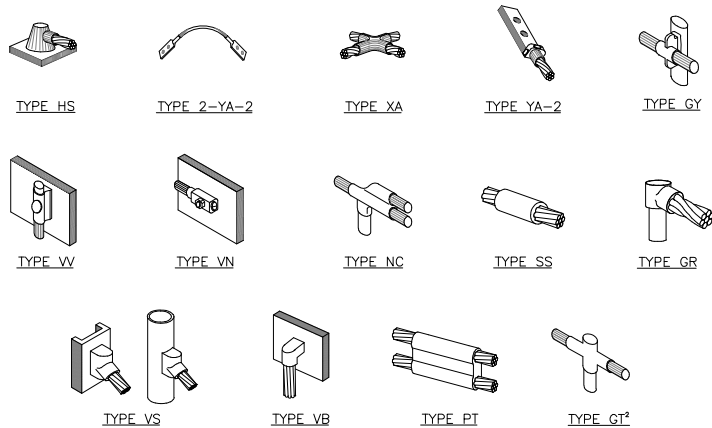
REV	DATE	DRWN	DESCRIPTION	DES./QA
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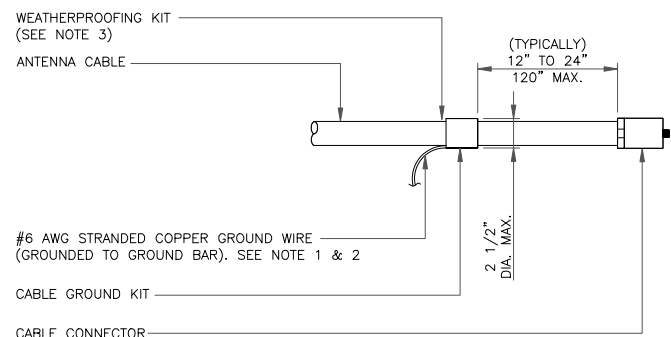
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NOTE:
 1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
 2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

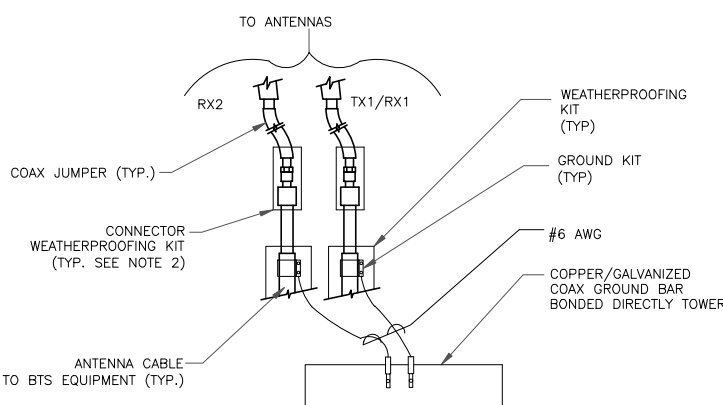
1 CADWELD GROUNDING CONNECTIONS
 SCALE: NOT TO SCALE



WEATHERPROOFING KIT (SEE NOTE 3)
 ANTENNA CABLE
 (TYPICALLY) 12" TO 24" 120" MAX.
 #6 AWG STRANDED COPPER GROUND WIRE (GROUNDED TO GROUND BAR). SEE NOTE 1 & 2
 2 1/2" DIA. MAX.
 CABLE GROUND KIT
 CABLE CONNECTOR

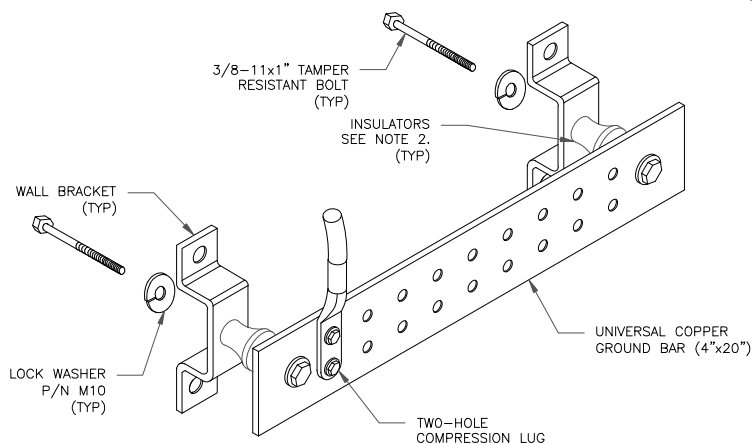
NOTES:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION
 SCALE: NOT TO SCALE



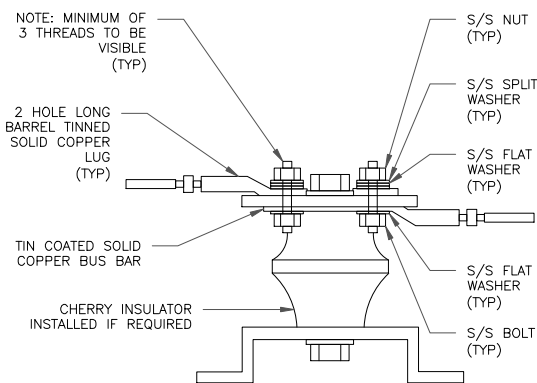
TO ANTENNAS
 RX2 TX1/RX1
 WEATHERPROOFING KIT (TYP)
 GROUND KIT (TYP)
 #6 AWG
 COPPER/GALVANIZED COAX GROUND BAR BONDED DIRECTLY TOWER
 COAX JUMPER (TYP.)
 CONNECTOR WEATHERPROOFING KIT (TYP. SEE NOTE 2)
 ANTENNA CABLE TO BTS EQUIPMENT (TYP.)

4 GROUND CABLE CONNECTION
 SCALE: NOT TO SCALE



3/8-11x1" TAMPER RESISTANT BOLT (TYP)
 INSULATORS SEE NOTE 2. (TYP)
 WALL BRACKET (TYP)
 LOCK WASHER P/N M10 (TYP)
 UNIVERSAL COPPER GROUND BAR (4"x20")
 TWO-HOLE COMPRESSION LUG

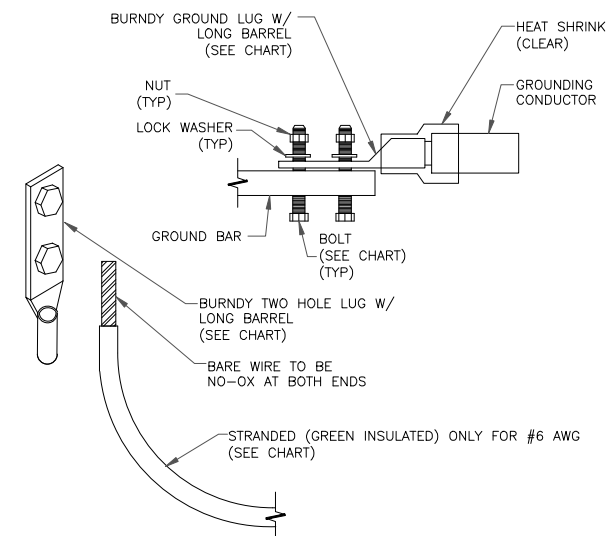
6 GROUND BAR DETAIL
 SCALE: NOT TO SCALE



NOTE: MINIMUM OF 3 THREADS TO BE VISIBLE (TYP)
 2 HOLE LONG BARREL TINNED SOLID COPPER LUG (TYP)
 TIN COATED SOLID COPPER BUS BAR
 CHERRY INSULATOR INSTALLED IF REQUIRED
 S/S NUT (TYP)
 S/S SPLIT WASHER (TYP)
 S/S FLAT WASHER (TYP)
 S/S FLAT WASHER (TYP)
 S/S BOLT (TYP)

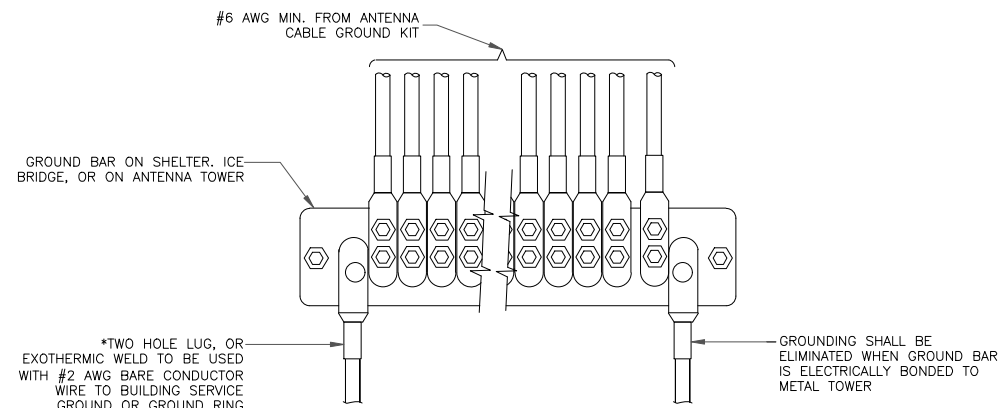
7 LUG DETAIL
 SCALE: NOT TO SCALE

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT

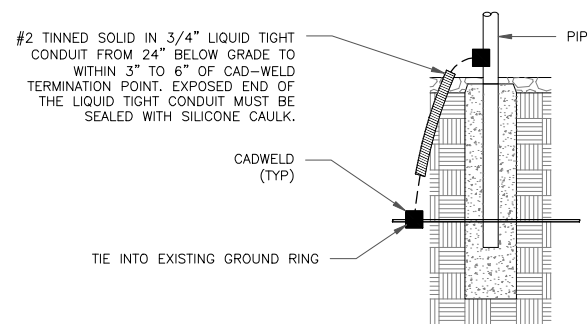


NOTES:
 1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
 SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
 SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
 SCALE: NOT TO SCALE

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Exhibit D

Structural Analysis Report



MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Date: **September 09, 2021**

Subject: Structural Analysis Report

Carrier Designation:

Site Number: CTHA714A
Site Name: CT54XC710

Crown Castle Designation:

BU Number: 842859
Site Name: Bristol Center
JDE Job Number: 678522
Work Order Number: 2015696
Order Number: 579393 Rev. 0

Engineering Firm Designation:

Morrison Hershfield Project Number: CN8-652R1 / 2101398

Site Data:

371 Terryville Avenue, Bristol, Hartford County, CT 06010
Latitude 41° 40' 47.71", Longitude -72° 57' 45.18"
168.5 Foot – EEI Monopole Tower

Morrison Hershfield 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- 99.4%

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 116 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer

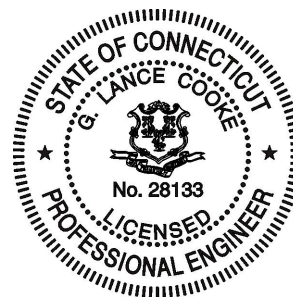


TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

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3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 – Tower Component Stresses vs. Capacity – LC7

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 168.5 ft monopole tower designed by Engineered Endeavors, Inc.

The tower has been modified multiple times in the past to accommodate additional loading. All the modifications have been considered in this analysis per their respective post modification inspection reports.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	116 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 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)
158.0	158.0	3	rfs/celwave	APXVAALL24_43-U-NA20_TMO	3	1-5/8
		3	ericsson	AIR6449 B41_T-MOBILE		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		12	-	8' Mount Pipe [#P2.0 SCH 40]		
		1	Site Pro 1	Sector Frame Attachment Assembly [#MSFAA]		
70.0	70.0	3	Site Pro 1	12.5' HD V-Frame Assembly [#VFA12-HD]	1	1/2
		1	gps	GPS_A		
		1	-	Side Arm Mount [SO 701-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	169.0	3	ericsson	RRUS 32 B30	6	1-5/8
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS E2 B29		
		3	raycap	DC6-48-60-18-8F		
		1	raycap	DC6-48-60-18-8C		
	168.0	2	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe	2	1
		2	kathrein	80010966 w/ Mount Pipe		
		2	cci antennas	DMP65R-BU8D w/ Mount Pipe		
		1	cci antennas	DMP65R-BU6D w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)			
168.0	168.0	1	kathrein	80010798 w/ Mount Pipe	-	-			
		1	kathrein	80010965 w/ Mount Pipe					
		1	-	Platform Mount [LP 304-1_KCKR-HR-1]					
	167.0	3	kathrein	800 10121 w/ Mount Pipe					
		6	powerwave technologies	LGP21401					
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe					
148.0	148.0	3	fujitsu	TA08025-B605	1	1-1/2			
		3	fujitsu	TA08025-B604					
		1	raycap	RDIDC-9181-PF-48					
		1	tower mounts	Commscope MC-PK8-DSH					
		3	antel	BXA-70063/4CF w/ Mount Pipe					
138.0	140.0	3	commscope	NHH-65B-R2B w/ Mount Pipe	7 1	1-5/8 1-1/4			
		3	commscope	NHHSS-65B-R2B w/ Mount Pipe					
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe					
		3	samsung telecommunications	CBRS RT4401-48A					
		3	samsung telecommunications	RFV01U-D2A					
		3	samsung telecommunications	RFV01U-D1A					
		1	raycap	RVZDC-6627-PF-48					
	138.0	1	-	Platform Mount [LP 303-1]					
	128.0	130.0	3	ericsson			AIR 32 B2A/B66AA w/ Mount Pipe	12 3	1-5/8 1-1/4
			3	rfs/celwave			APXVAARR24_43-U-NA20 w/ Mount Pipe		
3			ericsson	RADIO 4449 B12/B71					
3			ericsson	KRY 112 144/1					
128.0		1	-	Platform Mount [LP 303-1]					

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	5452600	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4529295	CCISITES
4-TOWER MANUFACTURER DRAWINGS	5135435	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5111173	CCISITES
4-POST-MODIFICATION INSPECTION	5839578	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4964264	CCISITES
4-POST-MODIFICATION INSPECTION	5595874	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5111173	CCISITES

Document	Reference	Source
4-POST-MODIFICATION INSPECTION	5114340	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5907572	CCISITES
4-POST-MODIFICATION INSPECTION	6121087	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	8800798	CCISITES
4-POST-MODIFICATION INSPECTION	9239992	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	168.5 - 163.5	Pole	TP19.834x19x0.1875	Pole	10.2%	Pass
L2	163.5 - 158.5	Pole	TP20.669x19.834x0.1875	Pole	19.6%	Pass
L3	158.5 - 153.5	Pole	TP21.503x20.669x0.1875	Pole	34.6%	Pass
L4	153.5 - 148.5	Pole	TP22.337x21.503x0.1875	Pole	47.9%	Pass
L5	148.5 - 143.5	Pole	TP23.171x22.337x0.1875	Pole	63.7%	Pass
L6	143.5 - 138.5	Pole	TP24.006x23.171x0.1875	Pole	77.9%	Pass
L7	138.5 - 134.33	Pole	TP25.313x24.006x0.1875	Pole	92.3%	Pass
L8	134.33 - 129.33	Pole	TP25.15x24.327x0.25	Pole	75.8%	Pass
L9	129.33 - 125.75	Pole	TP25.739x25.15x0.25	Pole	84.0%	Pass
L10	125.75 - 125.5	Pole	TP25.78x25.739x0.25	Pole	84.5%	Pass
L11	125.5 - 120.5	Pole	TP26.603x25.78x0.25	Pole	94.5%	Pass
L12	120.5 - 120.25	Pole + Reinf.	TP26.644x26.603x0.4813	Reinf. 10 Tension Rupture	87.5%	Pass
L13	120.25 - 115.25	Pole + Reinf.	TP27.467x26.644x0.475	Reinf. 10 Tension Rupture	96.7%	Pass
L14	115.25 - 113.83	Pole + Reinf.	TP27.7x27.467x0.4688	Reinf. 10 Tension Rupture	99.2%	Pass
L15	113.83 - 113.48	Pole + Reinf.	TP27.758x27.7x0.65	Reinf. 10 Tension Rupture	69.2%	Pass
L16	113.48 - 113.25	Pole + Reinf.	TP27.796x27.758x0.65	Reinf. 10 Tension Rupture	69.5%	Pass
L17	113.25 - 108.25	Pole + Reinf.	TP28.619x27.796x0.6375	Reinf. 10 Tension Rupture	75.8%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L18	108.25 - 103.25	Pole + Reinf.	TP29.442x28.619x0.625	Reinf. 10 Tension Rupture	81.9%	Pass
L19	103.25 - 98.25	Pole + Reinf.	TP30.266x29.442x0.6125	Reinf. 10 Tension Rupture	87.6%	Pass
L20	98.25 - 93.25	Pole + Reinf.	TP31.089x30.266x0.6	Reinf. 10 Tension Rupture	93.2%	Pass
L21	93.25 - 89.28	Pole + Reinf.	TP32.493x31.089x0.6	Reinf. 10 Tension Rupture	97.4%	Pass
L22	89.28 - 83.72	Pole + Reinf.	TP32.155x31.243x0.6625	Reinf. 2 Tension Rupture	93.3%	Pass
L23	83.72 - 82.92	Pole + Reinf.	TP32.286x32.155x0.6625	Reinf. 2 Tension Rupture	94.0%	Pass
L24	82.92 - 82.67	Pole + Reinf.	TP32.327x32.286x0.95	Reinf. 2 Tension Rupture	69.4%	Pass
L25	82.67 - 82.5	Pole + Reinf.	TP32.355x32.327x0.95	Reinf. 2 Tension Rupture	69.5%	Pass
L26	82.5 - 82.25	Pole + Reinf.	TP32.396x32.355x0.6875	Reinf. 2 Tension Rupture	92.2%	Pass
L27	82.25 - 77.25	Pole + Reinf.	TP33.217x32.396x0.675	Reinf. 2 Tension Rupture	96.2%	Pass
L28	77.25 - 73.42	Pole + Reinf.	TP33.846x33.217x0.6625	Reinf. 2 Tension Rupture	99.1%	Pass
L29	73.42 - 73.17	Pole + Reinf.	TP33.887x33.846x0.9375	Reinf. 9 Tension Rupture	75.2%	Pass
L30	73.17 - 68.17	Pole + Reinf.	TP34.707x33.887x0.9125	Reinf. 9 Tension Rupture	78.3%	Pass
L31	68.17 - 64.25	Pole + Reinf.	TP35.35x34.707x0.8875	Reinf. 9 Tension Rupture	80.6%	Pass
L32	64.25 - 64	Pole + Reinf.	TP35.391x35.35x0.7375	Reinf. 3 Tension Rupture	92.7%	Pass
L33	64 - 59	Pole + Reinf.	TP36.212x35.391x0.7375	Reinf. 3 Tension Rupture	95.8%	Pass
L34	59 - 54	Pole + Reinf.	TP37.032x36.212x0.7125	Reinf. 3 Tension Rupture	98.8%	Pass
L35	54 - 53.5	Pole + Reinf.	TP37.115x37.032x0.7125	Reinf. 3 Tension Rupture	99.1%	Pass
L36	53.5 - 53.25	Pole + Reinf.	TP37.156x37.115x0.825	Reinf. 7 Tension Rupture	93.5%	Pass
L37	53.25 - 49.17	Pole + Reinf.	TP38.702x37.156x0.8125	Reinf. 7 Tension Rupture	95.7%	Pass
L38	49.17 - 42.83	Pole + Reinf.	TP38.239x37.201x0.725	Reinf. 4 Tension Rupture	98.9%	Pass
L39	42.83 - 41.75	Pole + Reinf.	TP38.415x38.239x0.725	Reinf. 4 Tension Rupture	99.4%	Pass
L40	41.75 - 41.5	Pole + Reinf.	TP38.456x38.415x0.7625	Reinf. 4 Tension Rupture	95.4%	Pass
L41	41.5 - 36.5	Pole + Reinf.	TP39.274x38.456x0.75	Reinf. 4 Tension Rupture	97.4%	Pass
L42	36.5 - 32.75	Pole + Reinf.	TP39.888x39.274x0.75	Reinf. 4 Tension Rupture	98.9%	Pass
L43	32.75 - 32.5	Pole + Reinf.	TP39.929x39.888x1	Reinf. 4 Tension Rupture	75.8%	Pass
L44	32.5 - 29.73	Pole + Reinf.	TP40.382x39.929x0.9	Reinf. 8 Tension Rupture	93.0%	Pass
L45	29.73 - 29.48	Pole + Reinf.	TP40.423x40.382x0.9	Reinf. 8 Tension Rupture	93.1%	Pass
L46	29.48 - 28.25	Pole + Reinf.	TP40.625x40.423x0.8875	Reinf. 8 Tension Rupture	93.5%	Pass
L47	28.25 - 28	Pole + Reinf.	TP40.666x40.625x0.95	Reinf. 8 Tension Rupture	85.4%	Pass
L48	28 - 23	Pole + Reinf.	TP41.485x40.666x0.95	Reinf. 8 Tension Rupture	87.1%	Pass
L49	23 - 19.25	Pole + Reinf.	TP42.099x41.485x0.9375	Reinf. 8 Tension Rupture	88.4%	Pass
L50	19.25 - 19	Pole + Reinf.	TP42.139x42.099x0.825	Reinf. 5 Tension Rupture	91.5%	Pass
L51	19 - 14	Pole + Reinf.	TP42.958x42.139x0.8	Reinf. 5 Tension Rupture	93.0%	Pass
L52	14 - 9	Pole + Reinf.	TP43.777x42.958x0.8	Reinf. 5 Tension Rupture	94.4%	Pass
L53	9 - 4	Pole + Reinf.	TP44.595x43.777x0.7875	Reinf. 5 Tension Rupture	95.6%	Pass
L54	4 - 0	Pole + Reinf.	TP45.25x44.595x0.775	Reinf. 5 Tension Rupture	96.6%	Pass
					Summary	
				Pole	94.5%	Pass
				Reinforcement	99.4%	Pass
				Overall	99.4%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	67.0	Pass
1	Base Plate		70.0	Pass
1	Base Foundation (Structure)	0	91.2	Pass
1	Base Foundation (Soil Interaction)		60.7	Pass

Structure Rating (max from all components) =	99.4%*
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Notes:

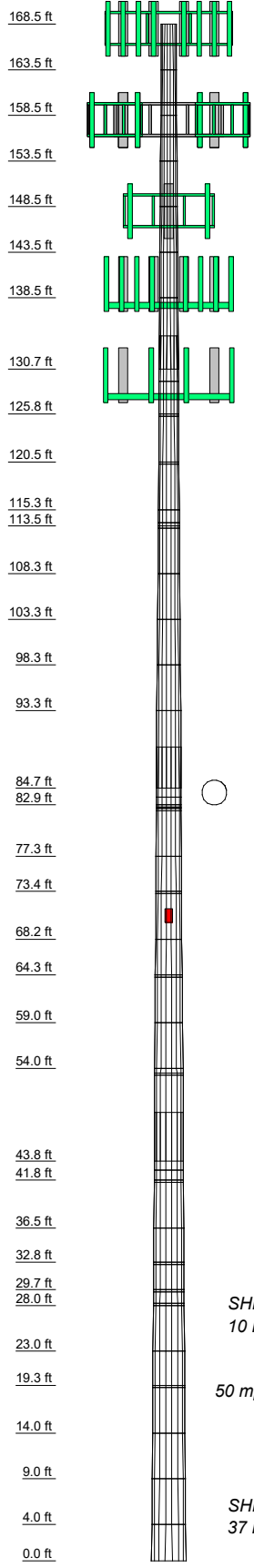
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) *Rating per TIA-222-H, Section 15.5.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

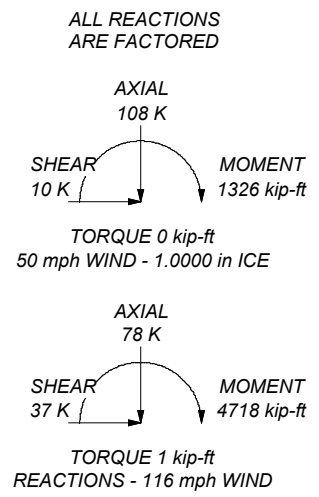
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
2	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
3	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
4	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
5	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
6	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
7	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
8	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
9	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
10	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
11	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
12	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
13	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
14	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
15	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
16	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
17	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
18	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
19	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
20	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
21	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
22	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
23	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
24	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
25	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
26	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
27	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
28	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
29	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
30	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
31	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
32	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
33	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
34	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
35	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
36	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
37	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
38	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
39	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
40	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
41	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
42	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
43	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
44	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
45	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
46	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
47	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
48	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
49	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
50	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
51	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
52	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
53	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5
54	5.00	18	0.1875	3.66	44.59543	45.25084	A572-65	39.5



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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CCIPOLE RATING IS 99.4%



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 Phone: (770) 379-8500
 FAX: (770) 379-8501

Job: CN8-652R1 / 2101398		
Project: 842859 / Bristol Center		
Client: Crown Castle USA	Drawn by: AL	App'd:
Code: TIA-222-H	Date: 09/09/21	Scale: NTS
Path:		Dwg No. E-1

Tower Input Data

The tower is a monopole.
 This tower is designed using the TIA-222-H standard.
 The following design criteria apply:
 Tower is located in Hartford County, Connecticut.
 Tower base elevation above sea level: 565.00 ft.
 Basic wind speed of 116 mph.
 Risk Category II.
 Exposure Category C.
 Simplified Topographic Factor Procedure for wind speed-up calculations is used.
 Topographic Category: 1.
 Crest Height: 0.00 ft.
 Nominal ice thickness of 1.0000 in.
 Ice thickness is considered to increase with height.
 Ice density of 56 pcf.
 A wind speed of 50 mph is used in combination with ice.
 Temperature drop of 50 °F.
 Deflections calculated using a wind speed of 60 mph.
 A non-linear (P-delta) analysis was used.
 Pressures are calculated at each section.
 Stress ratio used in pole design is 1.
 Tower analysis based on target reliabilities in accordance with Annex S.
 Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
 Maximum demand-capacity ratio is: 1.05.
 Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retention Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption |
| Poles | | |
| <ul style="list-style-type: none"> √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known | | |

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	168.50-163.50	5.00	0.00	18	19.0000	19.8343	0.1875	0.7500	A572-65 (65 ksi)
L2	163.50-158.50	5.00	0.00	18	19.8343	20.6685	0.1875	0.7500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	158.50-153.50	5.00	0.00	18	20.6685	21.5028	0.1875	0.7500	A572-65 (65 ksi)
L4	153.50-148.50	5.00	0.00	18	21.5028	22.3370	0.1875	0.7500	A572-65 (65 ksi)
L5	148.50-143.50	5.00	0.00	18	22.3370	23.1713	0.1875	0.7500	A572-65 (65 ksi)
L6	143.50-138.50	5.00	0.00	18	23.1713	24.0056	0.1875	0.7500	A572-65 (65 ksi)
L7	138.50-130.67	7.83	3.66	18	24.0056	25.3125	0.1875	0.7500	A572-65 (65 ksi)
L8	130.67-129.33	5.00	0.00	18	24.3268	25.1499	0.2500	1.0000	A572-65 (65 ksi)
L9	129.33-125.75	3.58	0.00	18	25.1499	25.7387	0.2500	1.0000	A572-65 (65 ksi)
L10	125.75-125.50	0.25	0.00	18	25.7387	25.7798	0.2500	1.0000	A572-65 (65 ksi)
L11	125.50-120.50	5.00	0.00	18	25.7798	26.6029	0.2500	1.0000	A572-65 (65 ksi)
L12	120.50-120.25	0.25	0.00	18	26.6029	26.6441	0.4813	1.9250	A572-65 (65 ksi)
L13	120.25-115.25	5.00	0.00	18	26.6441	27.4671	0.4750	1.9000	A572-65 (65 ksi)
L14	115.25-113.83	1.42	0.00	18	27.4671	27.7004	0.4688	1.8750	A572-65 (65 ksi)
L15	113.83-113.48	0.35	0.00	18	27.7004	27.7580	0.6500	2.6000	A572-65 (65 ksi)
L16	113.48-113.25	0.23	0.00	18	27.7580	27.7963	0.6500	2.6000	A572-65 (65 ksi)
L17	113.25-108.25	5.00	0.00	18	27.7963	28.6194	0.6375	2.5500	A572-65 (65 ksi)
L18	108.25-103.25	5.00	0.00	18	28.6194	29.4425	0.6250	2.5000	A572-65 (65 ksi)
L19	103.25-98.25	5.00	0.00	18	29.4425	30.2655	0.6125	2.4500	A572-65 (65 ksi)
L20	98.25-93.25	5.00	0.00	18	30.2655	31.0886	0.6000	2.4000	A572-65 (65 ksi)
L21	93.25-84.72	8.53	4.56	18	31.0886	32.4932	0.6000	2.4000	A572-65 (65 ksi)
L22	84.72-83.72	5.56	0.00	18	31.2426	32.1551	0.6625	2.6500	A572-65 (65 ksi)
L23	83.72-82.92	0.80	0.00	18	32.1551	32.2864	0.6625	2.6500	A572-65 (65 ksi)
L24	82.92-82.67	0.25	0.00	18	32.2864	32.3274	0.9500	3.8000	A572-65 (65 ksi)
L25	82.67-82.50	0.17	0.00	18	32.3274	32.3549	0.9500	3.8000	A572-65 (65 ksi)
L26	82.50-82.25	0.25	0.00	18	32.3549	32.3959	0.6875	2.7500	A572-65 (65 ksi)
L27	82.25-77.25	5.00	0.00	18	32.3959	33.2165	0.6750	2.7000	A572-65 (65 ksi)
L28	77.25-73.42	3.83	0.00	18	33.2165	33.8456	0.6625	2.6500	A572-65 (65 ksi)
L29	73.42-73.17	0.25	0.00	18	33.8456	33.8866	0.9375	3.7500	A572-65 (65 ksi)
L30	73.17-68.17	5.00	0.00	18	33.8866	34.7073	0.9125	3.6500	A572-65 (65 ksi)
L31	68.17-64.25	3.92	0.00	18	34.7073	35.3502	0.8875	3.5500	A572-65 (65 ksi)
L32	64.25-64.00	0.25	0.00	18	35.3502	35.3912	0.7375	2.9500	A572-65 (65 ksi)
L33	64.00-59.00	5.00	0.00	18	35.3912	36.2118	0.7375	2.9500	A572-65 (65 ksi)
L34	59.00-54.00	5.00	0.00	18	36.2118	37.0324	0.7125	2.8500	A572-65 (65 ksi)
L35	54.00-53.50	0.50	0.00	18	37.0324	37.1145	0.7125	2.8500	A572-65 (65 ksi)
L36	53.50-53.25	0.25	0.00	18	37.1145	37.1555	0.8250	3.3000	A572-65 (65 ksi)
L37	53.25-43.83	9.42	5.34	18	37.1555	38.7021	0.8125	3.2500	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
L38	43.83-42.83	6.34	0.00	18	37.2007	38.2386	0.7250	2.9000	(65 ksi) A572-65
L39	42.83-41.75	1.08	0.00	18	38.2386	38.4149	0.7250	2.9000	(65 ksi) A572-65
L40	41.75-41.50	0.25	0.00	18	38.4149	38.4559	0.7625	3.0500	(65 ksi) A572-65
L41	41.50-36.50	5.00	0.00	18	38.4559	39.2744	0.7500	3.0000	(65 ksi) A572-65
L42	36.50-32.75	3.75	0.00	18	39.2744	39.8884	0.7500	3.0000	(65 ksi) A572-65
L43	32.75-32.50	0.25	0.00	18	39.8884	39.9293	1.0000	4.0000	(65 ksi) A572-65
L44	32.50-29.73	2.77	0.00	18	39.9293	40.3823	0.9000	3.6000	(65 ksi) A572-65
L45	29.73-29.48	0.25	0.00	18	40.3823	40.4232	0.9000	3.6000	(65 ksi) A572-65
L46	29.48-28.25	1.23	0.00	18	40.4232	40.6251	0.8875	3.5500	(65 ksi) A572-65
L47	28.25-28.00	0.25	0.00	18	40.6251	40.6660	0.9500	3.8000	(65 ksi) A572-65
L48	28.00-23.00	5.00	0.00	18	40.6660	41.4846	0.9500	3.8000	(65 ksi) A572-65
L49	23.00-19.25	3.75	0.00	18	41.4846	42.0985	0.9375	3.7500	(65 ksi) A572-65
L50	19.25-19.00	0.25	0.00	18	42.0985	42.1394	0.8250	3.3000	(65 ksi) A572-65
L51	19.00-14.00	5.00	0.00	18	42.1394	42.9580	0.8000	3.2000	(65 ksi) A572-65
L52	14.00-9.00	5.00	0.00	18	42.9580	43.7766	0.8000	3.2000	(65 ksi) A572-65
L53	9.00-4.00	5.00	0.00	18	43.7766	44.5951	0.7875	3.1500	(65 ksi) A572-65
L54	4.00-0.00	4.00		18	44.5951	45.2500	0.7750	3.1000	(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	19.2642	11.1958	500.5935	6.6784	9.6520	51.8642	1001.8456	5.5990	3.0140	16.075
	20.1113	11.6923	570.1883	6.9746	10.0758	56.5899	1141.1269	5.8472	3.1608	16.858
L2	20.1113	11.6923	570.1883	6.9746	10.0758	56.5899	1141.1269	5.8472	3.1608	16.858
	20.9584	12.1888	645.9519	7.2708	10.4996	61.5215	1292.7538	6.0955	3.3077	17.641
L3	20.9584	12.1888	645.9519	7.2708	10.4996	61.5215	1292.7538	6.0955	3.3077	17.641
	21.8056	12.6853	728.1460	7.5669	10.9234	66.6592	1457.2501	6.3438	3.4545	18.424
L4	21.8056	12.6853	728.1460	7.5669	10.9234	66.6592	1457.2501	6.3438	3.4545	18.424
	22.6527	13.1817	817.0327	7.8631	11.3472	72.0029	1635.1404	6.5921	3.6013	19.207
L5	22.6527	13.1817	817.0327	7.8631	11.3472	72.0029	1635.1404	6.5921	3.6013	19.207
	23.4998	13.6782	912.8737	8.1592	11.7710	77.5527	1826.9486	6.8404	3.7481	19.99
L6	23.4998	13.6782	912.8737	8.1592	11.7710	77.5527	1826.9486	6.8404	3.7481	19.99
	24.3470	14.1747	1015.9312	8.4554	12.1948	83.3084	2033.1992	7.0887	3.8950	20.773
L7	24.3470	14.1747	1015.9312	8.4554	12.1948	83.3084	2033.1992	7.0887	3.8950	20.773
	25.6741	14.9525	1192.5150	8.9194	12.8588	92.7396	2386.5992	7.4777	4.1250	22
L8	25.6741	14.9525	1192.5150	8.9194	12.8588	92.7396	2386.5992	7.4777	4.1250	22
	25.2753	19.1050	1399.2068	8.5473	12.3580	113.2225	2800.2548	9.5543	3.8415	15.366
L9	25.4993	19.7581	1547.6621	8.8395	12.7761	121.1369	3097.3606	9.8809	3.9864	15.946
	25.4993	19.7581	1547.6621	8.8395	12.7761	121.1369	3097.3606	9.8809	3.9864	15.946
L10	26.0972	20.2253	1660.0732	9.0485	13.0753	126.9629	3322.3307	10.1146	4.0900	16.36
	26.0972	20.2253	1660.0732	9.0485	13.0753	126.9629	3322.3307	10.1146	4.0900	16.36
L11	26.1390	20.2579	1668.1270	9.0631	13.0962	127.3752	3338.4490	10.1309	4.0973	16.389
	26.1390	20.2579	1668.1270	9.0631	13.0962	127.3752	3338.4490	10.1309	4.0973	16.389
L12	26.9747	20.9110	1834.7205	9.3553	13.5143	135.7617	3671.8552	10.4575	4.2421	16.968
	26.9391	39.9005	3439.6736	9.2732	13.5143	254.5215	6883.8732	19.9540	3.8351	7.969
L13	26.9808	39.9634	3455.9562	9.2878	13.5352	255.3313	6916.4598	19.9855	3.8424	7.984
	26.9818	39.4538	3413.5188	9.2900	13.5352	252.1960	6831.5292	19.7306	3.8534	8.112
	27.8176	40.6947	3745.8366	9.5822	13.9533	268.4553	7496.6020	20.3512	3.9982	8.417

168.5 Ft Monopole Tower Structural Analysis
Project Number CN8-652R1 / 2101398, Order 579393, Revision 0

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
L14	27.8185	40.1685	3699.1176	9.5844	13.9533	265.1071	7403.1027	20.0881	4.0092	8.553
	28.0554	40.5155	3795.8246	9.6672	14.0718	269.7471	7596.6438	20.2616	4.0503	8.641
L15	28.0274	55.8076	5159.1411	9.6029	14.0718	366.6301	10325.0708	27.9091	3.7313	5.74
	28.0859	55.9265	5192.1764	9.6233	14.1011	368.2119	10391.1848	27.9686	3.7414	5.756
L16	28.0859	55.9265	5192.1764	9.6233	14.1011	368.2119	10391.1848	27.9686	3.7414	5.756
	28.1249	56.0056	5214.2468	9.6370	14.1205	369.2668	10435.3546	28.0081	3.7482	5.766
L17	28.1268	54.9539	5121.0405	9.6414	14.1205	362.6660	10248.8194	27.4822	3.7702	5.914
	28.9626	56.6193	5600.8768	9.9336	14.5387	385.2404	11209.1235	28.3150	3.9150	6.141
L18	28.9645	55.5339	5498.4179	9.9380	14.5387	378.1931	11004.0707	27.7722	3.9370	6.299
	29.8002	57.1666	5997.7901	10.2302	14.9568	401.0085	12003.4722	28.5887	4.0819	6.531
L19	29.8022	56.0476	5885.4864	10.2346	14.9568	393.4999	11778.7170	28.0291	4.1039	6.7
	30.6379	57.6477	6404.0823	10.5268	15.3749	416.5289	12816.5913	28.8293	4.2487	6.937
L20	30.6398	56.4950	6281.3236	10.5313	15.3749	408.5446	12570.9123	28.2529	4.2707	7.118
	31.4756	58.0624	6818.7817	10.8234	15.7930	431.7599	13646.5358	29.0367	4.4156	7.359
L21	31.4756	58.0624	6818.7817	10.8234	15.7930	431.7599	13646.5358	29.0367	4.4156	7.359
	32.9019	60.7374	7805.3056	11.3221	16.5065	472.8612	15620.8816	30.3745	4.6628	7.771
L22	32.3823	64.3030	7597.0637	10.8559	15.8712	478.6690	15204.1237	32.1576	4.3327	6.54
	32.5490	66.2219	8297.6728	11.1799	16.3348	507.9753	16606.2638	33.1172	4.4933	6.782
L23	32.5490	66.2219	8297.6728	11.1799	16.3348	507.9753	16606.2638	33.1172	4.4933	6.782
	32.6823	66.4980	8401.8916	11.2265	16.4015	512.2637	16814.8387	33.2553	4.5164	6.817
L24	32.6379	94.4887	11722.3808	11.1244	16.4015	714.7140	23460.1862	47.2533	4.0104	4.221
	32.6796	94.6124	11768.4891	11.1390	16.4223	716.6145	23552.4635	47.3152	4.0176	4.229
L25	32.6796	94.6124	11768.4891	11.1390	16.4223	716.6145	23552.4635	47.3152	4.0176	4.229
	32.7074	94.6951	11799.3563	11.1487	16.4363	717.8855	23614.2384	47.3565	4.0225	4.234
L26	32.7479	69.1021	8754.9245	11.2419	16.4363	532.6590	17521.3690	34.5576	4.4845	6.523
	32.7896	69.1917	8788.9996	11.2565	16.4571	534.0549	17589.5639	34.6024	4.4917	6.533
L27	32.7915	67.9604	8639.4089	11.2609	16.4571	524.9651	17290.1858	33.9867	4.5137	6.687
	33.6248	69.7186	9327.4182	11.5522	16.8740	552.7690	18667.1097	34.8659	4.6581	6.901
L28	33.6267	68.4538	9165.2419	11.5567	16.8740	543.1580	18342.5437	34.2334	4.6801	7.064
	34.2655	69.7766	9706.9215	11.7800	17.1936	564.5670	19426.6155	34.8949	4.7908	7.231
L29	34.2231	97.9222	13397.5217	11.6824	17.1936	779.2170	26812.6723	48.9704	4.3068	4.594
	34.2648	98.0443	13447.6990	11.6969	17.2144	781.1883	26913.0928	49.0315	4.3140	4.602
L30	34.2686	95.5022	13118.9101	11.7058	17.2144	762.0887	26255.0825	47.7602	4.3580	4.776
	35.1019	97.8790	14122.9626	11.9971	17.6313	801.0168	28264.5085	48.9488	4.5025	4.934
L31	35.1058	95.2678	13766.5387	12.0060	17.6313	780.8014	27551.1918	47.6429	4.5465	5.123
	35.7586	97.0787	14566.6234	12.2342	17.9579	811.1550	29152.4140	48.5486	4.6596	5.25
L32	35.7817	81.0222	12263.4058	12.2875	17.9579	682.8984	24542.9482	40.5188	4.9236	6.676
	35.8234	81.1182	12307.0699	12.3021	17.9787	684.5353	24630.3338	40.5668	4.9308	6.686
L33	35.8234	81.1182	12307.0699	12.3021	17.9787	684.5353	24630.3338	40.5668	4.9308	6.686
	36.6567	83.0392	13202.2663	12.5934	18.3956	717.6860	26421.9045	41.5275	5.0753	6.882
L34	36.6605	80.2808	12781.7170	12.6023	18.3956	694.8246	25580.2525	40.1480	5.1193	7.185
	37.4938	82.1366	13688.7825	12.8936	18.8125	727.6436	27395.5771	41.0761	5.2637	7.388
L35	37.4938	82.1366	13688.7825	12.8936	18.8125	727.6436	27395.5771	41.0761	5.2637	7.388
	37.5771	82.3222	13781.7796	12.9227	18.8542	730.9672	27581.6936	41.1689	5.2782	7.408
L36	37.5598	95.0259	15810.3541	12.8828	18.8542	838.5600	31641.5119	47.5220	5.0802	6.158
	37.6015	95.1333	15864.0431	12.8973	18.8750	840.4785	31748.9605	47.5757	5.0874	6.167
L37	37.6034	93.7242	15639.8109	12.9018	18.8750	828.5986	31300.2011	46.8710	5.1094	6.288
	39.1738	97.7125	17722.6150	13.4508	19.6607	901.4249	35468.5499	48.8656	5.3816	6.623
L38	38.5504	83.9360	14108.8659	12.9489	18.8979	746.5823	28236.2966	41.9760	5.2713	7.271
	38.7167	86.3245	15347.9060	13.3173	19.4252	790.1022	30716.0071	43.1704	5.4540	7.523
L39	38.7167	86.3245	15347.9060	13.3173	19.4252	790.1022	30716.0071	43.1704	5.4540	7.523
	38.8957	86.7302	15565.3376	13.3799	19.5148	797.6176	31151.1565	43.3733	5.4850	7.566
L40	38.8899	91.1255	16321.6260	13.3666	19.5148	836.3722	32664.7285	45.5714	5.4190	7.107
	38.9315	91.2245	16374.9085	13.3811	19.5356	838.2096	32771.3635	45.6209	5.4262	7.116
L41	38.9334	89.7588	16122.4965	13.3856	19.5356	825.2889	32266.2074	44.8879	5.4482	7.264
	39.7646	91.7074	17195.4853	13.6762	19.9514	861.8681	34413.5968	45.8624	5.5923	7.456
L42	39.7646	91.7074	17195.4853	13.6762	19.9514	861.8681	34413.5968	45.8624	5.5923	7.456
	40.3880	93.1689	18030.7409	13.8941	20.2633	889.8231	36085.2072	46.5933	5.7004	7.6
L43	40.3494	123.4317	23583.2321	13.8054	20.2633	1163.8404	47197.4956	61.7276	5.2604	5.26
	40.3910	123.5616	23657.7727	13.8199	20.2841	1166.3222	47346.6749	61.7925	5.2676	5.268
L44	40.4064	111.4911	21456.4994	13.8554	20.2841	1057.8000	42941.2317	55.7561	5.4436	6.048
	40.8664	112.7851	22212.3147	14.0162	20.5142	1082.7774	44453.8570	56.4033	5.5233	6.137
L45	40.8664	112.7851	22212.3147	14.0162	20.5142	1082.7774	44453.8570	56.4033	5.5233	6.137
	40.9080	112.9020	22281.4633	14.0307	20.5350	1085.0485	44592.2452	56.4617	5.5305	6.145
L46	40.9099	111.3691	21992.8524	14.0352	20.5350	1070.9939	44014.6435	55.6952	5.5525	6.256
	41.1149	111.9378	22331.4462	14.1068	20.6375	1082.0790	44692.2767	55.9795	5.5880	6.296
L47	41.1052	119.6323	23791.4702	14.0847	20.6375	1152.8250	47614.2458	59.8275	5.4780	5.766
	41.1468	119.7557	23865.1746	14.0992	20.6583	1155.2325	47761.7515	59.8892	5.4852	5.774
L48	41.1468	119.7557	23865.1746	14.0992	20.6583	1155.2325	47761.7515	59.8892	5.4852	5.774
	41.9780	122.2239	25371.4244	14.3898	21.0742	1203.9113	50776.2331	61.1236	5.6293	5.926

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
L49	41.9799	120.6529	25060.7602	14.3942	21.0742	1189.1698	50154.4959	60.3379	5.6513	6.028
	42.6033	122.4797	26216.4266	14.6122	21.3860	1225.8664	52467.3495	61.2515	5.7593	6.143
L50	42.6207	108.0767	23260.1393	14.6521	21.3860	1087.6319	46550.8850	54.0486	5.9573	7.221
	42.6622	108.1839	23329.4043	14.6666	21.4068	1089.8112	46689.5059	54.1022	5.9645	7.23
L51	42.6661	104.9691	22663.5451	14.6755	21.4068	1058.7062	45356.9114	52.4945	6.0085	7.511
	43.4973	107.0476	24036.6766	14.9661	21.8227	1101.4547	48104.9812	53.5340	6.1526	7.691
L52	43.4973	107.0476	24036.6766	14.9661	21.8227	1101.4547	48104.9812	53.5340	6.1526	7.691
	44.3285	109.1261	25464.1805	15.2567	22.2385	1145.0494	50961.8674	54.5734	6.2967	7.871
L53	44.3304	107.4523	25088.1811	15.2611	22.2385	1128.1418	50209.3739	53.7363	6.3187	8.024
	45.1616	109.4983	26548.7817	15.5517	22.6543	1171.9075	53132.4970	54.7596	6.4627	8.207
L54	45.1635	107.7910	26149.7443	15.5562	22.6543	1154.2933	52333.8971	53.9057	6.4847	8.367
	45.8285	109.4018	27339.7126	15.7886	22.9870	1189.3554	54715.3996	54.7113	6.6000	8.516

Tower Elevation	Gusset Area (per face) ft ²	Gusset Thickness in	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
L1 168.50-163.50				1	1	1			
L2 163.50-158.50				1	1	1			
L3 158.50-153.50				1	1	1			
L4 153.50-148.50				1	1	1			
L5 148.50-143.50				1	1	1			
L6 143.50-138.50				1	1	1			
L7 138.50-130.67				1	1	1			
L8 130.67-129.33				1	1	1			
L9 129.33-125.75				1	1	1			
L10 125.75-125.50				1	1	1			
L11 125.50-120.50				1	1	1			
L12 120.50-120.25				1	1	1.08476			
L13 120.25-115.25				1	1	1.08132			
L14 115.25-113.83				1	1	1.09067			
L15 113.83-113.48				1	1	0.966961			
L16 113.48-113.25				1	1	0.966139			
L17 113.25-108.25				1	1	0.967202			
L18 108.25-103.25				1	1	0.969366			
L19 103.25-98.25				1	1	0.972606			
L20 98.25-93.25				1	1	0.976906			
L21 93.25-84.72				1	1	0.965141			
L22 84.72-83.72				1	1	1.04324			
L23 83.72-82.92				1	1	1.04087			
L24 82.92-82.67				1	1	0.922256			
L25 82.67-82.50				1	1	0.921738			
L26 82.50-				1	1	1.08141			

