



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

March 18, 2021

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

RE: Notice of Exempt Modification for AT&T - 825998
234 Melba Street, Milford, CT 06460
Latitude: 41° 12' 36.02" / Longitude: -73° 1' 8.45"

Dear Attorney Bachman:

AT&T currently maintains six (6) antennas at the 90-foot mount and 100-foot mount on the existing 125-foot concealed Flagpole Tower, located at 234 Melba Street, Milford, CT. The tower is owned by Crown Castle and the property is owned by 17 Mile 04 LLC. AT&T now intends to remove and replace three (3) antennas at the 90-foot mount. This modification/proposal includes B2, B5, and B12 hardware that is both 4G(LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The facility was approved by the City of Milford Planning & Zoning Board by way of a Special Exception on December 5, 2000. The approval was given with conditions which this exempt modification complies with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Benjamin Blake, Mayor for the City of Milford, David B. Sulkis, City of Milford Planning Director, Crown Castle as the tower owner, and 17 Mile 04 LLC, the property owner.

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

The Foundation for a Wireless World.

CrownCastle.com

Melanie A. Bachman

Page 2

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). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

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

Attachments

cc:

Benjamin Blake, Mayor (*via email only to bblake@ci.milford.ct.us*)
City of Milford
70 West River Street
Milford, CT 06460

David B. Sulkis, City Planner (*via email only to dsulkis@ci.milford.ct.us*)
Planning & Zoning
70 West River Street
Milford, CT 06460

17 Mile 04 LLC
69 Harry Street
Conshohocken, PA 19428

Crown Castle, Tower Owner

ORIGIN ID: SCHA (201) 236-9224
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE

GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 18MAR21
ACT WGT: 0.50 LB
CAD: 104924194IN/ET4340

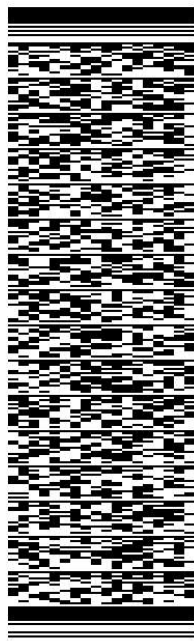
BILL SENDER

TO 17 MILE 04 LLC

69 HARRY STREET

CONSHOHOCKEN PA 19428

(201) 236-9224 REF: 1734 7690
INV/ PO: DEPT:



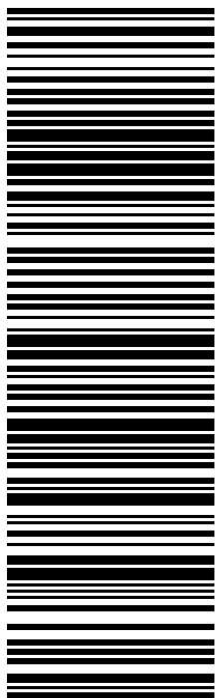
56DJ3JAC39JFE4A

TRK# 7731 9606 6063
0201

FRI - 19 MAR 10:30A
PRIORITY OVERNIGHT

EE KPDA

19428
PA-US PHL



After printing this label:

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

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

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

From: [Zsamba, Anne Marie](#)
To: ["bblake@ci.milford.ct.us"](mailto:bblake@ci.milford.ct.us)
Subject: Notice of Exempt Modification - 234 Melba Street, Milford - AT&T - 825998
Date: Thursday, March 18, 2021 10:25:00 AM
Attachments: [EM-AT&T-234 MELBA STREET-MILFORD-825998-NOTICE.pdf](#)

Dear Mayor Blake:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council today, March 18, 2021.

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

Best,
Anne Marie Zsamba

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

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

From: [Zsamba, Anne Marie](#)
To: ["dsulkis@ci.milford.ct.us"](mailto:dsulkis@ci.milford.ct.us)
Subject: Notice of Exempt Modification - 234 Melba Street, Milford - AT&T - 825998
Date: Thursday, March 18, 2021 10:25:00 AM
Attachments: [EM-AT&T-234 MELBA STREET-MILFORD-825998-NOTICE.pdf](#)

Dear City Planner Sulkis:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council today, March 18, 2021.

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

Best,
Anne Marie Zsamba

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Project Manager - Site Acquisition
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

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

Exhibit A

Original Facility Approval

11738
DEC 27 2000

Vol 2443 P49

DEC 27 AM 11:33 19s

CITY OF MILFORD, CONNECTICUT

THIS IS TO CERTIFY THAT VOICE STREAM WIRELESS CORPORATION
WAS GRANTED A SPECIAL EXCEPTION BY THE
MILFORD PLANNING & ZONING BOARD ON DECEMBER 5, 2000 FOR
PROPERTY LOCATED AT 234 MELBA STREET
MAP 39 BLOCK 542 PARCEL 38A
IN THE CITY OF MILFORD, COUNTY OF NEW HAVEN, STATE OF
CONNECTICUT FOR WHICH MELBA REALTY, LLC IS THE OWNER.

THE SPECIAL EXCEPTION WAS GRANTED:

To install a 125' tall monopole communications tower to also function as a flag pole structure with 15'x25' American Flag flown atop daily. It will be incumbent upon the applicant to maintain the flag and to submit an appropriate lighting plan which will illuminate, but not "over" illuminate the flag. If the applicant elects not to light the flag at night, the flag must be removed before nightfall; to be promptly re-flown during the daylight hours. Any proposed lighting system shall be submitted to Planning & Zoning Staff for review before installation is commenced. All construction shall be in accordance with plan prepared by Carter Burgess consisting of the following sheets: Title sheet dated June 2000; General Location Map Survey by Design Professionals, Inc. dated June 21, 2000; Specifications dated July 13, 2000, sheet C-0; Proposed Site Diagram dated July 13, 2000, sheet C-1; Site Details dated July 13, 2000, sheet C-2. The applicant will be required to weave grass insert strips between the links of the proposed chain link surround fence. Additional antennas, if any, must be installed within the interior of the flagpole (as shown). No further Planning & Zoning Board approval is required for "interior" antennas unless the associated equipment buildings exceed 6 ft. in height or are constructed beyond the proposed 20'x41'1" enclosure area. A variance was granted for the pole height to be at 125 ft. from 45 ft. allowed. The waiver was granted on September 12, 2000.

"NO VARIANCE, SPECIAL PERMIT OR SPECIAL EXCEPTION GRANTED PURSUANT TO CHAPTER 124 OF ANY SPECIAL ACT SHALL BE EFFECTIVE UNTIL A COPY THEREOF...IS RECORDED IN THE LAND RECORDS OF THE TOWN IN WHICH SUCH PREMISES ARE LOCATED."

P.A. 75-317

PLANNING & ZONING BOARD

RECORDED _____

CITY CLERK REC. NO. _____

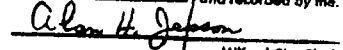
BY:



WADE E. PIERCE
EXECUTIVE SECRETARY

Received for record **DEC 27 2000**

at 11:33:19 AM and recorded by me.



Milford City Clerk

00 DEC 27 2008 11:54 11S



City of Milford, Connecticut

Founded 1639

ZONING BOARD OF APPEALS

70 West River Street
Milford, CT 06460-3317
Telephone (203) 783-3246
Fax (203) 783-3303

THIS IS TO CERTIFY THAT, Bruce Hoben Agent for VoiceStream Wireless appellant, was granted a variance by the Zoning Board of Appeals on September 12, 2000, for the property located at: **234 Melba Street, Assessor's Map 39, Block 542, Parcel 38A,** in the City of Milford, County of New Haven, State of Connecticut, of which Melba Realty, LLC, 20 E. Main Street, Suite 300, Waterbury, CT, are the owners.

A VARIANCE WAS GRANTED TO:

Vary Section 4.1.13 to allow flag pole with antenna concealed within to be 125 ft. tall where a maximum height of 45 ft. is allowed.

"NO VARIANCE, SPECIAL PERMIT OR SPECIAL EXCEPTION GRANTED PURSUANT TO CHAPTER 124 OF ANY SPECIAL ACT SHALL BE EFFECTIVE UNTIL A COPY THEREOF...IS RECORDED IN THE LAND RECORDS OF THE TOWN IN WHICH SUCH PREMISES ARE LOCATED." P.A. 75-317

RECORDED: _____
DATE

ZONING BOARD OF APPEALS

CITY CLERK REC. NO. _____

BY: Errol Van Hise
Errol Van Hise, Chairman

Received for record **DEC 27 2008**
of 11:54:11 AM and recorded by me.
Alan H. Johnson
Milford City Clerk

20672

VOL 2814 PG 467

~~20059~~



City of Milford, Connecticut

Founded 1639

70 WEST RIVER STREET
MILFORD, CT 06480-3317
Telephone (203) 783-3245
Fax (203) 783-3303

70 West River Street
Milford, CT 06480-3317
Telephone (203) 783-3245
Fax (203) 783-3303

THIS IS TO CERTIFY THAT, Ronald Lombard, appellant, was granted a variance by the Zoning Board of Appeals on October 14, 2003, for the property located at: 232 – 234 Melba Street, Assessor's Map 39, Block 542, Parcel 38A, in the City of Milford, County of New Haven, State of Connecticut, of which, Melba Realty, LLC, 20 East Main Street, Waterbury, CT is the owner.

A VARIANCE WAS GRANTED TO:

Vary Sect. 3.9.4.2(3)(a) front yard setback (for parking) from 20 ft. to 0 ft.

"NO VARIANCE, SPECIAL PERMIT OR SPECIAL EXCEPTION GRANTED PURSUANT TO CHAPTER 124 OF ANY SPECIAL ACT SHALL BE EFFECTIVE UNTIL A COPY THEREOF...IS RECORDED IN THE LAND RECORDS OF THE TOWN IN WHICH SUCH PREMISES ARE LOCATED." P.A. 75-317

RECORDED: _____ ZONING BOARD OF APPEALS
DATE

CITY CLERK REC. NO. _____ BY: Fred Katen /BK
Fred Katen, Chairman

VOL. _____ PAGE _____

Received for record OCT 21 2003
at 8:38.25 AM and recorded by me.
Alan H. Johnson
Milford City Clerk

Exhibit B

Property Card

234 MELBA ST

Location 234 MELBA ST

Mblu 39/ 542/ 38/A /

Acct# 016774

Owner 17 MILE 04 LLC

Assessment \$1,361,230

Appraisal \$1,944,620

PID 9527

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$1,491,000	\$453,620	\$1,944,620

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$1,043,700	\$317,530	\$1,361,230

Owner of Record

Owner 17 MILE 04 LLC
Other
Address 69 HARRY ST
CONSHOHOCKEN, PA 19428

Sale Price \$0
Certificate
Book & Page 03670/0238
Sale Date 03/04/2016

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
17 MILE 04 LLC	\$0		03670/0238	03/04/2016
17 MILE 04 LLC	\$2,490,000		03670/0233	03/04/2016
MELBA REALTY LLC	\$0		02273/0471	04/16/1998
LOJAC LLC	\$20,000		02252/0466	12/12/1997
SADL ANTON	\$0		01169/0031	08/31/1982

Building Information

Building 1 : Section 1

Year Built: 1970
Living Area: 15,684

Replacement Cost: \$968,313

Building Percent Good: 70

Replacement Cost

Less Depreciation: \$677,820

Building Attributes

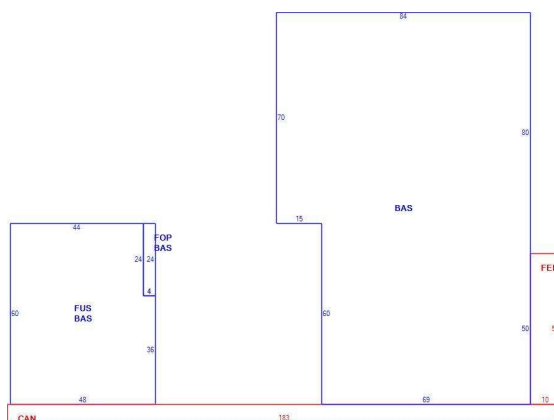
Field	Description
STYLE	Stores/Apt Com
MODEL	Commercial
Grade	AVERAGE
Stories:	2
Occupancy	5.00
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Linoleum
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	STORE/SHOP MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	2
Bath Desc.	2-Full
Usrflid 219	
1st Floor Use:	3220
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	8.00
% Comn Wall	0.00

Building Photo



(http://images.vgsi.com/photos/MilfordCTPhotos/A00\05\11\77.jpg)

Building Layout



(ParcelSketch.ashx?pid=9527&bid=9633)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	12,900	12,900
FUS	Upper Story, Finished	2,784	2,784
CAN	Canopy	1,098	0
FEP	Porch, Enclosed, Finished	500	0
FOP	Porch, Open, Finished	96	0
		17,378	15,684

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 3220
Description STORE/SHOP MDL-94
Zone BD
Neighborhood J
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 2.71
Frontage 0
Depth 0
Assessed Value \$317,530
Appraised Value \$453,620

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			9500.00 S.F.	\$13,180	1
CEL1	CEL TWR SITE			2.00 UNITS	\$800,000	1

Valuation History

Appraisal				
Valuation Year	Improvements	Land	Total	
2019	\$1,491,000	\$453,620	\$1,944,620	
2018	\$1,491,000	\$453,620	\$1,944,620	
2017	\$1,491,000	\$453,620	\$1,944,620	
2016	\$1,491,000	\$453,620	\$1,944,620	

Assessment				
Valuation Year	Improvements	Land	Total	
2019	\$1,043,700	\$317,530	\$1,361,230	
2018	\$1,043,700	\$317,530	\$1,361,230	
2017	\$1,043,700	\$317,530	\$1,361,230	
2016	\$1,043,700	\$317,530	\$1,361,230	

Exhibit C

Construction Drawings



AT&T SITE NUMBER: CT5601
AT&T SITE NAME: SHERMAN-ANDERSON R D EXIT
AT&T FA CODE: 10071133
AT&T PACE NUMBER: MRCTB049074
AT&T PROJECT: LTE 6C

BUSINESS UNIT #: 825998
SITE ADDRESS: 234 MELBA STREET, MILFORD, CT 06460
COUNTY: NEW HAVEN
SITE TYPE: MONOPOLE
TOWER HEIGHT: 125'-0"



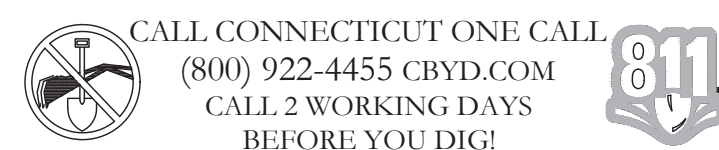
SITE INFORMATION

CROWN CASTLE USA INC. MILFORD SHORE AREA
 SITE NAME:
 SITE ADDRESS: 234 MELBA STREET, MILFORD, CT 06460
 COUNTY: NEW HAVEN
 MAP/PARCEL #: ----
 AREA OF CONSTRUCTION: EXISTING
 LATITUDE: 41° 12' 36.02" (41.2100380)
 LONGITUDE: -73° 1' 8.45" (73.0190580)
 LAT/LONG TYPE: NAD83
 GROUND ELEVATION: 22'
 CURRENT ZONING: EXISTING
 JURISDICTION: CITY OF MILFORD
 OCCUPANCY CLASSIFICATION: U
 TYPE OF CONSTRUCTION: IIB
 A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
 PROPERTY OWNER: CROWN CASTLE, 2000 CORPORATE DRIVE, CANONSBURG, PA 15317
 TOWER OWNER: CROWN CASTLE, 2000 CORPORATE DRIVE, CANONSBURG, PA 15317
 CARRIER/APPLICANT: AT&T MOBILITY, ONE AT&T WAY, BEDMINSTER, NJ 07921
 ELECTRIC PROVIDER: EXISTING
 TELCO PROVIDER: EXISTING

