CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

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

July 19th, 2022

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

RE: **Notice of Exempt Modification for AT&T**
Crown Site ID#806355; AT&T Site ID#CTL02105
281 Wood House Road Fairfield, CT 06824
Latitude: 41.19593200 / Longitude: -73.28136900

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 148-foot mounts on the existing 171-foot Monopole Tower located at **281 Wood House Road Fairfield, CT 06824.** The property is owned by J Fernandes Properties, LLC and the Tower by Crown Castle. AT&T now intends to replace (9) 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) Powerwave - 7770 Antennas (**REMOVE**), (3) Ericsson – AIR6449 N77D (**REPLACE**), (3) Ericsson – AIR6419 N77G (antennas stacked) (**REPLACE)**
(3) CCI HPA-65R-BUU-H6 Antennas (**REMOVE**) (3) Quintel QD6616-7 Antennas **(REPLACE)**
(3) Quintel – QS66512-2 antennas (**REMOVE**), CCI OPA65-BU6DA antennas (**REPLACE)**
(6) Powerwave LGP21401 TMA (**REMOVE**)
(3) Ericsson RRUS-11 B12 RRHs **(REMOVE)** (3)Ericsson 4449 B5/B12 RRHs **(REPLACE)**
(1) Raycap DC6-48-60-0-8F Squid **(REMOVE)** (2) Raycap DC9-48-60-24-8C-EV Squid **(REPLACE)**
(1) 18 Pair Fiber Cable **(REMOVE)** (2) 24 Pair Fiber Cables **(REPLACE)**

RELOCATE
(3) Ericsson – RRUS-32 B66A RRUs
(3) Ericsson – RRUS-32 B30 RRUs
(3) Ericsson – RRUS-32 B2 RRUs

INSTALL
(3) Ericsson – 4478 B14 RRUS
(4) 7/8" 6AWG DC Cables
(3) Y-Cables

Ground:

CROWN CASTLE

1 Cityplace Dr, Suite 490

Creve Coeur, MO 63141

Phone: (314) 513-0147

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REMOVE:
(1) UMTS Cabinet
(1) GSM Cabinet
(6) Powerwave LGP21901 Diplexers
INSTALL:
(3) Ericsson 2012 B29 RRHs
(1) 6648 with Xcede Cable
(2) (1) RMDC12
(4) Rectifiers in Existing Power Plant

The facility was approved by Connecticut Siting Council by way of a Certificate of Environmental Compatibility on February 17th, 1988.

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 Brenda L. Kupchick First Selectwoman for the Town of Fairfield, Jim Wendt, Planning Director for the Town of Fairfield and J Fernandes Properties LLC, 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, AT&T respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b)(2).

Sincerely,
Katie Adams
Crown Castle, Agent for AT&T
kadams@nbcllc.com
(781) 392-7547

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Creve Coeur, MO 63141

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

cc:

Brenda L. Kupchick, First Selectwoman *(Via Federal Express)*
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824
203-256-3030

Jim Wendt, Planning Director *(Via Federal Express)*
Sullivan Independence Hall
725 Old Post Road
Fairfield, CT 06824
203-256-3050

J Fernandes Properties LLC *(Via Federal Express)*
281 Wood House Road
Fairfield, CT 06824-1823

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Wednesday, July 20, 2022 10:20 AM
To: Katie Adams
Subject: FedEx Shipment 777427360733: Your package has been delivered

Hi. Your package was delivered Wed, 07/20/2022 at 10:15am.

Delivered to 725 OLD POST RD, FAIRFIELD, CT 06824
Received by R.DECKER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777427360733
FROM	Katie Adams 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Sullivan Independence Hall Brenda L. Kupchick, First Selectwo

	725 Old Post Road FAIRFIELD, CT, US, 06824
REFERENCE	100788 - CSC
SHIPPER REFERENCE	100788 - CSC
SHIP DATE	Tue 7/19/2022 06:24 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	FAIRFIELD, CT, US, 06824
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Wednesday, July 20, 2022 10:19 AM
To: Katie Adams
Subject: FedEx Shipment 777427333968: Your package has been delivered

Hi. Your package was delivered Wed, 07/20/2022 at 10:15am.

Delivered to 725 OLD POST RD, FAIRFIELD, CT 06824
Received by R.DECKER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777427333968
FROM	Katie Adams 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Sullivan Independence Hall Jim Wendt, Planning Director

	725 Old Post Road FAIRFIELD, CT, US, 06824
REFERENCE	100788 - CSC
SHIPPER REFERENCE	100788 - CSC
SHIP DATE	Tue 7/19/2022 06:24 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	FAIRFIELD, CT, US, 06824
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx Priority Overnight

FOLLOW FEDEX

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:19 AM CDT 07/20/2022.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Wednesday, July 20, 2022 9:38 AM
To: Katie Adams
Subject: FedEx Shipment 777427398119: Your package is now out for delivery today

Hi. Your package is now out for delivery today.

ON TIME

SCHEDULED DELIVERY

Wed, 07/20/2022
before 12:00pm

OUT FOR DELIVERY
STRATFORD, CT

MANAGE DELIVERY

TRACKING NUMBER 777427398119

FROM Katie Adams
100 Apollo Drive

	Suite 303 CHELMSFORD, MA, US, 01824
TO	J Fernandes Properties LLC 281 Wood House Road FAIRFIELD, CT, US, 06824
REFERENCE	100788 - CSC
SHIPPER REFERENCE	100788 - CSC
SHIP DATE	Tue 7/19/2022 06:24 PM
PACKAGING TYPE	FedEx Pak
ORIGIN	CHELMSFORD, MA, US, 01824
DESTINATION	FAIRFIELD, CT, US, 06824
SPECIAL HANDLING	Deliver Weekday
STANDARD TRANSIT	Wed, 07/20/2022 by 12:00pm
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	2.00 LB
SERVICE TYPE	FedEx Priority Overnight

FOLLOW FEDEX

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:38 AM CDT 07/20/2022.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

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Thank you for your business.

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051
Phone: 827-7682

BK

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

Pursuant to section 16-50k of the General Statutes of Connecticut, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need in Docket No. 86 to Metro Mobile CTS of Fairfield County Inc., for tower sites in Greenwich and Fairfield, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on February 17, 1988.

By order of the Council,

Gloria Dibble Pond

Gloria Dibble Pond, Chairperson

February 17, 1988

1009E

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

August 6, 1992

David S. Malko
Manager, Engineering and
Regulatory Services
Bell Atlantic Metro Mobile
20 Alexander Drive
Wallingford, CT 06492

RE: Metro Mobile CTS of Fairfield County, Inc., notice of intent to allow Springwich Cellular Limited Partnership to install cellular telecommunications antennas and associated equipment on an existing facility site located off Wood House Road, Fairfield, Connecticut.

Dear Mr. Malko:

At a meeting held August 4, 1992, the Connecticut Siting Council acknowledged your notice of an exempt modification for an existing tower site on Wood House Road in Fairfield, Connecticut.

As proposed in your notice dated July 21, 1992, the modification is in compliance with the exception criteria specified in Regulations of State Agencies 16-50j-72 for changes to an existing facility site that would not increase the tower height, extend the boundary of the tower site, increase noise levels at the tower site boundary by 6 decibels, and add radio frequency transmitting capability which increases the total power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Section 22a-162 of the Connecticut General Statutes.

The Council is pleased to acknowledge this first shared use of existing cellular towers by two cellular carriers which meets the Council's long-time goal and the public interest of sharing facilities to avoid the proliferation of additional tower structures.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/TEF/cp

cc: Peter Van Wilgan

5766E-3

Exhibit B

Property Card

281 WOOD HOUSE ROAD

Location	281 WOOD HOUSE ROAD	**Mblu**	118/ 57/ / /
Acct#	06700	**Owner**	J FERNANDES PROPERTIES LLC
Assessment	$563,850	**Appraisal**	$805,500
PID	8854	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$422,600	$382,900	$805,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$295,820	$268,030	$563,850

Owner of Record

Owner	J FERNANDES PROPERTIES LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824-1823	**Book & Page**	5620/0132
		Sale Date	12/08/2017
		Instrument	02

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
J FERNANDES PROPERTIES LLC	$0		5620/0132	02	12/08/2017
J FERNANDES HOME IMPROVEMENT	$450,000		5592/0251	25	09/20/2017
GHOSH MOITRAYEE & RANJAN	$172,000		0706/0293		06/13/1983

Building Information

Building 1 : Section 1

Year Built:	1968
Living Area:	2,426
Replacement Cost:	$423,187

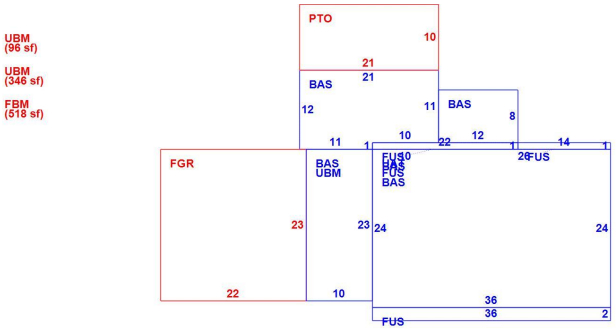
Building Percent Good: 77
Replacement Cost
Less Depreciation: $325,900

Building Attributes	
Field	**Description**
Style:	Colonial
Model	Residential
Grade:	05
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	01
FCPZ	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsi.com/photos2/FairfieldCTPhotos//\0087\IMG_5839_8767

Building Layout



(ParcelSketch.ashx?pid=8854&bid=8636)

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,454	1,454
FUS	Upper Story, Finished	972	972
FBM	Basement, Finished	518	0
FGR	Garage	506	0
PTO	Patio	210	0
UAT	Attic, Unfinished	864	0
UBM	Basement, Unfinished	672	0
		5,196	2,426

Extra Features

Extra Features				
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL3	2.0 STORY FIREPLACE	1.00 UNITS	$5,800	1
FPL1	1.0 STORY FIREPLACE	1.00 UNITS	$3,900	1

Land

Land Use

Use Code	1010
Description	Single Fam MDL-01
Zone	AAA
Neighborhood	0057
Alt Land Appr	No
Category	

Land Line Valuation

Size (Sqr Feet)	87188
Depth	0
Assessed Value	$268,030
Appraised Value	$382,900

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
MSC40	UTIL BLD			1.00 UNIT	$31,000	1
MSC40	UTIL BLD			1.00 UNIT	$31,000	1
MSC19	EQUIP SHED			1.00 UNIT	$10,000	1
GEN1	GENERATOR			1.00 UNITS	$15,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$422,600	$382,900	$805,500
2019	$387,400	$368,600	$756,000
2018	$387,400	$368,600	$756,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$295,820	$268,030	$563,850
2019	$271,180	$258,020	$529,200
2018	$271,180	$258,020	$529,200

Exhibit C

Construction Drawings

AT&T

AT&T SITE NUMBER:	CTL02105
AT&T SITE NAME:	FAIRFIELD-MURRAY
AT&T FA CODE:	10035026
AT&T PACE NUMBER:	MRCTB056407, MRCTB056867, MRCTB056496, MRCTB056208, MRCTB054125, MRCTB053681, MRCTB054558, MRCTB054212, MRCTB053687
AT&T PROJECT:	LTE 5C, 4TX4RX SOFTWARE RETROFIT, 5G NR 1SR CBAND, 5G NR 1DR-1, 5G NR ACTIVATION, BBU ADD, LTE 6C

BUSINESS UNIT #:	806355
SITE ADDRESS:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
COUNTY:	FAIRFIELD
SITE TYPE:	MONOPOLE
TOWER HEIGHT:	170'-6"

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRG 126 943086
SITE ADDRESS:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
COUNTY:	FAIRFIELD
MAP/PARCEL #:	1180570000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.195917°
LONGITUDE:	-73.281361°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	326'
CURRENT ZONING:	RESIDENCE AAA DISTRICT
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:	J FERNANDES PROPERTIES LLC 281 WOOD HOUSE ROAD FAIRFIELD, CT 06824-1823
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. 1-203-499-2000
TELCO PROVIDER:	NOT PROVIDED

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:	1505 WESTLAKE AVENUE NORTH, SUITE 800 SEATTLE, WA 98109 VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM HEATHER MILLER - AES HEATHER.MILLER@CROWNCASTLE.COM

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

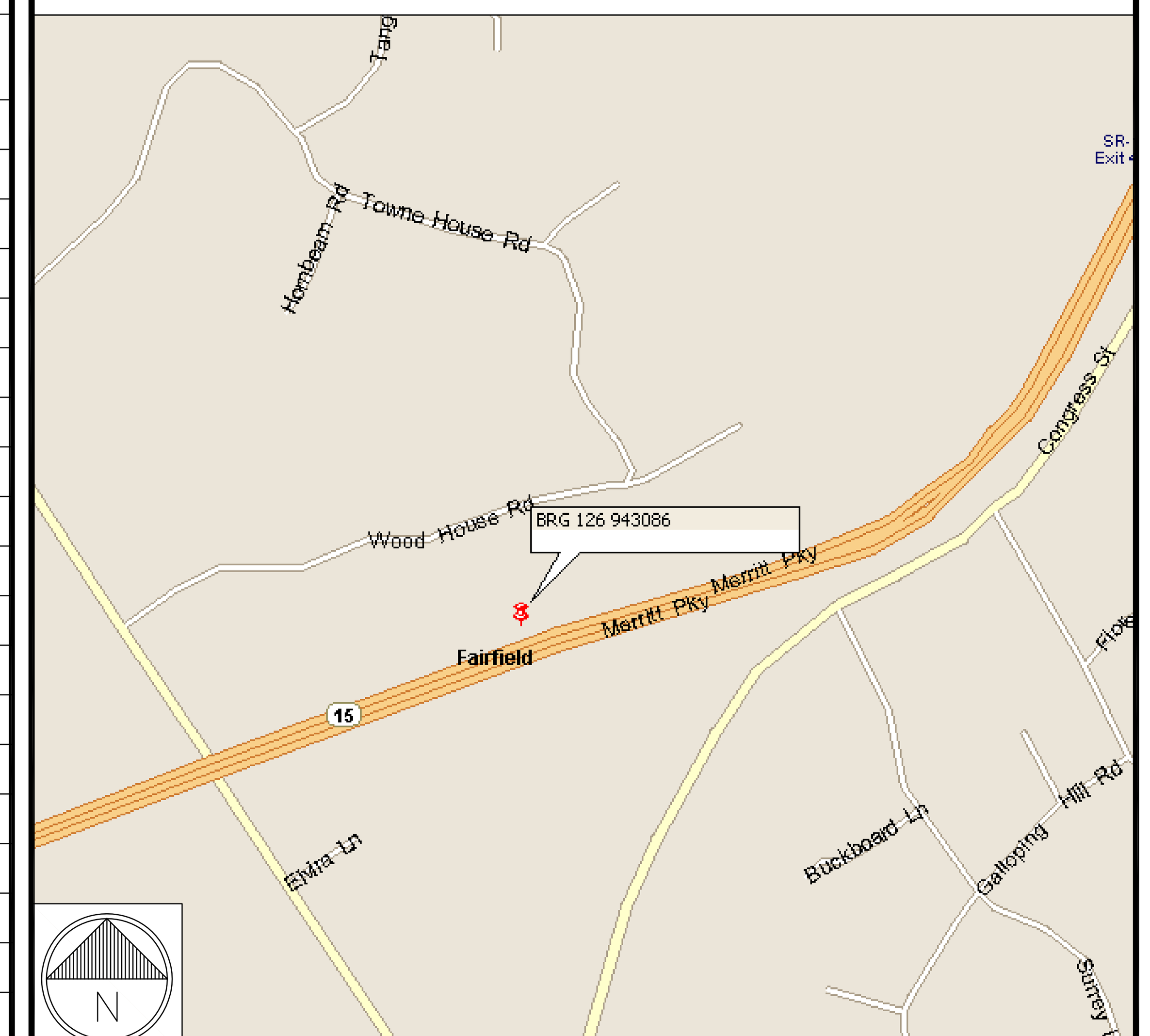
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EQUIPMENT PLANS
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT SPECS.
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	MOUNT SPECIFICATIONS

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

CALL MASSACHUSETTS ONE CALL
(888) 344-7233
CALL 3 WORKING DAYS BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:
- REMOVE (3) CCI - HPA-65R-BUU-H6 ANTENNAS
- REMOVE (3) QUINTEL - QS66512-2 ANTENNAS
- REMOVE (3) POWERWAVE - 7770 ANTENNAS
- REMOVE (6) POWERWAVE - LGP21401 TMAs
- REMOVE (1) RAYCAP - DC6-48-60-18-8F SQUID
- REMOVE (3) ERICSSON - RRUS-11 B12 RRHs
- REMOVE (6) POWERWAVE - LGP21901 DIPLEXERs
- REMOVE (1) 18 PAIR FIBER CABLE
- RELOCATE (3) ERICSSON - RRUS-32 B66A RRHs
- RELOCATE (3) ERICSSON - RRUS-32 B2 RRHs
- RELOCATE (3) ERICSSON - RRUS-32 B30 RRHs
- INSTALL NEW SABRE - C10-857-802 SECTOR MOUNTS
- INSTALL (3) QUINTEL - QD6616-7 ANTENNAS
- INSTALL (3) CCI - OPA65R-BU6DA ANTENNAS
- INSTALL (6) ERICSSON - AIR6449 B77D+AIR6419 B77G STACKED ANTENNAS W/ INTEGRATED RRHs
- INSTALL (2) RAYCAP - DC9-48-60-24-8C-EV SQUIDs
- INSTALL (3) ERICSSON - 4478 B14 RRHs
- INSTALL (3) ERICSSON - 4449 B5/B12 RRHs
- INSTALL (4) 7/8" 6AWG DC CABLES
- INSTALL (2) 3/8" 24 PAIR FIBER CABLES
- INSTALL (9) BACK TO BACK MOUNTS
- INSTALL (3) Y-CABLES FOR DUAL BAND RADIOS

GROUND SCOPE OF WORK:
- REMOVE (1) UMTS CABINET
- REMOVE (1) GSM CABINET
- REMOVE (6) POWERWAVE - LGP21901 DIPLEXERS
- INSTALL (3) ERICSSON - 2012 B29 RRHs
- INSTALL (1) 6648 WITH XCEDE CABLE
- INSTALL (1) RMDC12
- INSTALL (4) RECTIFIERS IN DC PP

APPLICABLE CODES & REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT SBC/2015 IBC
MECHANICAL	2018 CONNECTICUT SBC/2015 IMC
ELECTRICAL	2018 CONNECTICUT SBC/2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	5/23/22
MOUNT ANALYSIS:	B+T GROUP
DATED:	5/16/22
RFDS REVISION:	FINAL
DATED:	5/6/22
ORDER ID:	586237
REVISION:	2
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	

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

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

AT&T SITE NUMBER:
CTL02105

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING
170'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/23/22	CV	PRELIMINARY REVIEW	CV
B	5/11/22	CV	PRELIMINARY REVIEW	CV
0	6/3/22	CV	CONSTRUCTION	CV

No. 23924
6/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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:	REVISION:
T-1	0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. 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.
2. "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.
3. 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.
4. 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 ANSI/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 ANSI/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 ANSI/TIA–322 (LATEST EDITION).
5. 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 ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. 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.
7. 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.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. 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.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. 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.
13. 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.
14. 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.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. 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.
18. 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.
19. 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.
20. 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.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. 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.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. 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.
11. 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.
12. 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.
13. 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.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. 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.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. 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.
4. 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.
5. 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
6. 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"
7. 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.

GREENFIELD GROUNDING NOTES:

1. 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.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL 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.
3. 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.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. 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.
6. 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.
7. 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.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. 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.
20. ALL GROUNDS 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).
21. 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).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. 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. VERYIFY 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.
5. 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.
6. 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).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. 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.
10. 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.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. 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.
13. 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).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. 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 LOCKNUT ON OUTSIDE AND INSIDE.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. 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
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

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

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	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
RRH	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

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AT&T SITE NUMBER:
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BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING
170'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/23/22	CV	PRELIMINARY REVIEW	CV
B	5/11/22	CV	PRELIMINARY REVIEW	CV
0	6/3/22	CV	CONSTRUCTION	CV

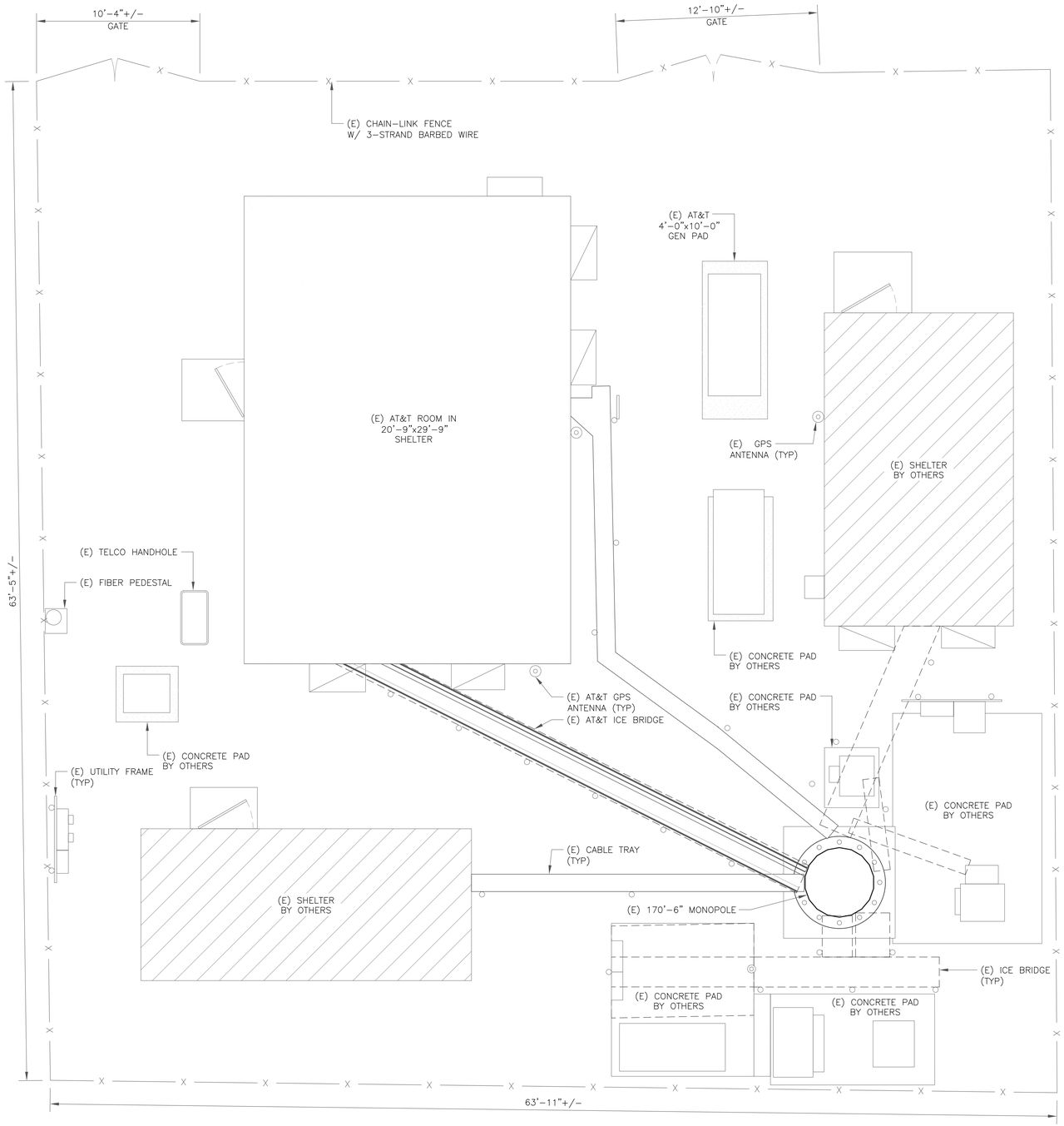
CHAD TUTTLE
No. 23924
6/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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

80964.014.01_BRG 126 943086.dwg — Sheet:T-2 — User: chad.vandergraft — Jun 03, 2022 — 1:18pm



1 SITE PLAN

SCALE: 4' 3' 2' 1' 0 4'

1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)

N

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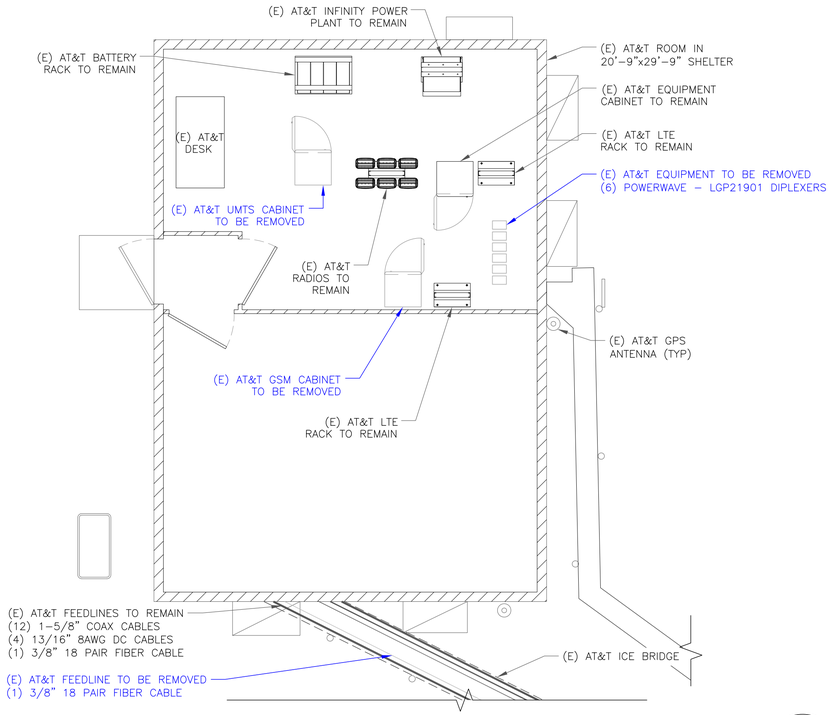
SHEET NUMBER: C-1.1

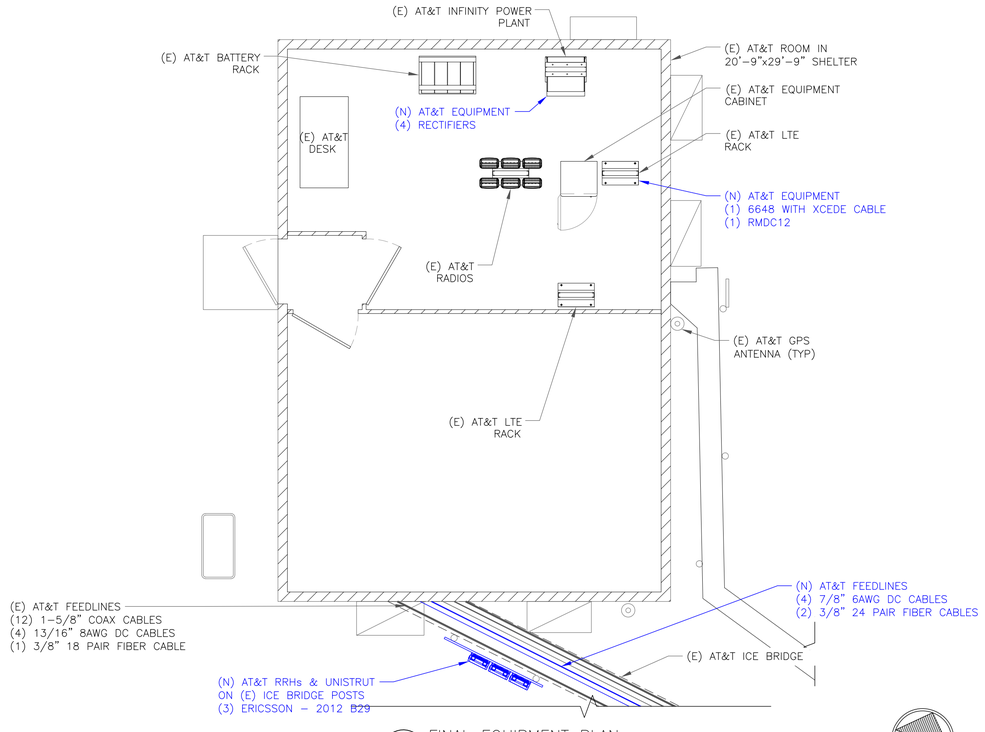
REVISION: 0



1 EXISTING EQUIPMENT PLAN

SCALE: 4' 3' 2' 1' 0 4'

1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN

SCALE: 4' 3' 2' 1' 0 4'

1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)

GROUND SCOPE OF WORK:

- REMOVE (1) UMTS CABINET
- REMOVE (1) GSM CABINET
- REMOVE (6) POWERWAVE - LGP21901 DIPLEXERS
- INSTALL (3) ERICSSON - 2012 B29 RRHs
- INSTALL (1) 6648 WITH XCEDE CABLE
- INSTALL (1) RMDC12
- INSTALL (4) RECTIFIERS

NOTE:

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

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MTS ENGINEERING P.L.L.C.
BER:2386985
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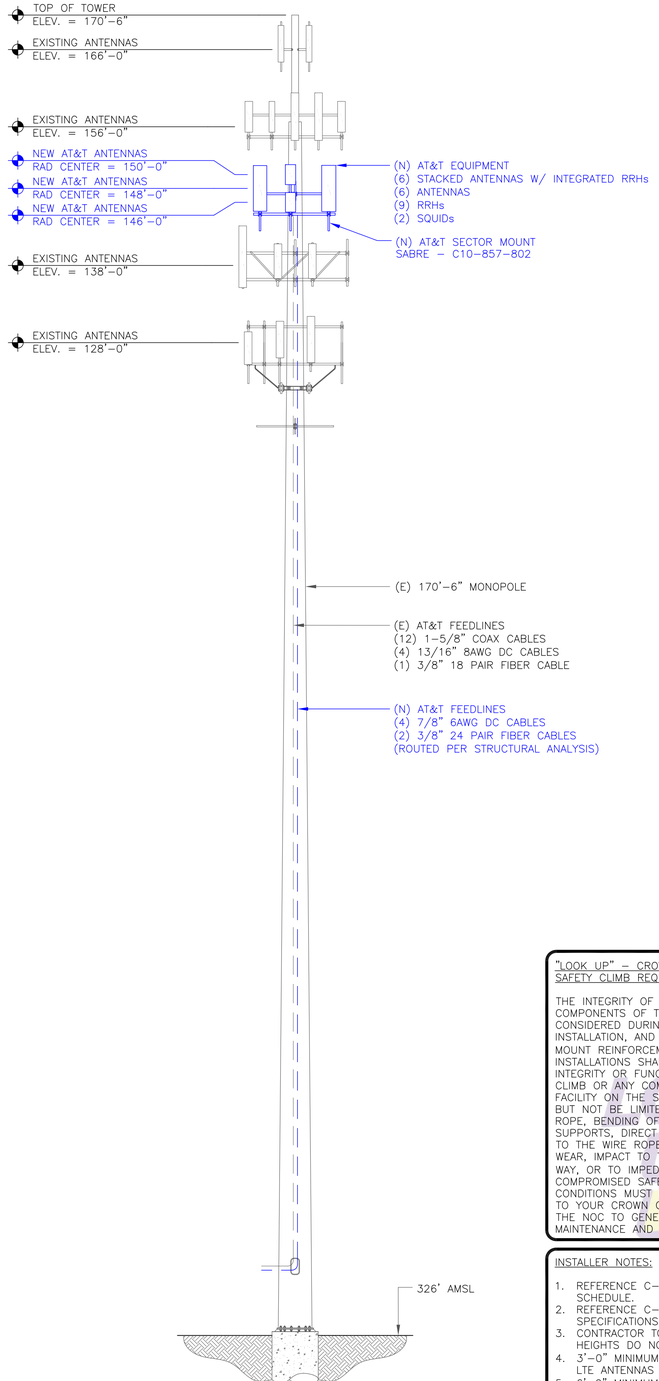
SHEET NUMBER: C-1.2

REVISION: 0



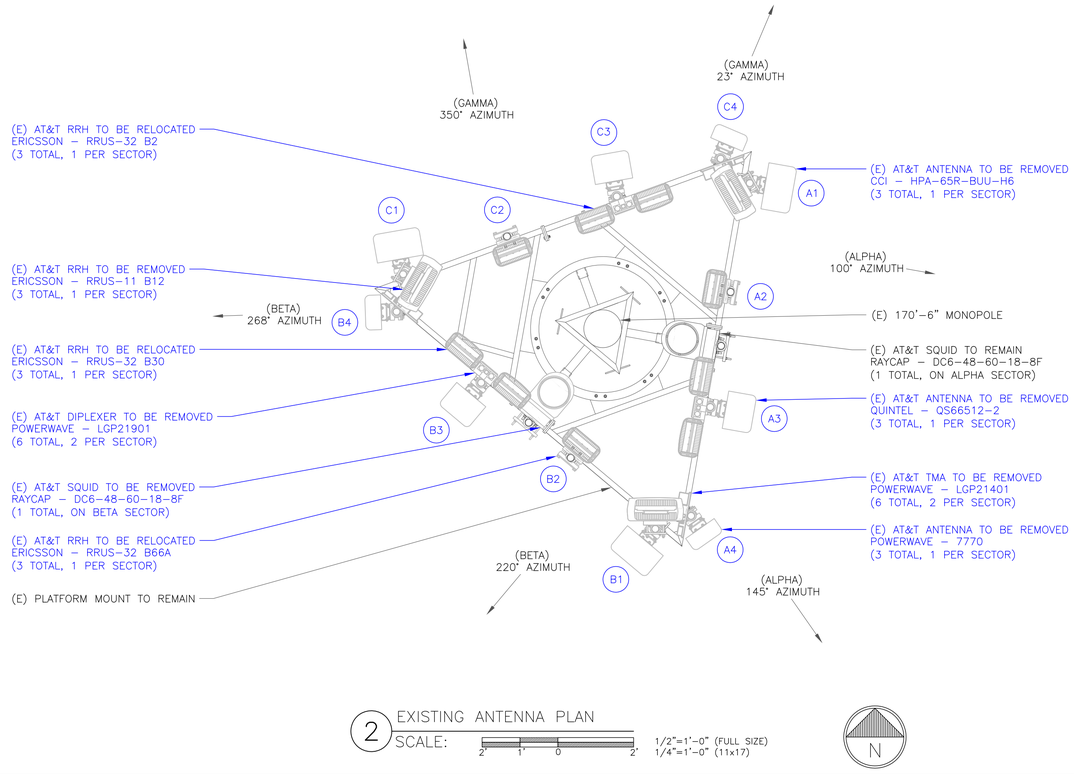
1 FINAL ELEVATION
SCALE: NOT TO SCALE

"LOOK UP" - CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

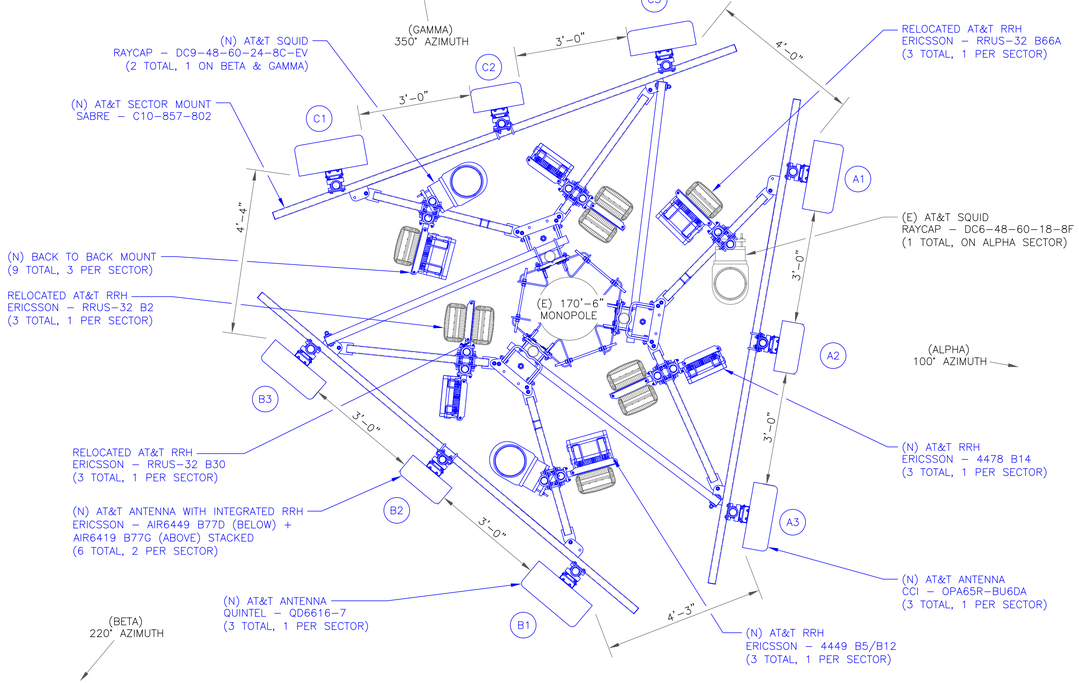
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB 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.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.