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 Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
82.25									
L27 82.25-77.25				1	1	1.08491			
L28 77.25-73.42				1	1	1.09295			
L29 73.42-73.17				1	1	0.961846			
L30 73.17-68.17				1	1	0.971787			
L31 68.17-64.25				1	1	0.986366			
L32 64.25-64.00				1	1	0.959035			
L33 64.00-59.00				1	1	0.946652			
L34 59.00-54.00				1	1	0.966964			
L35 54.00-53.50				1	1	0.965772			
L36 53.50-53.25				1	1	0.967544			
L37 53.25-43.83				1	1	0.971274			
L38 43.83-42.83				1	1	1.07813			
L39 42.83-41.75				1	1	1.0755			
L40 41.75-41.50				1	1	1.08883			
L41 41.50-36.50				1	1	1.09372			
L42 36.50-32.75				1	1	1.0844			
L43 32.75-32.50				1	1	0.949583			
L44 32.50-29.73				1	1	0.938695			
L45 29.73-29.48				1	1	0.938154			
L46 29.48-28.25				1	1	0.948382			
L47 28.25-28.00				1	1	1.0017			
L48 28.00-23.00				1	1	0.98944			
L49 23.00-19.25				1	1	0.99334			
L50 19.25-19.00				1	1	0.958664			
L51 19.00-14.00				1	1	0.977942			
L52 14.00-9.00				1	1	0.968244			
L53 9.00-4.00				1	1	0.97385			
L54 4.00-0.00				1	1	0.981834			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
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Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	C	No	Surface Ar (CaAa)	168.50 - 10.00	1	1	0.250 0.250	0.3750		0.22
Step Pegs	C	No	Surface Ar (CaAa)	168.50 - 10.00	1	1	0.200 0.300	0.3500		0.45

CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	148.00 - 8.00	1	1	0.000 0.000	1.6000		2.35

HB114-U6S12-XXX-LI(1-1/4)	A	No	Surface Ar (CaAa)	138.00 - 8.00	1	1	-0.050 -0.050	1.5400		1.70
HB158-1-08U8-S8J18(1-5/8)	A	No	Surface Ar (CaAa)	138.00 - 8.00	1	1	0.000 0.000	1.9800		1.30
MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	B	No	Surface Ar (CaAa)	128.00 - 8.00	3	3	-0.170 -0.050	1.2500		0.68

LDF4-50A(1/2)	C	No	Surface Ar (CaAa)	70.00 - 8.00	1	1	0.250 0.250	0.6250		0.15

Shaft Reinforcement [#PL0.625x5]	A	No	Surface Af (CaAa)	84.67 - 0.00	1	1	0.000 0.000	5.0000	11.2500	10.63
Shaft Reinforcement [#PL0.625x5]	C	No	Surface Af (CaAa)	84.67 - 0.00	1	1	0.000 0.000	5.0000	11.2500	10.63
Shaft Reinforcement [#PL0.625x5]	A	No	Surface Af (CaAa)	120.00 - 84.67	1	1	0.000 0.000	5.0000	11.2500	10.63
Shaft Reinforcement [#PL0.625x5]	B	No	Surface Af (CaAa)	120.00 - 84.67	1	1	0.000 0.000	5.0000	11.2500	10.63
Shaft Reinforcement [#PL0.625x5]	C	No	Surface Af (CaAa)	120.00 - 84.67	1	1	0.000 0.000	5.0000	11.2500	10.63

Shaft Reinforcement [#PL1.25x6]	A	No	Surface Af (CaAa)	30.75 - 0.00	1	1	0.000 0.000	6.0000	14.5000	0.00
Shaft Reinforcement [#PL1.25x6]	B	No	Surface Af (CaAa)	30.75 - 0.00	1	1	0.000 0.000	6.0000	14.5000	0.00
Shaft Reinforcement [#PL1.25x6]	C	No	Surface Af (CaAa)	30.75 - 0.00	2	2	0.000 0.000	6.0000	14.5000	0.00
Shaft Reinforcement [#PL1.25x6]	A	No	Surface Af (CaAa)	47.92 - 27.75	2	2	0.000 0.000	6.0000	14.5000	0.00
Shaft Reinforcement [#PL1.25x6]	B	No	Surface Af (CaAa)	47.92 - 27.75	1	1	0.000 0.000	6.0000	14.5000	0.00
Shaft Reinforcement [#PL1.25x6]	C	No	Surface Af (CaAa)	47.92 - 27.75	1	1	0.000 0.000	6.0000	14.5000	0.00
Shaft Reinforcement [#PL1.25x5]	A	No	Surface Af (CaAa)	75.42 - 45.38	2	2	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	B	No	Surface Af (CaAa)	75.42 - 45.38	1	1	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	C	No	Surface Af (CaAa)	75.42 - 45.38	1	1	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	A	No	Surface Af (CaAa)	87.92 - 72.75	1	1	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	B	No	Surface Af (CaAa)	87.92 - 72.75	1	1	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	C	No	Surface Af (CaAa)	87.92 - 72.75	2	2	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	A	No	Surface Af (CaAa)	115.83 - 85.83	1	1	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	B	No	Surface Af (CaAa)	115.83 - 85.83	1	1	0.000 0.000	5.0000	12.5000	0.00
Shaft Reinforcement [#PL1.25x5]	C	No	Surface Af (CaAa)	115.83 - 85.83	1	1	0.000 0.000	5.0000	12.5000	0.00

CCI-SFP-060100	A	No	Surface Af (CaAa)	43.75 - 0.00	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-SFP-060100	B	No	Surface Af (CaAa)	43.75 - 0.00	2	2	0.000 0.000	6.0000	14.0000	0.00
CCI-SFP-060100	C	No	Surface Af (CaAa)	43.75 - 0.00	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-SFP-045100	A	No	Surface Af (CaAa)	84.33 - 43.75	1	1	0.000 0.000	4.5000	11.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
CCI-SFP-045100	B	No	Surface Af (CaAa)	84.33 - 43.75	2	2	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	No	Surface Af (CaAa)	84.33 - 43.75	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	A	No	Surface Af (CaAa)	27.75 - 17.75	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	B	No	Surface Af (CaAa)	27.75 - 17.75	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	No	Surface Af (CaAa)	27.75 - 17.75	2	2	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	A	No	Surface Af (CaAa)	72.75 - 62.75	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	B	No	Surface Af (CaAa)	72.75 - 62.75	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	No	Surface Af (CaAa)	72.75 - 62.75	2	2	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	A	No	Surface Af (CaAa)	127.33 - 87.92	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	B	No	Surface Af (CaAa)	127.33 - 87.92	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	No	Surface Af (CaAa)	127.33 - 87.92	1	1	0.000 0.000	4.5000	11.0000	0.00

CCI-SFP-040125	A	No	Surface Af (CaAa)	122.00 - 112.00	1	1	0.000 0.000	4.0000	10.5000	0.00
CCI-SFP-040125	B	No	Surface Af (CaAa)	122.00 - 112.00	1	1	0.000 0.000	4.0000	10.5000	0.00
CCI-SFP-050125	B	No	Surface Af (CaAa)	90.50 - 80.50	1	1	0.000 0.000	5.0000	12.5000	0.00
CCI-SFP-050125	C	No	Surface Af (CaAa)	90.50 - 80.50	1	1	0.000 0.000	5.0000	12.5000	0.00
CCI-SFP-050125	B	No	Surface Af (CaAa)	55.50 - 45.50	1	1	0.000 0.000	5.0000	12.5000	0.00
CCI-SFP-050125	C	No	Surface Af (CaAa)	55.50 - 45.50	1	1	0.000 0.000	5.0000	12.5000	0.00
CCI-SFP-065125	B	No	Surface Af (CaAa)	35.50 - 25.50	1	1	0.000 0.000	6.5000	15.5000	0.00
CCI-SFP-065125	C	No	Surface Af (CaAa)	35.50 - 25.50	1	1	0.000 0.000	6.5000	15.5000	0.00

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 plf
Ground Wire(3/8)	A	No	No	Inside Pole	168.33 - 0.00	1	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
Lighting Cable(3/8)	B	No	No	Inside Pole	168.33 - 0.00	1	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
***** CONDUIT (2)	C	No	No	Inside Pole	168.00 - 2.00	3	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
LDF2-50(3/8)	C	No	No	Inside Pole	168.00 - 2.00	1	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
LDF7-50A(1-5/8)	C	No	No	Inside Pole	168.00 - 2.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
FB-L98B-034-XXXXXX(3/8)	C	No	No	Inside Pole	168.00 - 2.00	2	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
WR-CAT5E10P(1)	C	No	No	Inside Pole	168.00 - 2.00	2	1" Ice	0.00	0.05
							No Ice	0.00	0.41
							1/2" Ice	0.00	0.41
WR-VG86ST-BRDA(7/8)	C	No	No	Inside Pole	168.00 - 2.00	6	1" Ice	0.00	0.41
							No Ice	0.00	0.68
							1/2" Ice	0.00	0.68
							1" Ice	0.00	0.68

HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	158.00 - 8.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
LDF7-50A(1-5/8)	A	No	No	Inside Pole	138.00 - 8.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82

LDF7-50A(1-5/8)	B	No	No	Inside Pole	128.00 - 8.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82

Feed Line/Linear Appurtenances Section Areas

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
L1	168.50-163.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.362	0.000	0.05
L2	163.50-158.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.362	0.000	0.06
L3	158.50-153.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.362	0.000	0.09
L4	153.50-148.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.362	0.000	0.09
L5	148.50-143.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.720	0.000	0.01
		C	0.000	0.000	0.362	0.000	0.09
L6	143.50-138.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.800	0.000	0.01
		C	0.000	0.000	0.362	0.000	0.09
L7	138.50-130.67	A	0.000	0.000	2.581	0.000	0.06
		B	0.000	0.000	1.253	0.000	0.02
		C	0.000	0.000	0.568	0.000	0.15
L8	130.67-129.33	A	0.000	0.000	0.472	0.000	0.01
		B	0.000	0.000	0.214	0.000	0.00
		C	0.000	0.000	0.097	0.000	0.03
L9	129.33-125.75	A	0.000	0.000	2.444	0.000	0.03
		B	0.000	0.000	2.601	0.000	0.04
		C	0.000	0.000	1.444	0.000	0.07
L10	125.75-125.50	A	0.000	0.000	0.276	0.000	0.00
		B	0.000	0.000	0.321	0.000	0.00
		C	0.000	0.000	0.206	0.000	0.00
L11	125.50-120.50	A	0.000	0.000	6.510	0.000	0.04
		B	0.000	0.000	7.425	0.000	0.07
		C	0.000	0.000	4.112	0.000	0.09
L12	120.50-120.25	A	0.000	0.000	0.442	0.000	0.00
		B	0.000	0.000	0.488	0.000	0.00
		C	0.000	0.000	0.206	0.000	0.00
L13	120.25-115.25	A	0.000	0.000	13.285	0.000	0.09
		B	0.000	0.000	14.200	0.000	0.12
		C	0.000	0.000	8.554	0.000	0.14

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
L14	115.25-113.83	A	0.000	0.000	4.868	0.000	0.03
		B	0.000	0.000	5.127	0.000	0.04
		C	0.000	0.000	3.527	0.000	0.04
L15	113.83-113.48	A	0.000	0.000	1.202	0.000	0.01
		B	0.000	0.000	1.266	0.000	0.01
		C	0.000	0.000	0.871	0.000	0.01
L16	113.48-113.25	A	0.000	0.000	0.800	0.000	0.00
		B	0.000	0.000	0.843	0.000	0.01
		C	0.000	0.000	0.580	0.000	0.01
L17	113.25-108.25	A	0.000	0.000	14.677	0.000	0.09
		B	0.000	0.000	15.592	0.000	0.12
		C	0.000	0.000	12.446	0.000	0.15
L18	108.25-103.25	A	0.000	0.000	13.843	0.000	0.09
		B	0.000	0.000	14.758	0.000	0.12
		C	0.000	0.000	12.446	0.000	0.15
L19	103.25-98.25	A	0.000	0.000	13.843	0.000	0.09
		B	0.000	0.000	14.758	0.000	0.12
		C	0.000	0.000	12.446	0.000	0.15
L20	98.25-93.25	A	0.000	0.000	13.843	0.000	0.09
		B	0.000	0.000	14.758	0.000	0.12
		C	0.000	0.000	12.446	0.000	0.15
L21	93.25-84.72	A	0.000	0.000	22.964	0.000	0.16
		B	0.000	0.000	29.207	0.000	0.21
		C	0.000	0.000	27.930	0.000	0.25
L22	84.72-83.72	A	0.000	0.000	2.478	0.000	0.02
		B	0.000	0.000	3.136	0.000	0.01
		C	0.000	0.000	3.842	0.000	0.03
L23	83.72-82.92	A	0.000	0.000	2.215	0.000	0.01
		B	0.000	0.000	2.942	0.000	0.01
		C	0.000	0.000	3.306	0.000	0.02
L24	82.92-82.67	A	0.000	0.000	0.692	0.000	0.00
		B	0.000	0.000	0.919	0.000	0.00
		C	0.000	0.000	1.033	0.000	0.01
L25	82.67-82.50	A	0.000	0.000	0.462	0.000	0.00
		B	0.000	0.000	0.614	0.000	0.00
		C	0.000	0.000	0.690	0.000	0.00
L26	82.50-82.25	A	0.000	0.000	0.692	0.000	0.00
		B	0.000	0.000	0.919	0.000	0.00
		C	0.000	0.000	1.033	0.000	0.01
L27	82.25-77.25	A	0.000	0.000	13.843	0.000	0.09
		B	0.000	0.000	15.758	0.000	0.07
		C	0.000	0.000	18.029	0.000	0.15
L28	77.25-73.42	A	0.000	0.000	13.951	0.000	0.07
		B	0.000	0.000	12.663	0.000	0.05
		C	0.000	0.000	14.404	0.000	0.11
L29	73.42-73.17	A	0.000	0.000	1.109	0.000	0.00
		B	0.000	0.000	0.925	0.000	0.00
		C	0.000	0.000	1.039	0.000	0.01
L30	73.17-68.17	A	0.000	0.000	21.795	0.000	0.09
		B	0.000	0.000	18.126	0.000	0.07
		C	0.000	0.000	20.130	0.000	0.15
L31	68.17-64.25	A	0.000	0.000	17.047	0.000	0.07
		B	0.000	0.000	14.173	0.000	0.06
		C	0.000	0.000	15.870	0.000	0.12
L32	64.25-64.00	A	0.000	0.000	1.088	0.000	0.00
		B	0.000	0.000	0.905	0.000	0.00
		C	0.000	0.000	1.013	0.000	0.01
L33	64.00-59.00	A	0.000	0.000	18.948	0.000	0.09
		B	0.000	0.000	15.279	0.000	0.07
		C	0.000	0.000	14.633	0.000	0.15
L34	59.00-54.00	A	0.000	0.000	18.010	0.000	0.09
		B	0.000	0.000	15.556	0.000	0.07
		C	0.000	0.000	13.973	0.000	0.15
L35	54.00-53.50	A	0.000	0.000	1.801	0.000	0.01
		B	0.000	0.000	1.839	0.000	0.01
		C	0.000	0.000	1.681	0.000	0.01
L36	53.50-53.25	A	0.000	0.000	0.900	0.000	0.00
		B	0.000	0.000	0.919	0.000	0.00
		C	0.000	0.000	0.840	0.000	0.01

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
L37	53.25-43.83	A	0.000	0.000	39.548	0.000	0.18
		B	0.000	0.000	36.105	0.000	0.13
		C	0.000	0.000	33.121	0.000	0.28
L38	43.83-42.83	A	0.000	0.000	4.166	0.000	0.02
		B	0.000	0.000	3.497	0.000	0.01
		C	0.000	0.000	2.949	0.000	0.03
L39	42.83-41.75	A	0.000	0.000	4.508	0.000	0.02
		B	0.000	0.000	3.807	0.000	0.02
		C	0.000	0.000	3.197	0.000	0.03
L40	41.75-41.50	A	0.000	0.000	1.046	0.000	0.00
		B	0.000	0.000	0.884	0.000	0.00
		C	0.000	0.000	0.742	0.000	0.01
L41	41.50-36.50	A	0.000	0.000	20.927	0.000	0.09
		B	0.000	0.000	17.675	0.000	0.07
		C	0.000	0.000	14.842	0.000	0.15
L42	36.50-32.75	A	0.000	0.000	15.695	0.000	0.07
		B	0.000	0.000	15.894	0.000	0.05
		C	0.000	0.000	13.769	0.000	0.11
L43	32.75-32.50	A	0.000	0.000	1.046	0.000	0.00
		B	0.000	0.000	1.124	0.000	0.00
		C	0.000	0.000	0.982	0.000	0.01
L44	32.50-29.73	A	0.000	0.000	12.598	0.000	0.05
		B	0.000	0.000	13.453	0.000	0.04
		C	0.000	0.000	12.902	0.000	0.08
L45	29.73-29.48	A	0.000	0.000	1.296	0.000	0.00
		B	0.000	0.000	1.374	0.000	0.00
		C	0.000	0.000	1.482	0.000	0.01
L46	29.48-28.25	A	0.000	0.000	6.394	0.000	0.02
		B	0.000	0.000	6.774	0.000	0.02
		C	0.000	0.000	7.309	0.000	0.04
L47	28.25-28.00	A	0.000	0.000	1.296	0.000	0.00
		B	0.000	0.000	1.374	0.000	0.00
		C	0.000	0.000	1.482	0.000	0.01
L48	28.00-23.00	A	0.000	0.000	19.989	0.000	0.09
		B	0.000	0.000	23.886	0.000	0.07
		C	0.000	0.000	29.615	0.000	0.15
L49	23.00-19.25	A	0.000	0.000	14.758	0.000	0.07
		B	0.000	0.000	16.069	0.000	0.05
		C	0.000	0.000	20.506	0.000	0.11
L50	19.25-19.00	A	0.000	0.000	0.984	0.000	0.00
		B	0.000	0.000	1.071	0.000	0.00
		C	0.000	0.000	1.367	0.000	0.01
L51	19.00-14.00	A	0.000	0.000	16.864	0.000	0.09
		B	0.000	0.000	18.613	0.000	0.07
		C	0.000	0.000	21.717	0.000	0.15
L52	14.00-9.00	A	0.000	0.000	15.927	0.000	0.09
		B	0.000	0.000	17.675	0.000	0.07
		C	0.000	0.000	19.769	0.000	0.15
L53	9.00-4.00	A	0.000	0.000	14.519	0.000	0.06
		B	0.000	0.000	15.535	0.000	0.01
		C	0.000	0.000	19.229	0.000	0.11
L54	4.00-0.00	A	0.000	0.000	11.333	0.000	0.04
		B	0.000	0.000	12.000	0.000	0.00
		C	0.000	0.000	15.333	0.000	0.06

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	168.50-163.50	A	0.999	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.361	0.000
L2	163.50-158.50	A	0.996	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.354	0.000

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		in	ft ²	ft ²	ft ²	ft ²	K
L3	158.50-153.50	A	0.993	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.348	0.000	0.11
L4	153.50-148.50	A	0.990	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.342	0.000	0.11
L5	148.50-143.50	A	0.986	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.608	0.000	0.02
		C		0.000	0.000	2.335	0.000	0.11
L6	143.50-138.50	A	0.983	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.783	0.000	0.03
		C		0.000	0.000	2.328	0.000	0.11
L7	138.50-130.67	A	0.978	0.000	0.000	5.451	0.000	0.11
		B		0.000	0.000	2.786	0.000	0.04
		C		0.000	0.000	3.633	0.000	0.17
L8	130.67-129.33	A	0.975	0.000	0.000	0.996	0.000	0.02
		B		0.000	0.000	0.477	0.000	0.01
		C		0.000	0.000	0.621	0.000	0.03
L9	129.33-125.75	A	0.973	0.000	0.000	4.144	0.000	0.06
		B		0.000	0.000	4.363	0.000	0.07
		C		0.000	0.000	3.144	0.000	0.09
L10	125.75-125.50	A	0.972	0.000	0.000	0.421	0.000	0.01
		B		0.000	0.000	0.503	0.000	0.01
		C		0.000	0.000	0.351	0.000	0.01
L11	125.50-120.50	A	0.970	0.000	0.000	9.634	0.000	0.11
		B		0.000	0.000	11.260	0.000	0.15
		C		0.000	0.000	7.021	0.000	0.14
L12	120.50-120.25	A	0.967	0.000	0.000	0.623	0.000	0.01
		B		0.000	0.000	0.704	0.000	0.01
		C		0.000	0.000	0.351	0.000	0.01
L13	120.25-115.25	A	0.965	0.000	0.000	17.926	0.000	0.21
		B		0.000	0.000	19.551	0.000	0.25
		C		0.000	0.000	12.479	0.000	0.22
L14	115.25-113.83	A	0.963	0.000	0.000	6.434	0.000	0.07
		B		0.000	0.000	6.895	0.000	0.08
		C		0.000	0.000	4.891	0.000	0.07
L15	113.83-113.48	A	0.962	0.000	0.000	1.589	0.000	0.02
		B		0.000	0.000	1.703	0.000	0.02
		C		0.000	0.000	1.208	0.000	0.02
L16	113.48-113.25	A	0.962	0.000	0.000	1.058	0.000	0.01
		B		0.000	0.000	1.133	0.000	0.01
		C		0.000	0.000	0.804	0.000	0.01
L17	113.25-108.25	A	0.959	0.000	0.000	19.652	0.000	0.22
		B		0.000	0.000	21.275	0.000	0.26
		C		0.000	0.000	17.243	0.000	0.25
L18	108.25-103.25	A	0.955	0.000	0.000	18.618	0.000	0.21
		B		0.000	0.000	20.241	0.000	0.25
		C		0.000	0.000	17.221	0.000	0.25
L19	103.25-98.25	A	0.950	0.000	0.000	18.595	0.000	0.21
		B		0.000	0.000	20.216	0.000	0.25
		C		0.000	0.000	17.198	0.000	0.25
L20	98.25-93.25	A	0.946	0.000	0.000	18.571	0.000	0.21
		B		0.000	0.000	20.191	0.000	0.25
		C		0.000	0.000	17.173	0.000	0.25
L21	93.25-84.72	A	0.939	0.000	0.000	30.765	0.000	0.35
		B		0.000	0.000	38.790	0.000	0.45
		C		0.000	0.000	30.372	0.000	0.46
L22	84.72-83.72	A	0.933	0.000	0.000	3.344	0.000	0.04
		B		0.000	0.000	3.031	0.000	0.04
		C		0.000	0.000	2.954	0.000	0.06
L23	83.72-82.92	A	0.932	0.000	0.000	2.961	0.000	0.03
		B		0.000	0.000	2.382	0.000	0.03
		C		0.000	0.000	2.649	0.000	0.05
L24	82.92-82.67	A	0.932	0.000	0.000	0.925	0.000	0.01
		B		0.000	0.000	0.744	0.000	0.01
		C		0.000	0.000	0.828	0.000	0.01
L25	82.67-82.50	A	0.932	0.000	0.000	0.618	0.000	0.01
		B		0.000	0.000	0.497	0.000	0.01
		C		0.000	0.000	0.553	0.000	0.01

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
L26	82.50-82.25	A	0.931	0.000	0.000	0.925	0.000	0.01
		B		0.000	0.000	0.744	0.000	0.01
		C		0.000	0.000	0.828	0.000	0.01
L27	82.25-77.25	A	0.928	0.000	0.000	18.485	0.000	0.21
		B		0.000	0.000	11.919	0.000	0.19
		C		0.000	0.000	13.584	0.000	0.27
L28	77.25-73.42	A	0.923	0.000	0.000	14.151	0.000	0.18
		B		0.000	0.000	9.943	0.000	0.15
		C		0.000	0.000	11.216	0.000	0.21
L29	73.42-73.17	A	0.921	0.000	0.000	0.922	0.000	0.01
		B		0.000	0.000	0.769	0.000	0.01
		C		0.000	0.000	0.852	0.000	0.01
L30	73.17-68.17	A	0.917	0.000	0.000	17.711	0.000	0.25
		B		0.000	0.000	14.657	0.000	0.20
		C		0.000	0.000	17.483	0.000	0.29
L31	68.17-64.25	A	0.911	0.000	0.000	13.803	0.000	0.19
		B		0.000	0.000	11.414	0.000	0.16
		C		0.000	0.000	14.278	0.000	0.23
L32	64.25-64.00	A	0.908	0.000	0.000	0.880	0.000	0.01
		B		0.000	0.000	0.728	0.000	0.01
		C		0.000	0.000	0.910	0.000	0.01
L33	64.00-59.00	A	0.905	0.000	0.000	14.368	0.000	0.23
		B		0.000	0.000	11.324	0.000	0.18
		C		0.000	0.000	18.186	0.000	0.26
L34	59.00-54.00	A	0.897	0.000	0.000	13.264	0.000	0.22
		B		0.000	0.000	11.584	0.000	0.18
		C		0.000	0.000	19.499	0.000	0.26
L35	54.00-53.50	A	0.892	0.000	0.000	1.325	0.000	0.02
		B		0.000	0.000	1.474	0.000	0.02
		C		0.000	0.000	2.264	0.000	0.03
L36	53.50-53.25	A	0.892	0.000	0.000	0.662	0.000	0.01
		B		0.000	0.000	0.737	0.000	0.01
		C		0.000	0.000	1.132	0.000	0.01
L37	53.25-43.83	A	0.883	0.000	0.000	24.896	0.000	0.43
		B		0.000	0.000	29.449	0.000	0.39
		C		0.000	0.000	44.295	0.000	0.52
L38	43.83-42.83	A	0.873	0.000	0.000	2.873	0.000	0.05
		B		0.000	0.000	2.203	0.000	0.04
		C		0.000	0.000	4.009	0.000	0.05
L39	42.83-41.75	A	0.871	0.000	0.000	3.104	0.000	0.05
		B		0.000	0.000	2.364	0.000	0.04
		C		0.000	0.000	4.323	0.000	0.05
L40	41.75-41.50	A	0.870	0.000	0.000	0.720	0.000	0.01
		B		0.000	0.000	0.549	0.000	0.01
		C		0.000	0.000	1.003	0.000	0.01
L41	41.50-36.50	A	0.864	0.000	0.000	14.384	0.000	0.22
		B		0.000	0.000	10.953	0.000	0.18
		C		0.000	0.000	20.027	0.000	0.25
L42	36.50-32.75	A	0.854	0.000	0.000	10.757	0.000	0.17
		B		0.000	0.000	11.082	0.000	0.15
		C		0.000	0.000	17.867	0.000	0.20
L43	32.75-32.50	A	0.849	0.000	0.000	0.716	0.000	0.01
		B		0.000	0.000	0.808	0.000	0.01
		C		0.000	0.000	1.260	0.000	0.01
L44	32.50-29.73	A	0.845	0.000	0.000	9.106	0.000	0.13
		B		0.000	0.000	10.123	0.000	0.12
		C		0.000	0.000	13.927	0.000	0.16
L45	29.73-29.48	A	0.841	0.000	0.000	1.007	0.000	0.01
		B		0.000	0.000	1.098	0.000	0.01
		C		0.000	0.000	1.257	0.000	0.02
L46	29.48-28.25	A	0.839	0.000	0.000	4.962	0.000	0.06
		B		0.000	0.000	5.415	0.000	0.06
		C		0.000	0.000	6.196	0.000	0.08
L47	28.25-28.00	A	0.837	0.000	0.000	1.005	0.000	0.01
		B		0.000	0.000	1.097	0.000	0.01
		C		0.000	0.000	1.256	0.000	0.02
L48	28.00-23.00	A	0.828	0.000	0.000	24.110	0.000	0.22
		B		0.000	0.000	17.792	0.000	0.22
		C		0.000	0.000	16.898	0.000	0.32

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
L49	23.00-19.25	A	0.813	0.000	0.000	18.179	0.000	0.16
		B		0.000	0.000	11.274	0.000	0.15
		C		0.000	0.000	10.430	0.000	0.22
L50	19.25-19.00	A	0.805	0.000	0.000	1.210	0.000	0.01
		B		0.000	0.000	0.750	0.000	0.01
		C		0.000	0.000	0.693	0.000	0.01
L51	19.00-14.00	A	0.793	0.000	0.000	20.951	0.000	0.20
		B		0.000	0.000	11.780	0.000	0.18
		C		0.000	0.000	13.807	0.000	0.27
L52	14.00-9.00	A	0.765	0.000	0.000	19.751	0.000	0.19
		B		0.000	0.000	10.630	0.000	0.17
		C		0.000	0.000	13.288	0.000	0.25
L53	9.00-4.00	A	0.722	0.000	0.000	16.975	0.000	0.13
		B		0.000	0.000	6.676	0.000	0.08
		C		0.000	0.000	10.819	0.000	0.20
L54	4.00-0.00	A	0.642	0.000	0.000	12.874	0.000	0.09
		B		0.000	0.000	4.514	0.000	0.05
		C		0.000	0.000	8.361	0.000	0.12

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	168.50-163.50	-0.2823	0.4889	-0.8841	1.5312
L2	163.50-158.50	-0.2827	0.4896	-0.8910	1.5433
L3	158.50-153.50	-0.2831	0.4903	-0.8973	1.5542
L4	153.50-148.50	-0.2835	0.4910	-0.9030	1.5641
L5	148.50-143.50	0.6802	-0.0941	0.2118	0.8240
L6	143.50-138.50	0.7767	-0.1514	0.3228	0.7575
L7	138.50-130.67	-1.2017	-1.0898	-1.6710	-0.3596
L8	130.67-129.33	-1.3157	-1.1452	-1.7907	-0.4227
L9	129.33-125.75	-0.1593	-1.3708	-0.5427	-0.9473
L10	125.75-125.50	0.1699	-1.2440	-0.1040	-1.0162
L11	125.50-120.50	0.1586	-1.6911	-0.0987	-1.3518
L12	120.50-120.25	0.1363	-2.4986	-0.0879	-1.9982
L13	120.25-115.25	0.0965	-1.7676	-0.0666	-1.5225
L14	115.25-113.83	0.0777	-1.4212	-0.0551	-1.2712
L15	113.83-113.48	0.0780	-1.4274	-0.0552	-1.2766
L16	113.48-113.25	0.0781	-1.4294	-0.0553	-1.2784
L17	113.25-108.25	0.0869	-0.8689	-0.0600	-0.8029
L18	108.25-103.25	0.0919	-0.6684	-0.0622	-0.6375
L19	103.25-98.25	0.0941	-0.6828	-0.0626	-0.6507
L20	98.25-93.25	0.0962	-0.6971	-0.0629	-0.6638
L21	93.25-84.72	0.7853	0.2218	0.4942	-0.7146
L22	84.72-83.72	0.7034	1.3972	-0.6357	-0.4520
L23	83.72-82.92	0.9305	1.1110	-0.9438	-0.2169
L24	82.92-82.67	0.9326	1.1137	-0.9459	-0.2173
L25	82.67-82.50	0.9334	1.1147	-0.9466	-0.2174
L26	82.50-82.25	0.9340	1.1154	-0.9471	-0.2175
L27	82.25-77.25	0.3551	0.8406	-1.5924	-0.5612
L28	77.25-73.42	-0.5198	0.2874	-1.3059	-0.4157
L29	73.42-73.17	-0.8849	0.0160	-0.7988	-0.1512
L30	73.17-68.17	-0.9264	-0.0610	-0.8637	0.0663
L31	68.17-64.25	-0.9666	-0.0281	-0.9463	0.2096
L32	64.25-64.00	-0.9742	-0.0281	-0.9527	0.2108
L33	64.00-59.00	-1.1687	-0.9000	-1.0981	0.9795
L34	59.00-54.00	-0.8754	-1.0367	-0.8492	1.4226
L35	54.00-53.50	-0.0811	-0.5359	-0.1854	1.6806
L36	53.50-53.25	-0.0813	-0.5366	-0.1855	1.6829
L37	53.25-43.83	-0.6227	-0.8247	-0.0041	1.7270
L38	43.83-42.83	-1.0666	-1.4653	-1.1669	1.4639
L39	42.83-41.75	-1.0390	-1.4761	-1.1817	1.4728
L40	41.75-41.50	-1.0413	-1.4794	-1.1839	1.4759
L41	41.50-36.50	-1.0505	-1.4923	-1.1922	1.4878
L42	36.50-32.75	-0.1051	-0.8720	-0.3693	1.8072

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L43	32.75-32.50	0.1987	-0.6742	-0.0995	1.9154
L44	32.50-29.73	0.1819	-0.1559	-0.0914	1.3528
L45	29.73-29.48	0.1586	0.5526	-0.0805	0.5473
L46	29.48-28.25	0.1590	0.5540	-0.0801	0.5485
L47	28.25-28.00	0.1594	0.5554	-0.0796	0.5498
L48	28.00-23.00	0.6770	1.7809	-1.4979	-1.0116
L49	23.00-19.25	0.2389	1.6846	-2.1325	-1.4381
L50	19.25-19.00	0.2404	1.6953	-2.1431	-1.4483
L51	19.00-14.00	0.2811	1.1098	-2.4301	-0.8706
L52	14.00-9.00	0.3135	0.8611	-2.5267	-0.7431
L53	9.00-4.00	0.2938	1.4897	-2.7501	-0.3583
L54	4.00-0.00	0.2774	1.6965	-2.8683	-0.1486