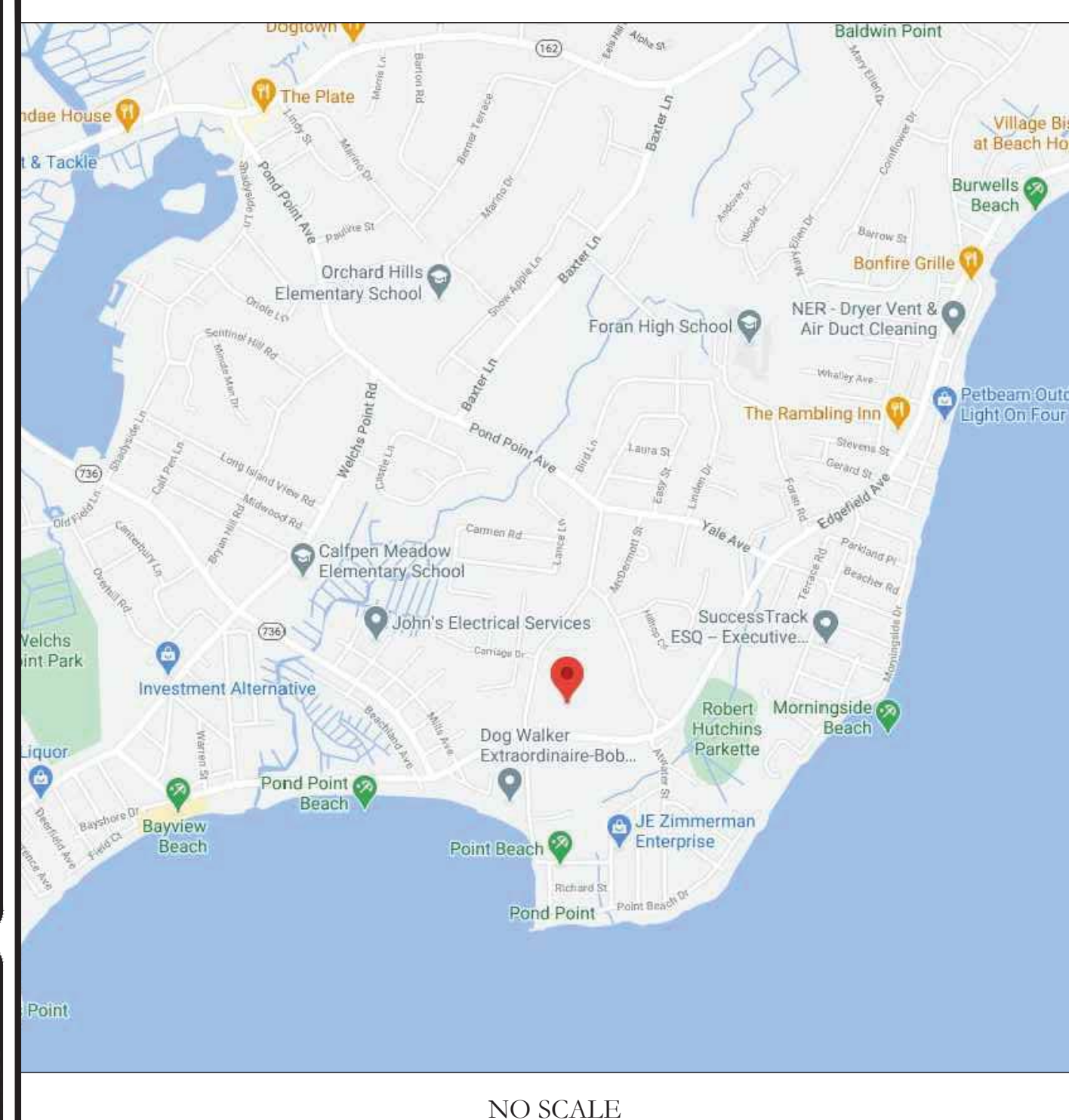
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT MOUNTING DETAILS
C-5	EQUIPMENT SPECS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. 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.



LOCATION MAP



SITE PHOTO



AT&T SITE NUMBER: CT5601

BU #: 825998
 MILFORD SHORE AREA

234 MELBA STREET
 MILFORD, CT 06460

EXISTING 125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	02/04/21	GM	PRELIMINARY	JMO
0	03/03/21	CJ	FINAL	JMO

PROJECT TEAM

A&E FIRM: RAMAKER & ASSOCIATES, INC., 855 COMMUNITY DRIVE, SAUK CITY, WI 53583, (608) 643-4100, CONTACT: JOSH OPSETH, PROJECT MANAGER, EMAIL: JOPSETH@RAMAKER.COM
 CROWN CASTLE USA INC. DISTRICT CONTACTS:
 VERONICA DELIA - PROJECT MANAGER

 JASON D-AMICO - CONSTRUCTION MANAGER

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) SBNHH-1D45B ANTENNAS
 • INSTALL (3) OPA65R-BU6DA ANTENNA AT 91'-0" RAD
 GROUND SCOPE OF WORK:
 • INSTALL (1) IDLe CABLE
 • INSTALL (2) RRU's 4478 B14
 • INSTALL (8) TSXDC-4310FM COMBINERS

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.

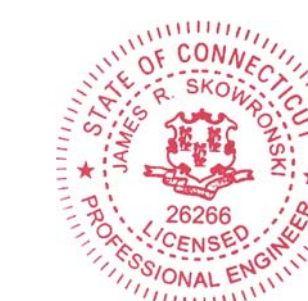
APPLICABLE CODES/REFERENCE DOCUMENTS

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 CT SBC (2015 IBC)
MECHANICAL	2018 CT SBC (2015 IMC)
ELECTRICAL	2018 CT SBC (2017 NEC)

REFERENCE DOCUMENTS:
 STRUCTURAL ANALYSIS: BY OTHERS
 DATED:
 MOUNT ANALYSIS: BY OTHERS
 DATED:
 AC ELECTRICAL POWER DESIGN: BY OTHERS
 DATED:
 RFDS REVISION: 1.00
 DATED: 9/22/21
 ORDER ID: 531504
 REVISION: 3

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



James R. Skowronski 3/03/2021
 License No. 26286

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.

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

SHEET NUMBER: REVISION:

T-1 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GREENFIELD GROUNDING NOTES:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THW, THN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THW, THN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET NEW FITTINGS AND NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREFOLD SPECMATE WIREWAY).
- SLOTTED WIRING CUP SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
- 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
277/480V, 3Ø	GROUND	GREEN
	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
DC VOLTAGE	NEUTRAL	GREY
	GROUND	GREEN
	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
- RETS REMOTE ELECTRIC TILT
- RFDSD 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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BU #: **825998**

MILFORD SHORE AREA


234 MELBA STREET
MILFORD, CT 06460

EXISTING 125'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
A	02/04/21	GM	PRELIMINARY	JMO
0	03/03/21	CJ	FINAL	JMO

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Joseph J. Starnowski 3/03/2021
Professional Engineer

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SHEET NUMBER: **T-2** REVISION: **0**



ONE AT&T WAY
BEDMINSTER, NJ 07921



RAMAKER
employee-owned

(608) 643-4100 www.ramaker.com
PROJECT #: 50467

AT&T SITE NUMBER: CT5601

BU #: 825998
MILFORD SHORE AREA

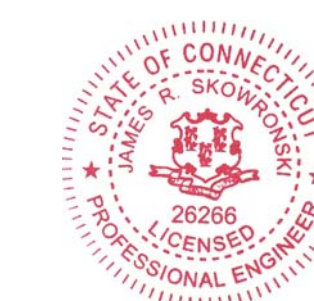
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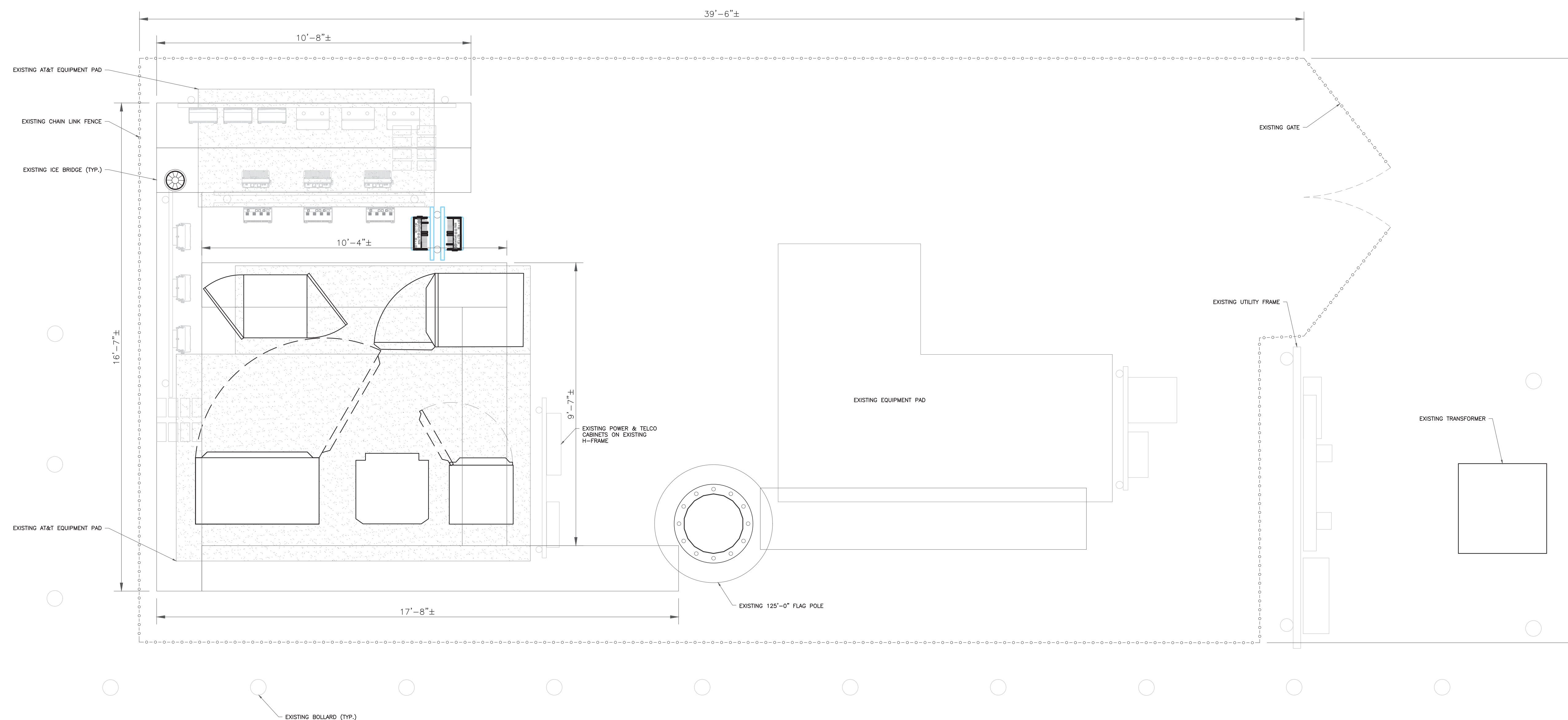
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James R. Skowronski 3/03/2021
Signature Date

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SHEET NUMBER: **C-1.1** REVISION: **0**



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





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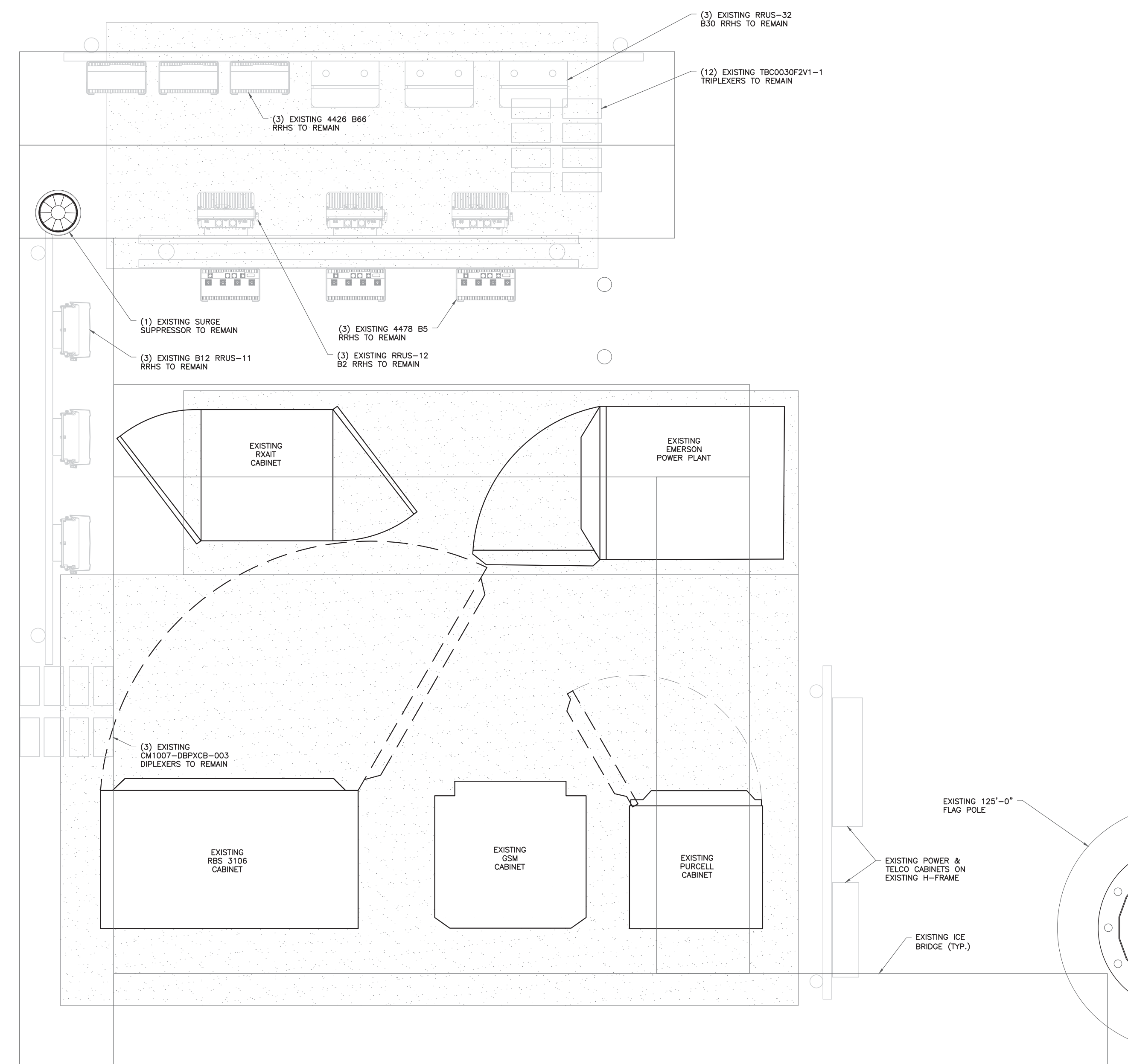
James R. Skowronski
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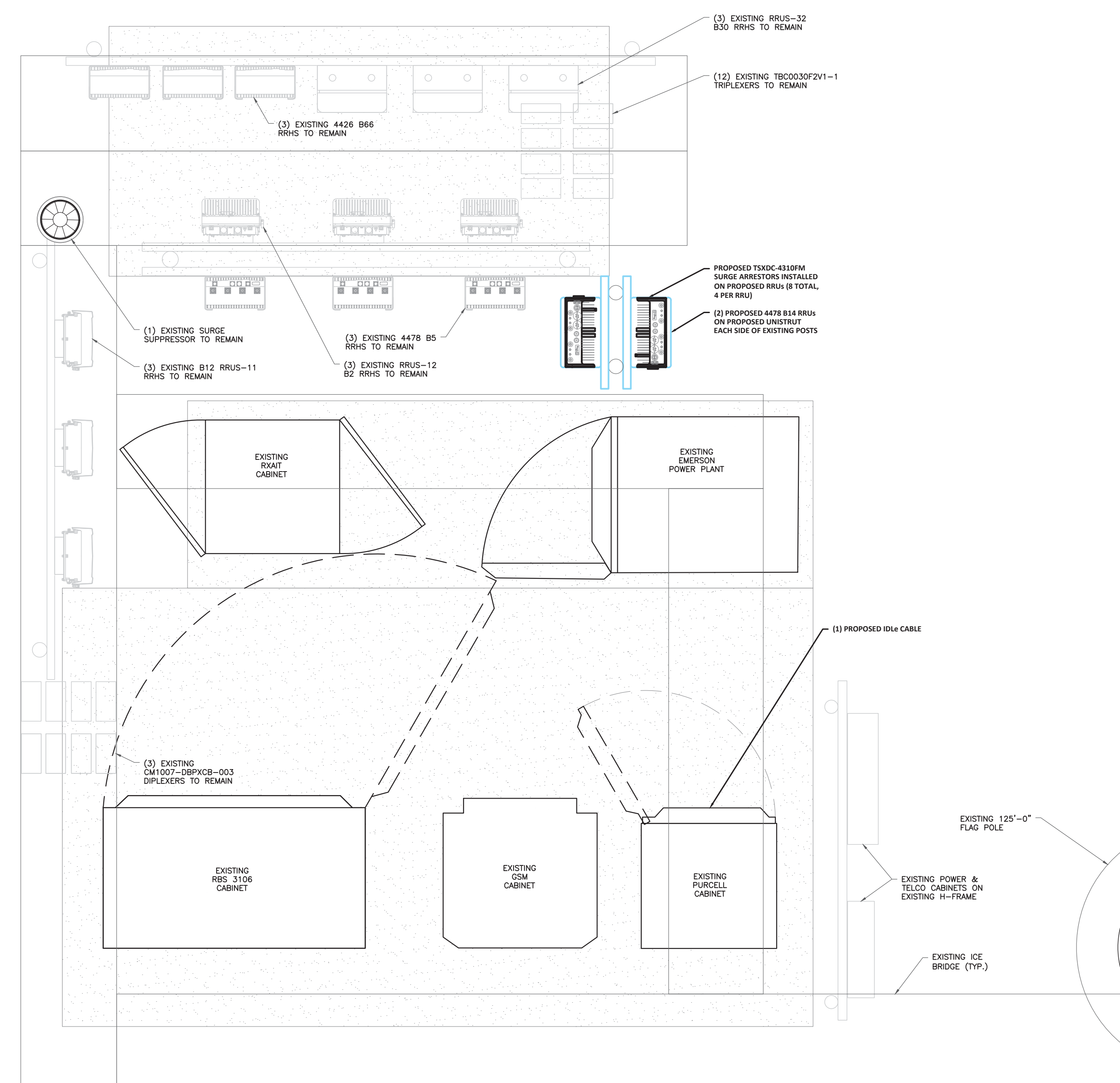
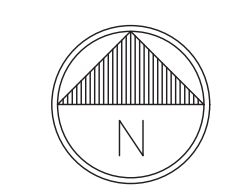
SHEET NUMBER: **C-1.2** REVISION: **0**

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.