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



3 FINAL ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

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AT&T SITE NUMBER:
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BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING
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MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-2

REVISION: 0

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																		
A1	LTE/5G	(N) QUINTEL QD6616-7	100°	148'-0"	1 1 1 1	(E) RRUS-32 B2 (E) RRUS-32 B30 (N) 4478 B14	TOWER	–	–	–	–	–	–	–	2	(E) COAX	1-5/8"	196'-0"
A2	5G CBAND	(N) ERICSSON AIR6449 B77D+AIR6419 B77G STACKED	100°	150'-0" 146'-0"	–	INTEGRATED WITHIN	TOWER	–	–	–	–	–	1	(E) DC6-48-60-18-8F	4 1	(E) 8AWG DC (E) 18 PAIR FIBER	13/16" 3/8"	196'-0" 196'-0"
A3	LTE/5G	(N) CCI OPA65R-BU6DA	100°	148'-0"	1 1	(E) RRUS-32 B66A (N) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	–	–	–	–
BETA																		
B1	LTE/5G	(N) QUINTEL QD6616-7	220°	148'-0"	1 1 1 1	(E) RRUS-32 B2 (E) RRUS-32 B30 (N) 4478 B14	TOWER	–	–	–	–	–	–	–	2	(E) COAX	1-5/8"	196'-0"
B2	5G CBAND	(N) ERICSSON AIR6449 B77D+AIR6419 B77G STACKED	220°	150'-0" 146'-0"	–	INTEGRATED WITHIN	TOWER	–	–	–	–	–	1	(N) DC9-48-60-24-8C-EV	2 1	(N) 6AWG DC (N) 24 PAIR FIBER	7/8" 3/8"	196'-0" 196'-0"
B3	LTE/5G	(N) CCI OPA65R-BU6DA	220°	148'-0"	1 1	(E) RRUS-32 B66A (N) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	–	–	–	–
GAMMA																		
C1	LTE/5G	(N) QUINTEL QD6616-7	350°	148'-0"	1 1 1 1	(E) RRUS-32 B2 (E) RRUS-32 B30 (N) 4478 B14	TOWER	–	–	–	–	–	–	–	2	(E) COAX	1-5/8"	196'-0"
C2	5G CBAND	(N) ERICSSON AIR6449 B77D+AIR6419 B77G STACKED	350°	150'-0" 146'-0"	–	INTEGRATED WITHIN	TOWER	–	–	–	–	–	1	(N) DC9-48-60-24-8C-EV	2 1	(N) 6AWG DC (N) 24 PAIR FIBER	7/8" 3/8"	196'-0" 196'-0"
C3	LTE/5G	(N) CCI OPA65R-BU6DA	350°	148'-0"	1 1	(E) RRUS-32 B66A (N) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	–	–	–	–
														UNUSED FEEDLINES:	6	(E) COAX	1-5/8"	196'-0"

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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281 WOOD HOUSE ROAD
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EXISTING
170'-6" MONOPOLE

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6/3/22

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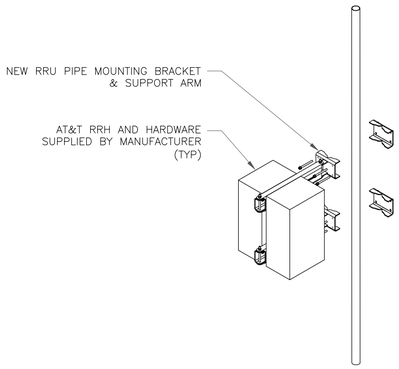
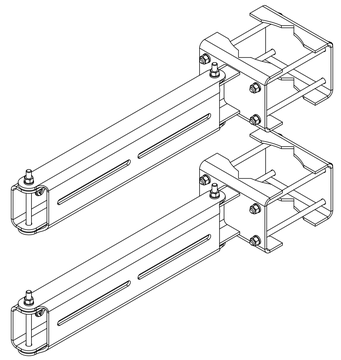
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-3

REVISION: 0



1 DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



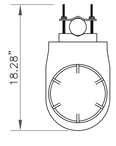
2 DUAL RADIO MOUNT
SCALE: NOT TO SCALE

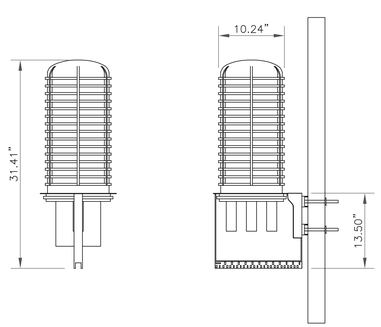
3 NOT USED
SCALE: NOT TO SCALE

RAYCAP
DC9-48-60-24-8C-EV

RAYCAP – DC9-48-60-24-8C-EV
SIZE: 10.24x31.40 IN.
WEIGHT: 26.2 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 330 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION



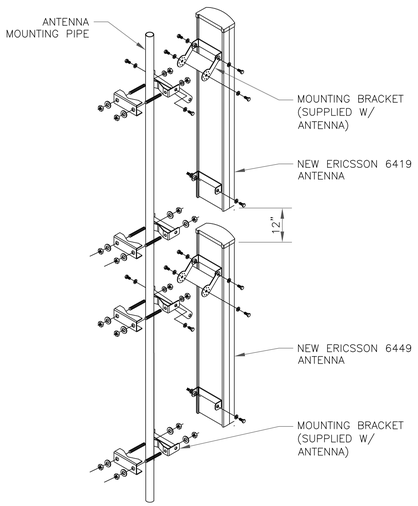


NOTES:
1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

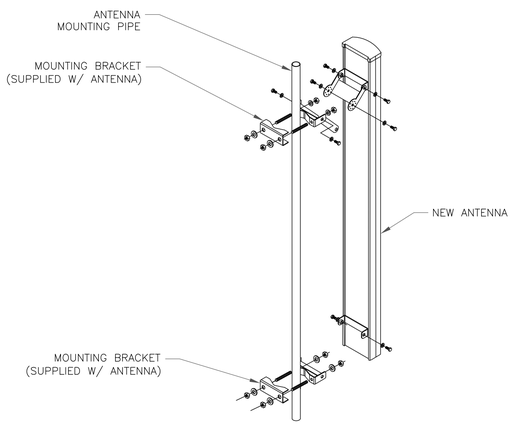
ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



4 STACKED ANTENNA MOUNTING DETAIL
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.



5 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

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170'-6" MONOPOLE

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6/3/22

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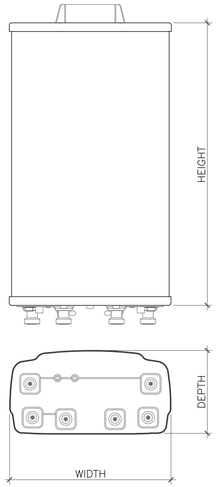
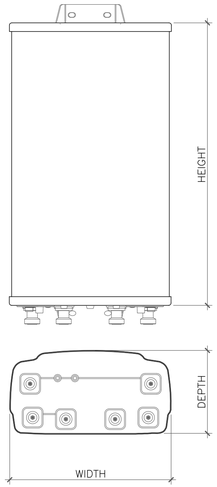
SHEET NUMBER: C-4

REVISION: 0



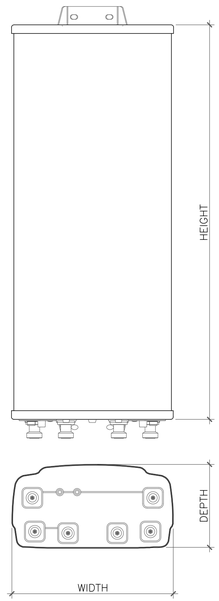
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR 6419 B77G	31.10"	16.10"	7.30"	44 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



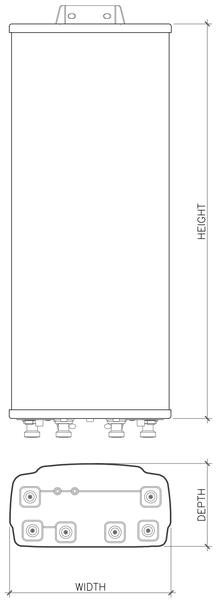
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR 6449 B77D	30.39"	15.87"	8.07"	81.60 lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



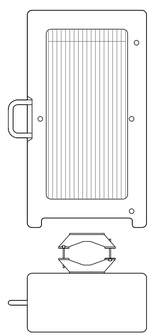
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QD6616-7	72"	22"	9.60"	130 lbs

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



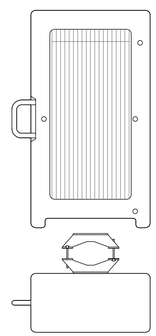
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
OPA65R-BU6DA	71.20"	21"	7.80"	63.50 lbs

4 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON - 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 71 LBS
SIZE (HxWxD): 17.90x13.19x9.44 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

5 ERICSSON - 4449 B5/B12
SCALE: NOT TO SCALE



ERICSSON - 4478 B14
WEIGHT (FULLY EQUIPPED): 59.40 LBS
SIZE (HxWxD): 18.10x13.40x8.26 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

6 ERICSSON - 4478 B14
SCALE: NOT TO SCALE

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PH: (918) 587-4630
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AT&T SITE NUMBER:
CTL02105

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING
170'-6" MONOPOLE

ISSUED FOR:

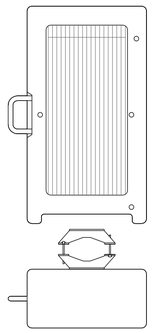
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/23/22	CV	PRELIMINARY REVIEW	CV
B	5/11/22	CV	PRELIMINARY REVIEW	CV
0	6/3/22	CV	CONSTRUCTION	CV

6/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-5

REVISION: 0



ERICSSON – 2012 B29
WEIGHT (FULLY EQUIPPED): 43.1 LBS
SIZE (HxWxD): 16.5x13.5x4.9 IN.
CONNECTOR TYPE: 4.3–10 FEMALE (4 TOTAL PORTS)

1 ERICSSON – 2012 B29
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

AT&T SITE NUMBER:
CTL02105

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING
170'-6" MONOPOLE

ISSUED FOR:

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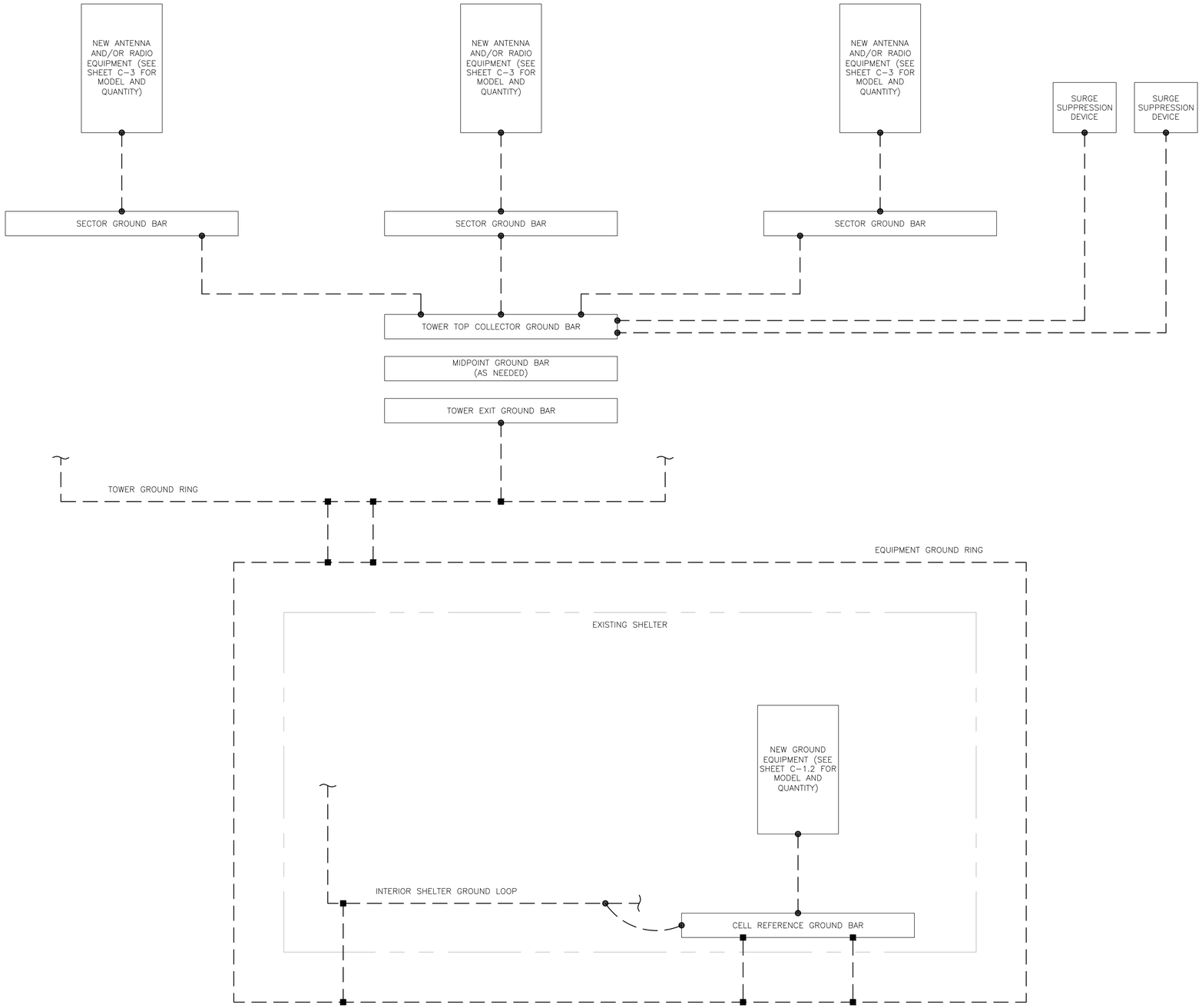
0	6/3/22	CV	CONSTRUCTION	CV

STATE OF CONNECTICUT
CHRISTOPHER M. VANDERGRAFT
No. 23024
LICENSED
PROFESSIONAL ENGINEER
6/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-5.1
REVISION: 0



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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

AT&T SITE NUMBER:
CTL02105

BU #: **806355**
BRG 126 943086

281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

EXISTING
170'-6" MONOPOLE

ISSUED FOR:

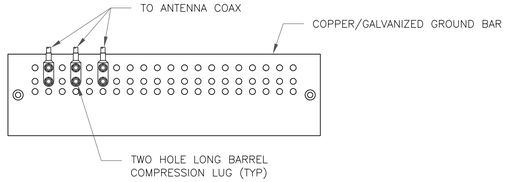
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/23/22	CV	PRELIMINARY REVIEW	CV
B	5/11/22	CV	PRELIMINARY REVIEW	CV
0	6/3/22	CV	CONSTRUCTION	CV

STATE OF CONNECTICUT
CHRISTOPHER J. VANDERGRAFT
No. 23024
LICENSED PROFESSIONAL ENGINEER
6/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-1

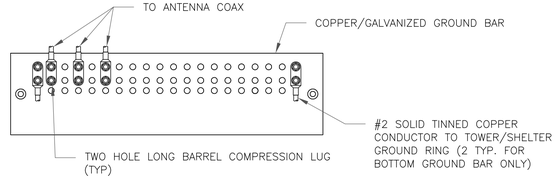
REVISION: 0



NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

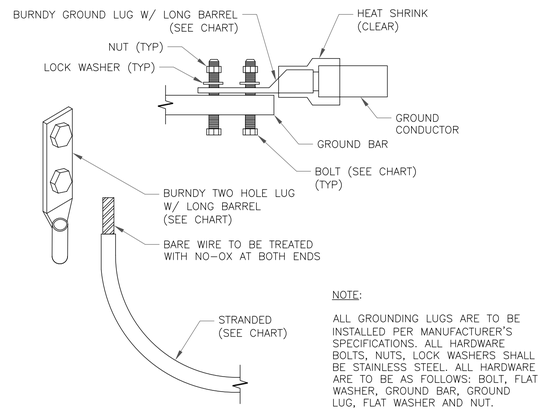


NOTES:

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

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

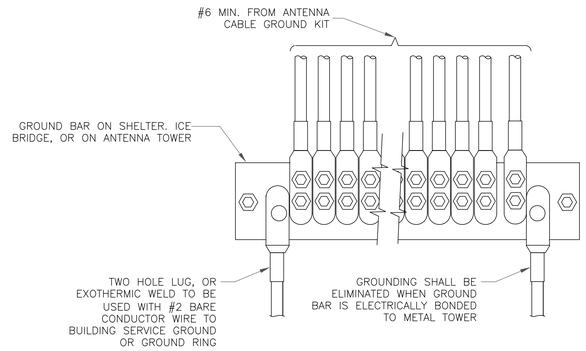
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



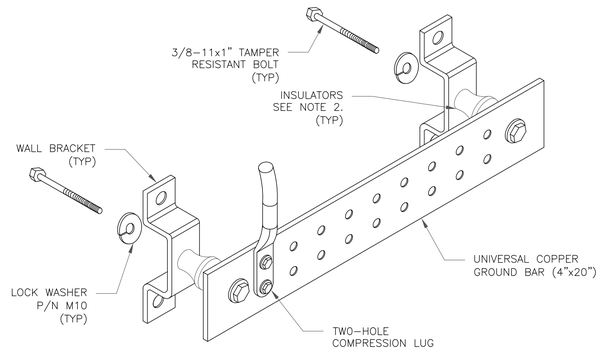
NOTE:

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.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

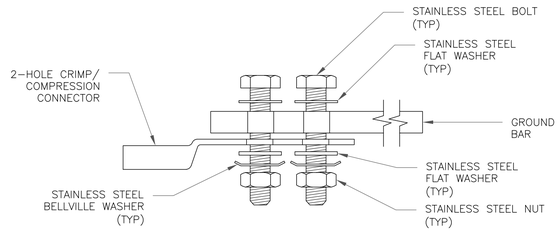


NOTES:

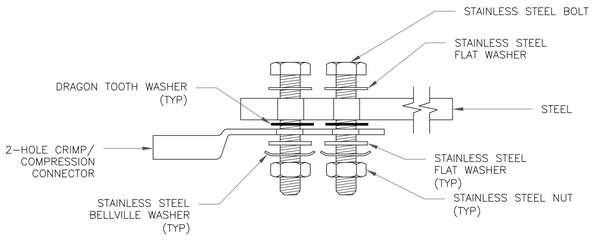
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

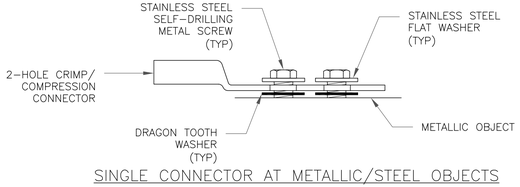
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

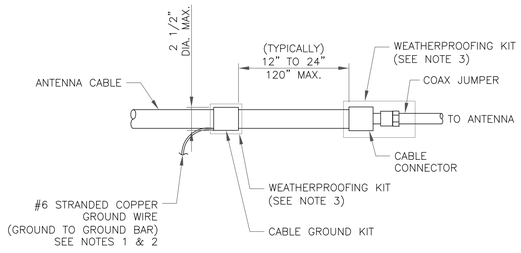


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

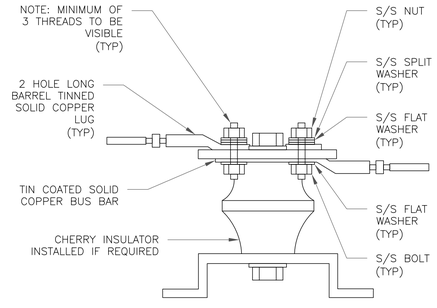
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



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.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

AT&T
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B	5/11/22	CV	PRELIMINARY REVIEW	CV
0	6/3/22	CV	CONSTRUCTION	CV

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/3/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-2
REVISION: 0

Diagram - Sector	A	Diagram File Name - CT2105_Monopole_C_Band_DoD_Rev.2.vsd					
Atoll Site Name -	CTL02105	Location Name -	FAIRFIELD-MURRAY	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-265)"

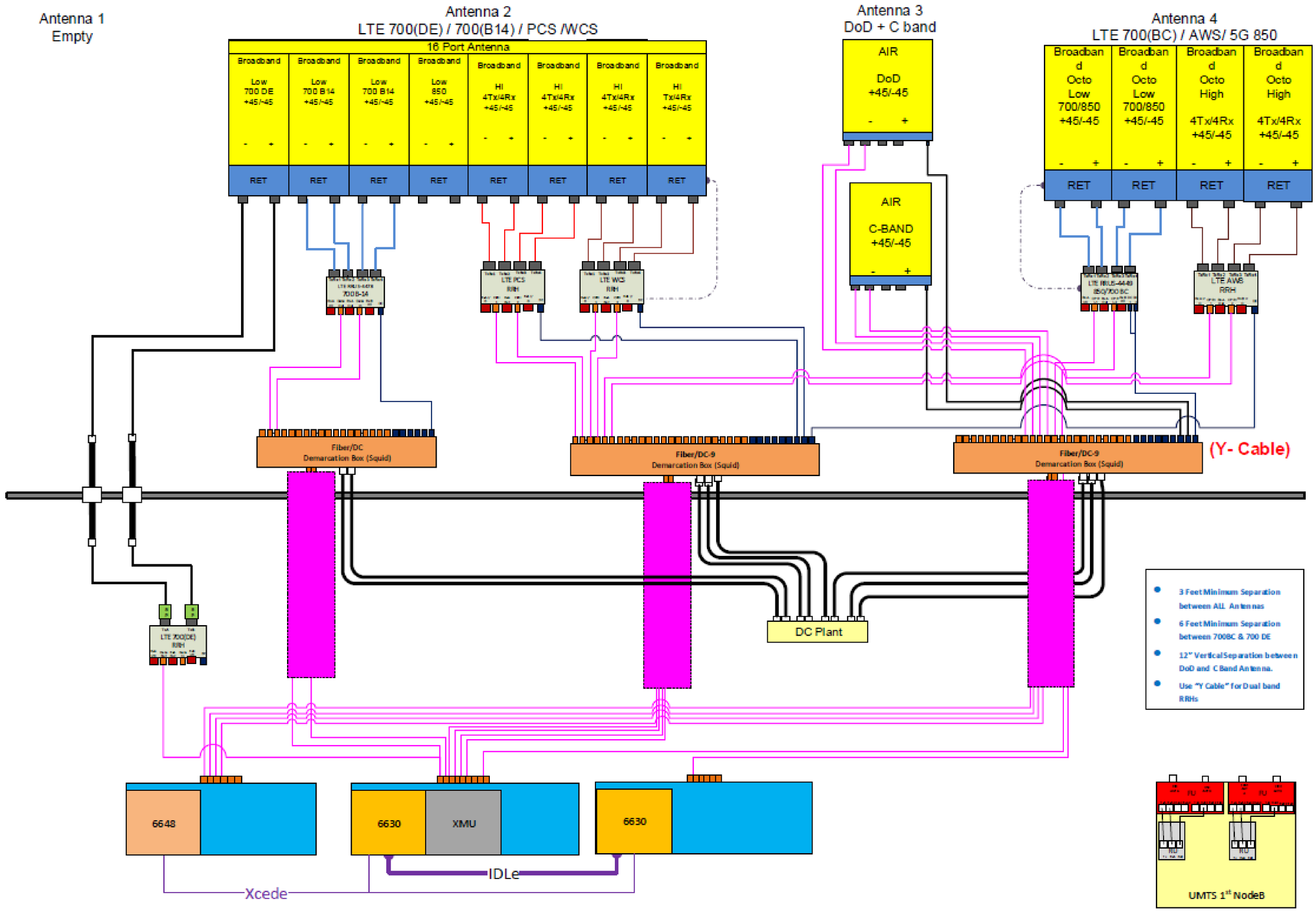


Diagram - Sector	B	Diagram File Name - CT2105_Monopole_C_Band_DoD_Rev.2.vsd							
Atoll Site Name -	CTL02105	Location Name -	FAIRFIELD-MURRAY		Market -	CONNECTICUT		Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-285)"

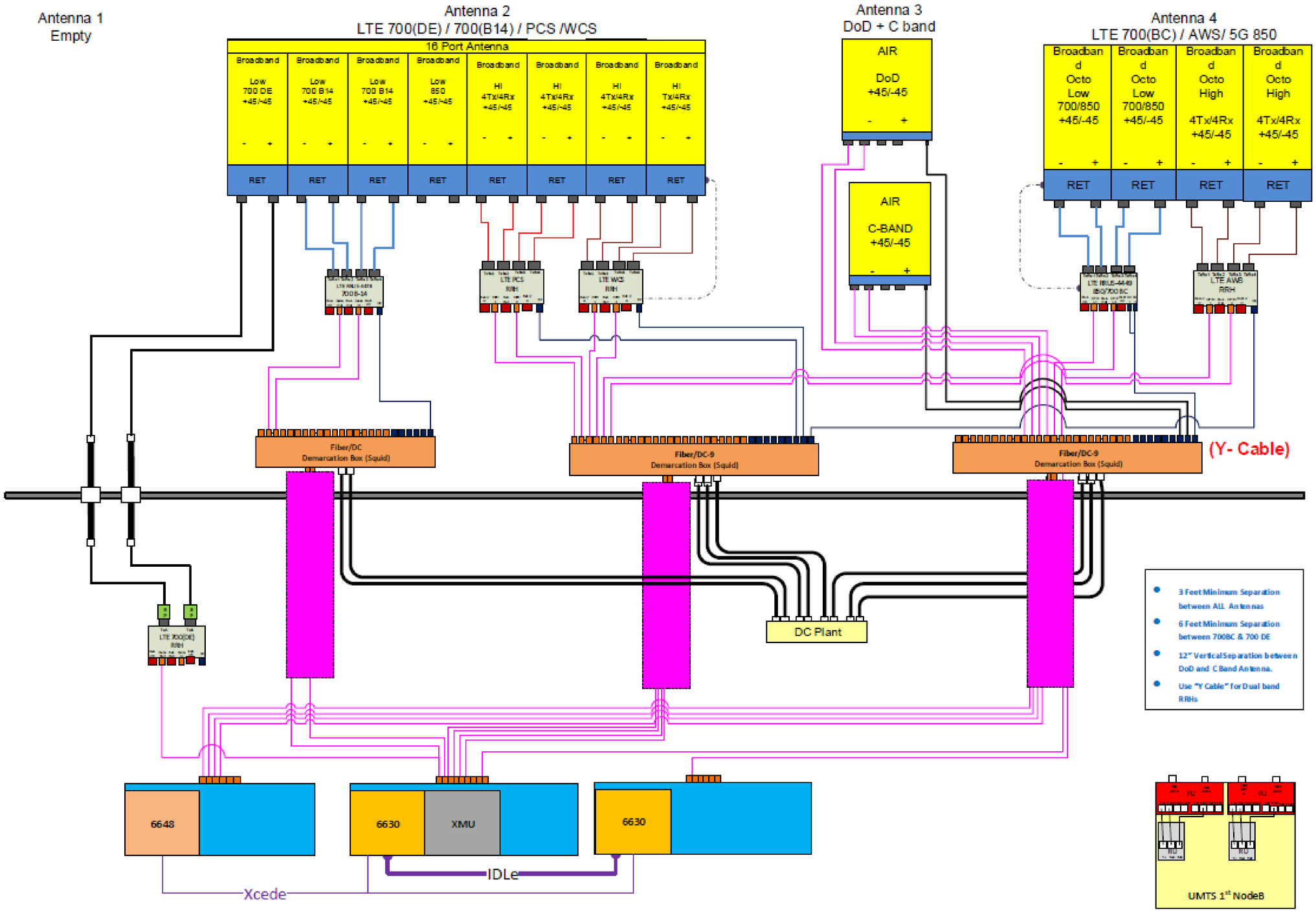
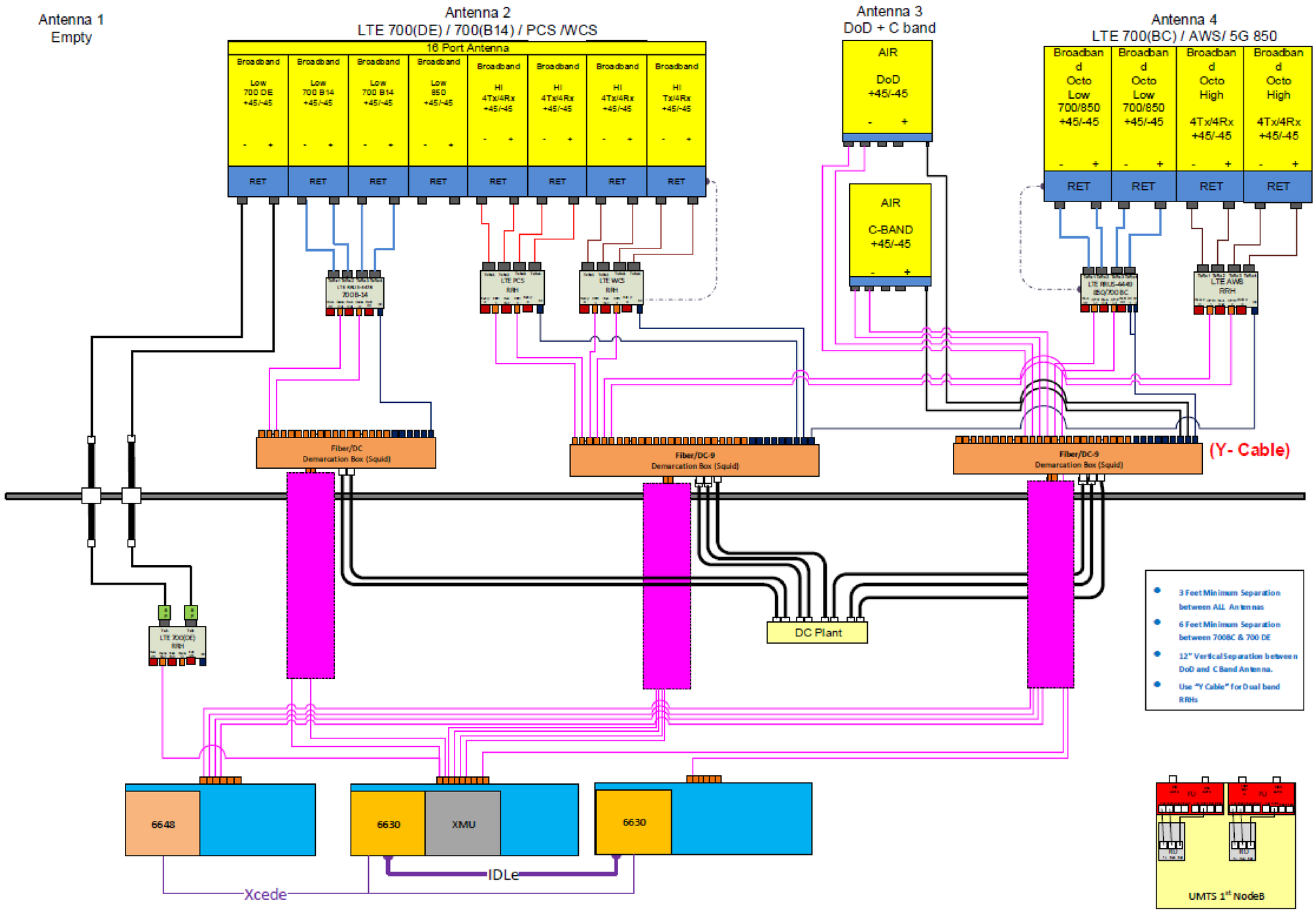


Diagram - Sector	C	Diagram File Name - CT2105_Monopole_C_Band_DoD_Rev.2.vsd					
Atoll Site Name -	CTL02105	Location Name -	FAIRFIELD-MURRAY	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

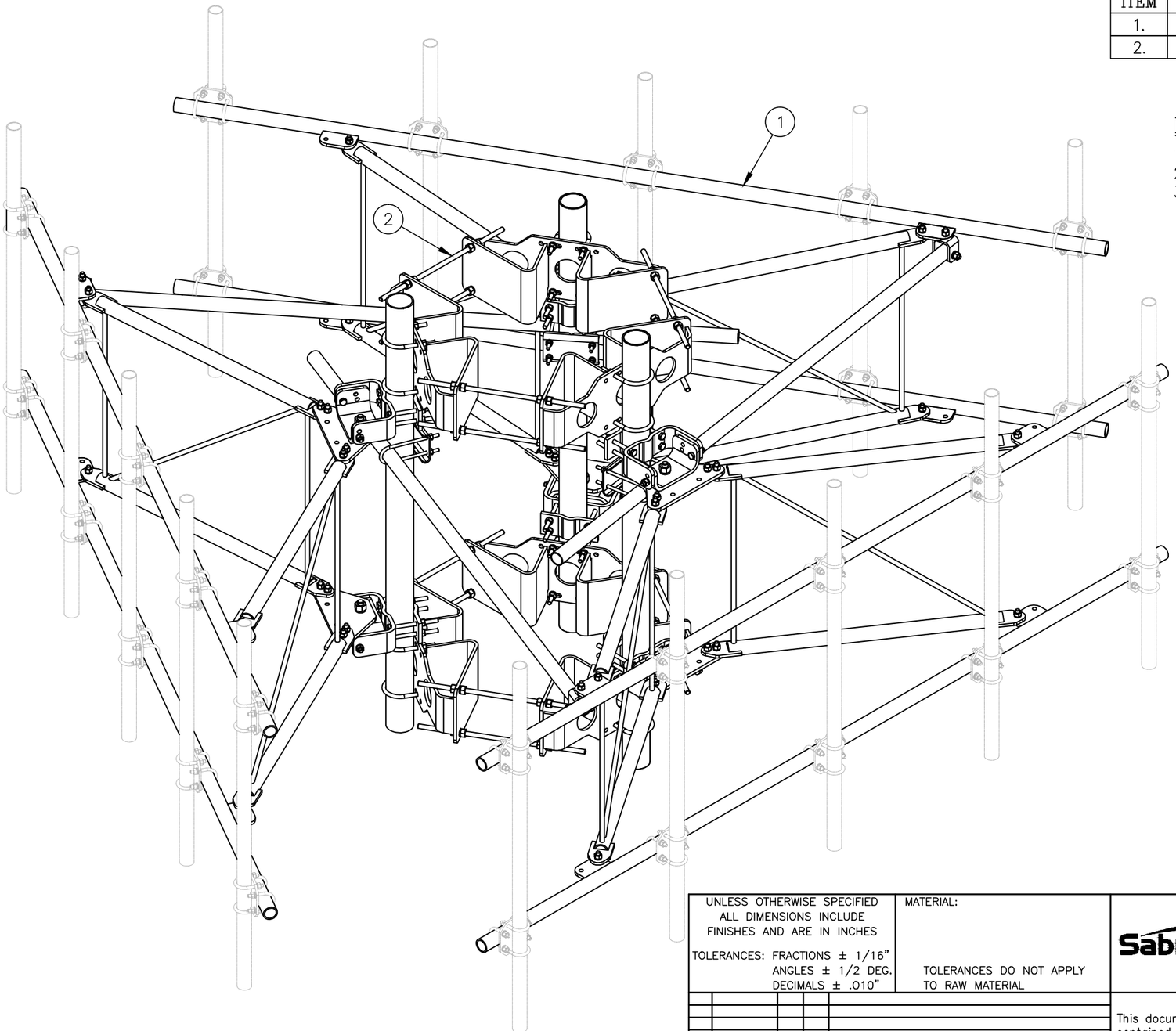
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ radio Port connections Field Notice (RF-HW-2016-265)"



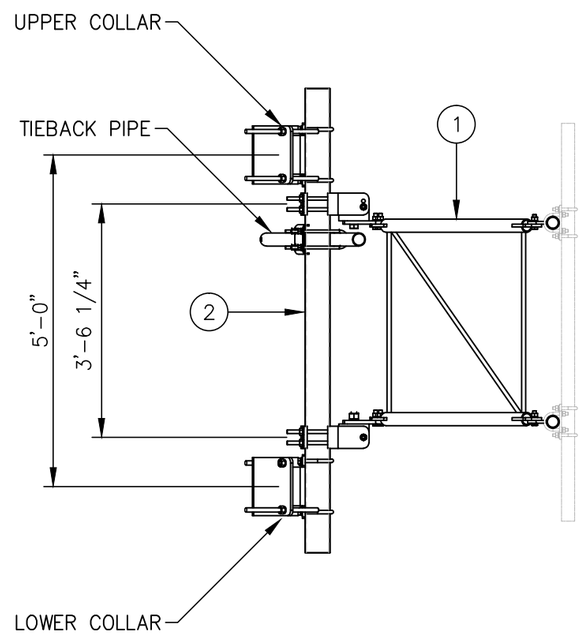
C10857802 12' HD V-BOOM ASSEMBLIES W/TIEBACK				
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	3	C10857001C	12' HD V-BOOM ASSEMBLY W/TIE BACK	1386
2.	1	C10899055	4 1/2" O.D. MONOPOLE PIPE MOUNT ASSEMBLY	994
			TOTAL WEIGHT	2380

NOTES:

1. MOUNTING PIPES & CROSSOVER PLATE KITS MUST BE PURCHASED SEPARATELY.
2. SEE DRAWING C10857001C FOR 12' V-BOOM ASSEMBLY.
3. SEE DRAWING C10899055 FOR 4 1/2" O.D. MONOPOLE PIPE MOUNT ASSEMBLY.



ISOMETRIC VIEW



VIEW A-A
FROM PAGE 2

REV	DATE	DRW	CHK	DESCRIPTION

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

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

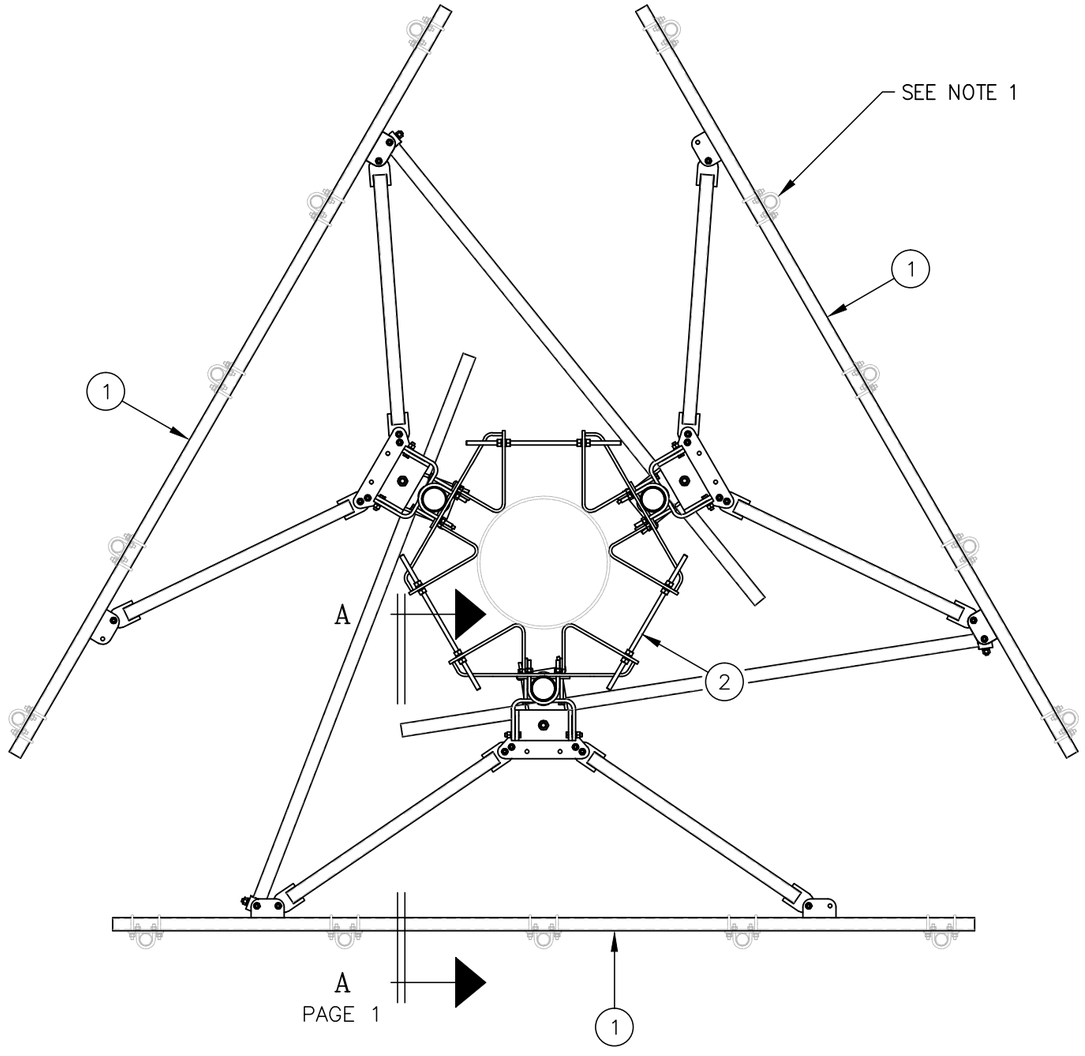
MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

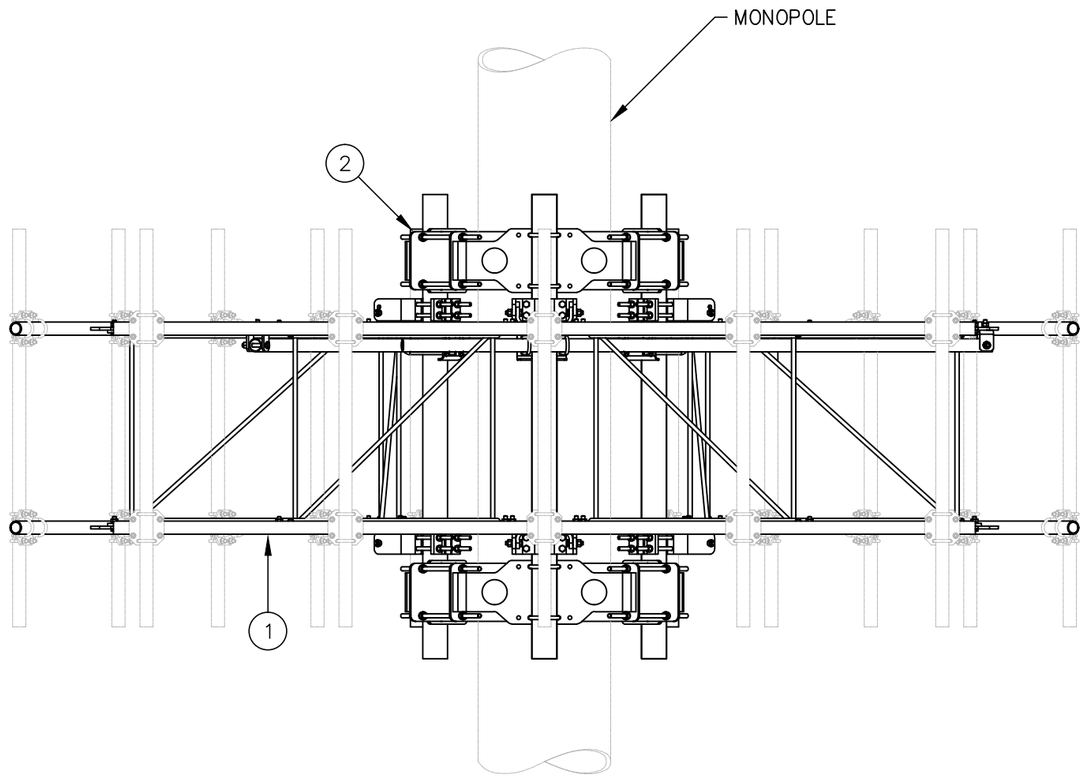
Sabre Industries™ Towers and Poles

12' HD V-BOOM ASSEMBLIES W/TIEBACK (3' STANDOFF) ON MONOPOLE PIPE MOUNT ASSEMBLY W/NO ANTENNA MOUNTING PIPES

		SIZE	DRAWING NO.	REV
DATE	9/24/18	B	C10857802	0
DRAWN BY	WRF			
CHECKED BY	WMN		SCALE None	PAGE 1 OF 2



PLAN VIEW



ELEVATION VIEW

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

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™ Towers and Poles

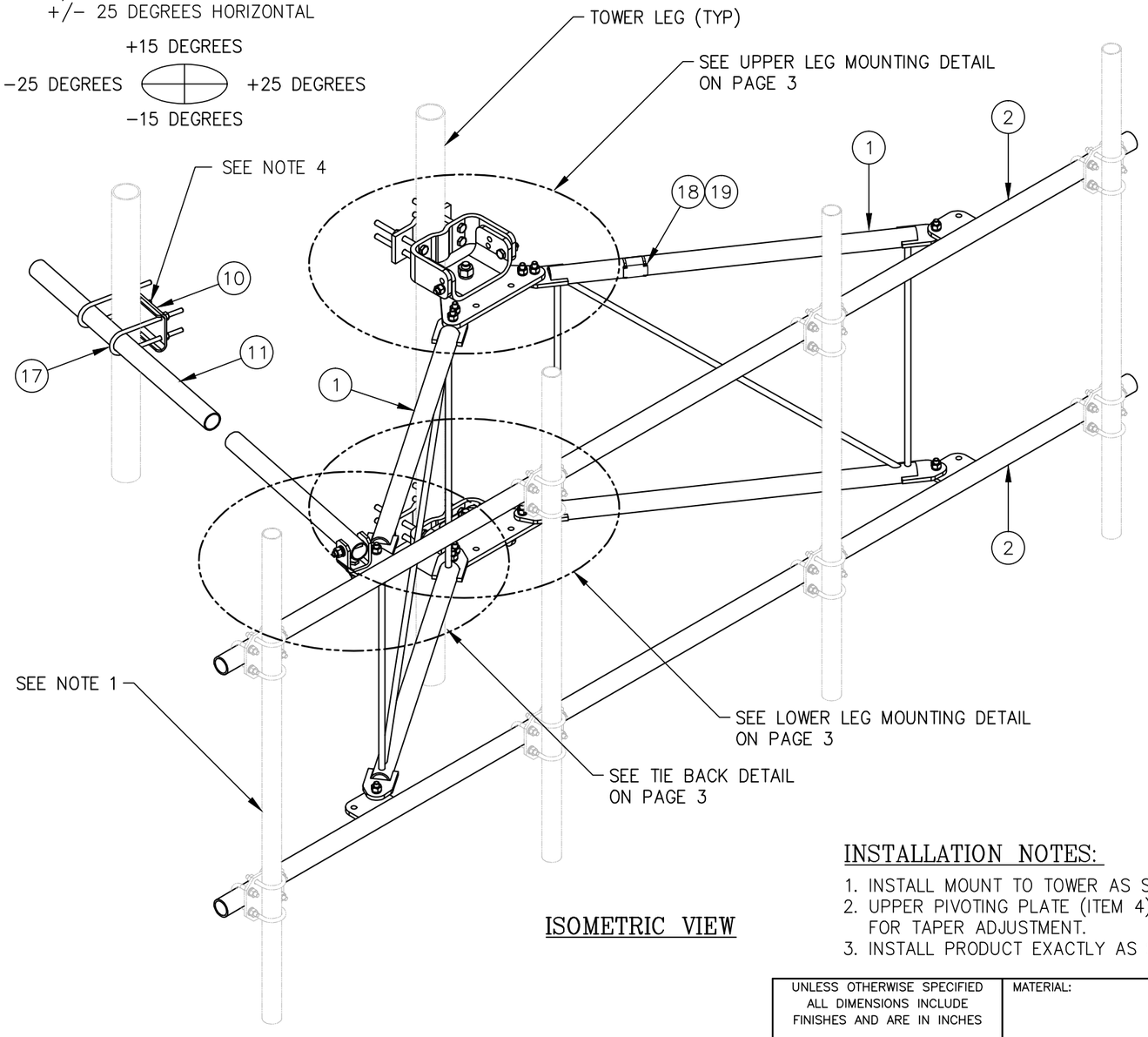
12' HD V-BOOM ASSEMBLIES W/TIEBACK (3' STANDOFF) ON MONOPOLE PIPE MOUNT ASSEMBLY W/NO ANTENNA MOUNTING PIPES

		SIZE	DRAWING NO.	REV
DATE	09/24/18	B	C10857802	0
DRAWN BY	WRF			
CHECKED BY	WMN	SCALE None	PAGE 2 OF 2	

TIEBACK ANGLE RANGE DETAIL

+/− 15 DEGREES VERTICAL
+/− 25 DEGREES HORIZONTAL

+15 DEGREES
−25 DEGREES +25 DEGREES
−15 DEGREES



ISOMETRIC VIEW

C10857001C 12' HD V−BOOM ASSEMBLY W/TIEBACK

ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	CW01222	WELDMENT, STANDOFF ARM	126
2.	2	CW01223	WELDMENT, FACE PIPE	147
3.	2	CS03109	PLATE, ROTATING	34
4.	1	CS03110	PLATE, PIVOTING (UPPER)	16
5.	1	CS03111	PLATE, LEG CLAMP (UPPER)	17
6.	1	CS03112	PLATE, PIVOTING (LOWER)	14
7.	1	CS03113	PLATE, LEG CLAMP (LOWER)	17
8.	2	CS03114	PLATE, LEG CLAMP (BACK)	14
9.	1	CS00098	PLATE, TIE BACK SWIVEL	3
10.	1	CS03285	PLATE, TIE BACK CLAMP	4
11.	1	CS03333	PIPE, TIE BACK	38
12.	2	C40026073	BOLT ASSEMBLY, 1 ø X 3 A325	4
13.	8	C40140004	BOLT ASSEMBLY, 5/8 ø X 8 A307	13
14.	1	C40026033	BOLT ASSEMBLY, 5/8 ø X 4 1/2 A325	1
15.	12	C40026025	BOLT ASSEMBLY, 5/8 ø X 2 1/2 A325	6
16.	5	C40026024	BOLT ASSEMBLY, 5/8 ø X 2 1/4 A325	3
17.	2	C40034183	U−BOLT ASSEMBLY, 1/2 ø X 2 15/16 C−C	3
18.	1	Z30992001	MOUNT CLASSIFICATION TAG C10857001C	1
19.	2	C40062103	STAINLESS STEEL SELF−LOCKING CABLE TIE	1
			TOTAL WEIGHT	462

PACKAGING NOTE

CK00386 INCLUDES ITEMS 1, 3, 4, 5, 6, 7, 12 & 15 (8 QTY)
CK00387−HDW INCLUDES ITEMS 8, 9, 10, 13, 14, 15 (4 QTY), 16, 17, 18 & 19
CK00387−STL INCLUDES ITEMS 2 & 11

INSTALLATION NOTES:

1. INSTALL MOUNT TO TOWER AS SHOWN, SO THAT WELDED STANDOFF DIAGONAL IS SLOPING DOWNWARD FROM TOWER END TO FACE PIPE END.
2. UPPER PIVOTING PLATE (ITEM 4) HAS THREE HOLES ON EACH SIDE AND UPPER LEG CLAMP PLATE (ITEM 5) HAS TWO HOLES ON EACH SIDE FOR TAPER ADJUSTMENT.
3. INSTALL PRODUCT EXACTLY AS SHOWN IN DRAWING, WITH ALL BOLTS FACING UPWARDS.