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	2	Safety Line 3/8	163.50 - 168.50	1.0000	1.0000
L1	3	Step Pegs	163.50 - 168.50	1.0000	1.0000
L2	2	Safety Line 3/8	158.50 - 163.50	1.0000	1.0000
L2	3	Step Pegs	158.50 - 163.50	1.0000	1.0000
L3	2	Safety Line 3/8	153.50 - 158.50	1.0000	1.0000
L3	3	Step Pegs	153.50 - 158.50	1.0000	1.0000
L4	2	Safety Line 3/8	148.50 - 153.50	1.0000	1.0000
L4	3	Step Pegs	148.50 - 153.50	1.0000	1.0000
L5	2	Safety Line 3/8	143.50 - 148.50	1.0000	1.0000
L5	3	Step Pegs	143.50 - 148.50	1.0000	1.0000
L5	19	CU12PSM9P6XXX(1-1/2)	143.50 - 148.00	1.0000	1.0000
L6	2	Safety Line 3/8	138.50 - 143.50	1.0000	1.0000
L6	3	Step Pegs	138.50 - 143.50	1.0000	1.0000
L6	19	CU12PSM9P6XXX(1-1/2)	138.50 - 143.50	1.0000	1.0000
L7	2	Safety Line 3/8	130.67 - 138.50	1.0000	1.0000
L7	3	Step Pegs	130.67 - 138.50	1.0000	1.0000
L7	19	CU12PSM9P6XXX(1-1/2)	130.67 - 138.50	1.0000	1.0000
L7	21	HB114-U6S12-XXX-LI(1-1/4)	130.67 - 138.00	1.0000	1.0000
L7	22	HB158-1-08U8-S8J18(1-5/8)	130.67 - 138.00	1.0000	1.0000
L8	2	Safety Line 3/8	129.33 - 130.67	1.0000	1.0000
L8	3	Step Pegs	129.33 - 130.67	1.0000	1.0000
L8	19	CU12PSM9P6XXX(1-1/2)	129.33 - 130.67	1.0000	1.0000
L8	21	HB114-U6S12-XXX-LI(1-1/4)	129.33 - 130.67	1.0000	1.0000
L8	22	HB158-1-08U8-S8J18(1-5/8)	129.33 - 130.67	1.0000	1.0000
L9	2	Safety Line 3/8	125.75 - 129.33	1.0000	1.0000
L9	3	Step Pegs	125.75 - 129.33	1.0000	1.0000
L9	19	CU12PSM9P6XXX(1-1/2)	125.75 - 129.33	1.0000	1.0000
L9	21	HB114-U6S12-XXX-LI(1-1/4)	125.75 - 129.33	1.0000	1.0000
L9	22	HB158-1-08U8-S8J18(1-5/8)	125.75 - 129.33	1.0000	1.0000
L9	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	125.75 - 128.00	1.0000	1.0000
L9	64	CCI-SFP-045100	125.75 - 127.33	1.0000	1.0000
L9	65	CCI-SFP-045100	125.75 - 127.33	1.0000	1.0000
L9	66	CCI-SFP-045100	125.75 - 127.33	1.0000	1.0000
L10	2	Safety Line 3/8	125.50 - 125.75	1.0000	1.0000
L10	3	Step Pegs	125.50 - 125.75	1.0000	1.0000
L10	19	CU12PSM9P6XXX(1-1/2)	125.50 - 125.75	1.0000	1.0000
L10	21	HB114-U6S12-XXX-LI(1-1/4)	125.50 - 125.75	1.0000	1.0000
L10	22	HB158-1-08U8-S8J18(1-5/8)	125.50 - 125.75	1.0000	1.0000
L10	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	125.50 - 125.75	1.0000	1.0000
L10	64	CCI-SFP-045100	125.50 - 125.75	1.0000	1.0000
L10	65	CCI-SFP-045100	125.50 - 125.75	1.0000	1.0000
L10	66	CCI-SFP-045100	125.50 - 125.75	1.0000	1.0000
L11	2	Safety Line 3/8	120.50 - 125.50	1.0000	1.0000
L11	3	Step Pegs	120.50 - 125.50	1.0000	1.0000
L11	19	CU12PSM9P6XXX(1-1/2)	120.50 - 125.50	1.0000	1.0000
L11	21	HB114-U6S12-XXX-LI(1-1/4)	120.50 - 125.50	1.0000	1.0000
L11	22	HB158-1-08U8-S8J18(1-5/8)	120.50 - 125.50	1.0000	1.0000
L11	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	120.50 - 125.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L11	64	CCI-SFP-045100	120.50 - 125.50	1.0000	1.0000
L11	65	CCI-SFP-045100	120.50 - 125.50	1.0000	1.0000
L11	66	CCI-SFP-045100	120.50 - 125.50	1.0000	1.0000
L11	68	CCI-SFP-040125	120.50 - 122.00	1.0000	1.0000
L11	69	CCI-SFP-040125	120.50 - 122.00	1.0000	1.0000
L12	2	Safety Line 3/8	120.25 - 120.50	1.0000	1.0000
L12	3	Step Pegs	120.25 - 120.50	1.0000	1.0000
L12	19	CU12PSM9P6XXX(1-1/2)	120.25 - 120.50	1.0000	1.0000
L12	21	HB114-U6S12-XXX-LI(1-1/4)	120.25 - 120.50	1.0000	1.0000
L12	22	HB158-1-08U8-S8J18(1-5/8)	120.25 - 120.50	1.0000	1.0000
L12	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	120.25 - 120.50	1.0000	1.0000
L12	64	CCI-SFP-045100	120.25 - 120.50	1.0000	1.0000
L12	65	CCI-SFP-045100	120.25 - 120.50	1.0000	1.0000
L12	66	CCI-SFP-045100	120.25 - 120.50	1.0000	1.0000
L12	68	CCI-SFP-040125	120.25 - 120.50	1.0000	1.0000
L12	69	CCI-SFP-040125	120.25 - 120.50	1.0000	1.0000
L13	2	Safety Line 3/8	115.25 - 120.25	1.0000	1.0000
L13	3	Step Pegs	115.25 - 120.25	1.0000	1.0000
L13	19	CU12PSM9P6XXX(1-1/2)	115.25 - 120.25	1.0000	1.0000
L13	21	HB114-U6S12-XXX-LI(1-1/4)	115.25 - 120.25	1.0000	1.0000
L13	22	HB158-1-08U8-S8J18(1-5/8)	115.25 - 120.25	1.0000	1.0000
L13	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	115.25 - 120.25	1.0000	1.0000
L13	32	Shaft Reinforcement [#PL0.625x5]	115.25 - 120.00	1.0000	1.0000
L13	33	Shaft Reinforcement [#PL0.625x5]	115.25 - 120.00	1.0000	1.0000
L13	34	Shaft Reinforcement [#PL0.625x5]	115.25 - 120.00	1.0000	1.0000
L13	48	Shaft Reinforcement [#PL1.25x5]	115.25 - 115.83	1.0000	1.0000
L13	49	Shaft Reinforcement [#PL1.25x5]	115.25 - 115.83	1.0000	1.0000
L13	50	Shaft Reinforcement [#PL1.25x5]	115.25 - 115.83	1.0000	1.0000
L13	64	CCI-SFP-045100	115.25 - 120.25	1.0000	1.0000
L13	65	CCI-SFP-045100	115.25 - 120.25	1.0000	1.0000
L13	66	CCI-SFP-045100	115.25 - 120.25	1.0000	1.0000
L13	68	CCI-SFP-040125	115.25 - 120.25	1.0000	1.0000
L13	69	CCI-SFP-040125	115.25 - 120.25	1.0000	1.0000
L14	2	Safety Line 3/8	113.83 - 115.25	1.0000	1.0000
L14	3	Step Pegs	113.83 - 115.25	1.0000	1.0000
L14	19	CU12PSM9P6XXX(1-1/2)	113.83 - 115.25	1.0000	1.0000
L14	21	HB114-U6S12-XXX-LI(1-1/4)	113.83 - 115.25	1.0000	1.0000
L14	22	HB158-1-08U8-S8J18(1-5/8)	113.83 - 115.25	1.0000	1.0000
L14	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	113.83 - 115.25	1.0000	1.0000
L14	32	Shaft Reinforcement [#PL0.625x5]	113.83 - 115.25	1.0000	1.0000
L14	33	Shaft Reinforcement [#PL0.625x5]	113.83 - 115.25	1.0000	1.0000
L14	34	Shaft Reinforcement [#PL0.625x5]	113.83 - 115.25	1.0000	1.0000
L14	48	Shaft Reinforcement [#PL1.25x5]	113.83 - 115.25	1.0000	1.0000
L14	49	Shaft Reinforcement [#PL1.25x5]	113.83 - 115.25	1.0000	1.0000
L14	50	Shaft Reinforcement [#PL1.25x5]	113.83 - 115.25	1.0000	1.0000
L14	64	CCI-SFP-045100	113.83 - 115.25	1.0000	1.0000
L14	65	CCI-SFP-045100	113.83 - 115.25	1.0000	1.0000
L14	66	CCI-SFP-045100	113.83 - 115.25	1.0000	1.0000
L14	68	CCI-SFP-040125	113.83 - 115.25	1.0000	1.0000
L14	69	CCI-SFP-040125	113.83 - 115.25	1.0000	1.0000
L15	2	Safety Line 3/8	113.48 - 113.83	1.0000	1.0000
L15	3	Step Pegs	113.48 - 113.83	1.0000	1.0000
L15	19	CU12PSM9P6XXX(1-1/2)	113.48 - 113.83	1.0000	1.0000
L15	21	HB114-U6S12-XXX-LI(1-1/4)	113.48 - 113.83	1.0000	1.0000
L15	22	HB158-1-08U8-S8J18(1-5/8)	113.48 - 113.83	1.0000	1.0000
L15	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	113.48 - 113.83	1.0000	1.0000
L15	32	Shaft Reinforcement [#PL0.625x5]	113.48 - 113.83	1.0000	1.0000
L15	33	Shaft Reinforcement [#PL0.625x5]	113.48 - 113.83	1.0000	1.0000
L15	34	Shaft Reinforcement [#PL0.625x5]	113.48 - 113.83	1.0000	1.0000
L15	48	Shaft Reinforcement [#PL1.25x5]	113.48 - 113.83	1.0000	1.0000
L15	49	Shaft Reinforcement [#PL1.25x5]	113.48 - 113.83	1.0000	1.0000
L15	50	Shaft Reinforcement [#PL1.25x5]	113.48 - 113.83	1.0000	1.0000
L15	64	CCI-SFP-045100	113.48 - 113.83	1.0000	1.0000
L15	65	CCI-SFP-045100	113.48 - 113.83	1.0000	1.0000
L15	66	CCI-SFP-045100	113.48 - 113.83	1.0000	1.0000
L15	68	CCI-SFP-040125	113.48 - 113.83	1.0000	1.0000
L15	69	CCI-SFP-040125	113.48 - 113.83	1.0000	1.0000
L16	2	Safety Line 3/8	113.25 - 113.48	1.0000	1.0000
L16	3	Step Pegs	113.25 - 113.48	1.0000	1.0000
L16	19	CU12PSM9P6XXX(1-1/2)	113.25 - 113.48	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L16	21	HB114-U6S12-XXX-LI(1-1/4)	113.25 - 113.48	1.0000	1.0000
L16	22	HB158-1-08U8-S8J18(1-5/8)	113.25 - 113.48	1.0000	1.0000
L16	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	113.25 - 113.48	1.0000	1.0000
L16	32	Shaft Reinforcement [#PL0.625x5]	113.25 - 113.48	1.0000	1.0000
L16	33	Shaft Reinforcement [#PL0.625x5]	113.25 - 113.48	1.0000	1.0000
L16	34	Shaft Reinforcement [#PL0.625x5]	113.25 - 113.48	1.0000	1.0000
L16	48	Shaft Reinforcement [#PL1.25x5]	113.25 - 113.48	1.0000	1.0000
L16	49	Shaft Reinforcement [#PL1.25x5]	113.25 - 113.48	1.0000	1.0000
L16	50	Shaft Reinforcement [#PL1.25x5]	113.25 - 113.48	1.0000	1.0000
L16	64	CCI-SFP-045100	113.25 - 113.48	1.0000	1.0000
L16	65	CCI-SFP-045100	113.25 - 113.48	1.0000	1.0000
L16	66	CCI-SFP-045100	113.25 - 113.48	1.0000	1.0000
L16	68	CCI-SFP-040125	113.25 - 113.48	1.0000	1.0000
L16	69	CCI-SFP-040125	113.25 - 113.48	1.0000	1.0000
L17	2	Safety Line 3/8	108.25 - 113.25	1.0000	1.0000
L17	3	Step Pegs	108.25 - 113.25	1.0000	1.0000
L17	19	CU12PSM9P6XXX(1-1/2)	108.25 - 113.25	1.0000	1.0000
L17	21	HB114-U6S12-XXX-LI(1-1/4)	108.25 - 113.25	1.0000	1.0000
L17	22	HB158-1-08U8-S8J18(1-5/8)	108.25 - 113.25	1.0000	1.0000
L17	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	108.25 - 113.25	1.0000	1.0000
L17	32	Shaft Reinforcement [#PL0.625x5]	108.25 - 113.25	1.0000	1.0000
L17	33	Shaft Reinforcement [#PL0.625x5]	108.25 - 113.25	1.0000	1.0000
L17	34	Shaft Reinforcement [#PL0.625x5]	108.25 - 113.25	1.0000	1.0000
L17	48	Shaft Reinforcement [#PL1.25x5]	108.25 - 113.25	1.0000	1.0000
L17	49	Shaft Reinforcement [#PL1.25x5]	108.25 - 113.25	1.0000	1.0000
L17	50	Shaft Reinforcement [#PL1.25x5]	108.25 - 113.25	1.0000	1.0000
L17	64	CCI-SFP-045100	108.25 - 113.25	1.0000	1.0000
L17	65	CCI-SFP-045100	108.25 - 113.25	1.0000	1.0000
L17	66	CCI-SFP-045100	108.25 - 113.25	1.0000	1.0000
L17	68	CCI-SFP-040125	112.00 - 113.25	1.0000	1.0000
L17	69	CCI-SFP-040125	112.00 - 113.25	1.0000	1.0000
L18	2	Safety Line 3/8	103.25 - 108.25	1.0000	1.0000
L18	3	Step Pegs	103.25 - 108.25	1.0000	1.0000
L18	19	CU12PSM9P6XXX(1-1/2)	103.25 - 108.25	1.0000	1.0000
L18	21	HB114-U6S12-XXX-LI(1-1/4)	103.25 - 108.25	1.0000	1.0000
L18	22	HB158-1-08U8-S8J18(1-5/8)	103.25 - 108.25	1.0000	1.0000
L18	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	103.25 - 108.25	1.0000	1.0000
L18	32	Shaft Reinforcement [#PL0.625x5]	103.25 - 108.25	1.0000	1.0000
L18	33	Shaft Reinforcement [#PL0.625x5]	103.25 - 108.25	1.0000	1.0000
L18	34	Shaft Reinforcement [#PL0.625x5]	103.25 - 108.25	1.0000	1.0000
L18	48	Shaft Reinforcement [#PL1.25x5]	103.25 - 108.25	1.0000	1.0000
L18	49	Shaft Reinforcement [#PL1.25x5]	103.25 - 108.25	1.0000	1.0000
L18	50	Shaft Reinforcement [#PL1.25x5]	103.25 - 108.25	1.0000	1.0000
L18	64	CCI-SFP-045100	103.25 - 108.25	1.0000	1.0000
L18	65	CCI-SFP-045100	103.25 - 108.25	1.0000	1.0000
L18	66	CCI-SFP-045100	103.25 - 108.25	1.0000	1.0000
L19	2	Safety Line 3/8	98.25 - 103.25	1.0000	1.0000
L19	3	Step Pegs	98.25 - 103.25	1.0000	1.0000
L19	19	CU12PSM9P6XXX(1-1/2)	98.25 - 103.25	1.0000	1.0000
L19	21	HB114-U6S12-XXX-LI(1-1/4)	98.25 - 103.25	1.0000	1.0000
L19	22	HB158-1-08U8-S8J18(1-5/8)	98.25 - 103.25	1.0000	1.0000
L19	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	98.25 - 103.25	1.0000	1.0000
L19	32	Shaft Reinforcement [#PL0.625x5]	98.25 - 103.25	1.0000	1.0000
L19	33	Shaft Reinforcement [#PL0.625x5]	98.25 - 103.25	1.0000	1.0000
L19	34	Shaft Reinforcement [#PL0.625x5]	98.25 - 103.25	1.0000	1.0000
L19	48	Shaft Reinforcement [#PL1.25x5]	98.25 - 103.25	1.0000	1.0000
L19	49	Shaft Reinforcement [#PL1.25x5]	98.25 - 103.25	1.0000	1.0000
L19	50	Shaft Reinforcement [#PL1.25x5]	98.25 - 103.25	1.0000	1.0000
L19	64	CCI-SFP-045100	98.25 - 103.25	1.0000	1.0000
L19	65	CCI-SFP-045100	98.25 - 103.25	1.0000	1.0000
L19	66	CCI-SFP-045100	98.25 - 103.25	1.0000	1.0000
L20	2	Safety Line 3/8	93.25 - 98.25	1.0000	1.0000
L20	3	Step Pegs	93.25 - 98.25	1.0000	1.0000
L20	19	CU12PSM9P6XXX(1-1/2)	93.25 - 98.25	1.0000	1.0000
L20	21	HB114-U6S12-XXX-LI(1-1/4)	93.25 - 98.25	1.0000	1.0000
L20	22	HB158-1-08U8-S8J18(1-5/8)	93.25 - 98.25	1.0000	1.0000
L20	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	93.25 - 98.25	1.0000	1.0000
L20	32	Shaft Reinforcement [#PL0.625x5]	93.25 - 98.25	1.0000	1.0000
L20	33	Shaft Reinforcement [#PL0.625x5]	93.25 - 98.25	1.0000	1.0000
L20	34	Shaft Reinforcement [#PL0.625x5]	93.25 - 98.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L20	48	Shaft Reinforcement [#PL1.25x5]	93.25 - 98.25	1.0000	1.0000
L20	49	Shaft Reinforcement [#PL1.25x5]	93.25 - 98.25	1.0000	1.0000
L20	50	Shaft Reinforcement [#PL1.25x5]	93.25 - 98.25	1.0000	1.0000
L20	64	CCI-SFP-045100	93.25 - 98.25	1.0000	1.0000
L20	65	CCI-SFP-045100	93.25 - 98.25	1.0000	1.0000
L20	66	CCI-SFP-045100	93.25 - 98.25	1.0000	1.0000
L21	2	Safety Line 3/8	84.72 - 93.25	1.0000	1.0000
L21	3	Step Pegs	84.72 - 93.25	1.0000	1.0000
L21	19	CU12PSM9P6XXX(1-1/2)	84.72 - 93.25	1.0000	1.0000
L21	21	HB114-U6S12-XXX-LI(1-1/4)	84.72 - 93.25	1.0000	1.0000
L21	22	HB158-1-08U8-S8J18(1-5/8)	84.72 - 93.25	1.0000	1.0000
L21	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	84.72 - 93.25	1.0000	1.0000
L21	32	Shaft Reinforcement [#PL0.625x5]	84.72 - 93.25	1.0000	1.0000
L21	33	Shaft Reinforcement [#PL0.625x5]	84.72 - 93.25	1.0000	1.0000
L21	34	Shaft Reinforcement [#PL0.625x5]	84.72 - 93.25	1.0000	1.0000
L21	45	Shaft Reinforcement [#PL1.25x5]	84.72 - 87.92	1.0000	1.0000
L21	46	Shaft Reinforcement [#PL1.25x5]	84.72 - 87.92	1.0000	1.0000
L21	47	Shaft Reinforcement [#PL1.25x5]	84.72 - 87.92	1.0000	1.0000
L21	48	Shaft Reinforcement [#PL1.25x5]	85.83 - 93.25	1.0000	1.0000
L21	49	Shaft Reinforcement [#PL1.25x5]	85.83 - 93.25	1.0000	1.0000
L21	50	Shaft Reinforcement [#PL1.25x5]	85.83 - 93.25	1.0000	1.0000
L21	64	CCI-SFP-045100	87.92 - 93.25	1.0000	1.0000
L21	65	CCI-SFP-045100	87.92 - 93.25	1.0000	1.0000
L21	66	CCI-SFP-045100	87.92 - 93.25	1.0000	1.0000
L21	70	CCI-SFP-050125	84.72 - 90.50	1.0000	1.0000
L21	71	CCI-SFP-050125	84.72 - 90.50	1.0000	1.0000
L22	2	Safety Line 3/8	83.72 - 84.72	1.0000	1.0000
L22	3	Step Pegs	83.72 - 84.72	1.0000	1.0000
L22	19	CU12PSM9P6XXX(1-1/2)	83.72 - 84.72	1.0000	1.0000
L22	21	HB114-U6S12-XXX-LI(1-1/4)	83.72 - 84.72	1.0000	1.0000
L22	22	HB158-1-08U8-S8J18(1-5/8)	83.72 - 84.72	1.0000	1.0000
L22	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	83.72 - 84.72	1.0000	1.0000
L22	30	Shaft Reinforcement [#PL0.625x5]	83.72 - 84.67	1.0000	1.0000
L22	31	Shaft Reinforcement [#PL0.625x5]	83.72 - 84.67	1.0000	1.0000
L22	32	Shaft Reinforcement [#PL0.625x5]	84.67 - 84.72	1.0000	1.0000
L22	33	Shaft Reinforcement [#PL0.625x5]	84.67 - 84.72	1.0000	1.0000
L22	34	Shaft Reinforcement [#PL0.625x5]	84.67 - 84.72	1.0000	1.0000
L22	45	Shaft Reinforcement [#PL1.25x5]	83.72 - 84.72	1.0000	1.0000
L22	46	Shaft Reinforcement [#PL1.25x5]	83.72 - 84.72	1.0000	1.0000
L22	47	Shaft Reinforcement [#PL1.25x5]	83.72 - 84.72	1.0000	1.0000
L22	55	CCI-SFP-045100	83.72 - 84.33	1.0000	1.0000
L22	56	CCI-SFP-045100	83.72 - 84.33	1.0000	1.0000
L22	57	CCI-SFP-045100	83.72 - 84.33	1.0000	1.0000
L22	70	CCI-SFP-050125	83.72 - 84.72	1.0000	1.0000
L22	71	CCI-SFP-050125	83.72 - 84.72	1.0000	1.0000
L23	2	Safety Line 3/8	82.92 - 83.72	1.0000	1.0000
L23	3	Step Pegs	82.92 - 83.72	1.0000	1.0000
L23	19	CU12PSM9P6XXX(1-1/2)	82.92 - 83.72	1.0000	1.0000
L23	21	HB114-U6S12-XXX-LI(1-1/4)	82.92 - 83.72	1.0000	1.0000
L23	22	HB158-1-08U8-S8J18(1-5/8)	82.92 - 83.72	1.0000	1.0000
L23	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	82.92 - 83.72	1.0000	1.0000
L23	30	Shaft Reinforcement [#PL0.625x5]	82.92 - 83.72	1.0000	1.0000
L23	31	Shaft Reinforcement [#PL0.625x5]	82.92 - 83.72	1.0000	1.0000
L23	45	Shaft Reinforcement [#PL1.25x5]	82.92 - 83.72	1.0000	1.0000
L23	46	Shaft Reinforcement [#PL1.25x5]	82.92 - 83.72	1.0000	1.0000
L23	47	Shaft Reinforcement [#PL1.25x5]	82.92 - 83.72	1.0000	1.0000
L23	55	CCI-SFP-045100	82.92 - 83.72	1.0000	1.0000
L23	56	CCI-SFP-045100	82.92 - 83.72	1.0000	1.0000
L23	57	CCI-SFP-045100	82.92 - 83.72	1.0000	1.0000
L23	70	CCI-SFP-050125	82.92 - 83.72	1.0000	1.0000
L23	71	CCI-SFP-050125	82.92 - 83.72	1.0000	1.0000
L24	2	Safety Line 3/8	82.67 - 82.92	1.0000	1.0000
L24	3	Step Pegs	82.67 - 82.92	1.0000	1.0000
L24	19	CU12PSM9P6XXX(1-1/2)	82.67 - 82.92	1.0000	1.0000
L24	21	HB114-U6S12-XXX-LI(1-1/4)	82.67 - 82.92	1.0000	1.0000
L24	22	HB158-1-08U8-S8J18(1-5/8)	82.67 - 82.92	1.0000	1.0000
L24	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	82.67 - 82.92	1.0000	1.0000
L24	30	Shaft Reinforcement [#PL0.625x5]	82.67 - 82.92	1.0000	1.0000
L24	31	Shaft Reinforcement [#PL0.625x5]	82.67 - 82.92	1.0000	1.0000
L24	45	Shaft Reinforcement [#PL1.25x5]	82.67 - 82.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L24	46	Shaft Reinforcement [#PL1.25x5]	82.67 - 82.92	1.0000	1.0000
L24	47	Shaft Reinforcement [#PL1.25x5]	82.67 - 82.92	1.0000	1.0000
L24	55	CCI-SFP-045100	82.67 - 82.92	1.0000	1.0000
L24	56	CCI-SFP-045100	82.67 - 82.92	1.0000	1.0000
L24	57	CCI-SFP-045100	82.67 - 82.92	1.0000	1.0000
L24	70	CCI-SFP-050125	82.67 - 82.92	1.0000	1.0000
L24	71	CCI-SFP-050125	82.67 - 82.92	1.0000	1.0000
L25	2	Safety Line 3/8	82.50 - 82.67	1.0000	1.0000
L25	3	Step Pegs	82.50 - 82.67	1.0000	1.0000
L25	19	CU12PSM9P6XXX(1-1/2)	82.50 - 82.67	1.0000	1.0000
L25	21	HB114-U6S12-XXX-LI(1-1/4)	82.50 - 82.67	1.0000	1.0000
L25	22	HB158-1-08U8-S8J18(1-5/8)	82.50 - 82.67	1.0000	1.0000
L25	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	82.50 - 82.67	1.0000	1.0000
L25	30	Shaft Reinforcement [#PL0.625x5]	82.50 - 82.67	1.0000	1.0000
L25	31	Shaft Reinforcement [#PL0.625x5]	82.50 - 82.67	1.0000	1.0000
L25	45	Shaft Reinforcement [#PL1.25x5]	82.50 - 82.67	1.0000	1.0000
L25	46	Shaft Reinforcement [#PL1.25x5]	82.50 - 82.67	1.0000	1.0000
L25	47	Shaft Reinforcement [#PL1.25x5]	82.50 - 82.67	1.0000	1.0000
L25	55	CCI-SFP-045100	82.50 - 82.67	1.0000	1.0000
L25	56	CCI-SFP-045100	82.50 - 82.67	1.0000	1.0000
L25	57	CCI-SFP-045100	82.50 - 82.67	1.0000	1.0000
L25	70	CCI-SFP-050125	82.50 - 82.67	1.0000	1.0000
L25	71	CCI-SFP-050125	82.50 - 82.67	1.0000	1.0000
L26	2	Safety Line 3/8	82.25 - 82.50	1.0000	1.0000
L26	3	Step Pegs	82.25 - 82.50	1.0000	1.0000
L26	19	CU12PSM9P6XXX(1-1/2)	82.25 - 82.50	1.0000	1.0000
L26	21	HB114-U6S12-XXX-LI(1-1/4)	82.25 - 82.50	1.0000	1.0000
L26	22	HB158-1-08U8-S8J18(1-5/8)	82.25 - 82.50	1.0000	1.0000
L26	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	82.25 - 82.50	1.0000	1.0000
L26	30	Shaft Reinforcement [#PL0.625x5]	82.25 - 82.50	1.0000	1.0000
L26	31	Shaft Reinforcement [#PL0.625x5]	82.25 - 82.50	1.0000	1.0000
L26	45	Shaft Reinforcement [#PL1.25x5]	82.25 - 82.50	1.0000	1.0000
L26	46	Shaft Reinforcement [#PL1.25x5]	82.25 - 82.50	1.0000	1.0000
L26	47	Shaft Reinforcement [#PL1.25x5]	82.25 - 82.50	1.0000	1.0000
L26	55	CCI-SFP-045100	82.25 - 82.50	1.0000	1.0000
L26	56	CCI-SFP-045100	82.25 - 82.50	1.0000	1.0000
L26	57	CCI-SFP-045100	82.25 - 82.50	1.0000	1.0000
L26	70	CCI-SFP-050125	82.25 - 82.50	1.0000	1.0000
L26	71	CCI-SFP-050125	82.25 - 82.50	1.0000	1.0000
L27	2	Safety Line 3/8	77.25 - 82.25	1.0000	1.0000
L27	3	Step Pegs	77.25 - 82.25	1.0000	1.0000
L27	19	CU12PSM9P6XXX(1-1/2)	77.25 - 82.25	1.0000	1.0000
L27	21	HB114-U6S12-XXX-LI(1-1/4)	77.25 - 82.25	1.0000	1.0000
L27	22	HB158-1-08U8-S8J18(1-5/8)	77.25 - 82.25	1.0000	1.0000
L27	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	77.25 - 82.25	1.0000	1.0000
L27	30	Shaft Reinforcement [#PL0.625x5]	77.25 - 82.25	1.0000	1.0000
L27	31	Shaft Reinforcement [#PL0.625x5]	77.25 - 82.25	1.0000	1.0000
L27	45	Shaft Reinforcement [#PL1.25x5]	77.25 - 82.25	1.0000	1.0000
L27	46	Shaft Reinforcement [#PL1.25x5]	77.25 - 82.25	1.0000	1.0000
L27	47	Shaft Reinforcement [#PL1.25x5]	77.25 - 82.25	1.0000	1.0000
L27	55	CCI-SFP-045100	77.25 - 82.25	1.0000	1.0000
L27	56	CCI-SFP-045100	77.25 - 82.25	1.0000	1.0000
L27	57	CCI-SFP-045100	77.25 - 82.25	1.0000	1.0000
L27	70	CCI-SFP-050125	80.50 - 82.25	1.0000	1.0000
L27	71	CCI-SFP-050125	80.50 - 82.25	1.0000	1.0000
L28	2	Safety Line 3/8	73.42 - 77.25	1.0000	1.0000
L28	3	Step Pegs	73.42 - 77.25	1.0000	1.0000
L28	19	CU12PSM9P6XXX(1-1/2)	73.42 - 77.25	1.0000	1.0000
L28	21	HB114-U6S12-XXX-LI(1-1/4)	73.42 - 77.25	1.0000	1.0000
L28	22	HB158-1-08U8-S8J18(1-5/8)	73.42 - 77.25	1.0000	1.0000
L28	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	73.42 - 77.25	1.0000	1.0000
L28	30	Shaft Reinforcement [#PL0.625x5]	73.42 - 77.25	1.0000	1.0000
L28	31	Shaft Reinforcement [#PL0.625x5]	73.42 - 77.25	1.0000	1.0000
L28	42	Shaft Reinforcement [#PL1.25x5]	73.42 - 75.42	1.0000	1.0000
L28	43	Shaft Reinforcement [#PL1.25x5]	73.42 - 75.42	1.0000	1.0000
L28	44	Shaft Reinforcement [#PL1.25x5]	73.42 - 75.42	1.0000	1.0000
L28	45	Shaft Reinforcement [#PL1.25x5]	73.42 - 77.25	1.0000	1.0000
L28	46	Shaft Reinforcement [#PL1.25x5]	73.42 - 77.25	1.0000	1.0000
L28	47	Shaft Reinforcement [#PL1.25x5]	73.42 - 77.25	1.0000	1.0000
L28	55	CCI-SFP-045100	73.42 - 77.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L28	56	CCI-SFP-045100	73.42 - 77.25	1.0000	1.0000
L28	57	CCI-SFP-045100	73.42 - 77.25	1.0000	1.0000
L29	2	Safety Line 3/8	73.17 - 73.42	1.0000	1.0000
L29	3	Step Pegs	73.17 - 73.42	1.0000	1.0000
L29	19	CU12PSM9P6XXX(1-1/2)	73.17 - 73.42	1.0000	1.0000
L29	21	HB114-U6S12-XXX-LI(1-1/4)	73.17 - 73.42	1.0000	1.0000
L29	22	HB158-1-08U8-S8J18(1-5/8)	73.17 - 73.42	1.0000	1.0000
L29	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	73.17 - 73.42	1.0000	1.0000
L29	30	Shaft Reinforcement [#PL0.625x5]	73.17 - 73.42	1.0000	1.0000
L29	31	Shaft Reinforcement [#PL0.625x5]	73.17 - 73.42	1.0000	1.0000
L29	42	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	1.0000	1.0000
L29	43	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	1.0000	1.0000
L29	44	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	1.0000	1.0000
L29	45	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	1.0000	1.0000
L29	46	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	1.0000	1.0000
L29	47	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	1.0000	1.0000
L29	55	CCI-SFP-045100	73.17 - 73.42	1.0000	1.0000
L29	56	CCI-SFP-045100	73.17 - 73.42	1.0000	1.0000
L29	57	CCI-SFP-045100	73.17 - 73.42	1.0000	1.0000
L30	2	Safety Line 3/8	68.17 - 73.17	1.0000	1.0000
L30	3	Step Pegs	68.17 - 73.17	1.0000	1.0000
L30	19	CU12PSM9P6XXX(1-1/2)	68.17 - 73.17	1.0000	1.0000
L30	21	HB114-U6S12-XXX-LI(1-1/4)	68.17 - 73.17	1.0000	1.0000
L30	22	HB158-1-08U8-S8J18(1-5/8)	68.17 - 73.17	1.0000	1.0000
L30	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	68.17 - 73.17	1.0000	1.0000
L30	28	LDF4-50A(1/2)	68.17 - 70.00	1.0000	1.0000
L30	30	Shaft Reinforcement [#PL0.625x5]	68.17 - 73.17	1.0000	1.0000
L30	31	Shaft Reinforcement [#PL0.625x5]	68.17 - 73.17	1.0000	1.0000
L30	42	Shaft Reinforcement [#PL1.25x5]	68.17 - 73.17	1.0000	1.0000
L30	43	Shaft Reinforcement [#PL1.25x5]	68.17 - 73.17	1.0000	1.0000
L30	44	Shaft Reinforcement [#PL1.25x5]	68.17 - 73.17	1.0000	1.0000
L30	45	Shaft Reinforcement [#PL1.25x5]	72.75 - 73.17	1.0000	1.0000
L30	46	Shaft Reinforcement [#PL1.25x5]	72.75 - 73.17	1.0000	1.0000
L30	47	Shaft Reinforcement [#PL1.25x5]	72.75 - 73.17	1.0000	1.0000
L30	55	CCI-SFP-045100	68.17 - 73.17	1.0000	1.0000
L30	56	CCI-SFP-045100	68.17 - 73.17	1.0000	1.0000
L30	57	CCI-SFP-045100	68.17 - 73.17	1.0000	1.0000
L30	61	CCI-SFP-045100	68.17 - 72.75	1.0000	1.0000
L30	62	CCI-SFP-045100	68.17 - 72.75	1.0000	1.0000
L30	63	CCI-SFP-045100	68.17 - 72.75	1.0000	1.0000
L31	2	Safety Line 3/8	64.25 - 68.17	1.0000	1.0000
L31	3	Step Pegs	64.25 - 68.17	1.0000	1.0000
L31	19	CU12PSM9P6XXX(1-1/2)	64.25 - 68.17	1.0000	1.0000
L31	21	HB114-U6S12-XXX-LI(1-1/4)	64.25 - 68.17	1.0000	1.0000
L31	22	HB158-1-08U8-S8J18(1-5/8)	64.25 - 68.17	1.0000	1.0000
L31	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	64.25 - 68.17	1.0000	1.0000
L31	28	LDF4-50A(1/2)	64.25 - 68.17	1.0000	1.0000
L31	30	Shaft Reinforcement [#PL0.625x5]	64.25 - 68.17	1.0000	1.0000
L31	31	Shaft Reinforcement [#PL0.625x5]	64.25 - 68.17	1.0000	1.0000
L31	42	Shaft Reinforcement [#PL1.25x5]	64.25 - 68.17	1.0000	1.0000
L31	43	Shaft Reinforcement [#PL1.25x5]	64.25 - 68.17	1.0000	1.0000
L31	44	Shaft Reinforcement [#PL1.25x5]	64.25 - 68.17	1.0000	1.0000
L31	55	CCI-SFP-045100	64.25 - 68.17	1.0000	1.0000
L31	56	CCI-SFP-045100	64.25 - 68.17	1.0000	1.0000
L31	57	CCI-SFP-045100	64.25 - 68.17	1.0000	1.0000
L31	61	CCI-SFP-045100	64.25 - 68.17	1.0000	1.0000
L31	62	CCI-SFP-045100	64.25 - 68.17	1.0000	1.0000
L31	63	CCI-SFP-045100	64.25 - 68.17	1.0000	1.0000
L32	2	Safety Line 3/8	64.00 - 64.25	1.0000	1.0000
L32	3	Step Pegs	64.00 - 64.25	1.0000	1.0000
L32	19	CU12PSM9P6XXX(1-1/2)	64.00 - 64.25	1.0000	1.0000
L32	21	HB114-U6S12-XXX-LI(1-1/4)	64.00 - 64.25	1.0000	1.0000
L32	22	HB158-1-08U8-S8J18(1-5/8)	64.00 - 64.25	1.0000	1.0000
L32	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	64.00 - 64.25	1.0000	1.0000
L32	28	LDF4-50A(1/2)	64.00 - 64.25	1.0000	1.0000
L32	30	Shaft Reinforcement [#PL0.625x5]	64.00 - 64.25	1.0000	1.0000
L32	31	Shaft Reinforcement [#PL0.625x5]	64.00 - 64.25	1.0000	1.0000
L32	42	Shaft Reinforcement [#PL1.25x5]	64.00 - 64.25	1.0000	1.0000
L32	43	Shaft Reinforcement [#PL1.25x5]	64.00 - 64.25	1.0000	1.0000
L32	44	Shaft Reinforcement [#PL1.25x5]	64.00 - 64.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L32	55	CCI-SFP-045100	64.00 - 64.25	1.0000	1.0000
L32	56	CCI-SFP-045100	64.00 - 64.25	1.0000	1.0000
L32	57	CCI-SFP-045100	64.00 - 64.25	1.0000	1.0000
L32	61	CCI-SFP-045100	64.00 - 64.25	1.0000	1.0000
L32	62	CCI-SFP-045100	64.00 - 64.25	1.0000	1.0000
L32	63	CCI-SFP-045100	64.00 - 64.25	1.0000	1.0000
L33	2	Safety Line 3/8	59.00 - 64.00	1.0000	1.0000
L33	3	Step Pegs	59.00 - 64.00	1.0000	1.0000
L33	19	CU12PSM9P6XXX(1-1/2)	59.00 - 64.00	1.0000	1.0000
L33	21	HB114-U6S12-XXX-LI(1-1/4)	59.00 - 64.00	1.0000	1.0000
L33	22	HB158-1-08U8-S8J18(1-5/8)	59.00 - 64.00	1.0000	1.0000
L33	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	59.00 - 64.00	1.0000	1.0000
L33	28	LDF4-50A(1/2)	59.00 - 64.00	1.0000	1.0000
L33	30	Shaft Reinforcement [#PL0.625x5]	59.00 - 64.00	1.0000	1.0000
L33	31	Shaft Reinforcement [#PL0.625x5]	59.00 - 64.00	1.0000	1.0000
L33	42	Shaft Reinforcement [#PL1.25x5]	59.00 - 64.00	1.0000	1.0000
L33	43	Shaft Reinforcement [#PL1.25x5]	59.00 - 64.00	1.0000	1.0000
L33	44	Shaft Reinforcement [#PL1.25x5]	59.00 - 64.00	1.0000	1.0000
L33	55	CCI-SFP-045100	59.00 - 64.00	1.0000	1.0000
L33	56	CCI-SFP-045100	59.00 - 64.00	1.0000	1.0000
L33	57	CCI-SFP-045100	59.00 - 64.00	1.0000	1.0000
L33	61	CCI-SFP-045100	62.75 - 64.00	1.0000	1.0000
L33	62	CCI-SFP-045100	62.75 - 64.00	1.0000	1.0000
L33	63	CCI-SFP-045100	62.75 - 64.00	1.0000	1.0000
L34	2	Safety Line 3/8	54.00 - 59.00	1.0000	1.0000
L34	3	Step Pegs	54.00 - 59.00	1.0000	1.0000
L34	19	CU12PSM9P6XXX(1-1/2)	54.00 - 59.00	1.0000	1.0000
L34	21	HB114-U6S12-XXX-LI(1-1/4)	54.00 - 59.00	1.0000	1.0000
L34	22	HB158-1-08U8-S8J18(1-5/8)	54.00 - 59.00	1.0000	1.0000
L34	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	54.00 - 59.00	1.0000	1.0000
L34	28	LDF4-50A(1/2)	54.00 - 59.00	1.0000	1.0000
L34	30	Shaft Reinforcement [#PL0.625x5]	54.00 - 59.00	1.0000	1.0000
L34	31	Shaft Reinforcement [#PL0.625x5]	54.00 - 59.00	1.0000	1.0000
L34	42	Shaft Reinforcement [#PL1.25x5]	54.00 - 59.00	1.0000	1.0000
L34	43	Shaft Reinforcement [#PL1.25x5]	54.00 - 59.00	1.0000	1.0000
L34	44	Shaft Reinforcement [#PL1.25x5]	54.00 - 59.00	1.0000	1.0000
L34	55	CCI-SFP-045100	54.00 - 59.00	1.0000	1.0000
L34	56	CCI-SFP-045100	54.00 - 59.00	1.0000	1.0000
L34	57	CCI-SFP-045100	54.00 - 59.00	1.0000	1.0000
L34	72	CCI-SFP-050125	54.00 - 55.50	1.0000	1.0000
L34	73	CCI-SFP-050125	54.00 - 55.50	1.0000	1.0000
L35	2	Safety Line 3/8	53.50 - 54.00	1.0000	1.0000
L35	3	Step Pegs	53.50 - 54.00	1.0000	1.0000
L35	19	CU12PSM9P6XXX(1-1/2)	53.50 - 54.00	1.0000	1.0000
L35	21	HB114-U6S12-XXX-LI(1-1/4)	53.50 - 54.00	1.0000	1.0000
L35	22	HB158-1-08U8-S8J18(1-5/8)	53.50 - 54.00	1.0000	1.0000
L35	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	53.50 - 54.00	1.0000	1.0000
L35	28	LDF4-50A(1/2)	53.50 - 54.00	1.0000	1.0000
L35	30	Shaft Reinforcement [#PL0.625x5]	53.50 - 54.00	1.0000	1.0000
L35	31	Shaft Reinforcement [#PL0.625x5]	53.50 - 54.00	1.0000	1.0000
L35	42	Shaft Reinforcement [#PL1.25x5]	53.50 - 54.00	1.0000	1.0000
L35	43	Shaft Reinforcement [#PL1.25x5]	53.50 - 54.00	1.0000	1.0000
L35	44	Shaft Reinforcement [#PL1.25x5]	53.50 - 54.00	1.0000	1.0000
L35	55	CCI-SFP-045100	53.50 - 54.00	1.0000	1.0000
L35	56	CCI-SFP-045100	53.50 - 54.00	1.0000	1.0000
L35	57	CCI-SFP-045100	53.50 - 54.00	1.0000	1.0000
L35	72	CCI-SFP-050125	53.50 - 54.00	1.0000	1.0000
L35	73	CCI-SFP-050125	53.50 - 54.00	1.0000	1.0000
L36	2	Safety Line 3/8	53.25 - 53.50	1.0000	1.0000
L36	3	Step Pegs	53.25 - 53.50	1.0000	1.0000
L36	19	CU12PSM9P6XXX(1-1/2)	53.25 - 53.50	1.0000	1.0000
L36	21	HB114-U6S12-XXX-LI(1-1/4)	53.25 - 53.50	1.0000	1.0000
L36	22	HB158-1-08U8-S8J18(1-5/8)	53.25 - 53.50	1.0000	1.0000
L36	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	53.25 - 53.50	1.0000	1.0000
L36	28	LDF4-50A(1/2)	53.25 - 53.50	1.0000	1.0000
L36	30	Shaft Reinforcement [#PL0.625x5]	53.25 - 53.50	1.0000	1.0000
L36	31	Shaft Reinforcement [#PL0.625x5]	53.25 - 53.50	1.0000	1.0000
L36	42	Shaft Reinforcement [#PL1.25x5]	53.25 - 53.50	1.0000	1.0000
L36	43	Shaft Reinforcement [#PL1.25x5]	53.25 - 53.50	1.0000	1.0000
L36	44	Shaft Reinforcement [#PL1.25x5]	53.25 - 53.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L36	55	CCI-SFP-045100	53.25 - 53.50	1.0000	1.0000
L36	56	CCI-SFP-045100	53.25 - 53.50	1.0000	1.0000
L36	57	CCI-SFP-045100	53.25 - 53.50	1.0000	1.0000
L36	72	CCI-SFP-050125	53.25 - 53.50	1.0000	1.0000
L36	73	CCI-SFP-050125	53.25 - 53.50	1.0000	1.0000
L37	2	Safety Line 3/8	43.83 - 53.25	1.0000	1.0000
L37	3	Step Pegs	43.83 - 53.25	1.0000	1.0000
L37	19	CU12PSM9P6XXX(1-1/2)	43.83 - 53.25	1.0000	1.0000
L37	21	HB114-U6S12-XXX-LI(1-1/4)	43.83 - 53.25	1.0000	1.0000
L37	22	HB158-1-08U8-S8J18(1-5/8)	43.83 - 53.25	1.0000	1.0000
L37	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	43.83 - 53.25	1.0000	1.0000
L37	28	LDF4-50A(1/2)	43.83 - 53.25	1.0000	1.0000
L37	30	Shaft Reinforcement [#PL0.625x5]	43.83 - 53.25	1.0000	1.0000
L37	31	Shaft Reinforcement [#PL0.625x5]	43.83 - 53.25	1.0000	1.0000
L37	39	Shaft Reinforcement [#PL1.25x6]	43.83 - 47.92	1.0000	1.0000
L37	40	Shaft Reinforcement [#PL1.25x6]	43.83 - 47.92	1.0000	1.0000
L37	41	Shaft Reinforcement [#PL1.25x6]	43.83 - 47.92	1.0000	1.0000
L37	42	Shaft Reinforcement [#PL1.25x5]	45.38 - 53.25	1.0000	1.0000
L37	43	Shaft Reinforcement [#PL1.25x5]	45.38 - 53.25	1.0000	1.0000
L37	44	Shaft Reinforcement [#PL1.25x5]	45.38 - 53.25	1.0000	1.0000
L37	55	CCI-SFP-045100	43.83 - 53.25	1.0000	1.0000
L37	56	CCI-SFP-045100	43.83 - 53.25	1.0000	1.0000
L37	57	CCI-SFP-045100	43.83 - 53.25	1.0000	1.0000
L37	72	CCI-SFP-050125	45.50 - 53.25	1.0000	1.0000
L37	73	CCI-SFP-050125	45.50 - 53.25	1.0000	1.0000
L38	2	Safety Line 3/8	42.83 - 43.83	1.0000	1.0000
L38	3	Step Pegs	42.83 - 43.83	1.0000	1.0000
L38	19	CU12PSM9P6XXX(1-1/2)	42.83 - 43.83	1.0000	1.0000
L38	21	HB114-U6S12-XXX-LI(1-1/4)	42.83 - 43.83	1.0000	1.0000
L38	22	HB158-1-08U8-S8J18(1-5/8)	42.83 - 43.83	1.0000	1.0000
L38	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	42.83 - 43.83	1.0000	1.0000
L38	28	LDF4-50A(1/2)	42.83 - 43.83	1.0000	1.0000
L38	30	Shaft Reinforcement [#PL0.625x5]	42.83 - 43.83	1.0000	1.0000
L38	31	Shaft Reinforcement [#PL0.625x5]	42.83 - 43.83	1.0000	1.0000
L38	39	Shaft Reinforcement [#PL1.25x6]	42.83 - 43.83	1.0000	1.0000
L38	40	Shaft Reinforcement [#PL1.25x6]	42.83 - 43.83	1.0000	1.0000
L38	41	Shaft Reinforcement [#PL1.25x6]	42.83 - 43.83	1.0000	1.0000
L38	52	CCI-SFP-060100	42.83 - 43.75	1.0000	1.0000
L38	53	CCI-SFP-060100	42.83 - 43.75	1.0000	1.0000
L38	54	CCI-SFP-060100	42.83 - 43.75	1.0000	1.0000
L38	55	CCI-SFP-045100	43.75 - 43.83	1.0000	1.0000
L38	56	CCI-SFP-045100	43.75 - 43.83	1.0000	1.0000
L38	57	CCI-SFP-045100	43.75 - 43.83	1.0000	1.0000
L39	2	Safety Line 3/8	41.75 - 42.83	1.0000	1.0000
L39	3	Step Pegs	41.75 - 42.83	1.0000	1.0000
L39	19	CU12PSM9P6XXX(1-1/2)	41.75 - 42.83	1.0000	1.0000
L39	21	HB114-U6S12-XXX-LI(1-1/4)	41.75 - 42.83	1.0000	1.0000
L39	22	HB158-1-08U8-S8J18(1-5/8)	41.75 - 42.83	1.0000	1.0000
L39	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	41.75 - 42.83	1.0000	1.0000
L39	28	LDF4-50A(1/2)	41.75 - 42.83	1.0000	1.0000
L39	30	Shaft Reinforcement [#PL0.625x5]	41.75 - 42.83	1.0000	1.0000
L39	31	Shaft Reinforcement [#PL0.625x5]	41.75 - 42.83	1.0000	1.0000
L39	39	Shaft Reinforcement [#PL1.25x6]	41.75 - 42.83	1.0000	1.0000
L39	40	Shaft Reinforcement [#PL1.25x6]	41.75 - 42.83	1.0000	1.0000
L39	41	Shaft Reinforcement [#PL1.25x6]	41.75 - 42.83	1.0000	1.0000
L39	52	CCI-SFP-060100	41.75 - 42.83	1.0000	1.0000
L39	53	CCI-SFP-060100	41.75 - 42.83	1.0000	1.0000
L39	54	CCI-SFP-060100	41.75 - 42.83	1.0000	1.0000
L40	2	Safety Line 3/8	41.50 - 41.75	1.0000	1.0000
L40	3	Step Pegs	41.50 - 41.75	1.0000	1.0000
L40	19	CU12PSM9P6XXX(1-1/2)	41.50 - 41.75	1.0000	1.0000
L40	21	HB114-U6S12-XXX-LI(1-1/4)	41.50 - 41.75	1.0000	1.0000
L40	22	HB158-1-08U8-S8J18(1-5/8)	41.50 - 41.75	1.0000	1.0000
L40	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	41.50 - 41.75	1.0000	1.0000
L40	28	LDF4-50A(1/2)	41.50 - 41.75	1.0000	1.0000
L40	30	Shaft Reinforcement [#PL0.625x5]	41.50 - 41.75	1.0000	1.0000
L40	31	Shaft Reinforcement [#PL0.625x5]	41.50 - 41.75	1.0000	1.0000
L40	39	Shaft Reinforcement [#PL1.25x6]	41.50 - 41.75	1.0000	1.0000
L40	40	Shaft Reinforcement [#PL1.25x6]	41.50 - 41.75	1.0000	1.0000
L40	41	Shaft Reinforcement [#PL1.25x6]	41.50 - 41.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L40	52	CCI-SFP-060100	41.50 - 41.75	1.0000	1.0000
L40	53	CCI-SFP-060100	41.50 - 41.75	1.0000	1.0000
L40	54	CCI-SFP-060100	41.50 - 41.75	1.0000	1.0000
L41	2	Safety Line 3/8	36.50 - 41.50	1.0000	1.0000
L41	3	Step Pegs	36.50 - 41.50	1.0000	1.0000
L41	19	CU12PSM9P6XXX(1-1/2)	36.50 - 41.50	1.0000	1.0000
L41	21	HB114-U6S12-XXX-LI(1-1/4)	36.50 - 41.50	1.0000	1.0000
L41	22	HB158-1-08U8-S8J18(1-5/8)	36.50 - 41.50	1.0000	1.0000
L41	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	36.50 - 41.50	1.0000	1.0000
L41	28	LDF4-50A(1/2)	36.50 - 41.50	1.0000	1.0000
L41	30	Shaft Reinforcement [#PL0.625x5]	36.50 - 41.50	1.0000	1.0000
L41	31	Shaft Reinforcement [#PL0.625x5]	36.50 - 41.50	1.0000	1.0000
L41	39	Shaft Reinforcement [#PL1.25x6]	36.50 - 41.50	1.0000	1.0000
L41	40	Shaft Reinforcement [#PL1.25x6]	36.50 - 41.50	1.0000	1.0000
L41	41	Shaft Reinforcement [#PL1.25x6]	36.50 - 41.50	1.0000	1.0000
L41	52	CCI-SFP-060100	36.50 - 41.50	1.0000	1.0000
L41	53	CCI-SFP-060100	36.50 - 41.50	1.0000	1.0000
L41	54	CCI-SFP-060100	36.50 - 41.50	1.0000	1.0000
L42	2	Safety Line 3/8	32.75 - 36.50	1.0000	1.0000
L42	3	Step Pegs	32.75 - 36.50	1.0000	1.0000
L42	19	CU12PSM9P6XXX(1-1/2)	32.75 - 36.50	1.0000	1.0000
L42	21	HB114-U6S12-XXX-LI(1-1/4)	32.75 - 36.50	1.0000	1.0000
L42	22	HB158-1-08U8-S8J18(1-5/8)	32.75 - 36.50	1.0000	1.0000
L42	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	32.75 - 36.50	1.0000	1.0000
L42	28	LDF4-50A(1/2)	32.75 - 36.50	1.0000	1.0000
L42	30	Shaft Reinforcement [#PL0.625x5]	32.75 - 36.50	1.0000	1.0000
L42	31	Shaft Reinforcement [#PL0.625x5]	32.75 - 36.50	1.0000	1.0000
L42	39	Shaft Reinforcement [#PL1.25x6]	32.75 - 36.50	1.0000	1.0000
L42	40	Shaft Reinforcement [#PL1.25x6]	32.75 - 36.50	1.0000	1.0000
L42	41	Shaft Reinforcement [#PL1.25x6]	32.75 - 36.50	1.0000	1.0000
L42	52	CCI-SFP-060100	32.75 - 36.50	1.0000	1.0000
L42	53	CCI-SFP-060100	32.75 - 36.50	1.0000	1.0000
L42	54	CCI-SFP-060100	32.75 - 36.50	1.0000	1.0000
L42	74	CCI-SFP-065125	32.75 - 35.50	1.0000	1.0000
L42	75	CCI-SFP-065125	32.75 - 35.50	1.0000	1.0000
L43	2	Safety Line 3/8	32.50 - 32.75	1.0000	1.0000
L43	3	Step Pegs	32.50 - 32.75	1.0000	1.0000
L43	19	CU12PSM9P6XXX(1-1/2)	32.50 - 32.75	1.0000	1.0000
L43	21	HB114-U6S12-XXX-LI(1-1/4)	32.50 - 32.75	1.0000	1.0000
L43	22	HB158-1-08U8-S8J18(1-5/8)	32.50 - 32.75	1.0000	1.0000
L43	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	32.50 - 32.75	1.0000	1.0000
L43	28	LDF4-50A(1/2)	32.50 - 32.75	1.0000	1.0000
L43	30	Shaft Reinforcement [#PL0.625x5]	32.50 - 32.75	1.0000	1.0000
L43	31	Shaft Reinforcement [#PL0.625x5]	32.50 - 32.75	1.0000	1.0000
L43	39	Shaft Reinforcement [#PL1.25x6]	32.50 - 32.75	1.0000	1.0000
L43	40	Shaft Reinforcement [#PL1.25x6]	32.50 - 32.75	1.0000	1.0000
L43	41	Shaft Reinforcement [#PL1.25x6]	32.50 - 32.75	1.0000	1.0000
L43	52	CCI-SFP-060100	32.50 - 32.75	1.0000	1.0000
L43	53	CCI-SFP-060100	32.50 - 32.75	1.0000	1.0000
L43	54	CCI-SFP-060100	32.50 - 32.75	1.0000	1.0000
L43	74	CCI-SFP-065125	32.50 - 32.75	1.0000	1.0000
L43	75	CCI-SFP-065125	32.50 - 32.75	1.0000	1.0000
L44	2	Safety Line 3/8	29.73 - 32.50	1.0000	1.0000
L44	3	Step Pegs	29.73 - 32.50	1.0000	1.0000
L44	19	CU12PSM9P6XXX(1-1/2)	29.73 - 32.50	1.0000	1.0000
L44	21	HB114-U6S12-XXX-LI(1-1/4)	29.73 - 32.50	1.0000	1.0000
L44	22	HB158-1-08U8-S8J18(1-5/8)	29.73 - 32.50	1.0000	1.0000
L44	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	29.73 - 32.50	1.0000	1.0000
L44	28	LDF4-50A(1/2)	29.73 - 32.50	1.0000	1.0000
L44	30	Shaft Reinforcement [#PL0.625x5]	29.73 - 32.50	1.0000	1.0000
L44	31	Shaft Reinforcement [#PL0.625x5]	29.73 - 32.50	1.0000	1.0000
L44	36	Shaft Reinforcement [#PL1.25x6]	29.73 - 30.75	1.0000	1.0000
L44	37	Shaft Reinforcement [#PL1.25x6]	29.73 - 30.75	1.0000	1.0000
L44	38	Shaft Reinforcement [#PL1.25x6]	29.73 - 30.75	1.0000	1.0000
L44	39	Shaft Reinforcement [#PL1.25x6]	29.73 - 32.50	1.0000	1.0000
L44	40	Shaft Reinforcement [#PL1.25x6]	29.73 - 32.50	1.0000	1.0000
L44	41	Shaft Reinforcement [#PL1.25x6]	29.73 - 32.50	1.0000	1.0000
L44	52	CCI-SFP-060100	29.73 - 32.50	1.0000	1.0000
L44	53	CCI-SFP-060100	29.73 - 32.50	1.0000	1.0000
L44	54	CCI-SFP-060100	29.73 - 32.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L44	74	CCI-SFP-065125	29.73 - 32.50	1.0000	1.0000
L44	75	CCI-SFP-065125	29.73 - 32.50	1.0000	1.0000
L45	2	Safety Line 3/8	29.48 - 29.73	1.0000	1.0000
L45	3	Step Pegs	29.48 - 29.73	1.0000	1.0000
L45	19	CU12PSM9P6XXX(1-1/2)	29.48 - 29.73	1.0000	1.0000
L45	21	HB114-U6S12-XXX-LI(1-1/4)	29.48 - 29.73	1.0000	1.0000
L45	22	HB158-1-08U8-S8J18(1-5/8)	29.48 - 29.73	1.0000	1.0000
L45	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	29.48 - 29.73	1.0000	1.0000
L45	28	LDF4-50A(1/2)	29.48 - 29.73	1.0000	1.0000
L45	30	Shaft Reinforcement [#PL0.625x5]	29.48 - 29.73	1.0000	1.0000
L45	31	Shaft Reinforcement [#PL0.625x5]	29.48 - 29.73	1.0000	1.0000
L45	36	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	1.0000	1.0000
L45	37	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	1.0000	1.0000
L45	38	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	1.0000	1.0000
L45	39	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	1.0000	1.0000
L45	40	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	1.0000	1.0000
L45	41	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	1.0000	1.0000
L45	52	CCI-SFP-060100	29.48 - 29.73	1.0000	1.0000
L45	53	CCI-SFP-060100	29.48 - 29.73	1.0000	1.0000
L45	54	CCI-SFP-060100	29.48 - 29.73	1.0000	1.0000
L45	74	CCI-SFP-065125	29.48 - 29.73	1.0000	1.0000
L45	75	CCI-SFP-065125	29.48 - 29.73	1.0000	1.0000
L46	2	Safety Line 3/8	28.25 - 29.48	1.0000	1.0000
L46	3	Step Pegs	28.25 - 29.48	1.0000	1.0000
L46	19	CU12PSM9P6XXX(1-1/2)	28.25 - 29.48	1.0000	1.0000
L46	21	HB114-U6S12-XXX-LI(1-1/4)	28.25 - 29.48	1.0000	1.0000
L46	22	HB158-1-08U8-S8J18(1-5/8)	28.25 - 29.48	1.0000	1.0000
L46	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	28.25 - 29.48	1.0000	1.0000
L46	28	LDF4-50A(1/2)	28.25 - 29.48	1.0000	1.0000
L46	30	Shaft Reinforcement [#PL0.625x5]	28.25 - 29.48	1.0000	1.0000
L46	31	Shaft Reinforcement [#PL0.625x5]	28.25 - 29.48	1.0000	1.0000
L46	36	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	1.0000	1.0000
L46	37	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	1.0000	1.0000
L46	38	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	1.0000	1.0000
L46	39	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	1.0000	1.0000
L46	40	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	1.0000	1.0000
L46	41	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	1.0000	1.0000
L46	52	CCI-SFP-060100	28.25 - 29.48	1.0000	1.0000
L46	53	CCI-SFP-060100	28.25 - 29.48	1.0000	1.0000
L46	54	CCI-SFP-060100	28.25 - 29.48	1.0000	1.0000
L46	74	CCI-SFP-065125	28.25 - 29.48	1.0000	1.0000
L46	75	CCI-SFP-065125	28.25 - 29.48	1.0000	1.0000
L47	2	Safety Line 3/8	28.00 - 28.25	1.0000	1.0000
L47	3	Step Pegs	28.00 - 28.25	1.0000	1.0000
L47	19	CU12PSM9P6XXX(1-1/2)	28.00 - 28.25	1.0000	1.0000
L47	21	HB114-U6S12-XXX-LI(1-1/4)	28.00 - 28.25	1.0000	1.0000
L47	22	HB158-1-08U8-S8J18(1-5/8)	28.00 - 28.25	1.0000	1.0000
L47	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	28.00 - 28.25	1.0000	1.0000
L47	28	LDF4-50A(1/2)	28.00 - 28.25	1.0000	1.0000
L47	30	Shaft Reinforcement [#PL0.625x5]	28.00 - 28.25	1.0000	1.0000
L47	31	Shaft Reinforcement [#PL0.625x5]	28.00 - 28.25	1.0000	1.0000
L47	36	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	1.0000	1.0000
L47	37	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	1.0000	1.0000
L47	38	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	1.0000	1.0000
L47	39	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	1.0000	1.0000
L47	40	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	1.0000	1.0000
L47	41	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	1.0000	1.0000
L47	52	CCI-SFP-060100	28.00 - 28.25	1.0000	1.0000
L47	53	CCI-SFP-060100	28.00 - 28.25	1.0000	1.0000
L47	54	CCI-SFP-060100	28.00 - 28.25	1.0000	1.0000
L47	74	CCI-SFP-065125	28.00 - 28.25	1.0000	1.0000
L47	75	CCI-SFP-065125	28.00 - 28.25	1.0000	1.0000
L48	2	Safety Line 3/8	23.00 - 28.00	1.0000	1.0000
L48	3	Step Pegs	23.00 - 28.00	1.0000	1.0000
L48	19	CU12PSM9P6XXX(1-1/2)	23.00 - 28.00	1.0000	1.0000
L48	21	HB114-U6S12-XXX-LI(1-1/4)	23.00 - 28.00	1.0000	1.0000
L48	22	HB158-1-08U8-S8J18(1-5/8)	23.00 - 28.00	1.0000	1.0000
L48	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	23.00 - 28.00	1.0000	1.0000
L48	28	LDF4-50A(1/2)	23.00 - 28.00	1.0000	1.0000
L48	30	Shaft Reinforcement [#PL0.625x5]	23.00 - 28.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L48	31	Shaft Reinforcement [#PL0.625x5]	23.00 - 28.00	1.0000	1.0000
L48	36	Shaft Reinforcement [#PL1.25x6]	23.00 - 28.00	1.0000	1.0000
L48	37	Shaft Reinforcement [#PL1.25x6]	23.00 - 28.00	1.0000	1.0000
L48	38	Shaft Reinforcement [#PL1.25x6]	23.00 - 28.00	1.0000	1.0000
L48	39	Shaft Reinforcement [#PL1.25x6]	27.75 - 28.00	1.0000	1.0000
L48	40	Shaft Reinforcement [#PL1.25x6]	27.75 - 28.00	1.0000	1.0000
L48	41	Shaft Reinforcement [#PL1.25x6]	27.75 - 28.00	1.0000	1.0000
L48	52	CCI-SFP-060100	23.00 - 28.00	1.0000	1.0000
L48	53	CCI-SFP-060100	23.00 - 28.00	1.0000	1.0000
L48	54	CCI-SFP-060100	23.00 - 28.00	1.0000	1.0000
L48	58	CCI-SFP-045100	23.00 - 27.75	1.0000	1.0000
L48	59	CCI-SFP-045100	23.00 - 27.75	1.0000	1.0000
L48	60	CCI-SFP-045100	23.00 - 27.75	1.0000	1.0000
L48	74	CCI-SFP-065125	25.50 - 28.00	1.0000	1.0000
L48	75	CCI-SFP-065125	25.50 - 28.00	1.0000	1.0000
L49	2	Safety Line 3/8	19.25 - 23.00	1.0000	1.0000
L49	3	Step Pegs	19.25 - 23.00	1.0000	1.0000
L49	19	CU12PSM9P6XXX(1-1/2)	19.25 - 23.00	1.0000	1.0000
L49	21	HB114-U6S12-XXX-LI(1-1/4)	19.25 - 23.00	1.0000	1.0000
L49	22	HB158-1-08U8-S8J18(1-5/8)	19.25 - 23.00	1.0000	1.0000
L49	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	19.25 - 23.00	1.0000	1.0000
L49	28	LDF4-50A(1/2)	19.25 - 23.00	1.0000	1.0000
L49	30	Shaft Reinforcement [#PL0.625x5]	19.25 - 23.00	1.0000	1.0000
L49	31	Shaft Reinforcement [#PL0.625x5]	19.25 - 23.00	1.0000	1.0000
L49	36	Shaft Reinforcement [#PL1.25x6]	19.25 - 23.00	1.0000	1.0000
L49	37	Shaft Reinforcement [#PL1.25x6]	19.25 - 23.00	1.0000	1.0000
L49	38	Shaft Reinforcement [#PL1.25x6]	19.25 - 23.00	1.0000	1.0000
L49	52	CCI-SFP-060100	19.25 - 23.00	1.0000	1.0000
L49	53	CCI-SFP-060100	19.25 - 23.00	1.0000	1.0000
L49	54	CCI-SFP-060100	19.25 - 23.00	1.0000	1.0000
L49	58	CCI-SFP-045100	19.25 - 23.00	1.0000	1.0000
L49	59	CCI-SFP-045100	19.25 - 23.00	1.0000	1.0000
L49	60	CCI-SFP-045100	19.25 - 23.00	1.0000	1.0000
L50	2	Safety Line 3/8	19.00 - 19.25	1.0000	1.0000
L50	3	Step Pegs	19.00 - 19.25	1.0000	1.0000
L50	19	CU12PSM9P6XXX(1-1/2)	19.00 - 19.25	1.0000	1.0000
L50	21	HB114-U6S12-XXX-LI(1-1/4)	19.00 - 19.25	1.0000	1.0000
L50	22	HB158-1-08U8-S8J18(1-5/8)	19.00 - 19.25	1.0000	1.0000
L50	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	19.00 - 19.25	1.0000	1.0000
L50	28	LDF4-50A(1/2)	19.00 - 19.25	1.0000	1.0000
L50	30	Shaft Reinforcement [#PL0.625x5]	19.00 - 19.25	1.0000	1.0000
L50	31	Shaft Reinforcement [#PL0.625x5]	19.00 - 19.25	1.0000	1.0000
L50	36	Shaft Reinforcement [#PL1.25x6]	19.00 - 19.25	1.0000	1.0000
L50	37	Shaft Reinforcement [#PL1.25x6]	19.00 - 19.25	1.0000	1.0000
L50	38	Shaft Reinforcement [#PL1.25x6]	19.00 - 19.25	1.0000	1.0000
L50	52	CCI-SFP-060100	19.00 - 19.25	1.0000	1.0000
L50	53	CCI-SFP-060100	19.00 - 19.25	1.0000	1.0000
L50	54	CCI-SFP-060100	19.00 - 19.25	1.0000	1.0000
L50	58	CCI-SFP-045100	19.00 - 19.25	1.0000	1.0000
L50	59	CCI-SFP-045100	19.00 - 19.25	1.0000	1.0000
L50	60	CCI-SFP-045100	19.00 - 19.25	1.0000	1.0000
L51	2	Safety Line 3/8	14.00 - 19.00	1.0000	1.0000
L51	3	Step Pegs	14.00 - 19.00	1.0000	1.0000
L51	19	CU12PSM9P6XXX(1-1/2)	14.00 - 19.00	1.0000	1.0000
L51	21	HB114-U6S12-XXX-LI(1-1/4)	14.00 - 19.00	1.0000	1.0000
L51	22	HB158-1-08U8-S8J18(1-5/8)	14.00 - 19.00	1.0000	1.0000
L51	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	14.00 - 19.00	1.0000	1.0000
L51	28	LDF4-50A(1/2)	14.00 - 19.00	1.0000	1.0000
L51	30	Shaft Reinforcement [#PL0.625x5]	14.00 - 19.00	1.0000	1.0000
L51	31	Shaft Reinforcement [#PL0.625x5]	14.00 - 19.00	1.0000	1.0000
L51	36	Shaft Reinforcement [#PL1.25x6]	14.00 - 19.00	1.0000	1.0000
L51	37	Shaft Reinforcement [#PL1.25x6]	14.00 - 19.00	1.0000	1.0000
L51	38	Shaft Reinforcement [#PL1.25x6]	14.00 - 19.00	1.0000	1.0000
L51	52	CCI-SFP-060100	14.00 - 19.00	1.0000	1.0000
L51	53	CCI-SFP-060100	14.00 - 19.00	1.0000	1.0000
L51	54	CCI-SFP-060100	14.00 - 19.00	1.0000	1.0000
L51	58	CCI-SFP-045100	17.75 - 19.00	1.0000	1.0000
L51	59	CCI-SFP-045100	17.75 - 19.00	1.0000	1.0000
L51	60	CCI-SFP-045100	17.75 - 19.00	1.0000	1.0000
L52	2	Safety Line 3/8	10.00 - 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	3	Step Pegs	10.00 - 14.00	1.0000	1.0000
L52	19	CU12PSM9P6XXX(1-1/2)	9.00 - 14.00	1.0000	1.0000
L52	21	HB114-U6S12-XXX-LI(1-1/4)	9.00 - 14.00	1.0000	1.0000
L52	22	HB158-1-08U8-S8J18(1-5/8)	9.00 - 14.00	1.0000	1.0000
L52	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	9.00 - 14.00	1.0000	1.0000
L52	28	LDF4-50A(1/2)	9.00 - 14.00	1.0000	1.0000
L52	30	Shaft Reinforcement [#PL0.625x5]	9.00 - 14.00	1.0000	1.0000
L52	31	Shaft Reinforcement [#PL0.625x5]	9.00 - 14.00	1.0000	1.0000
L52	36	Shaft Reinforcement [#PL1.25x6]	9.00 - 14.00	1.0000	1.0000
L52	37	Shaft Reinforcement [#PL1.25x6]	9.00 - 14.00	1.0000	1.0000
L52	38	Shaft Reinforcement [#PL1.25x6]	9.00 - 14.00	1.0000	1.0000
L52	52	CCI-SFP-060100	9.00 - 14.00	1.0000	1.0000
L52	53	CCI-SFP-060100	9.00 - 14.00	1.0000	1.0000
L52	54	CCI-SFP-060100	9.00 - 14.00	1.0000	1.0000
L53	19	CU12PSM9P6XXX(1-1/2)	8.00 - 9.00	1.0000	1.0000
L53	21	HB114-U6S12-XXX-LI(1-1/4)	8.00 - 9.00	1.0000	1.0000
L53	22	HB158-1-08U8-S8J18(1-5/8)	8.00 - 9.00	1.0000	1.0000
L53	26	MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	8.00 - 9.00	1.0000	1.0000
L53	28	LDF4-50A(1/2)	8.00 - 9.00	1.0000	1.0000
L53	30	Shaft Reinforcement [#PL0.625x5]	4.00 - 9.00	1.0000	1.0000
L53	31	Shaft Reinforcement [#PL0.625x5]	4.00 - 9.00	1.0000	1.0000
L53	36	Shaft Reinforcement [#PL1.25x6]	4.00 - 9.00	1.0000	1.0000
L53	37	Shaft Reinforcement [#PL1.25x6]	4.00 - 9.00	1.0000	1.0000
L53	38	Shaft Reinforcement [#PL1.25x6]	4.00 - 9.00	1.0000	1.0000
L53	52	CCI-SFP-060100	4.00 - 9.00	1.0000	1.0000
L53	53	CCI-SFP-060100	4.00 - 9.00	1.0000	1.0000
L53	54	CCI-SFP-060100	4.00 - 9.00	1.0000	1.0000
L54	30	Shaft Reinforcement [#PL0.625x5]	0.00 - 4.00	1.0000	1.0000
L54	31	Shaft Reinforcement [#PL0.625x5]	0.00 - 4.00	1.0000	1.0000
L54	36	Shaft Reinforcement [#PL1.25x6]	0.00 - 4.00	1.0000	1.0000
L54	37	Shaft Reinforcement [#PL1.25x6]	0.00 - 4.00	1.0000	1.0000
L54	38	Shaft Reinforcement [#PL1.25x6]	0.00 - 4.00	1.0000	1.0000
L54	52	CCI-SFP-060100	0.00 - 4.00	1.0000	1.0000
L54	53	CCI-SFP-060100	0.00 - 4.00	1.0000	1.0000
L54	54	CCI-SFP-060100	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
L9	64	CCI-SFP-045100	125.75 - 127.33	Auto	0.0962
L9	65	CCI-SFP-045100	125.75 - 127.33	Auto	0.0962
L9	66	CCI-SFP-045100	125.75 - 127.33	Auto	0.0962
L10	64	CCI-SFP-045100	125.50 - 125.75	Auto	0.0903
L10	65	CCI-SFP-045100	125.50 - 125.75	Auto	0.0903
L10	66	CCI-SFP-045100	125.50 - 125.75	Auto	0.0903
L11	64	CCI-SFP-045100	120.50 - 125.50	Auto	0.0734
L11	65	CCI-SFP-045100	120.50 - 125.50	Auto	0.0734
L11	66	CCI-SFP-045100	120.50 - 125.50	Auto	0.0734
L11	68	CCI-SFP-040125	120.50 - 122.00	Auto	0.0000
L11	69	CCI-SFP-040125	120.50 - 122.00	Auto	0.0000
L12	64	CCI-SFP-045100	120.25 - 120.50	Auto	0.1469
L12	65	CCI-SFP-045100	120.25 - 120.50	Auto	0.1469
L12	66	CCI-SFP-045100	120.25 - 120.50	Auto	0.1469
L12	68	CCI-SFP-040125	120.25 - 120.50	Auto	0.0403
L12	69	CCI-SFP-040125	120.25 - 120.50	Auto	0.0403
L13	32	Shaft Reinforcement [#PL0.625x5]	115.25 - 120.00	Auto	0.2141
L13	33	Shaft Reinforcement [#PL0.625x5]	115.25 - 120.00	Auto	0.2141
L13	34	Shaft Reinforcement [#PL0.625x5]	115.25 - 120.00	Auto	0.2141
L13	48	Shaft Reinforcement [#PL1.25x5]	115.25 - 115.83	Auto	0.2020
L13	49	Shaft Reinforcement [#PL1.25x5]	115.25 - 115.83	Auto	0.2020
L13	50	Shaft Reinforcement [#PL1.25x5]	115.25 - 115.83	Auto	0.2020
L13	64	CCI-SFP-045100	115.25 - 120.25	Auto	0.1276
L13	65	CCI-SFP-045100	115.25 - 120.25	Auto	0.1276
L13	66	CCI-SFP-045100	115.25 - 120.25	Auto	0.1276