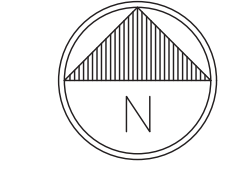
GROUND SCOPE OF WORK:
•INSTALL (1) IDLE CABLE
•INSTALL (2) RRUS 4478 B14
•INSTALL (8) TSXDC-4310FM COMBINERS

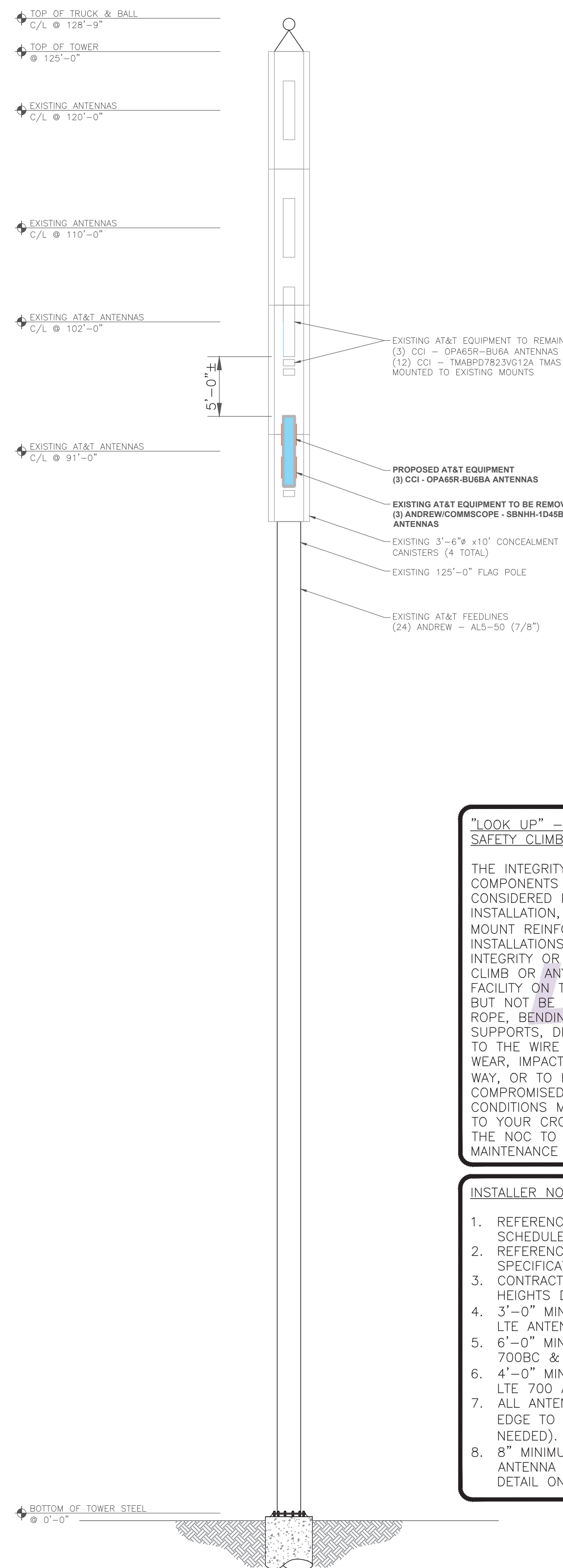


1 EXISTING EQUIPMENT PLAN
SCALE: 3/4"=1'-0" (FULL SIZE)
3/8"=1'-0" (11x17)

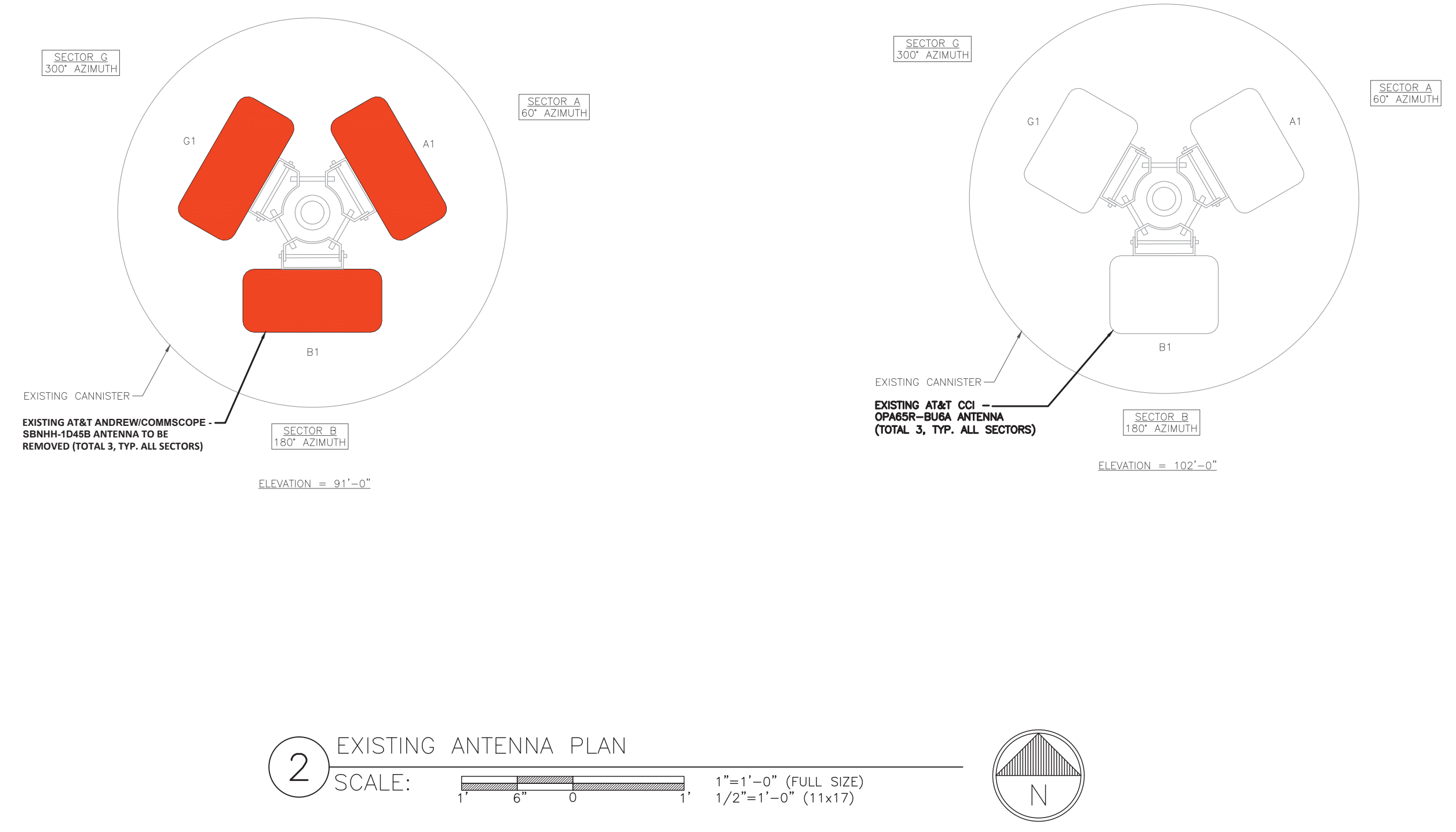


2 FINAL EQUIPMENT PLAN
SCALE: 3/4"=1'-0" (FULL SIZE)
3/8"=1'-0" (11x17)





1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: 1" = 6'-0" (FULL SIZE)
1/2" = 1'-0" (11x17)



3 FINAL ANTENNA PLAN
SCALE: 1" = 6'-0" (FULL SIZE)
1/2" = 1'-0" (11x17)

"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.



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SHEET NUMBER: **C-2** REVISION: **0**



**FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)**

ALPHA																			
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
A1	UMTS/LTE	(N) CCI OPA65R-BU6BA	60°	91'-0"	1	(N) 4478 B14	GROUND	4	(E)	GROUND	2	(E) CCI - TMABPD7823VG12A	1	(E) DC6-48-60-18-8F	4	(E) COAX	7/8"	141'-0"	
					1	(E) RRUS-12 B2	GROUND												
					1	(E) 4426 B66	GROUND												
A2	5G/LTE	(E) CCI OPA65R-BU6A	60°	102'-0"	1	(E) RRUS-11 B12	GROUND	4	(E)	GROUND	2	(E) CCI - TMABPD7823VG12A			4	(E) COAX	7/8"	152'-0"	
					1	(E) 4478 B5	GROUND												
					1	(E) RRUS-32 B30	GROUND												
BETA																			
B1	UMTS/LTE	(N) CCI OPA65R-BU6BA	180°	91'-0"	1	(N) 4478 B14 (SHARED)	GROUND	4	(E)	GROUND	2	(E) CCI - TMABPD7823VG12A			4	(E) COAX	7/8"	141'-0"	
					1	(E) RRUS-12 B2	GROUND												
					1	(E) 4426 B66	GROUND												
B2	5G/LTE	(E) CCI OPA65R-BU6A	180°	102'-0"	1	(E) RRUS-11 B12	GROUND	4	(E)	GROUND	2	(E) CCI - TMABPD7823VG12A			4	(E) COAX	7/8"	152'-0"	
					1	(E) 4478 B5	GROUND												
					1	(E) RRUS-32 B30	GROUND												
GAMMA																			
C1	UMTS/LTE	(N) CCI OPA65R-BU6BA	300°	91'-0"	1	(N) 4478 B14	GROUND	4	(E)	GROUND	2	(E) CCI - TMABPD7823VG12A			4	(E) COAX	7/8"	141'-0"	
					1	(E) RRUS-12 B2	GROUND												
					1	(E) 4426 B66	GROUND												
C2	5G/LTE	(E) CCI OPA65R-BU6A	300°	102'-0"	1	(E) RRUS-11 B12	GROUND	4	(E)	GROUND	2	(E) CCI - TMABPD7823VG12A			4	(E) COAX	7/8"	152'-0"	
					1	(E) 4478 B5	GROUND												
					1	(E) RRUS-32 B30	GROUND												

NOTE:
(E) - EXISTING
(N) - NEW

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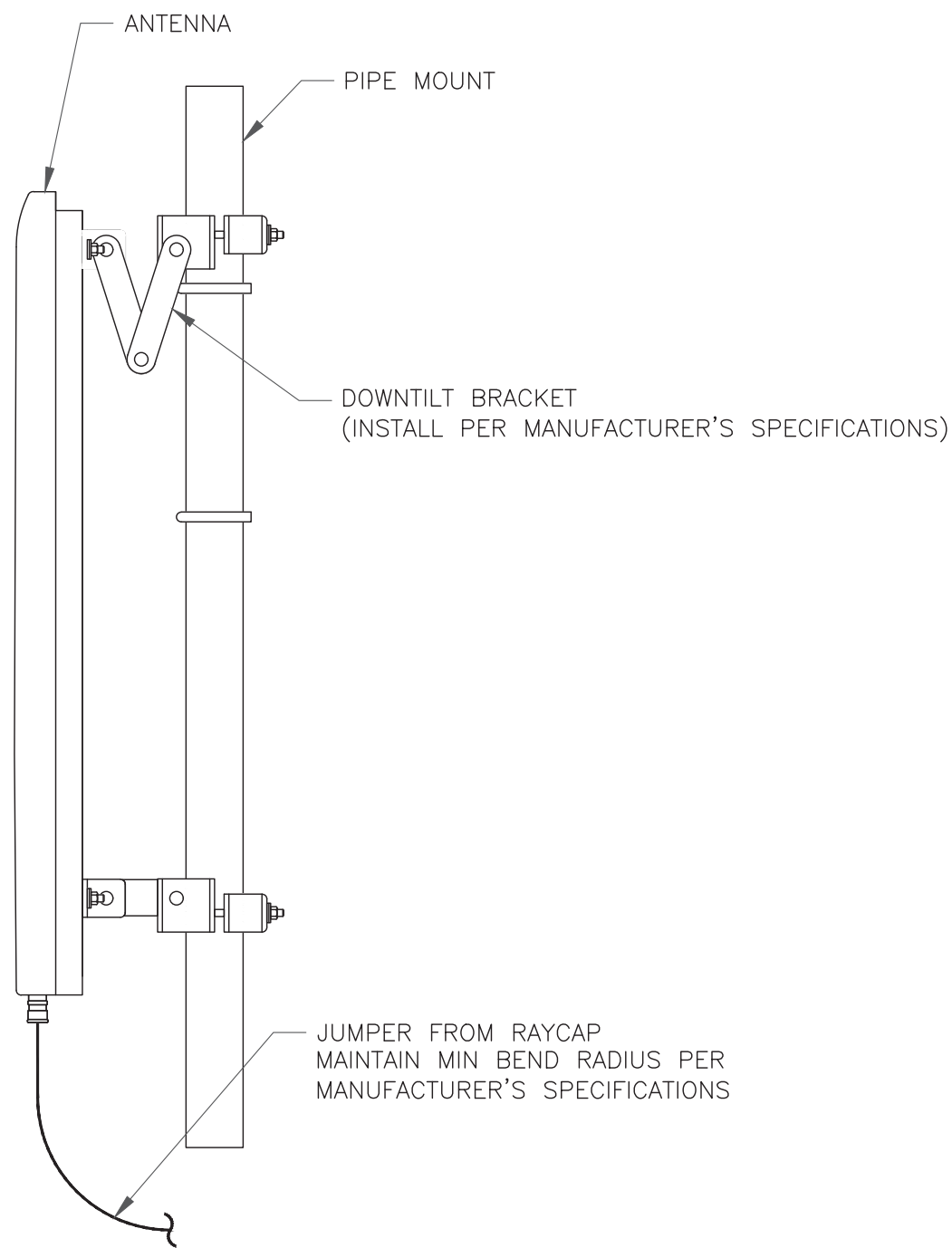
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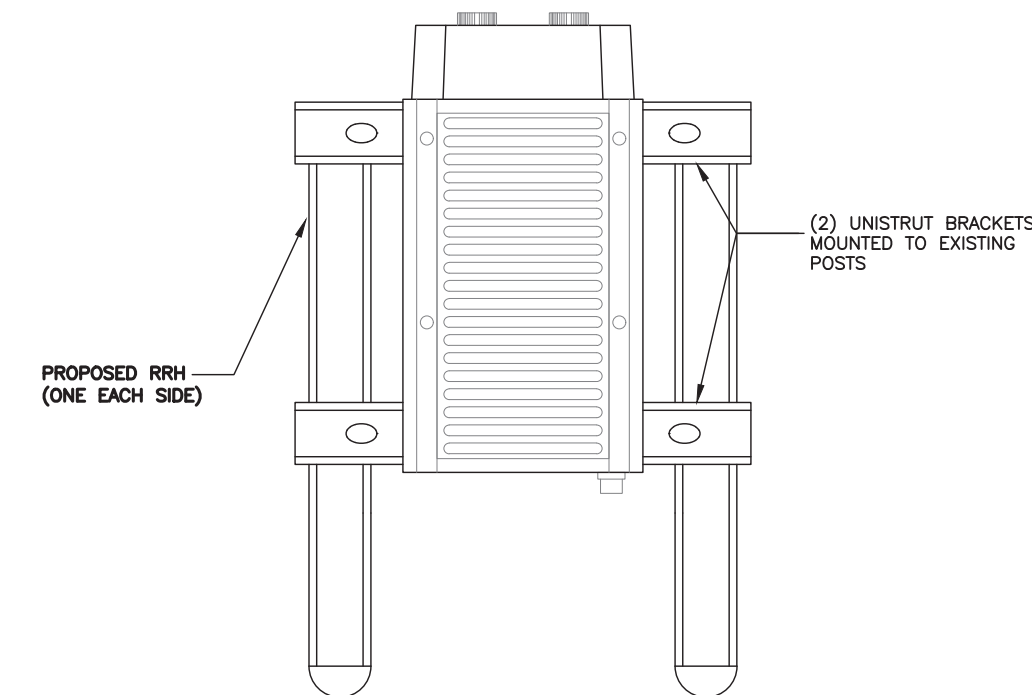
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Signature Date

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SHEET NUMBER: **C-3** REVISION: **0**