NOTES:

1. MOUNTING PIPES & CROSSOVER PLATE KITS MUST BE PURCHASED SEPARATELY.
2. QUANTITIES SHOWN IN LISTS OF MATERIAL ARE FOR ONE (1) V−BOOM ONLY.
3. THIS V−BOOM WILL MOUNT TO THE FOLLOWING: 1 1/2"ø TO 5 9/16"ø ROUND LEG.
4. TIEBACK MUST BE CONNECTED TO A RIGID MEMBER THAT PROVIDES ADEQUATE SUPPORT WITHIN THE LIMITS NOTED ABOVE IN THE TIEBACK ANGLE RANGE DETAIL UNLESS APPROVED BY THE ENGINEER OF RECORD.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES
TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

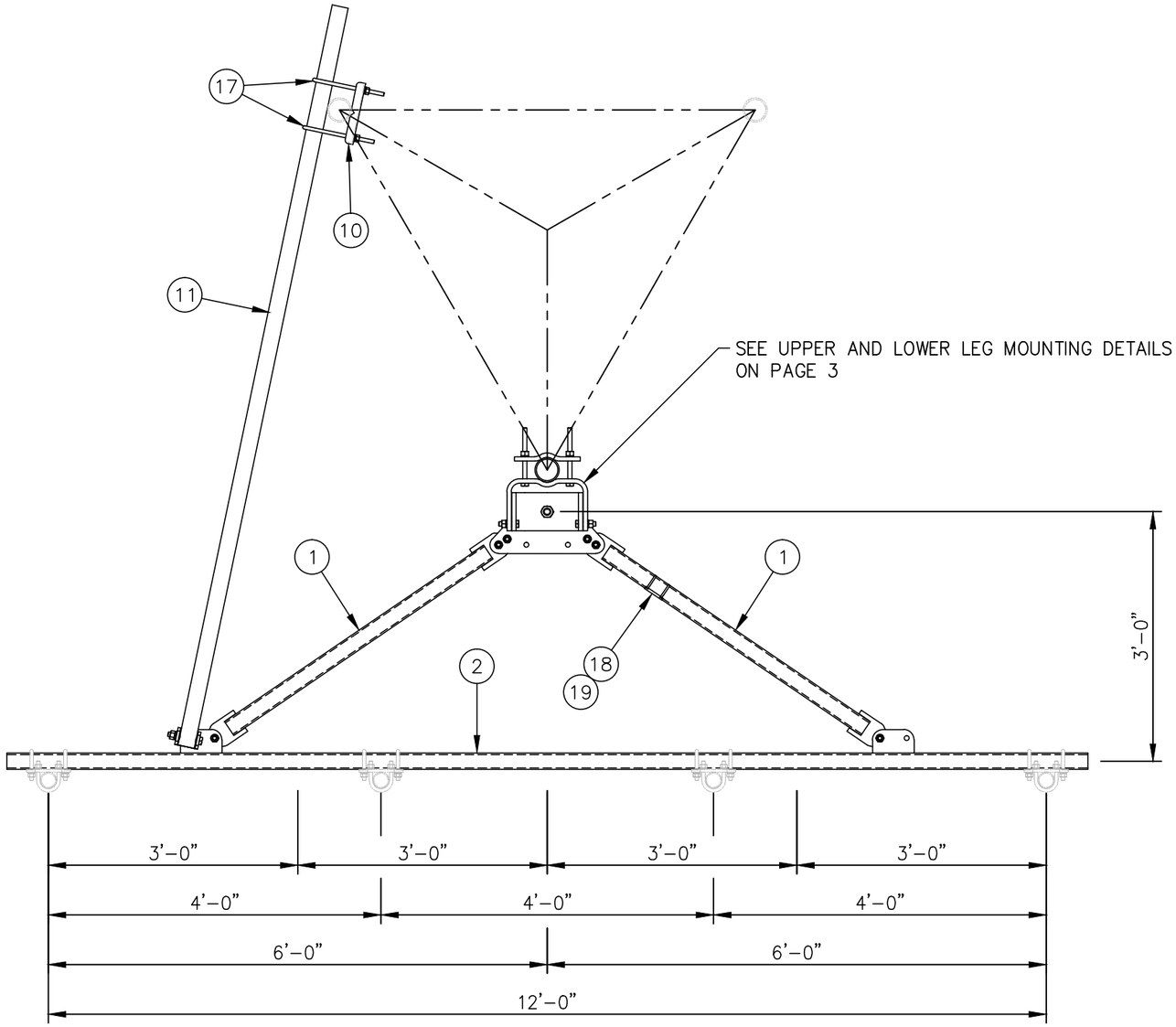
MATERIAL:
TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
4	04/11/17	KLE	EK	REVISED PACKAGING NOTE
3	10/19/16	KLE	DEL	ADDED INSTALLATION NOTES
2	02/05/16	DLW	DEL	ADDED PACKAGING NOTE
1	01/21/16	KLE	EK	REVISED NOTES & ADDED TIEBACK ANGLE RANGE DETAIL

Sabre Industries™ Towers and Poles

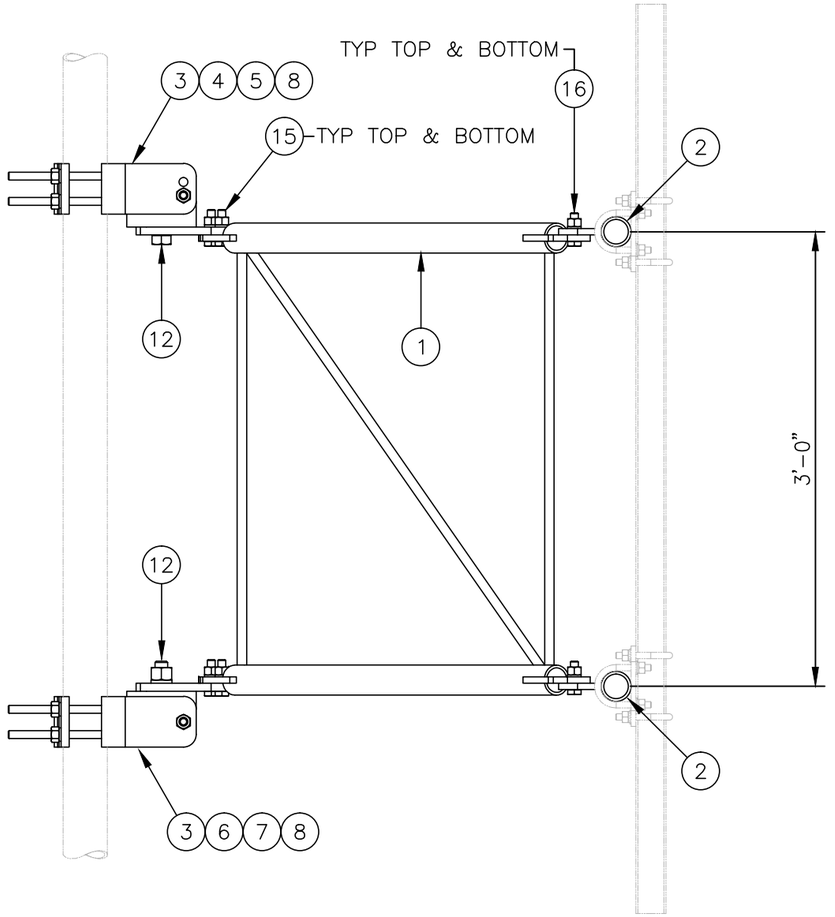
12' HD V−BOOM ASSEMBLY W/TIEBACK (3' STANDOFF) W/NO ANTENNA MOUNTING PIPES

		SIZE	DRAWING NO.	REV
DATE	12/22/15	B	C10857001C	4
DRAWN BY	WRF			
CHECKED BY	EK	SCALE None	PAGE 1 OF 3	



MOUNTING OPTIONS

SHOWING MOUNTING PIPE PLACEMENTS



SIDE VIEW

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

REV	DATE	DRW	CHK	DESCRIPTION
4	04/11/17	KLE	EK	REVISED PACKAGING NOTE
3	10/19/16	KLE	DEL	ADDED INSTALLATION NOTES
2	02/05/16	DLW	DEL	ADDED PACKAGING NOTE
1	01/21/16	KLE	EK	REVISED NOTES & ADDED TIEBACK ANGLE RANGE DETAIL

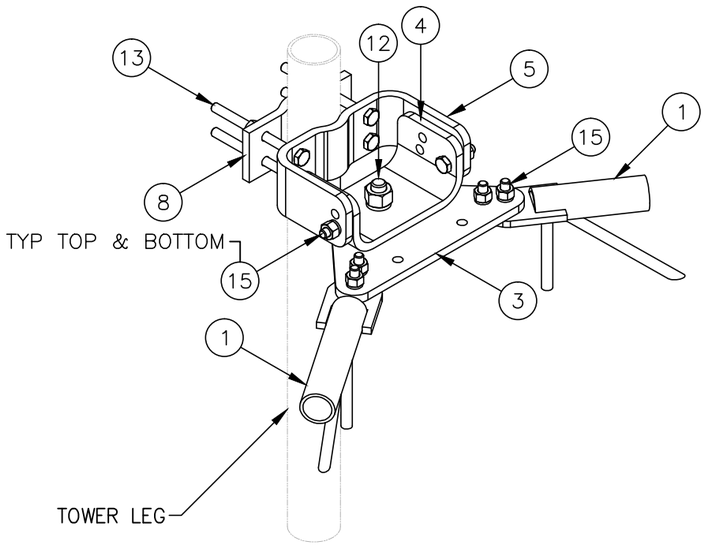
Sabre Industries™ Towers and Poles

12' HD V-BOOM ASSEMBLY W/TIEBACK (3' STANDOFF) W/NO ANTENNA MOUNTING PIPES

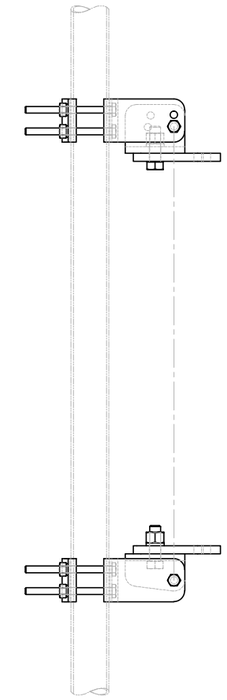
DATE	12/22/15
DRAWN BY	WRF
CHECKED BY	EK

SIZE	DRAWING NO.	REV
B	C10857001C	4

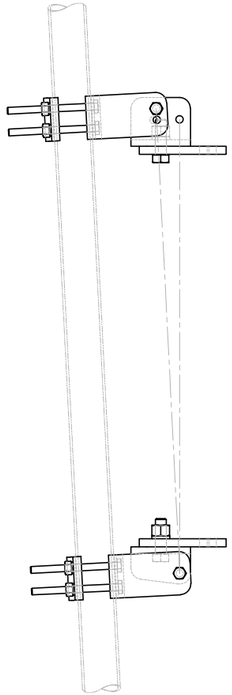
SCALE	PAGE
None	2 OF 3



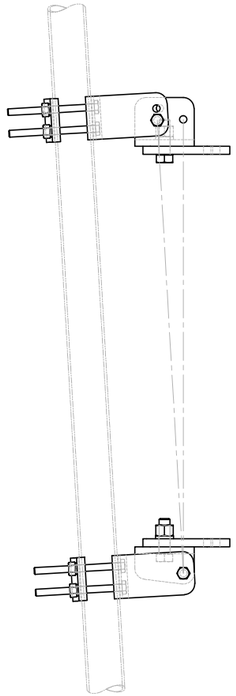
UPPER LEG MOUNTING DETAIL



STRAIGHT
TOWER SECTION



TAPERED
1'–9 IN 20' SLOPE



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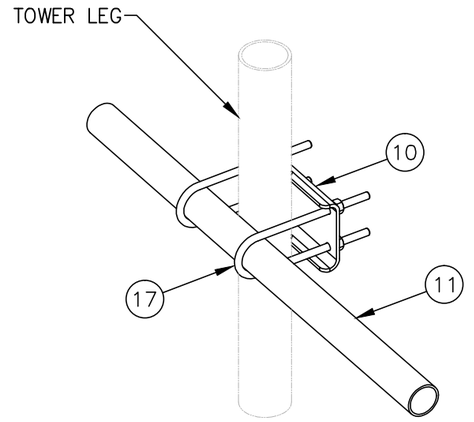
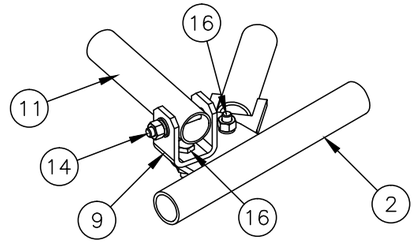
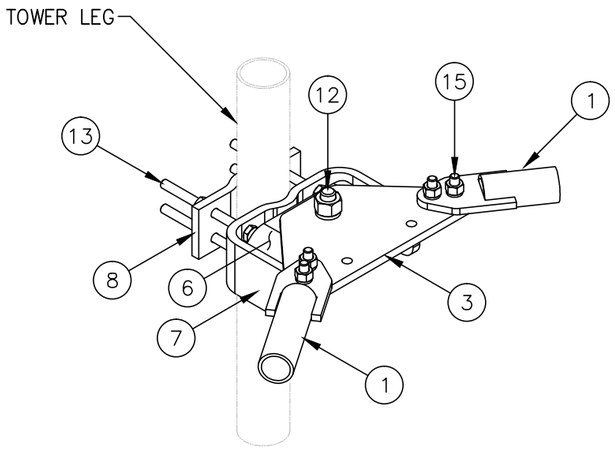
2' IN 20' SLOPE



TIE BACK DETAIL
AT TOWER LEG



TIE BACK DETAIL
AT ANTENNA MOUNTING FRAME



LOWER LEG MOUNTING DETAIL

--------PIVOTING OPTIONS--------

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

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

MATERIAL:

TOLERANCES DO NOT APPLY
TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
4	04/11/17	KLE	EK	REVISED PACKAGING NOTE
3	10/19/16	KLE	DEL	ADDED INSTALLATION NOTES
2	02/05/16	DLW	DEL	ADDED PACKAGING NOTE
1	01/21/16	KLE	EK	REVISED NOTES & ADDED TIEBACK ANGLE RANGE DETAIL

Sabre Industries™
Towers and Poles

12' HD V-BOOM ASSEMBLY W/TIEBACK (3' STANDOFF) W/NO ANTENNA MOUNTING PIPES

DATE	12/22/15
DRAWN BY	WRF
CHECKED BY	EK

SIZE	DRAWING NO.	REV
B	C10857001C	4

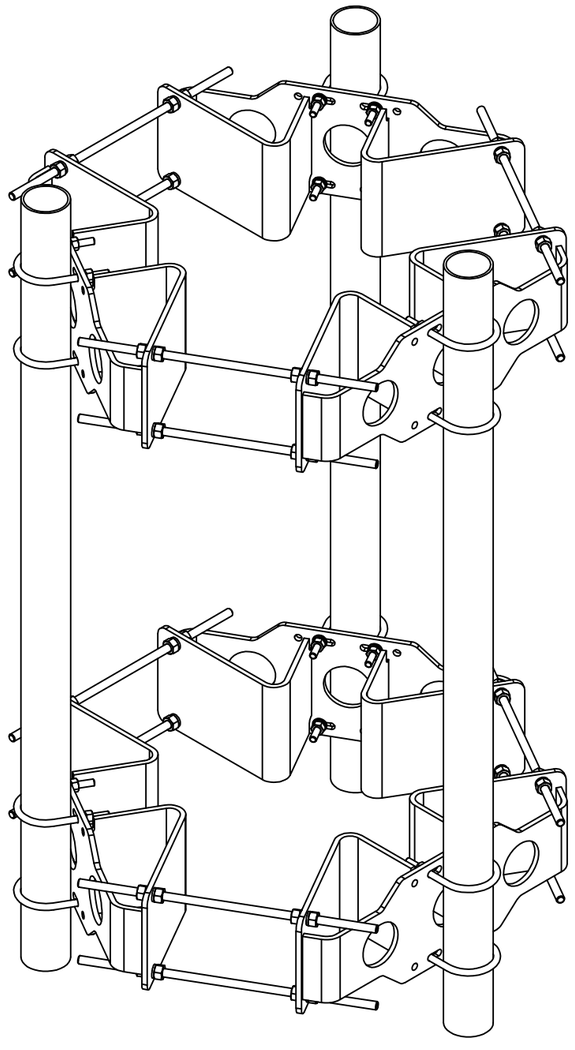
SCALE	PAGE
None	3 OF 3

NOTE:

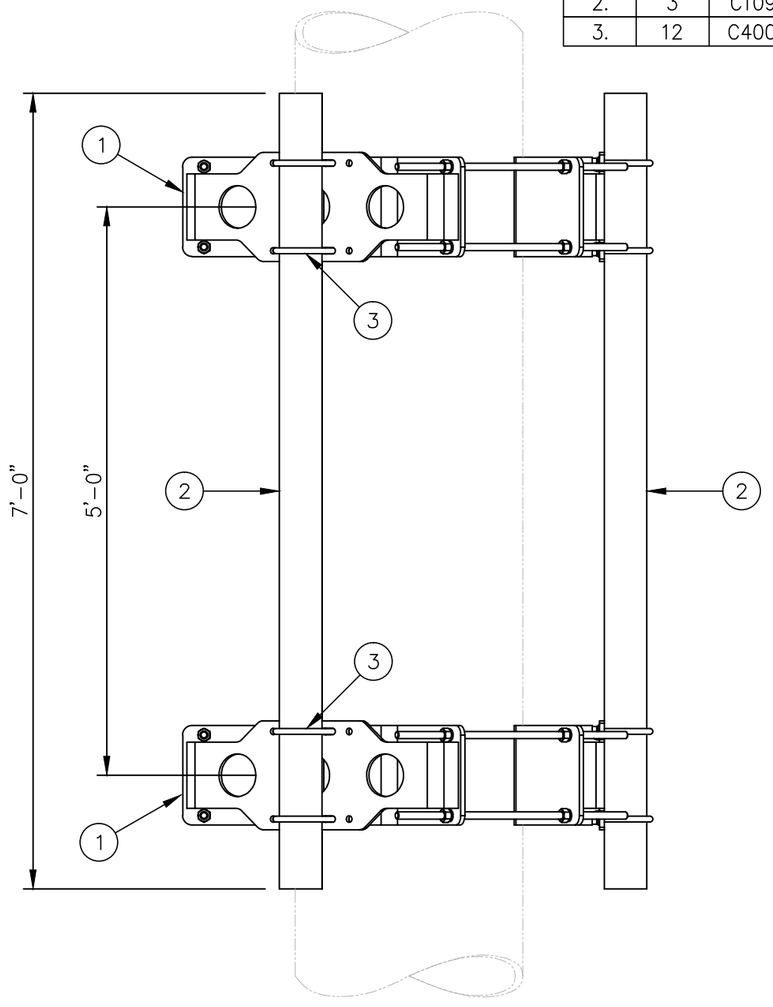
SEE DRAWING C10112378 FOR INSTALLATION OF TRI-COLLAR BRACKET ASSEMBLY

C10899055 4 1/2" O.D. PIPE MOUNT ASSEMBLY

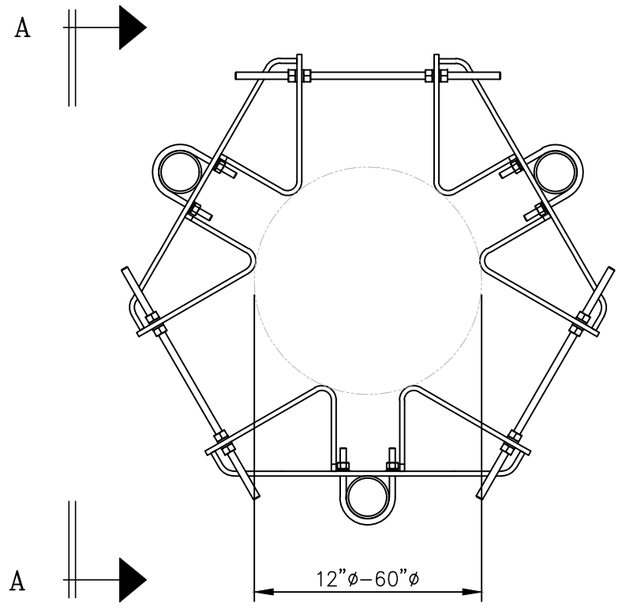
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	C10112378	TRI-COLLAR BRACKET ASSEMBLY	732
2.	3	C10901407	PIPE, 4 1/2 O.D. X .237 X 7'-0	236
3.	12	C40034032	U-BOLT ASSEMBLY, 5/8 ø X 5 3/16 C-C	26
			TOTAL WEIGHT	994



ISOMETRIC VIEW



VIEW A-A



PLAN VIEW

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

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

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	02/03/17	WRF	KLE	COLLAR WAS C10112301

Sabre Industries™ Towers and Poles

4 1/2" O.D. PIPE MOUNT ASSEMBLY FOR MONOPOLES (FITS 12" TO 60" DIAMETER)

DATE	01/26/16
DRAWN BY	WRF
CHECKED BY	DLW

SIZE	DRAWING NO.	REV
B	C10899055	1

SCALE	PAGE
None	1 OF 1

Exhibit D

Structural Analysis Report

Date: **May 23, 2022**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL02105
	Site Name:	FAIRFIELD-MURRAY
	FA Number:	10035026
Crown Castle Designation:	**BU Number:**	806355
	Site Name:	BRG 126 943086
	JDE Job Number:	686187
	Work Order Number:	2115951
	Order Number:	586237 Rev. 2
Engineering Firm Designation:	**Crown Castle Project Number:**	2115951
Site Data:	**281 Wood House Road, Fairfield, Fairfield County, CT** **Latitude *41° 11' 45.3"*, Longitude *-73° 16' 52.9"*** **170.5 Foot - Monopole Tower**	

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity - 70%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Randall Ashworth, EIT

Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer

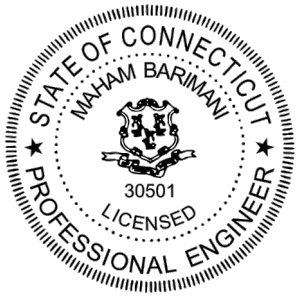


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 170.5 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	B
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)
146.0	150.0	3	ericsson	AIR 6419 B77G_CCIV3 w/ Mount Pipe	3 4 4 12 4	3/8 13/16 7/8 1-5/8 Conduit
	148.0	3	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS-32 B30		
		3	quintel technology	QD6616-7 w/ Mount Pipe		
		1	raycap	DC9-48-60-24-8C-EV_CCIV2		
	146.0	3	ericsson	AIR 6449 B77D_CCVI2 w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Sabre 12' HD V-BOOM [C10857802]		

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)
166.0	166.0	3	fujitsu	TA08025-B604	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope_MC-PK8-DSH		
156.0	162.0	6	decibel	DB844G65ZAXY w/ Mount Pipe	9	1-5/8
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		2	raycap	RRFDC-3315-PF-48		
		6	rfs celwave	FD9R6004/2C-3L		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
	160.0	1	gps	GPS_A w/ Mount Pipe		
	156.0	1	tower mounts	Platform Mount [LP 713-1]		
138.0	140.0	3	commscope	VV-65A-R1_TMO w/ Mount Pipe	4	1-5/8
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
	138.0	1	tower mounts	Platform Mount [LP 713-1]		
128.0	128.0	1	andrew	VHLP800-11	1 3	1-5/8 Elliptical
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 303-1_KCKR-HR-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1099974	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1098364	CCISITES
4-TOWER MANUFACTURER DRAWINGS	653293	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.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-3.516	393.867	32.8	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-3.518	393.867	32.8	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.188	3	-16.598	868.938	68.1	Pass
L4	132.67 - 87.09	Pole	TP34.63x23.583x0.375	4	-30.436	2425.216	70.0	Pass
L5	87.09 - 43	Pole	TP43.75x32.797x0.438	5	-44.188	3579.807	68.6	Pass
L6	43 - 0	Pole	TP52.5x41.532x0.5	6	-48.171	4130.742	62.7	Pass
							Summary	
						Pole (L4)	70.0	Pass
						Rating =	70.0	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	156.0	8.0	Pass
1	Flange Plates		18.9	Pass
1	Anchor Rods	0	61.2	Pass
1	Base Plate	0	69.6	Pass
1	Base Foundation (Structure)	0	68.7	Pass
1	Base Foundation (Soil Interaction)	0	64.1	Pass

Structure Rating (max from all components) =	**70%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

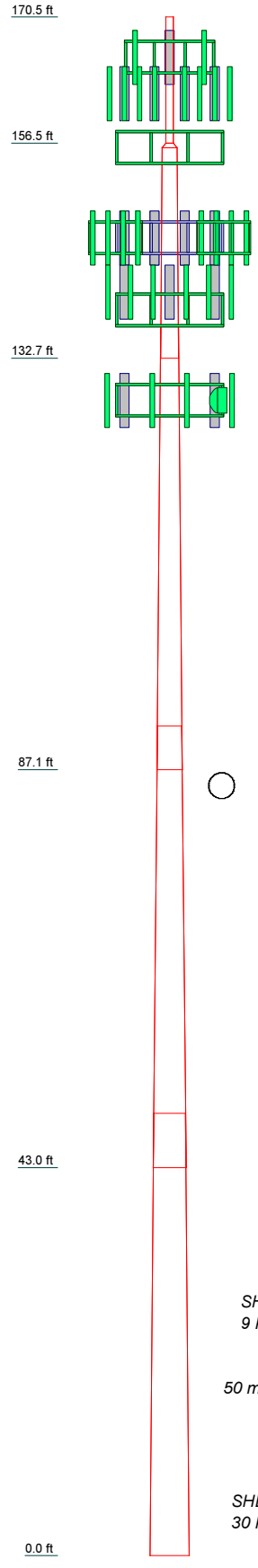
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	6	5	4	3	2	1
Length (ft)	49.000	48.920	49.250	23.330	0.500	14.000
Number of Sides	18	18	18	18	1	1
Thickness (in)	0.500	0.438	0.375	0.188	0.365	0.365
Socket Length (ft)		6.000	4.830	3.670		
Top Dia (in)	41.532	32.797	23.583	19.500	10.750	10.750
Bot Dia (in)	52.500	43.750	34.630	24.790	19.500	10.750
Grade	A572-65			A53-B-35		
Weight (K)	12.3	8.7	5.7	1.0	0.0	0.6



ALL REACTIONS ARE FACTORED

AXIAL 89 K

SHEAR 9 K — *MOMENT 1204 kip-ft*

TORQUE 1 kip-ft

50 mph WIND - 1.000 in ICE

AXIAL 65 K

SHEAR 30 K — *MOMENT 4068 kip-ft*

TORQUE 1 kip-ft

REACTIONS - 118 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 118 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 0.000 ft
8. TOWER RATING: 70%

CROWN CASTLE
The Pathway to Possible

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

Job: ***BU# 806355***			
Project:			
Client: Crown Castle	Drawn by: RAshworth		App'd:
Code: TIA-222-H	Date: 05/23/22		Scale: NTS
Path: C:\NEW Directory\806355\WO 2115951 - SA\Prod\806355_RPA.er			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 Fairfield County, Connecticut.
- Tower base elevation above sea level: 334.000 ft.
- Basic wind speed of 118 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- 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

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	170.500-156.500	14.000	0.000	Round	10.750	10.750	0.365		A53-B-35 (35 ksi)
L2	156.500-156.000	0.500	0.000	Round	10.750	19.500	0.365		A53-B-35 (35 ksi)
L3	156.000-132.670	23.330	3.670	18	19.500	24.790	0.188	0.750	A572-65 (65 ksi)
L4	132.670-87.090	49.250	4.830	18	23.583	34.630	0.375	1.500	A572-65 (65 ksi)
L5	87.090-43.000	48.920	6.000	18	32.797	43.750	0.438	1.750	A572-65 (65 ksi)
L6	43.000-0.000	49.000		18	41.532	52.500	0.500	2.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.750	11.908	160.734	3.674	5.375	29.904	321.468	5.951	0.000	0
	10.750	11.908	160.734	3.674	5.375	29.904	321.468	5.951	0.000	0
L2	10.750	11.908	160.734	3.674	5.375	29.904	321.468	5.951	0.000	0
	19.500	21.942	1004.607	6.766	9.750	103.037	2009.214	10.964	0.000	0
L3	19.772	11.493	541.578	6.856	9.906	54.672	1083.869	5.748	3.102	16.544
	25.144	14.642	1119.653	8.734	12.593	88.908	2240.779	7.322	4.033	21.51
L4	24.725	27.623	1879.662	8.239	11.980	156.899	3761.798	13.814	3.491	9.308
	35.106	40.772	6044.321	12.161	17.592	343.583	12096.596	20.390	5.435	14.493
L5	34.333	44.935	5944.447	11.487	16.661	356.795	11896.716	22.472	5.002	11.434
	44.357	60.145	14254.835	15.376	22.225	641.387	28528.426	30.078	6.930	15.84
L6	43.459	65.117	13850.609	14.566	21.098	656.488	27719.443	32.565	6.430	12.859
	53.233	82.524	28191.904	18.460	26.670	1057.064	56420.904	41.270	8.360	16.72

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 170.500-156.500				1	1	1			
L2 156.500-156.000				1	1	1			
L3 156.000-132.670				1	1	1			
L4 132.670-87.090				1	1	1			
L5 87.090-43.000				1	1	1			
L6 43.000-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
***											
***											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
CU12PSM6P4XXX (1-3/4)	C	No	No	Inside Pole	166.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	156.000 - 0.000	9	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
***									
PWRT-606-S(7/8)	A	No	No	Inside Pole	146.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
PWRT-608-S(13/16)	A	No	No	Inside Pole	146.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-235-XXX(3/8)	A	No	No	Inside Pole	146.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
LDF7-50A(1-5/8)	A	No	No	Inside Pole	146.000 - 0.000	12	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	146.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
2" Rigid Conduit	A	No	No	Inside Pole	146.000 - 0.000	4	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	138.000 - 0.000	4	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
7983A(ELLIPTICAL)	B	No	No	Inside Pole	128.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Inside Pole	128.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
***									
Safety Line 3/8	B	No	No	CaAa (Out Of Face)	170.500 - 0.000	1	No Ice	0.037	0.000
							1/2" Ice	0.137	0.001
							1" Ice	0.238	0.001
5/8 rod/step	B	No	No	CaAa (Out Of Face)	170.500 - 0.000	1	No Ice	0.020	0.000
							1/2" Ice	0.120	0.001
							1" Ice	0.220	0.002
***									
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	170.500-156.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.805	0.007
		C	0.000	0.000	0.000	0.000	0.026
L2	156.500-156.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.029	0.000
		C	0.000	0.000	0.000	0.000	0.001
L3	156.000-132.670	A	0.000	0.000	0.000	0.000	0.536
		B	0.000	0.000	0.000	1.341	0.012
		C	0.000	0.000	0.000	0.000	0.117

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L4	132.670-87.090	A	0.000	0.000	0.000	0.000	1.579
		B	0.000	0.000	0.000	2.621	0.333
		C	0.000	0.000	0.000	0.000	0.580
L5	87.090-43.000	A	0.000	0.000	0.000	0.000	1.527
		B	0.000	0.000	0.000	2.535	0.356
		C	0.000	0.000	0.000	0.000	0.561
L6	43.000-0.000	A	0.000	0.000	0.000	0.000	1.489
		B	0.000	0.000	0.000	2.473	0.347
		C	0.000	0.000	0.000	0.000	0.547

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	170.500-156.500	A	0.998	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	6.391	0.042
		C		0.000	0.000	0.000	0.000	0.026
L2	156.500-156.000	A	0.993	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.227	0.001
		C		0.000	0.000	0.000	0.000	0.001
L3	156.000-132.670	A	0.985	0.000	0.000	0.000	0.000	0.536
		B		0.000	0.000	0.000	10.532	0.069
		C		0.000	0.000	0.000	0.000	0.117
L4	132.670-87.090	A	0.958	0.000	0.000	0.000	0.000	1.579
		B		0.000	0.000	0.000	20.576	0.446
		C		0.000	0.000	0.000	0.000	0.580
L5	87.090-43.000	A	0.909	0.000	0.000	0.000	0.000	1.527
		B		0.000	0.000	0.000	19.427	0.462
		C		0.000	0.000	0.000	0.000	0.561
L6	43.000-0.000	A	0.812	0.000	0.000	0.000	0.000	1.489
		B		0.000	0.000	0.000	18.109	0.444
		C		0.000	0.000	0.000	0.000	0.547

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	170.500-156.500	0.581	0.335	1.308	0.755
L2	156.500-156.000	0.603	0.348	1.472	0.850
L3	156.000-132.670	0.446	0.257	1.609	0.929
L4	132.670-87.090	0.451	0.261	1.713	0.989
L5	87.090-43.000	0.455	0.263	1.757	1.015
L6	43.000-0.000	0.457	0.264	1.739	1.004

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	166.000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	166.000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	166.000
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	166.000
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	166.000
Commscope_MC-PK8-DSH	C	None		0.000	166.000
(3) 8' x 2'' Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	166.000
(3) 8' x 2'' Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	166.000
(3) 8' x 2'' Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	166.000
*					
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.000 0.000 6.000	0.000	156.000
(2) DB844G65ZAXY w/ Mount Pipe	B	From Leg	4.000 0.000 6.000	0.000	156.000
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.000 0.000 6.000	0.000	156.000
GPS_A w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	156.000
(2) FD9R6004/2C-3L	A	From Leg	4.000 0.000 6.000	0.000	156.000
(2) FD9R6004/2C-3L	B	From Leg	4.000 0.000 6.000	0.000	156.000
(2) FD9R6004/2C-3L	C	From Leg	4.000 0.000 6.000	0.000	156.000
RRFDC-3315-PF-48	C	From Leg	4.000 0.000 6.000	0.000	156.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000 6.000	0.000	156.000
MT6407-77A w/ Mount Pipe	B	From Leg	4.000 0.000 6.000	0.000	156.000
MT6407-77A w/ Mount Pipe	C	From Leg	4.000 0.000 6.000	0.000	156.000
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	4.000 0.000 6.000	0.000	156.000
(2) MX06FRO660-03 w/ Mount Pipe	B	From Leg	4.000 0.000 6.000	0.000	156.000
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	4.000 0.000 6.000	0.000	156.000
RF4440D-13A	A	From Leg	4.000 0.000 6.000	0.000	156.000
RF4440D-13A	B	From Leg	4.000 0.000 6.000	0.000	156.000
RF4440D-13A	C	From Leg	4.000 0.000 6.000	0.000	156.000
RF4439D-25A	A	From Leg	4.000 0.000 6.000	0.000	156.000
RF4439D-25A	B	From Leg	4.000 0.000 6.000	0.000	156.000
RF4439D-25A	C	From Leg	4.000 0.000 6.000	0.000	156.000
RRFDC-3315-PF-48	C	From Leg	4.000 0.000 6.000	0.000	156.000
Platform Mount [LP 713-1]	C	None		0.000	156.000
Mount Reinforcement Specifications	C	None		0.000	156.000
*					
RRUS 32 B2	A	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B2	B	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B2	C	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B66	A	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B66	B	From Leg	4.000 0.000 0.000	0.000	146.000
RRUS 32 B66	C	From Leg	4.000 0.000 0.000	0.000	146.000
DC6-48-60-18-8F	B	From Leg	4.000 0.000 0.000	0.000	146.000
DC6-48-60-18-8F	C	From Leg	4.000 0.000	0.000	146.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
QD6616-7 w/ Mount Pipe	A	From Leg	0.000 4.000 0.000	0.000	146.000
QD6616-7 w/ Mount Pipe	B	From Leg	2.000 4.000 0.000	0.000	146.000
QD6616-7 w/ Mount Pipe	C	From Leg	2.000 4.000 0.000	0.000	146.000
OPA65R-BU6D w/ Mount Pipe	A	From Leg	2.000 4.000 0.000	0.000	146.000
OPA65R-BU6D w/ Mount Pipe	B	From Leg	2.000 4.000 0.000	0.000	146.000
OPA65R-BU6D w/ Mount Pipe	C	From Leg	2.000 4.000 0.000	0.000	146.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	2.000 4.000 0.000	0.000	146.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.000 4.000 0.000	0.000	146.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.000 4.000 0.000	0.000	146.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	A	From Leg	4.000 4.000 0.000	0.000	146.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	B	From Leg	0.000 4.000 0.000	0.000	146.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	C	From Leg	0.000 4.000 0.000	0.000	146.000
RRUS-32 B30	A	From Leg	0.000 4.000 0.000	0.000	146.000
RRUS-32 B30	B	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS-32 B30	C	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4449 B5/B12	A	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4449 B5/B12	B	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4449 B5/B12	C	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4478 B14_CCIV2	A	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4478 B14_CCIV2	B	From Leg	2.000 4.000 0.000	0.000	146.000
RRUS 4478 B14_CCIV2	C	From Leg	2.000 4.000 0.000	0.000	146.000
DC9-48-60-24-8C-EV_CCIV2	C	From Leg	2.000 4.000	0.000	146.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.000 2.000		
Sabre 12' HD V-BOOM [C10857802]	C	None		0.000	146.000
Pipe Mount [PM 601-3]	C	None		0.000	146.000
(2) 6' x 2'' Mount Pipe	A	From Leg	2.000 0.000 0.000	0.000	146.000
(2) 6' x 2'' Mount Pipe	B	From Leg	2.000 0.000 0.000	0.000	146.000
(2) 6' x 2'' Mount Pipe	C	From Leg	2.000 0.000 0.000	0.000	146.000
*					
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000
VV-65A-R1_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000
VV-65A-R1_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000
VV-65A-R1_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 2.000	0.000	138.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 2.000	0.000	138.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 2.000	0.000	138.000
Radio 4480_TMOV2	A	From Leg	4.000 0.000 2.000	0.000	138.000
Radio 4480_TMOV2	B	From Leg	4.000 0.000 2.000	0.000	138.000
Radio 4480_TMOV2	C	From Leg	4.000 0.000 2.000	0.000	138.000
9' x 2'' Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	138.000
9' x 2'' Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	138.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
9' x 2'' Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	138.000
10' horizontal x 2'' Pipe Mount	A	From Leg	4.000 0.000 5.000	0.000	138.000
10' horizontal x 2'' Pipe Mount	A	From Leg	4.000 0.000 5.000	0.000	138.000
3' x 2'' Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	138.000
3' x 2'' Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	138.000
3' x 2'' Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	138.000
TELESCOPOIC ARM KIT	A	From Leg	4.000 0.000 5.000	0.000	138.000
TELESCOPOIC ARM KIT	B	From Leg	4.000 0.000 5.000	0.000	138.000
TELESCOPOIC ARM KIT	C	From Leg	4.000 0.000 5.000	0.000	138.000
Platform Mount [LP 713-1]	C	None		0.000	138.000
*					
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 0.000	0.000	128.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 0.000	0.000	128.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 0.000	0.000	128.000
Radio 4480_TMOV2	A	From Leg	4.000 0.000 0.000	0.000	128.000
Radio 4480_TMOV2	B	From Leg	4.000 0.000 0.000	0.000	128.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Radio 4480_TMOV2	C	From Leg	4.000 0.000 0.000	0.000	128.000
Platform Mount [LP 303-1_KCKR-HR-1]	C	None		0.000	128.000
(2) 8' x 2'' Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
(2) 8' x 2'' Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
(2) 8' x 2'' Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
6' x 2'' Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	128.000
6' x 2'' Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	128.000
6' x 2'' Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	128.000
* * *					

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft
VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 0.000	-20.000		128.000	2.917
*								