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	68	CCI-SFP-040125	115.25 - 120.25	Auto	0.0186
L13	69	CCI-SFP-040125	115.25 - 120.25	Auto	0.0186
L14	32	Shaft Reinforcement [#PL0.625x5]	113.83 - 115.25	Auto	0.1941
L14	33	Shaft Reinforcement [#PL0.625x5]	113.83 - 115.25	Auto	0.1941
L14	34	Shaft Reinforcement [#PL0.625x5]	113.83 - 115.25	Auto	0.1941
L14	48	Shaft Reinforcement [#PL1.25x5]	113.83 - 115.25	Auto	0.1941
L14	49	Shaft Reinforcement [#PL1.25x5]	113.83 - 115.25	Auto	0.1941
L14	50	Shaft Reinforcement [#PL1.25x5]	113.83 - 115.25	Auto	0.1941
L14	64	CCI-SFP-045100	113.83 - 115.25	Auto	0.1045
L14	65	CCI-SFP-045100	113.83 - 115.25	Auto	0.1045
L14	66	CCI-SFP-045100	113.83 - 115.25	Auto	0.1045
L14	68	CCI-SFP-040125	113.83 - 115.25	Auto	0.0000
L14	69	CCI-SFP-040125	113.83 - 115.25	Auto	0.0000
L15	32	Shaft Reinforcement [#PL0.625x5]	113.48 - 113.83	Auto	0.2527
L15	33	Shaft Reinforcement [#PL0.625x5]	113.48 - 113.83	Auto	0.2527
L15	34	Shaft Reinforcement [#PL0.625x5]	113.48 - 113.83	Auto	0.2527
L15	48	Shaft Reinforcement [#PL1.25x5]	113.48 - 113.83	Auto	0.2527
L15	49	Shaft Reinforcement [#PL1.25x5]	113.48 - 113.83	Auto	0.2527
L15	50	Shaft Reinforcement [#PL1.25x5]	113.48 - 113.83	Auto	0.2527
L15	64	CCI-SFP-045100	113.48 - 113.83	Auto	0.1697
L15	65	CCI-SFP-045100	113.48 - 113.83	Auto	0.1697
L15	66	CCI-SFP-045100	113.48 - 113.83	Auto	0.1697
L15	68	CCI-SFP-040125	113.48 - 113.83	Auto	0.0659
L15	69	CCI-SFP-040125	113.48 - 113.83	Auto	0.0659
L16	32	Shaft Reinforcement [#PL0.625x5]	113.25 - 113.48	Auto	0.2510
L16	33	Shaft Reinforcement [#PL0.625x5]	113.25 - 113.48	Auto	0.2510
L16	34	Shaft Reinforcement [#PL0.625x5]	113.25 - 113.48	Auto	0.2510
L16	48	Shaft Reinforcement [#PL1.25x5]	113.25 - 113.48	Auto	0.2510
L16	49	Shaft Reinforcement [#PL1.25x5]	113.25 - 113.48	Auto	0.2510
L16	50	Shaft Reinforcement [#PL1.25x5]	113.25 - 113.48	Auto	0.2510
L16	64	CCI-SFP-045100	113.25 - 113.48	Auto	0.1678
L16	65	CCI-SFP-045100	113.25 - 113.48	Auto	0.1678
L16	66	CCI-SFP-045100	113.25 - 113.48	Auto	0.1678
L16	68	CCI-SFP-040125	113.25 - 113.48	Auto	0.0638
L16	69	CCI-SFP-040125	113.25 - 113.48	Auto	0.0638
L17	32	Shaft Reinforcement [#PL0.625x5]	108.25 - 113.25	Auto	0.2315
L17	33	Shaft Reinforcement [#PL0.625x5]	108.25 - 113.25	Auto	0.2315
L17	34	Shaft Reinforcement [#PL0.625x5]	108.25 - 113.25	Auto	0.2315
L17	48	Shaft Reinforcement [#PL1.25x5]	108.25 - 113.25	Auto	0.2315
L17	49	Shaft Reinforcement [#PL1.25x5]	108.25 - 113.25	Auto	0.2315
L17	50	Shaft Reinforcement [#PL1.25x5]	108.25 - 113.25	Auto	0.2315
L17	64	CCI-SFP-045100	108.25 - 113.25	Auto	0.1461
L17	65	CCI-SFP-045100	108.25 - 113.25	Auto	0.1461
L17	66	CCI-SFP-045100	108.25 - 113.25	Auto	0.1461
L17	68	CCI-SFP-040125	112.00 - 113.25	Auto	0.0529
L17	69	CCI-SFP-040125	112.00 - 113.25	Auto	0.0529
L18	32	Shaft Reinforcement [#PL0.625x5]	103.25 - 108.25	Auto	0.1981
L18	33	Shaft Reinforcement [#PL0.625x5]	103.25 - 108.25	Auto	0.1981
L18	34	Shaft Reinforcement [#PL0.625x5]	103.25 - 108.25	Auto	0.1981
L18	48	Shaft Reinforcement [#PL1.25x5]	103.25 - 108.25	Auto	0.1981
L18	49	Shaft Reinforcement [#PL1.25x5]	103.25 - 108.25	Auto	0.1981
L18	50	Shaft Reinforcement [#PL1.25x5]	103.25 - 108.25	Auto	0.1981
L18	64	CCI-SFP-045100	103.25 - 108.25	Auto	0.1090
L18	65	CCI-SFP-045100	103.25 - 108.25	Auto	0.1090
L18	66	CCI-SFP-045100	103.25 - 108.25	Auto	0.1090
L19	32	Shaft Reinforcement [#PL0.625x5]	98.25 - 103.25	Auto	0.1647
L19	33	Shaft Reinforcement [#PL0.625x5]	98.25 - 103.25	Auto	0.1647
L19	34	Shaft Reinforcement [#PL0.625x5]	98.25 - 103.25	Auto	0.1647
L19	48	Shaft Reinforcement [#PL1.25x5]	98.25 - 103.25	Auto	0.1647
L19	49	Shaft Reinforcement [#PL1.25x5]	98.25 - 103.25	Auto	0.1647
L19	50	Shaft Reinforcement [#PL1.25x5]	98.25 - 103.25	Auto	0.1647
L19	64	CCI-SFP-045100	98.25 - 103.25	Auto	0.0719
L19	65	CCI-SFP-045100	98.25 - 103.25	Auto	0.0719
L19	66	CCI-SFP-045100	98.25 - 103.25	Auto	0.0719
L20	32	Shaft Reinforcement [#PL0.625x5]	93.25 - 98.25	Auto	0.1314
L20	33	Shaft Reinforcement [#PL0.625x5]	93.25 - 98.25	Auto	0.1314
L20	34	Shaft Reinforcement [#PL0.625x5]	93.25 - 98.25	Auto	0.1314
L20	48	Shaft Reinforcement [#PL1.25x5]	93.25 - 98.25	Auto	0.1314

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	49	Shaft Reinforcement [#PL1.25x5]	93.25 - 98.25	Auto	0.1314
L20	50	Shaft Reinforcement [#PL1.25x5]	93.25 - 98.25	Auto	0.1314
L20	64	CCI-SFP-045100	93.25 - 98.25	Auto	0.0349
L20	65	CCI-SFP-045100	93.25 - 98.25	Auto	0.0349
L20	66	CCI-SFP-045100	93.25 - 98.25	Auto	0.0349
L21	32	Shaft Reinforcement [#PL0.625x5]	84.72 - 93.25	Auto	0.0922
L21	33	Shaft Reinforcement [#PL0.625x5]	84.72 - 93.25	Auto	0.0922
L21	34	Shaft Reinforcement [#PL0.625x5]	84.72 - 93.25	Auto	0.0922
L21	45	Shaft Reinforcement [#PL1.25x5]	84.72 - 87.92	Auto	0.0767
L21	46	Shaft Reinforcement [#PL1.25x5]	84.72 - 87.92	Auto	0.0767
L21	47	Shaft Reinforcement [#PL1.25x5]	84.72 - 87.92	Auto	0.0767
L21	48	Shaft Reinforcement [#PL1.25x5]	85.83 - 93.25	Auto	0.0954
L21	49	Shaft Reinforcement [#PL1.25x5]	85.83 - 93.25	Auto	0.0954
L21	50	Shaft Reinforcement [#PL1.25x5]	85.83 - 93.25	Auto	0.0954
L21	64	CCI-SFP-045100	87.92 - 93.25	Auto	0.0051
L21	65	CCI-SFP-045100	87.92 - 93.25	Auto	0.0051
L21	66	CCI-SFP-045100	87.92 - 93.25	Auto	0.0051
L21	70	CCI-SFP-050125	84.72 - 90.50	Auto	0.0842
L21	71	CCI-SFP-050125	84.72 - 90.50	Auto	0.0842
L22	30	Shaft Reinforcement [#PL0.625x5]	83.72 - 84.67	Auto	0.1041
L22	31	Shaft Reinforcement [#PL0.625x5]	83.72 - 84.67	Auto	0.1041
L22	32	Shaft Reinforcement [#PL0.625x5]	84.67 - 84.72	Auto	0.1070
L22	33	Shaft Reinforcement [#PL0.625x5]	84.67 - 84.72	Auto	0.1070
L22	34	Shaft Reinforcement [#PL0.625x5]	84.67 - 84.72	Auto	0.1070
L22	45	Shaft Reinforcement [#PL1.25x5]	83.72 - 84.72	Auto	0.1042
L22	46	Shaft Reinforcement [#PL1.25x5]	83.72 - 84.72	Auto	0.1042
L22	47	Shaft Reinforcement [#PL1.25x5]	83.72 - 84.72	Auto	0.1042
L22	55	CCI-SFP-045100	83.72 - 84.33	Auto	0.0035
L22	56	CCI-SFP-045100	83.72 - 84.33	Auto	0.0035
L22	57	CCI-SFP-045100	83.72 - 84.33	Auto	0.0035
L22	70	CCI-SFP-050125	83.72 - 84.72	Auto	0.1042
L22	71	CCI-SFP-050125	83.72 - 84.72	Auto	0.1042
L23	30	Shaft Reinforcement [#PL0.625x5]	82.92 - 83.72	Auto	0.0990
L23	31	Shaft Reinforcement [#PL0.625x5]	82.92 - 83.72	Auto	0.0990
L23	45	Shaft Reinforcement [#PL1.25x5]	82.92 - 83.72	Auto	0.0990
L23	46	Shaft Reinforcement [#PL1.25x5]	82.92 - 83.72	Auto	0.0990
L23	47	Shaft Reinforcement [#PL1.25x5]	82.92 - 83.72	Auto	0.0990
L23	55	CCI-SFP-045100	82.92 - 83.72	Auto	0.0002
L23	56	CCI-SFP-045100	82.92 - 83.72	Auto	0.0002
L23	57	CCI-SFP-045100	82.92 - 83.72	Auto	0.0002
L23	70	CCI-SFP-050125	82.92 - 83.72	Auto	0.0990
L23	71	CCI-SFP-050125	82.92 - 83.72	Auto	0.0990
L24	30	Shaft Reinforcement [#PL0.625x5]	82.67 - 82.92	Auto	0.1972
L24	31	Shaft Reinforcement [#PL0.625x5]	82.67 - 82.92	Auto	0.1972
L24	45	Shaft Reinforcement [#PL1.25x5]	82.67 - 82.92	Auto	0.1972
L24	46	Shaft Reinforcement [#PL1.25x5]	82.67 - 82.92	Auto	0.1972
L24	47	Shaft Reinforcement [#PL1.25x5]	82.67 - 82.92	Auto	0.1972
L24	55	CCI-SFP-045100	82.67 - 82.92	Auto	0.1080
L24	56	CCI-SFP-045100	82.67 - 82.92	Auto	0.1080
L24	57	CCI-SFP-045100	82.67 - 82.92	Auto	0.1080
L24	70	CCI-SFP-050125	82.67 - 82.92	Auto	0.1972
L24	71	CCI-SFP-050125	82.67 - 82.92	Auto	0.1972
L25	30	Shaft Reinforcement [#PL0.625x5]	82.50 - 82.67	Auto	0.1960
L25	31	Shaft Reinforcement [#PL0.625x5]	82.50 - 82.67	Auto	0.1960
L25	45	Shaft Reinforcement [#PL1.25x5]	82.50 - 82.67	Auto	0.1960
L25	46	Shaft Reinforcement [#PL1.25x5]	82.50 - 82.67	Auto	0.1960
L25	47	Shaft Reinforcement [#PL1.25x5]	82.50 - 82.67	Auto	0.1960
L25	55	CCI-SFP-045100	82.50 - 82.67	Auto	0.1067
L25	56	CCI-SFP-045100	82.50 - 82.67	Auto	0.1067
L25	57	CCI-SFP-045100	82.50 - 82.67	Auto	0.1067
L25	70	CCI-SFP-050125	82.50 - 82.67	Auto	0.1960
L25	71	CCI-SFP-050125	82.50 - 82.67	Auto	0.1960
L26	30	Shaft Reinforcement [#PL0.625x5]	82.25 - 82.50	Auto	0.1024
L26	31	Shaft Reinforcement [#PL0.625x5]	82.25 - 82.50	Auto	0.1024
L26	45	Shaft Reinforcement [#PL1.25x5]	82.25 - 82.50	Auto	0.1024
L26	46	Shaft Reinforcement [#PL1.25x5]	82.25 - 82.50	Auto	0.1024
L26	47	Shaft Reinforcement [#PL1.25x5]	82.25 - 82.50	Auto	0.1024
L26	55	CCI-SFP-045100	82.25 - 82.50	Auto	0.0027

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L26	56	CCI-SFP-045100	82.25 - 82.50	Auto	0.0027
L26	57	CCI-SFP-045100	82.25 - 82.50	Auto	0.0027
L26	70	CCI-SFP-050125	82.25 - 82.50	Auto	0.1024
L26	71	CCI-SFP-050125	82.25 - 82.50	Auto	0.1024
L27	30	Shaft Reinforcement [#PL0.625x5]	77.25 - 82.25	Auto	0.0828
L27	31	Shaft Reinforcement [#PL0.625x5]	77.25 - 82.25	Auto	0.0828
L27	45	Shaft Reinforcement [#PL1.25x5]	77.25 - 82.25	Auto	0.0828
L27	46	Shaft Reinforcement [#PL1.25x5]	77.25 - 82.25	Auto	0.0828
L27	47	Shaft Reinforcement [#PL1.25x5]	77.25 - 82.25	Auto	0.0828
L27	55	CCI-SFP-045100	77.25 - 82.25	Auto	0.0000
L27	56	CCI-SFP-045100	77.25 - 82.25	Auto	0.0000
L27	57	CCI-SFP-045100	77.25 - 82.25	Auto	0.0000
L27	70	CCI-SFP-050125	80.50 - 82.25	Auto	0.0922
L27	71	CCI-SFP-050125	80.50 - 82.25	Auto	0.0922
L28	30	Shaft Reinforcement [#PL0.625x5]	73.42 - 77.25	Auto	0.0529
L28	31	Shaft Reinforcement [#PL0.625x5]	73.42 - 77.25	Auto	0.0529
L28	42	Shaft Reinforcement [#PL1.25x5]	73.42 - 75.42	Auto	0.0476
L28	43	Shaft Reinforcement [#PL1.25x5]	73.42 - 75.42	Auto	0.0476
L28	44	Shaft Reinforcement [#PL1.25x5]	73.42 - 75.42	Auto	0.0476
L28	45	Shaft Reinforcement [#PL1.25x5]	73.42 - 77.25	Auto	0.0529
L28	46	Shaft Reinforcement [#PL1.25x5]	73.42 - 77.25	Auto	0.0529
L28	47	Shaft Reinforcement [#PL1.25x5]	73.42 - 77.25	Auto	0.0529
L28	55	CCI-SFP-045100	73.42 - 77.25	Auto	0.0000
L28	56	CCI-SFP-045100	73.42 - 77.25	Auto	0.0000
L28	57	CCI-SFP-045100	73.42 - 77.25	Auto	0.0000
L29	30	Shaft Reinforcement [#PL0.625x5]	73.17 - 73.42	Auto	0.1379
L29	31	Shaft Reinforcement [#PL0.625x5]	73.17 - 73.42	Auto	0.1379
L29	42	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	Auto	0.1379
L29	43	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	Auto	0.1379
L29	44	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	Auto	0.1379
L29	45	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	Auto	0.1379
L29	46	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	Auto	0.1379
L29	47	Shaft Reinforcement [#PL1.25x5]	73.17 - 73.42	Auto	0.1379
L29	55	CCI-SFP-045100	73.17 - 73.42	Auto	0.0421
L29	56	CCI-SFP-045100	73.17 - 73.42	Auto	0.0421
L29	57	CCI-SFP-045100	73.17 - 73.42	Auto	0.0421
L30	30	Shaft Reinforcement [#PL0.625x5]	68.17 - 73.17	Auto	0.1139
L30	31	Shaft Reinforcement [#PL0.625x5]	68.17 - 73.17	Auto	0.1139
L30	42	Shaft Reinforcement [#PL1.25x5]	68.17 - 73.17	Auto	0.1139
L30	43	Shaft Reinforcement [#PL1.25x5]	68.17 - 73.17	Auto	0.1139
L30	44	Shaft Reinforcement [#PL1.25x5]	68.17 - 73.17	Auto	0.1139
L30	45	Shaft Reinforcement [#PL1.25x5]	72.75 - 73.17	Auto	0.1272
L30	46	Shaft Reinforcement [#PL1.25x5]	72.75 - 73.17	Auto	0.1272
L30	47	Shaft Reinforcement [#PL1.25x5]	72.75 - 73.17	Auto	0.1272
L30	55	CCI-SFP-045100	68.17 - 73.17	Auto	0.0155
L30	56	CCI-SFP-045100	68.17 - 73.17	Auto	0.0155
L30	57	CCI-SFP-045100	68.17 - 73.17	Auto	0.0155
L30	61	CCI-SFP-045100	68.17 - 72.75	Auto	0.0142
L30	62	CCI-SFP-045100	68.17 - 72.75	Auto	0.0142
L30	63	CCI-SFP-045100	68.17 - 72.75	Auto	0.0142
L31	30	Shaft Reinforcement [#PL0.625x5]	64.25 - 68.17	Auto	0.0794
L31	31	Shaft Reinforcement [#PL0.625x5]	64.25 - 68.17	Auto	0.0794
L31	42	Shaft Reinforcement [#PL1.25x5]	64.25 - 68.17	Auto	0.0794
L31	43	Shaft Reinforcement [#PL1.25x5]	64.25 - 68.17	Auto	0.0794
L31	44	Shaft Reinforcement [#PL1.25x5]	64.25 - 68.17	Auto	0.0794
L31	55	CCI-SFP-045100	64.25 - 68.17	Auto	0.0000
L31	56	CCI-SFP-045100	64.25 - 68.17	Auto	0.0000
L31	57	CCI-SFP-045100	64.25 - 68.17	Auto	0.0000
L31	61	CCI-SFP-045100	64.25 - 68.17	Auto	0.0000
L31	62	CCI-SFP-045100	64.25 - 68.17	Auto	0.0000
L31	63	CCI-SFP-045100	64.25 - 68.17	Auto	0.0000
L32	30	Shaft Reinforcement [#PL0.625x5]	64.00 - 64.25	Auto	0.0146
L32	31	Shaft Reinforcement [#PL0.625x5]	64.00 - 64.25	Auto	0.0146
L32	42	Shaft Reinforcement [#PL1.25x5]	64.00 - 64.25	Auto	0.0146
L32	43	Shaft Reinforcement [#PL1.25x5]	64.00 - 64.25	Auto	0.0146
L32	44	Shaft Reinforcement [#PL1.25x5]	64.00 - 64.25	Auto	0.0146
L32	55	CCI-SFP-045100	64.00 - 64.25	Auto	0.0000
L32	56	CCI-SFP-045100	64.00 - 64.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L32	57	CCI-SFP-045100	64.00 - 64.25	Auto	0.0000
L32	61	CCI-SFP-045100	64.00 - 64.25	Auto	0.0000
L32	62	CCI-SFP-045100	64.00 - 64.25	Auto	0.0000
L32	63	CCI-SFP-045100	64.00 - 64.25	Auto	0.0000
L33	30	Shaft Reinforcement [#PL0.625x5]	59.00 - 64.00	Auto	0.0033
L33	31	Shaft Reinforcement [#PL0.625x5]	59.00 - 64.00	Auto	0.0033
L33	42	Shaft Reinforcement [#PL1.25x5]	59.00 - 64.00	Auto	0.0033
L33	43	Shaft Reinforcement [#PL1.25x5]	59.00 - 64.00	Auto	0.0033
L33	44	Shaft Reinforcement [#PL1.25x5]	59.00 - 64.00	Auto	0.0033
L33	55	CCI-SFP-045100	59.00 - 64.00	Auto	0.0000
L33	56	CCI-SFP-045100	59.00 - 64.00	Auto	0.0000
L33	57	CCI-SFP-045100	59.00 - 64.00	Auto	0.0000
L33	61	CCI-SFP-045100	62.75 - 64.00	Auto	0.0000
L33	62	CCI-SFP-045100	62.75 - 64.00	Auto	0.0000
L33	63	CCI-SFP-045100	62.75 - 64.00	Auto	0.0000
L34	30	Shaft Reinforcement [#PL0.625x5]	54.00 - 59.00	Auto	0.0000
L34	31	Shaft Reinforcement [#PL0.625x5]	54.00 - 59.00	Auto	0.0000
L34	42	Shaft Reinforcement [#PL1.25x5]	54.00 - 59.00	Auto	0.0000
L34	43	Shaft Reinforcement [#PL1.25x5]	54.00 - 59.00	Auto	0.0000
L34	44	Shaft Reinforcement [#PL1.25x5]	54.00 - 59.00	Auto	0.0000
L34	55	CCI-SFP-045100	54.00 - 59.00	Auto	0.0000
L34	56	CCI-SFP-045100	54.00 - 59.00	Auto	0.0000
L34	57	CCI-SFP-045100	54.00 - 59.00	Auto	0.0000
L34	72	CCI-SFP-050125	54.00 - 55.50	Auto	0.0000
L34	73	CCI-SFP-050125	54.00 - 55.50	Auto	0.0000
L35	30	Shaft Reinforcement [#PL0.625x5]	53.50 - 54.00	Auto	0.0000
L35	31	Shaft Reinforcement [#PL0.625x5]	53.50 - 54.00	Auto	0.0000
L35	42	Shaft Reinforcement [#PL1.25x5]	53.50 - 54.00	Auto	0.0000
L35	43	Shaft Reinforcement [#PL1.25x5]	53.50 - 54.00	Auto	0.0000
L35	44	Shaft Reinforcement [#PL1.25x5]	53.50 - 54.00	Auto	0.0000
L35	55	CCI-SFP-045100	53.50 - 54.00	Auto	0.0000
L35	56	CCI-SFP-045100	53.50 - 54.00	Auto	0.0000
L35	57	CCI-SFP-045100	53.50 - 54.00	Auto	0.0000
L35	72	CCI-SFP-050125	53.50 - 54.00	Auto	0.0000
L35	73	CCI-SFP-050125	53.50 - 54.00	Auto	0.0000
L36	30	Shaft Reinforcement [#PL0.625x5]	53.25 - 53.50	Auto	0.0000
L36	31	Shaft Reinforcement [#PL0.625x5]	53.25 - 53.50	Auto	0.0000
L36	42	Shaft Reinforcement [#PL1.25x5]	53.25 - 53.50	Auto	0.0000
L36	43	Shaft Reinforcement [#PL1.25x5]	53.25 - 53.50	Auto	0.0000
L36	44	Shaft Reinforcement [#PL1.25x5]	53.25 - 53.50	Auto	0.0000
L36	55	CCI-SFP-045100	53.25 - 53.50	Auto	0.0000
L36	56	CCI-SFP-045100	53.25 - 53.50	Auto	0.0000
L36	57	CCI-SFP-045100	53.25 - 53.50	Auto	0.0000
L36	72	CCI-SFP-050125	53.25 - 53.50	Auto	0.0000
L36	73	CCI-SFP-050125	53.25 - 53.50	Auto	0.0000
L37	30	Shaft Reinforcement [#PL0.625x5]	43.83 - 53.25	Auto	0.0000
L37	31	Shaft Reinforcement [#PL0.625x5]	43.83 - 53.25	Auto	0.0000
L37	39	Shaft Reinforcement [#PL1.25x6]	43.83 - 47.92	Auto	0.1129
L37	40	Shaft Reinforcement [#PL1.25x6]	43.83 - 47.92	Auto	0.1129
L37	41	Shaft Reinforcement [#PL1.25x6]	43.83 - 47.92	Auto	0.1129
L37	42	Shaft Reinforcement [#PL1.25x5]	45.38 - 53.25	Auto	0.0000
L37	43	Shaft Reinforcement [#PL1.25x5]	45.38 - 53.25	Auto	0.0000
L37	44	Shaft Reinforcement [#PL1.25x5]	45.38 - 53.25	Auto	0.0000
L37	55	CCI-SFP-045100	43.83 - 53.25	Auto	0.0000
L37	56	CCI-SFP-045100	43.83 - 53.25	Auto	0.0000
L37	57	CCI-SFP-045100	43.83 - 53.25	Auto	0.0000
L37	72	CCI-SFP-050125	45.50 - 53.25	Auto	0.0000
L37	73	CCI-SFP-050125	45.50 - 53.25	Auto	0.0000
L38	30	Shaft Reinforcement [#PL0.625x5]	42.83 - 43.83	Auto	0.0000
L38	31	Shaft Reinforcement [#PL0.625x5]	42.83 - 43.83	Auto	0.0000
L38	39	Shaft Reinforcement [#PL1.25x6]	42.83 - 43.83	Auto	0.0934
L38	40	Shaft Reinforcement [#PL1.25x6]	42.83 - 43.83	Auto	0.0934
L38	41	Shaft Reinforcement [#PL1.25x6]	42.83 - 43.83	Auto	0.0934
L38	52	CCI-SFP-060100	42.83 - 43.75	Auto	0.0932
L38	53	CCI-SFP-060100	42.83 - 43.75	Auto	0.0932
L38	54	CCI-SFP-060100	42.83 - 43.75	Auto	0.0932
L38	55	CCI-SFP-045100	43.75 - 43.83	Auto	0.0000
L38	56	CCI-SFP-045100	43.75 - 43.83	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L38	57	CCI-SFP-045100	43.75 - 43.83	Auto	0.0000
L39	30	Shaft Reinforcement [#PL0.625x5]	41.75 - 42.83	Auto	0.0000
L39	31	Shaft Reinforcement [#PL0.625x5]	41.75 - 42.83	Auto	0.0000
L39	39	Shaft Reinforcement [#PL1.25x6]	41.75 - 42.83	Auto	0.0884
L39	40	Shaft Reinforcement [#PL1.25x6]	41.75 - 42.83	Auto	0.0884
L39	41	Shaft Reinforcement [#PL1.25x6]	41.75 - 42.83	Auto	0.0884
L39	52	CCI-SFP-060100	41.75 - 42.83	Auto	0.0884
L39	53	CCI-SFP-060100	41.75 - 42.83	Auto	0.0884
L39	54	CCI-SFP-060100	41.75 - 42.83	Auto	0.0884
L40	30	Shaft Reinforcement [#PL0.625x5]	41.50 - 41.75	Auto	0.0000
L40	31	Shaft Reinforcement [#PL0.625x5]	41.50 - 41.75	Auto	0.0000
L40	39	Shaft Reinforcement [#PL1.25x6]	41.50 - 41.75	Auto	0.0962
L40	40	Shaft Reinforcement [#PL1.25x6]	41.50 - 41.75	Auto	0.0962
L40	41	Shaft Reinforcement [#PL1.25x6]	41.50 - 41.75	Auto	0.0962
L40	52	CCI-SFP-060100	41.50 - 41.75	Auto	0.0962
L40	53	CCI-SFP-060100	41.50 - 41.75	Auto	0.0962
L40	54	CCI-SFP-060100	41.50 - 41.75	Auto	0.0962
L41	30	Shaft Reinforcement [#PL0.625x5]	36.50 - 41.50	Auto	0.0000
L41	31	Shaft Reinforcement [#PL0.625x5]	36.50 - 41.50	Auto	0.0000
L41	39	Shaft Reinforcement [#PL1.25x6]	36.50 - 41.50	Auto	0.0800
L41	40	Shaft Reinforcement [#PL1.25x6]	36.50 - 41.50	Auto	0.0800
L41	41	Shaft Reinforcement [#PL1.25x6]	36.50 - 41.50	Auto	0.0800
L41	52	CCI-SFP-060100	36.50 - 41.50	Auto	0.0800
L41	53	CCI-SFP-060100	36.50 - 41.50	Auto	0.0800
L41	54	CCI-SFP-060100	36.50 - 41.50	Auto	0.0800
L42	30	Shaft Reinforcement [#PL0.625x5]	32.75 - 36.50	Auto	0.0000
L42	31	Shaft Reinforcement [#PL0.625x5]	32.75 - 36.50	Auto	0.0000
L42	39	Shaft Reinforcement [#PL1.25x6]	32.75 - 36.50	Auto	0.0589
L42	40	Shaft Reinforcement [#PL1.25x6]	32.75 - 36.50	Auto	0.0589
L42	41	Shaft Reinforcement [#PL1.25x6]	32.75 - 36.50	Auto	0.0589
L42	52	CCI-SFP-060100	32.75 - 36.50	Auto	0.0589
L42	53	CCI-SFP-060100	32.75 - 36.50	Auto	0.0589
L42	54	CCI-SFP-060100	32.75 - 36.50	Auto	0.0589
L42	74	CCI-SFP-065125	32.75 - 35.50	Auto	0.1291
L42	75	CCI-SFP-065125	32.75 - 35.50	Auto	0.1291
L43	30	Shaft Reinforcement [#PL0.625x5]	32.50 - 32.75	Auto	0.0000
L43	31	Shaft Reinforcement [#PL0.625x5]	32.50 - 32.75	Auto	0.0000
L43	39	Shaft Reinforcement [#PL1.25x6]	32.50 - 32.75	Auto	0.1227
L43	40	Shaft Reinforcement [#PL1.25x6]	32.50 - 32.75	Auto	0.1227
L43	41	Shaft Reinforcement [#PL1.25x6]	32.50 - 32.75	Auto	0.1227
L43	52	CCI-SFP-060100	32.50 - 32.75	Auto	0.1227
L43	53	CCI-SFP-060100	32.50 - 32.75	Auto	0.1227
L43	54	CCI-SFP-060100	32.50 - 32.75	Auto	0.1227
L43	74	CCI-SFP-065125	32.50 - 32.75	Auto	0.1902
L43	75	CCI-SFP-065125	32.50 - 32.75	Auto	0.1902
L44	30	Shaft Reinforcement [#PL0.625x5]	29.73 - 32.50	Auto	0.0000
L44	31	Shaft Reinforcement [#PL0.625x5]	29.73 - 32.50	Auto	0.0000
L44	36	Shaft Reinforcement [#PL1.25x6]	29.73 - 30.75	Auto	0.0819
L44	37	Shaft Reinforcement [#PL1.25x6]	29.73 - 30.75	Auto	0.0819
L44	38	Shaft Reinforcement [#PL1.25x6]	29.73 - 30.75	Auto	0.0819
L44	39	Shaft Reinforcement [#PL1.25x6]	29.73 - 32.50	Auto	0.0861
L44	40	Shaft Reinforcement [#PL1.25x6]	29.73 - 32.50	Auto	0.0861
L44	41	Shaft Reinforcement [#PL1.25x6]	29.73 - 32.50	Auto	0.0861
L44	52	CCI-SFP-060100	29.73 - 32.50	Auto	0.0861
L44	53	CCI-SFP-060100	29.73 - 32.50	Auto	0.0861
L44	54	CCI-SFP-060100	29.73 - 32.50	Auto	0.0861
L44	74	CCI-SFP-065125	29.73 - 32.50	Auto	0.1564
L44	75	CCI-SFP-065125	29.73 - 32.50	Auto	0.1564
L45	30	Shaft Reinforcement [#PL0.625x5]	29.48 - 29.73	Auto	0.0000
L45	31	Shaft Reinforcement [#PL0.625x5]	29.48 - 29.73	Auto	0.0000
L45	36	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	Auto	0.0789
L45	37	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	Auto	0.0789
L45	38	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	Auto	0.0789
L45	39	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	Auto	0.0789
L45	40	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	Auto	0.0789
L45	41	Shaft Reinforcement [#PL1.25x6]	29.48 - 29.73	Auto	0.0789
L45	52	CCI-SFP-060100	29.48 - 29.73	Auto	0.0789
L45	53	CCI-SFP-060100	29.48 - 29.73	Auto	0.0789
L45	54	CCI-SFP-060100	29.48 - 29.73	Auto	0.0789