1 GENERIC ANTENNA MOUNTING ELEVATION
SCALE: NOT TO SCALE



2 RRH MOUNTING DETAIL
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



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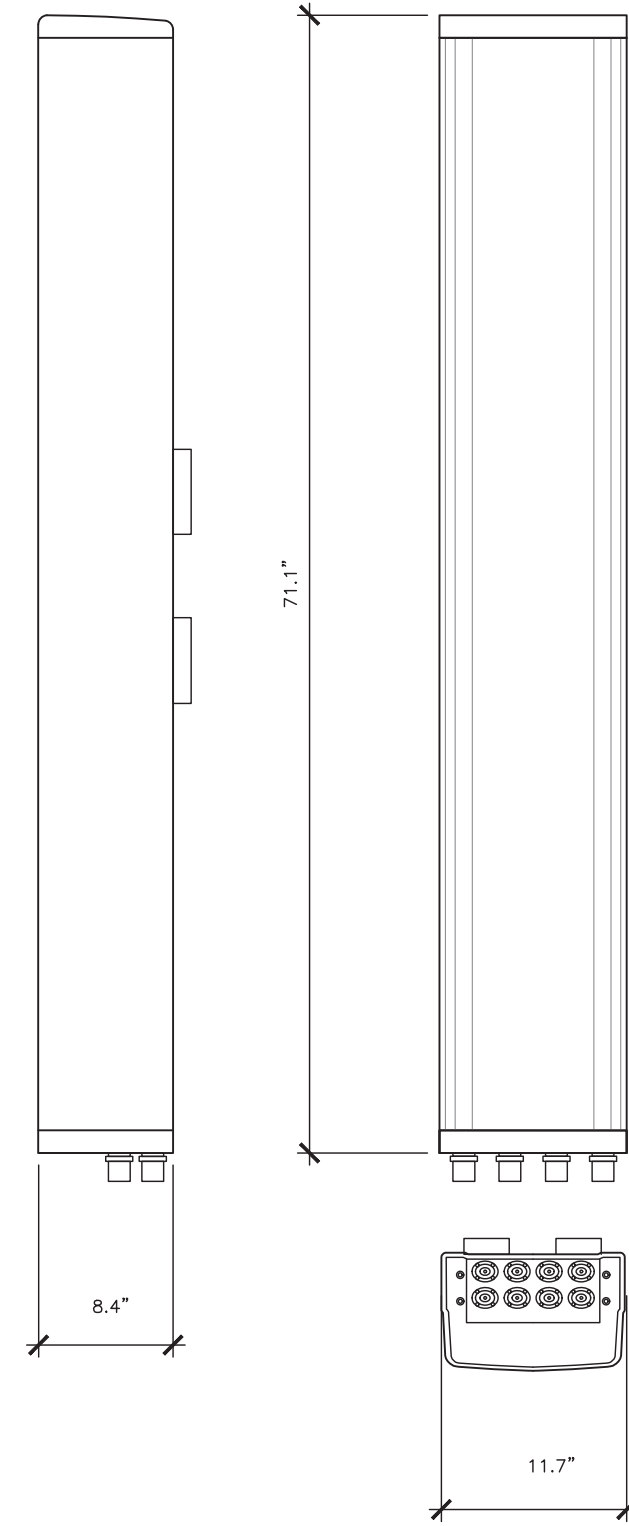


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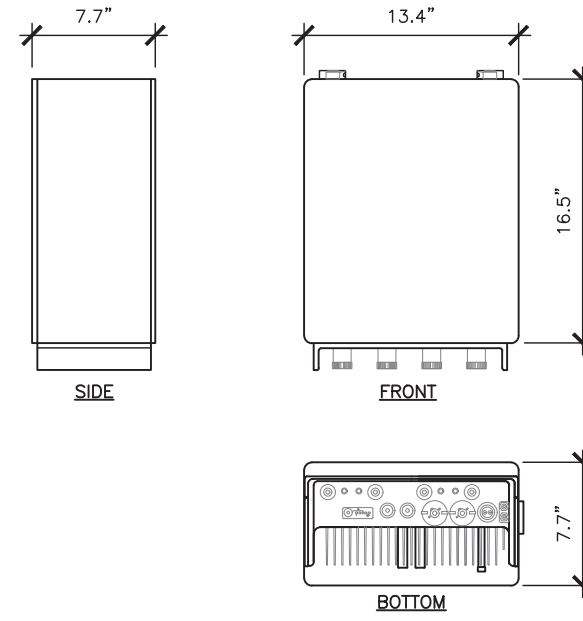
SHEET NUMBER: C-4 REVISION: 0

CCI ANTENNA OPA-65R-BU6BA-K
 DIMENSIONS, HxWxD: 71.1"x11.7"x8.4"
 SURVIVAL WIND SPEED: >XXX MPH
 WEIGHT, WITHOUT MOUNTING: 86.60 LBS. (33KG)
 RET SYSTEM WEIGHT: X.X LBS. (X.XXKG)
 CONNECTOR: TBD
 CONNECTOR POSITION: BOTTOM
 MOUNTING POLE: TBD



1 ANTENNA DETAILS
 SCALE: NOT TO SCALE

ERICSSON RRU5_4478_R14
 DIMENSIONS, HxWxD: 16.5"x13.4"x7.7"
 WEIGHT, WITHOUT MOUNTING KIT: 27.2 kg (59.9 lbs)
 STACKING OF RRU'S IS NOT PERMITTED.
 NO PAINTING OF RRU'S IS ALLOWED.



2 RRH DETAILS
 SCALE: NOT TO SCALE

3 NOT USED
 SCALE: NOT TO SCALE



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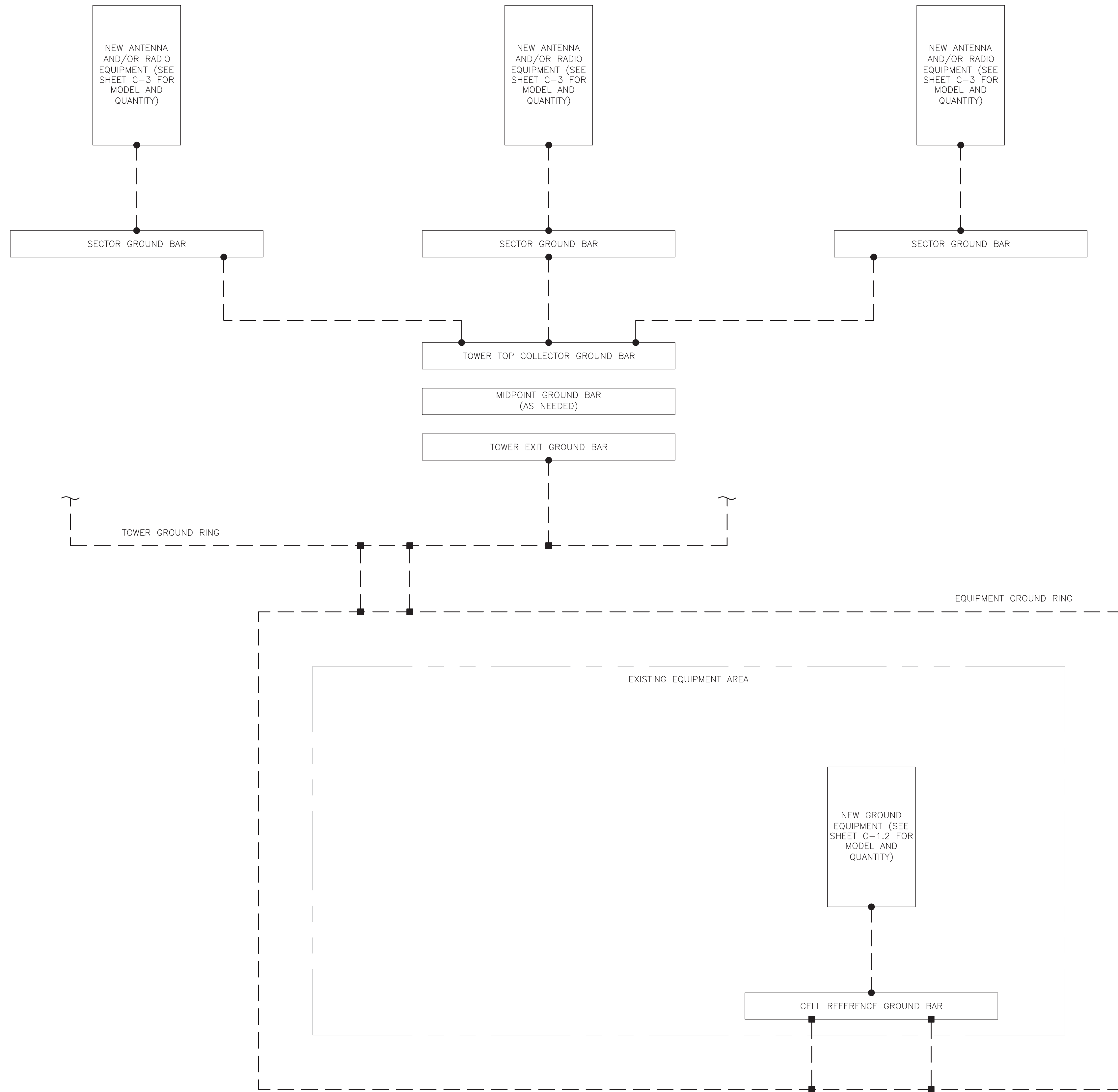
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4 NOT USED
 SCALE: NOT TO SCALE

5 NOT USED
 SCALE: NOT TO SCALE

6 NOT USED
 SCALE: NOT TO SCALE

SHEET NUMBER: C-5 REVISION: 0



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.



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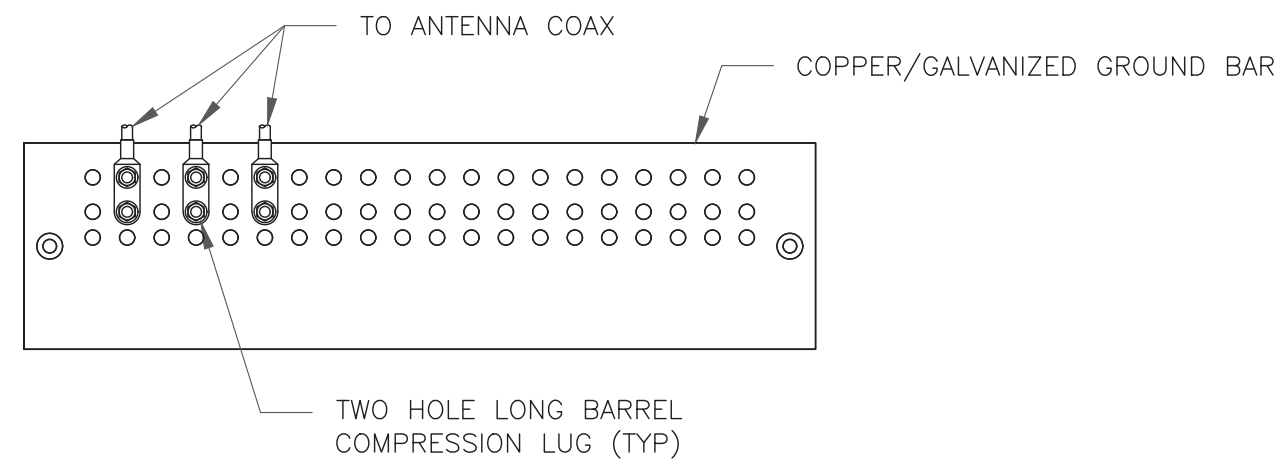
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1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

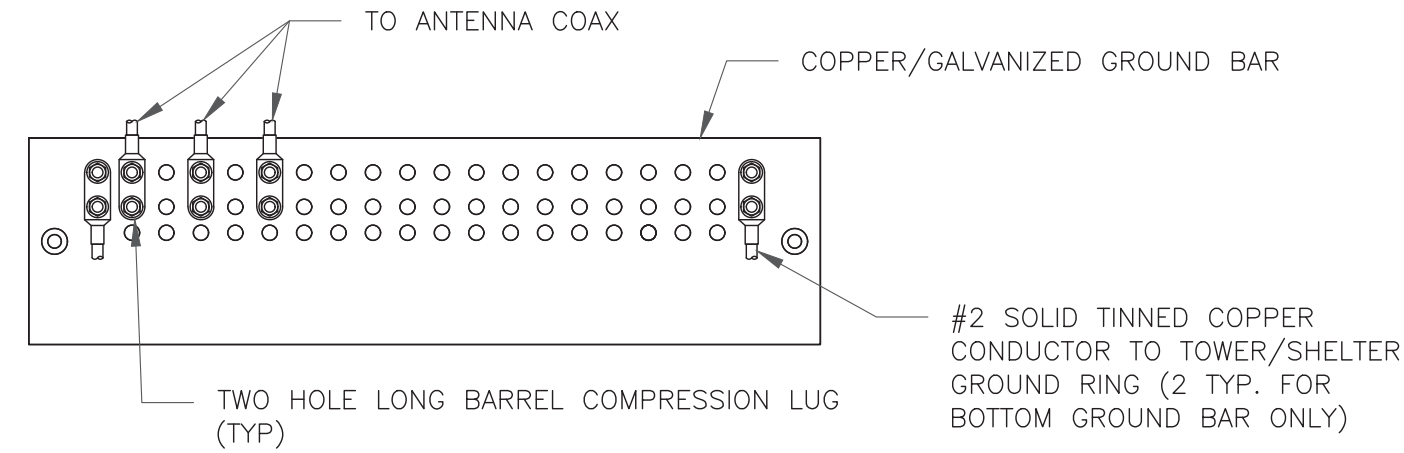
SHEET NUMBER: **G-1** REVISION: **0**



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

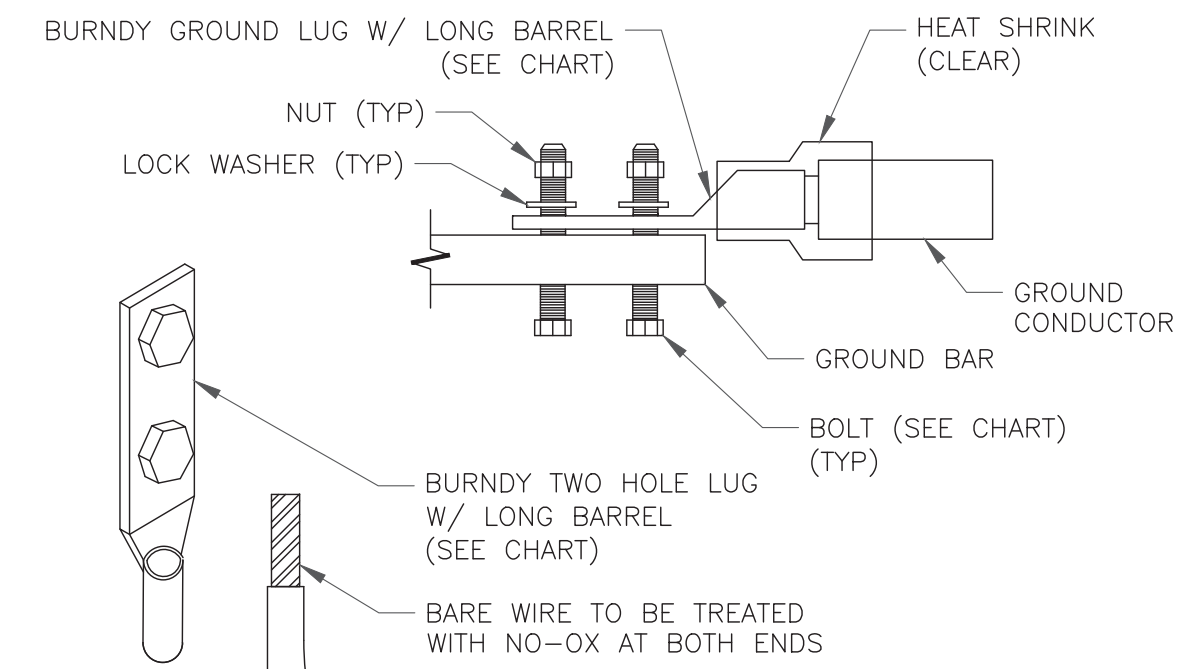


NOTES:

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

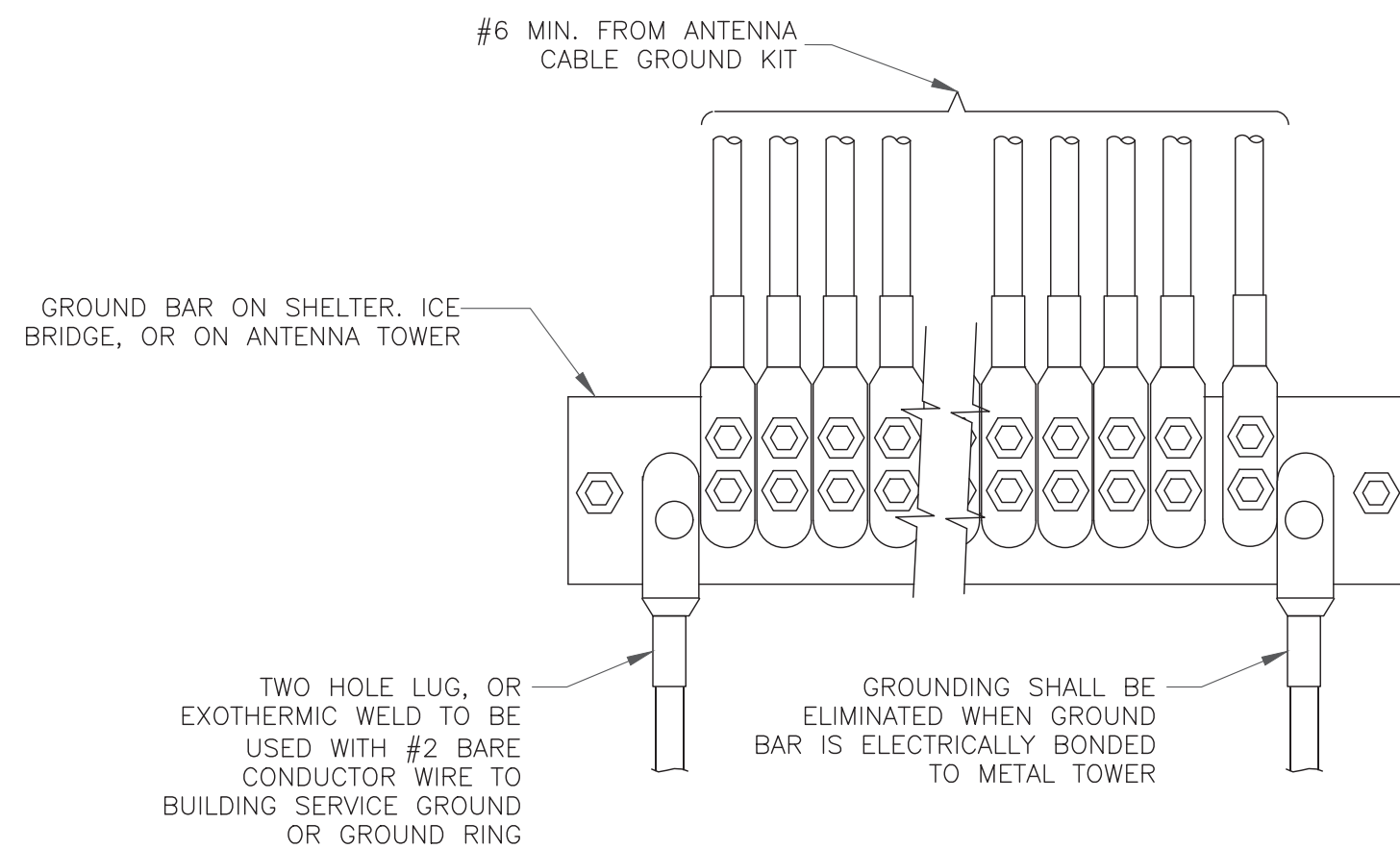
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



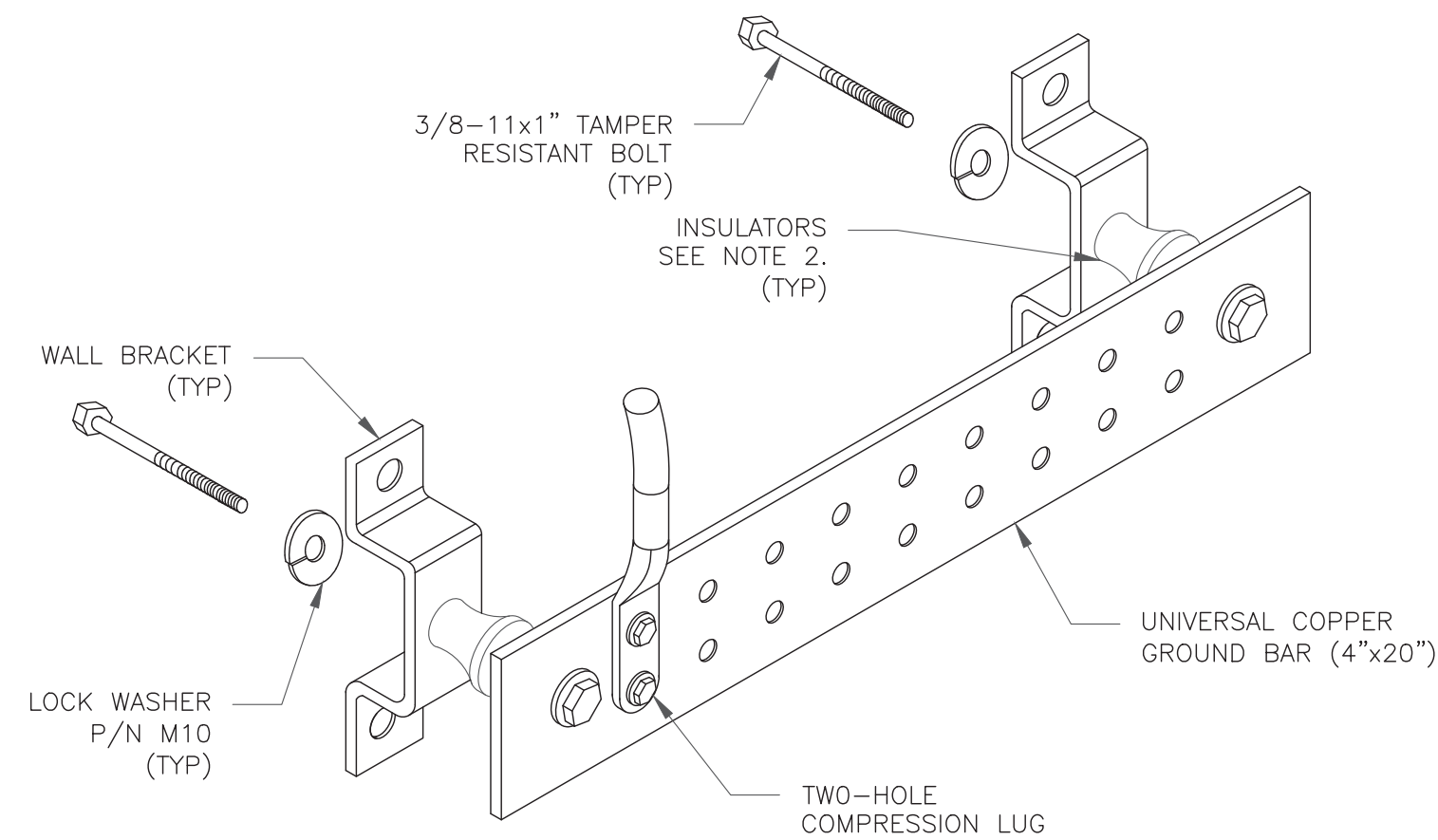
NOTE:

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



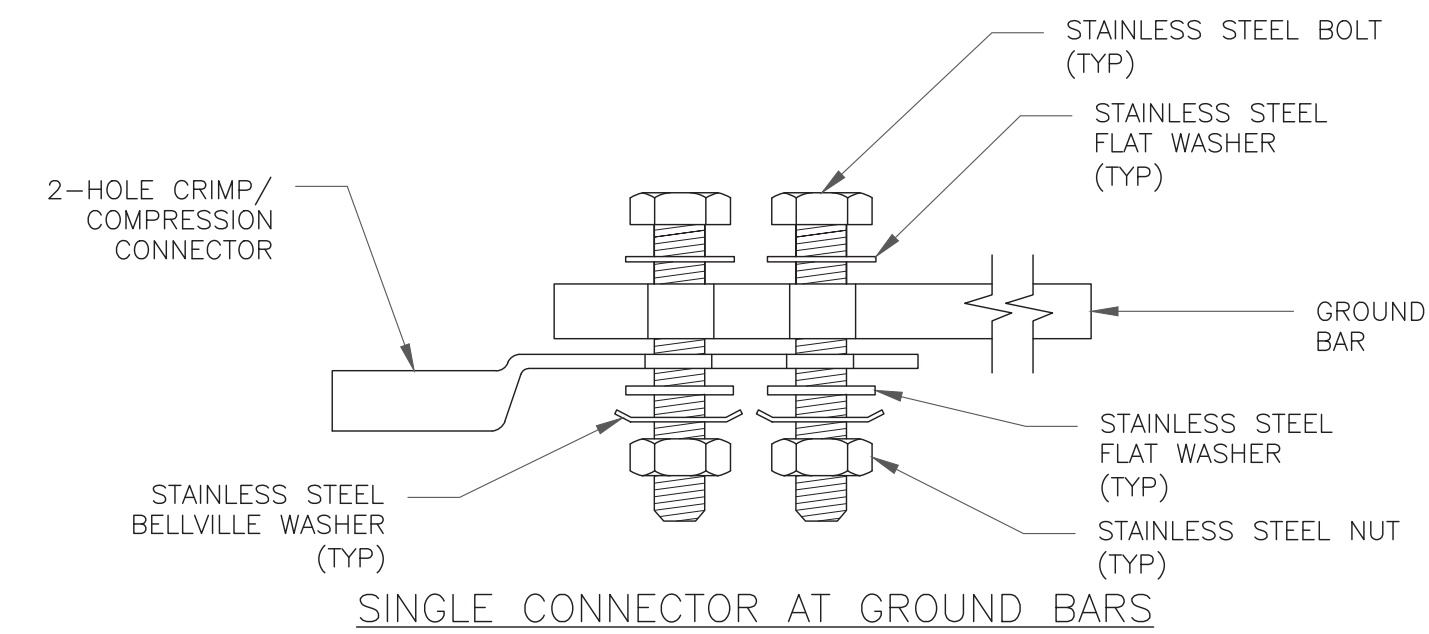
4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



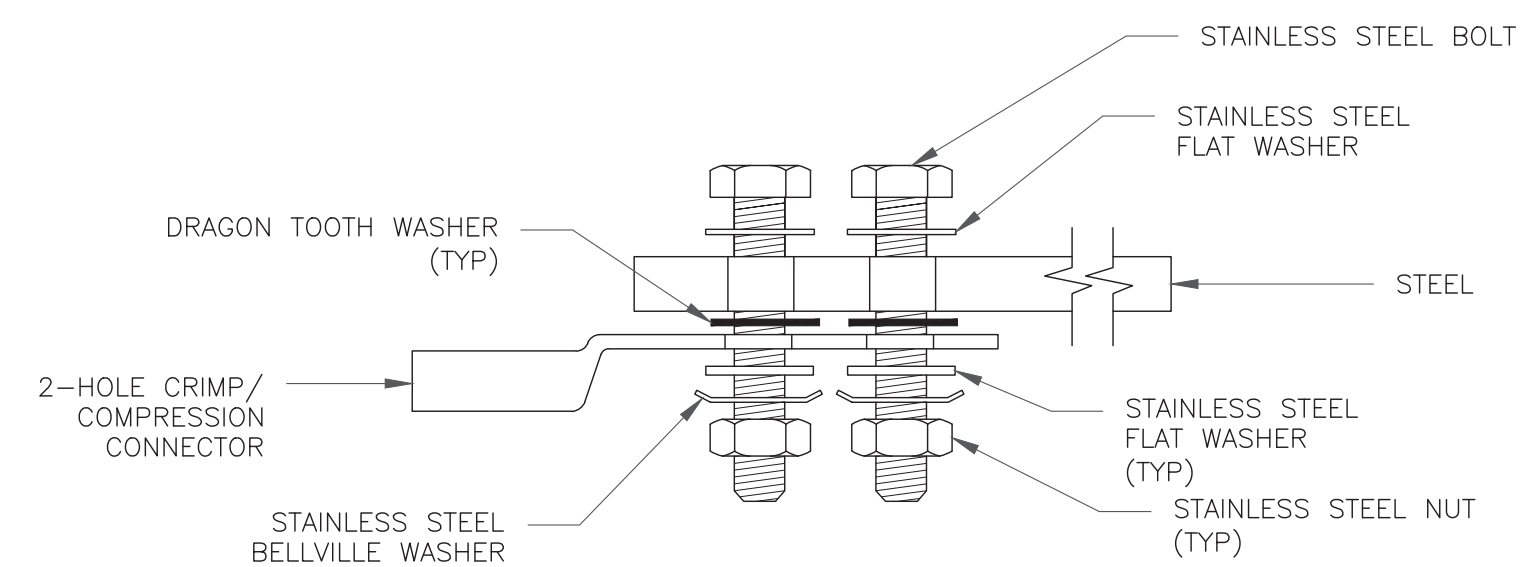
NOTES:

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.

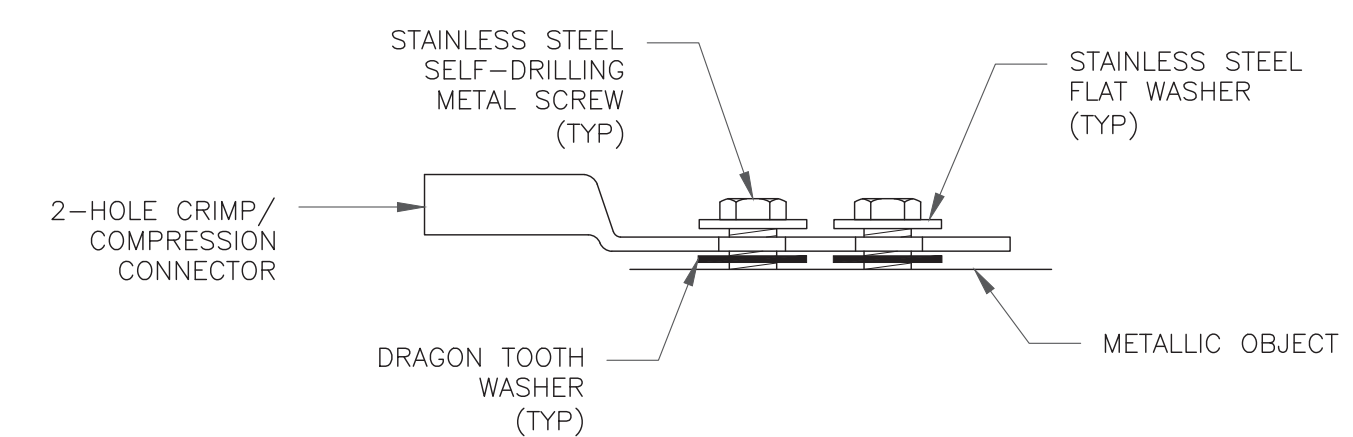
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



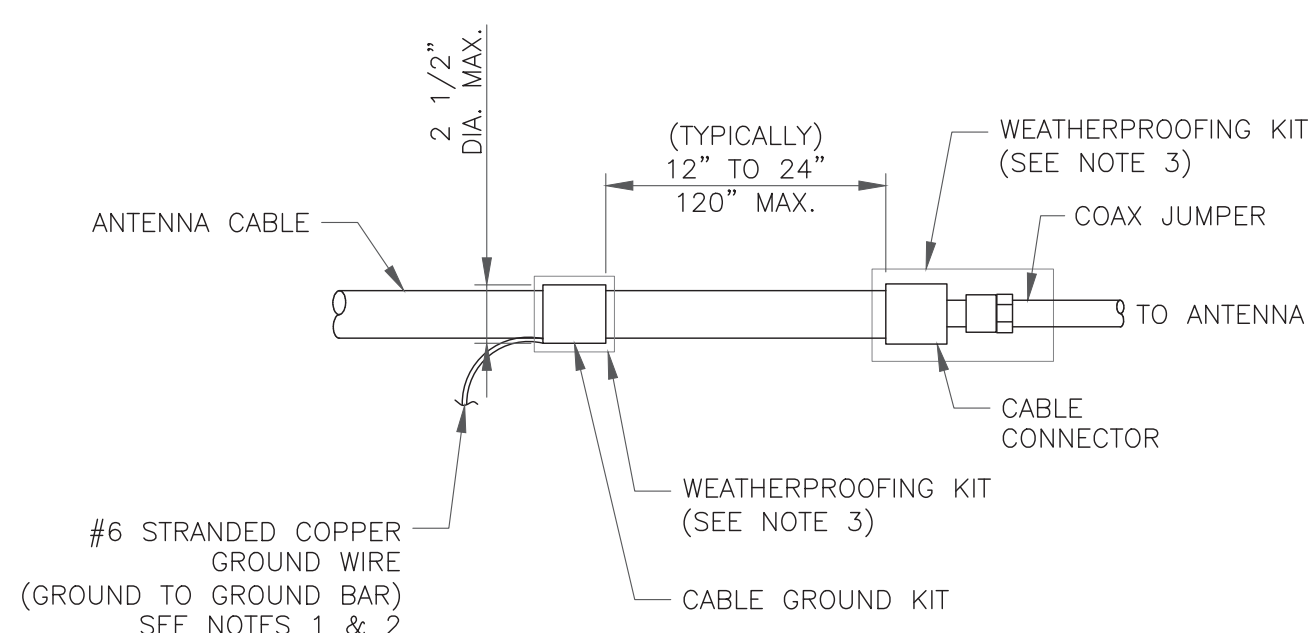
SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