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

Comb. No.	Description
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	170.5 - 156.5	Pole	Max Tension	39	0.000	-0.000	-0.000
			Max. Compression	26	-6.108	-0.006	0.291
			Max. Mx	20	-3.522	34.095	0.077
			Max. My	2	-3.516	0.000	34.527
			Max. Vy	20	-3.676	34.095	0.077
			Max. Vx	14	3.709	0.008	-34.300
			Max. Torque	9			0.172
L2	156.5 - 156	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-6.155	-0.007	0.290
			Max. Mx	20	-3.558	35.936	0.068
			Max. My	2	-3.552	0.005	36.384
			Max. Vy	20	-3.693	35.936	0.068
			Max. Vx	14	3.726	0.013	-36.158
			Max. Torque	9			0.168
L3	156 - 132.67	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.880	1.028	0.215
			Max. Mx	20	-16.625	324.216	-0.591
			Max. My	2	-16.597	-0.591	325.299
			Max. Vy	20	-20.531	324.216	-0.591
			Max. Vx	2	-20.704	-0.591	325.299
			Max. Torque	24			1.104
L4	132.67 - 87.09	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.805	0.737	0.047

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-30.441	1432.074	-1.070
			Max. My	2	-30.437	-0.588	1435.209
			Max. Vy	20	-26.754	1432.074	-1.070
			Max. Vx	14	26.777	0.406	-1435.200
			Max. Torque	22			1.404
L5	87.09 - 43	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.682	0.562	-0.055
			Max. Mx	20	-44.190	2622.348	-1.228
			Max. My	14	-44.188	-0.760	-2626.467
			Max. Vy	20	-28.585	2622.348	-1.228
			Max. Vx	14	28.606	-0.760	-2626.467
			Max. Torque	20			1.403
L6	43 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-88.922	0.327	-0.190
			Max. Mx	20	-64.719	4062.722	-1.356
			Max. My	14	-64.719	-2.092	-4067.891
			Max. Vy	20	-30.068	4062.722	-1.356
			Max. Vx	14	30.086	-2.092	-4067.891
			Max. Torque	20			1.470

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	88.922	-0.006	-8.700
	Max. H_x	20	64.744	30.015	-0.002
	Max. H_z	2	64.744	0.009	30.025
	Max. M_x	2	4067.065	0.009	30.025
	Max. M_z	8	4053.501	-29.950	0.013
	Max. Torsion	20	1.470	30.015	-0.002
	Min. Vert	17	48.558	15.064	-25.973
	Min. H_x	8	64.744	-29.950	0.013
	Min. H_z	14	64.744	-0.026	-30.033
	Min. M_x	14	-4067.891	-0.026	-30.033
	Min. M_z	20	-4062.722	30.015	-0.002
	Min. Torsion	8	-1.340	-29.950	0.013

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	53.953	0.000	0.000	-0.088	0.119	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	64.744	-0.009	-30.025	-4067.065	0.201	0.095
0.9 Dead+1.0 Wind 0 deg - No Ice	48.558	-0.009	-30.025	-3981.566	0.176	0.102
1.2 Dead+1.0 Wind 30 deg - No Ice	64.744	15.034	-25.992	-3521.399	-2035.771	0.912
0.9 Dead+1.0 Wind 30 deg - No Ice	48.558	15.034	-25.992	-3447.333	-1993.046	0.909
1.2 Dead+1.0 Wind 60 deg - No Ice	64.744	25.977	-14.980	-2030.234	-3516.463	1.175
0.9 Dead+1.0 Wind 60 deg - No Ice	48.558	25.977	-14.980	-1987.489	-3442.628	1.165
1.2 Dead+1.0 Wind 90 deg - No Ice	64.744	29.950	-0.013	-3.250	-4053.501	1.340
0.9 Dead+1.0 Wind 90 deg - No Ice	48.558	29.950	-0.013	-3.116	-3968.395	1.325
1.2 Dead+1.0 Wind 120 deg	64.744	25.938	14.986	2028.606	-3509.912	1.134

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice						
0.9 Dead+1.0 Wind 120 deg - No Ice	48.558	25.938	14.986	1986.018	-3436.216	1.118
1.2 Dead+1.0 Wind 150 deg - No Ice	64.744	15.020	25.967	3516.413	-2031.715	0.790
0.9 Dead+1.0 Wind 150 deg - No Ice	48.558	15.020	25.967	3442.536	-1989.101	0.776
1.2 Dead+1.0 Wind 180 deg - No Ice	64.744	0.026	30.033	4067.891	-2.092	-0.060
0.9 Dead+1.0 Wind 180 deg - No Ice	48.558	0.026	30.033	3982.440	-2.128	-0.069
1.2 Dead+1.0 Wind 210 deg - No Ice	64.744	-15.064	25.973	3518.520	2040.297	-0.743
0.9 Dead+1.0 Wind 210 deg - No Ice	48.558	-15.064	25.973	3444.578	1997.376	-0.744
1.2 Dead+1.0 Wind 240 deg - No Ice	64.744	-26.034	14.983	2030.305	3524.592	-1.195
0.9 Dead+1.0 Wind 240 deg - No Ice	48.558	-26.034	14.983	1987.640	3450.495	-1.186
1.2 Dead+1.0 Wind 270 deg - No Ice	64.744	-30.015	0.002	1.355	4062.722	-1.470
0.9 Dead+1.0 Wind 270 deg - No Ice	48.558	-30.015	0.002	1.346	3977.343	-1.453
1.2 Dead+1.0 Wind 300 deg - No Ice	64.744	-26.005	-15.005	-2031.447	3519.330	-1.383
0.9 Dead+1.0 Wind 300 deg - No Ice	48.558	-26.005	-15.005	-1988.723	3445.368	-1.365
1.2 Dead+1.0 Wind 330 deg - No Ice	64.744	-15.075	-25.975	-3517.738	2039.654	-1.022
0.9 Dead+1.0 Wind 330 deg - No Ice	48.558	-15.075	-25.975	-3443.766	1996.804	-1.007
1.2 Dead+1.0 Ice+1.0 Temp	88.922	-0.000	0.000	0.190	0.327	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	88.922	-0.002	-8.698	-1203.469	0.543	0.419
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	88.922	4.339	-7.531	-1042.031	-599.435	0.680
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	88.922	7.503	-4.342	-600.882	-1036.588	0.699
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	88.922	8.654	-0.002	-0.413	-1195.576	0.576
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	88.922	7.495	4.344	601.071	-1035.262	0.294
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	88.922	4.336	7.526	1041.447	-598.649	-0.038
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	88.922	0.006	8.700	1204.086	-0.038	-0.421
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	88.922	-4.345	7.527	1041.847	601.278	-0.657
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	88.922	-7.514	4.343	601.350	1039.217	-0.707
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	88.922	-8.667	-0.000	0.459	1198.421	-0.595
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	88.922	-7.508	-4.348	-601.217	1038.136	-0.333
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	88.922	-4.347	-7.527	-1041.299	601.236	-0.007
Dead+Wind 0 deg - Service	53.953	-0.002	-7.342	-984.586	0.156	0.018
Dead+Wind 30 deg - Service	53.953	3.676	-6.356	-852.523	-492.711	0.220
Dead+Wind 60 deg - Service	53.953	6.352	-3.663	-491.538	-851.154	0.293
Dead+Wind 90 deg - Service	53.953	7.323	-0.003	-0.847	-981.121	0.343
Dead+Wind 120 deg - Service	53.953	6.342	3.664	491.007	-849.560	0.296
Dead+Wind 150 deg - Service	53.953	3.673	6.349	851.169	-491.724	0.203
Dead+Wind 180 deg - Service	53.953	0.006	7.344	984.637	-0.403	-0.021
Dead+Wind 210 deg - Service	53.953	-3.683	6.351	851.684	494.003	-0.197
Dead+Wind 240 deg -	53.953	-6.366	3.664	491.421	853.322	-0.306

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service						
Dead+Wind 270 deg - Service	53.953	-7.339	0.000	0.257	983.562	-0.365
Dead+Wind 300 deg - Service	53.953	-6.359	-3.669	-491.833	852.055	-0.339
Dead+Wind 330 deg - Service	53.953	-3.686	-6.351	-851.637	493.858	-0.253

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-53.953	0.000	0.000	53.953	0.000	0.000%
2	-0.009	-64.744	-30.025	0.009	64.744	30.025	0.000%
3	-0.009	-48.558	-30.025	0.009	48.558	30.025	0.000%
4	15.034	-64.744	-25.992	-15.034	64.744	25.992	0.000%
5	15.034	-48.558	-25.992	-15.034	48.558	25.992	0.000%
6	25.977	-64.744	-14.980	-25.977	64.744	14.980	0.000%
7	25.977	-48.558	-14.980	-25.977	48.558	14.980	0.000%
8	29.950	-64.744	-0.013	-29.950	64.744	0.013	0.000%
9	29.950	-48.558	-0.013	-29.950	48.558	0.013	0.000%
10	25.938	-64.744	14.986	-25.938	64.744	-14.986	0.000%
11	25.938	-48.558	14.986	-25.938	48.558	-14.986	0.000%
12	15.020	-64.744	25.967	-15.020	64.744	-25.967	0.000%
13	15.020	-48.558	25.967	-15.020	48.558	-25.967	0.000%
14	0.026	-64.744	30.033	-0.026	64.744	-30.033	0.000%
15	0.026	-48.558	30.033	-0.026	48.558	-30.033	0.000%
16	-15.064	-64.744	25.973	15.064	64.744	-25.973	0.000%
17	-15.064	-48.558	25.973	15.064	48.558	-25.973	0.000%
18	-26.034	-64.744	14.983	26.034	64.744	-14.983	0.000%
19	-26.034	-48.558	14.983	26.034	48.558	-14.983	0.000%
20	-30.015	-64.744	0.002	30.015	64.744	-0.002	0.000%
21	-30.015	-48.558	0.002	30.015	48.558	-0.002	0.000%
22	-26.005	-64.744	-15.005	26.005	64.744	15.005	0.000%
23	-26.005	-48.558	-15.005	26.005	48.558	15.005	0.000%
24	-15.075	-64.744	-25.975	15.075	64.744	25.975	0.000%
25	-15.075	-48.558	-25.975	15.075	48.558	25.975	0.000%
26	0.000	-88.922	0.000	0.000	88.922	-0.000	0.000%
27	-0.002	-88.922	-8.698	0.002	88.922	8.698	0.000%
28	4.339	-88.922	-7.531	-4.339	88.922	7.531	0.000%
29	7.503	-88.922	-4.342	-7.503	88.922	4.342	0.000%
30	8.654	-88.922	-0.002	-8.654	88.922	0.002	0.000%
31	7.495	-88.922	4.344	-7.495	88.922	-4.344	0.000%
32	4.336	-88.922	7.526	-4.336	88.922	-7.526	0.000%
33	0.006	-88.922	8.700	-0.006	88.922	-8.700	0.000%
34	-4.345	-88.922	7.527	4.345	88.922	-7.527	0.000%
35	-7.514	-88.922	4.343	7.514	88.922	-4.343	0.000%
36	-8.667	-88.922	-0.000	8.667	88.922	0.000	0.000%
37	-7.508	-88.922	-4.348	7.508	88.922	4.348	0.000%
38	-4.347	-88.922	-7.527	4.347	88.922	7.527	0.000%
39	-0.002	-53.953	-7.342	0.002	53.953	7.342	0.000%
40	3.676	-53.953	-6.356	-3.676	53.953	6.356	0.000%
41	6.352	-53.953	-3.663	-6.352	53.953	3.663	0.000%
42	7.323	-53.953	-0.003	-7.323	53.953	0.003	0.000%
43	6.342	-53.953	3.664	-6.342	53.953	-3.664	0.000%
44	3.673	-53.953	6.349	-3.673	53.953	-6.349	0.000%
45	0.006	-53.953	7.344	-0.006	53.953	-7.344	0.000%
46	-3.683	-53.953	6.351	3.683	53.953	-6.351	0.000%
47	-6.366	-53.953	3.664	6.366	53.953	-3.664	0.000%
48	-7.339	-53.953	0.000	7.339	53.953	-0.000	0.000%
49	-6.359	-53.953	-3.669	6.359	53.953	3.669	0.000%
50	-3.686	-53.953	-6.351	3.686	53.953	6.351	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00049058
3	Yes	5	0.00000001	0.00023227
4	Yes	7	0.00000001	0.00029507
5	Yes	7	0.00000001	0.00006766
6	Yes	7	0.00000001	0.00029110
7	Yes	7	0.00000001	0.00006663
8	Yes	5	0.00000001	0.00069133
9	Yes	5	0.00000001	0.00033480
10	Yes	7	0.00000001	0.00029837
11	Yes	7	0.00000001	0.00006878
12	Yes	7	0.00000001	0.00028843
13	Yes	7	0.00000001	0.00006596
14	Yes	5	0.00000001	0.00056929
15	Yes	5	0.00000001	0.00026920
16	Yes	7	0.00000001	0.00029535
17	Yes	7	0.00000001	0.00006765
18	Yes	7	0.00000001	0.00029718
19	Yes	7	0.00000001	0.00006824
20	Yes	5	0.00000001	0.00094709
21	Yes	5	0.00000001	0.00045451
22	Yes	7	0.00000001	0.00028750
23	Yes	6	0.00000001	0.00099747
24	Yes	7	0.00000001	0.00030046
25	Yes	7	0.00000001	0.00006916
26	Yes	4	0.00000001	0.00000672
27	Yes	6	0.00000001	0.00032847
28	Yes	7	0.00000001	0.00017387
29	Yes	6	0.00000001	0.00097427
30	Yes	6	0.00000001	0.00032985
31	Yes	7	0.00000001	0.00017441
32	Yes	6	0.00000001	0.00097808
33	Yes	6	0.00000001	0.00032866
34	Yes	6	0.00000001	0.00099782
35	Yes	7	0.00000001	0.00017681
36	Yes	6	0.00000001	0.00033210
37	Yes	6	0.00000001	0.00097957
38	Yes	7	0.00000001	0.00017624
39	Yes	4	0.00005249	0.00057314
40	Yes	5	0.00000001	0.00059120
41	Yes	5	0.00000001	0.00057332
42	Yes	4	0.00005250	0.00071306
43	Yes	5	0.00000001	0.00061382
44	Yes	5	0.00000001	0.00055840
45	Yes	4	0.00005250	0.00057797
46	Yes	5	0.00000001	0.00059275
47	Yes	5	0.00000001	0.00060548
48	Yes	4	0.00005250	0.00076409
49	Yes	5	0.00000001	0.00055802
50	Yes	5	0.00000001	0.00062377

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	39.552	39	2.221	0.003
L2	156.5 - 156	33.091	39	2.151	0.004
L3	156 - 132.67	32.866	39	2.150	0.004
L4	136.34 - 87.09	24.511	39	1.863	0.002
L5	91.92 - 43	10.267	39	1.143	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L6	49 - 0	2.717	47	0.522	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.000	MX08FRO665-21 w/ Mount Pipe	46	37.453	2.193	0.004	14026
156.000	(2) DB844G65ZAXY w/ Mount Pipe	39	32.866	2.150	0.004	5646
146.000	RRUS 32 B2	39	28.486	2.044	0.003	4379
138.000	AIR 6419 B41_TMO w/ Mount Pipe	39	25.173	1.895	0.003	3649
128.000	VHLP800-11	39	21.327	1.709	0.002	3523

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170.5 - 156.5	163.233	14	9.175	0.012
L2	156.5 - 156	136.650	14	8.888	0.015
L3	156 - 132.67	135.724	14	8.883	0.015
L4	136.34 - 87.09	101.293	14	7.705	0.009
L5	91.92 - 43	42.462	14	4.733	0.003
L6	49 - 0	11.237	14	2.160	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.000	MX08FRO665-21 w/ Mount Pipe	14	154.599	9.061	0.016	3642
156.000	(2) DB844G65ZAXY w/ Mount Pipe	14	135.724	8.883	0.017	1448
146.000	RRUS 32 B2	14	117.676	8.451	0.014	1117
138.000	AIR 6419 B41_TMO w/ Mount Pipe	14	104.023	7.838	0.011	921
128.000	VHLP800-11	14	88.158	7.072	0.007	882

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	14.000	0.000	0.0	11.908	-3.516	375.111	0.009
L2	156.5 - 156	TP19.5x10.75x0.365	0.500	0.000	0.0	11.908	-3.518	375.111	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L3	156 - 132.67 (2)	TP24.79x19.5x0.188	23.330	0.000	0.0	14.146	-16.598	827.560	0.020
L4	132.67 - 87.09 (3)	TP34.63x23.583x0.375	49.250	0.000	0.0	39.482	-30.436	2309.730	0.013
L5	87.09 - 43 (4)	TP43.75x32.797x0.438	48.920	0.000	0.0	58.279	-44.188	3409.340	0.013
L6	43 - 0 (5)	TP52.5x41.532x0.5	49.000	0.000	0.0	67.249	-48.171	3934.040	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	34.526	103.375	0.334	0.000	103.375	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	34.526	103.375	0.334	0.000	103.375	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.188	325.524	472.858	0.688	0.000	472.858	0.000
L4	132.67 - 87.09 (4)	TP34.63x23.583x0.375	1435.467	1994.075	0.720	0.000	1994.075	0.000
L5	87.09 - 43 (5)	TP43.75x32.797x0.438	2626.433	3719.175	0.706	0.000	3719.175	0.000
L6	43 - 0 (6)	TP52.5x41.532x0.5	2798.592	4336.575	0.645	0.000	4336.575	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	170.5 - 156.5 (1)	TP10.75x10.75x0.365	3.709	112.533	0.033	0.012	102.747	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	3.726	112.533	0.033	0.013	102.747	0.000
L3	156 - 132.67 (3)	TP24.79x19.5x0.188	20.690	248.268	0.083	0.387	516.816	0.001
L4	132.67 - 87.09 (4)	TP34.63x23.583x0.375	26.770	692.918	0.039	0.658	2012.925	0.000
L5	87.09 - 43 (5)	TP43.75x32.797x0.438	28.599	1022.800	0.028	0.774	3759.250	0.000
L6	43 - 0 (6)	TP52.5x41.532x0.5	29.059	1180.210	0.025	0.010	4379.717	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170.5 - 156.5 (1)	0.009	0.334	0.000	0.033	0.000	0.344	1.050	4.8.2
L2	156.5 - 156 (2)	0.009	0.334	0.000	0.033	0.000	0.344	1.050	4.8.2
L3	156 - 132.67 (3)	0.020	0.688	0.000	0.083	0.001	0.716	1.050	4.8.2
L4	132.67 - 87.09 (4)	0.013	0.720	0.000	0.039	0.000	0.735	1.050	4.8.2
L5	87.09 - 43 (5)	0.013	0.706	0.000	0.028	0.000	0.720	1.050	4.8.2
L6	43 - 0 (6)	0.012	0.645	0.000	0.025	0.000	0.658	1.050	4.8.2

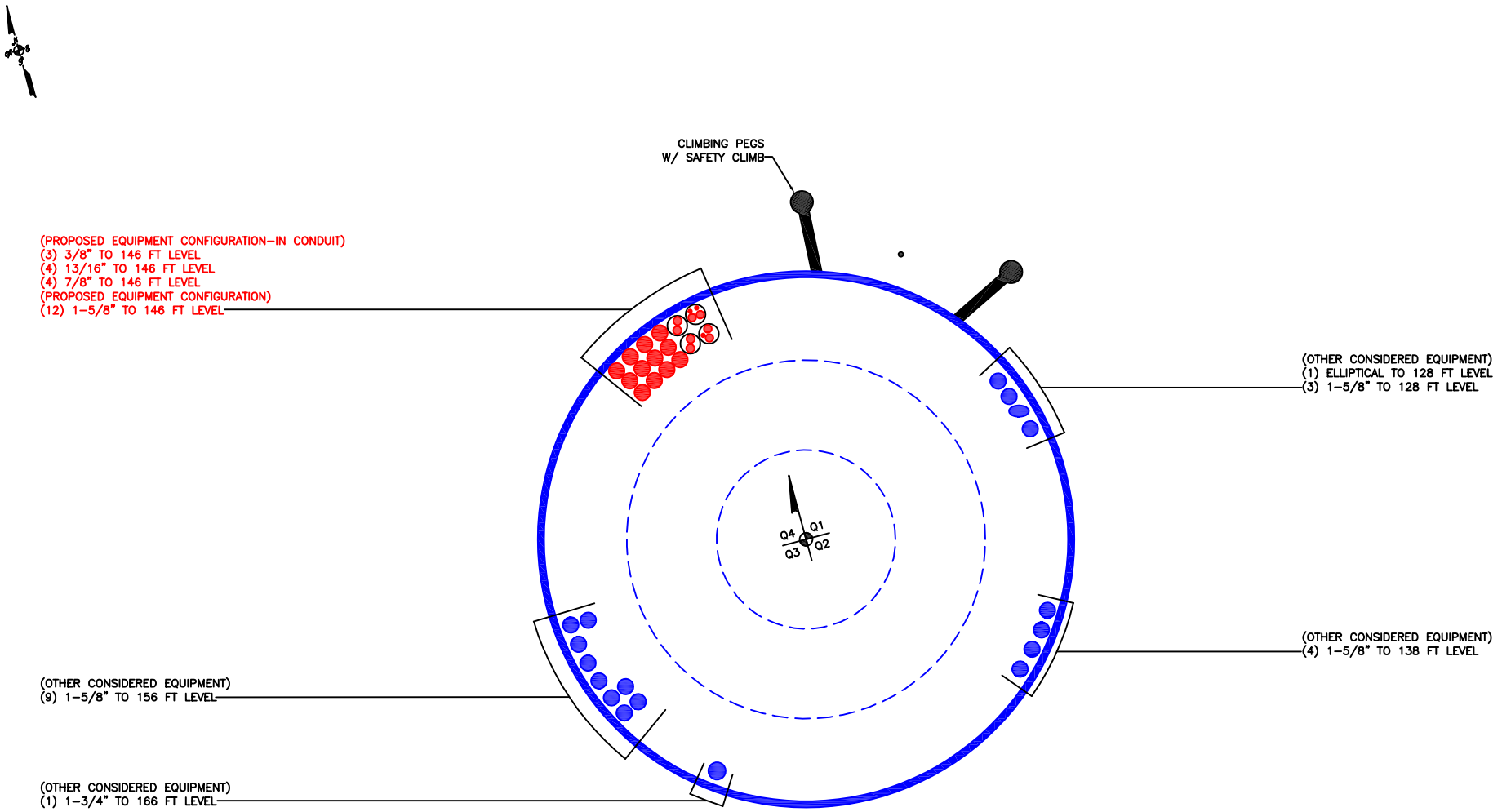
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	170.5 - 156.5	Pole	TP10.75x10.75x0.365	1	-3.516	393.867	32.8	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-3.518	393.867	32.8	Pass
L3	156 - 132.67	Pole	TP24.79x19.5x0.188	3	-16.598	868.938	68.1	Pass
L4	132.67 - 87.09	Pole	TP34.63x23.583x0.375	4	-30.436	2425.216	70.0	Pass
L5	87.09 - 43	Pole	TP43.75x32.797x0.438	5	-44.188	3579.807	68.6	Pass
L6	43 - 0	Pole	TP52.5x41.532x0.5	6	-48.171	4130.742	62.7	Pass
							Summary	
						Pole (L4)	70.0	Pass
						RATING =	**70.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(PROPOSED EQUIPMENT CONFIGURATION–IN CONDUIT)
(3) 3/8" TO 146 FT LEVEL
(4) 13/16" TO 146 FT LEVEL
(4) 7/8" TO 146 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(12) 1–5/8" TO 146 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) ELLIPTICAL TO 128 FT LEVEL
(3) 1–5/8" TO 128 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1–5/8" TO 138 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(9) 1–5/8" TO 156 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1–3/4" TO 166 FT LEVEL
Q4
Q1
Q3
Q2

APPENDIX C

ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 156 ft.

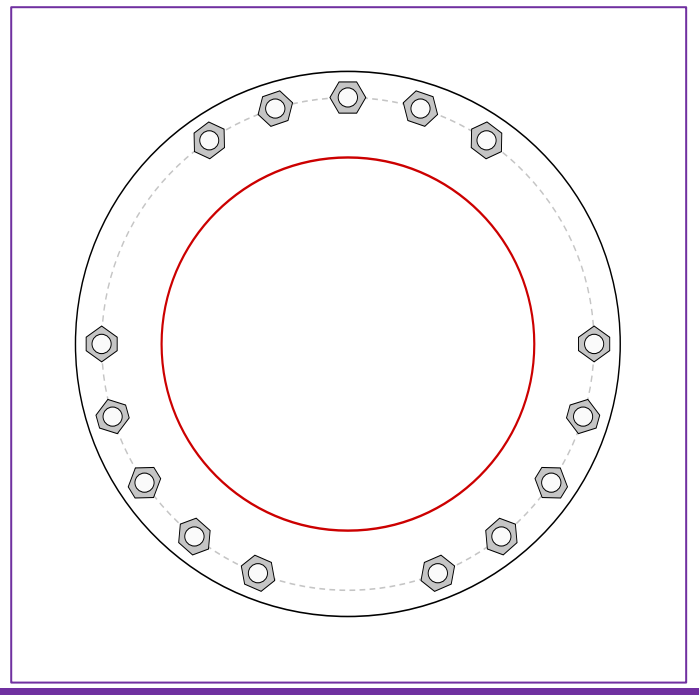
BU #	806355
Site Name	BRG 126 943086
Order #	586237 Rev 2

TIA-222 Revision	H

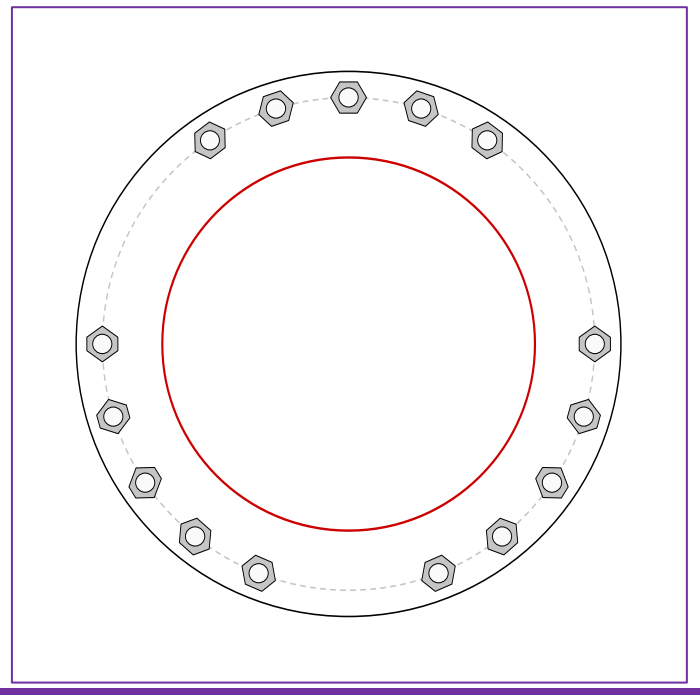
Applied Loads	
Moment (kip-ft)	36.38
Axial Force (kips)	3.55
Shear Force (kips)	3.73

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(15) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 25.75" BC

pos. (deg): 0, 55.7, 72.9, 90, 107.1, 124.3, 180, 197.1, 214.3, 231.4, 248.6, 291.4, 308.6, 325.7, 342.9

Top Plate Data

28.5" OD x 1" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Bottom Plate Data

28.5" OD x 1" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

19.5" x 0.365" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

19.5" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	4.57	
Allowable (kips)	54.54	
Stress Rating:	**8.0%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	10.72	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**18.9%**	**Pass**
Tension Side Stress Rating:	**14.2%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	10.72	(Flexural)
Allowable Stress (ksi):	54.00	
Stress Rating:	**18.9%**	**Pass**
Tension Side Stress Rating:	**14.2%**	**Pass**

CCIplate

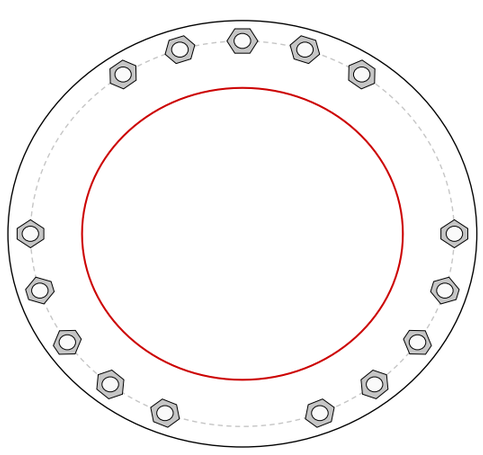
Elevation (ft)	156	*(Flange)*

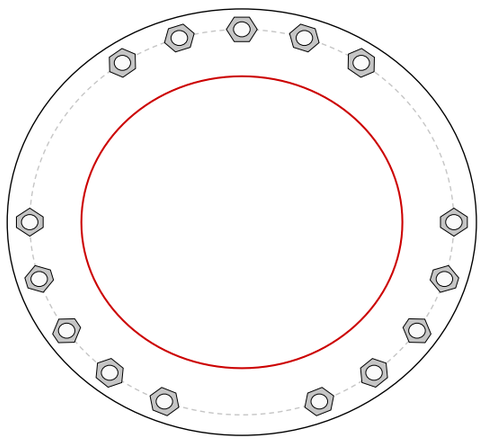
Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending
1	Yes	Yes	Yes

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1	A325	25.75	0.5	0	N-Included		No
2	1	55.714286	1	A325	25.75	0.5	0	N-Included		No
3	1	72.857143	1	A325	25.75	0.5	0	N-Included		No
4	1	90	1	A325	25.75	0.5	0	N-Included		No
5	1	107.14286	1	A325	25.75	0.5	0	N-Included		No
6	1	124.28571	1	A325	25.75	0.5	0	N-Included		No
7	1	180	1	A325	25.75	0.5	0	N-Included		No
8	1	197.14286	1	A325	25.75	0.5	0	N-Included		No
9	1	214.28571	1	A325	25.75	0.5	0	N-Included		No
10	1	231.42857	1	A325	25.75	0.5	0	N-Included		No
11	1	248.57143	1	A325	25.75	0.5	0	N-Included		No
12	1	291.42857	1	A325	25.75	0.5	0	N-Included		No
13	1	308.57143	1	A325	25.75	0.5	0	N-Included		No
14	1	325.71429	1	A325	25.75	0.5	0	N-Included		No
15	1	342.85714	1	A325	25.75	0.5	0	N-Included		No

Plot Graphic





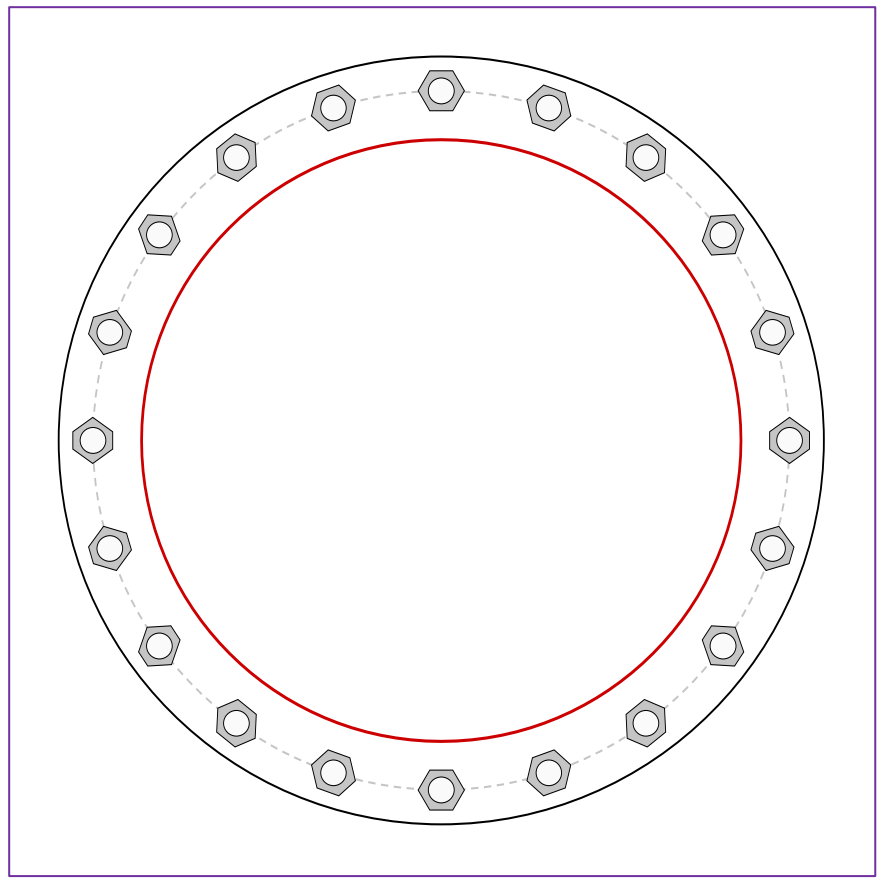
Monopole Base Plate Connection

Site Info	
BU #	806355
Site Name	BRG 126 943086
Order #	586237 Rev 2

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	4067.89
Axial Force (kips)	64.72
Shear Force (kips)	30.09

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 61" BC

Base Plate Data

67" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

52.5" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 156.72	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.5	ϕVn = 149.1	**61.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	39.44	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**69.6%**	**Pass**

Pier and Pad Foundation

BU # :	806355
Site Name:	BRG 126 943086
Order Number:	586237 Rev 2

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	64.72	kips
Base Shear, Vu_comp:	30.09	kips
Moment, M_u:	4067.89	ft-kips
Tower Height, **H**:	170.5	ft
BP Dist. Above Fdn, bp_{dist}:	4	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	46	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	9	ft
Pad Width, W_1:	22	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	20	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	36	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	135	pcf
Ultimate Gross Bearing, Qult:	24.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	36	degrees
SPT Blow Count, N_{blows}:	50	
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	6	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	444.52	30.09	**6.4%**	**Pass**
Bearing Pressure (ksf)	18.00	3.49	**19.4%**	**Pass**
*Overturning (kip*ft)*	6832.45	4378.82	**64.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5929.11	4278.52	**68.7%**	**Pass**
Pier Compression (kip)	31187.52	126.46	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	3909.72	1939.32	**47.2%**	**Pass**
Pad Shear - 1-way (kips)	788.93	341.10	**41.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4403.40	2567.11	**55.5%**	**Pass**

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

Structural Rating*:	**68.7%**
Soil Rating*:	**64.1%**

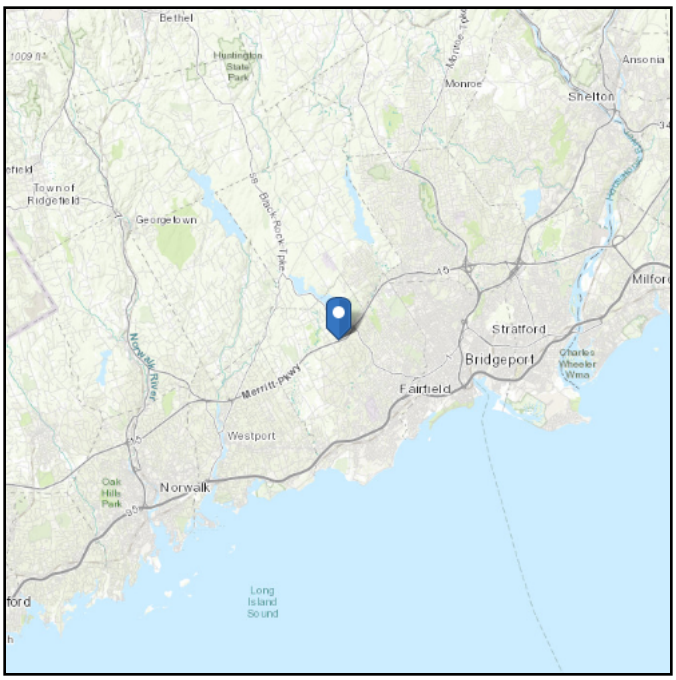
Version 4.1.1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 333.8 ft (NAVD 88)
Latitude: 41.195917
Longitude: -73.281361



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 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 May 23 2022

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.

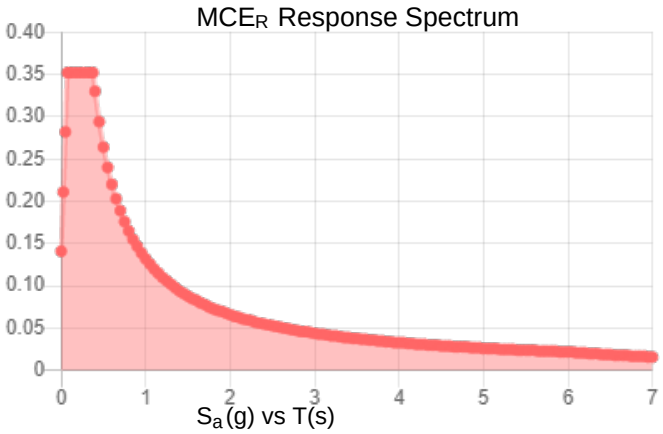
Seismic

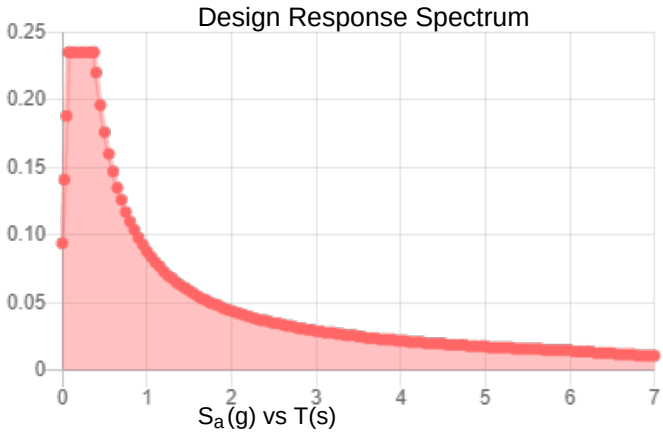
Site Soil Class: D - Default (see Section 11.4.3)

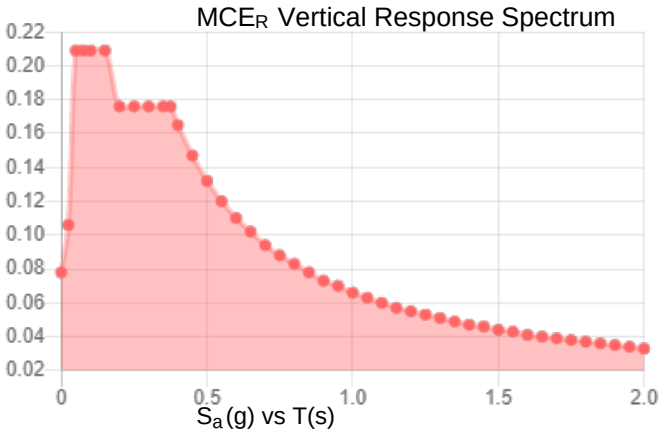
Results:

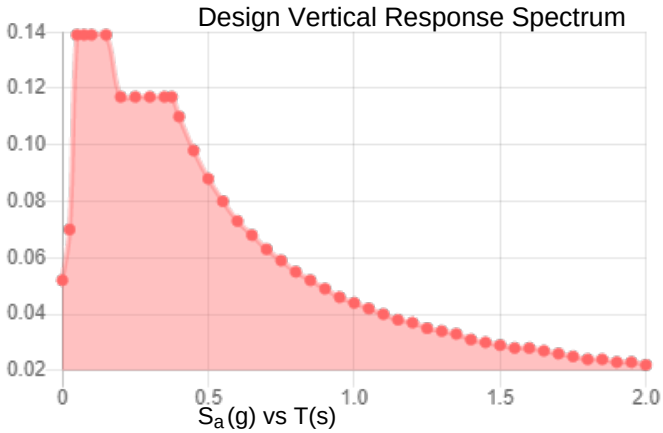
S_S :	0.22	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.127
F_v :	2.4	PGA_M :	0.196
S_{MS} :	0.352	F_{PGA} :	1.546
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.235	C_v :	0.74

Seismic Design Category B









Data Accessed: **Mon May 23 2022**

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 May 23 2022

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.

Exhibit E

Mount Analysis

Date: May 16, 2022

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CTL02105
	Carrier Site Name:	FAIRFIELD-MURRAY
	Carrier Site FA:	10035026
Crown Castle Designation:	**BU Number:**	806355
	Site Name:	BRG 126 943086
	JDE Job Number:	686187
	Order Number:	586237, Rev.2
Engineering Firm Designation:	**B+T Group Report Designation:**	80964.019.01
Site Data:	**281 Wood House Road, Fairfield, CT, Fairfield County, 06824** **Latitude 41° 11' 45.30" Longitude -73° 16' 52.90"**	
Structure Information:	**Tower Height & Type:**	**170.5 ft. Monopole**
	Mount Elevation:	**146 ft.**
	Mount Type:	**13 ft. Sector Mount**

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

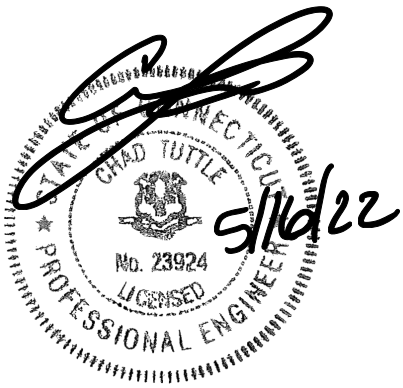
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Sector Mount **Sufficient**
***Results are valid upon the completion of changes listed in Recommendations section of the report**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Erik Perez

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/01/2023



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 - sector 13 ft. Sector Mount, designed by Sabre (Part# C10-857-802).