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L45	54	CCI-SFP-060100	29.48 - 29.73	Auto	0.0789
L45	74	CCI-SFP-065125	29.48 - 29.73	Auto	0.1497
L45	75	CCI-SFP-065125	29.48 - 29.73	Auto	0.1497
L46	30	Shaft Reinforcement [#PL0.625x5]	28.25 - 29.48	Auto	0.0000
L46	31	Shaft Reinforcement [#PL0.625x5]	28.25 - 29.48	Auto	0.0000
L46	36	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	Auto	0.0716
L46	37	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	Auto	0.0716
L46	38	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	Auto	0.0716
L46	39	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	Auto	0.0716
L46	40	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	Auto	0.0716
L46	41	Shaft Reinforcement [#PL1.25x6]	28.25 - 29.48	Auto	0.0716
L46	52	CCI-SFP-060100	28.25 - 29.48	Auto	0.0716
L46	53	CCI-SFP-060100	28.25 - 29.48	Auto	0.0716
L46	54	CCI-SFP-060100	28.25 - 29.48	Auto	0.0716
L46	74	CCI-SFP-065125	28.25 - 29.48	Auto	0.1430
L46	75	CCI-SFP-065125	28.25 - 29.48	Auto	0.1430
L47	30	Shaft Reinforcement [#PL0.625x5]	28.00 - 28.25	Auto	0.0000
L47	31	Shaft Reinforcement [#PL0.625x5]	28.00 - 28.25	Auto	0.0000
L47	36	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	Auto	0.0864
L47	37	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	Auto	0.0864
L47	38	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	Auto	0.0864
L47	39	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	Auto	0.0864
L47	40	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	Auto	0.0864
L47	41	Shaft Reinforcement [#PL1.25x6]	28.00 - 28.25	Auto	0.0864
L47	52	CCI-SFP-060100	28.00 - 28.25	Auto	0.0864
L47	53	CCI-SFP-060100	28.00 - 28.25	Auto	0.0864
L47	54	CCI-SFP-060100	28.00 - 28.25	Auto	0.0864
L47	74	CCI-SFP-065125	28.00 - 28.25	Auto	0.1567
L47	75	CCI-SFP-065125	28.00 - 28.25	Auto	0.1567
L48	30	Shaft Reinforcement [#PL0.625x5]	23.00 - 28.00	Auto	0.0000
L48	31	Shaft Reinforcement [#PL0.625x5]	23.00 - 28.00	Auto	0.0000
L48	36	Shaft Reinforcement [#PL1.25x6]	23.00 - 28.00	Auto	0.0738
L48	37	Shaft Reinforcement [#PL1.25x6]	23.00 - 28.00	Auto	0.0738
L48	38	Shaft Reinforcement [#PL1.25x6]	23.00 - 28.00	Auto	0.0738
L48	39	Shaft Reinforcement [#PL1.25x6]	27.75 - 28.00	Auto	0.0852
L48	40	Shaft Reinforcement [#PL1.25x6]	27.75 - 28.00	Auto	0.0852
L48	41	Shaft Reinforcement [#PL1.25x6]	27.75 - 28.00	Auto	0.0852
L48	52	CCI-SFP-060100	23.00 - 28.00	Auto	0.0738
L48	53	CCI-SFP-060100	23.00 - 28.00	Auto	0.0738
L48	54	CCI-SFP-060100	23.00 - 28.00	Auto	0.0738
L48	58	CCI-SFP-045100	23.00 - 27.75	Auto	0.0000
L48	59	CCI-SFP-045100	23.00 - 27.75	Auto	0.0000
L48	60	CCI-SFP-045100	23.00 - 27.75	Auto	0.0000
L48	74	CCI-SFP-065125	25.50 - 28.00	Auto	0.1506
L48	75	CCI-SFP-065125	25.50 - 28.00	Auto	0.1506
L49	30	Shaft Reinforcement [#PL0.625x5]	19.25 - 23.00	Auto	0.0000
L49	31	Shaft Reinforcement [#PL0.625x5]	19.25 - 23.00	Auto	0.0000
L49	36	Shaft Reinforcement [#PL1.25x6]	19.25 - 23.00	Auto	0.0491
L49	37	Shaft Reinforcement [#PL1.25x6]	19.25 - 23.00	Auto	0.0491
L49	38	Shaft Reinforcement [#PL1.25x6]	19.25 - 23.00	Auto	0.0491
L49	52	CCI-SFP-060100	19.25 - 23.00	Auto	0.0491
L49	53	CCI-SFP-060100	19.25 - 23.00	Auto	0.0491
L49	54	CCI-SFP-060100	19.25 - 23.00	Auto	0.0491
L49	58	CCI-SFP-045100	19.25 - 23.00	Auto	0.0000
L49	59	CCI-SFP-045100	19.25 - 23.00	Auto	0.0000
L49	60	CCI-SFP-045100	19.25 - 23.00	Auto	0.0000
L50	30	Shaft Reinforcement [#PL0.625x5]	19.00 - 19.25	Auto	0.0000
L50	31	Shaft Reinforcement [#PL0.625x5]	19.00 - 19.25	Auto	0.0000
L50	36	Shaft Reinforcement [#PL1.25x6]	19.00 - 19.25	Auto	0.0065
L50	37	Shaft Reinforcement [#PL1.25x6]	19.00 - 19.25	Auto	0.0065
L50	38	Shaft Reinforcement [#PL1.25x6]	19.00 - 19.25	Auto	0.0065
L50	52	CCI-SFP-060100	19.00 - 19.25	Auto	0.0065
L50	53	CCI-SFP-060100	19.00 - 19.25	Auto	0.0065
L50	54	CCI-SFP-060100	19.00 - 19.25	Auto	0.0065
L50	58	CCI-SFP-045100	19.00 - 19.25	Auto	0.0000
L50	59	CCI-SFP-045100	19.00 - 19.25	Auto	0.0000
L50	60	CCI-SFP-045100	19.00 - 19.25	Auto	0.0000
L51	30	Shaft Reinforcement [#PL0.625x5]	14.00 - 19.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L51	31	Shaft Reinforcement [#PL0.625x5]	14.00 - 19.00	Auto	0.0000
L51	36	Shaft Reinforcement [#PL1.25x6]	14.00 - 19.00	Auto	0.0000
L51	37	Shaft Reinforcement [#PL1.25x6]	14.00 - 19.00	Auto	0.0000
L51	38	Shaft Reinforcement [#PL1.25x6]	14.00 - 19.00	Auto	0.0000
L51	52	CCI-SFP-060100	14.00 - 19.00	Auto	0.0000
L51	53	CCI-SFP-060100	14.00 - 19.00	Auto	0.0000
L51	54	CCI-SFP-060100	14.00 - 19.00	Auto	0.0000
L51	58	CCI-SFP-045100	17.75 - 19.00	Auto	0.0000
L51	59	CCI-SFP-045100	17.75 - 19.00	Auto	0.0000
L51	60	CCI-SFP-045100	17.75 - 19.00	Auto	0.0000
L52	30	Shaft Reinforcement [#PL0.625x5]	9.00 - 14.00	Auto	0.0000
L52	31	Shaft Reinforcement [#PL0.625x5]	9.00 - 14.00	Auto	0.0000
L52	36	Shaft Reinforcement [#PL1.25x6]	9.00 - 14.00	Auto	0.0000
L52	37	Shaft Reinforcement [#PL1.25x6]	9.00 - 14.00	Auto	0.0000
L52	38	Shaft Reinforcement [#PL1.25x6]	9.00 - 14.00	Auto	0.0000
L52	52	CCI-SFP-060100	9.00 - 14.00	Auto	0.0000
L52	53	CCI-SFP-060100	9.00 - 14.00	Auto	0.0000
L52	54	CCI-SFP-060100	9.00 - 14.00	Auto	0.0000
L53	30	Shaft Reinforcement [#PL0.625x5]	4.00 - 9.00	Auto	0.0000
L53	31	Shaft Reinforcement [#PL0.625x5]	4.00 - 9.00	Auto	0.0000
L53	36	Shaft Reinforcement [#PL1.25x6]	4.00 - 9.00	Auto	0.0000
L53	37	Shaft Reinforcement [#PL1.25x6]	4.00 - 9.00	Auto	0.0000
L53	38	Shaft Reinforcement [#PL1.25x6]	4.00 - 9.00	Auto	0.0000
L53	52	CCI-SFP-060100	4.00 - 9.00	Auto	0.0000
L53	53	CCI-SFP-060100	4.00 - 9.00	Auto	0.0000
L53	54	CCI-SFP-060100	4.00 - 9.00	Auto	0.0000
L54	30	Shaft Reinforcement [#PL0.625x5]	0.00 - 4.00	Auto	0.0000
L54	31	Shaft Reinforcement [#PL0.625x5]	0.00 - 4.00	Auto	0.0000
L54	36	Shaft Reinforcement [#PL1.25x6]	0.00 - 4.00	Auto	0.0000
L54	37	Shaft Reinforcement [#PL1.25x6]	0.00 - 4.00	Auto	0.0000
L54	38	Shaft Reinforcement [#PL1.25x6]	0.00 - 4.00	Auto	0.0000
L54	52	CCI-SFP-060100	0.00 - 4.00	Auto	0.0000
L54	53	CCI-SFP-060100	0.00 - 4.00	Auto	0.0000
L54	54	CCI-SFP-060100	0.00 - 4.00	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t	Placement ft		C _A A _{Front} ft ²	C _A A _{Side} ft ²	Weight K	

800 10121 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	3.60	2.95	0.07	
			0.00			1/2"	4.00	3.34	0.11	
			-1.00			Ice	4.42	3.74	0.17	
800 10121 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	1" Ice	No Ice	3.60	2.95	0.07
			0.00			1/2"	4.00	3.34	0.11	
			-1.00			Ice	4.42	3.74	0.17	
800 10121 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	1" Ice	No Ice	3.60	2.95	0.07
			0.00			1/2"	4.00	3.34	0.11	
			-1.00			Ice	4.42	3.74	0.17	
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	1" Ice	No Ice	11.96	5.97	0.11
			0.00			1/2"	12.70	6.63	0.20	
			0.00			Ice	13.46	7.30	0.30	
DMP65R-BU8D w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	1" Ice	No Ice	15.89	7.89	0.14
			0.00			1/2"	16.81	8.74	0.25	
			0.00			Ice	17.76	9.60	0.38	
						1" Ice				

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
DMP65R-BU8D w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	15.89	7.89	0.14
			0.00			1/2"	16.81	8.74	0.25
			0.00			Ice	17.76	9.60	0.38
						1" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	11.85	8.99	0.11
			0.00			1/2"	12.77	9.88	0.21
			0.00			Ice	13.71	10.79	0.32
						1" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	11.85	8.99	0.11
			0.00			1/2"	12.77	9.88	0.21
			0.00			Ice	13.71	10.79	0.32
						1" Ice			
80010798 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	7.79	4.90	0.11
			0.00			1/2"	8.40	5.47	0.19
			0.00			Ice	9.02	6.06	0.27
						1" Ice			
80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	12.26	5.79	0.14
			0.00			1/2"	13.03	6.47	0.23
			0.00			Ice	13.80	7.17	0.33
						1" Ice			
80010966 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	14.61	6.84	0.16
			0.00			1/2"	15.47	7.63	0.27
			0.00			Ice	16.35	8.42	0.39
						1" Ice			
80010966 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	14.61	6.84	0.16
			0.00			1/2"	15.47	7.63	0.27
			0.00			Ice	16.35	8.42	0.39
						1" Ice			
RRUS 32 B2	A	From Leg	4.00	0.0000	168.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	B	From Leg	4.00	0.0000	168.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	C	From Leg	4.00	0.0000	168.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B30	A	From Leg	4.00	0.0000	168.00	No Ice	0.00	1.57	0.06
			0.00			1/2"	0.00	1.76	0.08
			1.00			Ice	0.00	1.95	0.10
						1" Ice			
RRUS 32 B30	B	From Leg	4.00	0.0000	168.00	No Ice	0.00	1.57	0.06
			0.00			1/2"	0.00	1.76	0.08
			1.00			Ice	0.00	1.95	0.10
						1" Ice			
RRUS 32 B30	C	From Leg	4.00	0.0000	168.00	No Ice	0.00	1.57	0.06
			0.00			1/2"	0.00	1.76	0.08
			1.00			Ice	0.00	1.95	0.10
						1" Ice			
RRUS 4415 B25	A	From Leg	4.00	0.0000	168.00	No Ice	0.00	0.00	0.04
			0.00			1/2"	0.00	0.79	0.06
			1.00			Ice	0.00	0.91	0.07
						1" Ice			
RRUS 4415 B25	B	From Leg	4.00	0.0000	168.00	No Ice	0.00	0.00	0.04
			0.00			1/2"	0.00	0.79	0.06
			1.00			Ice	0.00	0.91	0.07
						1" Ice			
RRUS 4415 B25	C	From Leg	4.00	0.0000	168.00	No Ice	0.00	0.00	0.04
			0.00			1/2"	0.00	0.79	0.06
			1.00			Ice	0.00	0.91	0.07
						1" Ice			
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	168.00	No Ice	1.41	1.97	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.00			1/2"	1.56	2.14	0.09
			1.00			Ice	1.73	2.33	0.11
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	168.00	1" Ice	1.41	1.97	0.07
			0.00			No Ice	1.56	2.14	0.09
			1.00			Ice	1.73	2.33	0.11
RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	168.00	1" Ice	1.41	1.97	0.07
			0.00			No Ice	1.56	2.14	0.09
			1.00			Ice	1.73	2.33	0.11
RRUS E2 B29	A	From Leg	4.00	0.0000	168.00	1" Ice	3.15	1.29	0.06
			0.00			No Ice	3.36	1.44	0.08
			1.00			Ice	3.59	1.60	0.11
RRUS E2 B29	B	From Leg	4.00	0.0000	168.00	1" Ice	3.15	1.29	0.06
			0.00			No Ice	3.36	1.44	0.08
			1.00			Ice	3.59	1.60	0.11
RRUS E2 B29	C	From Leg	4.00	0.0000	168.00	1" Ice	3.15	1.29	0.06
			0.00			No Ice	3.36	1.44	0.08
			1.00			Ice	3.59	1.60	0.11
(2) LGP21401	A	From Leg	4.00	0.0000	168.00	1" Ice	1.10	0.21	0.01
			0.00			No Ice	1.24	0.27	0.02
			-1.00			Ice	1.38	0.35	0.03
(2) LGP21401	B	From Leg	4.00	0.0000	168.00	1" Ice	1.10	0.21	0.01
			0.00			No Ice	1.24	0.27	0.02
			-1.00			Ice	1.38	0.35	0.03
(2) LGP21401	C	From Leg	4.00	0.0000	168.00	1" Ice	1.10	0.21	0.01
			0.00			No Ice	1.24	0.27	0.02
			-1.00			Ice	1.38	0.35	0.03
DC6-48-60-18-8C	B	From Leg	1.00	0.0000	168.00	1" Ice	2.74	2.74	0.03
			0.00			No Ice	2.96	2.96	0.05
			1.00			Ice	3.20	3.20	0.08
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	168.00	1" Ice	0.92	0.92	0.02
			0.00			No Ice	1.46	1.46	0.04
			1.00			Ice	1.64	1.64	0.06
DC6-48-60-18-8F	B	From Leg	1.00	0.0000	168.00	1" Ice	0.92	0.92	0.02
			0.00			No Ice	1.46	1.46	0.04
			1.00			Ice	1.64	1.64	0.06
DC6-48-60-18-8F	C	From Leg	1.00	0.0000	168.00	1" Ice	0.92	0.92	0.02
			0.00			No Ice	1.46	1.46	0.04
			1.00			Ice	1.64	1.64	0.06
Platform Mount [LP 304-1_KCKR-HR-1]	A	None		0.0000	168.00	1" Ice	32.63	32.63	1.88
						No Ice	40.84	40.84	2.47
						Ice	49.05	49.05	3.20
						1" Ice			

AIR6449 B41_T-MOBILE	A	From Leg	4.00	0.0000	158.00	1" Ice	5.27	2.03	0.11
			0.00			No Ice	5.70	2.36	0.15
			0.00			Ice	6.14	2.70	0.20
AIR6449 B41_T-MOBILE	B	From Leg	4.00	0.0000	158.00	1" Ice	5.27	2.03	0.11
			0.00			No Ice	5.70	2.36	0.15
			0.00			Ice	6.14	2.70	0.20
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
AIR6449 B41_T-MOBILE	C	From Leg	4.00	0.0000	158.00	No Ice	5.27	2.03	0.11
			0.00			1/2"	5.70	2.36	0.15
			0.00			Ice	6.14	2.70	0.20
APXVAALL24_43-U-NA20_TMO	A	From Leg	4.00	0.0000	158.00	No Ice	14.67	5.32	0.15
			0.00			1/2"	15.43	5.99	0.26
			0.00			Ice	16.21	6.68	0.38
APXVAALL24_43-U-NA20_TMO	B	From Leg	4.00	0.0000	158.00	No Ice	14.67	5.32	0.15
			0.00			1/2"	15.43	5.99	0.26
			0.00			Ice	16.21	6.68	0.38
APXVAALL24_43-U-NA20_TMO	C	From Leg	4.00	0.0000	158.00	No Ice	14.67	5.32	0.15
			0.00			1/2"	15.43	5.99	0.26
			0.00			Ice	16.21	6.68	0.38
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	158.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	158.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	158.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			0.00			Ice	2.51	2.02	0.16
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	158.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
Radio 4480_TMOV2	B	From Leg	4.00	0.0000	158.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
Radio 4480_TMOV2	C	From Leg	4.00	0.0000	158.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			0.00			Ice	3.31	1.73	0.13
(4) 8' Mount Pipe [#P2.0 SCH 40]	A	From Leg	4.00	0.0000	158.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
(4) 8' Mount Pipe [#P2.0 SCH 40]	B	From Leg	4.00	0.0000	158.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
(4) 8' Mount Pipe [#P2.0 SCH 40]	C	From Leg	4.00	0.0000	158.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
Sector Frame Attachment Assembly [#MSFAA]	C	None		0.0000	158.00	No Ice	6.67	6.67	0.79
						1/2"	7.70	7.70	1.06
						Ice	8.74	8.74	1.34
12.5' HD V-Frame Assembly [#VFA12-HD]	A	From Leg	2.00	0.0000	158.00	No Ice	13.20	9.20	0.66
			0.00			1/2"	19.50	14.60	0.80
			0.00			Ice	25.80	20.00	1.01
12.5' HD V-Frame Assembly [#VFA12-HD]	B	From Leg	2.00	0.0000	158.00	No Ice	13.20	9.20	0.66
			0.00			1/2"	19.50	14.60	0.80
			0.00			Ice	25.80	20.00	1.01
12.5' HD V-Frame	C	From Leg	2.00	0.0000	158.00	No Ice	13.20	9.20	0.66

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Assembly [#VFA12-HD]			0.00 0.00			1/2" Ice 1" Ice	19.50 25.80	14.60 20.00	0.80 1.01

MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	0.98 1.11 1.25	0.06 0.08 0.10
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.13 1.27 1.41	0.08 0.09 0.11
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.01 2.19 2.37	1.17 1.31 1.46	0.02 0.04 0.06
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
Commscope MC-PK8-DSH	A	None		0.0000	148.00	No Ice 1/2" Ice 1" Ice	34.24 62.95 91.66	34.24 62.95 91.66	1.75 2.10 2.45

BXA-70063/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	4.84 5.35 5.88	3.54 4.03 4.53	0.04 0.08 0.12

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
BXA-70063/4CF w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	No Ice	4.84	3.54	0.04
			0.00			1/2"	5.35	4.03	0.08
			2.00			Ice	5.88	4.53	0.12
BXA-70063/4CF w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	4.84	3.54	0.04
			0.00			1/2"	5.35	4.03	0.08
			2.00			Ice	5.88	4.53	0.12
RFV01U-D1A	A	From Leg	4.00	0.0000	138.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			2.00			Ice	2.22	1.54	0.12
RFV01U-D1A	B	From Leg	4.00	0.0000	138.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			2.00			Ice	2.22	1.54	0.12
RFV01U-D1A	C	From Leg	4.00	0.0000	138.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			2.00			Ice	2.22	1.54	0.12
RFV01U-D2A	A	From Leg	4.00	0.0000	138.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			2.00			Ice	2.22	1.28	0.11
RFV01U-D2A	B	From Leg	4.00	0.0000	138.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			2.00			Ice	2.22	1.28	0.11
RFV01U-D2A	C	From Leg	4.00	0.0000	138.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			2.00			Ice	2.22	1.28	0.11
RVZDC-6627-PF-48	B	From Leg	4.00	0.0000	138.00	No Ice	3.79	2.51	0.03
			0.00			1/2"	4.04	2.73	0.06
			2.00			Ice	4.30	2.95	0.10
Platform Mount [LP 303-1]	A	None		0.0000	138.00	No Ice	14.69	14.69	1.25
						1/2"	18.01	18.01	1.57
						Ice	21.34	21.34	1.94
***						1" Ice			
NHH-65B-R2B w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	4.09	3.29	0.07
			0.00			1/2"	4.48	3.67	0.13
			2.00			Ice	4.88	4.06	0.21
NHH-65B-R2B w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	No Ice	4.09	3.29	0.07
			0.00			1/2"	4.48	3.67	0.13
			2.00			Ice	4.88	4.06	0.21
NHH-65B-R2B w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	4.09	3.29	0.07
			0.00			1/2"	4.48	3.67	0.13
			2.00			Ice	4.88	4.06	0.21
NHHSS-65B-R2B w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	3.89	3.14	0.09
			0.00			1/2"	4.27	3.50	0.15
			2.00			Ice	4.65	3.87	0.23
NHHSS-65B-R2B w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	No Ice	3.89	3.14	0.09
			0.00			1/2"	4.27	3.50	0.15
			2.00			Ice	4.65	3.87	0.23
NHHSS-65B-R2B w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	3.89	3.14	0.09
			0.00			1/2"	4.27	3.50	0.15
			2.00			Ice	4.65	3.87	0.23
						1" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
MT6407-77A w/ Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			2.00			Ice	5.61	3.62	0.18
MT6407-77A w/ Mount Pipe	B	From Leg	4.00	0.0000	138.00	1" Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			2.00			Ice	5.61	3.62	0.18
MT6407-77A w/ Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			2.00			Ice	5.61	3.62	0.18
CBRS RT4401-48A	A	From Leg	4.00	0.0000	138.00	1" Ice	0.99	0.50	0.02
			0.00			1/2"	1.12	0.60	0.03
			2.00			Ice	1.26	0.70	0.04
CBRS RT4401-48A	B	From Leg	4.00	0.0000	138.00	No Ice	0.99	0.50	0.02
			0.00			1/2"	1.12	0.60	0.03
			2.00			Ice	1.26	0.70	0.04
CBRS RT4401-48A	C	From Leg	4.00	0.0000	138.00	1" Ice	0.99	0.50	0.02
			0.00			1/2"	1.12	0.60	0.03
			2.00			Ice	1.26	0.70	0.04

6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	128.00	1" Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
Platform Mount [LP 303-1]	A	None		0.0000	128.00	1" Ice	14.69	14.69	1.25
						1/2"	18.01	18.01	1.57
						Ice	21.34	21.34	1.94

AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			2.00			Ice	4.48	3.84	0.32
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00	0.0000	128.00	1" Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			2.00			Ice	4.48	3.84	0.32
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			2.00			Ice	4.48	3.84	0.32
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00	1" Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			2.00			Ice	16.23	8.25	0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			2.00			Ice	16.23	8.25	0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.0000	128.00	1" Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			2.00			Ice	16.23	8.25	0.46

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _A A _{Front} ft ²	C _A A _{Side} ft ²	Weight K
(2) RADIO 4449 B12/B71	A	From Leg	4.00 0.00 2.00	0.0000	128.00	1" Ice No Ice 1/2" Ice 1.98	1.65 1.16 1.81 1.30 1.45	0.07 0.09 0.11
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 2.00	0.0000	128.00	1" Ice No Ice 1/2" Ice 1.98	1.65 1.16 1.81 1.30 1.45	0.07 0.09 0.11
KRY 112 144/1	B	From Leg	4.00 0.00 2.00	0.0000	128.00	1" Ice No Ice 1/2" Ice 0.51	0.35 0.17 0.43 0.23 0.30	0.01 0.01 0.02
(2) KRY 112 144/1	C	From Leg	4.00 0.00 2.00	0.0000	128.00	1" Ice No Ice 1/2" Ice 0.51	0.35 0.17 0.43 0.23 0.30	0.01 0.01 0.02
***** GPS_A	A	From Leg	3.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice 0.39	0.26 0.26 0.32 0.32 0.39	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.50 0.00 0.00	0.0000	70.00	1" Ice No Ice 1/2" Ice 1.43	0.85 1.67 1.14 2.34 3.01	0.07 0.08 0.09
***** **** **								

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

Comb. No.	Description
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	168.5 - 163.5	Pole	Max Tension	27	0.00	0.00	-0.00
			Max. Compression	26	-9.98	-0.14	-1.05
			Max. Mx	8	-4.23	-34.08	-0.11
			Max. My	14	-4.26	-0.06	-33.75
			Max. Vy	8	7.61	-34.08	-0.11
			Max. Vx	14	7.48	-0.06	-33.75
			Max. Torque	9			-1.25
L2	163.5 - 158.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.44	-0.15	-1.07
			Max. Mx	8	-4.51	-72.93	-0.13
			Max. My	14	-4.54	-0.07	-71.96
			Max. Vy	8	7.94	-72.93	-0.13
			Max. Vx	14	7.81	-0.07	-71.96
			Max. Torque	9			-1.25
L3	158.5 - 153.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.56	-0.16	-1.10
			Max. Mx	8	-9.47	-136.54	-0.15
			Max. My	14	-9.51	-0.08	-134.91
			Max. Vy	8	13.40	-136.54	-0.15
			Max. Vx	2	-13.27	-0.06	134.29
			Max. Torque	9			-1.25
L4	153.5 - 148.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.10	-0.17	-1.13
			Max. Mx	8	-9.87	-204.31	-0.17
			Max. My	14	-9.90	-0.09	-202.01
			Max. Vy	8	13.72	-204.31	-0.17
			Max. Vx	2	-13.58	-0.06	201.39
			Max. Torque	21			1.25
L5	148.5 - 143.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.59	-0.21	-0.83
			Max. Mx	8	-13.06	-289.39	-0.10
			Max. My	14	-13.09	-0.12	-286.42
			Max. Vy	8	17.52	-289.39	-0.10
			Max. Vx	2	-17.41	-0.07	286.04
			Max. Torque	21			1.24
L6	143.5 - 138.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.19	-0.25	-0.84
			Max. Mx	8	-13.57	-377.63	-0.11
			Max. My	14	-13.60	-0.15	-374.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L7	138.5 - 130.667	Pole	Max. Vy	8	17.79	-377.63	-0.11
			Max. Vx	2	-17.69	-0.08	373.74
			Max. Torque	21			1.04
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.28	-0.69	-1.09
			Max. Mx	8	-16.88	-468.76	-0.29
			Max. My	14	-16.91	-0.38	-464.59
			Max. Vy	8	21.27	-468.76	-0.29
L8	130.667 - 129.327	Pole	Max. Vx	2	-21.14	-0.07	464.06
			Max. Torque	19			1.28
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.41	-0.67	-1.07
			Max. Mx	8	-17.74	-575.93	-0.39
			Max. My	14	-17.78	-0.49	-571.09
			Max. Vy	8	21.62	-575.93	-0.39
			Max. Vx	2	-21.49	0.03	570.60
L9	129.327 - 125.75	Pole	Max. Torque	19			1.28
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.33	-1.12	-0.27
			Max. Mx	8	-21.22	-663.68	0.03
			Max. My	2	-21.25	-0.17	658.18
			Max. Vy	8	24.67	-663.68	0.03
			Max. Vx	2	-24.55	-0.17	658.18
			Max. Torque	19			1.28
L10	125.75 - 125.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.38	-1.12	-0.27
			Max. Mx	8	-21.29	-669.84	0.02
			Max. My	2	-21.32	-0.16	664.32
			Max. Vy	8	24.66	-669.84	0.02
			Max. Vx	2	-24.55	-0.16	664.32
			Max. Torque	19			1.12
			Max Tension	1	0.00	0.00	0.00
L11	125.5 - 120.5	Pole	Max. Compression	26	-40.40	-1.13	-0.21
			Max. Mx	8	-22.14	-793.63	-0.09
			Max. My	2	-22.17	-0.04	787.56
			Max. Vy	8	24.88	-793.63	-0.09
			Max. Vx	2	-24.77	-0.04	787.56
			Max. Torque	19			1.12
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.47	-1.13	-0.21
L12	120.5 - 120.25	Pole	Max. Mx	8	-22.23	-799.85	-0.10
			Max. My	2	-22.26	-0.04	793.74
			Max. Vy	8	24.88	-799.85	-0.10
			Max. Vx	2	-24.77	-0.04	793.74
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.27	-1.15	-0.13
			Max. Mx	8	-23.64	-925.14	-0.21
L13	120.25 - 115.25	Pole	Max. My	2	-23.66	0.09	918.48
			Max. Vy	8	25.25	-925.14	-0.21
			Max. Vx	2	-25.14	0.09	918.48
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.80	-1.15	-0.11
			Max. Mx	8	-24.04	-960.98	-0.24
			Max. My	2	-24.07	0.12	954.16
L14	115.25 - 113.833	Pole	Max. Vy	8	25.36	-960.98	-0.24
			Max. Vx	2	-25.24	0.12	954.16
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.95	-1.15	-0.10
			Max. Mx	8	-24.17	-969.85	-0.25
			Max. My	2	-24.20	0.13	962.99
			Max. Vy	8	25.37	-969.85	-0.25
L15	113.833 - 113.483	Pole	Max. Vx	2	-25.26	0.13	962.99
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.05	-1.15	-0.10
			Max. Mx	8	-24.25	-975.76	-0.26
			Max. My	2	-24.20	0.13	962.99
			Max. Vy	8	25.37	-969.85	-0.25
			Max. Vx	2	-25.26	0.13	962.99
L16	113.483 - 113.25	Pole	Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.05	-1.15	-0.10
			Max. Mx	8	-24.25	-975.76	-0.26

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L17	113.25 - 108.25	Pole	Max. My	2	-24.27	0.13	968.88
			Max. Vy	8	25.39	-975.76	-0.26
			Max. Vx	2	-25.28	0.13	968.88
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.12	-1.17	-0.04
			Max. Mx	8	-25.86	-1103.70	-0.37
			Max. My	2	-25.88	0.26	1096.26
			Max. Vy	8	25.80	-1103.70	-0.37
			Max. Vx	2	-25.68	0.26	1096.26
L18	108.25 - 103.25	Pole	Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.19	-1.19	0.01
			Max. Mx	8	-27.50	-1233.61	-0.48
			Max. My	2	-27.52	0.38	1225.60
			Max. Vy	8	26.19	-1233.61	-0.48
			Max. Vx	2	-26.07	0.38	1225.60
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.27	-1.20	0.06
L19	103.25 - 98.25	Pole	Max. Mx	8	-29.17	-1365.43	-0.60
			Max. My	2	-29.19	0.50	1356.85
			Max. Vy	8	26.56	-1365.43	-0.60
			Max. Vx	2	-26.45	0.50	1356.85
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.37	-1.22	0.11
			Max. Mx	8	-30.85	-1499.07	-0.71
			Max. My	2	-30.87	0.63	1489.93
			Max. Vy	8	26.92	-1499.07	-0.71
L20	98.25 - 93.25	Pole	Max. Vx	2	-26.81	0.63	1489.93
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.08	-1.25	0.13
			Max. Mx	8	-32.21	-1606.54	-0.79
			Max. My	2	-32.23	0.72	1596.93
			Max. Vy	8	27.22	-1606.54	-0.79
			Max. Vx	2	-27.09	0.72	1596.93
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
L21	93.25 - 84.717	Pole	Max. Compression	26	-56.98	-1.28	0.15
			Max. Mx	8	-35.36	-1759.41	-0.92
			Max. My	2	-35.39	0.88	1749.05
			Max. Vy	8	27.78	-1759.41	-0.92
			Max. Vx	2	-27.64	0.88	1749.05
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.36	-1.28	0.14
			Max. Mx	8	-35.67	-1781.63	-0.95
			Max. My	2	-35.69	0.91	1771.16
L22	84.717 - 83.717	Pole	Max. Vy	8	27.84	-1781.63	-0.95
			Max. Vx	2	-27.69	0.91	1771.16
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.49	-1.27	0.14
			Max. Mx	8	-35.79	-1788.59	-0.96
			Max. My	2	-35.81	0.92	1778.08
			Max. Vy	8	27.85	-1788.59	-0.96
			Max. Vx	2	-27.70	0.92	1778.08
			Max. Torque	19			1.11
L23	83.717 - 82.917	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.58	-1.27	0.14
			Max. Mx	8	-35.87	-1793.24	-0.96
			Max. My	2	-35.89	0.92	1782.71
			Max. Vy	8	27.87	-1793.24	-0.96
			Max. Vx	2	-27.71	0.92	1782.71
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.71	-1.27	0.14
			Max. Mx	8	-35.87	-1793.24	-0.96
L24	82.917 - 82.667	Pole	Max. My	2	-35.89	0.92	1782.71
			Max. Vy	8	27.87	-1793.24	-0.96
			Max. Vx	2	-27.71	0.92	1782.71
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.71	-1.27	0.14
			Max. Mx	8	-35.87	-1793.24	-0.96
			Max. My	2	-35.89	0.92	1782.71
			Max. Vy	8	27.87	-1793.24	-0.96
			Max. Vx	2	-27.71	0.92	1782.71
L25	82.667 - 82.5	Pole	Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.71	-1.27	0.14
			Max. Mx	8	-35.87	-1793.24	-0.96
			Max. My	2	-35.89	0.92	1782.71
			Max. Vy	8	27.87	-1793.24	-0.96
			Max. Vx	2	-27.71	0.92	1782.71
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.71	-1.27	0.14
L26	82.5 - 82.25	Pole	Max. My	2	-35.89	0.92	1782.71
			Max. Vy	8	27.87	-1793.24	-0.96
			Max. Vx	2	-27.71	0.92	1782.71

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L27	82.25 - 77.25	Pole	Max. Mx	8	-35.96	-1800.20	-0.97
			Max. My	2	-35.99	0.93	1789.64
			Max. Vy	8	27.89	-1800.20	-0.97
			Max. Vx	2	-27.73	0.93	1789.64
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.16	-1.21	0.11
			Max. Mx	8	-37.97	-1940.39	-1.12
			Max. My	2	-37.99	1.14	1929.09
			Max. Vy	8	28.24	-1940.39	-1.12
L28	77.25 - 73.417	Pole	Max. Vx	2	-28.08	1.14	1929.09
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.07	-1.15	0.10
			Max. Mx	8	-39.52	-2048.99	-1.24
			Max. My	2	-39.54	1.29	2037.12
			Max. Vy	8	28.50	-2048.99	-1.24
			Max. Vx	2	-28.34	1.29	2037.12
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
L29	73.417 - 73.167	Pole	Max. Compression	26	-62.22	-1.14	0.09
			Max. Mx	8	-39.66	-2056.11	-1.25
			Max. My	2	-39.68	1.30	2044.20
			Max. Vy	8	28.50	-2056.11	-1.25
			Max. Vx	2	-28.34	1.30	2044.20
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.25	-1.04	0.43
			Max. Mx	8	-42.10	-2199.66	-1.18
			Max. My	2	-42.12	1.51	2187.13
L30	73.167 - 68.167	Pole	Max. Vy	20	-28.99	2198.80	2.67
			Max. Vx	2	-28.78	1.51	2187.13
			Max. Torque	19			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.56	-0.97	0.41
			Max. Mx	8	-43.98	-2313.68	-1.30
			Max. My	2	-44.00	1.67	2300.36
			Max. Vy	20	-29.30	2312.94	2.76
			Max. Vx	2	-29.08	1.67	2300.36
			Max. Torque	19			0.90
L31	68.167 - 64.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.21	-0.86	0.40
			Max. Mx	8	-46.16	-2468.15	-1.46
			Max. My	2	-46.18	1.88	2453.73
			Max. Vy	20	-29.62	2467.55	2.88
			Max. Vx	2	-29.40	1.88	2453.73
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.74	-0.77	0.40
			Max. Mx	8	-48.26	-2616.77	-1.62
L32	64.25 - 64	Pole	Max. My	2	-48.27	2.09	2601.32
			Max. Vy	20	-29.91	2616.33	3.00
			Max. Vx	2	-29.69	2.09	2601.32
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.00	-0.76	0.40
			Max. Mx	8	-48.48	-2631.71	-1.63
			Max. My	2	-48.49	2.11	2616.15
			Max. Vy	20	-29.92	2631.28	3.01
			Max. Vx	2	-29.70	2.11	2616.15
L33	64 - 59	Pole	Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.24	-0.66	0.40
			Max. Mx	8	-49.26	-2716.77	-1.62
			Max. My	2	-49.27	2.09	2601.32
			Max. Vy	20	-29.91	2616.33	3.00
			Max. Vx	2	-29.69	2.09	2601.32
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.00	-0.76	0.40
L34	59 - 54	Pole	Max. Mx	8	-48.48	-2631.71	-1.63
			Max. My	2	-48.49	2.11	2616.15
			Max. Vy	20	-29.92	2631.28	3.01
			Max. Vx	2	-29.70	2.11	2616.15
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.00	-0.76	0.40
			Max. Mx	8	-48.48	-2631.71	-1.63
			Max. My	2	-48.49	2.11	2616.15
			Max. Vy	20	-29.92	2631.28	3.01
L35	54 - 53.5	Pole	Max. Vx	2	-29.70	2.11	2616.15
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.00	-0.76	0.40
			Max. Mx	8	-48.48	-2631.71	-1.63
			Max. My	2	-48.49	2.11	2616.15
			Max. Vy	20	-29.92	2631.28	3.01
			Max. Vx	2	-29.70	2.11	2616.15
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
L36	53.5 - 53.25	Pole	Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L37	53.25 - 43.827	Pole	Max. Compression	26	-73.14	-0.76	0.39
			Max. Mx	8	-48.60	-2639.19	-1.64
			Max. My	2	-48.62	2.12	2623.58
			Max. Vy	20	-29.94	2638.77	3.01
			Max. Vx	2	-29.72	2.12	2623.58
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.48	-0.69	0.39
			Max. Mx	8	-50.51	-2761.85	-1.77
			Max. My	2	-50.53	2.30	2745.36
L38	43.827 - 42.827	Pole	Max. Vy	20	-30.21	2761.55	3.10
			Max. Vx	2	-29.98	2.30	2745.36
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.37	-0.58	0.37
			Max. Mx	8	-55.49	-2955.02	-1.97
			Max. My	2	-55.50	2.56	2937.10
			Max. Vy	20	-30.77	2954.92	3.25
			Max. Vx	2	-30.52	2.56	2937.10
			Max. Torque	19			0.90
L39	42.827 - 41.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.98	-0.56	0.38
			Max. Mx	8	-56.00	-2988.13	-2.00
			Max. My	2	-56.02	2.61	2969.96
			Max. Vy	20	-30.82	2988.07	3.27
			Max. Vx	2	-30.57	2.61	2969.96
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.13	-0.55	0.38
			Max. Mx	8	-56.14	-2995.83	-2.01
L40	41.75 - 41.5	Pole	Max. My	2	-56.16	2.62	2977.60
			Max. Vy	20	-30.81	2995.77	3.28
			Max. Vx	2	-30.57	2.62	2977.60
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.09	-0.45	0.38
			Max. Mx	20	-58.66	3150.43	3.39
			Max. My	2	-58.67	2.83	3130.93
			Max. Vy	20	-31.05	3150.43	3.39
			Max. Vx	2	-30.81	2.83	3130.93
L41	41.5 - 36.5	Pole	Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.36	-0.39	0.38
			Max. Mx	20	-60.57	3267.14	3.47
			Max. My	2	-60.58	2.99	3246.66
			Max. Vy	20	-31.22	3267.14	3.47
			Max. Vx	2	-30.98	2.99	3246.66
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.53	-0.39	0.37
L42	36.5 - 32.75	Pole	Max. Mx	20	-60.73	3274.94	3.47
			Max. My	2	-60.74	3.00	3254.39
			Max. Vy	20	-31.20	3274.94	3.47
			Max. Vx	2	-30.96	3.00	3254.39
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.28	-0.36	0.36
			Max. Mx	20	-62.17	3361.50	3.53
			Max. My	2	-62.18	3.12	3340.22
			Max. Vy	20	-31.37	3361.50	3.53
L43	32.75 - 32.5	Pole	Max. Vx	2	-31.12	3.12	3340.22
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.45	-0.35	0.36
			Max. Mx	20	-62.32	3369.35	3.54
			Max. My	2	-62.33	3.13	3347.99
			Max. Vy	20	-31.36	3369.35	3.54
			Max. Vx	2	-31.11	3.13	3347.99
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
L44	32.5 - 29.733	Pole	Max. Compression	26	-89.45	-0.35	0.36
			Max. Mx	20	-62.32	3369.35	3.54
			Max. My	2	-62.33	3.13	3347.99
			Max. Vy	20	-31.36	3369.35	3.54
			Max. Vx	2	-31.11	3.13	3347.99
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.45	-0.35	0.36
			Max. Mx	20	-62.32	3369.35	3.54
			Max. My	2	-62.33	3.13	3347.99
L45	29.733 - 29.483	Pole	Max. Vy	20	-31.36	3369.35	3.54
			Max. Vx	2	-31.11	3.13	3347.99
			Max. Torque	19			0.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.45	-0.35	0.36
			Max. Mx	20	-62.32	3369.35	3.54
			Max. My	2	-62.33	3.13	3347.99
			Max. Vy	20	-31.36	3369.35	3.54
			Max. Vx	2	-31.11	3.13	3347.99
			Max. Torque	19			0.90

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L46	29.483 - 28.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.25	-0.34	0.34
			Max. Mx	20	-62.96	3408.06	3.57
			Max. My	2	-62.97	3.19	3386.36
			Max. Vy	20	-31.45	3408.06	3.57
			Max. Vx	2	-31.18	3.19	3386.36
			Max. Torque	19			0.90
L47	28.25 - 28	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.43	-0.33	0.34
			Max. Mx	20	-63.12	3415.92	3.57
			Max. My	2	-63.13	3.20	3394.15
			Max. Vy	20	-31.44	3415.92	3.57
			Max. Vx	2	-31.18	3.20	3394.15
			Max. Torque	19			0.90
L48	28 - 23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.90	-0.28	0.26
			Max. Mx	20	-66.03	3573.76	3.68
			Max. My	2	-66.04	3.41	3550.55
			Max. Vy	20	-31.69	3573.76	3.68
			Max. Vx	2	-31.42	3.41	3550.55
			Max. Torque	19			0.90
L49	23 - 19.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.50	-0.21	0.21
			Max. Mx	20	-68.23	3692.88	3.76
			Max. My	2	-68.24	3.57	3668.57
			Max. Vy	20	-31.85	3692.88	3.76
			Max. Vx	2	-31.58	3.57	3668.57
			Max. Torque	19			0.90
L50	19.25 - 19	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.65	-0.21	0.20
			Max. Mx	20	-68.38	3700.84	3.76
			Max. My	2	-68.38	3.58	3676.46
			Max. Vy	20	-31.84	3700.84	3.76
			Max. Vx	2	-31.57	3.58	3676.46
			Max. Torque	19			0.90
L51	19 - 14	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.69	-0.13	0.15
			Max. Mx	20	-70.98	3860.43	3.87
			Max. My	2	-70.99	3.80	3834.57
			Max. Vy	20	-31.99	3860.43	3.87
			Max. Vx	4	-31.73	-2106.90	3637.04
			Max. Torque	19			0.90
L52	14 - 9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.71	-0.04	0.12
			Max. Mx	20	-73.62	4020.63	3.97
			Max. My	2	-73.62	4.02	3993.32
			Max. Vy	20	-32.11	4020.63	3.97
			Max. Vx	4	-31.85	-2198.77	3795.83
			Max. Torque	19			0.90
L53	9 - 4	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.52	0.06	0.04
			Max. Mx	20	-76.12	4181.41	4.05
			Max. My	2	-76.13	4.24	4152.61
			Max. Vy	20	-32.22	4181.41	4.05
			Max. Vx	2	-31.95	4.24	4152.61
			Max. Torque	19			0.90
L54	4 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-107.69	0.15	-0.04
			Max. Mx	20	-78.10	4310.39	4.10
			Max. My	2	-78.10	4.43	4280.40
			Max. Vy	20	-32.29	4310.39	4.10
			Max. Vx	2	-32.03	4.43	4280.40
			Max. Torque	19			0.90

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	107.69	9.33	0.00
	Max. H _x	20	78.11	32.26	0.03
	Max. H _z	3	58.58	0.03	32.00
	Max. M _x	2	4280.40	0.03	32.00
	Max. M _z	8	4308.98	-32.26	-0.03
	Max. Torsion	19	0.90	27.81	-15.98
	Min. Vert	7	58.58	-27.81	15.98
	Min. H _x	8	78.11	-32.26	-0.03
	Min. H _z	14	78.11	-0.03	-32.00
	Min. M _x	14	-4279.71	-0.03	-32.00
	Min. M _z	20	-4310.39	32.26	0.03
	Min. Torsion	7	-0.89	-27.81	15.98

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	65.09	0.00	0.00	-0.24	0.61	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	78.11	-0.03	-32.00	-4280.40	4.43	0.54
0.9 Dead+1.0 Wind 0 deg - No Ice	58.58	-0.03	-32.00	-4193.24	4.18	0.54
1.2 Dead+1.0 Wind 30 deg - No Ice	78.11	18.49	-31.94	-4082.70	-2364.73	0.75
0.9 Dead+1.0 Wind 30 deg - No Ice	58.58	18.49	-31.94	-4002.19	-2318.28	0.76
1.2 Dead+1.0 Wind 60 deg - No Ice	78.11	27.81	-15.98	-2137.13	-3722.44	0.88
0.9 Dead+1.0 Wind 60 deg - No Ice	58.58	27.81	-15.98	-2093.57	-3646.84	0.89
1.2 Dead+1.0 Wind 90 deg - No Ice	78.11	32.26	0.03	3.33	-4308.98	0.70
0.9 Dead+1.0 Wind 90 deg - No Ice	58.58	32.26	0.03	3.37	-4221.53	0.72
1.2 Dead+1.0 Wind 120 deg - No Ice	78.11	27.84	16.02	2142.80	-3726.16	0.34
0.9 Dead+1.0 Wind 120 deg - No Ice	58.58	27.84	16.02	2099.32	-3650.48	0.36
1.2 Dead+1.0 Wind 150 deg - No Ice	78.11	17.35	29.91	3907.70	-2268.43	-0.14
0.9 Dead+1.0 Wind 150 deg - No Ice	58.58	17.35	29.91	3829.61	-2223.17	-0.13
1.2 Dead+1.0 Wind 180 deg - No Ice	78.11	0.03	32.00	4279.71	-3.00	-0.54
0.9 Dead+1.0 Wind 180 deg - No Ice	58.58	0.03	32.00	4192.75	-3.10	-0.54
1.2 Dead+1.0 Wind 210 deg - No Ice	78.11	-18.49	31.94	4081.98	2366.19	-0.75
0.9 Dead+1.0 Wind 210 deg - No Ice	58.58	-18.49	31.94	4001.68	2319.39	-0.75
1.2 Dead+1.0 Wind 240 deg - No Ice	78.11	-27.81	15.98	2136.38	3723.89	-0.88
0.9 Dead+1.0 Wind 240 deg - No Ice	58.58	-27.81	15.98	2093.02	3647.94	-0.90
1.2 Dead+1.0 Wind 270 deg - No Ice	78.11	-32.26	-0.03	-4.10	4310.39	-0.71
0.9 Dead+1.0 Wind 270 deg - No Ice	58.58	-32.26	-0.03	-3.92	4222.60	-0.73
1.2 Dead+1.0 Wind 300 deg - No Ice	78.11	-27.84	-16.02	-2143.54	3727.54	-0.34
0.9 Dead+1.0 Wind 300 deg	58.58	-27.84	-16.02	-2099.86	3651.53	-0.36

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
- No Ice						
1.2 Dead+1.0 Wind 330 deg	78.11	-17.35	-29.91	-3908.40	2269.82	0.14
- No Ice						
0.9 Dead+1.0 Wind 330 deg	58.58	-17.35	-29.91	-3830.11	2224.22	0.14
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	107.69	0.00	0.00	0.04	0.15	-0.00
1.2 Dead+1.0 Wind 0	107.69	-0.00	-9.30	-1277.55	0.76	0.11
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30	107.69	4.89	-8.45	-1147.47	-664.31	0.12
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60	107.69	8.08	-4.65	-638.11	-1109.92	0.15
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90	107.69	9.33	0.00	0.77	-1282.07	0.11
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120	107.69	8.08	4.66	639.44	-1110.69	0.04
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 150	107.69	4.74	8.18	1121.54	-650.22	-0.05
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	107.69	0.00	9.30	1277.56	-0.77	-0.11
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	107.69	-4.89	8.45	1147.48	664.31	-0.12
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	107.69	-8.08	4.65	638.12	1109.92	-0.15
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	107.69	-9.33	-0.00	-0.76	1282.07	-0.11
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	107.69	-8.08	-4.66	-639.44	1110.69	-0.04
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	107.69	-4.74	-8.18	-1121.54	650.22	0.05
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	65.09	-0.01	-8.06	-1067.00	1.51	0.14
Dead+Wind 30 deg - Service	65.09	4.66	-8.05	-1018.32	-589.30	0.20
Dead+Wind 60 deg - Service	65.09	7.01	-4.03	-532.84	-927.36	0.23
Dead+Wind 90 deg - Service	65.09	8.13	0.01	0.64	-1073.57	0.19
Dead+Wind 120 deg - Service	65.09	7.01	4.04	533.88	-928.29	0.09
Dead+Wind 150 deg - Service	65.09	4.37	7.54	974.04	-565.13	-0.03
Dead+Wind 180 deg - Service	65.09	0.01	8.06	1066.44	-0.34	-0.14
Dead+Wind 210 deg - Service	65.09	-4.66	8.05	1017.75	590.47	-0.20
Dead+Wind 240 deg - Service	65.09	-7.01	4.03	532.27	928.53	-0.23
Dead+Wind 270 deg - Service	65.09	-8.13	-0.01	-1.21	1074.73	-0.19
Dead+Wind 300 deg - Service	65.09	-7.01	-4.04	-534.44	929.45	-0.09
Dead+Wind 330 deg - Service	65.09	-4.37	-7.54	-974.60	566.30	0.03