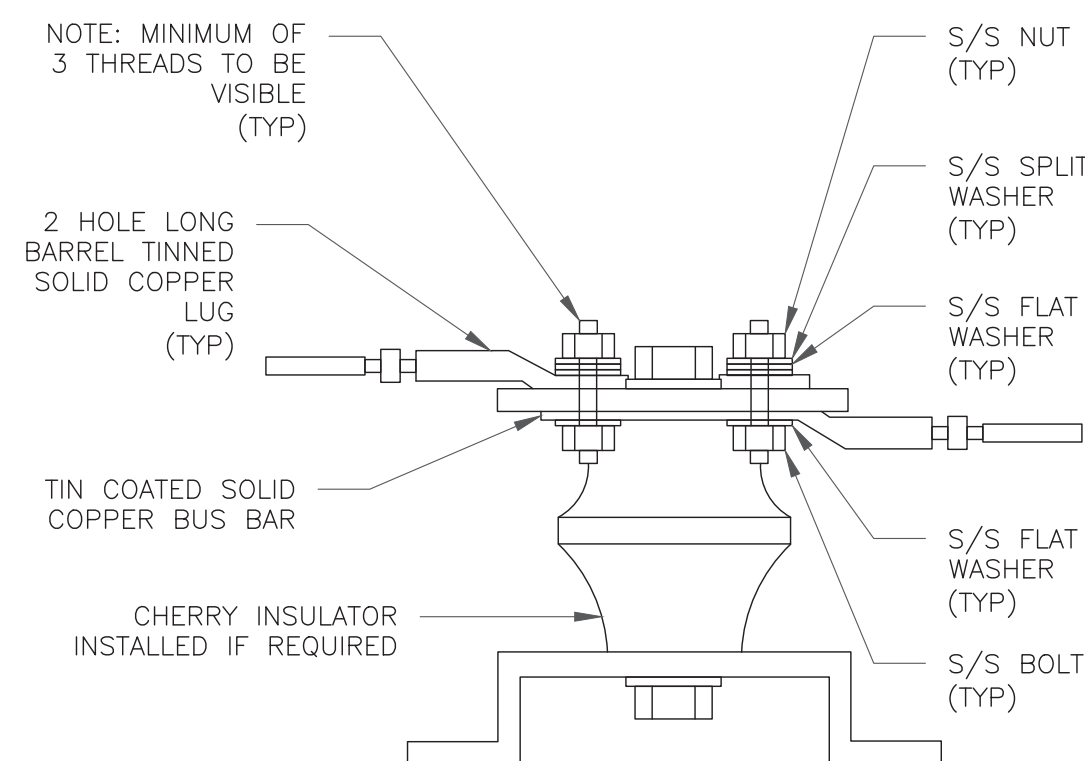
SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS



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

8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



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SHEET NUMBER: **G-2** REVISION: **0**

Diagram - Sector A Diagram File Name - CT5601_AB_B14_d1.vsd
 Atoll Site Name - CTL05601 Location Name - SHERMAN-ANDERSON R D EXIT Market - CONNECTICUT Market Cluster - NEW ENGLAND
 Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

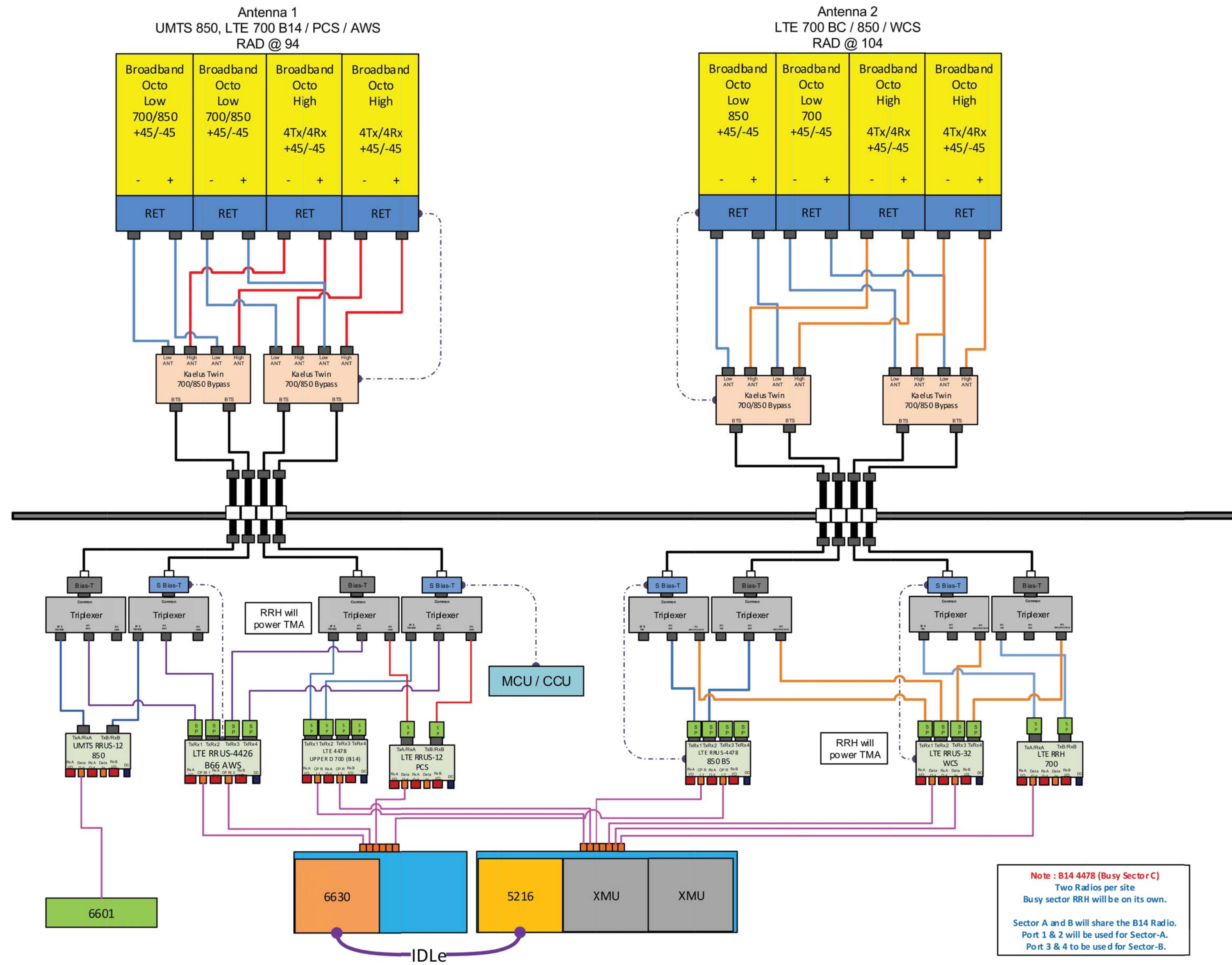


Diagram - Sector B Diagram File Name - CT5601_AB_B14_d1.vsd
 Atoll Site Name - CTL05601 Location Name - SHERMAN-ANDERSON R D EXIT Market - CONNECTICUT Market Cluster - NEW ENGLAND
 Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

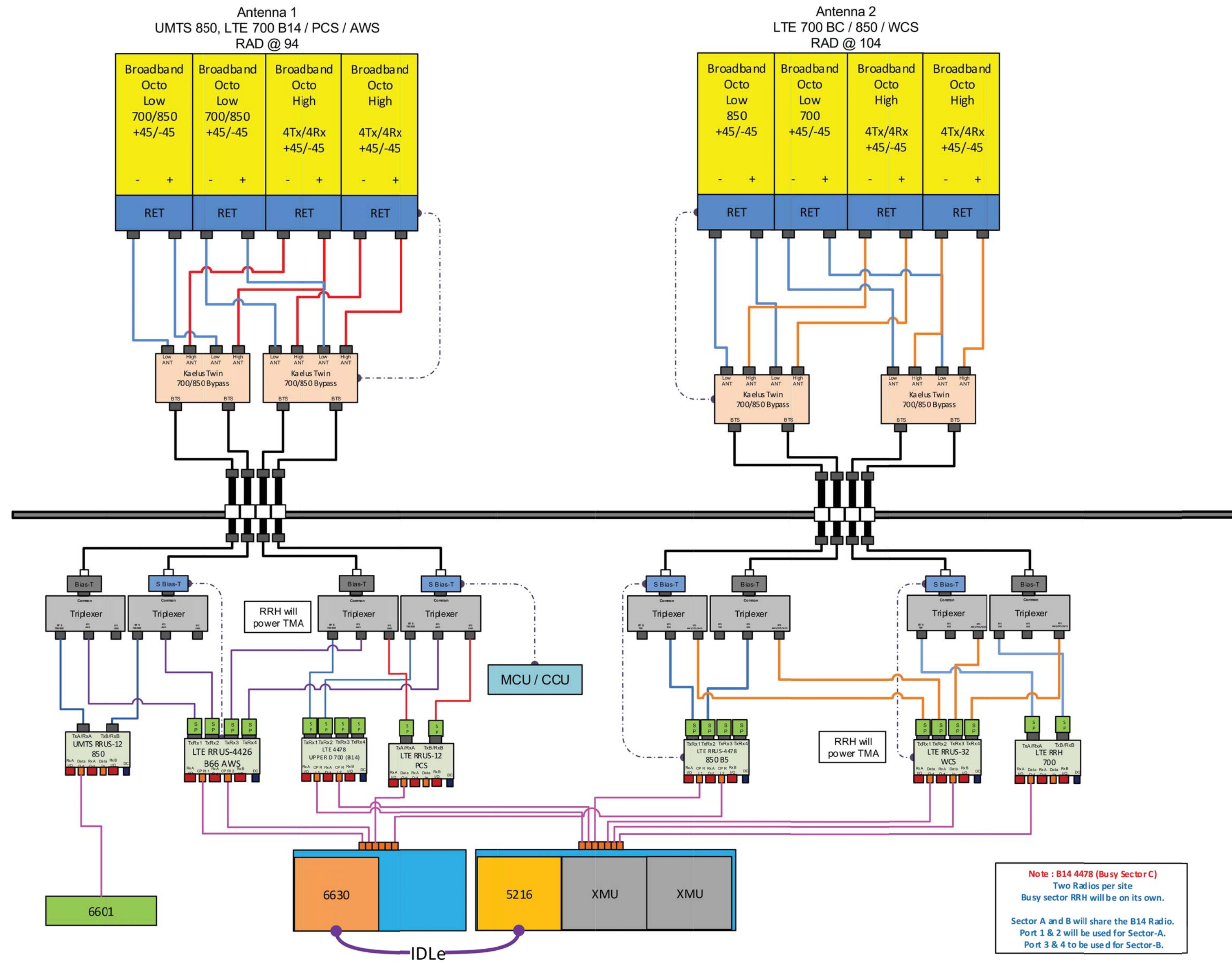


Diagram - Sector C Diagram File Name - CT5601_C_B14_d1.vsd
 Atoll Site Name - CTL05601 Location Name - SHERMAN-ANDERSON R D EXIT Market - CONNECTICUT Market Cluster - NEW ENGLAND
 Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson

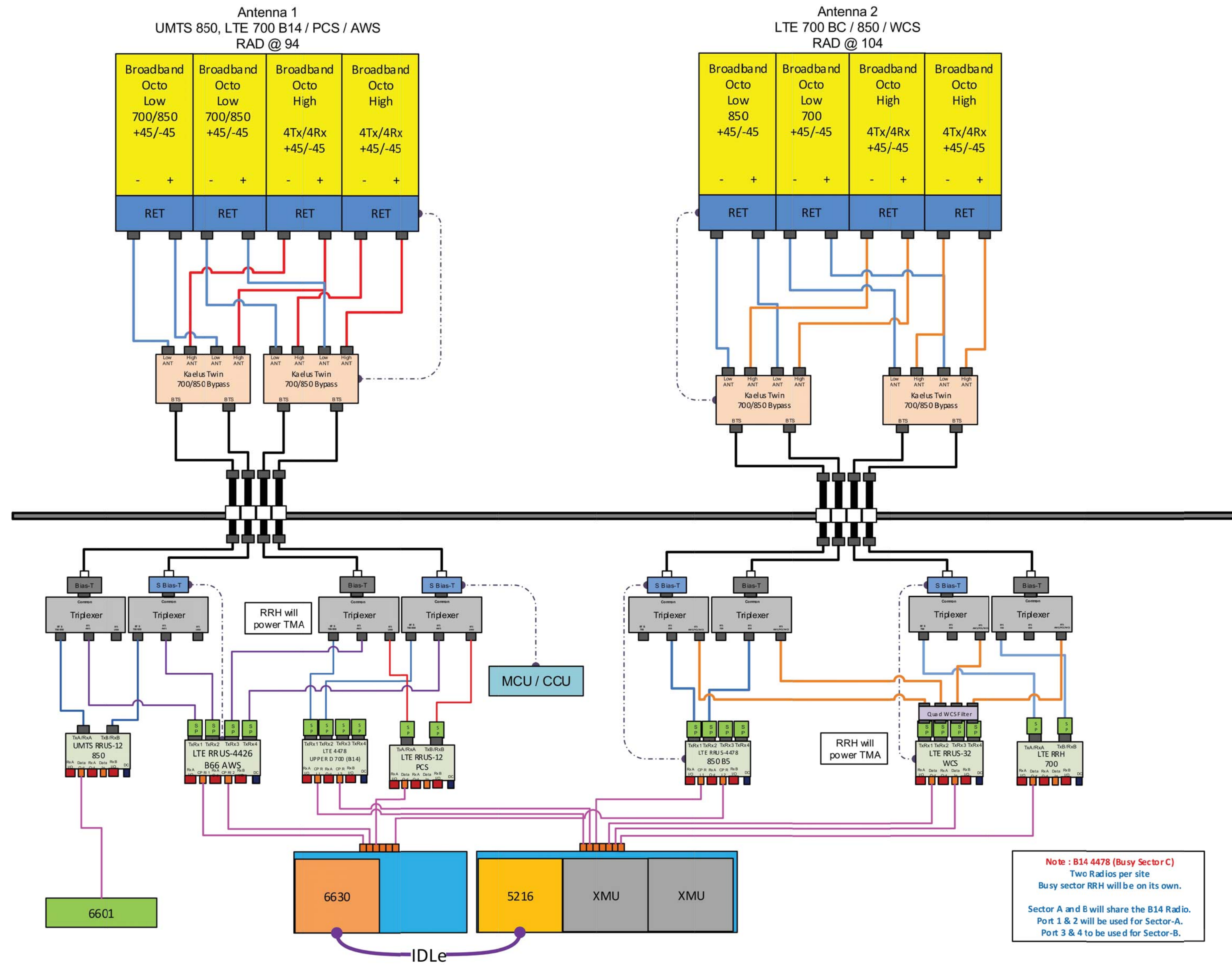


Exhibit D

Structural Analysis Report



Date: **January 08, 2021**

Andrew Bazinet
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

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

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**

Carrier Site Number: 26994
Carrier Site Name: CTL05601
Carrier FA Number: 10071133

Crown Castle Designation:

Crown Castle BU Number: 825998
Crown Castle Site Name: Milford Shore Area
Crown Castle JDE Job Number: 622009
Crown Castle Work Order Number: 1892835
Crown Castle Order Number: 531504 Rev. 3

Engineering Firm Designation: **Crown Castle Project Number:** 1892835

Site Data: **234 Melba Street, Milford, New Haven County, CT**
Latitude 41° 12' 36.018", Longitude -73° 1' 8.45"
125 Foot - Concealment Tower

Dear Andrew Bazinet,

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:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

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

Structural analysis prepared by: Kenneth Sukitch, E.I.T.