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.22
Seismic S_1:	0.055
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	Manufacturer	Model / Type	Mount / Modification Details
146	150	3	Ericsson	AIR 6419 B77G_CCIV3	13 ft. Sector Mount
	148	3	CCI Antennas	OPA65R-BU6D	
		3	Quintel Technology	QD6616-7	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		3	Ericsson	RRUS-32 B30	
		1	Raycap	DC9-48-60-24-8CEV_CCIV2	
	146	3	Ericsson	AIR 6449 B77D_CCVI2	
		3	Ericsson	RRUS 32 B2	
		3	Ericsson	RRUS 32 B66	
		2	Raycap	DC6-48-60-18-8F	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 04/01/2022	Crown Castle
RFDS		Date: 03/16/2022	
Mount Manufacturer Drawing	Sabre (Part# C10-857-802)	Date: 09/24/2018	Sabre

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.1), 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 by B+T Group, was used to calculate wind loading on all appurtenances, dishes, and mount members for various loading cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E). In addition, this analysis is in accordance with *AT&T's Mount Technical Directive – R21*.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. 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.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1,2	Face Horizontals	146	105	28.4	Pass
	Support Pipes		78	10.6	Pass
	Verticals		129	37.5	Pass
	Diagonals		3	12.5	Pass
	Connection Plates		102	23.5	Pass
	Mount Pipes		6	46.7	Pass
	Tiebacks		122	7.8	Pass
	Vertical Support Pipes		139	17.1	Pass
3	Mount to Tower Connection		-	19.7	Pass

Structure Rating (max from all components) =	**46.7%**

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

4.1) Recommendations

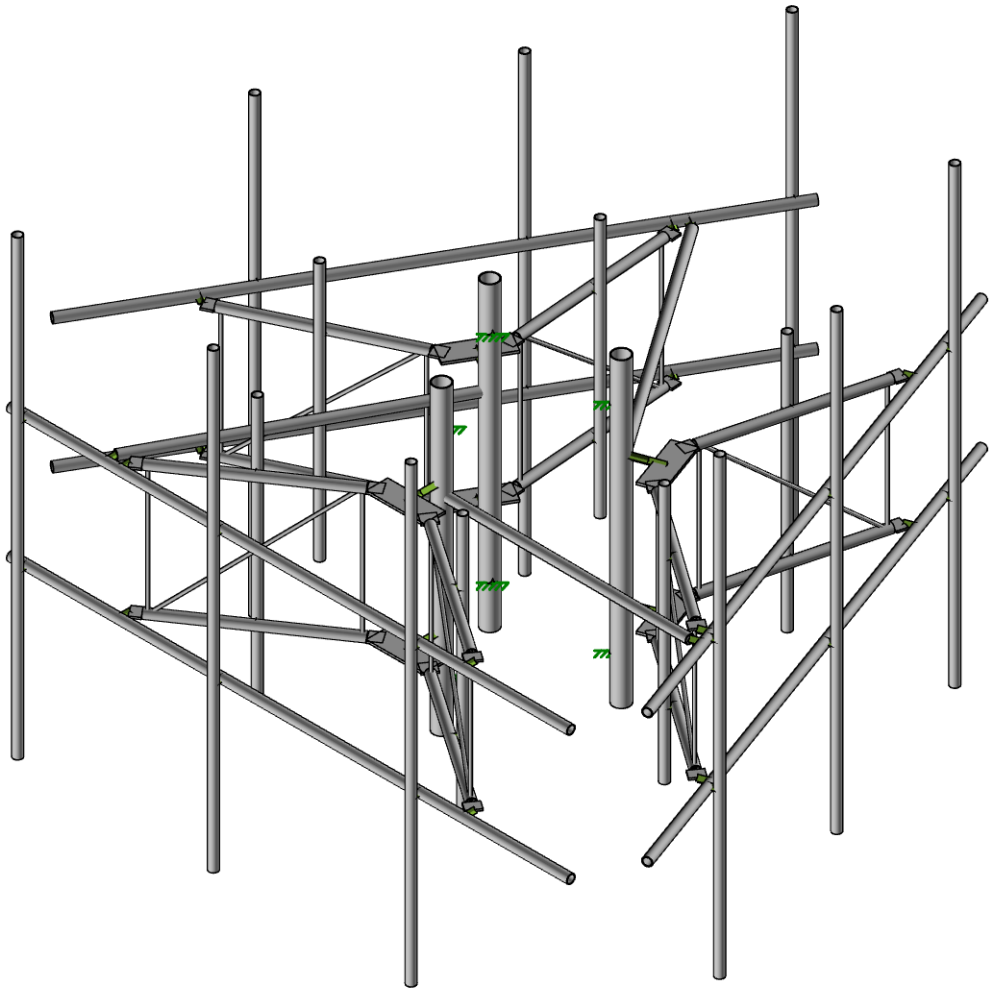
The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

1. Mount replacement, Sabre (Part # C10-857-802), P/N: ANT.46146
2. (9) 2” Std.x 10.5 ft. Mount Pipes, SitePro1 # P2126, P/N: ANT.16007
3. (6) 2” Std. x 6’-0” Long RRH Pipe or Conmat Equivalent

Beyond the mount replacement, no structural modifications are required at this time, provided that the above-listed changes are implemented.

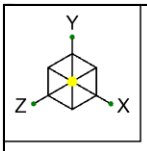
APPENDIX A

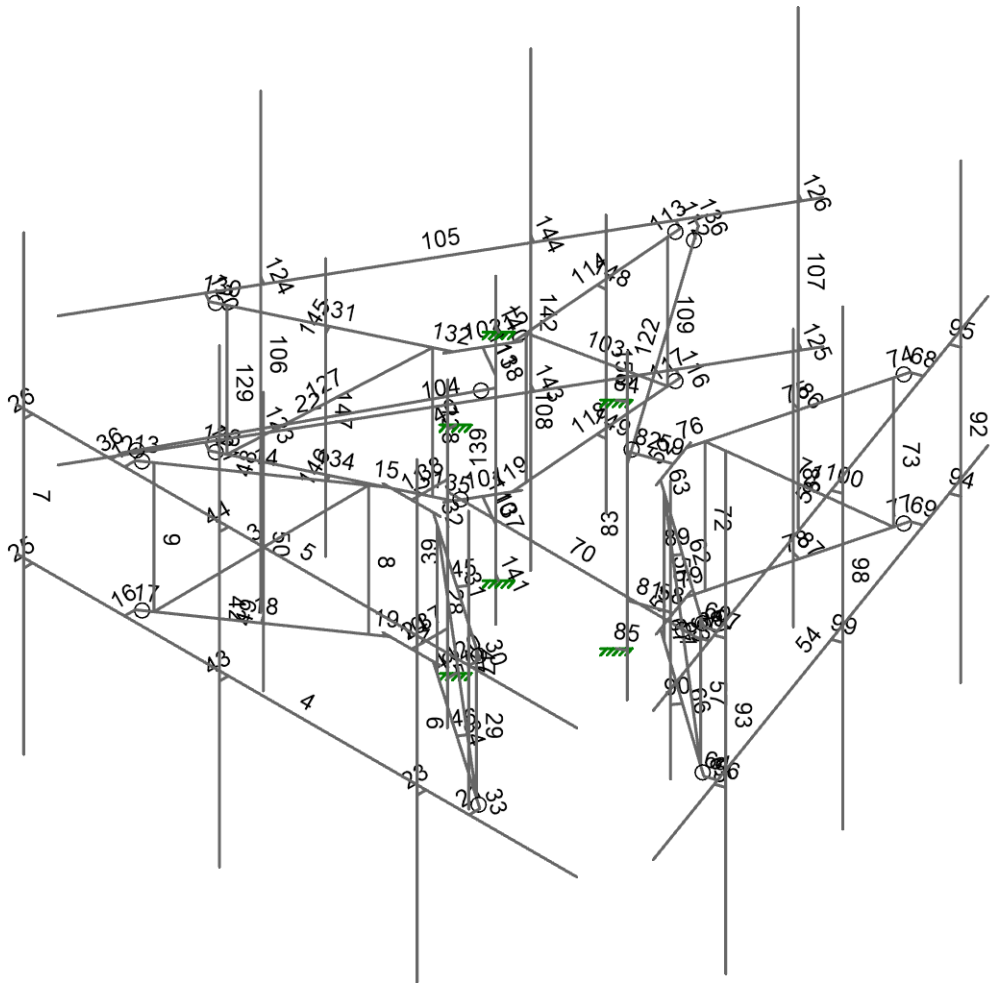
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

B+T Group	806355 - BRG 126 943086	AK1
AK		May 14, 2022
80964.019.01		80964_019_01_BRG 126 943086…





Envelope Only Solution

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AK		May 14, 2022
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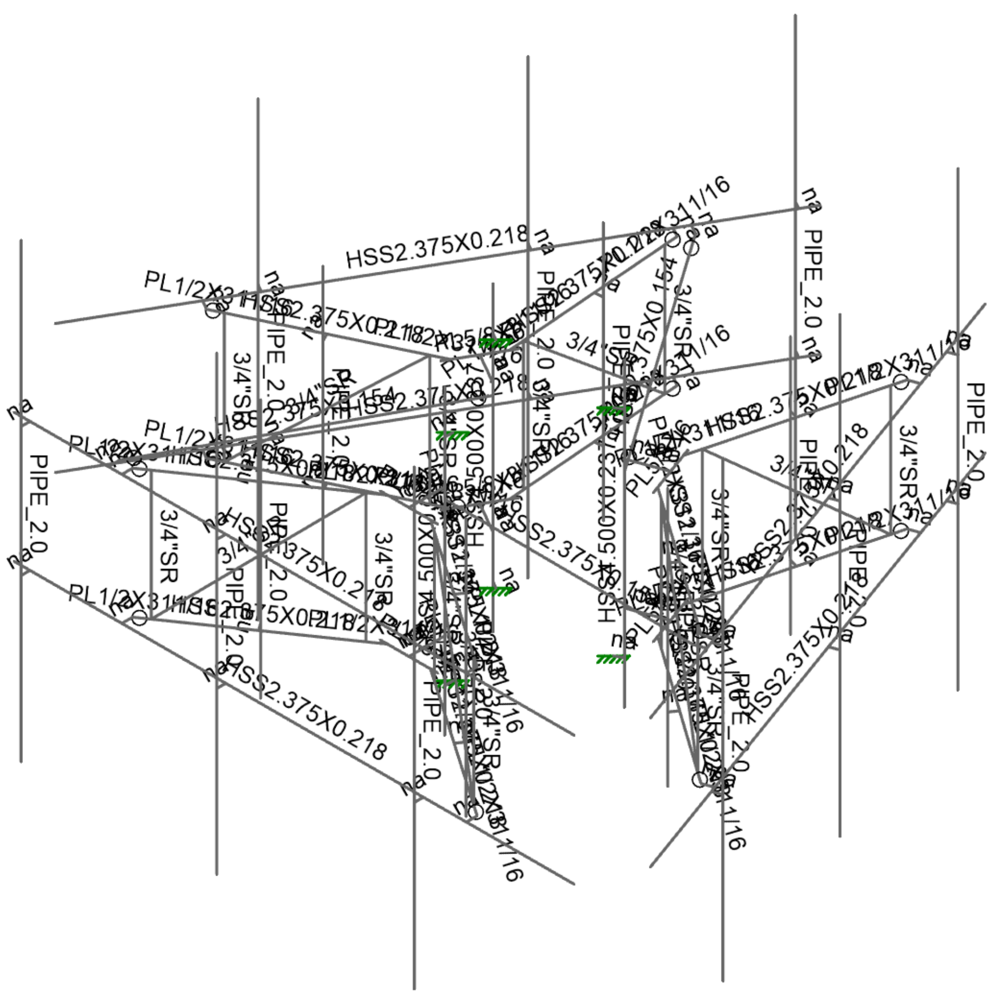

Envelope Only Solution

B+T Group	806355 - BRG 126 943086	AK3
AK		May 14, 2022
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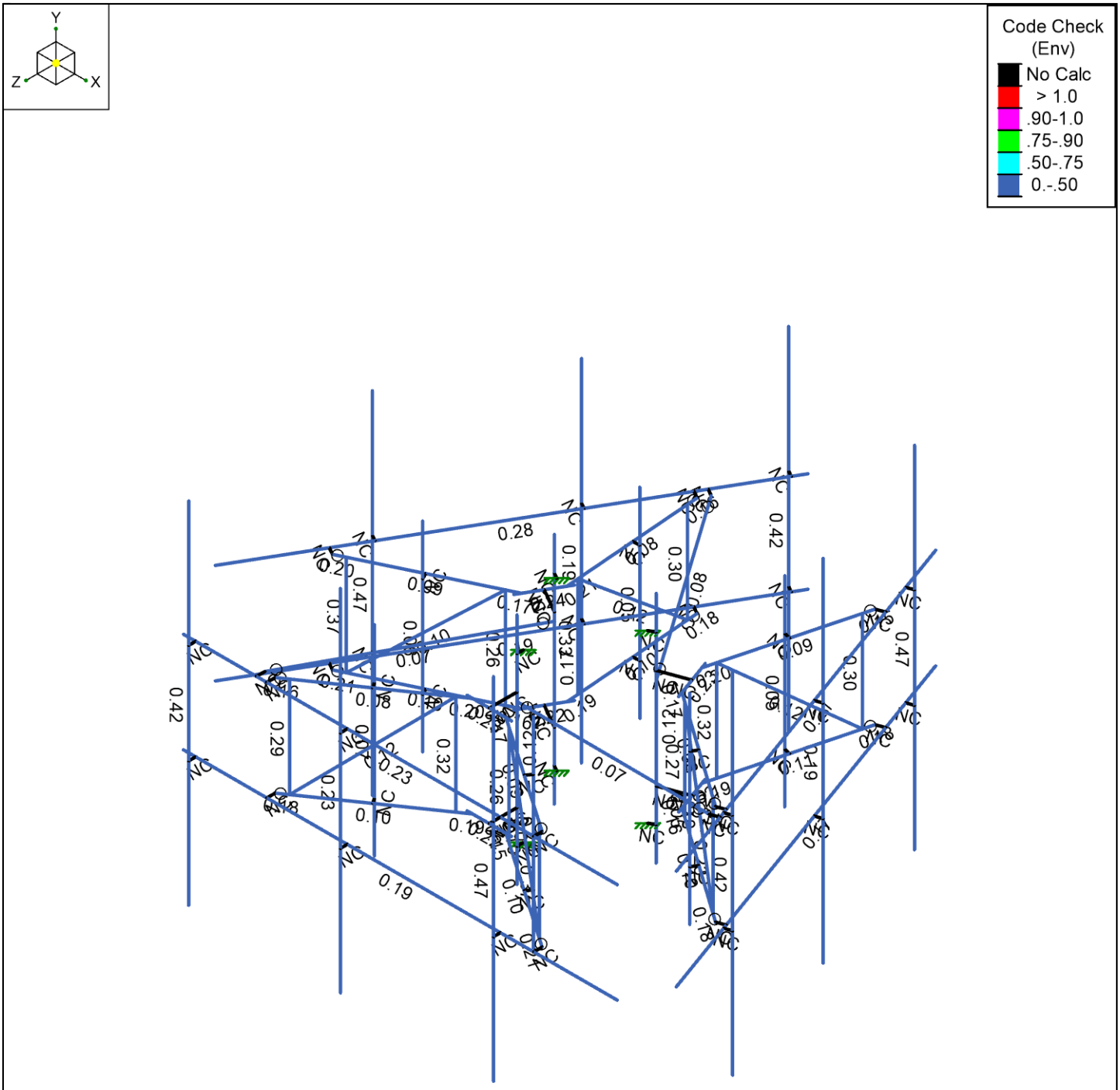
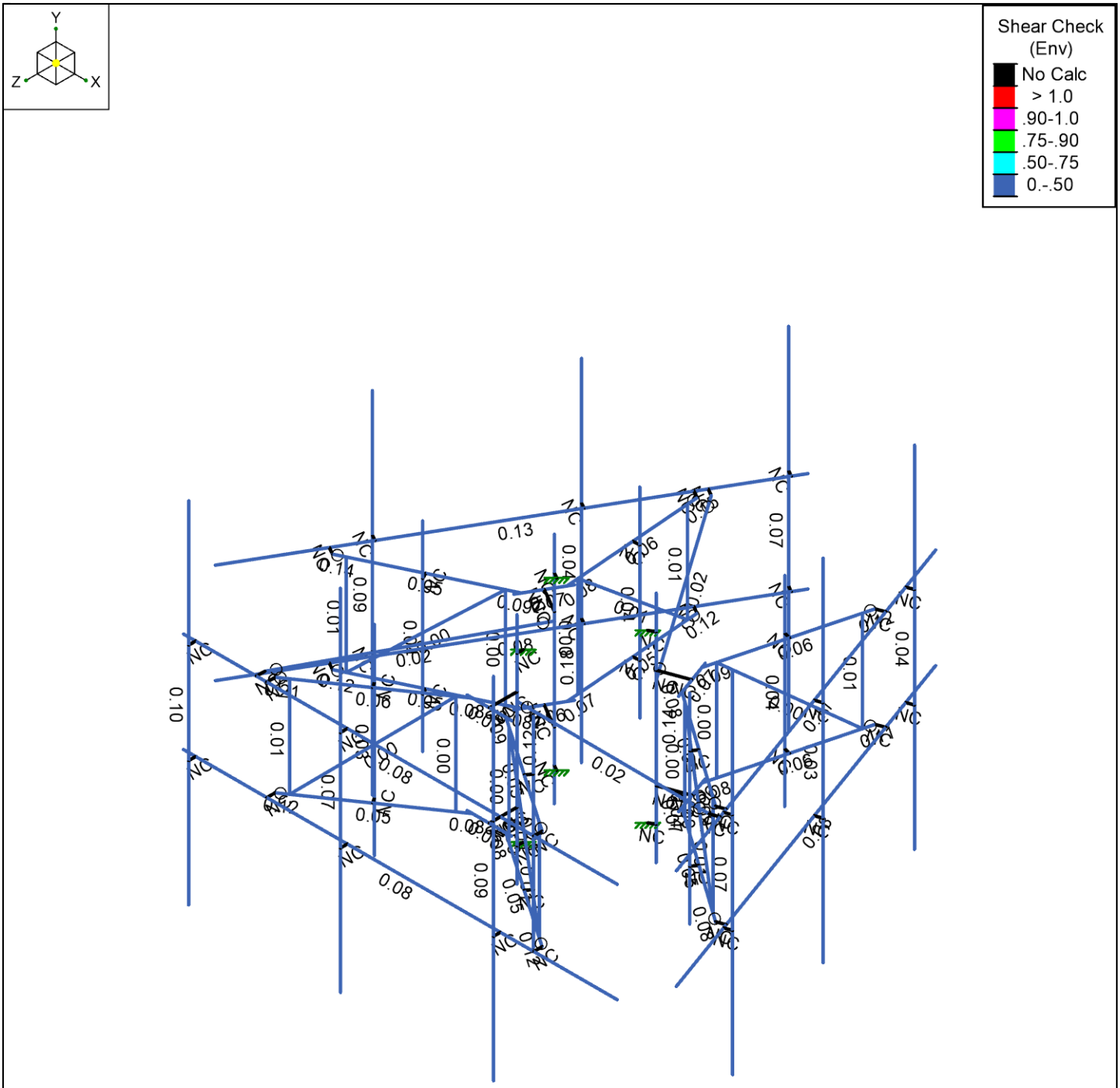


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	806355 - BRG 126 943086	AK4
AK		May 14, 2022
80964.019.01		80964_019_01_BRG 126 943086…



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	806355 - BRG 126 943086	AK5
AK		May 14, 2022
80964.019.01		80964_019_01_BRG 126 943086…

APPENDIX B

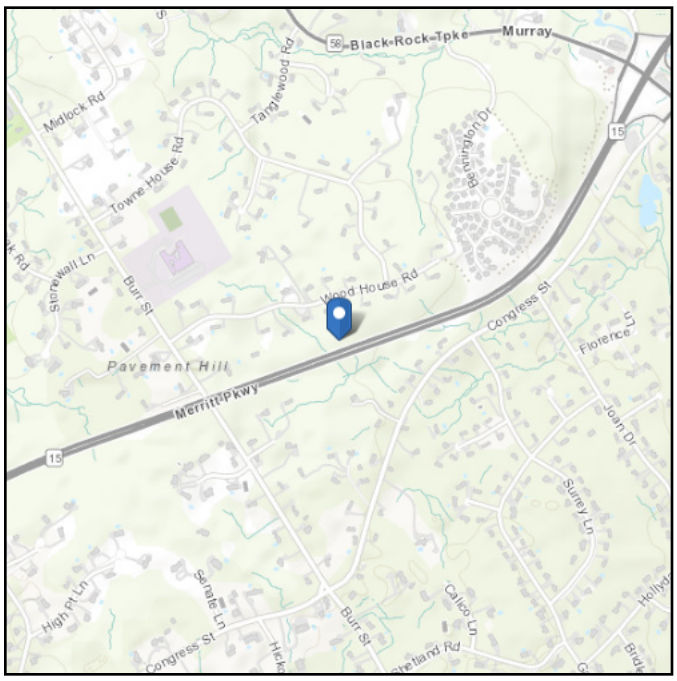
SOFTWARE INPUT CALCULATIONS

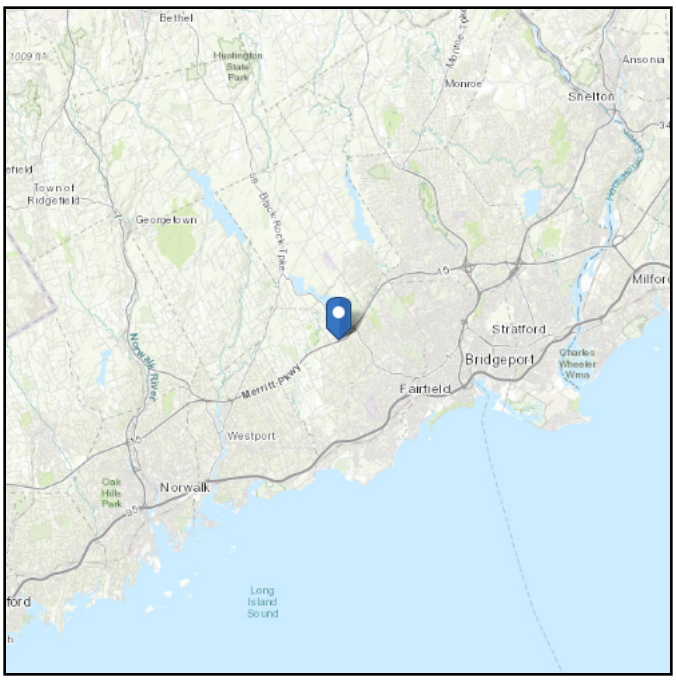
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 333.8 ft (NAVD 88)
Latitude: 41.195917
Longitude: -73.281361





Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 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:	Sat May 14 2022

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.

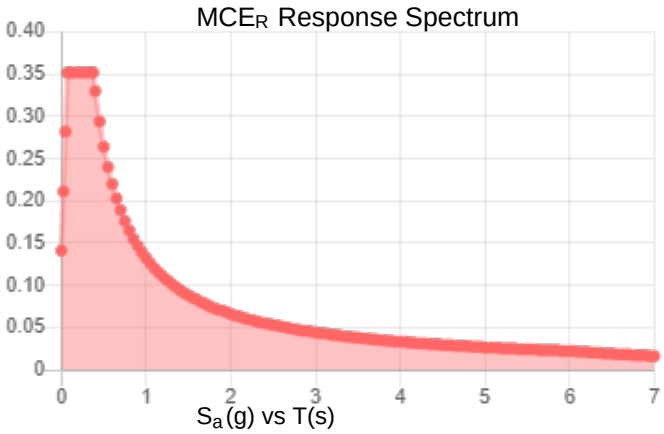
Seismic

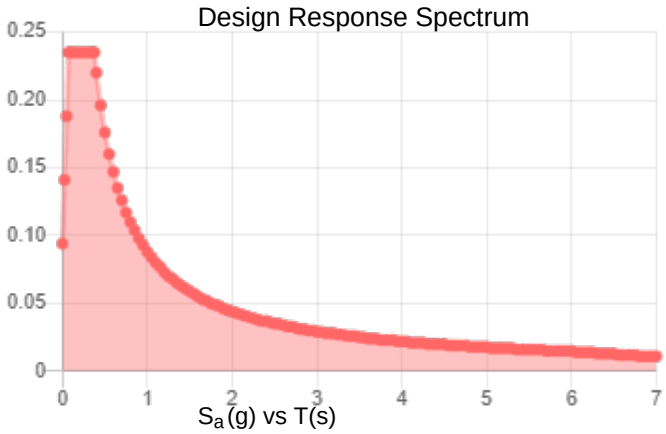
Site Soil Class: D - Default (see Section 11.4.3)

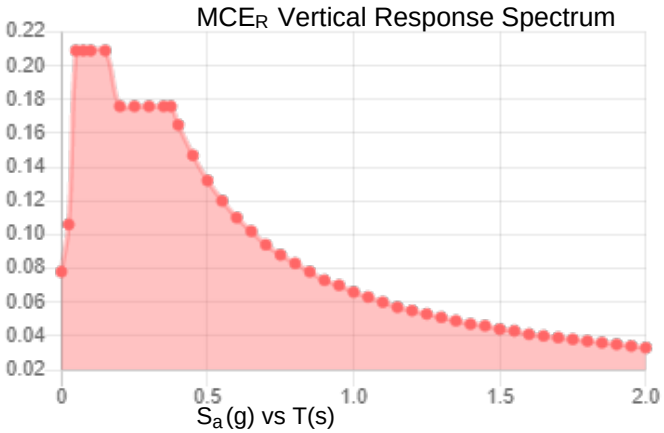
Results:

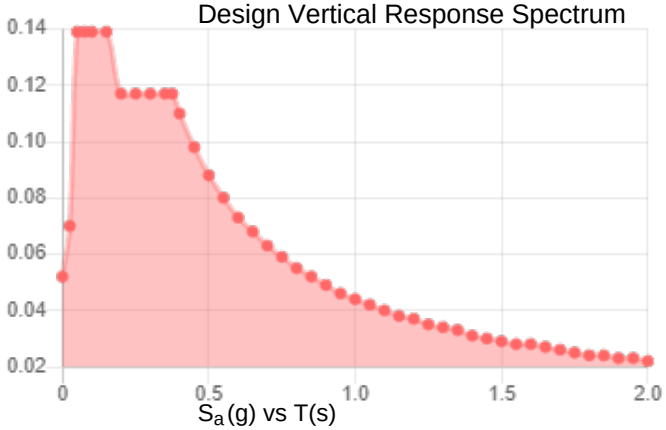
S_S :	0.22	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.127
F_v :	2.4	PGA_M :	0.196
S_{MS} :	0.352	F_{PGA} :	1.546
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.235	C_v :	0.74

Seismic Design Category B









Data Accessed: **Sat May 14 2022**

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:	Sat May 14 2022

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.

PROJECT	**80964.019.01 - BRG 126 943086, CT**	**KSC**
SUBJECT	**Sector Mount Analysis**	
DATE	**05/14/22**	

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	334	ft	[ASCE7 Hazard Tool]
Tower Height		:	170.50	ft	
Mount Elevation		:	146.00	ft	
Antenna Elevation		:	150.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	118	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.22		
	S_1	:	0.06		
	S_{DS}	:	0.24		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.11		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.99		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.16	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.118		[Sec. 2.7.7.1]
Amplification	A_s	:	2.42522		[Sec. 16.7]

	q_z	:	36.84	psf

PROJECT	**80964.019.01 - BRG 126 943086, CT**	**KSC**
SUBJECT	**Sector Mount Analysis**	
DATE	**05/14/22**	

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

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
INTEL TECHNOLC	QD6616-7	0.5	72.0	22.0	9.6	130.0	6.80	2.96	7.62	3.68	0.25	0.11	0.05	0.02
INTEL TECHNOLC	QD6616-7	0.5					6.80	2.96	7.62	3.68	0.25	0.11	0.05	0.02
ERICSSON	AIR 6419 B77G_CCIV3	0.5	31.1	16.1	7.3	44.0	2.09	1.01	2.57	1.43	0.07	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G_CCIV3	0.5					2.09	1.01	2.57	1.43	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.07	0.03	0.01	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	6.88	2.93	0.23	0.08	0.05	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	6.88	2.93	0.23	0.08	0.05	0.02
ERICSSON	RRUS 4478 B14_CCIV2	1	18.1	13.4	8.3	59.4	2.02	1.25	2.68	1.80	0.07	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B2	1	27.2	12.1	7.0	52.9	2.73	1.67	3.54	2.41	0.09	0.05	0.02	0.01
ERICSSON	TME-RRUS-32 B30	1	29.9	13.3	9.5	77.0	3.31	2.42	4.19	3.25	0.11	0.08	0.02	0.01
ERICSSON	RRUS 4449 B5/B12	1	17.9	13.2	9.4	71.0	1.97	1.41	2.61	1.98	0.07	0.05	0.01	0.01
ERICSSON	TME-RRUS 32 B66	1	27.2	12.1	7.0	53.0	2.74	1.67	3.55	2.41	0.09	0.05	0.02	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.14	1.14	0.03	0.03	0.01	0.01
ERICSSON	RRUS 4449 B5/B12	1	17.9	13.2	9.4	71.0	1.97	1.41	2.61	1.98	0.07	0.05	0.01	0.01
ERICSSON	TME-RRUS 32 B66	1	27.2	12.1	7.0	53.0	2.74	1.67	3.55	2.41	0.09	0.05	0.02	0.01
RAYCAP	DC9-48-60-24-8CEV_CCIV2	1	31.4	10.2	10.2	18.5	1.14	1.14	1.51	1.51	0.04	0.04	0.01	0.01
INTEL TECHNOLC	QD6616-7	0.5	72.0	22.0	9.6	130.0	6.80	2.96	7.62	3.68	0.25	0.11	0.05	0.02
INTEL TECHNOLC	QD6616-7	0.5					6.80	2.96	7.62	3.68	0.25	0.11	0.05	0.02
ERICSSON	AIR 6419 B77G_CCIV3	0.5	31.1	16.1	7.3	44.0	2.09	1.01	2.57	1.43	0.07	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G_CCIV3	0.5					2.09	1.01	2.57	1.43	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.07	0.03	0.01	0.01

PROJECT	**80964.019.01 - BRG 126 943086, CT**	**KSC**
SUBJECT	**Sector Mount Analysis**	
DATE	**05/14/22**	

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

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	6.88	2.93	0.23	0.08	0.05	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	6.88	2.93	0.23	0.08	0.05	0.02
ERICSSON	RRUS 4478 B14_CCIV2	1	18.1	13.4	8.3	59.4	2.02	1.25	2.68	1.80	0.07	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B2	1	27.2	12.1	7.0	52.9	2.73	1.67	3.54	2.41	0.09	0.05	0.02	0.01
ERICSSON	TME-RRUS-32 B30	1	29.9	13.3	9.5	77.0	3.31	2.42	4.19	3.25	0.11	0.08	0.02	0.01
ERICSSON	RRUS 4449 B5/B12	1	17.9	13.2	9.4	71.0	1.97	1.41	2.61	1.98	0.07	0.05	0.01	0.01
ERICSSON	TME-RRUS 32 B66	1	27.2	12.1	7.0	53.0	2.74	1.67	3.55	2.41	0.09	0.05	0.02	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.14	1.14	0.03	0.03	0.01	0.01
ERICSSON	RRUS 4478 B14_CCIV2	1	18.1	13.4	8.3	59.4	2.02	1.25	2.68	1.80	0.07	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B2	1	27.2	12.1	7.0	52.9	2.73	1.67	3.54	2.41	0.09	0.05	0.02	0.01
ERICSSON	TME-RRUS-32 B30	1	29.9	13.3	9.5	77.0	3.31	2.42	4.19	3.25	0.11	0.08	0.02	0.01
INTEL TECHNOLC	QD6616-7	0.5	72.0	22.0	9.6	130.0	6.80	2.96	7.62	3.68	0.25	0.11	0.05	0.02
INTEL TECHNOLC	QD6616-7	0.5					6.80	2.96	7.62	3.68	0.25	0.11	0.05	0.02
ERICSSON	AIR 6419 B77G_CCIV3	0.5		16.1	7.3	44.0	2.09	1.01	2.57	1.43	0.07	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G_CCIV3	0.5					2.09	1.01	2.57	1.43	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5		15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5		15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.07	0.03	0.01	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	6.88	2.93	0.23	0.08	0.05	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	6.88	2.93	0.23	0.08	0.05	0.02

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-6.5	-4	5.263916	
2	2	6.5	-4	5.263916	
3	3	-6.5	-1	5.263916	
4	4	6.5	-1	5.263916	
5	5	-0.666667	-1	2.597246	
6	6	-0.5	-1	2.597246	
7	7	-6.133333	2.75	5.472249	
8	8	-6.133333	-7.75	5.472249	
9	9	3	2.75	5.472249	
10	10	3	-7.75	5.47225	
11	11	0.666667	-4	2.597246	
12	12	-0.666667	-4	2.597246	
13	13	-0.5	-4	2.597246	
14	14	0.666667	-1	2.597246	
15	15	0	-1	2.597246	
16	16	-6.133333	-4	5.263916	
17	17	3	-4	5.263916	
18	18	-6.133333	-1	5.263916	
19	19	3	-1	5.263916	
20	20	0	-4	2.597246	
21	21	0	-1	2.263913	
22	22	0	-4	2.263913	
23	23	-4	-1	5.013916	
24	24	-4	-1	5.263916	
25	25	-4	-4	5.013916	
26	26	-4	-4	5.263916	
27	27	4	-1	5.013916	
28	28	4	-1	5.263916	
29	29	4	-4	5.013916	
30	30	4	-4	5.263916	
31	31	-6.133333	-4	5.472249	
32	32	3	-4	5.47225	
33	33	-6.133333	-1	5.472249	
34	34	3	-1	5.472249	
35	35	-3.812998	-1	4.884794	
36	36	-3.812998	-4	4.884794	
37	37	-3.744423	-1	4.837444	
38	38	-3.744423	-4	4.837444	
39	39	-0.79571	-1	2.801427	
40	40	-0.79571	-4	2.801427	
41	41	-0.727135	-1	2.754078	
42	42	-0.727135	-4	2.754078	
43	43	0.5	-1	2.597246	
44	44	0.5	-4	2.597246	
45	45	3.812998	-1	4.884794	
46	46	3.812998	-4	4.884794	
47	47	3.744423	-1	4.837444	
48	48	3.744423	-4	4.837444	
49	49	0.79571	-1	2.801427	
50	50	0.79571	-4	2.801427	
51	51	0.727135	-1	2.754078	
52	52	0.727135	-4	2.754078	
53	53	-4.3125	-1	5.013916	
54	54	-4.3125	-1	5.263916	
55	55	0	-1	1.763913	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	0	-4	1.763913	
57	57	0	1	1.763913	
58	58	0	-6	1.763913	
59	59	0	0	1.763913	
60	60	0	-5	1.763913	
61	61	0	0	1.576413	
62	62	0	-5	1.576413	
63	63	-1.5875	2.75	5.472249	
64	64	-1.5875	-7.75	5.47225	
65	65	-1.5875	-4	5.263916	
66	66	-1.5875	-1	5.263916	
67	67	-1.5875	-4	5.47225	
68	68	-1.5875	-1	5.472249	
69	69	2.270066	-1	3.819436	
70	70	2.383824	-1	3.656973	
71	71	2.270066	-4	3.819436	
72	72	2.383824	-4	3.656973	
73	73	2.383824	0.5	3.656973	
74	74	2.383824	-5.5	3.656973	
75	75	-2.270066	-1	3.819436	
76	76	-2.383824	-1	3.656973	
77	77	-2.270066	-4	3.819436	
78	78	-2.383824	-4	3.656973	
79	79	-2.383824	0.5	3.656973	
80	80	-2.383824	-5.5	3.656973	
81	81	0	0	0.909743	
82	82	0	0	0	
83	83	0.787861	0	-0.454872	
84	84	-0.787861	0	-0.454872	
85	85	7.039652	-4	4.028974	
86	86	2.59339	-4	-8.18703	
87	87	7.039652	-1	4.028974	
88	88	2.59339	-1	-8.18703	
89	89	2.538684	-1	-0.540512	
90	90	2.481681	-1	-0.697127	
91	91	2.082657	-4	-1.793435	
92	92	2.538684	-4	-0.540512	
93	93	2.481681	-4	-0.697127	
94	94	2.082657	-1	-1.793435	
95	95	2.310671	-1	-1.166973	
96	96	2.310671	-4	-1.166973	
97	97	1.99744	-1	-1.052967	
98	98	1.99744	-4	-1.052967	
99	99	5.949678	-1	1.765247	
100	100	6.184601	-1	1.679742	
101	101	5.949678	-4	1.765247	
102	102	6.184601	-4	1.679742	
103	103	3.213517	-1	-5.752294	
104	104	3.44844	-1	-5.837799	
105	105	3.213517	-4	-5.752294	
106	106	3.44844	-4	-5.837799	
107	107	5.764384	-1	1.633685	
108	108	5.764384	-4	1.633685	
109	109	5.696436	-1	1.58544	
110	110	5.696436	-4	1.58544	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	2.774686	-1	-0.489085	
112	112	2.774686	-4	-0.489085	
113	113	2.706739	-1	-0.53733	
114	114	2.706739	-4	-0.53733	
115	115	2.139661	-1	-1.63682	
116	116	2.139661	-4	-1.63682	
117	117	3.15614	-1	-5.532406	
118	118	3.15614	-4	-5.532406	
119	119	3.1351	-1	-5.451773	
120	120	3.1351	-4	-5.451773	
121	121	2.230389	-1	-1.98453	
122	122	2.230389	-4	-1.98453	
123	123	2.209349	-1	-1.903896	
124	124	2.209349	-4	-1.903896	
125	125	6.056559	-1	2.058901	
126	126	6.291483	-1	1.973396	
127	127	1.527593	-1	-0.881957	
128	128	1.527593	-4	-0.881957	
129	129	1.527593	1	-0.881957	
130	130	1.527593	-6	-0.881957	
131	131	1.527593	0	-0.881957	
132	132	1.527593	-5	-0.881957	
133	133	1.365214	0	-0.788207	
134	134	1.365214	-5	-0.788207	
135	135	2.682745	-1	-3.718151	
136	136	2.491172	-1	-3.769483	
137	137	2.682745	-4	-3.718151	
138	138	2.491172	-4	-3.769483	
139	139	2.491172	0.5	-3.769483	
140	140	2.491172	-5.5	-3.769483	
141	141	4.235561	-1	0.548178	
142	142	4.121804	-1	0.71064	
143	143	4.235561	-4	0.548178	
144	144	4.121804	-4	0.71064	
145	145	4.121804	0.5	0.71064	
146	146	4.121804	-5.5	0.71064	
147	147	6.425973	2.75	1.73378	
148	148	6.425973	-7.75	1.73378	
149	149	3.302189	2.75	-6.848745	
150	150	3.302189	-7.75	-6.848745	
151	151	6.230204	-4	1.805034	
152	152	3.10642	-4	-6.777491	
153	153	6.230204	-1	1.805034	
154	154	3.10642	-1	-6.777491	
155	155	6.425973	-4	1.73378	
156	156	3.302189	-4	-6.848745	
157	157	6.425973	-1	1.73378	
158	158	3.302189	-1	-6.848745	
159	159	4.871206	2.75	-2.537905	
160	160	4.871207	-7.75	-2.537906	
161	161	4.675437	-4	-2.466651	
162	162	4.675437	-1	-2.466651	
163	163	4.871207	-4	-2.537906	
164	164	4.871207	-1	-2.537905	
165	165	-1.308685	-4	-8.261123	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	166	-7.808685	-4	2.997207	
167	167	-1.308685	-1	-8.261123	
168	168	-7.808685	-1	2.997207	
169	169	-1.915948	-1	-1.875973	
170	170	-1.999281	-1	-1.731636	
171	171	-1.67244	2.75	-8.047747	
172	172	-1.67244	-7.75	-8.047747	
173	173	-6.239107	2.75	-0.138048	
174	174	-6.239107	-7.75	-0.138049	
175	175	-2.582615	-4	-0.721273	
176	176	-1.915948	-4	-1.875973	
177	177	-1.999281	-4	-1.731636	
178	178	-2.582615	-1	-0.721273	
179	179	-2.249281	-1	-1.298623	
180	180	-1.492019	-4	-7.94358	
181	181	-6.058685	-4	-0.033882	
182	182	-1.492019	-1	-7.94358	
183	183	-6.058685	-1	-0.033882	
184	184	-2.249281	-4	-1.298623	
185	185	-1.960606	-1	-1.131957	
186	186	-1.960606	-4	-1.131957	
187	187	-2.342179	-1	-5.97106	
188	188	-2.558685	-1	-6.09606	
189	189	-2.342179	-4	-5.97106	
190	190	-2.558685	-4	-6.09606	
191	191	-6.342179	-1	0.957143	
192	192	-6.558685	-1	0.832143	
193	193	-6.342179	-4	0.957143	
194	194	-6.558685	-4	0.832143	
195	195	-1.67244	-4	-8.047747	
196	196	-6.239107	-4	-0.138049	
197	197	-1.67244	-1	-8.047747	
198	198	-6.239107	-1	-0.138049	
199	199	-2.323857	-1	-5.74455	
200	200	-2.323857	-4	-5.74455	
201	201	-2.317138	-1	-5.661488	
202	202	-2.317138	-4	-5.661488	
203	203	-2.028252	-1	-2.089818	
204	204	-2.028252	-4	-2.089818	
205	205	-2.021534	-1	-2.006756	
206	206	-2.021534	-4	-2.006756	
207	207	-2.499281	-1	-0.86561	
208	208	-2.499281	-4	-0.86561	
209	209	-6.136854	-1	0.859756	
210	210	-6.136854	-4	0.859756	
211	211	-6.061561	-1	0.824043	
212	212	-6.061561	-4	0.824043	
213	213	-2.823962	-1	-0.711609	
214	214	-2.823962	-4	-0.711609	
215	215	-2.748669	-1	-0.747322	
216	216	-2.748669	-4	-0.747322	
217	217	-2.185929	-1	-6.241693	
218	218	-2.402435	-1	-6.366693	
219	219	-1.527593	-1	-0.881957	
220	220	-1.527593	-4	-0.881957	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
221	221	-1.527593	1	-0.881957	
222	222	-1.527593	-6	-0.881957	
223	223	-1.527593	0	-0.881957	
224	224	-1.527593	-5	-0.881957	
225	225	-1.365214	0	-0.788207	
226	226	-1.365214	-5	-0.788207	
227	227	-3.945357	2.75	-4.11094	
228	228	-3.945357	-7.75	-4.11094	
229	229	-3.764935	-4	-4.006773	
230	230	-3.764935	-1	-4.006773	
231	231	-3.945357	-4	-4.11094	
232	232	-3.945357	-1	-4.11094	
233	233	-4.442761	-1	0.056217	
234	234	-4.358944	-1	0.235965	
235	235	-4.442761	-4	0.056217	
236	236	-4.358944	-4	0.235965	
237	237	-4.358944	0.5	0.235965	
238	238	-4.358944	-5.5	0.235965	
239	239	-2.172695	-1	-3.875653	
240	240	-1.97512	-1	-3.892938	
241	241	-2.172695	-4	-3.875653	
242	242	-1.97512	-4	-3.892938	
243	243	-1.97512	0.5	-3.892938	
244	244	-1.97512	-5.5	-3.892938	
245	245	0	-1.25	1.763913	
246	246	1.527593	-1.25	-0.881957	
247	247	-1.527593	-1.25	-0.881957	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	61	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	62	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	81						
4	82						
5	83						
6	84						
7	133	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	134	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	225	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	226	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A53 Gr.B 50	29000	11154	0.3	0.65	0.49	50	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Main Horizontals	HSS2.375X0.218	Beam	Pipe	A53 Gr.B 50	Typical	1.39	0.824	0.824	1.65
2	Supporting Horizontals	HSS2.375X0.218	Beam	Pipe	A53 Gr.B 50	Typical	1.39	0.824	0.824	1.65
3	Verticals	3/4"SR	Column	BAR	A572 Gr.50	Typical	0.442	0.016	0.016	0.031
4	Diagonals	3/4"SR	HBrace	BAR	A572 Gr.50	Typical	0.442	0.016	0.016	0.031
5	Connection Plate	PL5/8X6	Beam	RECT	A572 Gr.50	Typical	3.75	0.122	11.25	0.456
6	Plates	PL1/2X311/16	Beam	RECT	A572 Gr.50	Typical	1.844	0.038	2.089	0.141
7	Mount-Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	Tieback	HSS2.375X0.154	Beam	Pipe	A53 Gr.B 50	Typical	1	0.627	0.627	1.25
9	Connection Pipe	HSS4.500X0.237	Column	Pipe	A53 Gr.B 50	Typical	2.96	6.79	6.79	13.6