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	0.00	-65.09	0.00	0.00	65.09	0.00	0.000%
2	-0.03	-78.11	-32.00	0.03	78.11	32.00	0.000%
3	-0.03	-58.58	-32.00	0.03	58.58	32.00	0.000%
4	18.49	-78.11	-31.94	-18.49	78.11	31.94	0.000%
5	18.49	-58.58	-31.94	-18.49	58.58	31.94	0.000%
6	27.81	-78.11	-15.98	-27.81	78.11	15.98	0.000%
7	27.81	-58.58	-15.98	-27.81	58.58	15.98	0.000%
8	32.26	-78.11	0.03	-32.26	78.11	-0.03	0.000%
9	32.26	-58.58	0.03	-32.26	58.58	-0.03	0.000%
10	27.84	-78.11	16.02	-27.84	78.11	-16.02	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
11	27.84	-58.58	16.02	-27.84	58.58	-16.02	0.000%
12	17.35	-78.11	29.91	-17.35	78.11	-29.91	0.000%
13	17.35	-58.58	29.91	-17.35	58.58	-29.91	0.000%
14	0.03	-78.11	32.00	-0.03	78.11	-32.00	0.000%
15	0.03	-58.58	32.00	-0.03	58.58	-32.00	0.000%
16	-18.49	-78.11	31.94	18.49	78.11	-31.94	0.000%
17	-18.49	-58.58	31.94	18.49	58.58	-31.94	0.000%
18	-27.81	-78.11	15.98	27.81	78.11	-15.98	0.000%
19	-27.81	-58.58	15.98	27.81	58.58	-15.98	0.000%
20	-32.26	-78.11	-0.03	32.26	78.11	0.03	0.000%
21	-32.26	-58.58	-0.03	32.26	58.58	0.03	0.000%
22	-27.84	-78.11	-16.02	27.84	78.11	16.02	0.000%
23	-27.84	-58.58	-16.02	27.84	58.58	16.02	0.000%
24	-17.35	-78.11	-29.91	17.35	78.11	29.91	0.000%
25	-17.35	-58.58	-29.91	17.35	58.58	29.91	0.000%
26	0.00	-107.69	0.00	-0.00	107.69	-0.00	0.000%
27	-0.00	-107.69	-9.30	0.00	107.69	9.30	0.000%
28	4.89	-107.69	-8.45	-4.89	107.69	8.45	0.000%
29	8.08	-107.69	-4.65	-8.08	107.69	4.65	0.000%
30	9.33	-107.69	0.00	-9.33	107.69	-0.00	0.000%
31	8.08	-107.69	4.66	-8.08	107.69	-4.66	0.000%
32	4.74	-107.69	8.18	-4.74	107.69	-8.18	0.000%
33	0.00	-107.69	9.30	-0.00	107.69	-9.30	0.000%
34	-4.89	-107.69	8.45	4.89	107.69	-8.45	0.000%
35	-8.08	-107.69	4.65	8.08	107.69	-4.65	0.000%
36	-9.33	-107.69	-0.00	9.33	107.69	0.00	0.000%
37	-8.08	-107.69	-4.66	8.08	107.69	4.66	0.000%
38	-4.74	-107.69	-8.18	4.74	107.69	8.18	0.000%
39	-0.01	-65.09	-8.06	0.01	65.09	8.06	0.000%
40	4.66	-65.09	-8.05	-4.66	65.09	8.05	0.000%
41	7.01	-65.09	-4.03	-7.01	65.09	4.03	0.000%
42	8.13	-65.09	0.01	-8.13	65.09	-0.01	0.000%
43	7.01	-65.09	4.04	-7.01	65.09	-4.04	0.000%
44	4.37	-65.09	7.54	-4.37	65.09	-7.54	0.000%
45	0.01	-65.09	8.06	-0.01	65.09	-8.06	0.000%
46	-4.66	-65.09	8.05	4.66	65.09	-8.05	0.000%
47	-7.01	-65.09	4.03	7.01	65.09	-4.03	0.000%
48	-8.13	-65.09	-0.01	8.13	65.09	0.01	0.000%
49	-7.01	-65.09	-4.04	7.01	65.09	4.04	0.000%
50	-4.37	-65.09	-7.54	4.37	65.09	7.54	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	6	0.00000001	0.00018746
3	Yes	5	0.00000001	0.00090000
4	Yes	8	0.00000001	0.00014288
5	Yes	7	0.00000001	0.00038209
6	Yes	8	0.00000001	0.00012688
7	Yes	7	0.00000001	0.00034399
8	Yes	6	0.00000001	0.00030726
9	Yes	6	0.00000001	0.00010670
10	Yes	8	0.00000001	0.00012938
11	Yes	7	0.00000001	0.00035135
12	Yes	8	0.00000001	0.00013607
13	Yes	7	0.00000001	0.00036627
14	Yes	6	0.00000001	0.00024402
15	Yes	6	0.00000001	0.00008051
16	Yes	8	0.00000001	0.00014019
17	Yes	7	0.00000001	0.00037429
18	Yes	8	0.00000001	0.00012992
19	Yes	7	0.00000001	0.00035311
20	Yes	6	0.00000001	0.00024271
21	Yes	6	0.00000001	0.00008314

22	Yes	8	0.00000001	0.00012806
23	Yes	7	0.00000001	0.00034723
24	Yes	8	0.00000001	0.00013607
25	Yes	7	0.00000001	0.00036617
26	Yes	4	0.00000001	0.00018944
27	Yes	7	0.00000001	0.00096940
28	Yes	8	0.00000001	0.00024138
29	Yes	8	0.00000001	0.00023147
30	Yes	7	0.00000001	0.00097539
31	Yes	8	0.00000001	0.00023265
32	Yes	8	0.00000001	0.00023621
33	Yes	7	0.00000001	0.00097039
34	Yes	8	0.00000001	0.00023967
35	Yes	8	0.00000001	0.00023169
36	Yes	7	0.00000001	0.00097187
37	Yes	8	0.00000001	0.00023140
38	Yes	8	0.00000001	0.00023499
39	Yes	5	0.00000001	0.00034437
40	Yes	6	0.00000001	0.00035017
41	Yes	6	0.00000001	0.00028134
42	Yes	5	0.00000001	0.00037473
43	Yes	6	0.00000001	0.00029356
44	Yes	6	0.00000001	0.00031908
45	Yes	5	0.00000001	0.00034814
46	Yes	6	0.00000001	0.00033457
47	Yes	6	0.00000001	0.00029632
48	Yes	5	0.00000001	0.00036840
49	Yes	6	0.00000001	0.00028634
50	Yes	6	0.00000001	0.00031814

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168.5 - 163.5	40.357	40	2.4328	0.0067
L2	163.5 - 158.5	37.813	40	2.4234	0.0058
L3	158.5 - 153.5	35.291	40	2.3931	0.0048
L4	153.5 - 148.5	32.812	40	2.3408	0.0040
L5	148.5 - 143.5	30.400	40	2.2637	0.0033
L6	143.5 - 138.5	28.081	40	2.1638	0.0028
L7	138.5 - 130.667	25.878	40	2.0422	0.0024
L8	134.327 - 129.327	24.144	40	1.9247	0.0019
L9	129.327 - 125.75	22.166	40	1.8396	0.0017
L10	125.75 - 125.5	20.825	40	1.7420	0.0014
L11	125.5 - 120.5	20.734	40	1.7349	0.0014
L12	120.5 - 120.25	18.994	40	1.5870	0.0011
L13	120.25 - 115.25	18.911	40	1.5829	0.0011
L14	115.25 - 113.833	17.298	40	1.4975	0.0010
L15	113.833 - 113.483	16.857	40	1.4725	0.0009
L16	113.483 - 113.25	16.750	40	1.4679	0.0009
L17	113.25 - 108.25	16.678	40	1.4648	0.0009
L18	108.25 - 103.25	15.180	40	1.3957	0.0008
L19	103.25 - 98.25	13.757	40	1.3230	0.0007
L20	98.25 - 93.25	12.411	40	1.2469	0.0006
L21	93.25 - 84.717	11.147	40	1.1678	0.0006
L22	89.277 - 83.717	10.202	40	1.1041	0.0005
L23	83.717 - 82.917	8.942	40	1.0525	0.0005
L24	82.917 - 82.667	8.767	40	1.0401	0.0004
L25	82.667 - 82.5	8.713	40	1.0374	0.0004
L26	82.5 - 82.25	8.677	40	1.0355	0.0004
L27	82.25 - 77.25	8.622	40	1.0318	0.0004
L28	77.25 - 73.417	7.582	40	0.9552	0.0004
L29	73.417 - 73.167	6.839	40	0.8954	0.0003
L30	73.167 - 68.167	6.793	40	0.8925	0.0003
L31	68.167 - 64.25	5.888	40	0.8346	0.0003
L32	64.25 - 64	5.223	40	0.7882	0.0003
L33	64 - 59	5.182	40	0.7846	0.0003
L34	59 - 54	4.397	40	0.7144	0.0002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L35	54 - 53.5	3.686	40	0.6423	0.0002
L36	53.5 - 53.25	3.620	40	0.6351	0.0002
L37	53.25 - 43.827	3.586	40	0.6320	0.0002
L38	49.167 - 42.827	3.068	40	0.5802	0.0002
L39	42.827 - 41.75	2.327	40	0.5294	0.0002
L40	41.75 - 41.5	2.209	40	0.5137	0.0002
L41	41.5 - 36.5	2.182	40	0.5103	0.0002
L42	36.5 - 32.75	1.685	40	0.4401	0.0001
L43	32.75 - 32.5	1.360	40	0.3879	0.0001
L44	32.5 - 29.733	1.340	40	0.3853	0.0001
L45	29.733 - 29.483	1.126	40	0.3531	0.0001
L46	29.483 - 28.25	1.107	40	0.3502	0.0001
L47	28.25 - 28	1.019	40	0.3359	0.0001
L48	28 - 23	1.001	40	0.3331	0.0001
L49	23 - 19.25	0.681	40	0.2787	0.0001
L50	19.25 - 19	0.478	40	0.2378	0.0001
L51	19 - 14	0.466	40	0.2347	0.0001
L52	14 - 9	0.253	40	0.1723	0.0000
L53	9 - 4	0.104	40	0.1108	0.0000
L54	4 - 0	0.021	46	0.0493	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	800 10121 w/ Mount Pipe	40	40.102	2.4323	0.0066	13561
158.00	AIR6449 B41_T-MOBILE	40	35.041	2.3889	0.0047	6552
148.00	MX08FRO665-21 w/ Mount Pipe	40	30.163	2.2546	0.0033	3148
138.00	BXA-70063/4CF w/ Mount Pipe	40	25.665	2.0275	0.0024	2242
128.00	6' x 2" Mount Pipe	40	21.661	1.8066	0.0016	2270
70.00	GPS_A	40	6.213	0.8558	0.0003	4842

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168.5 - 163.5	161.459	4	9.7784	0.0265
L2	163.5 - 158.5	151.317	4	9.7393	0.0228
L3	158.5 - 153.5	141.260	4	9.6169	0.0190
L4	153.5 - 148.5	131.370	4	9.4058	0.0157
L5	148.5 - 143.5	121.748	4	9.0953	0.0128
L6	143.5 - 138.5	112.491	4	8.6936	0.0106
L7	138.5 - 130.667	103.692	4	8.2042	0.0090
L8	134.327 - 129.327	96.763	4	7.7319	0.0073
L9	129.327 - 125.75	88.859	4	7.3896	0.0063
L10	125.75 - 125.5	83.492	4	6.9976	0.0054
L11	125.5 - 120.5	83.128	4	6.9692	0.0054
L12	120.5 - 120.25	76.165	4	6.3754	0.0042
L13	120.25 - 115.25	75.833	4	6.3590	0.0042
L14	115.25 - 113.833	69.374	4	6.0159	0.0037
L15	113.833 - 113.483	67.609	4	5.9154	0.0035
L16	113.483 - 113.25	67.177	4	5.8969	0.0035
L17	113.25 - 108.25	66.890	4	5.8845	0.0035
L18	108.25 - 103.25	60.890	4	5.6070	0.0031
L19	103.25 - 98.25	55.186	4	5.3147	0.0028
L20	98.25 - 93.25	49.793	4	5.0090	0.0024
L21	93.25 - 84.717	44.724	4	4.6912	0.0021
L22	89.277 - 83.717	40.934	4	4.4352	0.0019
L23	83.717 - 82.917	35.883	4	4.2279	0.0018
L24	82.917 - 82.667	35.180	4	4.1782	0.0017

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L25	82.667 - 82.5	34.961	4	4.1670	0.0017
L26	82.5 - 82.25	34.816	4	4.1596	0.0017
L27	82.25 - 77.25	34.599	4	4.1445	0.0017
L28	77.25 - 73.417	30.426	4	3.8367	0.0015
L29	73.417 - 73.167	27.446	4	3.5963	0.0013
L30	73.167 - 68.167	27.258	4	3.5849	0.0013
L31	68.167 - 64.25	23.630	4	3.3522	0.0012
L32	64.25 - 64	20.959	4	3.1654	0.0011
L33	64 - 59	20.794	4	3.1513	0.0011
L34	59 - 54	17.644	4	2.8691	0.0009
L35	54 - 53.5	14.793	4	2.5790	0.0008
L36	53.5 - 53.25	14.525	4	2.5502	0.0008
L37	53.25 - 43.827	14.392	4	2.5376	0.0008
L38	49.167 - 42.827	12.312	4	2.3296	0.0007
L39	42.827 - 41.75	9.337	4	2.1254	0.0006
L40	41.75 - 41.5	8.865	4	2.0626	0.0006
L41	41.5 - 36.5	8.757	4	2.0487	0.0006
L42	36.5 - 32.75	6.761	4	1.7665	0.0005
L43	32.75 - 32.5	5.456	4	1.5570	0.0004
L44	32.5 - 29.733	5.375	4	1.5464	0.0004
L45	29.733 - 29.483	4.516	4	1.4172	0.0004
L46	29.483 - 28.25	4.442	4	1.4056	0.0004
L47	28.25 - 28	4.087	4	1.3480	0.0004
L48	28 - 23	4.016	4	1.3370	0.0004
L49	23 - 19.25	2.731	4	1.1183	0.0003
L50	19.25 - 19	1.917	4	0.9542	0.0003
L51	19 - 14	1.868	4	0.9419	0.0002
L52	14 - 9	1.013	4	0.6914	0.0002
L53	9 - 4	0.419	4	0.4445	0.0001
L54	4 - 0	0.083	16	0.1977	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	800 10121 w/ Mount Pipe	4	160.443	9.7763	0.0262	3618
158.00	AIR6449 B41_T-MOBILE	4	140.262	9.5998	0.0187	1722
148.00	MX08FRO665-21 w/ Mount Pipe	4	120.805	9.0587	0.0132	819
138.00	BXA-70063/4CF w/ Mount Pipe	4	102.843	8.1453	0.0094	578
128.00	6' x 2" Mount Pipe	4	86.836	7.2570	0.0063	581
70.00	GPS_A	4	24.932	3.4372	0.0012	1214

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	168.5 - 163.5 (1)	TP19.8343x19x0.1875	5.00	0.00	0.0	11.6923	-4.23	684.00	0.006
L2	163.5 - 158.5 (2)	TP20.6685x19.8343x0.1875	5.00	0.00	0.0	12.1888	-4.51	713.04	0.006
L3	158.5 - 153.5 (3)	TP21.5028x20.6685x0.1875	5.00	0.00	0.0	12.6853	-9.47	742.09	0.013
L4	153.5 - 148.5 (4)	TP22.337x21.5028x0.1875	5.00	0.00	0.0	13.1817	-9.87	771.13	0.013
L5	148.5 - 143.5 (5)	TP23.1713x22.337x0.1875	5.00	0.00	0.0	13.6782	-13.06	800.18	0.016
L6	143.5 - 138.5 (6)	TP24.0056x23.1713x0.1875	5.00	0.00	0.0	14.1747	-13.57	829.22	0.016
L7	138.5 - 130.667 (7)	TP25.3125x24.0056x0.1875	7.83	0.00	0.0	14.5891	-16.88	853.46	0.020
L8	130.667 - 129.327 (8)	TP25.1499x24.3268x0.25	5.00	0.00	0.0	19.7581	-17.74	1155.85	0.015
L9	129.327 - 125.75 (9)	TP25.7387x25.1499x0.25	3.58	0.00	0.0	20.2253	-21.22	1183.18	0.018
L10	125.75 - 125.5 (10)	TP25.7798x25.7387x0.25	0.25	0.00	0.0	20.2579	-21.29	1185.09	0.018
L11	125.5 - 120.5 (11)	TP26.6029x25.7798x0.25	5.00	0.00	0.0	20.9110	-22.15	1223.30	0.018

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
L12	120.5 - 120.25 (12)	TP26.6441x26.6029x0.4813	0.25	0.00	0.0	39.9634	-22.23	2337.86	0.010
L13	120.25 - 115.25 (13)	TP27.4671x26.6441x0.475	5.00	0.00	0.0	40.6947	-23.45	2380.64	0.010
L14	115.25 - 113.833 (14)	TP27.7004x27.4671x0.4688	1.42	0.00	0.0	40.5155	-23.84	2370.16	0.010
L15	113.833 - 113.483 (15)	TP27.758x27.7004x0.65	0.35	0.00	0.0	55.9265	-23.97	3271.70	0.007
L16	113.483 - 113.25 (16)	TP27.7963x27.758x0.65	0.23	0.00	0.0	56.0056	-24.04	3276.33	0.007
L17	113.25 - 108.25 (17)	TP28.6194x27.7963x0.6375	5.00	0.00	0.0	56.6193	-25.61	3312.23	0.008
L18	108.25 - 103.25 (18)	TP29.4425x28.6194x0.625	5.00	0.00	0.0	57.1666	-27.22	3344.25	0.008
L19	103.25 - 98.25 (19)	TP30.2655x29.4425x0.6125	5.00	0.00	0.0	57.6477	-28.86	3372.39	0.009
L20	98.25 - 93.25 (20)	TP31.0886x30.2655x0.6	5.00	0.00	0.0	58.0624	-30.52	3396.65	0.009
L21	93.25 - 84.717 (21)	TP32.4932x31.0886x0.6	8.53	0.00	0.0	59.3079	-31.88	3469.51	0.009
L22	84.717 - 83.717 (22)	TP32.1551x31.2426x0.6625	5.56	0.00	0.0	66.2219	-35.04	3873.98	0.009
L23	83.717 - 82.917 (23)	TP32.2864x32.1551x0.6625	0.80	0.00	0.0	66.4980	-35.35	3890.13	0.009
L24	82.917 - 82.667 (24)	TP32.3274x32.2864x0.95	0.25	0.00	0.0	94.6124	-35.47	5534.83	0.006
L25	82.667 - 82.5 (25)	TP32.3549x32.3274x0.95	0.17	0.00	0.0	94.6951	-35.55	5539.66	0.006
L26	82.5 - 82.25 (26)	TP32.3959x32.3549x0.6875	0.25	0.00	0.0	69.1917	-35.65	4047.71	0.009
L27	82.25 - 77.25 (27)	TP33.2165x32.3959x0.675	5.00	0.00	0.0	69.7186	-37.66	4078.54	0.009
L28	77.25 - 73.417 (28)	TP33.8456x33.2165x0.6625	3.83	0.00	0.0	69.7766	-39.21	4081.93	0.010
L29	73.417 - 73.167 (29)	TP33.8866x33.8456x0.9375	0.25	0.00	0.0	98.0443	-39.35	5735.59	0.007
L30	73.167 - 68.167 (30)	TP34.7073x33.8866x0.9125	5.00	0.00	0.0	97.8790	-41.78	5725.92	0.007
L31	68.167 - 64.25 (31)	TP35.3502x34.7073x0.8875	3.92	0.00	0.0	97.0787	-43.65	5679.10	0.008
L32	64.25 - 64 (32)	TP35.3912x35.3502x0.7375	0.25	0.00	0.0	81.1182	-43.77	4745.42	0.009
L33	64 - 59 (33)	TP36.2118x35.3912x0.7375	5.00	0.00	0.0	83.0392	-45.85	4857.79	0.009
L34	59 - 54 (34)	TP37.0324x36.2118x0.7125	5.00	0.00	0.0	82.1367	-47.97	4804.99	0.010
L35	54 - 53.5 (35)	TP37.1145x37.0324x0.7125	0.50	0.00	0.0	82.3222	-48.20	4815.85	0.010
L36	53.5 - 53.25 (36)	TP37.1555x37.1145x0.825	0.25	0.00	0.0	95.1333	-48.32	5565.30	0.009
L37	53.25 - 43.827 (37)	TP38.7021x37.1555x0.8125	9.42	0.00	0.0	95.4523	-50.25	5583.96	0.009
L38	43.827 - 42.827 (38)	TP38.2386x37.2007x0.725	6.34	0.00	0.0	86.3245	-55.24	5049.98	0.011
L39	42.827 - 41.75 (39)	TP38.4149x38.2386x0.725	1.08	0.00	0.0	86.7302	-55.76	5073.72	0.011
L40	41.75 - 41.5 (40)	TP38.4559x38.4149x0.7625	0.25	0.00	0.0	91.2245	-55.91	5336.64	0.010
L41	41.5 - 36.5 (41)	TP39.2744x38.4559x0.75	5.00	0.00	0.0	91.7074	-58.45	5364.88	0.011
L42	36.5 - 32.75 (42)	TP39.8884x39.2744x0.75	3.75	0.00	0.0	93.1689	-60.38	5450.38	0.011
L43	32.75 - 32.5 (43)	TP39.9293x39.8884x1	0.25	0.00	0.0	123.5620	-60.54	7228.35	0.008
L44	32.5 - 29.733 (44)	TP40.3823x39.9293x0.9	2.77	0.00	0.0	112.7850	-62.00	6597.93	0.009
L45	29.733 - 29.483 (45)	TP40.4232x40.3823x0.9	0.25	0.00	0.0	112.9020	-62.15	6604.77	0.009
L46	29.483 - 28.25 (46)	TP40.6251x40.4232x0.8875	1.23	0.00	0.0	111.9380	-62.79	6548.36	0.010
L47	28.25 - 28 (47)	TP40.666x40.6251x0.95	0.25	0.00	0.0	119.7560	-62.95	7005.71	0.009
L48	28 - 23 (48)	TP41.4846x40.666x0.95	5.00	0.00	0.0	122.2240	-65.89	7150.10	0.009
L49	23 - 19.25 (49)	TP42.0985x41.4846x0.9375	3.75	0.00	0.0	122.4800	-68.11	7165.06	0.010
L50	19.25 - 19 (50)	TP42.1394x42.0985x0.825	0.25	0.00	0.0	108.1840	-68.26	6328.76	0.011
L51	19 - 14 (51)	TP42.958x42.1394x0.8	5.00	0.00	0.0	107.0480	-70.89	6262.28	0.011
L52	14 - 9 (52)	TP43.7766x42.958x0.8	5.00	0.00	0.0	109.1260	-73.55	6383.88	0.012
L53	9 - 4 (53)	TP44.5951x43.7766x0.7875	5.00	0.00	0.0	109.4980	-76.10	6405.65	0.012
L54	4 - 0 (54)	TP45.25x44.5951x0.775	4.00	0.00	0.0	109.4020	-78.09	6400.01	0.012

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	168.5 - 163.5 (1)	TP19.8343x19x0.1875	34.08	341.82	0.100	0.00	341.82	0.000
L2	163.5 - 158.5 (2)	TP20.6685x19.8343x0.1875	72.93	367.36	0.199	0.00	367.36	0.000
L3	158.5 - 153.5 (3)	TP21.5028x20.6685x0.1875	136.54	393.44	0.347	0.00	393.44	0.000
L4	153.5 - 148.5 (4)	TP22.337x21.5028x0.1875	204.31	420.00	0.486	0.00	420.00	0.000
L5	148.5 - 143.5 (5)	TP23.1713x22.337x0.1875	289.39	447.02	0.647	0.00	447.02	0.000
L6	143.5 - 138.5 (6)	TP24.0056x23.1713x0.1875	377.63	474.44	0.796	0.00	474.44	0.000
L7	138.5 - 130.667 (7)	TP25.3125x24.0056x0.1875	468.76	497.60	0.942	0.00	497.60	0.000
L8	130.667 - 129.327 (8)	TP25.1499x24.3268x0.25	575.93	741.46	0.777	0.00	741.46	0.000
L9	129.327 - 125.75 (9)	TP25.7387x25.1499x0.25	663.67	772.47	0.859	0.00	772.47	0.000
L10	125.75 - 125.5 (10)	TP25.7798x25.7387x0.25	669.84	774.66	0.865	0.00	774.66	0.000
L11	125.5 - 120.5 (11)	TP26.6029x25.7798x0.25	793.63	818.72	0.969	0.00	818.72	0.000
L12	120.5 - 120.25 (12)	TP26.6441x26.6029x0.4813	799.85	1580.82	0.506	0.00	1580.82	0.000
L13	120.25 - 115.25 (13)	TP27.4671x26.6441x0.475	927.35	1662.08	0.558	0.00	1662.08	0.000
L14	115.25 - 113.833 (14)	TP27.7004x27.4671x0.4688	964.18	1670.08	0.577	0.00	1670.08	0.000
L15	113.833 - 113.483 (15)	TP27.758x27.7004x0.65	973.33	2279.69	0.427	0.00	2279.69	0.000
L16	113.483 - 113.25 (16)	TP27.7963x27.758x0.65	979.43	2286.22	0.428	0.00	2286.22	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy} kip-ft	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$		ϕM_{ny}	$\frac{M_{uy}}{\phi M_{ny}}$
L17	113.25 - 108.25 (17)	TP28.6194x27.7963x0.6375	1112.53	2385.12	0.466	0.00	2385.12	0.000
L18	108.25 - 103.25 (18)	TP29.4425x28.6194x0.625	1249.72	2482.74	0.503	0.00	2482.74	0.000
L19	103.25 - 98.25 (19)	TP30.2655x29.4425x0.6125	1390.93	2578.83	0.539	0.00	2578.83	0.000
L20	98.25 - 93.25 (20)	TP31.0886x30.2655x0.6	1536.08	2673.13	0.575	0.00	2673.13	0.000
L21	93.25 - 84.717 (21)	TP32.4932x31.0886x0.6	1653.71	2790.18	0.593	0.00	2790.18	0.000
L22	84.717 - 83.717 (22)	TP32.1551x31.2426x0.6625	1821.35	3145.00	0.579	0.00	3145.00	0.000
L23	83.717 - 82.917 (23)	TP32.2864x32.1551x0.6625	1845.75	3171.55	0.582	0.00	3171.55	0.000
L24	82.917 - 82.667 (24)	TP32.3274x32.2864x0.95	1853.39	4436.74	0.418	0.00	4436.74	0.000
L25	82.667 - 82.5 (25)	TP32.3549x32.3274x0.95	1858.50	4444.61	0.418	0.00	4444.61	0.000
L26	82.5 - 82.25 (26)	TP32.3959x32.3549x0.6875	1866.15	3306.47	0.564	0.00	3306.47	0.000
L27	82.25 - 77.25 (27)	TP33.2165x32.3959x0.675	2020.31	3422.33	0.590	0.00	3422.33	0.000
L28	77.25 - 73.417 (28)	TP33.8456x33.2165x0.6625	2140.47	3495.38	0.612	0.00	3495.38	0.000
L29	73.417 - 71.167 (29)	TP33.8866x33.8456x0.9375	2148.39	4836.53	0.444	0.00	4836.53	0.000
L30	73.167 - 68.167 (30)	TP34.7073x33.8866x0.9125	2309.22	4959.29	0.466	0.00	4959.29	0.000
L31	68.167 - 64.25 (31)	TP35.3502x34.7073x0.8875	2438.07	5022.07	0.485	0.00	5022.07	0.000
L32	64.25 - 64 (32)	TP35.3912x35.3502x0.7375	2446.38	4238.13	0.577	0.00	4238.13	0.000
L33	64 - 59 (33)	TP36.2118x35.3912x0.7375	2613.68	4443.38	0.588	0.00	4443.38	0.000
L34	59 - 54 (34)	TP37.0324x36.2118x0.7125	2782.91	4505.02	0.618	0.00	4505.02	0.000
L35	54 - 53.5 (35)	TP37.1145x37.0324x0.7125	2799.93	4525.60	0.619	0.00	4525.60	0.000
L36	53.5 - 53.25 (36)	TP37.1555x37.1145x0.825	2808.46	5203.61	0.540	0.00	5203.61	0.000
L37	53.25 - 43.827 (37)	TP38.7021x37.1555x0.8125	2948.28	5323.10	0.554	0.00	5323.10	0.000
L38	43.827 - 42.827 (38)	TP38.2386x37.2007x0.725	3168.63	4891.72	0.648	0.00	4891.72	0.000
L39	42.827 - 41.75 (39)	TP38.4149x38.2386x0.725	3206.42	4938.25	0.649	0.00	4938.25	0.000
L40	41.75 - 41.5 (40)	TP38.4559x38.4149x0.7625	3215.20	5189.57	0.620	0.00	5189.57	0.000
L41	41.5 - 36.5 (41)	TP39.2744x38.4559x0.75	3391.63	5336.04	0.636	0.00	5336.04	0.000
L42	36.5 - 32.75 (42)	TP39.8884x39.2744x0.75	3524.86	5509.12	0.640	0.00	5509.12	0.000
L43	32.75 - 32.5 (43)	TP39.9293x39.8884x1	3533.78	7220.99	0.489	0.00	7220.99	0.000
L44	32.5 - 29.733 (44)	TP40.3823x39.9293x0.9	3632.63	6703.74	0.542	0.00	6703.74	0.000
L45	29.733 - 29.483 (45)	TP40.4232x40.3823x0.9	3641.59	6717.81	0.542	0.00	6717.81	0.000
L46	29.483 - 28.25 (46)	TP40.6251x40.4232x0.8875	3685.82	6699.42	0.550	0.00	6699.42	0.000
L47	28.25 - 28 (47)	TP40.666x40.6251x0.95	3694.79	7152.33	0.517	0.00	7152.33	0.000
L48	28 - 23 (48)	TP41.4846x40.666x0.95	3875.18	7453.72	0.520	0.00	7453.72	0.000
L49	23 - 19.25 (49)	TP42.0985x41.4846x0.9375	4011.44	7589.64	0.529	0.00	7589.64	0.000
L50	19.25 - 19 (50)	TP42.1394x42.0985x0.825	4020.55	6747.29	0.596	0.00	6747.29	0.000
L51	19 - 14 (51)	TP42.958x42.1394x0.8	4203.23	6819.38	0.616	0.00	6819.38	0.000
L52	14 - 9 (52)	TP43.7766x42.958x0.8	4386.68	7089.28	0.619	0.00	7089.28	0.000
L53	9 - 4 (53)	TP44.5951x43.7766x0.7875	4570.66	7255.57	0.630	0.00	7255.57	0.000
L54	4 - 0 (54)	TP45.25x44.5951x0.775	4718.20	7363.60	0.641	0.00	7363.60	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	ϕT_n	$\frac{T_u}{\phi T_n}$
L1	168.5 - 163.5 (1)	TP19.8343x19x0.1875	7.61	205.20	0.037	1.24	353.06	0.004
L2	163.5 - 158.5 (2)	TP20.6685x19.8343x0.1875	7.94	213.91	0.037	1.24	383.68	0.003
L3	158.5 - 153.5 (3)	TP21.5028x20.6685x0.1875	13.40	222.63	0.060	1.24	415.57	0.003
L4	153.5 - 148.5 (4)	TP22.337x21.5028x0.1875	13.72	231.34	0.059	1.24	448.74	0.003
L5	148.5 - 143.5 (5)	TP23.1713x22.337x0.1875	17.52	240.05	0.073	1.03	483.18	0.002
L6	143.5 - 138.5 (6)	TP24.0056x23.1713x0.1875	17.79	248.77	0.072	1.03	518.89	0.002
L7	138.5 - 130.667 (7)	TP25.3125x24.0056x0.1875	21.27	256.04	0.083	1.25	549.67	0.002
L8	130.667 - 129.327 (8)	TP25.1499x24.3268x0.25	21.62	346.75	0.062	1.25	756.13	0.002
L9	129.327 - 125.75 (9)	TP25.7387x25.1499x0.25	24.67	354.95	0.069	0.95	792.32	0.001
L10	125.75 - 125.5 (10)	TP25.7798x25.7387x0.25	24.66	355.53	0.069	0.95	794.88	0.001
L11	125.5 - 120.5 (11)	TP26.6029x25.7798x0.25	24.88	366.99	0.068	0.95	846.96	0.001
L12	120.5 - 120.25 (12)	TP26.6441x26.6029x0.4813	24.88	701.36	0.035	0.95	1606.96	0.001
L13	120.25 - 115.25 (13)	TP27.4671x26.6441x0.475	25.89	714.19	0.036	0.93	1688.23	0.001
L14	115.25 - 113.833 (14)	TP27.7004x27.4671x0.4688	26.12	711.05	0.037	0.93	1695.72	0.001
L15	113.833 - 113.483 (15)	TP27.758x27.7004x0.65	26.17	981.51	0.027	0.93	2330.08	0.000
L16	113.483 - 113.25 (16)	TP27.7963x27.758x0.65	26.21	982.90	0.027	0.93	2336.68	0.000
L17	113.25 - 108.25 (17)	TP28.6194x27.7963x0.6375	27.04	993.67	0.027	0.92	2435.00	0.000
L18	108.25 - 103.25 (18)	TP29.4425x28.6194x0.625	27.85	1003.27	0.028	0.91	2531.95	0.000
L19	103.25 - 98.25 (19)	TP30.2655x29.4425x0.6125	28.65	1011.72	0.028	0.91	2627.29	0.000
L20	98.25 - 93.25 (20)	TP31.0886x30.2655x0.6	29.44	1019.00	0.029	0.90	2720.76	0.000
L21	93.25 - 84.717 (21)	TP32.4932x31.0886x0.6	29.81	1040.85	0.029	0.90	2838.73	0.000

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
L22	84.717 - 83.717 (22)	TP32.1551x31.2426x0.6625	30.49	1162.19	0.026	0.90	3205.29	0.000
L23	83.717 - 82.917 (23)	TP32.2864x32.1551x0.6625	30.56	1167.04	0.026	0.90	3232.07	0.000
L24	82.917 - 82.667 (24)	TP32.3274x32.2864x0.95	30.58	1660.45	0.018	0.90	4562.71	0.000
L25	82.667 - 82.5 (25)	TP32.3549x32.3274x0.95	30.60	1661.90	0.018	0.90	4570.68	0.000
L26	82.5 - 82.25 (26)	TP32.3959x32.3549x0.6875	30.62	1214.31	0.025	0.90	3371.98	0.000
L27	82.25 - 77.25 (27)	TP33.2165x32.3959x0.675	31.09	1223.56	0.025	0.90	3486.93	0.000
L28	77.25 - 73.417 (28)	TP33.8456x33.2165x0.6625	31.68	1224.58	0.026	0.90	3558.64	0.000
L29	73.417 - 73.167 (29)	TP33.8866x33.8456x0.9375	31.70	1720.68	0.018	0.90	4965.05	0.000
L30	73.167 - 68.167 (30)	TP34.7073x33.8866x0.9125	32.61	1717.78	0.019	0.77	5083.89	0.000
L31	68.167 - 64.25 (31)	TP35.3502x34.7073x0.8875	33.25	1703.73	0.020	0.75	5141.98	0.000
L32	64.25 - 64 (32)	TP35.3912x35.3502x0.7375	33.27	1423.62	0.023	0.75	4320.41	0.000
L33	64 - 59 (33)	TP36.2118x35.3912x0.7375	33.70	1457.34	0.023	0.75	4527.46	0.000
L34	59 - 54 (34)	TP37.0324x36.2118x0.7125	34.07	1441.50	0.024	0.75	4585.00	0.000
L35	54 - 53.5 (35)	TP37.1145x37.0324x0.7125	34.09	1444.76	0.024	0.75	4605.74	0.000
L36	53.5 - 53.25 (36)	TP37.1555x37.1145x0.825	34.10	1669.59	0.020	0.75	5312.04	0.000
L37	53.25 - 43.827 (37)	TP38.7021x37.1555x0.8125	34.44	1675.19	0.021	0.75	5430.00	0.000
L38	43.827 - 42.827 (38)	TP38.2386x37.2007x0.725	35.10	1514.99	0.023	0.75	4977.14	0.000
L39	42.827 - 41.75 (39)	TP38.4149x38.2386x0.725	35.17	1522.11	0.023	0.75	5024.03	0.000
L40	41.75 - 41.5 (40)	TP38.4559x38.4149x0.7625	35.16	1600.99	0.022	0.75	5284.86	0.000
L41	41.5 - 36.5 (41)	TP39.2744x38.4559x0.75	35.47	1609.47	0.022	0.75	5429.98	0.000
L42	36.5 - 32.75 (42)	TP39.8884x39.2744x0.75	35.68	1635.11	0.022	0.75	5604.42	0.000
L43	32.75 - 32.5 (43)	TP39.9293x39.8884x1	35.66	2168.51	0.016	0.75	7392.93	0.000
L44	32.5 - 29.733 (44)	TP40.3823x39.9293x0.9	35.86	1979.38	0.018	0.75	6844.02	0.000
L45	29.733 - 29.483 (45)	TP40.4232x40.3823x0.9	35.85	1981.43	0.018	0.75	6858.22	0.000
L46	29.483 - 28.25 (46)	TP40.6251x40.4232x0.8875	35.95	1964.51	0.018	0.75	6836.52	0.000
L47	28.25 - 28 (47)	TP40.666x40.6251x0.95	35.94	2101.71	0.017	0.75	7310.02	0.000
L48	28 - 23 (48)	TP41.4846x40.666x0.95	36.27	2145.03	0.017	0.75	7614.46	0.000
L49	23 - 19.25 (49)	TP42.0985x41.4846x0.9375	36.48	2149.52	0.017	0.75	7748.32	0.000
L50	19.25 - 19 (50)	TP42.1394x42.0985x0.825	36.47	1898.63	0.019	0.75	6869.44	0.000
L51	19 - 14 (51)	TP42.958x42.1394x0.8	36.66	1878.69	0.020	0.75	6836.08	0.000
L52	14 - 9 (52)	TP43.7766x42.958x0.8	36.81	1915.16	0.019	0.75	7208.05	0.000
L53	9 - 4 (53)	TP44.5951x43.7766x0.7875	36.89	1921.70	0.019	0.75	7372.49	0.000
L54	4 - 0 (54)	TP45.25x44.5951x0.775	36.94	1920.00	0.019	0.75	7478.21	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	168.5 - 163.5 (1)	0.006	0.100	0.000	0.037	0.004	0.108	1.050	4.8.2
L2	163.5 - 158.5 (2)	0.006	0.199	0.000	0.037	0.003	0.206	1.050	4.8.2
L3	158.5 - 153.5 (3)	0.013	0.347	0.000	0.060	0.003	0.364	1.050	4.8.2
L4	153.5 - 148.5 (4)	0.013	0.486	0.000	0.059	0.003	0.503	1.050	4.8.2
L5	148.5 - 143.5 (5)	0.016	0.647	0.000	0.073	0.002	0.669	1.050	4.8.2
L6	143.5 - 138.5 (6)	0.016	0.796	0.000	0.072	0.002	0.818	1.050	4.8.2
L7	138.5 - 130.667 (7)	0.020	0.942	0.000	0.083	0.002	0.969	1.050	4.8.2
L8	130.667 - 129.327 (8)	0.015	0.777	0.000	0.062	0.002	0.796	1.050	4.8.2
L9	129.327 - 125.75 (9)	0.018	0.859	0.000	0.069	0.001	0.882	1.050	4.8.2
L10	125.75 - 125.5 (10)	0.018	0.865	0.000	0.069	0.001	0.888	1.050	4.8.2
L11	125.5 - 120.5 (11)	0.018	0.969	0.000	0.068	0.001	0.992	1.050	4.8.2
L12	120.5 - 120.25 (12)	0.010	0.506	0.000	0.035	0.001	0.517	1.050	4.8.2
L13	120.25 - 115.25 (13)	0.010	0.558	0.000	0.036	0.001	0.569	1.050	4.8.2
L14	115.25 - 113.833 (14)	0.010	0.577	0.000	0.037	0.001	0.589	1.050	4.8.2
L15	113.833 - 113.483 (15)	0.007	0.427	0.000	0.027	0.000	0.435	1.050	4.8.2
L16	113.483 - 113.25 (16)	0.007	0.428	0.000	0.027	0.000	0.436	1.050	4.8.2
L17	113.25 - 108.25 (17)	0.008	0.466	0.000	0.027	0.000	0.475	1.050	4.8.2
L18	108.25 - 103.25 (18)	0.008	0.503	0.000	0.028	0.000	0.512	1.050	4.8.2
L19	103.25 - 98.25 (19)	0.009	0.539	0.000	0.028	0.000	0.549	1.050	4.8.2
L20	98.25 - 93.25 (20)	0.009	0.575	0.000	0.029	0.000	0.584	1.050	4.8.2
L21	93.25 - 84.717 (21)	0.009	0.593	0.000	0.029	0.000	0.603	1.050	4.8.2
L22	84.717 - 83.717 (22)	0.009	0.579	0.000	0.026	0.000	0.589	1.050	4.8.2
L23	83.717 - 82.917 (23)	0.009	0.582	0.000	0.026	0.000	0.592	1.050	4.8.2
L24	82.917 - 82.667 (24)	0.006	0.418	0.000	0.018	0.000	0.424	1.050	4.8.2
L25	82.667 - 82.5 (25)	0.006	0.418	0.000	0.018	0.000	0.425	1.050	4.8.2
L26	82.5 - 82.25 (26)	0.009	0.564	0.000	0.025	0.000	0.574	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
L27	82.25 - 77.25 (27)	0.009	0.590	0.000	0.025	0.000	0.600	1.050	4.8.2
L28	77.25 - 73.417 (28)	0.010	0.612	0.000	0.026	0.000	0.623	1.050	4.8.2
L29	73.417 - 73.167 (29)	0.007	0.444	0.000	0.018	0.000	0.451	1.050	4.8.2
L30	73.167 - 68.167 (30)	0.007	0.466	0.000	0.019	0.000	0.473	1.050	4.8.2
L31	68.167 - 64.25 (31)	0.008	0.485	0.000	0.020	0.000	0.494	1.050	4.8.2
L32	64.25 - 64 (32)	0.009	0.577	0.000	0.023	0.000	0.587	1.050	4.8.2
L33	64 - 59 (33)	0.009	0.588	0.000	0.023	0.000	0.598	1.050	4.8.2
L34	59 - 54 (34)	0.010	0.618	0.000	0.024	0.000	0.628	1.050	4.8.2
L35	54 - 53.5 (35)	0.010	0.619	0.000	0.024	0.000	0.629	1.050	4.8.2
L36	53.5 - 53.25 (36)	0.009	0.540	0.000	0.020	0.000	0.549	1.050	4.8.2
L37	53.25 - 43.827 (37)	0.009	0.554	0.000	0.021	0.000	0.563	1.050	4.8.2
L38	43.827 - 42.827 (38)	0.011	0.648	0.000	0.023	0.000	0.659	1.050	4.8.2
L39	42.827 - 41.75 (39)	0.011	0.649	0.000	0.023	0.000	0.661	1.050	4.8.2
L40	41.75 - 41.5 (40)	0.010	0.620	0.000	0.022	0.000	0.631	1.050	4.8.2
L41	41.5 - 36.5 (41)	0.011	0.636	0.000	0.022	0.000	0.647	1.050	4.8.2
L42	36.5 - 32.75 (42)	0.011	0.640	0.000	0.022	0.000	0.651	1.050	4.8.2
L43	32.75 - 32.5 (43)	0.008	0.489	0.000	0.016	0.000	0.498	1.050	4.8.2
L44	32.5 - 29.733 (44)	0.009	0.542	0.000	0.018	0.000	0.552	1.050	4.8.2
L45	29.733 - 29.483 (45)	0.009	0.542	0.000	0.018	0.000	0.552	1.050	4.8.2
L46	29.483 - 28.25 (46)	0.010	0.550	0.000	0.018	0.000	0.560	1.050	4.8.2
L47	28.25 - 28 (47)	0.009	0.517	0.000	0.017	0.000	0.526	1.050	4.8.2
L48	28 - 23 (48)	0.009	0.520	0.000	0.017	0.000	0.529	1.050	4.8.2
L49	23 - 19.25 (49)	0.010	0.529	0.000	0.017	0.000	0.538	1.050	4.8.2
L50	19.25 - 19 (50)	0.011	0.596	0.000	0.019	0.000	0.607	1.050	4.8.2
L51	19 - 14 (51)	0.011	0.616	0.000	0.020	0.000	0.628	1.050	4.8.2
L52	14 - 9 (52)	0.012	0.619	0.000	0.019	0.000	0.631	1.050	4.8.2
L53	9 - 4 (53)	0.012	0.630	0.000	0.019	0.000	0.642	1.050	4.8.2
L54	4 - 0 (54)	0.012	0.641	0.000	0.019	0.000	0.653	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	168.5 - 163.5	Pole	TP19.8343x19x0.1875	1	-4.23	718.20	10.2	Pass
L2	163.5 - 158.5	Pole	TP20.6685x19.8343x0.1875	2	-4.51	748.70	19.7	Pass
L3	158.5 - 153.5	Pole	TP21.5028x20.6685x0.1875	3	-9.47	779.19	34.6	Pass
L4	153.5 - 148.5	Pole	TP22.337x21.5028x0.1875	4	-9.87	809.69	47.9	Pass
L5	148.5 - 143.5	Pole	TP23.1713x22.337x0.1875	5	-13.06	840.18	63.7	Pass
L6	143.5 - 138.5	Pole	TP24.0056x23.1713x0.1875	6	-13.57	870.68	77.9	Pass
L7	138.5 - 130.667	Pole	TP25.3125x24.0056x0.1875	7	-16.88	896.14	92.3	Pass
L8	130.667 - 129.327	Pole	TP25.1499x24.3268x0.25	8	-17.74	1213.64	75.8	Pass
L9	129.327 - 125.75	Pole	TP25.7387x25.1499x0.25	9	-21.22	1242.34	84.0	Pass
L10	125.75 - 125.5	Pole	TP25.7798x25.7387x0.25	10	-21.29	1244.34	84.5	Pass
L11	125.5 - 120.5	Pole	TP26.6029x25.7798x0.25	11	-22.15	1284.46	94.5	Pass
L12	120.5 - 120.25	Pole	TP26.6441x26.6029x0.4813	12	-22.23	2454.75	49.2	Pass
L13	120.25 - 115.25	Pole	TP27.4671x26.6441x0.475	13	-23.45	2499.67	54.2	Pass
L14	115.25 - 113.833	Pole	TP27.7004x27.4671x0.4688	14	-23.84	2488.67	56.1	Pass
L15	113.833 - 113.483	Pole	TP27.758x27.7004x0.65	15	-23.97	3435.28	41.4	Pass
L16	113.483 - 113.25	Pole	TP27.7963x27.758x0.65	16	-24.04	3440.15	41.6	Pass
L17	113.25 - 108.25	Pole	TP28.6194x27.7963x0.6375	17	-25.61	3477.84	45.2	Pass
L18	108.25 - 103.25	Pole	TP29.4425x28.6194x0.625	18	-27.22	3511.46	48.8	Pass
L19	103.25 - 98.25	Pole	TP30.2655x29.4425x0.6125	19	-28.86	3541.01	52.3	Pass
L20	98.25 - 93.25	Pole	TP31.0886x30.2655x0.6	20	-30.52	3566.48	55.7	Pass
L21	93.25 - 84.717	Pole	TP32.4932x31.0886x0.6	21	-31.88	3642.99	57.4	Pass
L22	84.717 - 83.717	Pole	TP32.1551x31.2426x0.6625	22	-35.04	4067.68	56.1	Pass
L23	83.717 - 82.917	Pole	TP32.2864x32.1551x0.6625	23	-35.35	4084.64	56.4	Pass
L24	82.917 - 82.667	Pole	TP32.3274x32.2864x0.95	24	-35.47	5811.57	40.4	Pass
L25	82.667 - 82.5	Pole	TP32.3549x32.3274x0.95	25	-35.55	5816.64	40.5	Pass
L26	82.5 - 82.25	Pole	TP32.3959x32.3549x0.6875	26	-35.65	4250.10	54.7	Pass
L27	82.25 - 77.25	Pole	TP33.2165x32.3959x0.675	27	-37.66	4282.47	57.2	Pass
L28	77.25 - 73.417	Pole	TP33.8456x33.2165x0.6625	28	-39.21	4286.03	59.3	Pass
L29	73.417 - 73.167	Pole	TP33.8866x33.8456x0.9375	29	-39.35	6022.37	43.0	Pass
L30	73.167 - 68.167	Pole	TP34.7073x33.8866x0.9125	30	-41.78	6012.22	45.1	Pass
L31	68.167 - 64.25	Pole	TP35.3502x34.7073x0.8875	31	-43.65	5963.05	47.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	σP_{allow} K	% Capacity	Pass Fail	
L32	64.25 - 64	Pole	TP35.3912x35.3502x0.7375	32	-43.77	4982.69	55.9	Pass	
L33	64 - 59	Pole	TP36.2118x35.3912x0.7375	33	-45.85	5100.68	57.0	Pass	
L34	59 - 54	Pole	TP37.0324x36.2118x0.7125	34	-47.97	5045.24	59.8	Pass	
L35	54 - 53.5	Pole	TP37.1145x37.0324x0.7125	35	-48.20	5056.64	59.9	Pass	
L36	53.5 - 53.25	Pole	TP37.1555x37.1145x0.825	36	-48.32	5843.56	52.3	Pass	
L37	53.25 - 43.827	Pole	TP38.7021x37.1555x0.8125	37	-50.25	5863.16	53.6	Pass	
L38	43.827 - 42.827	Pole	TP38.2386x37.2007x0.725	38	-55.24	5302.48	62.8	Pass	
L39	42.827 - 41.75	Pole	TP38.4149x38.2386x0.725	39	-55.76	5327.41	62.9	Pass	
L40	41.75 - 41.5	Pole	TP38.4559x38.4149x0.7625	40	-55.91	5603.47	60.0	Pass	
L41	41.5 - 36.5	Pole	TP39.2744x38.4559x0.75	41	-58.45	5633.12	61.6	Pass	
L42	36.5 - 32.75	Pole	TP39.8884x39.2744x0.75	42	-60.38	5722.90	62.0	Pass	
L43	32.75 - 32.5	Pole	TP39.9293x39.8884x1	43	-60.54	7589.77	47.4	Pass	
L44	32.5 - 29.733	Pole	TP40.3823x39.9293x0.9	44	-62.00	6927.83	52.5	Pass	
L45	29.733 - 29.483	Pole	TP40.4232x40.3823x0.9	45	-62.15	6935.01	52.6	Pass	
L46	29.483 - 28.25	Pole	TP40.6251x40.4232x0.8875	46	-62.79	6875.78	53.3	Pass	
L47	28.25 - 28	Pole	TP40.666x40.6251x0.95	47	-62.95	7356.00	50.1	Pass	
L48	28 - 23	Pole	TP41.4846x40.666x0.95	48	-65.89	7507.60	50.4	Pass	
L49	23 - 19.25	Pole	TP42.0985x41.4846x0.9375	49	-68.11	7523.31	51.3	Pass	
L50	19.25 - 19	Pole	TP42.1394x42.0985x0.825	50	-68.26	6645.20	57.8	Pass	
L51	19 - 14	Pole	TP42.958x42.1394x0.8	51	-70.89	6575.39	59.8	Pass	
L52	14 - 9	Pole	TP43.7766x42.958x0.8	52	-73.55	6703.07	60.1	Pass	
L53	9 - 4	Pole	TP44.5951x43.7766x0.7875	53	-76.10	6725.93	61.2	Pass	
L54	4 - 0	Pole	TP45.25x44.5951x0.775	54	-78.09	6720.01	62.2	Pass	
							Summary		
							Pole (L11)	94.5	Pass
							RATING =	94.5	Pass