Respectfully submitted by:

Maribel Dentinger, P.E.
Senior Project Engineer

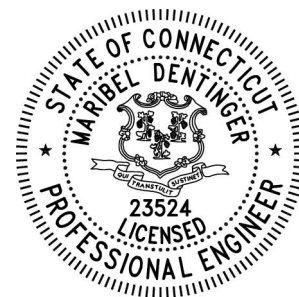


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1) INTRODUCTION

This tower is a 125 ft concealment tower designed by PiRod Manufacturers, Inc. The base tower is 85 ft and a concealment section extends from 85 ft to 125 ft. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	D
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100.0	102.0	3	cci antennas	OPA65R-BU6A	18	7/8
	97.0	3	cci antennas	TMABPDB7823VG12A		
	96.0	3	cci antennas	TMABPDB7823VG12A		
90.0	91.0	3	cci antennas	OPA65R-BU6BA-K	6	7/8
	87.0	3	cci antennas	TMABPDB7823VG12A		
	86.0	3	cci antennas	TMABPDB7823VG12A		

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)
120.0	120.0	1	-	10' x 42" OD Concealment Canister	6	7/8
		3	rfs/celwave	APXV18-206516L-A		
	117.0	3	ericsson	KRY 112 144/1		
110.0	110.0	1	-	10' x 42" OD Concealment Canister	6	7/8
		3	rfs/celwave	APXV18-206516L-A		
	108.0	3	ericsson	KRY 112 144/1		
100.0	100.0	1	-	10' x 42" OD Concealment Canister	-	-
90.0	90.0	1	-	10' x 42" OD Concealment Canister	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti	3588955	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FDH (Mapping)	3961273	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PiRod / TEP (Mapping)	3588957	CCISITES

Document	Remarks	Reference	Source
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	TEP	3747239	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD	8682643	CCISITES
4-POST-MODIFICATION INSPECTION	SGS	5601155	CCISITES
4-POST-MODIFICATION INSPECTION	TEP	9190652	CCISITES

3.1) Analysis Method

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

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.
- 3) Base and flange plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 121	Pole	TP6.625x6.625x0.432	Pole	8.8%	Pass
121 - 117	Pole	TP6.625x6.625x0.432	Pole	17.8%	Pass
117 - 113	Pole	TP6.625x6.625x0.432	Pole	30.6%	Pass
113 - 109	Pole	TP6.625x6.625x0.432	Pole	47.0%	Pass
109 - 105	Pole	TP6.625x6.625x0.432	Pole	63.4%	Pass
105 - 101	Pole	TP10.75x10.75x0.5	Pole	27.6%	Pass
101 - 97	Pole	TP10.75x10.75x0.5	Pole	35.2%	Pass
97 - 93	Pole	TP10.75x10.75x0.5	Pole	43.9%	Pass
93 - 89	Pole	TP10.75x10.75x0.5	Pole	53.7%	Pass
89 - 85	Pole	TP10.75x10.75x0.5	Pole	63.5%	Pass
85 - 81	Pole	TP24x24x0.375	Pole	20.2%	Pass
81 - 77	Pole	TP24x24x0.375	Pole	23.3%	Pass
77 - 73	Pole	TP24x24x0.375	Pole	26.6%	Pass
73 - 69	Pole	TP24x24x0.375	Pole	30.0%	Pass
69 - 65	Pole	TP24x24x0.375	Pole	33.5%	Pass
65 - 61	Pole	TP24x24x0.375	Pole	37.2%	Pass
61 - 57	Pole	TP24x24x0.375	Pole	41.0%	Pass
57 - 53	Pole	TP24x24x0.375	Pole	44.9%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
53 - 50	Pole	TP24x24x0.375	Pole	47.9%	Pass
50 - 46	Pole	TP24x24x0.375	Pole	52.0%	Pass
46 - 42	Pole	TP24x24x0.375	Pole	56.2%	Pass
42 - 38	Pole	TP24x24x0.375	Pole	60.4%	Pass
38 - 34	Pole	TP24x24x0.375	Pole	64.8%	Pass
34 - 30	Pole	TP24x24x0.375	Pole	69.3%	Pass
30 - 26	Pole	TP24x24x0.375	Pole	73.8%	Pass
26 - 22	Pole	TP24x24x0.375	Pole	78.4%	Pass
22 - 20.5	Pole	TP24x24x0.375	Pole	80.2%	Pass
20.5 - 20.23	Pole + Reinf.	TP24x24x0.85	Reinf. 1 Tension Rupture	57.2%	Pass
20.23 - 19.98	Pole + Reinf.	TP24x24x0.9875	Reinf. 1 Tension Rupture	49.4%	Pass
19.98 - 19.75	Pole + Reinf.	TP24x24x0.9875	Reinf. 1 Tension Rupture	49.6%	Pass
19.75 - 19.5	Pole + Reinf.	TP24x24x0.7125	Reinf. 1 Tension Rupture	51.7%	Pass
19.5 - 19.25	Pole	TP24x24x0.5	Pole	58.6%	Pass
19.25 - 15.25	Pole	TP24x24x0.5	Pole	62.0%	Pass
15.25 - 11.25	Pole	TP24x24x0.5	Pole	65.4%	Pass
11.25 - 7.25	Pole	TP24x24x0.5	Pole	68.9%	Pass
7.25 - 3.25	Pole	TP24x24x0.5	Pole	72.4%	Pass
3.25 - 0	Pole	TP24x24x0.5	Pole	75.3%	Pass
				Summary	
			Pole	80.2%	Pass
			Reinforcement	57.2%	Pass
			Overall	80.2%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	85	76.7	Pass
1	Flange Bolts	50	75.5	Pass
1,2	Flange Plate		75.5	Pass
1	Flange Bolts	20	30.4	Pass
1,3	Flange Plate		49.4	Pass
1	Anchor Rods	0	57.7	Pass
1	Base Plate		83.5	Pass
1	Base Foundation (Structure)		88.1	Pass
1	Base Foundation (Soil Interaction)		66.9	Pass

Structure Rating (max from all components) =	88.1%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Flange plates are assumed to have the same capacity as their respective splice bolts.
- 3) Flange plates are assumed to have the same capacity as their respective shaft.

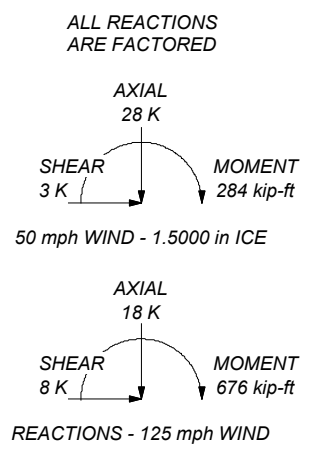
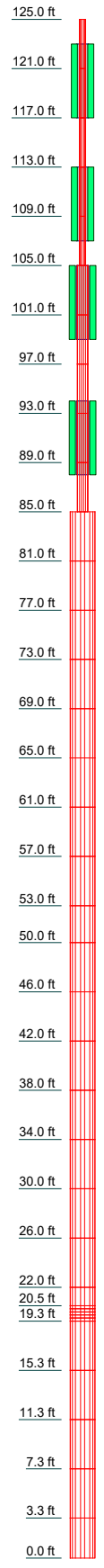
4.1) Recommendations

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	33	34	35	36	37
Length (ft)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.25	
Number of Sides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thickness (in)	0.4320	0.4320	0.4320	0.4320	0.4320	0.5000	0.5000	0.5000	0.5000	0.5000	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.5000	0.5000	0.5000	0.5000	
Top Dia (in)	6.6250	6.6250	6.6250	6.6250	6.6250	10.7500	10.7500	10.7500	10.7500	10.7500	10.7500	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	
Bot Dia (in)	6.6250	6.6250	6.6250	6.6250	6.6250	10.7500	10.7500	10.7500	10.7500	10.7500	10.7500	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	24.0000	
Grade	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	6.6250	
Weight (K)	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	

A53-B-42



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure D to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 80.2%

<p>CROWN CASTLE The Pathway to Possible</p>	<p>Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:</p>		<p>Job: BU# 825998</p>
	<p>Project:</p>	<p>Client:</p>	<p>Drawn by: KSukitch</p>
	<p>Code: TIA-222-H</p>	<p>Date: 01/08/21</p>	<p>App'd:</p>
	<p>Path:</p>	<p>Scale: NTS</p>	<p>Dwg No. E-1</p>

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

- 4) Tower is located in New Haven County, Connecticut.
- 5) Tower base elevation above sea level: 29.00 ft.
- 6) Basic wind speed of 125 mph.
- 7) Risk Category II.
- 8) Exposure Category D.
- 9) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 10) Topographic Category: 1.
- 11) Crest Height: 0.00 ft.
- 12) Nominal ice thickness of 1.5000 in.
- 13) Ice thickness is considered to increase with height.
- 14) Ice density of 56 pcf.
- 15) A wind speed of 50 mph is used in combination with ice.
- 16) Temperature drop of 50 °F.
- 17) Deflections calculated using a wind speed of 60 mph.
- 18) A non-linear (P-delta) analysis was used.
- 19) Pressures are calculated at each section.
- 20) Stress ratio used in pole design is 1.05.
- 21) Tower analysis based on target reliabilities in accordance with Annex S.
- 22) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 23) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets ✓ Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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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	125.00-121.00	4.00	0.00	Round	6.6250	6.6250	0.4320		A53-B-42 (42 ksi)
L2	121.00-117.00	4.00	0.00	Round	6.6250	6.6250	0.4320		A53-B-42

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	117.00-113.00	4.00	0.00	Round	6.6250	6.6250	0.4320		(42 ksi) A53-B-42
L4	113.00-109.00	4.00	0.00	Round	6.6250	6.6250	0.4320		(42 ksi) A53-B-42
L5	109.00-105.00	4.00	0.00	Round	6.6250	6.6250	0.4320		(42 ksi) A53-B-42
L6	105.00-101.00	4.00	0.00	Round	10.7500	10.7500	0.5000		(42 ksi) A53-B-42
L7	101.00-97.00	4.00	0.00	Round	10.7500	10.7500	0.5000		(42 ksi) A53-B-42
L8	97.00-93.00	4.00	0.00	Round	10.7500	10.7500	0.5000		(42 ksi) A53-B-42
L9	93.00-89.00	4.00	0.00	Round	10.7500	10.7500	0.5000		(42 ksi) A53-B-42
L10	89.00-85.00	4.00	0.00	Round	10.7500	10.7500	0.5000		(42 ksi) A53-B-42
L11	85.00-81.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L12	81.00-77.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L13	77.00-73.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L14	73.00-69.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L15	69.00-65.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L16	65.00-61.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L17	61.00-57.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L18	57.00-53.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L19	53.00-50.00	3.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L20	50.00-46.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L21	46.00-42.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L22	42.00-38.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L23	38.00-34.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L24	34.00-30.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L25	30.00-26.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L26	26.00-22.00	4.00	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L27	22.00-20.50	1.50	0.00	Round	24.0000	24.0000	0.3750		(42 ksi) A53-B-42
L28	20.50-20.23	0.27	0.00	Round	24.0000	24.0000	0.8500		(42 ksi) A53-B-42
L29	20.23-19.98	0.25	0.00	Round	24.0000	24.0000	0.9875		(42 ksi) A53-B-42
L30	19.98-19.75	0.23	0.00	Round	24.0000	24.0000	0.9875		(42 ksi) A53-B-42
L31	19.75-19.50	0.25	0.00	Round	24.0000	24.0000	0.7125		(42 ksi) A53-B-42
L32	19.50-19.25	0.25	0.00	Round	24.0000	24.0000	0.5000		(42 ksi) A53-B-42
L33	19.25-15.25	4.00	0.00	Round	24.0000	24.0000	0.5000		(42 ksi) A53-B-42
L34	15.25-11.25	4.00	0.00	Round	24.0000	24.0000	0.5000		(42 ksi) A53-B-42
L35	11.25-7.25	4.00	0.00	Round	24.0000	24.0000	0.5000		(42 ksi) A53-B-42
L36	7.25-3.25	4.00	0.00	Round	24.0000	24.0000	0.5000		(42 ksi) A53-B-42

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
L37	3.25-0.00	3.25		Round	24.0000	24.0000	0.5000		A53-B-42 (42 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	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
L2	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
L3	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
L4	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
L5	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
	6.6250	8.4049	40.4907	2.1949	3.3125	12.2236	80.9813	4.2000	0.0000	0
L6	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
L7	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
L8	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
L9	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
L10	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
	10.7500	16.1007	211.9501	3.6282	5.3750	39.4326	423.9003	8.0455	0.0000	0
L11	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L12	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L13	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L14	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L15	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L16	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L17	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L18	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L19	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L20	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L21	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L22	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L23	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L24	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L25	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L26	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L27	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
	24.0000	27.8325	1942.2987	8.3538	12.0000	161.8582	3884.5973	13.9080	0.0000	0
L28	24.0000	61.8187	4146.8363	8.1903	12.0000	345.5697	8293.6726	30.8909	0.0000	0
	24.0000	61.8187	4146.8363	8.1903	12.0000	345.5697	8293.6726	30.8909	0.0000	0
L29	24.0000	71.3922	4734.6444	8.1436	12.0000	394.5537	9469.2888	35.6748	0.0000	0
	24.0000	71.3922	4734.6444	8.1436	12.0000	394.5537	9469.2888	35.6748	0.0000	0

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L30	24.0000	71.3922	4734.6444	8.1436	12.0000	394.5537	9469.2888	35.6748	0.0000	0
	24.0000	71.3922	4734.6444	8.1436	12.0000	394.5537	9469.2888	35.6748	0.0000	0
L31	24.0000	52.1264	3536.8750	8.2372	12.0000	294.7396	7073.7500	26.0476	0.0000	0
	24.0000	52.1264	3536.8750	8.2372	12.0000	294.7396	7073.7500	26.0476	0.0000	0
L32	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
L33	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
L34	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
L35	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
L36	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
L37	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0
	24.0000	36.9137	2549.3534	8.3104	12.0000	212.4461	5098.7067	18.4458	0.0000	0

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 125.00-121.00				1	0	1			
L2 121.00-117.00				1	0	1			
L3 117.00-113.00				1	0	1			
L4 113.00-109.00				1	0	1			
L5 109.00-105.00				1	0	1			
L6 105.00-101.00				1	0	1			
L7 101.00-97.00				1	0	1			
L8 97.00-93.00				1	0	1			
L9 93.00-89.00				1	0	1			
L10 89.00-85.00				1	0	1			
L11 85.00-81.00				1	1	1			
L12 81.00-77.00				1	1	1			
L13 77.00-73.00				1	1	1			
L14 73.00-69.00				1	1	1			
L15 69.00-65.00				1	1	1			
L16 65.00-61.00				1	1	1			
L17 61.00-57.00				1	1	1			
L18 57.00-53.00				1	1	1			
L19 53.00-50.00				1	1	1			
L20 50.00-46.00				1	1	1			
L21 46.00-42.00				1	1	1			
L22 42.00-38.00				1	1	1			
L23 38.00-34.00				1	1	1			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L24 34.00-30.00				1	1	1			
L25 30.00-26.00				1	1	1			
L26 26.00-22.00				1	1	1			
L27 22.00-20.50				1	1	1			
L28 20.50-20.23				1	1	0.906199			
L29 20.23-19.98				1	1	0.911881			
L30 19.98-19.75				1	1	0.911881			
L31 19.75-19.50				1	1	1.13381			
L32 19.50-19.25				1	1	1			
L33 19.25-15.25				1	1	1			
L34 15.25-11.25				1	1	1			
L35 11.25-7.25				1	1	1			
L36 7.25-3.25				1	1	1			
L37 3.25-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter r in	Perimeter r in	Weight plf
PL 1.25x4.25	A	No	Surface (CaAa)	22.25 - 17.75	1	1	-0.250 -0.250	4.2500	11.0000	0.00
PL 1.25x4.25	B	No	Surface (CaAa)	22.25 - 17.75	1	1	0.250 0.250	4.2500	11.0000	0.00
PL 1.25x4.25	B	No	Surface (CaAa)	22.25 - 17.75	1	1	-0.500 -0.500	4.2500	11.0000	0.00
PL 1x6	C	No	Surface (CaAa)	22.25 - 17.25	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-040125 (H)	B	No	Surface (CaAa)	22.30 - 18.00	1	1	0.000 0.000	4.0000	8.0000	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight plf
**								
AVA5-50(7/8)	C	No	No	Inside Pole	120.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.30 0.30 0.30 0.30
AVA5-50(7/8)	C	No	No	Inside Pole	110.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.30 0.30 0.30 0.30
AL5-50(7/8)	C	No	No	Inside Pole	100.00 - 0.00	18	No Ice	0.26

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
							1/2" Ice	0.00	0.26
							1" Ice	0.00	0.26
							2" Ice	0.00	0.26
AL5-50(7/8)	C	No	No	Inside Pole	90.00 - 0.00	6	No Ice	0.00	0.26
							1/2" Ice	0.00	0.26
							1" Ice	0.00	0.26
							2" Ice	0.00	0.26
**									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	125.00-121.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	121.00-117.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L3	117.00-113.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L4	113.00-109.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L5	109.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L6	105.00-101.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L7	101.00-97.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L8	97.00-93.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L9	93.00-89.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L10	89.00-85.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L11	85.00-81.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L12	81.00-77.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L13	77.00-73.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L14	73.00-69.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L15	69.00-65.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L16	65.00-61.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L17	61.00-57.00	A	0.000	0.000	0.000	0.000	0.00