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	12	11	90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
2	2	5	14	90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
3	3	38	39		Diagonals	HBrace	BAR	A572 Gr.50	Typical
4	4	1	2		Main Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
5	5	3	4		Main Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
6	6	9	10		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
7	7	7	8		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
8	8	39	40		Verticals	Column	BAR	A572 Gr.50	Typical
9	9	37	38		Verticals	Column	BAR	A572 Gr.50	Typical
10	10	22	20		RIGID	None	None	RIGID	Typical
11	11	21	15		RIGID	None	None	RIGID	Typical
12	12	23	24		RIGID	None	None	RIGID	Typical
13	13	23	35	90	Plates	Beam	RECT	A572 Gr.50	Typical
14	14	35	41		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
15	15	41	6	90	Plates	Beam	RECT	A572 Gr.50	Typical
16	16	25	26		RIGID	None	None	RIGID	Typical
17	17	25	36	90	Plates	Beam	RECT	A572 Gr.50	Typical
18	18	36	42		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
19	19	42	13	90	Plates	Beam	RECT	A572 Gr.50	Typical
20	20	27	28		RIGID	None	None	RIGID	Typical
21	21	29	30		RIGID	None	None	RIGID	Typical
22	22	53	247		Tieback	Beam	Pipe	A53 Gr.B 50	Typical
23	23	32	17		RIGID	None	None	RIGID	Typical
24	24	34	19		RIGID	None	None	RIGID	Typical
25	25	31	16		RIGID	None	None	RIGID	Typical
26	26	33	18		RIGID	None	None	RIGID	Typical
27	27	48	49		Diagonals	HBrace	BAR	A572 Gr.50	Typical
28	28	49	50		Verticals	Column	BAR	A572 Gr.50	Typical
29	29	47	48		Verticals	Column	BAR	A572 Gr.50	Typical
30	30	27	45	90	Plates	Beam	RECT	A572 Gr.50	Typical
31	31	45	51		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
32	32	51	43	90	Plates	Beam	RECT	A572 Gr.50	Typical
33	33	29	46	90	Plates	Beam	RECT	A572 Gr.50	Typical
34	34	46	52		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
35	35	52	44	90	Plates	Beam	RECT	A572 Gr.50	Typical
36	36	53	54		RIGID	None	None	RIGID	Typical
37	37	22	56		RIGID	None	None	RIGID	Typical
38	38	21	55		RIGID	None	None	RIGID	Typical
39	39	58	57		Connection Pipe	Column	Pipe	A53 Gr.B 50	Typical
40	40	59	61		RIGID	None	None	RIGID	Typical
41	41	60	62		RIGID	None	None	RIGID	Typical
42	42	63	64		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
43	43	67	65		RIGID	None	None	RIGID	Typical
44	44	68	66		RIGID	None	None	RIGID	Typical
45	45	69	70		RIGID	None	None	RIGID	Typical
46	46	71	72		RIGID	None	None	RIGID	Typical
47	47	73	74		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
48	48	75	76		RIGID	None	None	RIGID	Typical
49	49	77	78		RIGID	None	None	RIGID	Typical
50	50	79	80		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
51	51	92	91	90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
52	52	89	94	90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
53	53	110	111		Diagonals	HBrace	BAR	A572 Gr.50	Typical
54	54	85	86		Main Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
55	55	87	88		Main Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
56	56	111	112		Verticals	Column	BAR	A572 Gr.50	Typical
57	57	109	110		Verticals	Column	BAR	A572 Gr.50	Typical
58	58	98	96		RIGID	None	None	RIGID	Typical
59	59	97	95		RIGID	None	None	RIGID	Typical
60	60	99	100		RIGID	None	None	RIGID	Typical
61	61	99	107	90	Plates	Beam	RECT	A572 Gr.50	Typical
62	62	107	113		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
63	63	113	90	90	Plates	Beam	RECT	A572 Gr.50	Typical
64	64	101	102		RIGID	None	None	RIGID	Typical
65	65	101	108	90	Plates	Beam	RECT	A572 Gr.50	Typical
66	66	108	114		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
67	67	114	93	90	Plates	Beam	RECT	A572 Gr.50	Typical
68	68	103	104		RIGID	None	None	RIGID	Typical
69	69	105	106		RIGID	None	None	RIGID	Typical
70	70	125	245		Tieback	Beam	Pipe	A53 Gr.B 50	Typical
71	71	120	121		Diagonals	HBrace	BAR	A572 Gr.50	Typical
72	72	121	122		Verticals	Column	BAR	A572 Gr.50	Typical
73	73	119	120		Verticals	Column	BAR	A572 Gr.50	Typical
74	74	103	117	90	Plates	Beam	RECT	A572 Gr.50	Typical
75	75	117	123		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
76	76	123	115	90	Plates	Beam	RECT	A572 Gr.50	Typical
77	77	105	118	90	Plates	Beam	RECT	A572 Gr.50	Typical
78	78	118	124		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
79	79	124	116	90	Plates	Beam	RECT	A572 Gr.50	Typical
80	80	125	126		RIGID	None	None	RIGID	Typical
81	81	98	128		RIGID	None	None	RIGID	Typical
82	82	97	127		RIGID	None	None	RIGID	Typical
83	83	130	129		Connection Pipe	Column	Pipe	A53 Gr.B 50	Typical
84	84	131	133		RIGID	None	None	RIGID	Typical
85	85	132	134		RIGID	None	None	RIGID	Typical
86	86	135	136		RIGID	None	None	RIGID	Typical
87	87	137	138		RIGID	None	None	RIGID	Typical
88	88	139	140		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
89	89	141	142		RIGID	None	None	RIGID	Typical
90	90	143	144		RIGID	None	None	RIGID	Typical
91	91	145	146		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
92	92	149	150		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
93	93	147	148		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
94	94	156	152		RIGID	None	None	RIGID	Typical
95	95	158	154		RIGID	None	None	RIGID	Typical
96	96	155	151		RIGID	None	None	RIGID	Typical
97	97	157	153		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
98	98	159	160		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
99	99	163	161		RIGID	None	None	RIGID	Typical
100	100	164	162		RIGID	None	None	RIGID	Typical
101	101	176	175	90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
102	102	169	178	90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
103	103	202	203		Diagonals	HBrace	BAR	A572 Gr.50	Typical
104	104	165	166		Main Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
105	105	167	168		Main Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
106	106	173	174		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
107	107	171	172		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
108	108	203	204		Verticals	Column	BAR	A572 Gr.50	Typical
109	109	201	202		Verticals	Column	BAR	A572 Gr.50	Typical
110	110	186	184		RIGID	None	None	RIGID	Typical
111	111	185	179		RIGID	None	None	RIGID	Typical
112	112	187	188		RIGID	None	None	RIGID	Typical
113	113	187	199	90	Plates	Beam	RECT	A572 Gr.50	Typical
114	114	199	205		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
115	115	205	170	90	Plates	Beam	RECT	A572 Gr.50	Typical
116	116	189	190		RIGID	None	None	RIGID	Typical
117	117	189	200	90	Plates	Beam	RECT	A572 Gr.50	Typical
118	118	200	206		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
119	119	206	177	90	Plates	Beam	RECT	A572 Gr.50	Typical
120	120	191	192		RIGID	None	None	RIGID	Typical
121	121	193	194		RIGID	None	None	RIGID	Typical
122	122	217	246		Tieback	Beam	Pipe	A53 Gr.B 50	Typical
123	123	196	181		RIGID	None	None	RIGID	Typical
124	124	198	183		RIGID	None	None	RIGID	Typical
125	125	195	180		RIGID	None	None	RIGID	Typical
126	126	197	182		RIGID	None	None	RIGID	Typical
127	127	212	213		Diagonals	HBrace	BAR	A572 Gr.50	Typical
128	128	213	214		Verticals	Column	BAR	A572 Gr.50	Typical
129	129	211	212		Verticals	Column	BAR	A572 Gr.50	Typical
130	130	191	209	90	Plates	Beam	RECT	A572 Gr.50	Typical
131	131	209	215		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
132	132	215	207	90	Plates	Beam	RECT	A572 Gr.50	Typical
133	133	193	210	90	Plates	Beam	RECT	A572 Gr.50	Typical
134	134	210	216		Supporting Horizontals	Beam	Pipe	A53 Gr.B 50	Typical
135	135	216	208	90	Plates	Beam	RECT	A572 Gr.50	Typical
136	136	217	218		RIGID	None	None	RIGID	Typical
137	137	186	220		RIGID	None	None	RIGID	Typical
138	138	185	219		RIGID	None	None	RIGID	Typical
139	139	222	221		Connection Pipe	Column	Pipe	A53 Gr.B 50	Typical
140	140	223	225		RIGID	None	None	RIGID	Typical
141	141	224	226		RIGID	None	None	RIGID	Typical
142	142	227	228		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
143	143	231	229		RIGID	None	None	RIGID	Typical
144	144	232	230		RIGID	None	None	RIGID	Typical
145	145	233	234		RIGID	None	None	RIGID	Typical
146	146	235	236		RIGID	None	None	RIGID	Typical
147	147	237	238		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
148	148	239	240		RIGID	None	None	RIGID	Typical
149	149	241	242		RIGID	None	None	RIGID	Typical
150	150	243	244		Mount-Pipe	Column	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2			Yes	N/A	None
3	3			Yes	** NA **	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6			Yes	** NA **	None
7	7			Yes	** NA **	None
8	8			Yes	** NA **	None
9	9			Yes	** NA **	None
10	10			Yes	** NA **	None
11	11			Yes	** NA **	None
12	12			Yes	** NA **	None
13	13	BenPIN		Yes	N/A	None
14	14			Yes	N/A	None
15	15			Yes	N/A	None
16	16			Yes	** NA **	None
17	17	BenPIN		Yes	N/A	None
18	18			Yes	N/A	None
19	19			Yes	N/A	None
20	20			Yes	** NA **	None
21	21			Yes	** NA **	None
22	22	BenPIN	BenPIN	Yes	N/A	None
23	23			Yes	** NA **	None
24	24			Yes	** NA **	None
25	25			Yes	** NA **	None
26	26			Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30	BenPIN		Yes	N/A	None
31	31			Yes	N/A	None
32	32			Yes	N/A	None
33	33	BenPIN		Yes	N/A	None
34	34			Yes	N/A	None
35	35			Yes	N/A	None
36	36			Yes	** NA **	None
37	37			Yes	** NA **	None
38	38			Yes	** NA **	None
39	39			Yes	** NA **	None
40	40			Yes	** NA **	None
41	41			Yes	** NA **	None
42	42			Yes	** NA **	None
43	43			Yes	** NA **	None
44	44			Yes	** NA **	None
45	45			Yes	** NA **	None
46	46			Yes	** NA **	None
47	47			Yes	** NA **	None
48	48			Yes	** NA **	None
49	49			Yes	** NA **	None
50	50			Yes	** NA **	None
51	51			Yes	N/A	None
52	52			Yes	N/A	None
53	53			Yes	** NA **	None
54	54			Yes	N/A	None
55	55			Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
56	56			Yes	** NA **	None
57	57			Yes	** NA **	None
58	58			Yes	** NA **	None
59	59			Yes	** NA **	None
60	60			Yes	** NA **	None
61	61	BenPIN		Yes	N/A	None
62	62			Yes	N/A	None
63	63			Yes	N/A	None
64	64			Yes	** NA **	None
65	65	BenPIN		Yes	N/A	None
66	66			Yes	N/A	None
67	67			Yes	N/A	None
68	68			Yes	** NA **	None
69	69			Yes	** NA **	None
70	70	BenPIN	BenPIN	Yes	N/A	None
71	71			Yes	** NA **	None
72	72			Yes	** NA **	None
73	73			Yes	** NA **	None
74	74	BenPIN		Yes	N/A	None
75	75			Yes	N/A	None
76	76			Yes	N/A	None
77	77	BenPIN		Yes	N/A	None
78	78			Yes	N/A	None
79	79			Yes	N/A	None
80	80			Yes	** NA **	None
81	81			Yes	** NA **	None
82	82			Yes	** NA **	None
83	83			Yes	** NA **	None
84	84			Yes	** NA **	None
85	85			Yes	** NA **	None
86	86			Yes	** NA **	None
87	87			Yes	** NA **	None
88	88			Yes	** NA **	None
89	89			Yes	** NA **	None
90	90			Yes	** NA **	None
91	91			Yes	** NA **	None
92	92			Yes	** NA **	None
93	93			Yes	** NA **	None
94	94			Yes	** NA **	None
95	95			Yes	** NA **	None
96	96			Yes	** NA **	None
97	97			Yes	** NA **	None
98	98			Yes	** NA **	None
99	99			Yes	** NA **	None
100	100			Yes	** NA **	None
101	101			Yes	N/A	None
102	102			Yes	N/A	None
103	103			Yes	** NA **	None
104	104			Yes	N/A	None
105	105			Yes	N/A	None
106	106			Yes	** NA **	None
107	107			Yes	** NA **	None
108	108			Yes	** NA **	None
109	109			Yes	** NA **	None
110	110			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
111	111			Yes	** NA **	None
112	112			Yes	** NA **	None
113	113	BenPIN		Yes	N/A	None
114	114			Yes	N/A	None
115	115			Yes	N/A	None
116	116			Yes	** NA **	None
117	117	BenPIN		Yes	N/A	None
118	118			Yes	N/A	None
119	119			Yes	N/A	None
120	120			Yes	** NA **	None
121	121			Yes	** NA **	None
122	122	BenPIN	BenPIN	Yes	N/A	None
123	123			Yes	** NA **	None
124	124			Yes	** NA **	None
125	125			Yes	** NA **	None
126	126			Yes	** NA **	None
127	127			Yes	** NA **	None
128	128			Yes	** NA **	None
129	129			Yes	** NA **	None
130	130	BenPIN		Yes	N/A	None
131	131			Yes	N/A	None
132	132			Yes	N/A	None
133	133	BenPIN		Yes	N/A	None
134	134			Yes	N/A	None
135	135			Yes	N/A	None
136	136			Yes	** NA **	None
137	137			Yes	** NA **	None
138	138			Yes	** NA **	None
139	139			Yes	** NA **	None
140	140			Yes	** NA **	None
141	141			Yes	** NA **	None
142	142			Yes	** NA **	None
143	143			Yes	** NA **	None
144	144			Yes	** NA **	None
145	145			Yes	** NA **	None
146	146			Yes	** NA **	None
147	147			Yes	** NA **	None
148	148			Yes	** NA **	None
149	149			Yes	** NA **	None
150	150			Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	Connection Plate	1.333	Lbyy	N/A	N/A	Lateral
2	2	Connection Plate	1.333	Lbyy	N/A	N/A	Lateral
3	3	Diagonals	4.673	Lbyy	N/A	N/A	Lateral
4	4	Main Horizontals	13	Lbyy	N/A	N/A	Lateral
5	5	Main Horizontals	13	Lbyy	N/A	N/A	Lateral
6	6	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
7	7	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
8	8	Verticals	3	Lbyy	N/A	N/A	Lateral
9	9	Verticals	3	Lbyy	N/A	N/A	Lateral
10	13	Plates	0.227	Lbyy	N/A	N/A	Lateral
11	14	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
12	15	Plates	0.276	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
13	17	Plates	0.227	Lbyy	N/A	N/A	Lateral
14	18	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
15	19	Plates	0.276	Lbyy	N/A	N/A	Lateral
16	22	Tieback	6.525	Lbyy	N/A	N/A	Lateral
17	27	Diagonals	4.673	Lbyy	N/A	N/A	Lateral
18	28	Verticals	3	Lbyy	N/A	N/A	Lateral
19	29	Verticals	3	Lbyy	N/A	N/A	Lateral
20	30	Plates	0.227	Lbyy	N/A	N/A	Lateral
21	31	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
22	32	Plates	0.276	Lbyy	N/A	N/A	Lateral
23	33	Plates	0.227	Lbyy	N/A	N/A	Lateral
24	34	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
25	35	Plates	0.276	Lbyy	N/A	N/A	Lateral
26	39	Connection Pipe	7	Lbyy	N/A	N/A	Lateral
27	42	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
28	47	Mount-Pipe	6	Lbyy	N/A	N/A	Lateral
29	50	Mount-Pipe	6	Lbyy	N/A	N/A	Lateral
30	51	Connection Plate	1.333	Lbyy	N/A	N/A	Lateral
31	52	Connection Plate	1.333	Lbyy	N/A	N/A	Lateral
32	53	Diagonals	4.673	Lbyy	N/A	N/A	Lateral
33	54	Main Horizontals	13	Lbyy	N/A	N/A	Lateral
34	55	Main Horizontals	13	Lbyy	N/A	N/A	Lateral
35	56	Verticals	3	Lbyy	N/A	N/A	Lateral
36	57	Verticals	3	Lbyy	N/A	N/A	Lateral
37	61	Plates	0.227	Lbyy	N/A	N/A	Lateral
38	62	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
39	63	Plates	0.276	Lbyy	N/A	N/A	Lateral
40	65	Plates	0.227	Lbyy	N/A	N/A	Lateral
41	66	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
42	67	Plates	0.276	Lbyy	N/A	N/A	Lateral
43	70	Tieback	6.069	Lbyy	N/A	N/A	Lateral
44	71	Diagonals	4.673	Lbyy	N/A	N/A	Lateral
45	72	Verticals	3	Lbyy	N/A	N/A	Lateral
46	73	Verticals	3	Lbyy	N/A	N/A	Lateral
47	74	Plates	0.227	Lbyy	N/A	N/A	Lateral
48	75	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
49	76	Plates	0.276	Lbyy	N/A	N/A	Lateral
50	77	Plates	0.227	Lbyy	N/A	N/A	Lateral
51	78	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
52	79	Plates	0.276	Lbyy	N/A	N/A	Lateral
53	83	Connection Pipe	7	Lbyy	N/A	N/A	Lateral
54	88	Mount-Pipe	6	Lbyy	N/A	N/A	Lateral
55	91	Mount-Pipe	6	Lbyy	N/A	N/A	Lateral
56	92	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
57	93	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
58	98	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
59	101	Connection Plate	1.333	Lbyy	N/A	N/A	Lateral
60	102	Connection Plate	1.333	Lbyy	N/A	N/A	Lateral
61	103	Diagonals	4.673	Lbyy	N/A	N/A	Lateral
62	104	Main Horizontals	13	Lbyy	N/A	N/A	Lateral
63	105	Main Horizontals	13	Lbyy	N/A	N/A	Lateral
64	106	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
65	107	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
66	108	Verticals	3	Lbyy	N/A	N/A	Lateral
67	109	Verticals	3	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
68	113	Plates	0.227	Lbyy	N/A	N/A	Lateral
69	114	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
70	115	Plates	0.276	Lbyy	N/A	N/A	Lateral
71	117	Plates	0.227	Lbyy	N/A	N/A	Lateral
72	118	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
73	119	Plates	0.276	Lbyy	N/A	N/A	Lateral
74	122	Tieback	6.525	Lbyy	N/A	N/A	Lateral
75	127	Diagonals	4.673	Lbyy	N/A	N/A	Lateral
76	128	Verticals	3	Lbyy	N/A	N/A	Lateral
77	129	Verticals	3	Lbyy	N/A	N/A	Lateral
78	130	Plates	0.227	Lbyy	N/A	N/A	Lateral
79	131	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
80	132	Plates	0.276	Lbyy	N/A	N/A	Lateral
81	133	Plates	0.227	Lbyy	N/A	N/A	Lateral
82	134	Supporting Horizontals	3.75	Lbyy	N/A	N/A	Lateral
83	135	Plates	0.276	Lbyy	N/A	N/A	Lateral
84	139	Connection Pipe	7	Lbyy	N/A	N/A	Lateral
85	142	Mount-Pipe	10.5	Lbyy	N/A	N/A	Lateral
86	147	Mount-Pipe	6	Lbyy	N/A	N/A	Lateral
87	150	Mount-Pipe	6	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.065	%5
2	6	Y	-0.065	%60
3	6	Y	0	0
4	6	Y	0	0
5	6	Y	0	0
6	42	Y	-0.022	%5
7	42	Y	-0.022	%25
8	42	Y	-0.041	%75
9	42	Y	-0.041	%95
10	42	Y	0	0
11	7	Y	-0.032	%5
12	7	Y	-0.032	%60
13	7	Y	0	0
14	7	Y	0	0
15	7	Y	0	0
16	47	Y	-0.059	%15
17	47	Y	-0.053	%50
18	47	Y	-0.077	%85
19	47	Y	0	0
20	47	Y	0	0
21	50	Y	-0.071	%85
22	50	Y	-0.053	%50
23	50	Y	-0.019	%15
24	50	Y	0	0
25	50	Y	0	0
26	91	Y	-0.071	%85
27	91	Y	-0.053	%50
28	91	Y	-0.019	%15
29	91	Y	0	0
30	91	Y	0	0
31	106	Y	-0.065	%5
32	106	Y	-0.065	%60

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
33	106	Y	0	0
34	106	Y	0	0
35	106	Y	0	0
36	142	Y	-0.022	%5
37	142	Y	-0.022	%25
38	142	Y	-0.041	%75
39	142	Y	-0.041	%95
40	142	Y	0	0
41	107	Y	-0.032	%5
42	107	Y	-0.032	%60
43	107	Y	0	0
44	107	Y	0	0
45	107	Y	0	0
46	147	Y	-0.059	%15
47	147	Y	-0.053	%50
48	147	Y	-0.077	%85
49	147	Y	0	0
50	147	Y	0	0
51	150	Y	-0.071	%85
52	150	Y	-0.053	%50
53	150	Y	-0.019	%15
54	150	Y	0	0
55	150	Y	0	0
56	88	Y	-0.059	%15
57	88	Y	-0.053	%50
58	88	Y	-0.077	%85
59	88	Y	0	0
60	88	Y	0	0
61	92	Y	-0.065	%5
62	92	Y	-0.065	%60
63	92	Y	0	0
64	92	Y	0	0
65	92	Y	0	0
66	98	Y	-0.022	%5
67	98	Y	-0.022	%25
68	98	Y	-0.041	%75
69	98	Y	-0.041	%95
70	98	Y	0	0
71	93	Y	-0.032	%5
72	93	Y	-0.032	%60
73	93	Y	0	0
74	93	Y	0	0
75	93	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.252	%5
2	6	Z	-0.252	%60
3	6	Z	0	0
4	6	Z	0	0
5	6	Z	0	0
6	42	Z	-0.07	%5
7	42	Z	-0.07	%25
8	42	Z	-0.068	%75
9	42	Z	-0.068	%95

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	42	Z	0	0
11	7	Z	-0.227	%5
12	7	Z	-0.227	%60
13	7	Z	0	0
14	7	Z	0	0
15	7	Z	0	0
16	47	Z	-0.068	%15
17	47	Z	-0.091	%50
18	47	Z	-0.111	%85
19	47	Z	0	0
20	47	Z	0	0
21	50	Z	-0.066	%85
22	50	Z	-0.092	%50
23	50	Z	-0.028	%15
24	50	Z	0	0
25	50	Z	0	0
26	91	Z	-0.066	%85
27	91	Z	-0.092	%50
28	91	Z	-0.038	%15
29	91	Z	0	0
30	91	Z	0	0
31	106	Z	-0.252	%5
32	106	Z	-0.252	%60
33	106	Z	0	0
34	106	Z	0	0
35	106	Z	0	0
36	142	Z	-0.07	%5
37	142	Z	-0.07	%25
38	142	Z	-0.068	%75
39	142	Z	-0.068	%95
40	142	Z	0	0
41	107	Z	-0.227	%5
42	107	Z	-0.227	%60
43	107	Z	0	0
44	107	Z	0	0
45	107	Z	0	0
46	147	Z	-0.068	%15
47	147	Z	-0.091	%50
48	147	Z	-0.111	%85
49	147	Z	0	0
50	147	Z	0	0
51	150	Z	-0.066	%85
52	150	Z	-0.092	%50
53	150	Z	-0.028	%15
54	150	Z	0	0
55	150	Z	0	0
56	88	Z	-0.068	%15
57	88	Z	-0.091	%50
58	88	Z	-0.111	%85
59	88	Z	0	0
60	88	Z	0	0
61	92	Z	-0.252	%5
62	92	Z	-0.252	%60
63	92	Z	0	0
64	92	Z	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
65	92	Z	0	0
66	98	Z	-0.07	%5
67	98	Z	-0.07	%25
68	98	Z	-0.068	%75
69	98	Z	-0.068	%95
70	98	Z	0	0
71	93	Z	-0.227	%5
72	93	Z	-0.227	%60
73	93	Z	0	0
74	93	Z	0	0
75	93	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.11	%5
2	6	X	-0.11	%60
3	6	X	0	0
4	6	X	0	0
5	6	X	0	0
6	42	X	-0.032	%5
7	42	X	-0.032	%25
8	42	X	-0.032	%75
9	42	X	-0.032	%95
10	42	X	0	0
11	7	X	-0.084	%5
12	7	X	-0.084	%60
13	7	X	0	0
14	7	X	0	0
15	7	X	0	0
16	47	X	-0.042	%15
17	47	X	-0.053	%50
18	47	X	-0.079	%85
19	47	X	0	0
20	47	X	0	0
21	50	X	-0.047	%85
22	50	X	-0.053	%50
23	50	X	-0.028	%15
24	50	X	0	0
25	50	X	0	0
26	91	X	-0.047	%85
27	91	X	-0.053	%50
28	91	X	-0.038	%15
29	91	X	0	0
30	91	X	0	0
31	106	X	-0.11	%5
32	106	X	-0.11	%60
33	106	X	0	0
34	106	X	0	0
35	106	X	0	0
36	142	X	-0.032	%5
37	142	X	-0.032	%25
38	142	X	-0.032	%75
39	142	X	-0.032	%95
40	142	X	0	0
41	107	X	-0.084	%5

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
42	107	X	-0.084	%60
43	107	X	0	0
44	107	X	0	0
45	107	X	0	0
46	147	X	-0.042	%15
47	147	X	-0.053	%50
48	147	X	-0.079	%85
49	147	X	0	0
50	147	X	0	0
51	150	X	-0.047	%85
52	150	X	-0.053	%50
53	150	X	-0.028	%15
54	150	X	0	0
55	150	X	0	0
56	88	X	-0.042	%15
57	88	X	-0.053	%50
58	88	X	-0.079	%85
59	88	X	0	0
60	88	X	0	0
61	92	X	-0.11	%5
62	92	X	-0.11	%60
63	92	X	0	0
64	92	X	0	0
65	92	X	0	0
66	98	X	-0.032	%5
67	98	X	-0.032	%25
68	98	X	-0.032	%75
69	98	X	-0.032	%95
70	98	X	0	0
71	93	X	-0.084	%5
72	93	X	-0.084	%60
73	93	X	0	0
74	93	X	0	0
75	93	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.051	%5
2	6	Z	-0.051	%60
3	6	Z	0	0
4	6	Z	0	0
5	6	Z	0	0
6	42	Z	-0.013	%5
7	42	Z	-0.013	%25
8	42	Z	-0.015	%75
9	42	Z	-0.015	%95
10	42	Z	0	0
11	7	Z	-0.046	%5
12	7	Z	-0.046	%60
13	7	Z	0	0
14	7	Z	0	0
15	7	Z	0	0
16	47	Z	-0.012	%15
17	47	Z	-0.016	%50
18	47	Z	-0.02	%85

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
19	47	Z	0	0
20	47	Z	0	0
21	50	Z	-0.012	%85
22	50	Z	-0.017	%50
23	50	Z	-0.005	%15
24	50	Z	0	0
25	50	Z	0	0
26	91	Z	-0.012	%85
27	91	Z	-0.017	%50
28	91	Z	-0.007	%15
29	91	Z	0	0
30	91	Z	0	0
31	106	Z	-0.051	%5
32	106	Z	-0.051	%60
33	106	Z	0	0
34	106	Z	0	0
35	106	Z	0	0
36	142	Z	-0.013	%5
37	142	Z	-0.013	%25
38	142	Z	-0.015	%75
39	142	Z	-0.015	%95
40	142	Z	0	0
41	107	Z	-0.046	%5
42	107	Z	-0.046	%60
43	107	Z	0	0
44	107	Z	0	0
45	107	Z	0	0
46	147	Z	-0.012	%15
47	147	Z	-0.016	%50
48	147	Z	-0.02	%85
49	147	Z	0	0
50	147	Z	0	0
51	150	Z	-0.012	%85
52	150	Z	-0.017	%50
53	150	Z	-0.005	%15
54	150	Z	0	0
55	150	Z	0	0
56	88	Z	-0.012	%15
57	88	Z	-0.016	%50
58	88	Z	-0.02	%85
59	88	Z	0	0
60	88	Z	0	0
61	92	Z	-0.051	%5
62	92	Z	-0.051	%60
63	92	Z	0	0
64	92	Z	0	0
65	92	Z	0	0
66	98	Z	-0.013	%5
67	98	Z	-0.013	%25
68	98	Z	-0.015	%75
69	98	Z	-0.015	%95
70	98	Z	0	0
71	93	Z	-0.046	%5
72	93	Z	-0.046	%60
73	93	Z	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
74	93	Z	0	0
75	93	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.025	%5
2	6	X	-0.025	%60
3	6	X	0	0
4	6	X	0	0
5	6	X	0	0
6	42	X	-0.006	%5
7	42	X	-0.006	%25
8	42	X	-0.008	%75
9	42	X	-0.008	%95
10	42	X	0	0
11	7	X	-0.02	%5
12	7	X	-0.02	%60
13	7	X	0	0
14	7	X	0	0
15	7	X	0	0
16	47	X	-0.008	%15
17	47	X	-0.01	%50
18	47	X	-0.014	%85
19	47	X	0	0
20	47	X	0	0
21	50	X	-0.008	%85
22	50	X	-0.01	%50
23	50	X	-0.005	%15
24	50	X	0	0
25	50	X	0	0
26	91	X	-0.008	%85
27	91	X	-0.01	%50
28	91	X	-0.007	%15
29	91	X	0	0
30	91	X	0	0
31	106	X	-0.025	%5
32	106	X	-0.025	%60
33	106	X	0	0
34	106	X	0	0
35	106	X	0	0
36	142	X	-0.006	%5
37	142	X	-0.006	%25
38	142	X	-0.008	%75
39	142	X	-0.008	%95
40	142	X	0	0
41	107	X	-0.02	%5
42	107	X	-0.02	%60
43	107	X	0	0
44	107	X	0	0
45	107	X	0	0
46	147	X	-0.008	%15
47	147	X	-0.01	%50
48	147	X	-0.014	%85
49	147	X	0	0
50	147	X	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
51	150	X	-0.008	%85
52	150	X	-0.01	%50
53	150	X	-0.005	%15
54	150	X	0	0
55	150	X	0	0
56	88	X	-0.008	%15
57	88	X	-0.01	%50
58	88	X	-0.014	%85
59	88	X	0	0
60	88	X	0	0
61	92	X	-0.025	%5
62	92	X	-0.025	%60
63	92	X	0	0
64	92	X	0	0
65	92	X	0	0
66	98	X	-0.006	%5
67	98	X	-0.006	%25
68	98	X	-0.008	%75
69	98	X	-0.008	%95
70	98	X	0	0
71	93	X	-0.02	%5
72	93	X	-0.02	%60
73	93	X	0	0
74	93	X	0	0
75	93	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.016	%5
2	6	Z	-0.016	%60
3	6	Z	0	0
4	6	Z	0	0
5	6	Z	0	0
6	42	Z	-0.005	%5
7	42	Z	-0.005	%25
8	42	Z	-0.004	%75
9	42	Z	-0.004	%95
10	42	Z	0	0
11	7	Z	-0.015	%5
12	7	Z	-0.015	%60
13	7	Z	0	0
14	7	Z	0	0
15	7	Z	0	0
16	47	Z	-0.004	%15
17	47	Z	-0.006	%50
18	47	Z	-0.007	%85
19	47	Z	0	0
20	47	Z	0	0
21	50	Z	-0.004	%85
22	50	Z	-0.006	%50
23	50	Z	-0.002	%15
24	50	Z	0	0
25	50	Z	0	0
26	91	Z	-0.004	%85
27	91	Z	-0.006	%50

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
28	91	Z	-0.003	%15
29	91	Z	0	0
30	91	Z	0	0
31	106	Z	-0.016	%5
32	106	Z	-0.016	%60
33	106	Z	0	0
34	106	Z	0	0
35	106	Z	0	0
36	142	Z	-0.005	%5
37	142	Z	-0.005	%25
38	142	Z	-0.004	%75
39	142	Z	-0.004	%95
40	142	Z	0	0
41	107	Z	-0.015	%5
42	107	Z	-0.015	%60
43	107	Z	0	0
44	107	Z	0	0
45	107	Z	0	0
46	147	Z	-0.004	%15
47	147	Z	-0.006	%50
48	147	Z	-0.007	%85
49	147	Z	0	0
50	147	Z	0	0
51	150	Z	-0.004	%85
52	150	Z	-0.006	%50
53	150	Z	-0.002	%15
54	150	Z	0	0
55	150	Z	0	0
56	88	Z	-0.004	%15
57	88	Z	-0.006	%50
58	88	Z	-0.007	%85
59	88	Z	0	0
60	88	Z	0	0
61	92	Z	-0.016	%5
62	92	Z	-0.016	%60
63	92	Z	0	0
64	92	Z	0	0
65	92	Z	0	0
66	98	Z	-0.005	%5
67	98	Z	-0.005	%25
68	98	Z	-0.004	%75
69	98	Z	-0.004	%95
70	98	Z	0	0
71	93	Z	-0.015	%5
72	93	Z	-0.015	%60
73	93	Z	0	0
74	93	Z	0	0
75	93	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.007	%5
2	6	X	-0.007	%60
3	6	X	0	0
4	6	X	0	0

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
5	6	X	0	0
6	42	X	-0.002	%5
7	42	X	-0.002	%25
8	42	X	-0.002	%75
9	42	X	-0.002	%95
10	42	X	0	0
11	7	X	-0.005	%5
12	7	X	-0.005	%60
13	7	X	0	0
14	7	X	0	0
15	7	X	0	0
16	47	X	-0.003	%15
17	47	X	-0.003	%50
18	47	X	-0.005	%85
19	47	X	0	0
20	47	X	0	0
21	50	X	-0.003	%85
22	50	X	-0.003	%50
23	50	X	-0.002	%15
24	50	X	0	0
25	50	X	0	0
26	91	X	-0.003	%85
27	91	X	-0.003	%50
28	91	X	-0.003	%15
29	91	X	0	0
30	91	X	0	0
31	106	X	-0.007	%5
32	106	X	-0.007	%60
33	106	X	0	0
34	106	X	0	0
35	106	X	0	0
36	142	X	-0.002	%5
37	142	X	-0.002	%25
38	142	X	-0.002	%75
39	142	X	-0.002	%95
40	142	X	0	0
41	107	X	-0.005	%5
42	107	X	-0.005	%60
43	107	X	0	0
44	107	X	0	0
45	107	X	0	0
46	147	X	-0.003	%15
47	147	X	-0.003	%50
48	147	X	-0.005	%85
49	147	X	0	0
50	147	X	0	0
51	150	X	-0.003	%85
52	150	X	-0.003	%50
53	150	X	-0.002	%15
54	150	X	0	0
55	150	X	0	0
56	88	X	-0.003	%15
57	88	X	-0.003	%50
58	88	X	-0.005	%85
59	88	X	0	0

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
60	88	X	0	0
61	92	X	-0.007	%5
62	92	X	-0.007	%60
63	92	X	0	0
64	92	X	0	0
65	92	X	0	0
66	98	X	-0.002	%5
67	98	X	-0.002	%25
68	98	X	-0.002	%75
69	98	X	-0.002	%95
70	98	X	0	0
71	93	X	-0.005	%5
72	93	X	-0.005	%60
73	93	X	0	0
74	93	X	0	0
75	93	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.152	%5
2	6	Y	-0.152	%60
3	6	Y	0	0
4	6	Y	0	0
5	6	Y	0	0
6	42	Y	-0.035	%5
7	42	Y	-0.035	%25
8	42	Y	-0.072	%75
9	42	Y	-0.072	%95
10	42	Y	0	0
11	7	Y	-0.11	%5
12	7	Y	-0.11	%60
13	7	Y	0	0
14	7	Y	0	0
15	7	Y	0	0
16	47	Y	-0.036	%15
17	47	Y	-0.049	%50
18	47	Y	-0.062	%85
19	47	Y	0	0
20	47	Y	0	0
21	50	Y	-0.037	%85
22	50	Y	-0.049	%50
23	50	Y	-0.032	%15
24	50	Y	0	0
25	50	Y	0	0
26	91	Y	-0.037	%85
27	91	Y	-0.049	%50
28	91	Y	-0.042	%15
29	91	Y	0	0
30	91	Y	0	0
31	106	Y	-0.152	%5
32	106	Y	-0.152	%60
33	106	Y	0	0
34	106	Y	0	0
35	106	Y	0	0
36	142	Y	-0.035	%5

Member Point Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
37	142	Y	-0.035	%25
38	142	Y	-0.072	%75
39	142	Y	-0.072	%95
40	142	Y	0	0
41	107	Y	-0.11	%5
42	107	Y	-0.11	%60
43	107	Y	0	0
44	107	Y	0	0
45	107	Y	0	0
46	147	Y	-0.036	%15
47	147	Y	-0.049	%50
48	147	Y	-0.062	%85
49	147	Y	0	0
50	147	Y	0	0
51	150	Y	-0.037	%85
52	150	Y	-0.049	%50
53	150	Y	-0.032	%15
54	150	Y	0	0
55	150	Y	0	0
56	88	Y	-0.036	%15
57	88	Y	-0.049	%50
58	88	Y	-0.062	%85
59	88	Y	0	0
60	88	Y	0	0
61	92	Y	-0.152	%5
62	92	Y	-0.152	%60
63	92	Y	0	0
64	92	Y	0	0
65	92	Y	0	0
66	98	Y	-0.035	%5
67	98	Y	-0.035	%25
68	98	Y	-0.072	%75
69	98	Y	-0.072	%95
70	98	Y	0	0
71	93	Y	-0.11	%5
72	93	Y	-0.11	%60
73	93	Y	0	0
74	93	Y	0	0
75	93	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Z	-0.037	%5
2	6	Z	-0.037	%60
3	6	Z	0	0
4	6	Z	0	0
5	6	Z	0	0
6	42	Z	-0.013	%5
7	42	Z	-0.013	%25
8	42	Z	-0.023	%75
9	42	Z	-0.023	%95
10	42	Z	0	0
11	7	Z	-0.018	%5
12	7	Z	-0.018	%60
13	7	Z	0	0

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
14	7	Z	0	0
15	7	Z	0	0
16	47	Z	-0.017	%15
17	47	Z	-0.015	%50
18	47	Z	-0.022	%85
19	47	Z	0	0
20	47	Z	0	0
21	50	Z	-0.02	%85
22	50	Z	-0.015	%50
23	50	Z	-0.005	%15
24	50	Z	0	0
25	50	Z	0	0
26	91	Z	-0.02	%85
27	91	Z	-0.015	%50
28	91	Z	-0.005	%15
29	91	Z	0	0
30	91	Z	0	0
31	106	Z	-0.037	%5
32	106	Z	-0.037	%60
33	106	Z	0	0
34	106	Z	0	0
35	106	Z	0	0
36	142	Z	-0.013	%5
37	142	Z	-0.013	%25
38	142	Z	-0.023	%75
39	142	Z	-0.023	%95
40	142	Z	0	0
41	107	Z	-0.018	%5
42	107	Z	-0.018	%60
43	107	Z	0	0
44	107	Z	0	0
45	107	Z	0	0
46	147	Z	-0.017	%15
47	147	Z	-0.015	%50
48	147	Z	-0.022	%85
49	147	Z	0	0
50	147	Z	0	0
51	150	Z	-0.02	%85
52	150	Z	-0.015	%50
53	150	Z	-0.005	%15
54	150	Z	0	0
55	150	Z	0	0
56	88	Z	-0.017	%15
57	88	Z	-0.015	%50
58	88	Z	-0.022	%85
59	88	Z	0	0
60	88	Z	0	0
61	92	Z	-0.037	%5
62	92	Z	-0.037	%60
63	92	Z	0	0
64	92	Z	0	0
65	92	Z	0	0
66	98	Z	-0.013	%5
67	98	Z	-0.013	%25
68	98	Z	-0.023	%75

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
69	98	Z	-0.023	%95
70	98	Z	0	0
71	93	Z	-0.018	%5
72	93	Z	-0.018	%60
73	93	Z	0	0
74	93	Z	0	0
75	93	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	X	-0.037	%5
2	6	X	-0.037	%60
3	6	X	0	0
4	6	X	0	0
5	6	X	0	0
6	42	X	-0.013	%5
7	42	X	-0.013	%25
8	42	X	-0.023	%75
9	42	X	-0.023	%95
10	42	X	0	0
11	7	X	-0.018	%5
12	7	X	-0.018	%60
13	7	X	0	0
14	7	X	0	0
15	7	X	0	0
16	47	X	-0.017	%15
17	47	X	-0.015	%50
18	47	X	-0.022	%85
19	47	X	0	0
20	47	X	0	0
21	50	X	-0.02	%85
22	50	X	-0.015	%50
23	50	X	-0.005	%15
24	50	X	0	0
25	50	X	0	0
26	91	X	-0.02	%85
27	91	X	-0.015	%50
28	91	X	-0.005	%15
29	91	X	0	0
30	91	X	0	0
31	106	X	-0.037	%5
32	106	X	-0.037	%60
33	106	X	0	0
34	106	X	0	0
35	106	X	0	0
36	142	X	-0.013	%5
37	142	X	-0.013	%25
38	142	X	-0.023	%75
39	142	X	-0.023	%95
40	142	X	0	0
41	107	X	-0.018	%5
42	107	X	-0.018	%60
43	107	X	0	0
44	107	X	0	0
45	107	X	0	0