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

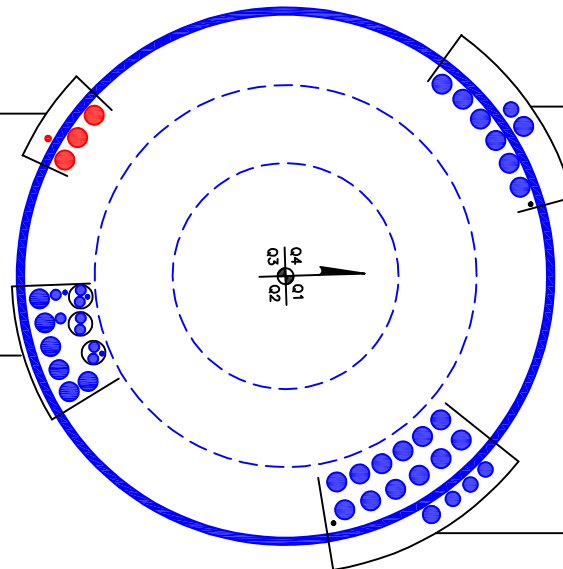
APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)
(3) 1-5/8" TO 158 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1/2" TO 70 FT LEVEL

(OTHER CONSIDERED EQUIPMENT—IN (3) 2" CONDUITS)
(2) 3/8" TO 168 FT LEVEL
(6) 7/8" TO 168 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 168 FT LEVEL
(2) 1" TO 168 FT LEVEL
(6) 1-5/8" TO 168 FT LEVEL



(INSTALLED)
(1) 3/8" GROUND TO TOWER LIGHTING

(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/4" TO 138 FT LEVEL
(7) 1-5/8" TO 138 FT LEVEL

(INSTALLED)
(1) 3/8" GROUND TO TOWER LIGHTING

(OTHER CONSIDERED EQUIPMENT)
(3) 1-1/4" TO 128 FT LEVEL
(12) 1-5/8" TO 128 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 148 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	168.5	37.833	3.66	18	19	25.3125	0.1875	Auto	A572-65
2	134.327	49.61	4.56	18	24.33	32.4932	0.25	Auto	A572-65
3	89.277	45.45	5.34	18	31.24	38.7021	0.3125	Auto	A572-65
4	49.167	49.167	0	18	37.20	45.25	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	13	14	15	16	17	18
1	87.833	113.833	plate	PL5"x1.25"	3				E2						E2							E2	
2	73.417	85.917	plate	PL5"x1.25"	4			E2					E2					E2					E2
3	47.354	73.417	plate	PL5"x1.25"	4		E2				E2					E2				E2			
4	29.833	45.417	plate	PL6"x1.25"	4			E2					E2					E2					E2
5	0	28.25	plate	PL6"x1.25" (Welded)	4		E2				E2					E2				E2			
6	0	41.75	plate	CCI-CFP-060100	4	E4						E4			E4							E4	
7	41.75	82.917	plate	CCI-CFP-045100	4	E4						E4			E4							E4	
8	19.25	29.83	plate	CCI-SFP-045100	4			E4					E4									E4	
9	64.25	73.417	plate	CCI-SFP-045100	4			E4					E4									E4	
10	87.9	125.75	plate	CCI-SFP-045100 (MOD)	3			E4					E4									E4	
11	28.25	32.75	plate	CCI-SFP-065125	2					E5							E5						
12	47.5	53.5	plate	CCI-SFP-050125	2					E5							E5						
13	82.5	88.5	plate	CCI-SFP-050125	2					E5							E5						
14	113.5	120.5	plate	CCI-SFP-040125	1									E5									
15	113.5	120.5	plate	PL3.125"x1.25"	1																		E5

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	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	18.000	4.688	1.1875	A572-65
2	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	18.000	4.688	1.1875	A572-65
3	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	18.000	4.688	1.1875	A572-65
4	6	1.25	7.5	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.938	1.1875	A572-65
5	6	1.25	7.5	0.625	Welded	n/a	PC 8.8 - M20 (100)	30.000	18.000	5.938	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	12.000	4.750	1.1875	A572-65
7	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	12.000	3.250	1.1875	A572-65
8	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
9	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
10	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	19.000	20.000	3.250	1.1875	A572-65
11	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
12	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	23.000	4.688	1.1875	A572-65
13	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	23.000	4.688	1.1875	A572-65
14	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65
15	3.125	1.25	3.90625	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	15.000	2.344	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
PL5"x1.25"	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
PL6"x1.25"	Top	10	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	10	N	3	3	-	-	-	-	-	-	-	-	-
PL6"x1.25" (Welded)	Top	10	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	70	None	-	-	-	-	36	0.375	-
CCI-CFP-045100	Top	6	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	6	N	3	3	-	-	-	-	-	-	-	-	-
CCI-CFP-060100	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
CCI-SFP-045100 (MOD)	Top	7	N	3	1	-	-	-	-	-	-	-	-	-
	Bottom	6	N	3	3	-	-	-	-	-	-	-	-	-
PL3.125"x1.25"	Top	6	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	6	N	3	3	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): [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	168.5 - 163.5	5		18	19.000	19.834	0.1875	A572-65	1.000
2	163.5 - 158.5	5		18	19.834	20.669	0.1875	A572-65	1.000
3	158.5 - 153.5	5		18	20.669	21.503	0.1875	A572-65	1.000
4	153.5 - 148.5	5		18	21.503	22.337	0.1875	A572-65	1.000
5	148.5 - 143.5	5		18	22.337	23.171	0.1875	A572-65	1.000
6	143.5 - 138.5	5		18	23.171	24.006	0.1875	A572-65	1.000
7	138.5 - 134.327	7.833	3.66	18	24.006	25.313	0.1875	A572-65	1.000
8	134.327 - 129.327	5		18	24.327	25.150	0.25	A572-65	1.000
9	129.327 - 125.75	3.577		18	25.150	25.739	0.25	A572-65	1.000
10	125.75 - 125.5	0.25		18	25.739	25.780	0.25	A572-65	1.000
11	125.5 - 120.5	5		18	25.780	26.603	0.25	A572-65	1.000
12	120.5 - 120.25	0.25		18	26.603	26.644	0.48125	A572-65	1.085
13	120.25 - 115.25	5		18	26.644	27.467	0.475	A572-65	1.081
14	115.25 - 113.833	1.417		18	27.467	27.700	0.46875	A572-65	1.091
15	113.833 - 113.483	0.35		18	27.700	27.758	0.65	A572-65	0.967
16	113.483 - 113.25	0.233		18	27.758	27.796	0.65	A572-65	0.966
17	113.25 - 108.25	5		18	27.796	28.619	0.6375	A572-65	0.967
18	108.25 - 103.25	5		18	28.619	29.442	0.625	A572-65	0.969
19	103.25 - 98.25	5		18	29.442	30.266	0.6125	A572-65	0.973
20	98.25 - 93.25	5		18	30.266	31.089	0.6	A572-65	0.977
21	93.25 - 89.277	8.533	4.56	18	31.089	32.493	0.6	A572-65	0.965
22	89.277 - 83.717	5.56		18	31.243	32.155	0.6625	A572-65	1.043
23	83.717 - 82.917	0.8		18	32.155	32.286	0.6625	A572-65	1.041
24	82.917 - 82.667	0.25		18	32.286	32.327	0.95	A572-65	0.922
25	82.667 - 82.5	0.167		18	32.327	32.355	0.95	A572-65	0.922
26	82.5 - 82.25	0.25		18	32.355	32.396	0.6875	A572-65	1.081
27	82.25 - 77.25	5		18	32.396	33.217	0.675	A572-65	1.085
28	77.25 - 73.417	3.833		18	33.217	33.846	0.6625	A572-65	1.093
29	73.417 - 73.167	0.25		18	33.846	33.887	0.9375	A572-65	0.962
30	73.167 - 68.167	5		18	33.887	34.707	0.9125	A572-65	0.972
31	68.167 - 64.25	3.917		18	34.707	35.350	0.8875	A572-65	0.986
32	64.25 - 64	0.25		18	35.350	35.391	0.7375	A572-65	0.959
33	64 - 59	5		18	35.391	36.212	0.7375	A572-65	0.947
34	59 - 54	5		18	36.212	37.032	0.7125	A572-65	0.967
35	54 - 53.5	0.5		18	37.032	37.115	0.7125	A572-65	0.966
36	53.5 - 53.25	0.25		18	37.115	37.156	0.825	A572-65	0.968
37	53.25 - 49.167	9.423	5.34	18	37.156	38.702	0.8125	A572-65	0.971
38	49.167 - 42.827	6.34		18	37.201	38.239	0.725	A572-65	1.078
39	42.827 - 41.75	1.077		18	38.239	38.415	0.725	A572-65	1.076
40	41.75 - 41.5	0.25		18	38.415	38.456	0.7625	A572-65	1.089
41	41.5 - 36.5	5		18	38.456	39.274	0.75	A572-65	1.094
42	36.5 - 32.75	3.75		18	39.274	39.888	0.75	A572-65	1.084
43	32.75 - 32.5	0.25		18	39.888	39.929	1	A572-65	0.950
44	32.5 - 29.733	2.767		18	39.929	40.382	0.9	A572-65	0.939
45	29.733 - 29.483	0.25		18	40.382	40.423	0.9	A572-65	0.938
46	29.483 - 28.25	1.233		18	40.423	40.625	0.8875	A572-65	0.948
47	28.25 - 28	0.25		18	40.625	40.666	0.95	A572-65	1.002
48	28 - 23	5		18	40.666	41.485	0.95	A572-65	0.989
49	23 - 19.25	3.75		18	41.485	42.099	0.9375	A572-65	0.993
50	19.25 - 19	0.25		18	42.099	42.139	0.825	A572-65	0.959
51	19 - 14	5		18	42.139	42.958	0.8	A572-65	0.978
52	14 - 9	5		18	42.958	43.777	0.8	A572-65	0.968
53	9 - 4	5		18	43.777	44.595	0.7875	A572-65	0.974
54	4 - 0	4		18	44.595	45.250	0.775	A572-65	0.982

TNX Section Forces

Increment (ft):		TNX Output			
	5	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	168.5 - 163.5	4.23	34.08	7.61	
2	163.5 - 158.5	4.51	72.93	7.94	
3	158.5 - 153.5	9.47	136.54	13.40	
4	153.5 - 148.5	9.87	204.31	13.72	
5	148.5 - 143.5	13.06	289.39	17.52	
6	143.5 - 138.5	13.57	377.63	17.79	
7	138.5 - 134.327	16.88	468.76	21.27	
8	134.327 - 129.327	17.74	575.93	21.62	
9	129.327 - 125.75	21.22	663.68	24.67	
10	125.75 - 125.5	21.29	669.84	24.66	
11	125.5 - 120.5	22.14	793.63	24.88	
12	120.5 - 120.25	22.09	799.90	25.10	
13	120.25 - 115.25	23.45	927.35	25.89	
14	115.25 - 113.833	23.84	964.18	26.12	
15	113.833 - 113.483	23.97	973.33	26.17	
16	113.483 - 113.25	24.04	979.43	26.21	
17	113.25 - 108.25	25.61	1112.53	27.04	
18	108.25 - 103.25	27.22	1249.72	27.85	
19	103.25 - 98.25	28.86	1390.92	28.65	
20	98.25 - 93.25	30.52	1536.08	29.44	
21	93.25 - 89.277	31.88	1653.71	29.81	
22	89.277 - 83.717	35.04	1821.35	30.49	
23	83.717 - 82.917	35.35	1845.75	30.56	
24	82.917 - 82.667	35.47	1853.39	30.58	
25	82.667 - 82.5	35.55	1858.50	30.60	
26	82.5 - 82.25	35.65	1866.15	30.62	
27	82.25 - 77.25	37.66	2020.31	31.09	
28	77.25 - 73.417	39.21	2140.48	31.68	
29	73.417 - 73.167	39.35	2148.39	31.70	
30	73.167 - 68.167	41.78	2309.21	32.61	
31	68.167 - 64.25	43.65	2438.07	33.25	
32	64.25 - 64	43.77	2446.38	33.27	
33	64 - 59	45.85	2613.68	33.70	
34	59 - 54	47.97	2782.91	34.07	
35	54 - 53.5	48.20	2799.94	34.09	
36	53.5 - 53.25	48.32	2808.45	34.10	
37	53.25 - 49.167	50.25	2948.27	34.44	
38	49.167 - 42.827	55.24	3168.62	35.10	
39	42.827 - 41.75	55.76	3206.42	35.17	
40	41.75 - 41.5	55.91	3215.20	35.16	
41	41.5 - 36.5	58.45	3391.63	35.47	
42	36.5 - 32.75	60.38	3524.86	35.68	
43	32.75 - 32.5	60.54	3533.77	35.66	
44	32.5 - 29.733	62.00	3632.63	35.86	
45	29.733 - 29.483	62.15	3641.59	35.85	
46	29.483 - 28.25	62.79	3685.81	35.95	
47	28.25 - 28	62.95	3694.79	35.94	
48	28 - 23	65.89	3875.19	36.27	
49	23 - 19.25	68.11	4011.44	36.48	
50	19.25 - 19	68.26	4020.55	36.47	
51	19 - 14	70.89	4203.22	36.66	
52	14 - 9	73.55	4386.68	36.81	
53	9 - 4	76.10	4570.66	36.89	
54	4 - 0	78.09	4718.20	36.94	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
168.5 - 163.5	Pole	TP19.834x19x0.1875	Pole	10.2%	Pass
163.5 - 158.5	Pole	TP20.669x19.834x0.1875	Pole	19.6%	Pass
158.5 - 153.5	Pole	TP21.503x20.669x0.1875	Pole	34.6%	Pass
153.5 - 148.5	Pole	TP22.337x21.503x0.1875	Pole	47.9%	Pass
148.5 - 143.5	Pole	TP23.171x22.337x0.1875	Pole	63.7%	Pass
143.5 - 138.5	Pole	TP24.006x23.171x0.1875	Pole	77.9%	Pass
138.5 - 134.33	Pole	TP25.313x24.006x0.1875	Pole	92.3%	Pass
134.33 - 129.33	Pole	TP25.15x24.327x0.25	Pole	75.8%	Pass
129.33 - 125.75	Pole	TP25.739x25.15x0.25	Pole	84.0%	Pass
125.75 - 125.5	Pole	TP25.78x25.739x0.25	Pole	84.5%	Pass
125.5 - 120.5	Pole	TP26.603x25.78x0.25	Pole	94.5%	Pass
120.5 - 120.25	Pole + Reinf.	TP26.644x26.603x0.4813	Reinf. 10 Tension Rupture	87.5%	Pass
120.25 - 115.25	Pole + Reinf.	TP27.467x26.644x0.475	Reinf. 10 Tension Rupture	96.7%	Pass
115.25 - 113.83	Pole + Reinf.	TP27.7x27.467x0.4688	Reinf. 10 Tension Rupture	99.2%	Pass
113.83 - 113.48	Pole + Reinf.	TP27.758x27.7x0.65	Reinf. 10 Tension Rupture	69.2%	Pass
113.48 - 113.25	Pole + Reinf.	TP27.796x27.758x0.65	Reinf. 10 Tension Rupture	69.5%	Pass
113.25 - 108.25	Pole + Reinf.	TP28.619x27.796x0.6375	Reinf. 10 Tension Rupture	75.8%	Pass
108.25 - 103.25	Pole + Reinf.	TP29.442x28.619x0.625	Reinf. 10 Tension Rupture	81.9%	Pass
103.25 - 98.25	Pole + Reinf.	TP30.266x29.442x0.6125	Reinf. 10 Tension Rupture	87.6%	Pass
98.25 - 93.25	Pole + Reinf.	TP31.089x30.266x0.6	Reinf. 10 Tension Rupture	93.2%	Pass
93.25 - 89.28	Pole + Reinf.	TP32.493x31.089x0.6	Reinf. 10 Tension Rupture	97.4%	Pass
89.28 - 83.72	Pole + Reinf.	TP32.155x31.243x0.6625	Reinf. 2 Tension Rupture	93.3%	Pass
83.72 - 82.92	Pole + Reinf.	TP32.286x32.155x0.6625	Reinf. 2 Tension Rupture	94.0%	Pass
82.92 - 82.67	Pole + Reinf.	TP32.327x32.286x0.95	Reinf. 2 Tension Rupture	69.4%	Pass
82.67 - 82.5	Pole + Reinf.	TP32.355x32.327x0.95	Reinf. 2 Tension Rupture	69.5%	Pass
82.5 - 82.25	Pole + Reinf.	TP32.396x32.355x0.6875	Reinf. 2 Tension Rupture	92.2%	Pass
82.25 - 77.25	Pole + Reinf.	TP33.217x32.396x0.675	Reinf. 2 Tension Rupture	96.2%	Pass
77.25 - 73.42	Pole + Reinf.	TP33.846x33.217x0.6625	Reinf. 2 Tension Rupture	99.1%	Pass
73.42 - 73.17	Pole + Reinf.	TP33.887x33.846x0.9375	Reinf. 9 Tension Rupture	75.2%	Pass
73.17 - 68.17	Pole + Reinf.	TP34.707x33.887x0.9125	Reinf. 9 Tension Rupture	78.3%	Pass
68.17 - 64.25	Pole + Reinf.	TP35.35x34.707x0.8875	Reinf. 9 Tension Rupture	80.6%	Pass
64.25 - 64	Pole + Reinf.	TP35.391x35.35x0.7375	Reinf. 3 Tension Rupture	92.7%	Pass
64 - 59	Pole + Reinf.	TP36.212x35.391x0.7375	Reinf. 3 Tension Rupture	95.8%	Pass
59 - 54	Pole + Reinf.	TP37.032x36.212x0.7125	Reinf. 3 Tension Rupture	98.8%	Pass
54 - 53.5	Pole + Reinf.	TP37.115x37.032x0.7125	Reinf. 3 Tension Rupture	99.1%	Pass
53.5 - 53.25	Pole + Reinf.	TP37.156x37.115x0.825	Reinf. 7 Tension Rupture	93.5%	Pass
53.25 - 49.17	Pole + Reinf.	TP38.702x37.156x0.8125	Reinf. 7 Tension Rupture	95.7%	Pass
49.17 - 42.83	Pole + Reinf.	TP38.239x37.201x0.725	Reinf. 4 Tension Rupture	98.9%	Pass
42.83 - 41.75	Pole + Reinf.	TP38.415x38.239x0.725	Reinf. 4 Tension Rupture	99.4%	Pass
41.75 - 41.5	Pole + Reinf.	TP38.456x38.415x0.7625	Reinf. 4 Tension Rupture	95.4%	Pass
41.5 - 36.5	Pole + Reinf.	TP39.274x38.456x0.75	Reinf. 4 Tension Rupture	97.4%	Pass
36.5 - 32.75	Pole + Reinf.	TP39.888x39.274x0.75	Reinf. 4 Tension Rupture	98.9%	Pass
32.75 - 32.5	Pole + Reinf.	TP39.929x39.888x1	Reinf. 4 Tension Rupture	75.8%	Pass
32.5 - 29.73	Pole + Reinf.	TP40.382x39.929x0.9	Reinf. 8 Tension Rupture	93.0%	Pass
29.73 - 29.48	Pole + Reinf.	TP40.423x40.382x0.9	Reinf. 8 Tension Rupture	93.1%	Pass
29.48 - 28.25	Pole + Reinf.	TP40.625x40.423x0.8875	Reinf. 8 Tension Rupture	93.5%	Pass
28.25 - 28	Pole + Reinf.	TP40.666x40.625x0.95	Reinf. 8 Tension Rupture	85.4%	Pass
28 - 23	Pole + Reinf.	TP41.485x40.666x0.95	Reinf. 8 Tension Rupture	87.1%	Pass
23 - 19.25	Pole + Reinf.	TP42.099x41.485x0.9375	Reinf. 8 Tension Rupture	88.4%	Pass
19.25 - 19	Pole + Reinf.	TP42.139x42.099x0.825	Reinf. 5 Tension Rupture	91.5%	Pass
19 - 14	Pole + Reinf.	TP42.958x42.139x0.8	Reinf. 5 Tension Rupture	93.0%	Pass
14 - 9	Pole + Reinf.	TP43.777x42.958x0.8	Reinf. 5 Tension Rupture	94.4%	Pass
9 - 4	Pole + Reinf.	TP44.595x43.777x0.7875	Reinf. 5 Tension Rupture	95.6%	Pass
4 - 0	Pole + Reinf.	TP45.25x44.595x0.775	Reinf. 5 Tension Rupture	96.6%	Pass
				Summary	
			Pole	94.5%	Pass
			Reinforcement	99.4%	Pass
			Overall	99.4%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*																
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	
168.5 - 163.5	570	n/a	570	11.69	n/a	11.69	10.2%																
163.5 - 158.5	646	n/a	646	12.19	n/a	12.19	19.6%																
158.5 - 153.5	728	n/a	728	12.68	n/a	12.68	34.6%																
153.5 - 148.5	817	n/a	817	13.18	n/a	13.18	47.9%																
148.5 - 143.5	913	n/a	913	13.68	n/a	13.68	63.7%																
143.5 - 138.5	1016	n/a	1016	14.17	n/a	14.17	77.9%																
138.5 - 134.33	1107	n/a	1107	14.59	n/a	14.59	92.3%																
134.33 - 129.33	1547	n/a	1547	19.76	n/a	19.76	75.8%																
129.33 - 125.75	1659	n/a	1659	20.22	n/a	20.22	84.0%																
125.75 - 125.5	1668	n/a	1668	20.26	n/a	20.26	84.5%																
125.5 - 120.5	1834	n/a	1834	20.91	n/a	20.91	94.5%																
120.5 - 120.25	1846	1607	3452	20.94	22.41	43.35	51.8%										87.5%				65.2%	82.6%	
120.25 - 115.25	2024	1703	3726	21.60	22.41	44.00	57.7%										96.7%				72.4%	91.6%	
115.25 - 113.83	2076	1730	3807	21.78	22.41	44.19	59.3%										99.2%				74.4%	94.1%	
113.83 - 113.48	2089	3148	5237	21.83	32.25	54.08	43.7%	68.7%									69.2%						
113.48 - 113.25	2098	3156	5254	21.86	32.25	54.11	43.9%	69.0%									69.2%						
113.25 - 108.25	2291	3336	5628	22.51	32.25	54.76	48.3%	75.2%									75.8%						
108.25 - 103.25	2497	3521	6018	23.16	32.25	55.41	52.6%	81.1%									81.9%						
103.25 - 98.25	2714	3711	6425	23.82	32.25	56.07	56.8%	86.8%									87.6%						
98.25 - 93.25	2943	3907	6850	24.47	32.25	56.72	60.9%	92.3%									93.2%						
93.25 - 89.28	3134	4065	7200	24.99	32.25	57.24	64.1%	96.4%									97.4%						
89.28 - 83.72	4045	4262	8307	31.58	37.50	69.08	56.9%		93.3%												80.6%		
83.72 - 82.92	4095	4295	8390	31.71	37.50	69.21	57.4%		94.0%												81.2%		
82.92 - 82.67	4115	7665	11781	31.75	55.50	87.25	41.6%		69.4%						69.2%						69.4%		
82.67 - 82.5	4126	7678	11804	31.78	55.50	87.28	41.7%		69.5%						69.4%						69.5%		
82.5 - 82.25	4140	4621	8761	31.82	43.00	74.82	56.9%		92.2%						84.0%								
82.25 - 77.25	4466	4847	9313	32.64	43.00	75.64	59.8%		96.2%						87.8%								
77.25 - 73.42	4727	5024	9751	33.26	43.00	76.26	61.9%		99.1%						90.5%								
73.42 - 73.17	4741	8584	13326	33.30	61.00	94.30	45.0%			72.3%					71.6%			75.2%					
73.17 - 68.17	5098	8989	14086	34.11	61.00	95.11	47.2%			75.2%					74.5%			78.3%					
68.17 - 64.25	5389	9312	14700	34.75	61.00	95.75	48.9%			77.5%					76.8%			80.6%					
64.25 - 64	5407	6960	12367	34.79	43.00	77.79	58.0%			92.7%					91.8%								
64 - 59	5796	7273	13069	35.61	43.00	78.61	60.4%			95.8%					94.9%								
59 - 54	6202	7594	13797	36.42	43.00	79.42	62.7%			98.8%					97.9%								
54 - 53.5	6244	7627	13871	36.50	43.00	79.50	62.9%			99.1%					98.2%								
53.5 - 53.25	6289	9571	15859	36.54	55.50	92.04	57.6%			86.7%					93.5%				79.3%				
53.25 - 49.17	6638	9907	16544	37.21	55.50	92.71	59.4%			88.7%					95.7%				81.2%				
49.17 - 42.83	8166	7263	15429	45.07	48.00	93.07	64.5%				98.9%				97.6%								
42.83 - 41.75	8280	7327	15608	45.28	48.00	93.28	64.9%				99.4%				98.1%								
41.75 - 41.5	8306	7993	16300	45.32	54.00	99.32	62.3%				95.4%			83.7%									
41.5 - 36.5	8853	8323	17176	46.30	54.00	100.30	64.0%				97.4%			85.6%									
36.5 - 32.75	9279	8574	17854	47.03	54.00	101.03	65.3%				98.9%			87.0%									
32.75 - 32.5	9312	14582	23895	47.08	70.25	117.33	48.6%				75.8%			73.2%							74.1%		
32.5 - 29.73	9636	12402	22038	47.62	58.25	105.87	55.0%							84.5%			93.0%				82.4%		
29.73 - 29.48	9665	12427	22092	47.67	58.25	105.92	55.1%							84.6%			93.1%				82.5%		
29.48 - 28.25	9812	12547	22359	47.91	58.25	106.16	55.4%							85.0%			93.5%				82.9%		
28.25 - 28	9833	14252	24085	47.95	72.00	119.95	51.4%						77.1%	73.4%			85.4%						
28 - 23	10444	14811	25256	48.93	72.00	120.93	52.7%							78.7%	74.9%			87.1%					
23 - 19.25	10919	15238	26157	49.66	72.00	121.66	53.7%							79.8%	76.0%			88.4%					
19.25 - 19	10951	12195	23146	49.71	54.00	103.71	60.6%							91.5%	87.0%								
19 - 14	11607	12657	24264	50.68	54.00	104.68	61.9%							93.0%	88.5%								
14 - 9	12290	13128	25417	51.66	54.00	105.66	63.3%							94.4%	89.8%								
9 - 4	12998	13607	26605	52.63	54.00	106.63	64.5%							95.6%	91.1%								
4 - 0	13584	13997	27581	53.41	54.00	107.41	65.5%							96.6%	92.1%								

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

Monopole Base Plate Connection

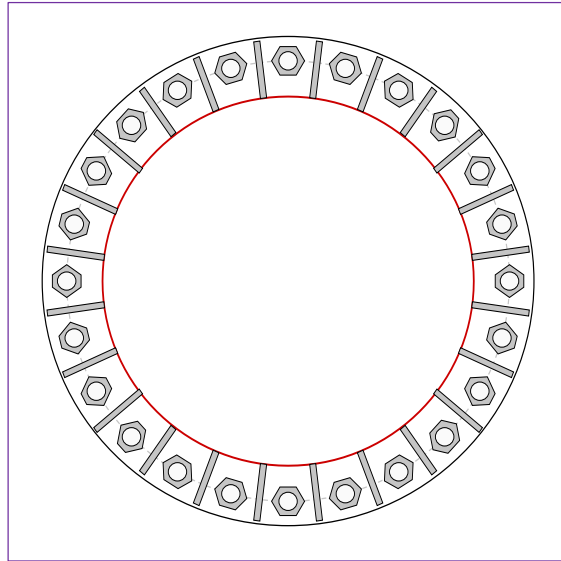


Site Info	
BU #	842859
Site Name	Bristol Center
Order #	579393 Rev. 0

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

Applied Loads	
Moment (kip-ft)	4718.20
Axial Force (kips)	78.09
Shear Force (kips)	36.94

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results		
Anchor Rod Data GROUP 1: (12) 2-1/4" ϕ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 54" BC GROUP 2: (12) 2-1/4" ϕ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 54" BC	Anchor Rod Summary (units of kips, kip-in)		
Base Plate Data 60" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)	GROUP 1: $Pu_t = 171.37$ $\phi Pn_t = 243.75$ Stress Rating $Vu = 1.54$ $\phi Vn = 149.1$ 67.0% $Mu = n/a$ $\phi Mn = n/a$ Pass		
Stiffener Data (24) 15"H x 7"W x 0.75"T, Notch: 0.75" plate: Fy= 65 ksi ; weld: Fy= 80 ksi horiz. weld: 0.375" groove, 45° dbl bevel, 0.375" fillet vert. weld: 0.3125" fillet	GROUP 2: $Pu_t = 171.37$ $\phi Pn_t = 243.75$ Stress Rating $Vu = 1.54$ $\phi Vn = 149.1$ 67.0% $Mu = n/a$ $\phi Mn = n/a$ Pass		
Pole Data 45.25" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)	Base Plate Summary Max Stress (ksi): 28.94 (Roark's Flexural) Allowable Stress (ksi): 54 Stress Rating: 51.0% Pass		
	Stiffener Summary Horizontal Weld: 55.6% Pass Vertical Weld: 70.0% Pass Plate Flexure+Shear: 24.9% Pass Plate Tension+Shear: 54.3% Pass Plate Compression: 67.7% Pass		
	Pole Summary Punching Shear: 22.6% Pass		

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	Yes	No	No
2	Yes	Yes	Yes	Yes	No	No

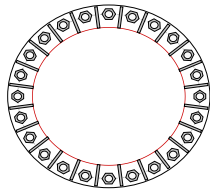
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, n _t	l _v (in)	Thread Type	Area Override, in ²	Tension Only
1	1	0	2.25	A615-75	54	0.5	0	N-Included		No
2	1	30	2.25	A615-75	54	0.5	0	N-Included		No
3	1	60	2.25	A615-75	54	0.5	0	N-Included		No
4	1	90	2.25	A615-75	54	0.5	0	N-Included		No
5	1	120	2.25	A615-75	54	0.5	0	N-Included		No
6	1	150	2.25	A615-75	54	0.5	0	N-Included		No
7	1	180	2.25	A615-75	54	0.5	0	N-Included		No
8	1	210	2.25	A615-75	54	0.5	0	N-Included		No
9	1	240	2.25	A615-75	54	0.5	0	N-Included		No
10	1	270	2.25	A615-75	54	0.5	0	N-Included		No
11	1	300	2.25	A615-75	54	0.5	0	N-Included		No
12	1	330	2.25	A615-75	54	0.5	0	N-Included		No
13	2	15	2.25	A615-75	54	0.5	0	N-Included		No
14	2	45	2.25	A615-75	54	0.5	0	N-Included		No
15	2	75	2.25	A615-75	54	0.5	0	N-Included		No
16	2	105	2.25	A615-75	54	0.5	0	N-Included		No
17	2	135	2.25	A615-75	54	0.5	0	N-Included		No
18	2	165	2.25	A615-75	54	0.5	0	N-Included		No
19	2	195	2.25	A615-75	54	0.5	0	N-Included		No
20	2	225	2.25	A615-75	54	0.5	0	N-Included		No
21	2	255	2.25	A615-75	54	0.5	0	N-Included		No
22	2	285	2.25	A615-75	54	0.5	0	N-Included		No
23	2	315	2.25	A615-75	54	0.5	0	N-Included		No
24	2	345	2.25	A615-75	54	0.5	0	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	7.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
2	1	22.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
3	1	37.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
4	1	52.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
5	1	67.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
6	1	82.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
7	1	97.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
8	1	112.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
9	1	127.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
10	1	142.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
11	1	157.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
12	1	172.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
13	1	187.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
14	1	202.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
15	1	217.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
16	1	232.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
17	1	247.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
18	1	262.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
19	1	277.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
20	1	292.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
21	1	307.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
22	1	322.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
23	1	337.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80
24	1	352.5	7	15	0.75	0.75	0.75	65	Both	0.375	45	0.375	0.3125	80

Plot Graphic



Drilled Pier Foundation

BU # :	842859
Site Name:	Bristol Center
Order Number:	579393 Rev. 0
TIA-222 Revision:	H
Tower Type:	Monopole



Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
	N/A <input type="checkbox"/>
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	<input type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	4718.2	
Axial Force (kips)	78.11	
Shear Force (kips)	36.91	

Material Properties		
Concrete Strength, f _c :	4 ksi	Rebar 2, Fy Override (ksi)
Rebar Strength, F _y :	60 ksi	
Tie Yield Strength, F _y :	60 ksi	

Pier Design Data	
Depth	26 ft
Ext. Above Grade	1 ft
Pier Section 1	
<i>From 1' above grade to 19' below grade</i>	
Pier Diameter	6.5 ft
Rebar Quantity	16
Rebar Size	11
Rebar Cage Diameter	67 in
Tie Size	5
Tie Spacing	12 in
Rebar Quantity	8
Rebar Size	11
Rebar Cage Diameter	64 in
Pier Section 2	
<i>From 19' below grade to 26' below grade</i>	
Pier Diameter	6.5 ft
Rebar Quantity	16
Rebar Size	11
Rebar Cage Diameter	67 in
Tie Size	5
Tie Spacing	12 in

[Rebar & Pier Options](#)

[Embedded Pole Inputs](#)

[Belled Pier Inputs](#)

Analysis Results		
Soil Lateral Check		
	Compression	Uplift
D _{v=0} (ft from TOC)	8.03	-
Soil Safety Factor	2.09	-
Max Moment (kip-ft)	4985.19	-
Rating*	60.7%	-
Soil Vertical Check		
	Compression	Uplift
Skin Friction (kips)	529.45	-
End Bearing (kips)	412.76	-
Weight of Concrete (kips)	161.27	-
Total Capacity (kips)	942.20	-
Axial (kips)	239.38	-
Rating*	24.2%	-
Reinforced Concrete Flexure		
	Compression	Uplift
Critical Depth (ft from TOC)	16.66	-
Critical Moment (kip-ft)	3732.72	-
Critical Moment Capacity	3897.97	-
Rating*	91.2%	-
Reinforced Concrete Shear		
	Compression	Uplift
Critical Depth (ft from TOC)	20.78	-
Critical Shear (kip)	559.75	-
Critical Shear Capacity	596.43	-
Rating*	89.4%	-
Structural Foundation Rating*		91.2%
Soil Interaction Rating*		60.7%

*Rating per TIA-222-H Section 15.5

Soil Profile			
Groundwater Depth	N/A	# of Layers	8

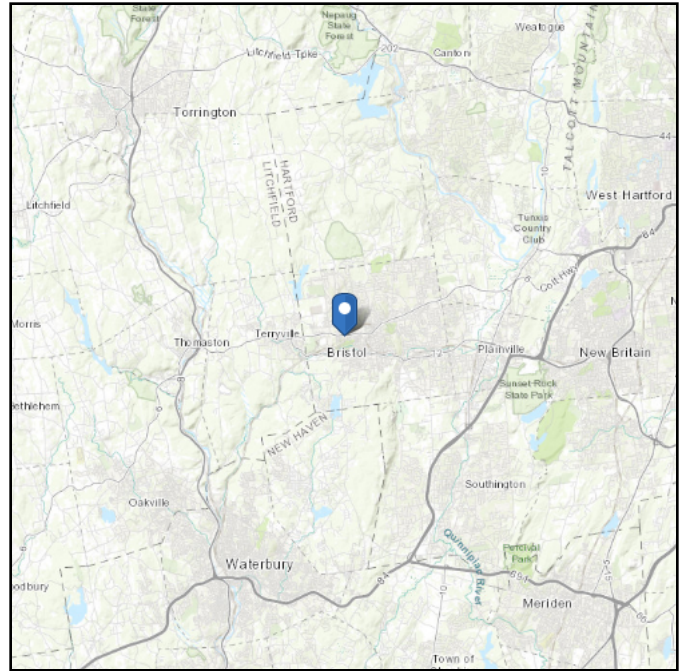
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	4	4	105	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	4	5	1	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	5	6	1	110	150	0	30	0.000	0.000	1.35	1.35			Cohesionless
4	6	8	2	115	150	0	31	0.000	0.000	0.57	0.57			Cohesionless
5	8	12	4	120	150	0	33	0.000	0.000	1.19	1.19			Cohesionless
6	12	20	8	115	150	0	31	0.000	0.000	1.73	1.73			Cohesionless
7	20	25	5	125	150	0	35	0.00	0.00	2.22	2.22			Cohesionless
8	25	26	1	130	150	0	37	0.00	0.00	2.38	2.38	13.56		Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 564.8 ft (NAVD 88)
Latitude: 41.679919
Longitude: -72.96255



Wind

Results:

Wind Speed:	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Sep 06 2021

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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

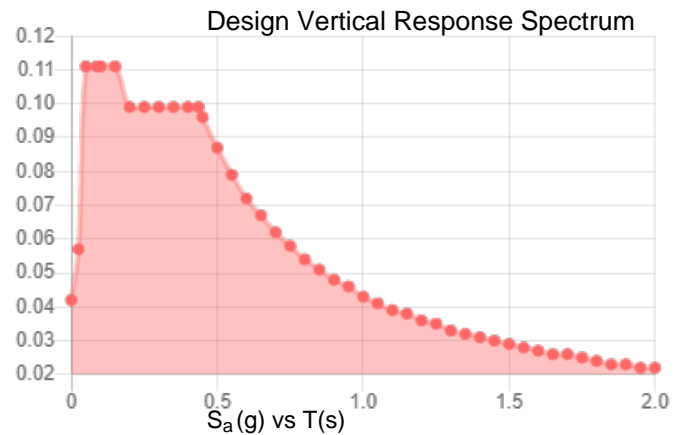
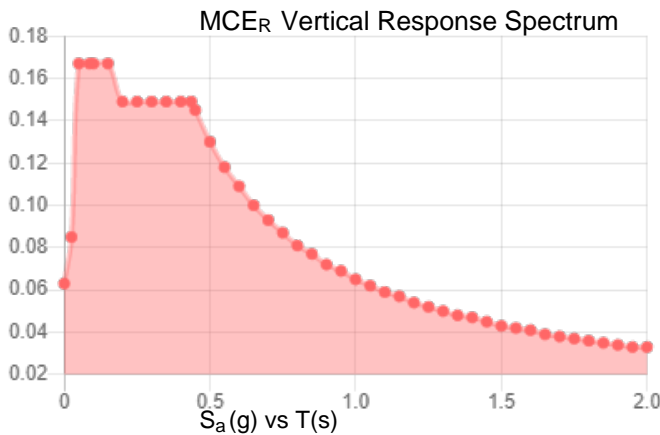
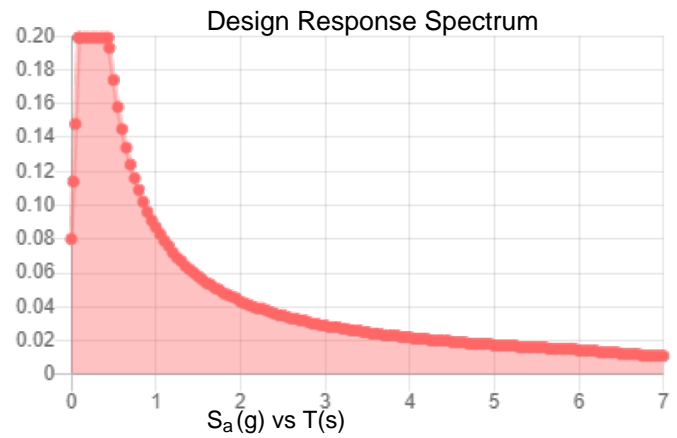
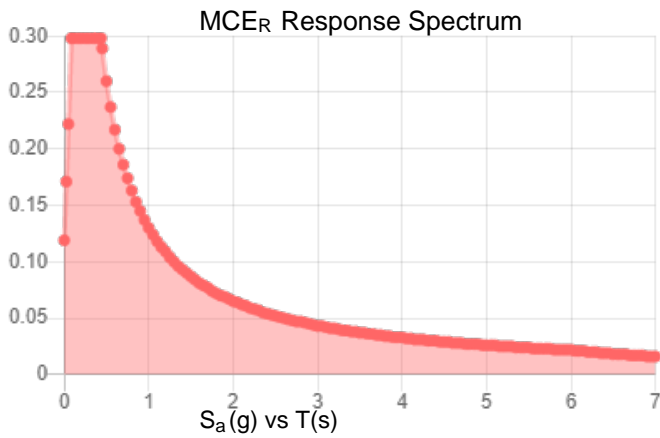
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.186	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.101
F_v :	2.4	PGA _M :	0.161
S_{MS} :	0.298	F_{PGA} :	1.598
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.199	C_v :	0.7

Seismic Design Category B



Data Accessed: Mon Sep 06 2021
Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Mon Sep 06 2021

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 500-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.

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Exhibit E

Mount Analysis

Date: **August 31, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589



Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **T-Mobile Sprint Retain**
Carrier Site Number: CTHA714A
Carrier Site Name: Bristol EMS

Crown Castle Designation: **Crown Castle BU Number:** 842859
Crown Castle Site Name: BRISTOL CENTER
Crown Castle JDE Job Number: 678522
Crown Castle Order Number: 579393 Rev. 0

Engineering Firm Designation: **Trylon Report Designation:** 190956

Site Data: **371 Terryville Avenue, Bristol, Hartford County, CT, 06010**
Latitude 41°40'47.71" Longitude -72°57'45.18"

Structure Information: **Tower Height & Type:** **168.5 ft Monopole**
Mount Elevation: **158.0 ft**
Mount Type: **12.5 ft Sector Frame**

Dear Darcy Tarr,

Trylon is pleased to submit this “**Mount Replacement Analysis Report**” to determine the structural integrity of T-Mobile’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:

Sector Frame **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 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Ionela Neamtu

Respectfully Submitted by:
Jinshan Wang, P.E.

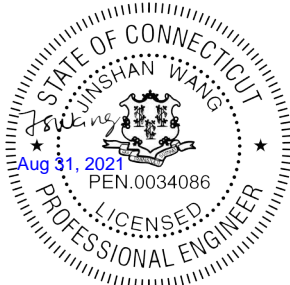


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Supplemental Drawings

1) INTRODUCTION

This is a proposed 3 sector 12.5 ft Sector Frame, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC/ 2018 CTSBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	2.00 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.185
Seismic S₁:	0.064
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
158.0	158.0	3	ERICSSON	AIR6449 B41_T-MOBILE	12.5 ft Sector Frame [Site Pro 1, VFA12-HD with MSFAA kit]
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
		3	ERICSSON	Radio 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	579393, Rev. 0	CCI Sites
Mount Manufacture Drawings	Site Pro 1	VFA12-HD	Trylon
Monopole Sector Frame Attachment Assembly	Site Pro 1	MSFAA	Trylon

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.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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. Trylon 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 (Sector Frame, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3	Mount Pipe(s)	MP4	158.0	42.8	Pass
	Horizontal(s)	M126		34.2	Pass
	Standoff(s)	M130		16.0	Pass
	Bracing(s)	M55		8.2	Pass
	Plate(s)	M126		42.6	Pass
	Tieback(s)	M171A		5.0	Pass
	Mount Connection(s)	--		25.4	Pass

Structure Rating (max from all components) =	42.8%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) All sectors are typical
- 3) Rating per TIA-222-H, Section 15.5

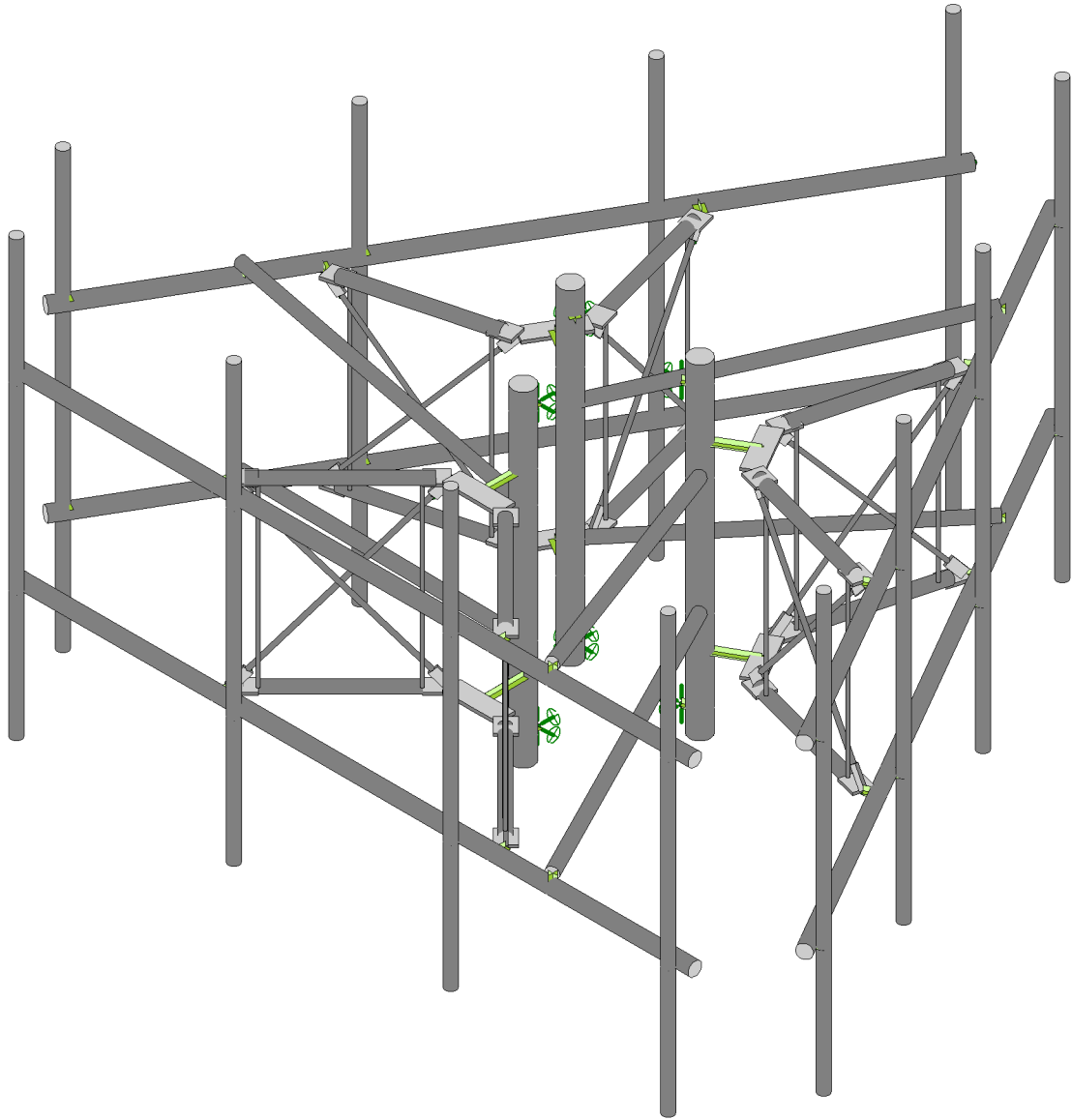
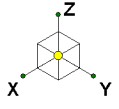
4.1) Recommendations

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

1. Site Pro 1, VFA12-HD with MSFAA assembly.
2. Install 2.375" O.D., Sch.40, 8-ft. long antenna pipes.
3. Install the tiebacks as recommended in manufacturer's drawings (Tie-Back Position 3) connecting them to the MSFAA kit.