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
46	147	X	-0.017	%15
47	147	X	-0.015	%50
48	147	X	-0.022	%85
49	147	X	0	0
50	147	X	0	0
51	150	X	-0.02	%85
52	150	X	-0.015	%50
53	150	X	-0.005	%15
54	150	X	0	0
55	150	X	0	0
56	88	X	-0.017	%15
57	88	X	-0.015	%50
58	88	X	-0.022	%85
59	88	X	0	0
60	88	X	0	0
61	92	X	-0.037	%5
62	92	X	-0.037	%60
63	92	X	0	0
64	92	X	0	0
65	92	X	0	0
66	98	X	-0.013	%5
67	98	X	-0.013	%25
68	98	X	-0.023	%75
69	98	X	-0.023	%95
70	98	X	0	0
71	93	X	-0.018	%5
72	93	X	-0.018	%60
73	93	X	0	0
74	93	X	0	0
75	93	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	5	Y	-0.25	%95

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%95

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	14	Y	-0.25	%50

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.25	%50

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	31	Y	-0.25	%50

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Y	-0.25	%50

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	105	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	104	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	114	Y	-0.25	%50

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	118	Y	-0.25	%50

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	131	Y	-0.25	%50

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	134	Y	-0.25	%50

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	55	Y	-0.25	%95

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	54	Y	-0.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	62	Y	-0.25	%50

Member Point Loads (BLC 30 : Maint LL 16)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.25	%50

Member Point Loads (BLC 31 : Maint LL 17)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	75	Y	-0.25	%50

Member Point Loads (BLC 32 : Maint LL 18)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	78	Y	-0.25	%50

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.004	-0.004	0	%100
2	2	Z	-0.004	-0.004	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.008	-0.008	0	%100
5	5	Z	-0.008	-0.008	0	%100
6	6	Z	-0.008	-0.008	0	%100
7	7	Z	-0.008	-0.008	0	%100
8	8	Z	-0.003	-0.003	0	%100
9	9	Z	-0.003	-0.003	0	%100
10	13	Z	-0.002	-0.002	0	%100
11	14	Z	-0.007	-0.007	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	17	Z	-0.002	-0.002	0	%100
14	18	Z	-0.007	-0.007	0	%100
15	19	Z	-0.002	-0.002	0	%100
16	22	Z	-0.008	-0.008	0	%100
17	27	Z	-0.003	-0.003	0	%100
18	28	Z	-0.003	-0.003	0	%100
19	29	Z	-0.003	-0.003	0	%100
20	30	Z	-0.002	-0.002	0	%100
21	31	Z	-0.007	-0.007	0	%100
22	32	Z	-0.002	-0.002	0	%100
23	33	Z	-0.002	-0.002	0	%100
24	34	Z	-0.007	-0.007	0	%100
25	35	Z	-0.002	-0.002	0	%100
26	39	Z	-0.009	-0.009	0	%100
27	42	Z	-0.008	-0.008	0	%100
28	47	Z	-0.008	-0.008	0	%100
29	50	Z	-0.008	-0.008	0	%100
30	51	Z	-0.004	-0.004	0	%100
31	52	Z	-0.004	-0.004	0	%100
32	53	Z	-0.003	-0.003	0	%100
33	54	Z	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
34	55	Z	-0.008	-0.008	0	%100
35	56	Z	-0.003	-0.003	0	%100
36	57	Z	-0.003	-0.003	0	%100
37	61	Z	-0.002	-0.002	0	%100
38	62	Z	-0.007	-0.007	0	%100
39	63	Z	-0.002	-0.002	0	%100
40	65	Z	-0.002	-0.002	0	%100
41	66	Z	-0.007	-0.007	0	%100
42	67	Z	-0.002	-0.002	0	%100
43	70	Z	-0.008	-0.008	0	%100
44	71	Z	-0.003	-0.003	0	%100
45	72	Z	-0.003	-0.003	0	%100
46	73	Z	-0.003	-0.003	0	%100
47	74	Z	-0.002	-0.002	0	%100
48	75	Z	-0.007	-0.007	0	%100
49	76	Z	-0.002	-0.002	0	%100
50	77	Z	-0.002	-0.002	0	%100
51	78	Z	-0.007	-0.007	0	%100
52	79	Z	-0.002	-0.002	0	%100
53	83	Z	-0.009	-0.009	0	%100
54	88	Z	-0.008	-0.008	0	%100
55	91	Z	-0.008	-0.008	0	%100
56	92	Z	-0.008	-0.008	0	%100
57	93	Z	-0.008	-0.008	0	%100
58	98	Z	-0.008	-0.008	0	%100
59	101	Z	-0.004	-0.004	0	%100
60	102	Z	-0.004	-0.004	0	%100
61	103	Z	-0.003	-0.003	0	%100
62	104	Z	-0.008	-0.008	0	%100
63	105	Z	-0.008	-0.008	0	%100
64	106	Z	-0.008	-0.008	0	%100
65	107	Z	-0.008	-0.008	0	%100
66	108	Z	-0.003	-0.003	0	%100
67	109	Z	-0.003	-0.003	0	%100
68	113	Z	-0.002	-0.002	0	%100
69	114	Z	-0.007	-0.007	0	%100
70	115	Z	-0.002	-0.002	0	%100
71	117	Z	-0.002	-0.002	0	%100
72	118	Z	-0.007	-0.007	0	%100
73	119	Z	-0.002	-0.002	0	%100
74	122	Z	-0.008	-0.008	0	%100
75	127	Z	-0.003	-0.003	0	%100
76	128	Z	-0.003	-0.003	0	%100
77	129	Z	-0.003	-0.003	0	%100
78	130	Z	-0.002	-0.002	0	%100
79	131	Z	-0.007	-0.007	0	%100
80	132	Z	-0.002	-0.002	0	%100
81	133	Z	-0.002	-0.002	0	%100
82	134	Z	-0.007	-0.007	0	%100
83	135	Z	-0.002	-0.002	0	%100
84	139	Z	-0.009	-0.009	0	%100
85	142	Z	-0.008	-0.008	0	%100
86	147	Z	-0.008	-0.008	0	%100
87	150	Z	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.004	-0.004	0	%100
2	2	X	-0.004	-0.004	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.008	-0.008	0	%100
5	5	X	-0.008	-0.008	0	%100
6	6	X	-0.008	-0.008	0	%100
7	7	X	-0.008	-0.008	0	%100
8	8	X	-0.003	-0.003	0	%100
9	9	X	-0.003	-0.003	0	%100
10	13	X	-0.002	-0.002	0	%100
11	14	X	-0.007	-0.007	0	%100
12	15	X	-0.002	-0.002	0	%100
13	17	X	-0.002	-0.002	0	%100
14	18	X	-0.007	-0.007	0	%100
15	19	X	-0.002	-0.002	0	%100
16	22	X	-0.008	-0.008	0	%100
17	27	X	-0.003	-0.003	0	%100
18	28	X	-0.003	-0.003	0	%100
19	29	X	-0.003	-0.003	0	%100
20	30	X	-0.002	-0.002	0	%100
21	31	X	-0.007	-0.007	0	%100
22	32	X	-0.002	-0.002	0	%100
23	33	X	-0.002	-0.002	0	%100
24	34	X	-0.007	-0.007	0	%100
25	35	X	-0.002	-0.002	0	%100
26	39	X	-0.009	-0.009	0	%100
27	42	X	-0.008	-0.008	0	%100
28	47	X	-0.008	-0.008	0	%100
29	50	X	-0.008	-0.008	0	%100
30	51	X	-0.004	-0.004	0	%100
31	52	X	-0.004	-0.004	0	%100
32	53	X	-0.003	-0.003	0	%100
33	54	X	-0.008	-0.008	0	%100
34	55	X	-0.008	-0.008	0	%100
35	56	X	-0.003	-0.003	0	%100
36	57	X	-0.003	-0.003	0	%100
37	61	X	-0.002	-0.002	0	%100
38	62	X	-0.007	-0.007	0	%100
39	63	X	-0.002	-0.002	0	%100
40	65	X	-0.002	-0.002	0	%100
41	66	X	-0.007	-0.007	0	%100
42	67	X	-0.002	-0.002	0	%100
43	70	X	-0.008	-0.008	0	%100
44	71	X	-0.003	-0.003	0	%100
45	72	X	-0.003	-0.003	0	%100
46	73	X	-0.003	-0.003	0	%100
47	74	X	-0.002	-0.002	0	%100
48	75	X	-0.007	-0.007	0	%100
49	76	X	-0.002	-0.002	0	%100
50	77	X	-0.002	-0.002	0	%100
51	78	X	-0.007	-0.007	0	%100
52	79	X	-0.002	-0.002	0	%100
53	83	X	-0.009	-0.009	0	%100
54	88	X	-0.008	-0.008	0	%100
55	91	X	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	92	X	-0.008	-0.008	0	%100
57	93	X	-0.008	-0.008	0	%100
58	98	X	-0.008	-0.008	0	%100
59	101	X	-0.004	-0.004	0	%100
60	102	X	-0.004	-0.004	0	%100
61	103	X	-0.003	-0.003	0	%100
62	104	X	-0.008	-0.008	0	%100
63	105	X	-0.008	-0.008	0	%100
64	106	X	-0.008	-0.008	0	%100
65	107	X	-0.008	-0.008	0	%100
66	108	X	-0.003	-0.003	0	%100
67	109	X	-0.003	-0.003	0	%100
68	113	X	-0.002	-0.002	0	%100
69	114	X	-0.007	-0.007	0	%100
70	115	X	-0.002	-0.002	0	%100
71	117	X	-0.002	-0.002	0	%100
72	118	X	-0.007	-0.007	0	%100
73	119	X	-0.002	-0.002	0	%100
74	122	X	-0.008	-0.008	0	%100
75	127	X	-0.003	-0.003	0	%100
76	128	X	-0.003	-0.003	0	%100
77	129	X	-0.003	-0.003	0	%100
78	130	X	-0.002	-0.002	0	%100
79	131	X	-0.007	-0.007	0	%100
80	132	X	-0.002	-0.002	0	%100
81	133	X	-0.002	-0.002	0	%100
82	134	X	-0.007	-0.007	0	%100
83	135	X	-0.002	-0.002	0	%100
84	139	X	-0.009	-0.009	0	%100
85	142	X	-0.008	-0.008	0	%100
86	147	X	-0.008	-0.008	0	%100
87	150	X	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.003	-0.003	0	%100
2	2	Z	-0.003	-0.003	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.001	-0.001	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.002	-0.002	0	%100
10	13	Z	-0.003	-0.003	0	%100
11	14	Z	-0.002	-0.002	0	%100
12	15	Z	-0.003	-0.003	0	%100
13	17	Z	-0.003	-0.003	0	%100
14	18	Z	-0.002	-0.002	0	%100
15	19	Z	-0.003	-0.003	0	%100
16	22	Z	-0.002	-0.002	0	%100
17	27	Z	-0.002	-0.002	0	%100
18	28	Z	-0.002	-0.002	0	%100
19	29	Z	-0.002	-0.002	0	%100
20	30	Z	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	31	Z	-0.002	-0.002	0	%100
22	32	Z	-0.003	-0.003	0	%100
23	33	Z	-0.003	-0.003	0	%100
24	34	Z	-0.002	-0.002	0	%100
25	35	Z	-0.003	-0.003	0	%100
26	39	Z	-0.002	-0.002	0	%100
27	42	Z	-0.001	-0.001	0	%100
28	47	Z	-0.002	-0.002	0	%100
29	50	Z	-0.002	-0.002	0	%100
30	51	Z	-0.003	-0.003	0	%100
31	52	Z	-0.003	-0.003	0	%100
32	53	Z	-0.002	-0.002	0	%100
33	54	Z	-0.001	-0.001	0	%100
34	55	Z	-0.001	-0.001	0	%100
35	56	Z	-0.002	-0.002	0	%100
36	57	Z	-0.002	-0.002	0	%100
37	61	Z	-0.003	-0.003	0	%100
38	62	Z	-0.002	-0.002	0	%100
39	63	Z	-0.003	-0.003	0	%100
40	65	Z	-0.003	-0.003	0	%100
41	66	Z	-0.002	-0.002	0	%100
42	67	Z	-0.003	-0.003	0	%100
43	70	Z	-0.002	-0.002	0	%100
44	71	Z	-0.002	-0.002	0	%100
45	72	Z	-0.002	-0.002	0	%100
46	73	Z	-0.002	-0.002	0	%100
47	74	Z	-0.003	-0.003	0	%100
48	75	Z	-0.002	-0.002	0	%100
49	76	Z	-0.003	-0.003	0	%100
50	77	Z	-0.003	-0.003	0	%100
51	78	Z	-0.002	-0.002	0	%100
52	79	Z	-0.003	-0.003	0	%100
53	83	Z	-0.002	-0.002	0	%100
54	88	Z	-0.002	-0.002	0	%100
55	91	Z	-0.002	-0.002	0	%100
56	92	Z	-0.001	-0.001	0	%100
57	93	Z	-0.001	-0.001	0	%100
58	98	Z	-0.001	-0.001	0	%100
59	101	Z	-0.003	-0.003	0	%100
60	102	Z	-0.003	-0.003	0	%100
61	103	Z	-0.002	-0.002	0	%100
62	104	Z	-0.001	-0.001	0	%100
63	105	Z	-0.001	-0.001	0	%100
64	106	Z	-0.001	-0.001	0	%100
65	107	Z	-0.001	-0.001	0	%100
66	108	Z	-0.002	-0.002	0	%100
67	109	Z	-0.002	-0.002	0	%100
68	113	Z	-0.003	-0.003	0	%100
69	114	Z	-0.002	-0.002	0	%100
70	115	Z	-0.003	-0.003	0	%100
71	117	Z	-0.003	-0.003	0	%100
72	118	Z	-0.002	-0.002	0	%100
73	119	Z	-0.003	-0.003	0	%100
74	122	Z	-0.002	-0.002	0	%100
75	127	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
76	128	Z	-0.002	-0.002	0	%100
77	129	Z	-0.002	-0.002	0	%100
78	130	Z	-0.003	-0.003	0	%100
79	131	Z	-0.002	-0.002	0	%100
80	132	Z	-0.003	-0.003	0	%100
81	133	Z	-0.003	-0.003	0	%100
82	134	Z	-0.002	-0.002	0	%100
83	135	Z	-0.003	-0.003	0	%100
84	139	Z	-0.002	-0.002	0	%100
85	142	Z	-0.001	-0.001	0	%100
86	147	Z	-0.002	-0.002	0	%100
87	150	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.003	-0.003	0	%100
2	2	X	-0.003	-0.003	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.001	-0.001	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.002	-0.002	0	%100
10	13	X	-0.003	-0.003	0	%100
11	14	X	-0.002	-0.002	0	%100
12	15	X	-0.003	-0.003	0	%100
13	17	X	-0.003	-0.003	0	%100
14	18	X	-0.002	-0.002	0	%100
15	19	X	-0.003	-0.003	0	%100
16	22	X	-0.002	-0.002	0	%100
17	27	X	-0.002	-0.002	0	%100
18	28	X	-0.002	-0.002	0	%100
19	29	X	-0.002	-0.002	0	%100
20	30	X	-0.003	-0.003	0	%100
21	31	X	-0.002	-0.002	0	%100
22	32	X	-0.003	-0.003	0	%100
23	33	X	-0.003	-0.003	0	%100
24	34	X	-0.002	-0.002	0	%100
25	35	X	-0.003	-0.003	0	%100
26	39	X	-0.002	-0.002	0	%100
27	42	X	-0.001	-0.001	0	%100
28	47	X	-0.002	-0.002	0	%100
29	50	X	-0.002	-0.002	0	%100
30	51	X	-0.003	-0.003	0	%100
31	52	X	-0.003	-0.003	0	%100
32	53	X	-0.002	-0.002	0	%100
33	54	X	-0.001	-0.001	0	%100
34	55	X	-0.001	-0.001	0	%100
35	56	X	-0.002	-0.002	0	%100
36	57	X	-0.002	-0.002	0	%100
37	61	X	-0.003	-0.003	0	%100
38	62	X	-0.002	-0.002	0	%100
39	63	X	-0.003	-0.003	0	%100
40	65	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
41	66	X	-0.002	-0.002	0	%100
42	67	X	-0.003	-0.003	0	%100
43	70	X	-0.002	-0.002	0	%100
44	71	X	-0.002	-0.002	0	%100
45	72	X	-0.002	-0.002	0	%100
46	73	X	-0.002	-0.002	0	%100
47	74	X	-0.003	-0.003	0	%100
48	75	X	-0.002	-0.002	0	%100
49	76	X	-0.003	-0.003	0	%100
50	77	X	-0.003	-0.003	0	%100
51	78	X	-0.002	-0.002	0	%100
52	79	X	-0.003	-0.003	0	%100
53	83	X	-0.002	-0.002	0	%100
54	88	X	-0.002	-0.002	0	%100
55	91	X	-0.002	-0.002	0	%100
56	92	X	-0.001	-0.001	0	%100
57	93	X	-0.001	-0.001	0	%100
58	98	X	-0.001	-0.001	0	%100
59	101	X	-0.003	-0.003	0	%100
60	102	X	-0.003	-0.003	0	%100
61	103	X	-0.002	-0.002	0	%100
62	104	X	-0.001	-0.001	0	%100
63	105	X	-0.001	-0.001	0	%100
64	106	X	-0.001	-0.001	0	%100
65	107	X	-0.001	-0.001	0	%100
66	108	X	-0.002	-0.002	0	%100
67	109	X	-0.002	-0.002	0	%100
68	113	X	-0.003	-0.003	0	%100
69	114	X	-0.002	-0.002	0	%100
70	115	X	-0.003	-0.003	0	%100
71	117	X	-0.003	-0.003	0	%100
72	118	X	-0.002	-0.002	0	%100
73	119	X	-0.003	-0.003	0	%100
74	122	X	-0.002	-0.002	0	%100
75	127	X	-0.002	-0.002	0	%100
76	128	X	-0.002	-0.002	0	%100
77	129	X	-0.002	-0.002	0	%100
78	130	X	-0.003	-0.003	0	%100
79	131	X	-0.002	-0.002	0	%100
80	132	X	-0.003	-0.003	0	%100
81	133	X	-0.003	-0.003	0	%100
82	134	X	-0.002	-0.002	0	%100
83	135	X	-0.003	-0.003	0	%100
84	139	X	-0.002	-0.002	0	%100
85	142	X	-0.001	-0.001	0	%100
86	147	X	-0.002	-0.002	0	%100
87	150	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0002	-0.0002	0	%100
2	2	Z	-0.0002	-0.0002	0	%100
3	3	Z	-1e-04	-1e-04	0	%100
4	4	Z	-0.0003	-0.0003	0	%100
5	5	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
6	6	Z	-0.0003	-0.0003	0	%100
7	7	Z	-0.0003	-0.0003	0	%100
8	8	Z	-1e-04	-1e-04	0	%100
9	9	Z	-1e-04	-1e-04	0	%100
10	13	Z	-1e-04	-1e-04	0	%100
11	14	Z	-0.0003	-0.0003	0	%100
12	15	Z	-1e-04	-1e-04	0	%100
13	17	Z	-1e-04	-1e-04	0	%100
14	18	Z	-0.0003	-0.0003	0	%100
15	19	Z	-1e-04	-1e-04	0	%100
16	22	Z	-0.0003	-0.0003	0	%100
17	27	Z	-1e-04	-1e-04	0	%100
18	28	Z	-1e-04	-1e-04	0	%100
19	29	Z	-1e-04	-1e-04	0	%100
20	30	Z	-1e-04	-1e-04	0	%100
21	31	Z	-0.0003	-0.0003	0	%100
22	32	Z	-1e-04	-1e-04	0	%100
23	33	Z	-1e-04	-1e-04	0	%100
24	34	Z	-0.0003	-0.0003	0	%100
25	35	Z	-1e-04	-1e-04	0	%100
26	39	Z	-0.0005	-0.0005	0	%100
27	42	Z	-0.0003	-0.0003	0	%100
28	47	Z	-0.0003	-0.0003	0	%100
29	50	Z	-0.0003	-0.0003	0	%100
30	51	Z	-0.0002	-0.0002	0	%100
31	52	Z	-0.0002	-0.0002	0	%100
32	53	Z	-1e-04	-1e-04	0	%100
33	54	Z	-0.0003	-0.0003	0	%100
34	55	Z	-0.0003	-0.0003	0	%100
35	56	Z	-1e-04	-1e-04	0	%100
36	57	Z	-1e-04	-1e-04	0	%100
37	61	Z	-1e-04	-1e-04	0	%100
38	62	Z	-0.0003	-0.0003	0	%100
39	63	Z	-1e-04	-1e-04	0	%100
40	65	Z	-1e-04	-1e-04	0	%100
41	66	Z	-0.0003	-0.0003	0	%100
42	67	Z	-1e-04	-1e-04	0	%100
43	70	Z	-0.0003	-0.0003	0	%100
44	71	Z	-1e-04	-1e-04	0	%100
45	72	Z	-1e-04	-1e-04	0	%100
46	73	Z	-1e-04	-1e-04	0	%100
47	74	Z	-1e-04	-1e-04	0	%100
48	75	Z	-0.0003	-0.0003	0	%100
49	76	Z	-1e-04	-1e-04	0	%100
50	77	Z	-1e-04	-1e-04	0	%100
51	78	Z	-0.0003	-0.0003	0	%100
52	79	Z	-1e-04	-1e-04	0	%100
53	83	Z	-0.0005	-0.0005	0	%100
54	88	Z	-0.0003	-0.0003	0	%100
55	91	Z	-0.0003	-0.0003	0	%100
56	92	Z	-0.0003	-0.0003	0	%100
57	93	Z	-0.0003	-0.0003	0	%100
58	98	Z	-0.0003	-0.0003	0	%100
59	101	Z	-0.0002	-0.0002	0	%100
60	102	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
61	103	Z	-1e-04	-1e-04	0	%100
62	104	Z	-0.0003	-0.0003	0	%100
63	105	Z	-0.0003	-0.0003	0	%100
64	106	Z	-0.0003	-0.0003	0	%100
65	107	Z	-0.0003	-0.0003	0	%100
66	108	Z	-1e-04	-1e-04	0	%100
67	109	Z	-1e-04	-1e-04	0	%100
68	113	Z	-1e-04	-1e-04	0	%100
69	114	Z	-0.0003	-0.0003	0	%100
70	115	Z	-1e-04	-1e-04	0	%100
71	117	Z	-1e-04	-1e-04	0	%100
72	118	Z	-0.0003	-0.0003	0	%100
73	119	Z	-1e-04	-1e-04	0	%100
74	122	Z	-0.0003	-0.0003	0	%100
75	127	Z	-1e-04	-1e-04	0	%100
76	128	Z	-1e-04	-1e-04	0	%100
77	129	Z	-1e-04	-1e-04	0	%100
78	130	Z	-1e-04	-1e-04	0	%100
79	131	Z	-0.0003	-0.0003	0	%100
80	132	Z	-1e-04	-1e-04	0	%100
81	133	Z	-1e-04	-1e-04	0	%100
82	134	Z	-0.0003	-0.0003	0	%100
83	135	Z	-1e-04	-1e-04	0	%100
84	139	Z	-0.0005	-0.0005	0	%100
85	142	Z	-0.0003	-0.0003	0	%100
86	147	Z	-0.0003	-0.0003	0	%100
87	150	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0002	-0.0002	0	%100
2	2	X	-0.0002	-0.0002	0	%100
3	3	X	-1e-04	-1e-04	0	%100
4	4	X	-0.0003	-0.0003	0	%100
5	5	X	-0.0003	-0.0003	0	%100
6	6	X	-0.0003	-0.0003	0	%100
7	7	X	-0.0003	-0.0003	0	%100
8	8	X	-1e-04	-1e-04	0	%100
9	9	X	-1e-04	-1e-04	0	%100
10	13	X	-1e-04	-1e-04	0	%100
11	14	X	-0.0003	-0.0003	0	%100
12	15	X	-1e-04	-1e-04	0	%100
13	17	X	-1e-04	-1e-04	0	%100
14	18	X	-0.0003	-0.0003	0	%100
15	19	X	-1e-04	-1e-04	0	%100
16	22	X	-0.0003	-0.0003	0	%100
17	27	X	-1e-04	-1e-04	0	%100
18	28	X	-1e-04	-1e-04	0	%100
19	29	X	-1e-04	-1e-04	0	%100
20	30	X	-1e-04	-1e-04	0	%100
21	31	X	-0.0003	-0.0003	0	%100
22	32	X	-1e-04	-1e-04	0	%100
23	33	X	-1e-04	-1e-04	0	%100
24	34	X	-0.0003	-0.0003	0	%100
25	35	X	-1e-04	-1e-04	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	39	X	-0.0005	-0.0005	0	%100
27	42	X	-0.0003	-0.0003	0	%100
28	47	X	-0.0003	-0.0003	0	%100
29	50	X	-0.0003	-0.0003	0	%100
30	51	X	-0.0002	-0.0002	0	%100
31	52	X	-0.0002	-0.0002	0	%100
32	53	X	-1e-04	-1e-04	0	%100
33	54	X	-0.0003	-0.0003	0	%100
34	55	X	-0.0003	-0.0003	0	%100
35	56	X	-1e-04	-1e-04	0	%100
36	57	X	-1e-04	-1e-04	0	%100
37	61	X	-1e-04	-1e-04	0	%100
38	62	X	-0.0003	-0.0003	0	%100
39	63	X	-1e-04	-1e-04	0	%100
40	65	X	-1e-04	-1e-04	0	%100
41	66	X	-0.0003	-0.0003	0	%100
42	67	X	-1e-04	-1e-04	0	%100
43	70	X	-0.0003	-0.0003	0	%100
44	71	X	-1e-04	-1e-04	0	%100
45	72	X	-1e-04	-1e-04	0	%100
46	73	X	-1e-04	-1e-04	0	%100
47	74	X	-1e-04	-1e-04	0	%100
48	75	X	-0.0003	-0.0003	0	%100
49	76	X	-1e-04	-1e-04	0	%100
50	77	X	-1e-04	-1e-04	0	%100
51	78	X	-0.0003	-0.0003	0	%100
52	79	X	-1e-04	-1e-04	0	%100
53	83	X	-0.0005	-0.0005	0	%100
54	88	X	-0.0003	-0.0003	0	%100
55	91	X	-0.0003	-0.0003	0	%100
56	92	X	-0.0003	-0.0003	0	%100
57	93	X	-0.0003	-0.0003	0	%100
58	98	X	-0.0003	-0.0003	0	%100
59	101	X	-0.0002	-0.0002	0	%100
60	102	X	-0.0002	-0.0002	0	%100
61	103	X	-1e-04	-1e-04	0	%100
62	104	X	-0.0003	-0.0003	0	%100
63	105	X	-0.0003	-0.0003	0	%100
64	106	X	-0.0003	-0.0003	0	%100
65	107	X	-0.0003	-0.0003	0	%100
66	108	X	-1e-04	-1e-04	0	%100
67	109	X	-1e-04	-1e-04	0	%100
68	113	X	-1e-04	-1e-04	0	%100
69	114	X	-0.0003	-0.0003	0	%100
70	115	X	-1e-04	-1e-04	0	%100
71	117	X	-1e-04	-1e-04	0	%100
72	118	X	-0.0003	-0.0003	0	%100
73	119	X	-1e-04	-1e-04	0	%100
74	122	X	-0.0003	-0.0003	0	%100
75	127	X	-1e-04	-1e-04	0	%100
76	128	X	-1e-04	-1e-04	0	%100
77	129	X	-1e-04	-1e-04	0	%100
78	130	X	-1e-04	-1e-04	0	%100
79	131	X	-0.0003	-0.0003	0	%100
80	132	X	-1e-04	-1e-04	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
81	133	X	-1e-04	-1e-04	0	%100
82	134	X	-0.0003	-0.0003	0	%100
83	135	X	-1e-04	-1e-04	0	%100
84	139	X	-0.0005	-0.0005	0	%100
85	142	X	-0.0003	-0.0003	0	%100
86	147	X	-0.0003	-0.0003	0	%100
87	150	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.01	-0.01	0	%100
2	2	Y	-0.01	-0.01	0	%100
3	3	Y	-0.003	-0.003	0	%100
4	4	Y	-0.005	-0.005	0	%100
5	5	Y	-0.005	-0.005	0	%100
6	6	Y	-0.005	-0.005	0	%100
7	7	Y	-0.005	-0.005	0	%100
8	8	Y	-0.003	-0.003	0	%100
9	9	Y	-0.003	-0.003	0	%100
10	13	Y	-0.007	-0.007	0	%100
11	14	Y	-0.005	-0.005	0	%100
12	15	Y	-0.007	-0.007	0	%100
13	17	Y	-0.007	-0.007	0	%100
14	18	Y	-0.005	-0.005	0	%100
15	19	Y	-0.007	-0.007	0	%100
16	22	Y	-0.005	-0.005	0	%100
17	27	Y	-0.003	-0.003	0	%100
18	28	Y	-0.003	-0.003	0	%100
19	29	Y	-0.003	-0.003	0	%100
20	30	Y	-0.007	-0.007	0	%100
21	31	Y	-0.005	-0.005	0	%100
22	32	Y	-0.007	-0.007	0	%100
23	33	Y	-0.007	-0.007	0	%100
24	34	Y	-0.005	-0.005	0	%100
25	35	Y	-0.007	-0.007	0	%100
26	39	Y	-0.008	-0.008	0	%100
27	42	Y	-0.005	-0.005	0	%100
28	47	Y	-0.005	-0.005	0	%100
29	50	Y	-0.005	-0.005	0	%100
30	51	Y	-0.01	-0.01	0	%100
31	52	Y	-0.01	-0.01	0	%100
32	53	Y	-0.003	-0.003	0	%100
33	54	Y	-0.005	-0.005	0	%100
34	55	Y	-0.005	-0.005	0	%100
35	56	Y	-0.003	-0.003	0	%100
36	57	Y	-0.003	-0.003	0	%100
37	61	Y	-0.007	-0.007	0	%100
38	62	Y	-0.005	-0.005	0	%100
39	63	Y	-0.007	-0.007	0	%100
40	65	Y	-0.007	-0.007	0	%100
41	66	Y	-0.005	-0.005	0	%100
42	67	Y	-0.007	-0.007	0	%100
43	70	Y	-0.005	-0.005	0	%100
44	71	Y	-0.003	-0.003	0	%100
45	72	Y	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
46	73	Y	-0.003	-0.003	0	%100
47	74	Y	-0.007	-0.007	0	%100
48	75	Y	-0.005	-0.005	0	%100
49	76	Y	-0.007	-0.007	0	%100
50	77	Y	-0.007	-0.007	0	%100
51	78	Y	-0.005	-0.005	0	%100
52	79	Y	-0.007	-0.007	0	%100
53	83	Y	-0.008	-0.008	0	%100
54	88	Y	-0.005	-0.005	0	%100
55	91	Y	-0.005	-0.005	0	%100
56	92	Y	-0.005	-0.005	0	%100
57	93	Y	-0.005	-0.005	0	%100
58	98	Y	-0.005	-0.005	0	%100
59	101	Y	-0.01	-0.01	0	%100
60	102	Y	-0.01	-0.01	0	%100
61	103	Y	-0.003	-0.003	0	%100
62	104	Y	-0.005	-0.005	0	%100
63	105	Y	-0.005	-0.005	0	%100
64	106	Y	-0.005	-0.005	0	%100
65	107	Y	-0.005	-0.005	0	%100
66	108	Y	-0.003	-0.003	0	%100
67	109	Y	-0.003	-0.003	0	%100
68	113	Y	-0.007	-0.007	0	%100
69	114	Y	-0.005	-0.005	0	%100
70	115	Y	-0.007	-0.007	0	%100
71	117	Y	-0.007	-0.007	0	%100
72	118	Y	-0.005	-0.005	0	%100
73	119	Y	-0.007	-0.007	0	%100
74	122	Y	-0.005	-0.005	0	%100
75	127	Y	-0.003	-0.003	0	%100
76	128	Y	-0.003	-0.003	0	%100
77	129	Y	-0.003	-0.003	0	%100
78	130	Y	-0.007	-0.007	0	%100
79	131	Y	-0.005	-0.005	0	%100
80	132	Y	-0.007	-0.007	0	%100
81	133	Y	-0.007	-0.007	0	%100
82	134	Y	-0.005	-0.005	0	%100
83	135	Y	-0.007	-0.007	0	%100
84	139	Y	-0.008	-0.008	0	%100
85	142	Y	-0.005	-0.005	0	%100
86	147	Y	-0.005	-0.005	0	%100
87	150	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.003	-0.003	0	%100
2	2	Z	-0.003	-0.003	0	%100
3	3	Z	-0.0007	-0.0007	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.001	-0.001	0	%100
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.0007	-0.0007	0	%100
9	9	Z	-0.0007	-0.0007	0	%100
10	13	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
11	14	Z	-0.001	-0.001	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	17	Z	-0.002	-0.002	0	%100
14	18	Z	-0.001	-0.001	0	%100
15	19	Z	-0.002	-0.002	0	%100
16	22	Z	-0.001	-0.001	0	%100
17	27	Z	-0.0007	-0.0007	0	%100
18	28	Z	-0.0007	-0.0007	0	%100
19	29	Z	-0.0007	-0.0007	0	%100
20	30	Z	-0.002	-0.002	0	%100
21	31	Z	-0.001	-0.001	0	%100
22	32	Z	-0.002	-0.002	0	%100
23	33	Z	-0.002	-0.002	0	%100
24	34	Z	-0.001	-0.001	0	%100
25	35	Z	-0.002	-0.002	0	%100
26	39	Z	-0.003	-0.003	0	%100
27	42	Z	-0.001	-0.001	0	%100
28	47	Z	-0.001	-0.001	0	%100
29	50	Z	-0.001	-0.001	0	%100
30	51	Z	-0.003	-0.003	0	%100
31	52	Z	-0.003	-0.003	0	%100
32	53	Z	-0.0007	-0.0007	0	%100
33	54	Z	-0.001	-0.001	0	%100
34	55	Z	-0.001	-0.001	0	%100
35	56	Z	-0.0007	-0.0007	0	%100
36	57	Z	-0.0007	-0.0007	0	%100
37	61	Z	-0.002	-0.002	0	%100
38	62	Z	-0.001	-0.001	0	%100
39	63	Z	-0.002	-0.002	0	%100
40	65	Z	-0.002	-0.002	0	%100
41	66	Z	-0.001	-0.001	0	%100
42	67	Z	-0.002	-0.002	0	%100
43	70	Z	-0.001	-0.001	0	%100
44	71	Z	-0.0007	-0.0007	0	%100
45	72	Z	-0.0007	-0.0007	0	%100
46	73	Z	-0.0007	-0.0007	0	%100
47	74	Z	-0.002	-0.002	0	%100
48	75	Z	-0.001	-0.001	0	%100
49	76	Z	-0.002	-0.002	0	%100
50	77	Z	-0.002	-0.002	0	%100
51	78	Z	-0.001	-0.001	0	%100
52	79	Z	-0.002	-0.002	0	%100
53	83	Z	-0.003	-0.003	0	%100
54	88	Z	-0.001	-0.001	0	%100
55	91	Z	-0.001	-0.001	0	%100
56	92	Z	-0.001	-0.001	0	%100
57	93	Z	-0.001	-0.001	0	%100
58	98	Z	-0.001	-0.001	0	%100
59	101	Z	-0.003	-0.003	0	%100
60	102	Z	-0.003	-0.003	0	%100
61	103	Z	-0.0007	-0.0007	0	%100
62	104	Z	-0.001	-0.001	0	%100
63	105	Z	-0.001	-0.001	0	%100
64	106	Z	-0.001	-0.001	0	%100
65	107	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
66	108	Z	-0.0007	-0.0007	0	%100
67	109	Z	-0.0007	-0.0007	0	%100
68	113	Z	-0.002	-0.002	0	%100
69	114	Z	-0.001	-0.001	0	%100
70	115	Z	-0.002	-0.002	0	%100
71	117	Z	-0.002	-0.002	0	%100
72	118	Z	-0.001	-0.001	0	%100
73	119	Z	-0.002	-0.002	0	%100
74	122	Z	-0.001	-0.001	0	%100
75	127	Z	-0.0007	-0.0007	0	%100
76	128	Z	-0.0007	-0.0007	0	%100
77	129	Z	-0.0007	-0.0007	0	%100
78	130	Z	-0.002	-0.002	0	%100
79	131	Z	-0.001	-0.001	0	%100
80	132	Z	-0.002	-0.002	0	%100
81	133	Z	-0.002	-0.002	0	%100
82	134	Z	-0.001	-0.001	0	%100
83	135	Z	-0.002	-0.002	0	%100
84	139	Z	-0.003	-0.003	0	%100
85	142	Z	-0.001	-0.001	0	%100
86	147	Z	-0.001	-0.001	0	%100
87	150	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.003	-0.003	0	%100
2	2	X	-0.003	-0.003	0	%100
3	3	X	-0.0007	-0.0007	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.001	-0.001	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.0007	-0.0007	0	%100
9	9	X	-0.0007	-0.0007	0	%100
10	13	X	-0.002	-0.002	0	%100
11	14	X	-0.001	-0.001	0	%100
12	15	X	-0.002	-0.002	0	%100
13	17	X	-0.002	-0.002	0	%100
14	18	X	-0.001	-0.001	0	%100
15	19	X	-0.002	-0.002	0	%100
16	22	X	-0.001	-0.001	0	%100
17	27	X	-0.0007	-0.0007	0	%100
18	28	X	-0.0007	-0.0007	0	%100
19	29	X	-0.0007	-0.0007	0	%100
20	30	X	-0.002	-0.002	0	%100
21	31	X	-0.001	-0.001	0	%100
22	32	X	-0.002	-0.002	0	%100
23	33	X	-0.002	-0.002	0	%100
24	34	X	-0.001	-0.001	0	%100
25	35	X	-0.002	-0.002	0	%100
26	39	X	-0.003	-0.003	0	%100
27	42	X	-0.001	-0.001	0	%100
28	47	X	-0.001	-0.001	0	%100
29	50	X	-0.001	-0.001	0	%100
30	51	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
31	52	X	-0.003	-0.003	0	%100
32	53	X	-0.0007	-0.0007	0	%100
33	54	X	-0.001	-0.001	0	%100
34	55	X	-0.001	-0.001	0	%100
35	56	X	-0.0007	-0.0007	0	%100
36	57	X	-0.0007	-0.0007	0	%100
37	61	X	-0.002	-0.002	0	%100
38	62	X	-0.001	-0.001	0	%100
39	63	X	-0.002	-0.002	0	%100
40	65	X	-0.002	-0.002	0	%100
41	66	X	-0.001	-0.001	0	%100
42	67	X	-0.002	-0.002	0	%100
43	70	X	-0.001	-0.001	0	%100
44	71	X	-0.0007	-0.0007	0	%100
45	72	X	-0.0007	-0.0007	0	%100
46	73	X	-0.0007	-0.0007	0	%100
47	74	X	-0.002	-0.002	0	%100
48	75	X	-0.001	-0.001	0	%100
49	76	X	-0.002	-0.002	0	%100
50	77	X	-0.002	-0.002	0	%100
51	78	X	-0.001	-0.001	0	%100
52	79	X	-0.002	-0.002	0	%100
53	83	X	-0.003	-0.003	0	%100
54	88	X	-0.001	-0.001	0	%100
55	91	X	-0.001	-0.001	0	%100
56	92	X	-0.001	-0.001	0	%100
57	93	X	-0.001	-0.001	0	%100
58	98	X	-0.001	-0.001	0	%100
59	101	X	-0.003	-0.003	0	%100
60	102	X	-0.003	-0.003	0	%100
61	103	X	-0.0007	-0.0007	0	%100
62	104	X	-0.001	-0.001	0	%100
63	105	X	-0.001	-0.001	0	%100
64	106	X	-0.001	-0.001	0	%100
65	107	X	-0.001	-0.001	0	%100
66	108	X	-0.0007	-0.0007	0	%100
67	109	X	-0.0007	-0.0007	0	%100
68	113	X	-0.002	-0.002	0	%100
69	114	X	-0.001	-0.001	0	%100
70	115	X	-0.002	-0.002	0	%100
71	117	X	-0.002	-0.002	0	%100
72	118	X	-0.001	-0.001	0	%100
73	119	X	-0.002	-0.002	0	%100
74	122	X	-0.001	-0.001	0	%100
75	127	X	-0.0007	-0.0007	0	%100
76	128	X	-0.0007	-0.0007	0	%100
77	129	X	-0.0007	-0.0007	0	%100
78	130	X	-0.002	-0.002	0	%100
79	131	X	-0.001	-0.001	0	%100
80	132	X	-0.002	-0.002	0	%100
81	133	X	-0.002	-0.002	0	%100
82	134	X	-0.001	-0.001	0	%100
83	135	X	-0.002	-0.002	0	%100
84	139	X	-0.003	-0.003	0	%100
85	142	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
86	147	X	-0.001	-0.001	0	%100
87	150	X	-0.001	-0.001	0	%100

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	16	L	Y	-0.5
2	180	L	Y	-0.5
3	151	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	65	L	Y	-0.5
2	229	L	Y	-0.5
3	161	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	17	L	Y	-0.5
2	181	L	Y	-0.5
3	152	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		75	
2	0 Wind - No Ice	WLZ			75	87
3	90 Wind - No Ice	WLX			75	87
4	0 Wind - Ice	WLZ			75	87
5	90 Wind - Ice	WLX			75	87
6	0 Wind - Service	WLZ			75	87
7	90 Wind - Service	WLX			75	87
8	Ice	OL1			75	87
9	0 Seismic	ELZ			75	87
10	90 Seismic	ELX			75	87
11	Live Load a	LL		3		
12	Live Load b	LL		3		
13	Live Load c	LL		3		
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL			1	
22	Maint LL 8	LL			1	
23	Maint LL 9	LL			1	
24	Maint LL 10	LL			1	
25	Maint LL 11	LL			1	
26	Maint LL 12	LL			1	
27	Maint LL 13	LL			1	

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
28	Maint LL 14	LL			1	
29	Maint LL 15	LL			1	
30	Maint LL 16	LL			1	
31	Maint LL 17	LL			1	
32	Maint LL 18	LL			1	
33	Maint LL 19	LL				
34	Maint LL 20	LL				
35	Maint LL 21	LL				
36	Maint LL 22	LL				
37	Maint LL 23	LL				
38	Maint LL 24	LL				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	61	max	1.632	7	1.578	20	0.525	13	1.107	6	1.05	5	1.255	7
2		min	-1.446	13	0.594	2	-2.3	19	-0.728	12	-0.95	11	-1.153	13
3	62	max	0.58	6	1.479	24	2.152	14	0.743	13	0.856	5	0.694	48
4		min	-1.278	48	0.614	6	0.151	8	-0.313	7	-0.974	11	-0.54	6
5	133	max	1.33	4	1.584	24	1.6	63	0.603	10	1.403	9	1.288	4
6		min	-2.826	10	0.6	6	-0.529	9	-0.839	4	-1.504	3	-1.6	10
7	134	max	1.944	17	1.491	16	0.257	2	0.397	3	1.236	9	0.493	11
8		min	-0.066	11	0.586	10	-1.591	68	-0.698	69	-1.108	3	-0.862	5
9	225	max	1.649	15	1.577	16	3.786	2	2.212	8	1.669	2	0.458	62
10		min	0.259	8	0.612	10	-2.746	8	-2.501	2	-1.571	8	-0.066	8
11	226	max	-0.189	5	1.487	20	0.608	2	0.881	2	1.147	13	0.51	71
12		min	-1.67	23	0.58	2	-1.884	44	-1.19	8	-1.268	7	-0.148	5
13	Totals:	max	4.955	5	9.068	21	7.567	2						
14		min	-4.955	11	4.202	3	-7.567	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PL5/8X6	0.219	0.667	25	0.062	0.667	y	14	94.955	168.75	2.197	21.094	1.476	H1-1b
2	2	PL5/8X6	0.231	0.667	19	0.067	0.667	y	18	94.955	168.75	2.197	21.094	1.488	H1-1b
3	3	3/4"SR	0.125	4.673	46	0.005	0		24	1.116	19.88	0.249	0.249	1	H1-1b*
4	4	HSS2.375X0.218	0.194	10.427	87	0.078	10.427		87	7.649	62.55	3.6	3.6	1	H1-1b
5	5	HSS2.375X0.218	0.229	2.167	8	0.085	2.438		12	7.649	62.55	3.6	3.6	1	H1-1b
6	6	PIPE_2.0	0.467	3.719	8	0.088	3.828		7	8.922	32.13	1.872	1.872	1	H1-1b
7	7	PIPE_2.0	0.42	3.719	8	0.103	3.828		8	8.922	32.13	1.872	1.872	1	H1-1b
8	8	3/4"SR	0.325	3	48	0.004	3		47	2.707	19.88	0.249	0.249	1	H1-1a
9	9	3/4"SR	0.294	3	49	0.01	0		4	2.707	19.88	0.249	0.249	1	H1-1a
10	13	PL1/2X311/16	0.161	0.227	38	0.208	0	y	8	80.831	82.969	0.864	6.374	1.666	H1-1b
11	14	HSS2.375X0.218	0.084	1.875	88	0.059	3.75		19	48.725	62.55	3.6	3.6	1	H1-1b
12	15	PL1/2X311/16	0.205	0	44	0.083	0.276	y	18	79.835	82.969	0.864	6.374	2.033	H1-1b
13	17	PL1/2X311/16	0.177	0.227	44	0.125	0.002	y	51	80.831	82.969	0.864	6.374	1.668	H1-1b
14	18	HSS2.375X0.218	0.098	1.875	89	0.054	3.75		25	48.725	62.55	3.6	3.6	1	H1-1b
15	19	PL1/2X311/16	0.193	0	47	0.076	0.276	y	15	79.835	82.969	0.864	6.374	1.077	H1-1b
16	22	HSS2.375X0.154	0.067	6.525	4	0.025	6.525		38	22.013	45	2.674	2.674	1	H1-1b*
17	27	3/4"SR	0.1	4.673	64	0.005	0		3	1.116	19.88	0.249	0.249	1	H1-1b*
18	28	3/4"SR	0.263	3	63	0.004	0		45	2.707	19.88	0.249	0.249	1	H1-1a
19	29	3/4"SR	0.375	3	86	0.011	3		10	2.707	19.88	0.249	0.249	1	H1-1a
20	30	PL1/2X311/16	0.204	0.227	86	0.208	0	y	8	80.831	82.969	0.864	6.374	1.667	H1-1b

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
21	31	HSS2.375X0.218	0.091	1.875	90	0.053	3.75		20	48.725	62.55	3.6	3.6	1	H1-1b
22	32	PL1/2X311/16	0.169	0	68	0.089	0.276	y	20	79.835	82.969	0.864	6.374	1.053	H1-1b
23	33	PL1/2X311/16	0.208	0.227	87	0.116	0	y	19	80.831	82.969	0.864	6.374	1.667	H1-1b
24	34	HSS2.375X0.218	0.104	1.875	91	0.051	0.078		67	48.725	62.55	3.6	3.6	1	H1-1b
25	35	PL1/2X311/16	0.155	0	73	0.081	0.276	y	24	79.835	82.969	0.864	6.374	1.043	H1-1b
26	39	HSS4.500X0.237	0.117	5.979	7	0.121	5.979		6	106.372	133.2	15.113	15.113	1	H1-1b
27	42	PIPE_2.0	0.23	3.828	8	0.068	3.828		9	8.922	32.13	1.872	1.872	1	H1-1b
28	47	PIPE_2.0	0.071	1.5	2	0.04	4.5		9	20.867	32.13	1.872	1.872	1	H1-1b
29	50	PIPE_2.0	0.068	1.5	2	0.032	4.5		10	20.867	32.13	1.872	1.872	1	H1-1b
30	51	PL5/8X6	0.223	0.667	18	0.065	0.667	y	17	94.955	168.75	2.197	21.094	1.494	H1-1b
31	52	PL5/8X6	0.233	0.667	23	0.067	0.667	y	24	94.955	168.75	2.197	21.094	1.507	H1-1b
32	53	3/4"SR	0.105	4.673	39	0.003	0		15	1.116	19.88	0.249	0.249	1	H1-1b*
33	54	HSS2.375X0.218	0.168	7.042	57	0.079	10.562		72	7.649	62.55	3.6	3.6	1	H1-1b
34	55	HSS2.375X0.218	0.205	2.437	3	0.108	2.437		3	7.649	62.55	3.6	3.6	1	H1-1b
35	56	3/4"SR	0.273	3	40	0.003	0		69	2.707	19.88	0.249	0.249	1	H1-1a
36	57	3/4"SR	0.234	3	18	0.012	3		9	2.707	19.88	0.249	0.249	1	H1-1a
37	61	PL1/2X311/16	0.123	0.227	5	0.092	0	y	13	80.831	82.969	0.864	6.374	1.663	H1-1b
38	62	HSS2.375X0.218	0.083	1.875	100	0.05	3.75		23	48.725	62.55	3.6	3.6	1	H1-1b
39	63	PL1/2X311/16	0.172	0	47	0.077	0	y	22	79.835	82.969	0.864	6.374	2.095	H1-1b
40	65	PL1/2X311/16	0.176	0.227	48	0.079	0.227	y	20	80.831	82.969	0.864	6.374	1.666	H1-1b
41	66	HSS2.375X0.218	0.096	1.875	101	0.047	3.75		17	48.725	62.55	3.6	3.6	1	H1-1b
42	67	PL1/2X311/16	0.157	0	42	0.074	0.276	y	19	79.835	82.969	0.864	6.374	1.038	H1-1b
43	70	HSS2.375X0.154	0.075	0	9	0.019	6.069		13	24.244	45	2.674	2.674	1	H1-1b*
44	71	3/4"SR	0.122	4.673	71	0.005	0		20	1.116	19.88	0.249	0.249	1	H1-1b*
45	72	3/4"SR	0.324	3	20	0.004	3		69	2.707	19.88	0.249	0.249	1	H1-1a
46	73	3/4"SR	0.298	3	19	0.011	0		3	2.707	19.88	0.249	0.249	1	H1-1a
47	74	PL1/2X311/16	0.145	0.227	67	0.122	0.002	y	60	80.831	82.969	0.864	6.374	1.667	H1-1b
48	75	HSS2.375X0.218	0.091	1.875	102	0.06	3.75		24	48.725	62.55	3.6	3.6	1	H1-1b
49	76	PL1/2X311/16	0.201	0	72	0.086	0	y	25	79.835	82.969	0.864	6.374	1.169	H1-1b
50	77	PL1/2X311/16	0.179	0.227	73	0.114	0.002	y	52	80.831	82.969	0.864	6.374	1.666	H1-1b
51	78	HSS2.375X0.218	0.106	1.875	103	0.056	3.75		17	48.725	62.55	3.6	3.6	1	H1-1b
52	79	PL1/2X311/16	0.188	0	21	0.08	0.276	y	16	79.835	82.969	0.864	6.374	1.082	H1-1b
53	83	HSS4.500X0.237	0.119	5.979	10	0.142	5.979		9	106.372	133.2	15.113	15.113	1	H1-1b
54	88	PIPE_2.0	0.047	4.5	9	0.041	4.5		9	20.867	32.13	1.872	1.872	1	H1-1b
55	91	PIPE_2.0	0.049	1.5	7	0.04	4.5		9	20.867	32.13	1.872	1.872	1	H1-1b
56	92	PIPE_2.0	0.466	3.719	2	0.043	3.828		13	8.922	32.13	1.872	1.872	1	H1-1b
57	93	PIPE_2.0	0.42	3.719	2	0.071	3.828		2	8.922	32.13	1.872	1.872	1	H1-1b
58	98	PIPE_2.0	0.193	3.719	2	0.035	3.828		9	8.922	32.13	1.872	1.872	1	H1-1b
59	101	PL5/8X6	0.22	0.667	20	0.062	0.667	y	21	94.955	168.75	2.197	21.094	1.474	H1-1b
60	102	PL5/8X6	0.235	0.667	14	0.07	0.667	y	2	94.955	168.75	2.197	21.094	1.527	H1-1b
61	103	3/4"SR	0.125	4.673	42	0.005	0		8	1.116	19.88	0.249	0.249	1	H1-1b*
62	104	HSS2.375X0.218	0.194	10.427	93	0.078	10.427		93	7.649	62.55	3.6	3.6	1	H1-1b
63	105	HSS2.375X0.218	0.284	2.437	8	0.126	2.437		8	7.649	62.55	3.6	3.6	1	H1-1b
64	106	PIPE_2.0	0.466	3.719	2	0.087	3.828		2	8.922	32.13	1.872	1.872	1	H1-1b
65	107	PIPE_2.0	0.42	3.719	2	0.069	3.828		3	8.922	32.13	1.872	1.872	1	H1-1b
66	108	3/4"SR	0.327	3	20	0.004	3		43	2.707	19.88	0.249	0.249	1	H1-1a
67	109	3/4"SR	0.295	3	20	0.011	3		13	2.707	19.88	0.249	0.249	1	H1-1a
68	113	PL1/2X311/16	0.161	0.227	45	0.15	0	y	3	80.831	82.969	0.864	6.374	1.666	H1-1b
69	114	HSS2.375X0.218	0.084	1.875	94	0.059	3.75		14	48.725	62.55	3.6	3.6	1	H1-1b
70	115	PL1/2X311/16	0.205	0	39	0.085	0.276	y	14	79.835	82.969	0.864	6.374	1.889	H1-1b
71	117	PL1/2X311/16	0.176	0.227	39	0.125	0.002	y	60	80.831	82.969	0.864	6.374	1.668	H1-1b
72	118	HSS2.375X0.218	0.098	1.875	95	0.055	3.75		20	48.725	62.55	3.6	3.6	1	H1-1b
73	119	PL1/2X311/16	0.194	0	43	0.075	0	y	22	79.835	82.969	0.864	6.374	1.075	H1-1b
74	122	HSS2.375X0.154	0.078	0	13	0.025	6.525		45	22.013	45	2.674	2.674	1	H1-1b*
75	127	3/4"SR	0.1	4.673	70	0.005	0		12	1.116	19.88	0.249	0.249	1	H1-1b*

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
76	128	3/4"SR	0.263	3	71	0.004	0		41	2.707	19.88	0.249	0.249	1	H1-1a
77	129	3/4"SR	0.375	3	92	0.011	3		6	2.707	19.88	0.249	0.249	1	H1-1a
78	130	PL1/2X311/16	0.204	0.227	92	0.142	0	y	3	80.831	82.969	0.864	6.374	1.667	H1-1b
79	131	HSS2.375X0.218	0.091	1.875	96	0.052	3.75		16	48.725	62.55	3.6	3.6	1	H1-1b
80	132	PL1/2X311/16	0.168	0	63	0.087	0.276	y	16	79.835	82.969	0.864	6.374	1.057	H1-1b
81	133	PL1/2X311/16	0.208	0.227	93	0.119	0	y	14	80.831	82.969	0.864	6.374	1.667	H1-1b
82	134	HSS2.375X0.218	0.104	1.875	97	0.051	0.078		62	48.725	62.55	3.6	3.6	1	H1-1b
83	135	PL1/2X311/16	0.156	0	68	0.082	0.276	y	20	79.835	82.969	0.864	6.374	1.043	H1-1b
84	139	HSS4.500X0.237	0.171	5.979	2	0.184	5.979		2	106.372	133.2	15.113	15.113	1	H1-1b
85	142	PIPE_2.0	0.193	3.719	8	0.042	3.828		5	8.922	32.13	1.872	1.872	1	H1-1b
86	147	PIPE_2.0	0.056	1.5	9	0.038	4.5		7	20.867	32.13	1.872	1.872	1	H1-1b
87	150	PIPE_2.0	0.047	1.5	9	0.04	4.5		7	20.867	32.13	1.872	1.872	1	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**80964.019.01 - BRG 126 943086, CT**				**KSC**
SUBJECT	**Sector Mount Analysis**				
DATE	**05/16/22**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	2.3	k
Vertical Shear	:	1.578	k
Horizontal Shear	:	1.632	k
Torsion	:	1.255	k.ft
Moment from Horizontal Forces	:	1.05	k.ft
Moment from Vertical Forces	:	1.107	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	2.27	k
Force from Horz. Moment	:	1.90	k
Force from Vert. Moment	:	2.01	k
Shear Load / Bolt	:	0.57	k
Tension Load / Bolt	:	0.58	k
Resultant from Moments / Bolt	:	1.38	k

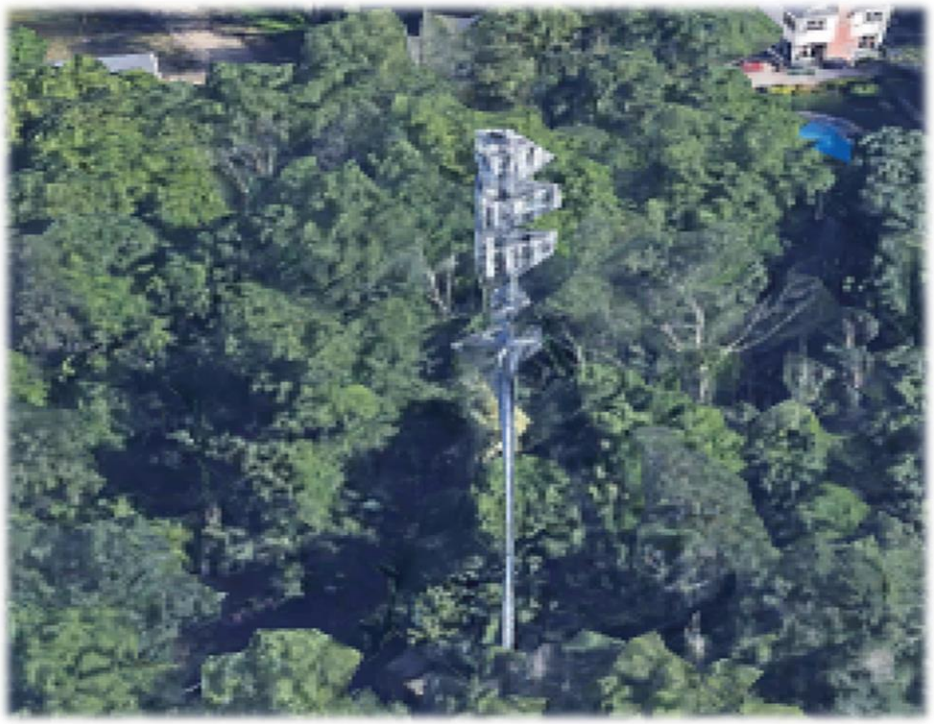
Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**9.44%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**10.34%**		**OKAY**
Unity Check, Combined	:	**19.78%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.64%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

Radio Frequency Safety Survey Report Predictive (RFSSRP) Prepared For AT&T



Site Name:	FAIRFIELD-MURRAY
FA#	10035026
USID:	5788
Site ID:	CTL02105
Address:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
County:	FAIRFIELD
Latitude:	41.1959089
Longitude:	-73.2813600
Structure Type:	MONOPOLE
Property Owner:	CROWN CASTLE USA INC
Pace job:	MRCTB056407
RFDS technology:	5G NR 1SR CBAND

Report Information

Report Writer: Krishna Negi

Report Generated Date: 07-08-2022

Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant when the remediation recommended in section 5 or appropriate remediation determined by AT&T is implemented

Table of Contents

1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	504704.00% on Antennas Centerline Level & at AT&T Sec-A antenna no. #A2-1
Max Predictive Spatial Average MPE% at Ground Level (General Public)	1.07%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.

TABLE 1: Site Summary

1.2 Signage Summary (Proposed)

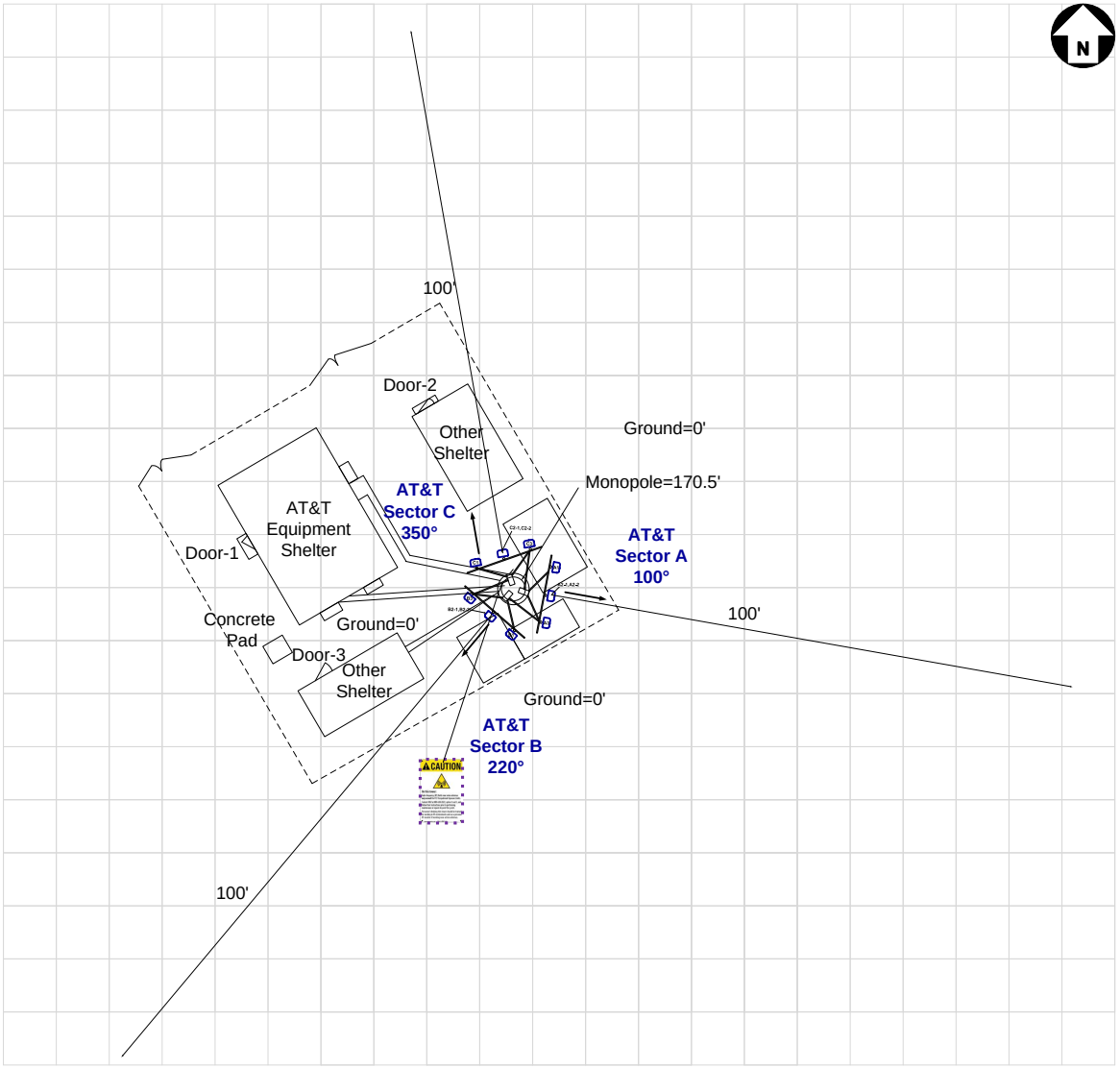
AT&T Signage Locations	Sign Type									
	Safety Instructions	Notice Sign 2	Caution Sign 2	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)				1						
Alpha										
Beta										
Gamma										

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- *806355 CD*
- *806355_586237 RFDS*

2. Site Scale Map



AT&T Antenna	Proposed	Proposed Signage									
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	***Map Scale = 10 ft***
OMNI	Posts										

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (0)	H B W (0)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	100	71	12.05	6	60.00	0.5	857.34	1406.54
A1	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	100	71	12.05	6	120.00	0.5	1714.67	2813.07
A1	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	100	67	15.05	6	120.00	0.5	3421.22	5612.82
A1	AT&T	Quintel	QD6616-7	Panel	2300	LTE	100	61	16.25	6	75.00	0.5	2818.78	4624.46
A2-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	100	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A2-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	100	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A3	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	100	73	12.15	6	120.00	0.5	1754.61	2878.60
A3	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	100	64	13.05	6	120.00	0.5	2158.65	3541.45
A3	AT&T	CCI	OPA65R-BU6D	Panel	2100	LTE/5G	100	69	16.05	6	120.00	0.5	4307.06	7066.12
B1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	220	71	12.05	6	60.00	0.5	857.34	1406.54
B1	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	220	71	12.05	6	120.00	0.5	1714.67	2813.07
B1	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	220	67	15.05	6	120.00	0.5	3421.22	5612.82
B1	AT&T	Quintel	QD6616-7	Panel	2300	LTE	220	61	16.25	6	75.00	0.5	2818.78	4624.46
B2-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	220	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B2-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	220	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B3	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	220	73	12.15	6	120.00	0.5	1754.61	2878.60
B3	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	220	64	13.05	6	120.00	0.5	2158.65	3541.45
B3	AT&T	CCI	OPA65R-BU6D	Panel	2100	LTE/5G	220	69	16.05	6	120.00	0.5	4307.06	7066.12

Table 3.1: Antenna Inventory Table

Note: **^ Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**
* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (0)	H B W (0)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
C1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	350	71	12.05	6	60.00	0.5	857.34	1406.54
C1	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	350	71	12.05	6	120.00	0.5	1714.67	2813.07
C1	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	350	67	15.05	6	120.00	0.5	3421.22	5612.82
C1	AT&T	Quintel	QD6616-7	Panel	2300	LTE	350	61	16.25	6	75.00	0.5	2818.78	4624.46
C2-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	350	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C2-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	350	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C3	AT&T	CCI	OPA65R-BU6D	Panel	700	LTE(B12)	350	73	12.15	6	120.00	0.5	1754.61	2878.60
C3	AT&T	CCI	OPA65R-BU6D	Panel	850	5G	350	64	13.05	6	120.00	0.5	2158.65	3541.45
C3	AT&T	CCI	OPA65R-BU6D	Panel	2100	LTE/5G	350	69	16.05	6	120.00	0.5	4307.06	7066.12

Table 3.2: Antenna Inventory Table

Note: **^ Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**
* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

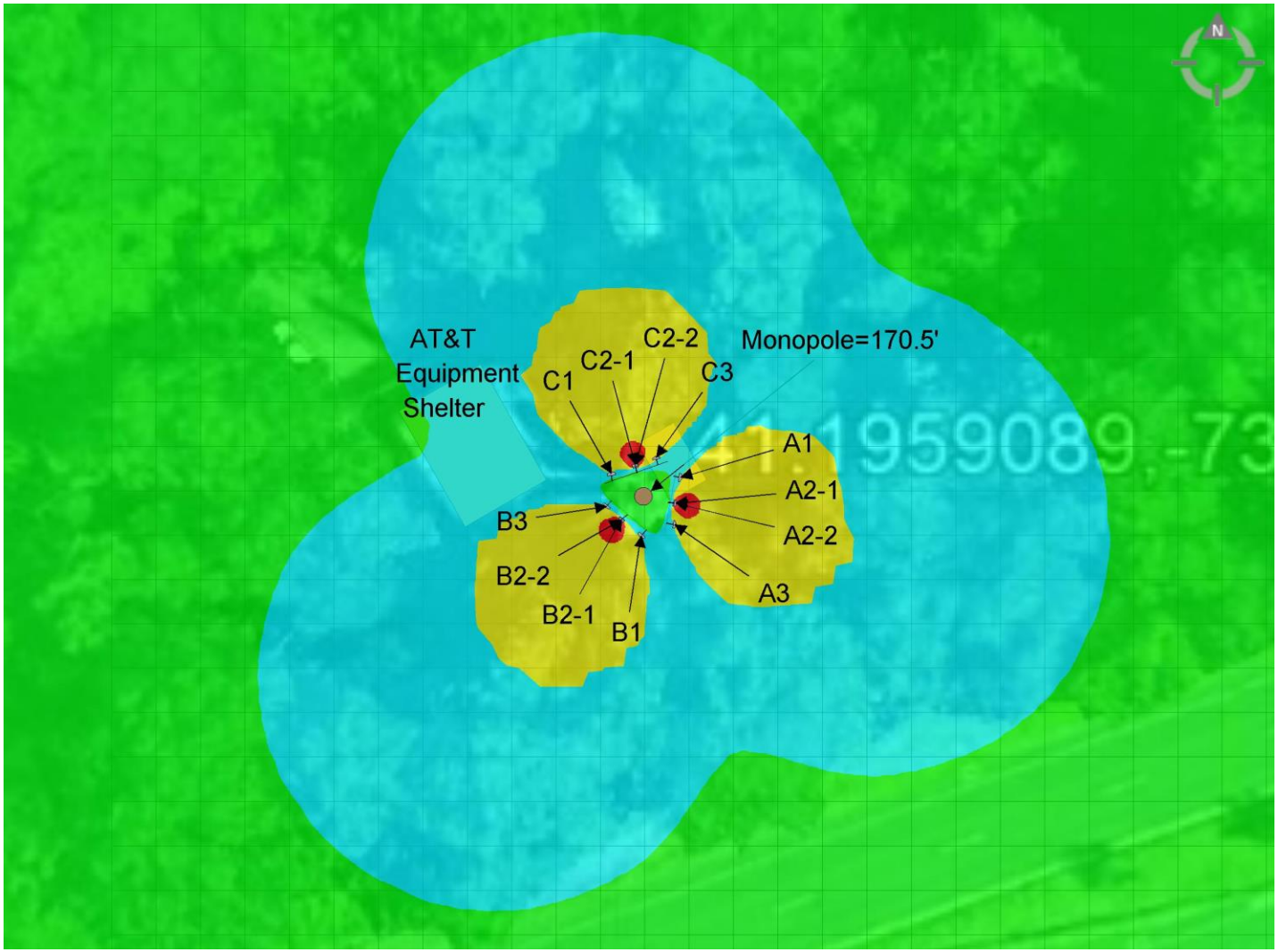
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Ground
A1	AT&T	148.00	145.00
A2-1	AT&T	150.00	148.73
A2-2	AT&T	146.00	144.73
A3	AT&T	148.00	145.00
B1	AT&T	148.00	145.00
B2-1	AT&T	150.00	148.73
B2-2	AT&T	146.00	144.73
B3	AT&T	148.00	145.00
C1	AT&T	148.00	145.00
C2-1	AT&T	150.00	148.73
C2-2	AT&T	146.00	144.73
C3	AT&T	148.00	145.00

Table 3.3: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (146 ft.)



Max. Predictive Spatial Average MPE% = **504704.00%**

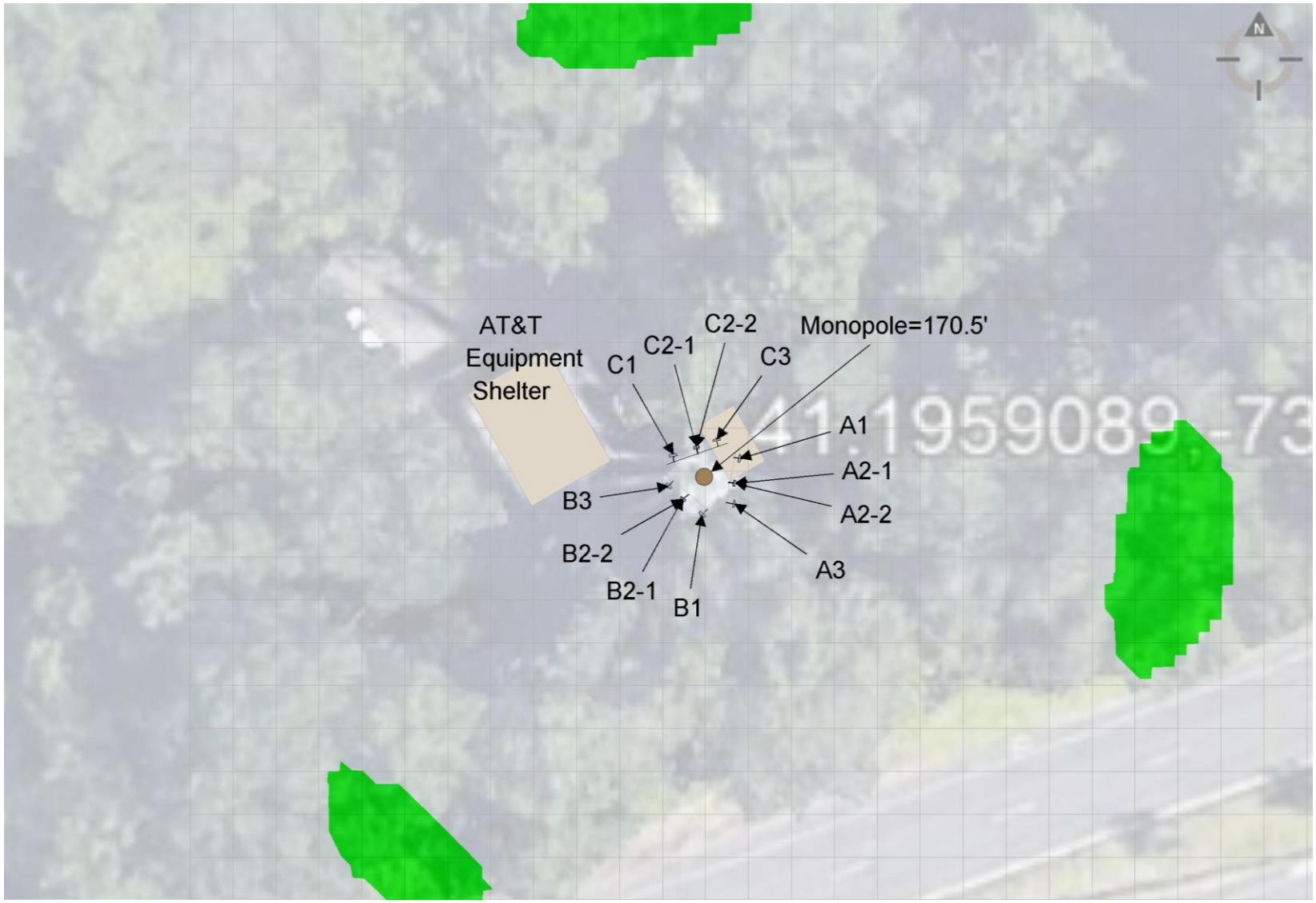
Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.)



Max. Predictive Spatial Average MPE% = **1.07%**

Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

5. Statement of Compliance

5.1 Statement of AT&T Mobility Compliance

At the time of our Analysis, AT&T Mobility is required to take action to fulfill their Obligations to comply with the FCC's mandate as defined in OET-65

Recommendations

AT&T Alpha Sector:

- No action required.

AT&T Beta Sector:

No action required

AT&T Gamma Sector:

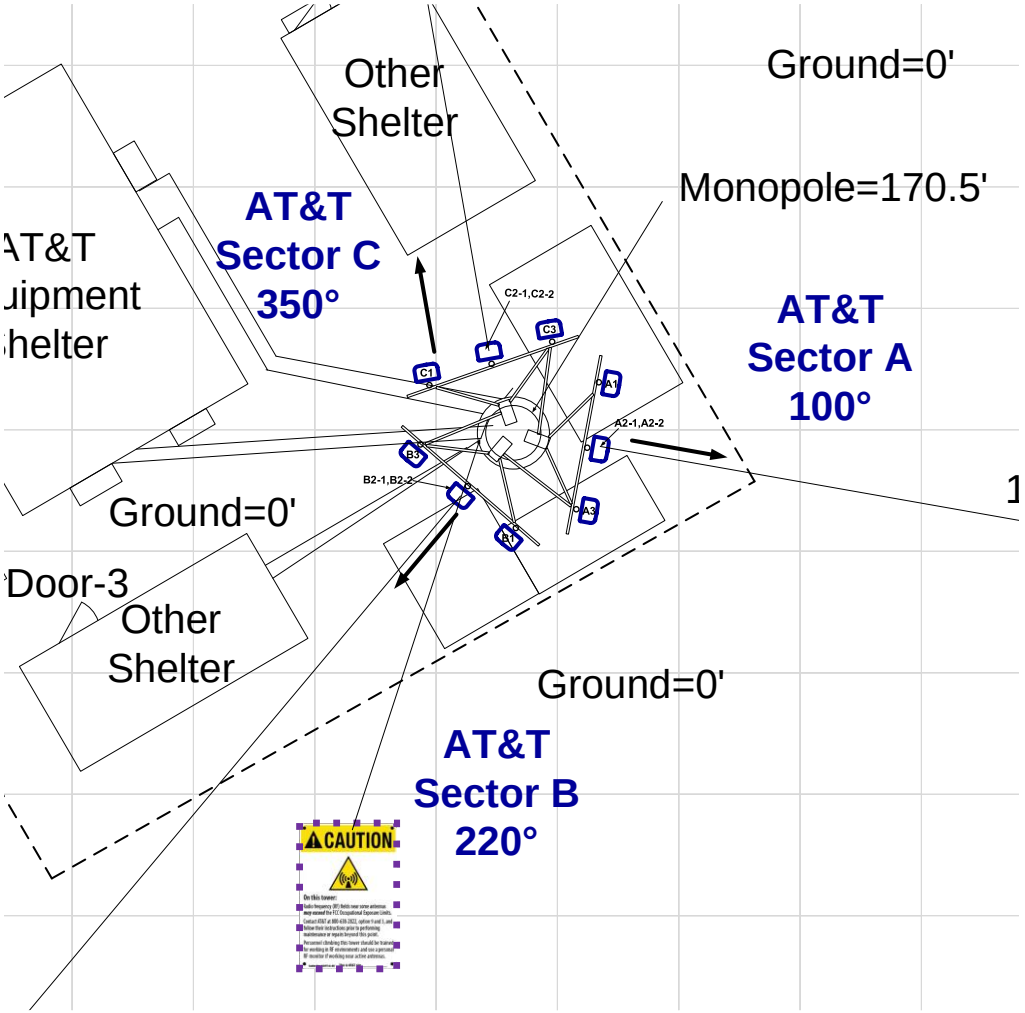
- No action required.

Monopole:

- One Caution 2B Sign to be posted on Monopole at climbing access, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed" on page 11. (1 Total Sign)

Recommendations Map – Detailed View

AT&T Alpha, Beta & Gamma Sectors



AT&T Antenna		Proposed		Proposed Signage									Map Scale = 10 ft
	Panel		Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	
	OMNI		Posts										

Appendix A – Statement of Limiting Conditions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at full power at all times. AT&T has further recommended to assume a 75% duty cycle of maximum radiated power for all LTE & 5G carriers (& consider 100% duty cycle for all UMTS carriers).

In this site compliance report, it is assumed that Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS^ antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.

AT&T recommended to consider - For C-BAND and/or DoD AAS^ antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP.

AT&T recommended to use worst-case tilts for the simulations.

*[1] **Power Reduction Factor**: IEC Standard 62232: 2017 allows for a statistically conservative power density model to more realistically define the RF exposure area. AT&T recommends a "0.32" factor to calculate the "Actual Maximum" (time averaged) power value, which accounts for "Beam Scanning," "Scheduling," and "RBS Utilization" This recommended value is a conservative figure modelled and supported by other vendors and through measurements published in scientific articles and white papers by IEEE and others. Those publication are listed below:*

1. IEEE Access, Time-Averaged Realistic Maximum Power Levels for the Assessment of RF Exposure for 5G Radio Base Stations Using Massive MIMO (Published Sept. 18, 2017 / BJÖRN THORS, ANDERS FURUSKÄR, DAVIDE COLOMBI, AND CHRISTER TÖRNEVIK)
2. IEEE Explore, A Statistical Approach for RF Exposure Compliance Boundary Assessment in Massive MIMO Systems (Published Jan. 25, 2018 / Paolo Baracca, Andreas Weber, Thorsten Wild, Christophe Grangeat)
3. IEEE Access, In-situ Measurement Methodology for the Assessment of 5G NR Massive MIMO Base Station Exposure at Sub-6 GHz Frequencies (Published Dec. 20, 2019 / SAM AERTS, LEEN VERLOOCK, MATTHIAS VAN DEN BOSSCHE, DAVIDE COLOMBI, LUC MARTENS, CHRISTER TÖRNEVIK AND WOUT JOSEPH)
4. Applied Sciences, Analysis of the Actual Power and EMF Exposure from Base Stations in a Commercial 5G Network (Published July 30, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)
5. Ofcom Technical Report, Electromagnetic Field (EMF) measurements near 5G mobile phone base stations (Published Feb. 21, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)

MobileComm believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor). Thus, at any time, if power density measurements were made, we believe the real time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modelling in this way, MobileComm has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Other Carrier" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, MobileComm uses the closest frequency in the antenna's range that corresponds to the highest Maximum Exposure Limit (MPE), resulting in a conservative analysis.

Appendix B – FCC Guidelines and Emissions Threshold Limits

All power density values used in this report were analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2).The number of µW/cm2 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 public 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 public 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 (µW/cm2). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 µW/cm2 and 567 µW/cm2 respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 µW/cm2. 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, have been properly trained in RF safety 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, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-I,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-I,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations.

A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- *are exposed to RF energy as a consequence of their employment;*
- *have been made aware of the possibility of exposure; and*
- *can exercise control over their exposure.*

FCC guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

Appendix D – General Safety Recommendations

The following are general recommendations appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.

2. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:

- *adding new antennas that may have been located on the site*
- *removing of any existing antennas*
- *changes in the radiating power or number of RF emitters*

3. Post the appropriate SAFETY INSTRUCTIONS, NOTICE, CAUTION & WARNING sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in the report section above, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.

4. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.

5. For a General Public environment the five color levels identified in measured RF emission diagram can be interpreted in the following manner:

- *White represents areas predicted to be greater than or equal to 0% and less than 1% of the MPE general public limits*
- *Green represents areas predicted to be greater than or equal to 1% and less than 100% of the MPE general public limits*
- *Blue represents areas predicted to be greater than or equal to 100% and lesser than 500% of the MPE general public limits.*
- *Yellow represents areas predicted to be greater than or equal to 500% and lesser than 5000% of the MPE general public limits.*
- *Red areas indicates predicted levels greater than or equal to 5000% of the MPE general public limits.*

Appendix E – References

1 - FCC Definition

FCC defines an Occupational or Controlled environment as one where persons are exposed to RF fields as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Typical criteria for an Occupational or Controlled environment is restricted access (i.e. locked doors, gates, etc.) to areas where antennas are located coupled with proper RF warning signage.

FCC defines a site as a General Public or Uncontrolled environment when human exposure to RF fields occurs to the general public or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over the exposure. Typical criteria for a General Public or Uncontrolled environment are unrestricted access (i.e. unlocked or no restrictions) to areas where antennas are located without proper RF warning signage being posted.

2 - Physical Testing measurement procedure and Tools

The Narda Broadband Field Meter NBM-550 can make rapid conformance measurements with evaluation in the time domain when used in conjunction EA5091 probe. This probe is a so-called Shaped Probe, i.e. it is frequency weighted so that it automatically takes account of the FCC Occupational limit values. To collect data, the probe is pointed towards the potential source(s) of EME radiation and moved slowly from ground level up to slightly above head height (approx. 6 ft).

Spatial Average Measurement A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

3 - Site Safety Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: *Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.*

Training and Qualification Verification: *All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).*

Physical Access Control: *Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:*

- *Locked door or gate*
- *Alarmed door*
- *Locked ladder access*
- *Restrictive Barrier at antenna locations (e.g. Chain link with posted RF Sign)*

RF Signage: *Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.*

Assume all antennas are active: *Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.*

Maintain a 3 foot clearance from all antennas: *There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.*

Rooftop RF Emissions Diagram: *Section 4 of this report contains an RF Emissions Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas on the rooftop. This analysis is all theoretical and assumes a duty cycle of 75% for each transmitting antenna at full power. This analysis is a worst case scenario. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.*

4 - Definitions

Compliance- *The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.*

Decibel (dB) – *A unit for measuring power or strength of a signal.*

Duty Cycle – *The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 75% corresponds to continuous operation.*

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – *The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna, this product is divided by the cable losses*

Effective Radiated Power (ERP) – *In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.*

Gain (of an antenna in dbd) – *The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from a reference dipole. Gain is a measure of the relative efficiency of a directional antennas as compared to a reference dipole.*

General Population/Uncontrolled Environment – *Defined by the FCC, as an area where RFR exposure may occur to persons who are unaware of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.*

Generic Antenna – *For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.*

Isotropic Antenna – *An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.*

Maximum Measurement – *This measurement represents the single largest measurement recorded when performing a spatial average measurement.*

Maximum Exposure Limit (MPE) – *The RMS and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.*

Occupational/Controlled Environment – *Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are aware of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.*

Radio Frequency Radiation – *Electromagnetic waves that are propagated from antennas through space.*

Spatial Average Measurement – *A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.*

Transmitter Power Output (TPO) – *The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.*

Appendix F – Proprietary Statement

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by MobileComm are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to MobileComm so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.