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

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon

IN

190956

842859_BRISTOL CENTER

SK - 1

Aug 31, 2021 at 12:05 PM

842859_loaded.r3d

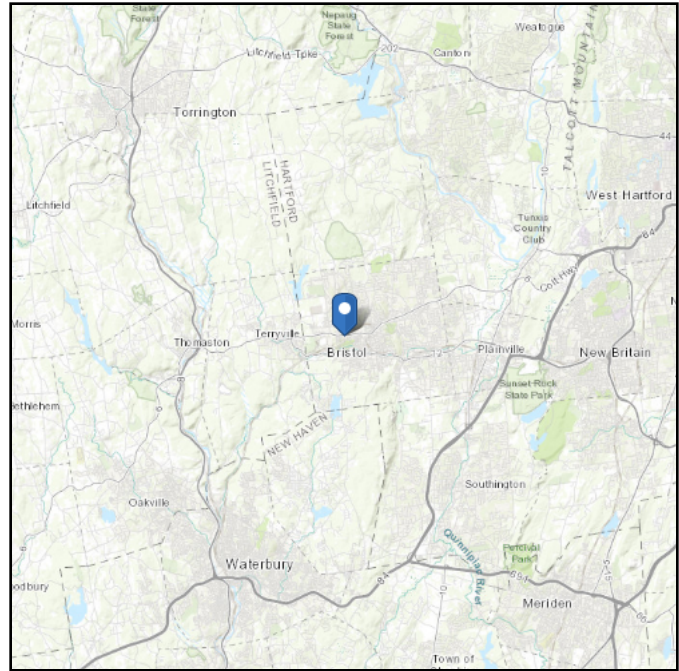
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 564.8 ft (NAVD 88)
Latitude: 41.679919
Longitude: -72.96255



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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).

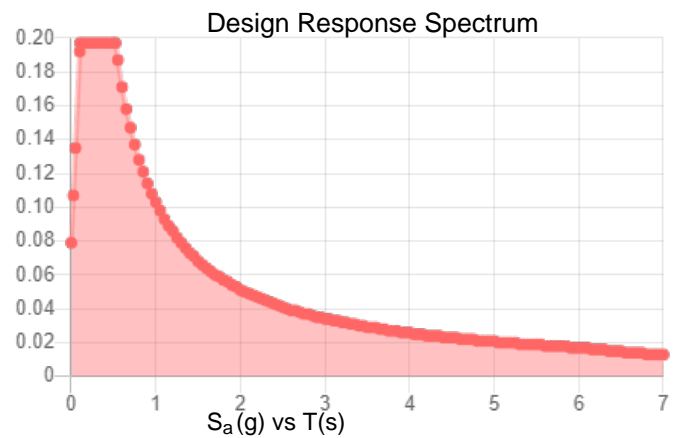
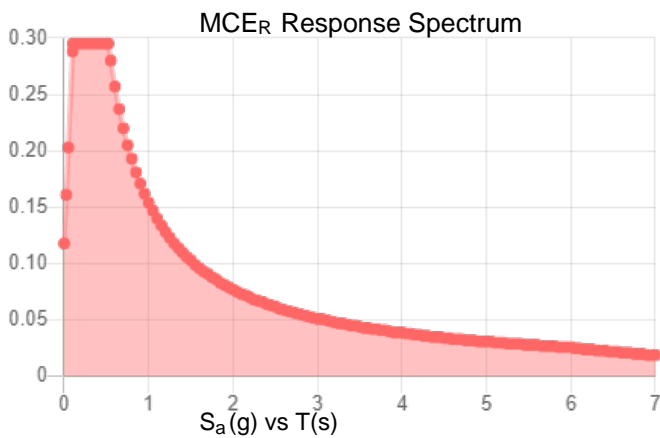
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.185	S_{DS} :	0.197
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.094
S_{MS} :	0.295	PGA _M :	0.151
S_{M1} :	0.154	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Aug 27 2021

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: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Fri Aug 27 2021

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.

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TIA LOAD CALCULATOR 2.1

PROJECT DATA	
Job Code:	190956
Carrier Site ID:	CTHA714A
Carrier Site Name:	Bristol EMS

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	2018 CTSCB
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Sector Frame	--
Mount Elevation:	158.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	168.5	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	C	--
Site Class:	D - Default	--
Ground Elevation:	564.8	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.39	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G _h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	47.82	psf
Ground Elevation Factor (K_g):	0.98	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	2.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	47.82	psf
Mount Ice Thickness (t_{iz}):	2.34	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	86.07	psf
Round Member Pressure:	51.64	psf
Ice Wind Pressure:	7.52	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.185	g
1 Second Accel. (S_1):	0.064	g
Short Period Des. (S_{DS}):	0.20	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.10	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

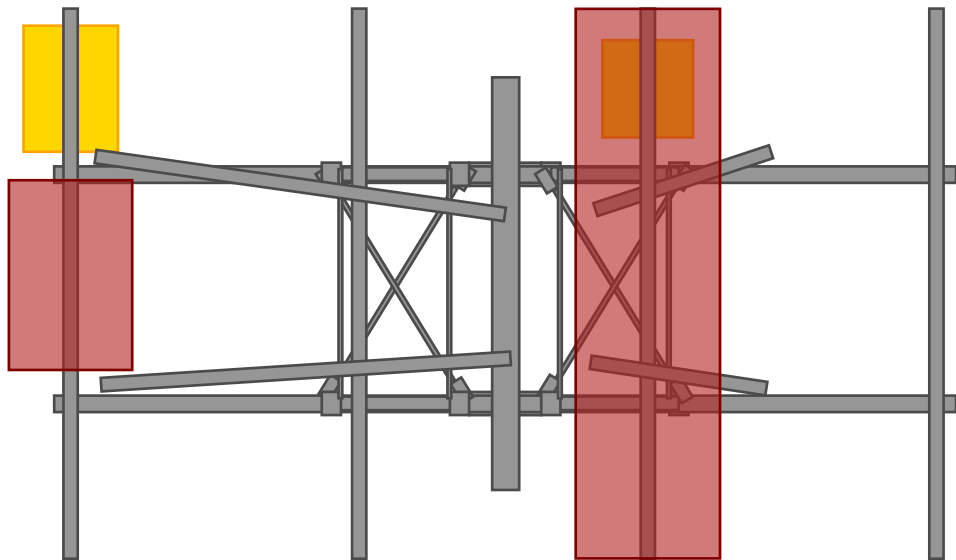
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122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

<i>Appurtenance Name</i>	<i>Qty.</i>	--	<i>0° 180°</i>	<i>30° 210°</i>	<i>60° 240°</i>	<i>90° 270°</i>	<i>120° 300°</i>	<i>150° 330°</i>
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

ELEVATION VIEW



MP4

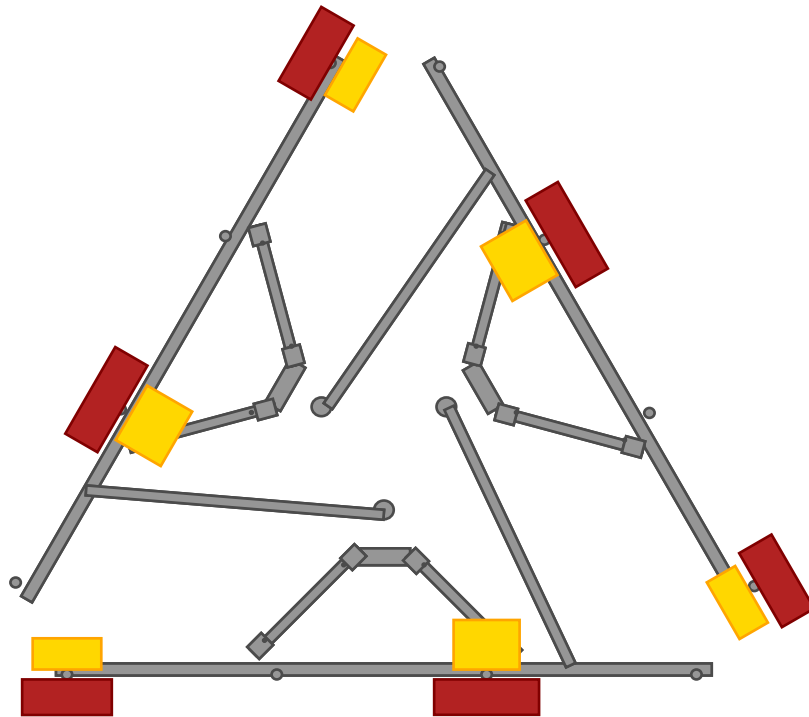
MP3

MP2

MP1

*Elevation View Shows Alpha Sector Only

PLAN VIEW



APPENDIX C
SOFTWARE ANALYSIS OUTPUT

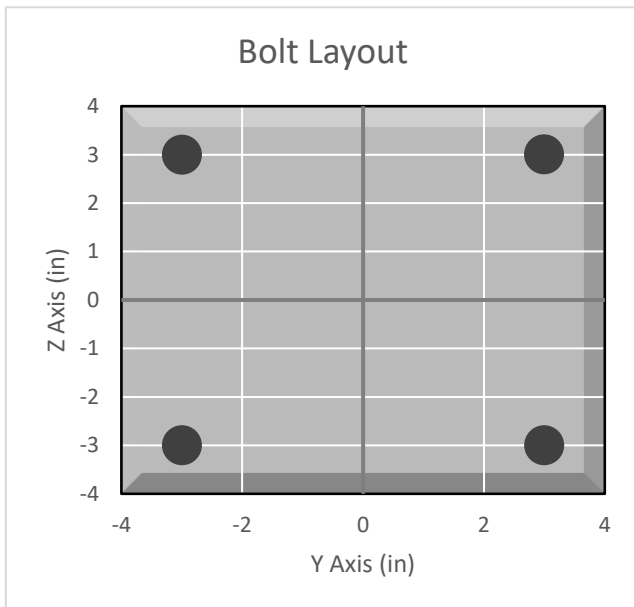
APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	190956
Carrier Site ID:	CTHA714A
Carrier Site Name:	Bristol EMS

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Threaded Rod	
Diameter:	0.625	in
Grade:	AE J429 Gr.	--
Yield Strength (Fy):	57	ksi
Ultimate Strength (Fu):	74	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	6	in



Connection Description
4.5 O.D Pipe to ring mount

Bolt Check*		
Tensile Capacity (ϕT_n):	12543.1	lbs
Shear Capacity (ϕV_n):	8513.6	lbs
Tension Force (T_u):	831.8	lbs
Shear Force (V_u):	1373.7	lbs
Tension Usage:	6.3%	--
Shear Usage:	15.4%	--
Interaction:	15.4%	Pass
Controlling Member:	M164	--
Controlling LC:	14	--

*Rating per TIA-222-H Section 15.5

Slip Check*		
Sliding Capacity (ϕR_{ns}):	13105.5	lbs
Torsion Capacity (ϕR_{nr}):	3276.4	lb-ft
Sliding Force (V_{us}):	1959.7	lbs
Torsional Force (T_{ur}):	0.0	lb-ft
Sliding Usage:	14.2%	--
Torsion Usage:	0.0%	--
Interaction:	14.2%	Pass
Controlling Member:	M125	--
Controlling LC:	42	--

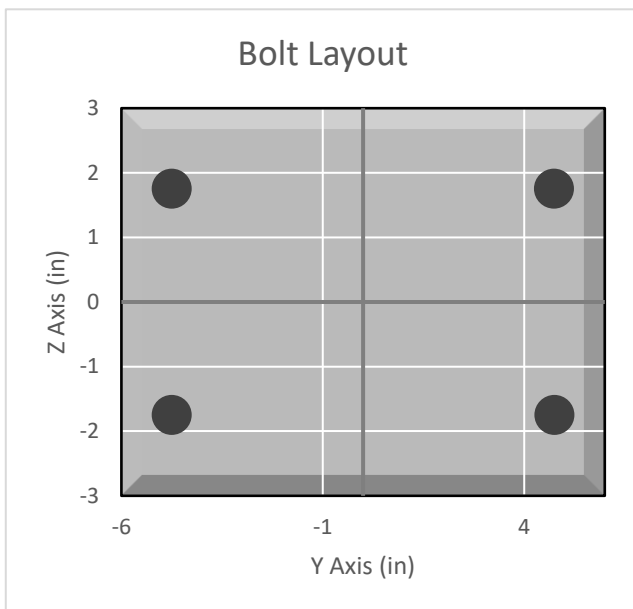
*Rating per TIA-222-H Section 15.5

BOLT TOOL 1.5.2

Project Data	
Job Code:	190956
Carrier Site ID:	CTHA714A
Carrier Site Name:	Bristol EMS

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Threaded Rod	
Diameter:	0.625	in
Grade:	AE J429 Gr.	--
Yield Strength (Fy):	57	ksi
Ultimate Strength (Fu):	74	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	9.5	in



Connection Description
Mount to 4.5 O.D Pipe

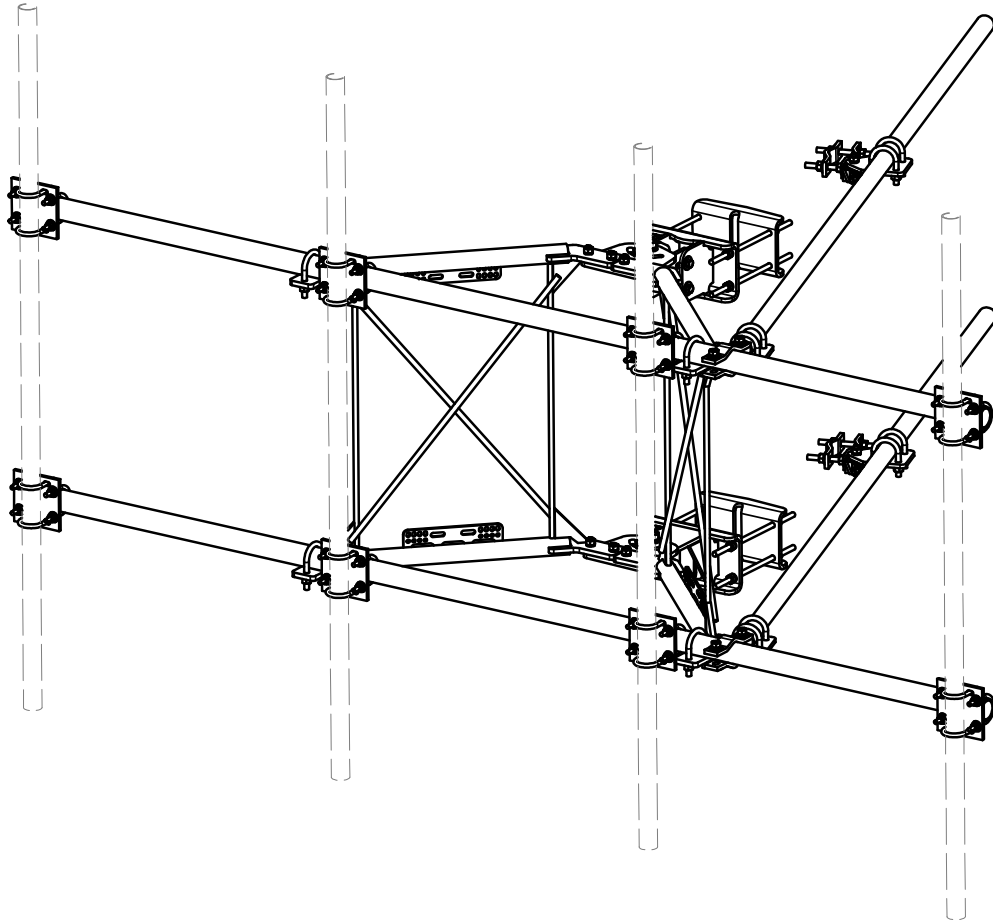
Bolt Check*		
Tensile Capacity (ϕT_n):	12543.1	lbs
Shear Capacity (ϕV_n):	8513.6	lbs
Tension Force (T_u):	3344.6	lbs
Shear Force (V_u):	466.8	lbs
Tension Usage:	25.4%	--
Shear Usage:	5.2%	--
Interaction:	25.4%	Pass
Controlling Member:	M114	--
Controlling LC:	38	--

*Rating per TIA-222-H Section 15.5

Slip Check*		
Sliding Capacity (ϕR_{ns}):	13119.6	lbs
Torsion Capacity (ϕR_{nr}):	5193.2	lb-ft
Sliding Force (V_{us}):	1832.6	lbs
Torsional Force (T_{ur}):	249.7	lb-ft
Sliding Usage:	13.3%	--
Torsion Usage:	5.2%	--
Interaction:	14.3%	Pass
Controlling Member:	M114	--
Controlling LC:	38	--

*Rating per TIA-222-H Section 15.5

APPENDIX E
SUPPLEMENTAL DRAWINGS



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CENTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
15	4	A34212	3/4" X 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" X 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" X 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" X 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" X 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" X 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" X 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" X 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" X 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	738.06

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

TOLERANCE NOTES
**TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)**

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION		12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS	
CPD NO.	DRAWN BY	ENG. APPROVAL	
	CEK 1/25/2017		
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	CUSTOMER	BMC 12/13/2017

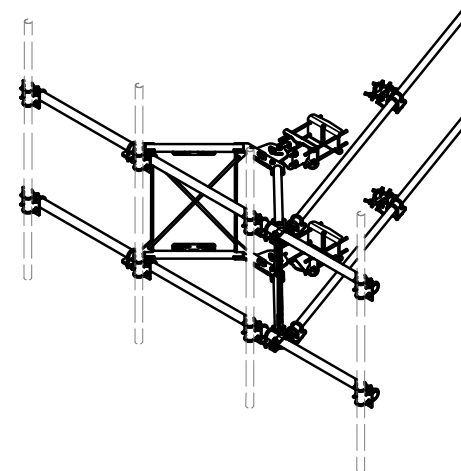
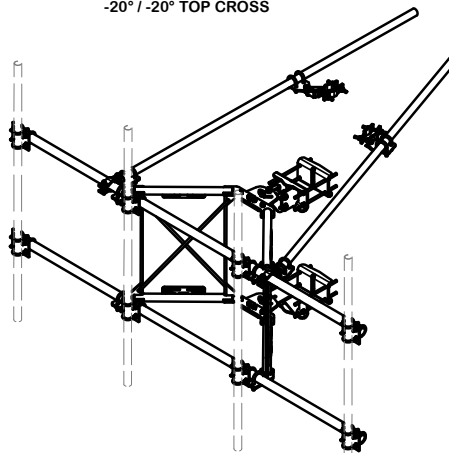
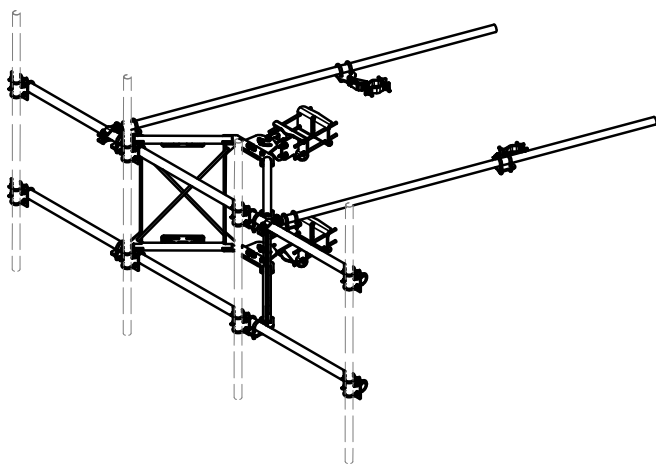
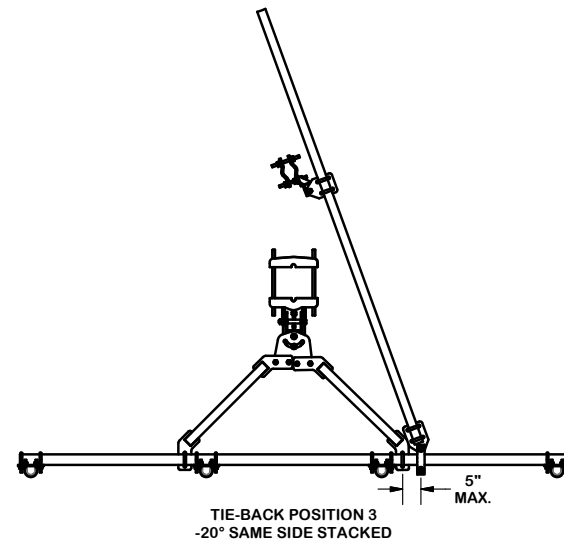
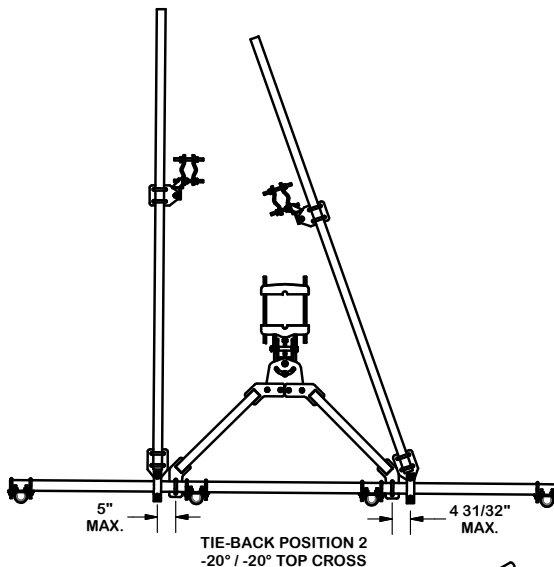
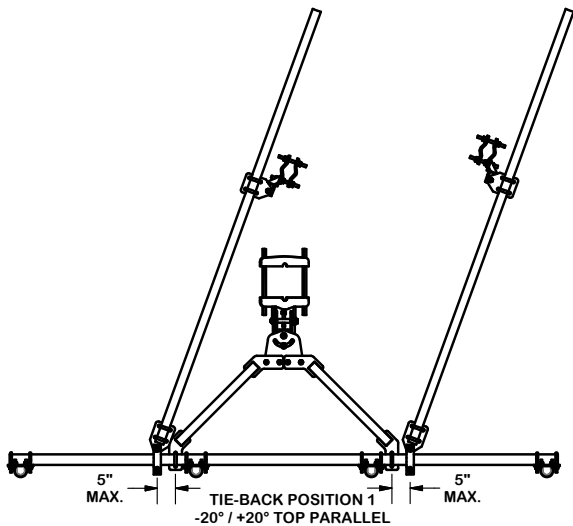
A valmont COMPANY

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

Engineering Support Team:
 1-888-753-7446

PART NO.	VFA12-HD	PAGE	1 OF 5
DWG. NO.	VFA12-HD		

TIE-BACK POSITIONS



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

TOLERANCE NOTES

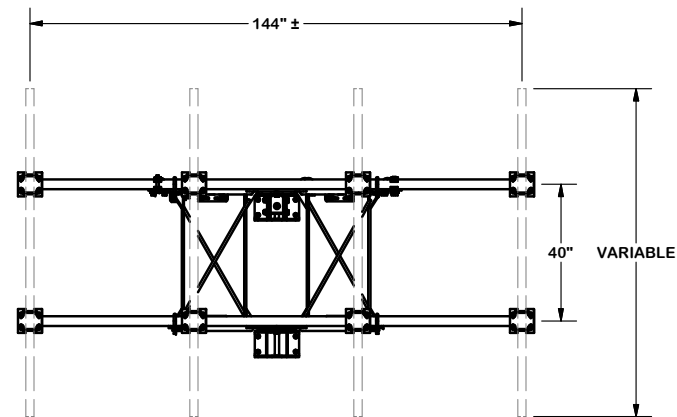
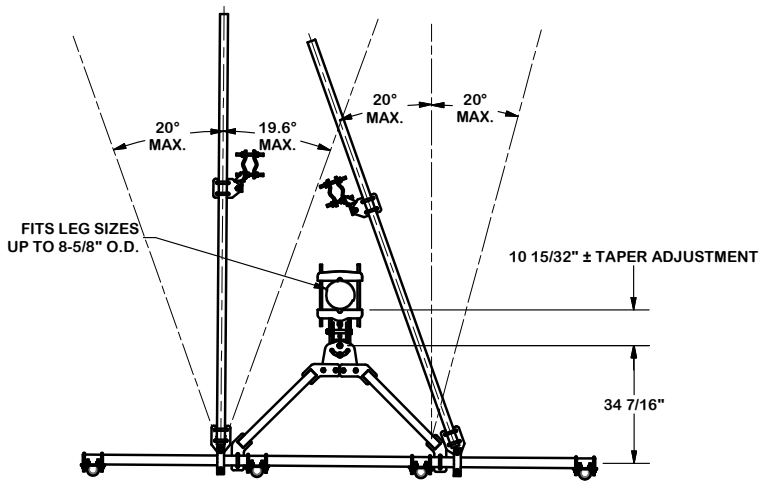
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION
 12' 6" HEAVY DUTY
 V-FRAME ASSEMBLY
 WITH TWO STIFF ARMS

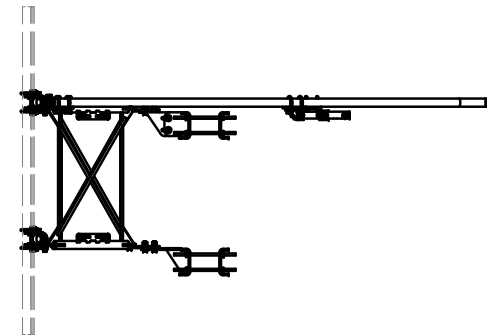
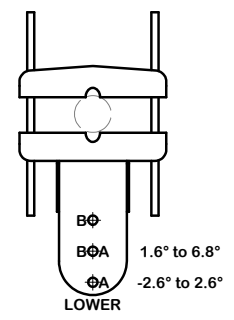
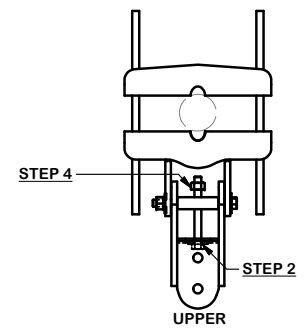
CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 1/25/2017	
CLASS	DRAWING USAGE	CHECKED BY
81	CUSTOMER	BMC 12/13/2017

<p>A valmont COMPANY</p>	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	Engineering Support Team: 1-888-753-7446
PART NO.	VFA12-HD
DWG. NO.	VFA12-HD



ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
 - HOLE A = -2.6° TO 2.6°
 - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

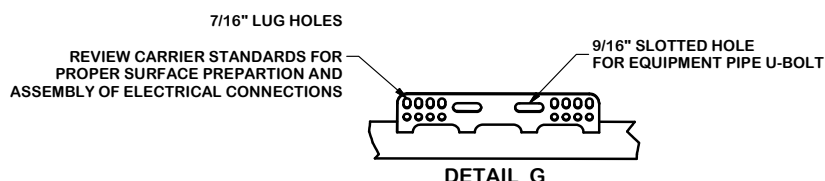
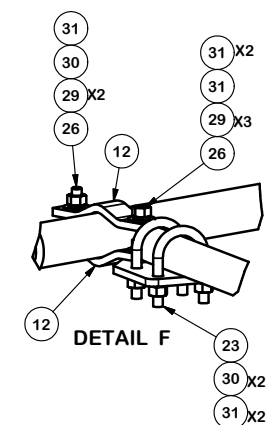
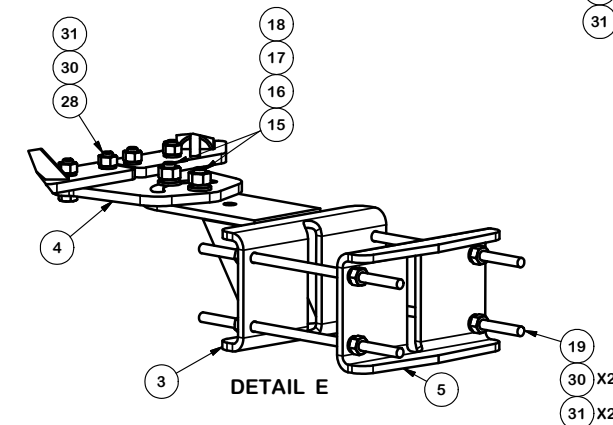
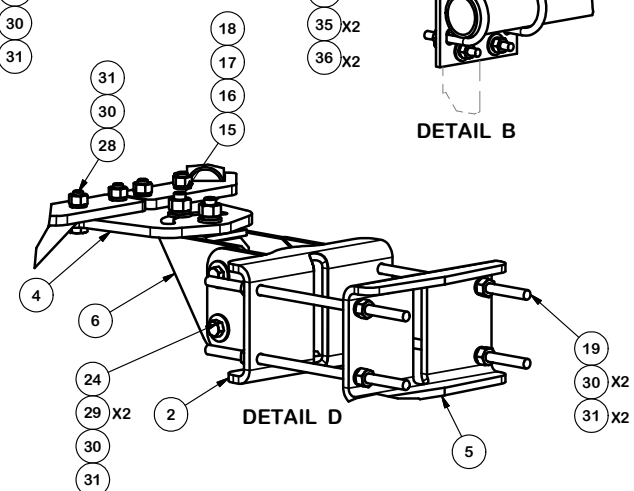
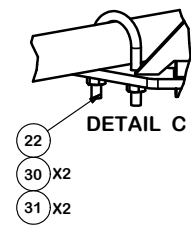
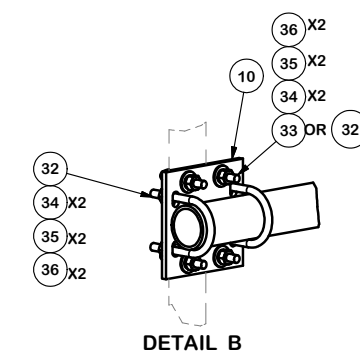
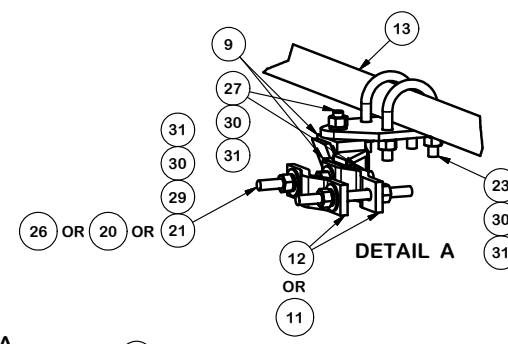
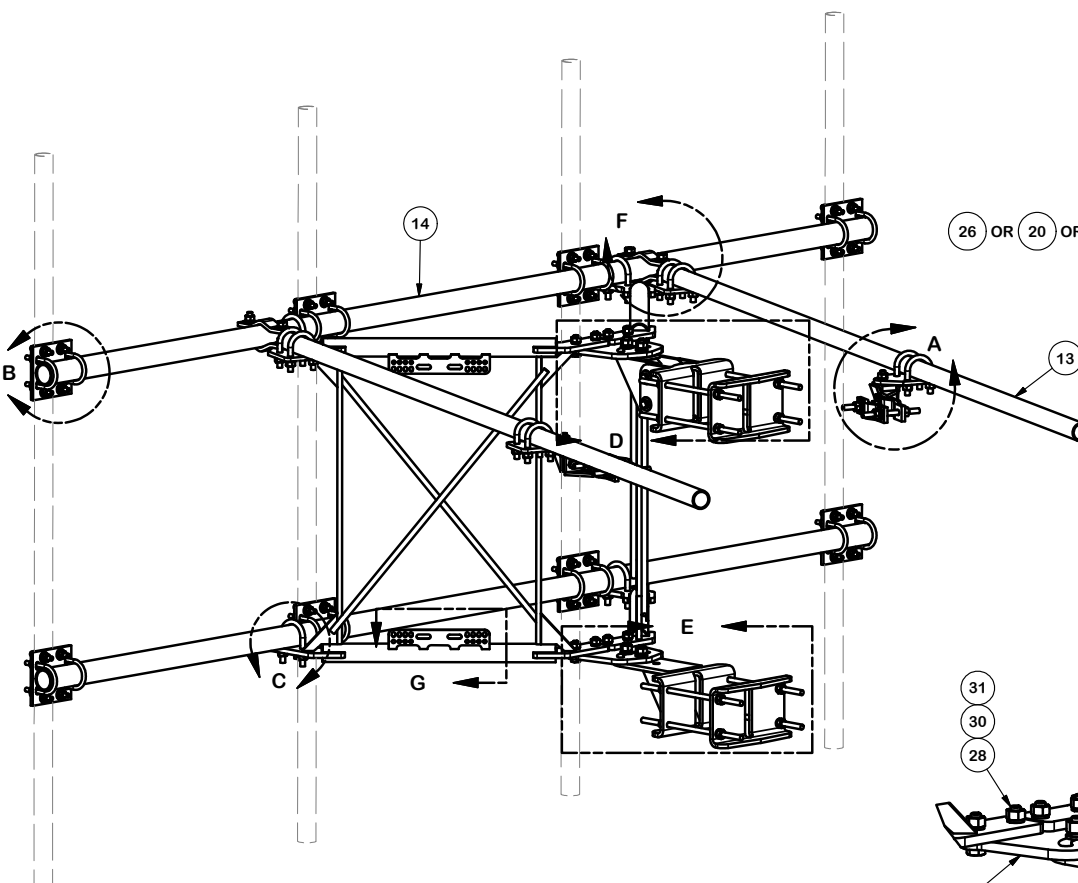
TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION		12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS	
CPD NO.	DRAWN BY	ENG. APPROVAL	
	CEK 1/25/2017		
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	CUSTOMER	BMC 12/13/2017

 A valmont COMPANY	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	PART NO. VFA12-HD	DWG. NO. VFA12-HD



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017
REVISION HISTORY				

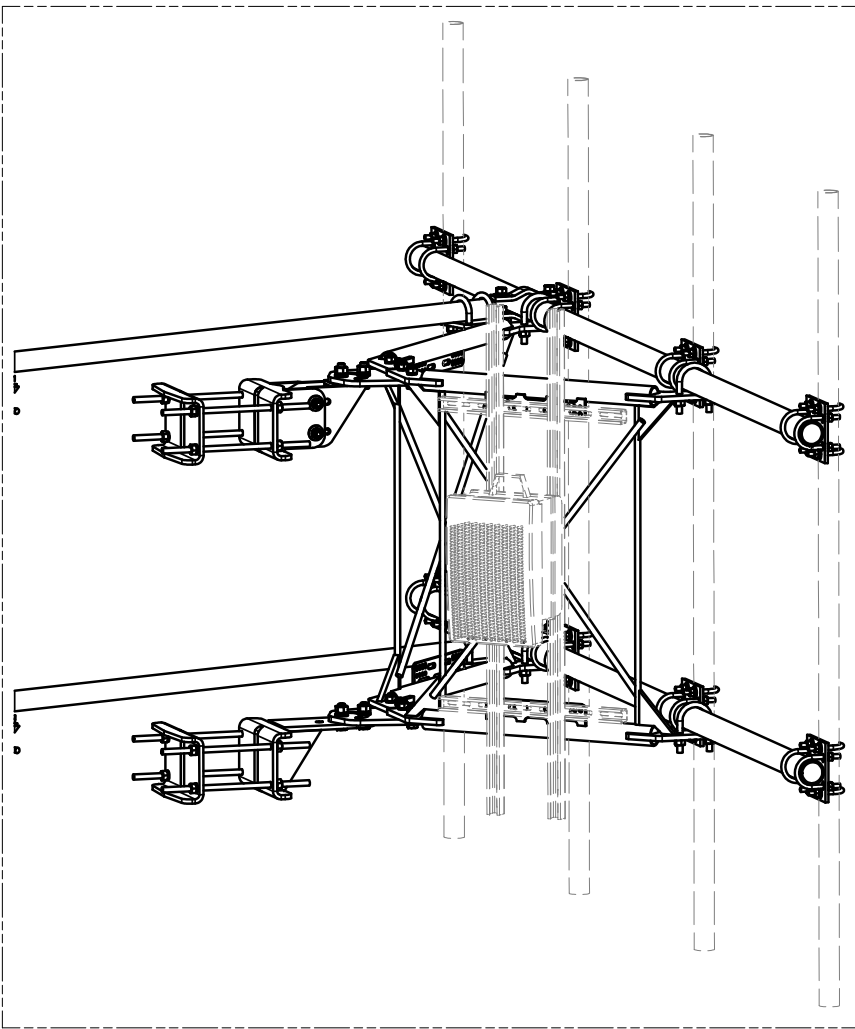
TOLERANCE NOTES

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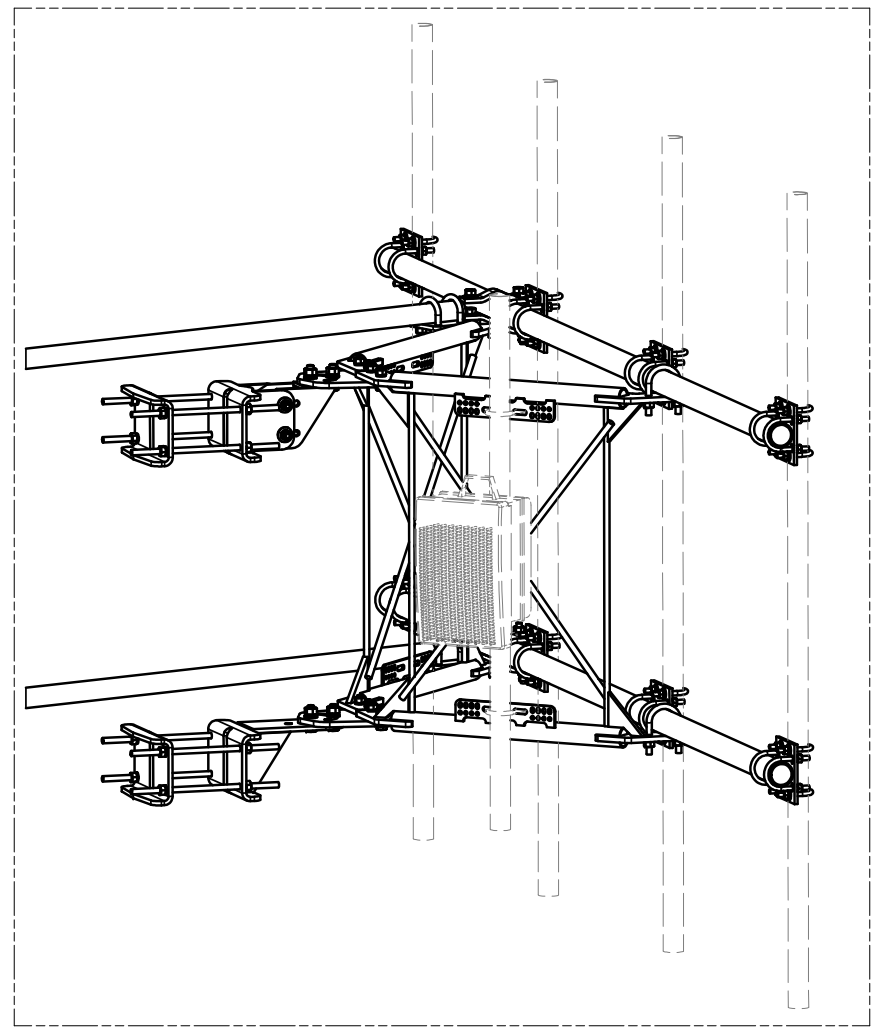
DESCRIPTION	
12' 6" HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS	
CPD NO.	DRAWN BY
CLASS	ENG. APPROVAL
81	CEK 1/25/2017
SUB	CHECKED BY
02	BMC 12/13/2017
CUSTOMER	

SITE PRO 1	
Engineering Support Team: 1-888-753-7446	
Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	
PART NO.	VFA12-HD
DWG. NO.	VFA12-HD



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017
REVISION HISTORY				

TOLERANCE NOTES

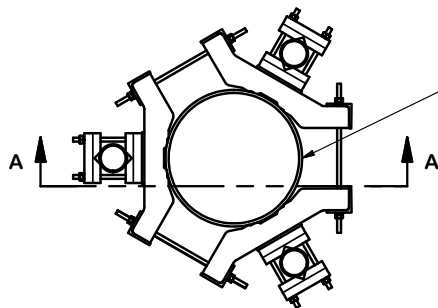
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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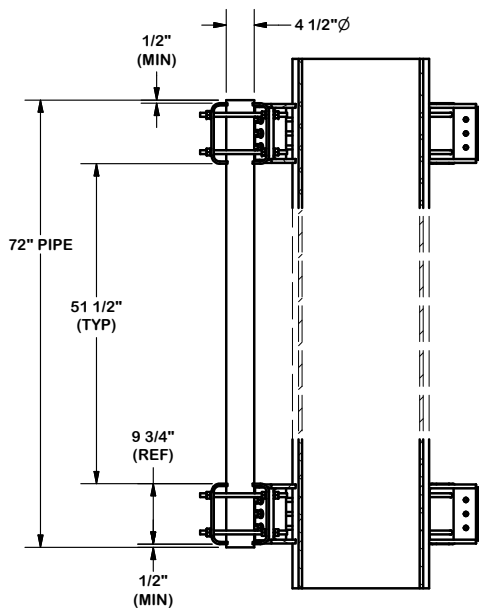
DESCRIPTION
 12' 6" HEAVY DUTY
 V-FRAME ASSEMBLY
 WITH TWO STIFF ARMS

CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 1/25/2017	
CLASS	SUB	DRAWING USAGE
81	02	CUSTOMER
		CHECKED BY
		BMC 12/13/2017

	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	A valmont COMPANY	
CPD NO.	PART NO.	VFA12-HD
CLASS	DWG. NO.	VFA12-HD

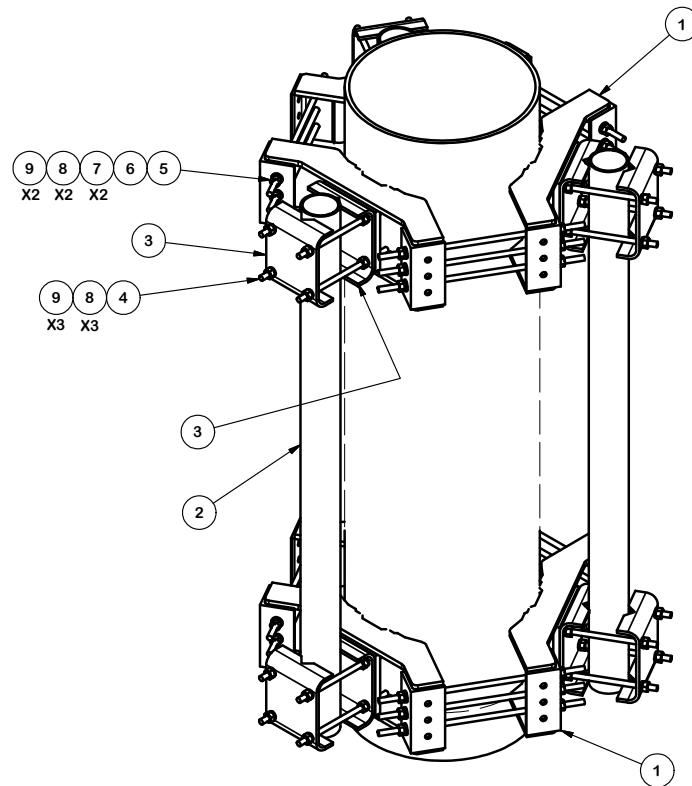


FOR POLES 12" TO 45" DIA.



SECTION A-A

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT
1	6	X-LWRM	RING MOUNT WELDMNT		68.16	408.96
2	3	P472	4-1/2" X 72" SCH. 40 GALVANIZED PIPE	72 in	64.89	194.68
3	12	X-214130	BENT PLATE V-CLAMP	12 5/8 in	11.43	137.16
4	24	G58R-14	5/8" x 14" THREADED ROD (HDG.)	14 in	0.40	9.57
5	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	.55	9.90
6	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	.55	9.90
7	36	A58FW	5/8" HDG A325 FLATWASHER		.03	1.08
8	108	G58LW	5/8" HDG LOCKWASHER		0.03	3.24
9	108	A58NUT	5/8" HDG A325 HEX NUT		0.13	14.04
TOTAL WT. #						788.53



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DESCRIPTION
MONOPOLE SECTOR FRAME ATTACHMENT ASSEMBLY

SITE PRO 1
 A valmont COMPANY

Engineering Support Team:
 1-888-753-7446

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

CPD NO.	DRAWN BY	ENG. APPROVAL
	KC8 3/18/2016	3RD PARTY
CLASS	DRAWING USAGE	CHECKED BY
01	CUSTOMER	BMC 5/2/2016

PART NO.	MSFAA	PAGE
DWG. NO.	MSFAA	1 OF 1

Exhibit F

Power Density/RF Emissions Report

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

T-Mobile Existing Facility

Site ID: CTHA714A

842859

371 Terryville Avenue
Bristol, Connecticut 06010

November 10, 2021

EBI Project Number: 6221006618

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	23.95%

November 10, 2021

T-Mobile

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

Emissions Analysis for Site: CTHA714A - 842859

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **371 Terryville Avenue** in **Bristol, 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 371 Terryville Avenue in Bristol, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) 2 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.
- 7) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) 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.
- 12) 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.
- 13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 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.

- 14) The antenna mounting height centerline of the proposed antennas is 158 feet above ground level (AGL).
- 15) 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.
- 16) 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 / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	158 feet	Height (AGL):	158 feet	Height (AGL):	158 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	3.67%	Antenna B1 MPE %:	3.67%	Antenna C1 MPE %:	3.67%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	158 feet	Height (AGL):	158 feet	Height (AGL):	158 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	5.66%	Antenna B2 MPE %:	5.66%	Antenna C2 MPE %:	5.66%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	9.33%
Metro PCS	0.54%
AT&T	7.88%
Verizon	6.18%
T-Mobile (Existing)	0.02%
Site Total MPE % :	23.95%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	9.33%
T-Mobile Sector B Total:	9.33%
T-Mobile Sector C Total:	9.33%
Site Total MPE % :	23.95%

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	158.0	1.84	600 MHz LTE	400	0.46%
T-Mobile 600 MHz NR	1	1577.94	158.0	2.46	600 MHz NR	400	0.61%
T-Mobile 700 MHz LTE	2	695.22	158.0	2.16	700 MHz LTE	467	0.46%
T-Mobile 1900 MHz GSM	4	1052.26	158.0	6.55	1900 MHz GSM	1000	0.65%
T-Mobile 1900 MHz LTE	2	2104.51	158.0	6.55	1900 MHz LTE	1000	0.65%
T-Mobile 2100 MHz LTE	2	2649.42	158.0	8.25	2100 MHz LTE	1000	0.82%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	158.0	17.19	2500 MHz LTE IC & 2C Traffic	1000	1.72%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	158.0	1.67	2500 MHz LTE IC & 2C Broadcast	1000	0.17%
T-Mobile 2500 MHz NR Traffic	1	22089.26	158.0	34.37	2500 MHz NR Traffic	1000	3.44%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	158.0	3.34	2500 MHz NR Broadcast	1000	0.33%
						Total:	9.33%

• 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:	9.33%
Sector B:	9.33%
Sector C:	9.33%
T-Mobile Maximum MPE % (Sector A):	9.33%
Site Total:	23.95%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **23.95%** 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.