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L18	57.00-53.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L19	53.00-50.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L20	50.00-46.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L21	46.00-42.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L22	42.00-38.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L23	38.00-34.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L24	34.00-30.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L25	30.00-26.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L26	26.00-22.00	A	0.000	0.000	0.139	0.000	0.00
		B	0.000	0.000	0.438	0.000	0.00
		C	0.000	0.000	0.187	0.000	0.04
L27	22.00-20.50	A	0.000	0.000	0.836	0.000	0.00
		B	0.000	0.000	2.470	0.000	0.00
		C	0.000	0.000	1.122	0.000	0.01
L28	20.50-20.23	A	0.000	0.000	0.150	0.000	0.00
		B	0.000	0.000	0.445	0.000	0.00
		C	0.000	0.000	0.202	0.000	0.00
L29	20.23-19.98	A	0.000	0.000	0.139	0.000	0.00
		B	0.000	0.000	0.412	0.000	0.00
		C	0.000	0.000	0.187	0.000	0.00
L30	19.98-19.75	A	0.000	0.000	0.128	0.000	0.00
		B	0.000	0.000	0.379	0.000	0.00
		C	0.000	0.000	0.172	0.000	0.00
L31	19.75-19.50	A	0.000	0.000	0.139	0.000	0.00
		B	0.000	0.000	0.412	0.000	0.00
		C	0.000	0.000	0.187	0.000	0.00
L32	19.50-19.25	A	0.000	0.000	0.139	0.000	0.00
		B	0.000	0.000	0.412	0.000	0.00
		C	0.000	0.000	0.187	0.000	0.00
L33	19.25-15.25	A	0.000	0.000	0.836	0.000	0.00
		B	0.000	0.000	2.337	0.000	0.00
		C	0.000	0.000	1.495	0.000	0.04
L34	15.25-11.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L35	11.25-7.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L36	7.25-3.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L37	3.25-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	125.00-121.00	A	1.454	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	121.00-117.00	A	1.449	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L3	117.00-113.00	A	1.445	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L4	113.00-109.00	A	1.439	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L5	109.00-105.00	A	1.434	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L6	105.00-101.00	A	1.429	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L7	101.00-97.00	A	1.423	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L8	97.00-93.00	A	1.417	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L9	93.00-89.00	A	1.411	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L10	89.00-85.00	A	1.405	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L11	85.00-81.00	A	1.398	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L12	81.00-77.00	A	1.391	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L13	77.00-73.00	A	1.384	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L14	73.00-69.00	A	1.377	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L15	69.00-65.00	A	1.369	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L16	65.00-61.00	A	1.360	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L17	61.00-57.00	A	1.351	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L18	57.00-53.00	A	1.342	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L19	53.00-50.00	A	1.333	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L20	50.00-46.00	A	1.324	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L21	46.00-42.00	A	1.312	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L22	42.00-38.00	A	1.300	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L23	38.00-34.00	A	1.286	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L24	34.00-30.00	A	1.271	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L25	30.00-26.00	A	1.254	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L26	26.00-22.00	A	1.235	0.000	0.000	0.173	0.000	0.00
		B		0.000	0.000	0.545	0.000	0.01
		C		0.000	0.000	0.221	0.000	0.04
L27	22.00-20.50	A	1.220	0.000	0.000	1.035	0.000	0.01
		B		0.000	0.000	3.064	0.000	0.03
		C		0.000	0.000	1.321	0.000	0.03
L28	20.50-20.23	A	1.215	0.000	0.000	0.186	0.000	0.00
		B		0.000	0.000	0.551	0.000	0.01
		C		0.000	0.000	0.238	0.000	0.01
L29	20.23-19.98	A	1.213	0.000	0.000	0.172	0.000	0.00
		B		0.000	0.000	0.510	0.000	0.01
		C		0.000	0.000	0.220	0.000	0.00
L30	19.98-19.75	A	1.212	0.000	0.000	0.158	0.000	0.00
		B		0.000	0.000	0.469	0.000	0.00
		C		0.000	0.000	0.202	0.000	0.00
L31	19.75-19.50	A	1.210	0.000	0.000	0.172	0.000	0.00
		B		0.000	0.000	0.510	0.000	0.01
		C		0.000	0.000	0.220	0.000	0.00
L32	19.50-19.25	A	1.209	0.000	0.000	0.172	0.000	0.00
		B		0.000	0.000	0.510	0.000	0.01
		C		0.000	0.000	0.220	0.000	0.00
L33	19.25-15.25	A	1.195	0.000	0.000	1.031	0.000	0.01
		B		0.000	0.000	2.887	0.000	0.03
		C		0.000	0.000	1.756	0.000	0.06
L34	15.25-11.25	A	1.164	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L35	11.25-7.25	A	1.123	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L36	7.25-3.25	A	1.061	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L37	3.25-0.00	A	0.944	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	125.00-121.00	0.0000	0.0000	0.0000	0.0000
L2	121.00-117.00	0.0000	0.0000	0.0000	0.0000
L3	117.00-113.00	0.0000	0.0000	0.0000	0.0000
L4	113.00-109.00	0.0000	0.0000	0.0000	0.0000
L5	109.00-105.00	0.0000	0.0000	0.0000	0.0000
L6	105.00-101.00	0.0000	0.0000	0.0000	0.0000
L7	101.00-97.00	0.0000	0.0000	0.0000	0.0000
L8	97.00-93.00	0.0000	0.0000	0.0000	0.0000
L9	93.00-89.00	0.0000	0.0000	0.0000	0.0000
L10	89.00-85.00	0.0000	0.0000	0.0000	0.0000
L11	85.00-81.00	0.0000	0.0000	0.0000	0.0000
L12	81.00-77.00	0.0000	0.0000	0.0000	0.0000
L13	77.00-73.00	0.0000	0.0000	0.0000	0.0000
L14	73.00-69.00	0.0000	0.0000	0.0000	0.0000
L15	69.00-65.00	0.0000	0.0000	0.0000	0.0000
L16	65.00-61.00	0.0000	0.0000	0.0000	0.0000
L17	61.00-57.00	0.0000	0.0000	0.0000	0.0000

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L18	57.00-53.00	0.0000	0.0000	0.0000	0.0000
L19	53.00-50.00	0.0000	0.0000	0.0000	0.0000
L20	50.00-46.00	0.0000	0.0000	0.0000	0.0000
L21	46.00-42.00	0.0000	0.0000	0.0000	0.0000
L22	42.00-38.00	0.0000	0.0000	0.0000	0.0000
L23	38.00-34.00	0.0000	0.0000	0.0000	0.0000
L24	34.00-30.00	0.0000	0.0000	0.0000	0.0000
L25	30.00-26.00	0.0000	0.0000	0.0000	0.0000
L26	26.00-22.00	-0.0027	0.2959	-0.0002	0.1365
L27	22.00-20.50	-0.2997	1.5073	-0.2299	1.0933
L28	20.50-20.23	-0.2997	1.5073	-0.2299	1.0934
L29	20.23-19.98	-0.2997	1.5073	-0.2299	1.0935
L30	19.98-19.75	-0.2997	1.5073	-0.2299	1.0935
L31	19.75-19.50	-0.2997	1.5073	-0.2299	1.0935
L32	19.50-19.25	-0.2997	1.5073	-0.2299	1.0936
L33	19.25-15.25	-0.3766	1.7150	-0.2469	1.0654
L34	15.25-11.25	0.0000	0.0000	0.0000	0.0000
L35	11.25-7.25	0.0000	0.0000	0.0000	0.0000
L36	7.25-3.25	0.0000	0.0000	0.0000	0.0000
L37	3.25-0.00	0.0000	0.0000	0.0000	0.0000

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L26	1	PL 1.25x4.25	22.00 - 22.25	1.0000	1.0000
L26	2	PL 1.25x4.25	22.00 - 22.25	1.0000	1.0000
L26	3	PL 1.25x4.25	22.00 - 22.25	1.0000	1.0000
L26	4	PL 1x6	22.00 - 22.25	1.0000	1.0000
L26	5	(Area) CCI-65FP-040125 (H)	22.00 - 22.30	1.0000	1.0000
L27	1	PL 1.25x4.25	20.50 - 22.00	1.0000	1.0000
L27	2	PL 1.25x4.25	20.50 - 22.00	1.0000	1.0000
L27	3	PL 1.25x4.25	20.50 - 22.00	1.0000	1.0000
L27	4	PL 1x6	20.50 - 22.00	1.0000	1.0000
L27	5	(Area) CCI-65FP-040125 (H)	20.50 - 22.00	1.0000	1.0000
L28	1	PL 1.25x4.25	20.23 - 20.50	1.0000	1.0000
L28	2	PL 1.25x4.25	20.23 - 20.50	1.0000	1.0000
L28	3	PL 1.25x4.25	20.23 - 20.50	1.0000	1.0000
L28	4	PL 1x6	20.23 - 20.50	1.0000	1.0000
L28	5	(Area) CCI-65FP-040125 (H)	20.23 - 20.50	1.0000	1.0000
L29	1	PL 1.25x4.25	19.98 - 20.23	1.0000	1.0000
L29	2	PL 1.25x4.25	19.98 - 20.23	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L29	3	PL 1.25x4.25	19.98 - 20.23	1.0000	1.0000
L29	4	PL 1x6	19.98 - 20.23	1.0000	1.0000
L29	5	(Area) CCI-65FP-040125 (H)	19.98 - 20.23	1.0000	1.0000
L30	1	PL 1.25x4.25	19.75 - 19.98	1.0000	1.0000
L30	2	PL 1.25x4.25	19.75 - 19.98	1.0000	1.0000
L30	3	PL 1.25x4.25	19.75 - 19.98	1.0000	1.0000
L30	4	PL 1x6	19.75 - 19.98	1.0000	1.0000
L30	5	(Area) CCI-65FP-040125 (H)	19.75 - 19.98	1.0000	1.0000
L31	1	PL 1.25x4.25	19.50 - 19.75	1.0000	1.0000
L31	2	PL 1.25x4.25	19.50 - 19.75	1.0000	1.0000
L31	3	PL 1.25x4.25	19.50 - 19.75	1.0000	1.0000
L31	4	PL 1x6	19.50 - 19.75	1.0000	1.0000
L31	5	(Area) CCI-65FP-040125 (H)	19.50 - 19.75	1.0000	1.0000
L32	1	PL 1.25x4.25	19.25 - 19.50	1.0000	1.0000
L32	2	PL 1.25x4.25	19.25 - 19.50	1.0000	1.0000
L32	3	PL 1.25x4.25	19.25 - 19.50	1.0000	1.0000
L32	4	PL 1x6	19.25 - 19.50	1.0000	1.0000
L32	5	(Area) CCI-65FP-040125 (H)	19.25 - 19.50	1.0000	1.0000
L33	1	PL 1.25x4.25	17.75 - 19.25	1.0000	1.0000
L33	2	PL 1.25x4.25	17.75 - 19.25	1.0000	1.0000
L33	3	PL 1.25x4.25	17.75 - 19.25	1.0000	1.0000
L33	4	PL 1x6	17.25 - 19.25	1.0000	1.0000
L33	5	(Area) CCI-65FP-040125 (H)	18.00 - 19.25	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L26	1	PL 1.25x4.25	22.00 - 22.25	Manual	1.0000
L26	2	PL 1.25x4.25	22.00 - 22.25	Manual	1.0000
L26	3	PL 1.25x4.25	22.00 - 22.25	Manual	1.0000
L26	4	PL 1x6	22.00 - 22.25	Manual	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L26	5	(Area) CCI-65FP-040125 (H)	22.00 - 22.30	Manual	1.0000
L27	1	PL 1.25x4.25	20.50 - 22.00	Manual	1.0000
L27	2	PL 1.25x4.25	20.50 - 22.00	Manual	1.0000
L27	3	PL 1.25x4.25	20.50 - 22.00	Manual	1.0000
L27	4	PL 1x6	20.50 - 22.00	Manual	1.0000
L27	5	(Area) CCI-65FP-040125 (H)	20.50 - 22.00	Manual	1.0000
L28	1	PL 1.25x4.25	20.23 - 20.50	Manual	1.0000
L28	2	PL 1.25x4.25	20.23 - 20.50	Manual	1.0000
L28	3	PL 1.25x4.25	20.23 - 20.50	Manual	1.0000
L28	4	PL 1x6	20.23 - 20.50	Manual	1.0000
L28	5	(Area) CCI-65FP-040125 (H)	20.23 - 20.50	Manual	1.0000
L29	1	PL 1.25x4.25	19.98 - 20.23	Manual	1.0000
L29	2	PL 1.25x4.25	19.98 - 20.23	Manual	1.0000
L29	3	PL 1.25x4.25	19.98 - 20.23	Manual	1.0000
L29	4	PL 1x6	19.98 - 20.23	Manual	1.0000
L29	5	(Area) CCI-65FP-040125 (H)	19.98 - 20.23	Manual	1.0000
L30	1	PL 1.25x4.25	19.75 - 19.98	Manual	1.0000
L30	2	PL 1.25x4.25	19.75 - 19.98	Manual	1.0000
L30	3	PL 1.25x4.25	19.75 - 19.98	Manual	1.0000
L30	4	PL 1x6	19.75 - 19.98	Manual	1.0000
L30	5	(Area) CCI-65FP-040125 (H)	19.75 - 19.98	Manual	1.0000
L31	1	PL 1.25x4.25	19.50 - 19.75	Manual	1.0000
L31	2	PL 1.25x4.25	19.50 - 19.75	Manual	1.0000
L31	3	PL 1.25x4.25	19.50 - 19.75	Manual	1.0000
L31	4	PL 1x6	19.50 - 19.75	Manual	1.0000
L31	5	(Area) CCI-65FP-040125 (H)	19.50 - 19.75	Manual	1.0000
L32	1	PL 1.25x4.25	19.25 - 19.50	Manual	1.0000
L32	2	PL 1.25x4.25	19.25 - 19.50	Manual	1.0000
L32	3	PL 1.25x4.25	19.25 - 19.50	Manual	1.0000
L32	4	PL 1x6	19.25 - 19.50	Manual	1.0000
L32	5	(Area) CCI-65FP-040125 (H)	19.25 - 19.50	Manual	1.0000
L33	1	PL 1.25x4.25	17.75 - 19.25	Manual	1.0000
L33	2	PL 1.25x4.25	17.75 - 19.25	Manual	1.0000
L33	3	PL 1.25x4.25	17.75 - 19.25	Manual	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	4	PL 1x6	17.25 - 19.25	Manual	1.0000
L33	5	(Area) CCI-65FP-040125 (H)	18.00 - 19.25	Manual	1.0000

User Defined Loads

Description	Elevation	Offset From Centroid	Azimuth Angle	Weight	F _x	F _z	Wind Force	C _{AAc}	
	ft	ft	°	K	K	K	K	ft ²	
Flag	125.00	0.00	0.0000	No Ice	0.04	0.00	0.00	0.64	10.84
				Ice	1.24	0.00	0.00	0.11	11.17
				Service	0.04	0.00	0.00	0.15	11.51

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	K	
Canister Load1	C	None		0.0000	125.00	No Ice	7.88	7.88	0.11
						1/2" Ice	19.71	19.71	0.24
						Ice	20.17	20.17	0.37
						1" Ice	21.08	21.08	0.65
						2" Ice			
Canister Load2	C	None		0.0000	115.00	No Ice	15.75	15.75	0.43
						1/2" Ice	39.42	39.42	0.69
						Ice	40.33	40.33	0.96
						1" Ice	42.17	42.17	1.51
						2" Ice			
Canister Load3	C	None		0.0000	105.00	No Ice	15.75	15.75	0.35
						1/2" Ice	39.42	39.42	0.61
						Ice	40.33	40.33	0.88
						1" Ice	42.17	42.17	1.43
						2" Ice			
Canister Load4	C	None		0.0000	95.00	No Ice	15.75	15.75	0.43
						1/2" Ice	39.42	39.42	0.69
						Ice	40.33	40.33	0.96
						1" Ice	42.17	42.17	1.51
						2" Ice			
Canister Load5	C	None		0.0000	85.00	No Ice	7.88	7.88	0.94
						1/2" Ice	19.71	19.71	1.07
						Ice	20.17	20.17	1.20
						1" Ice	21.08	21.08	1.47
						2" Ice			
Truck Ball	C	None		0.0000	125.75	No Ice	0.88	0.88	0.05
						1/2" Ice	1.38	1.38	0.07
						Ice	1.53	1.53	0.09
						1" Ice	1.85	1.85	0.13
						2" Ice			
** 10' x 42" OD Concealment Canister	C	None		0.0000	120.00	No Ice	0.00	0.00	0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
						1/2"	0.00	0.00	0.00
						Ice	0.00	0.00	0.00
						1" Ice			
						2" Ice			
10' x 42" OD Concealment Canister	C	None		0.0000	110.00	No Ice	0.00	0.00	0.00
						1/2"	0.00	0.00	0.00
						Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice			
10' x 42" OD Concealment Canister	C	None		0.0000	100.00	No Ice	0.00	0.00	0.00
						1/2"	0.00	0.00	0.00
						Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice			
10' x 42" OD Concealment Canister	C	None		0.0000	90.00	No Ice	0.00	0.00	0.00
						1/2"	0.00	0.00	0.00
						Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice			
** ** 120 **									
APXV18-206516L-A	A	From Leg	0.50 0.00 0.00	0.0000	120.00	No Ice	0.00	0.00	0.02
						1/2"	0.00	0.00	0.04
						Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.13
						2" Ice			
APXV18-206516L-A	B	From Leg	0.50 0.00 0.00	0.0000	120.00	No Ice	0.00	0.00	0.02
						1/2"	0.00	0.00	0.04
						Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.13
						2" Ice			
APXV18-206516L-A	C	From Leg	0.50 0.00 0.00	0.0000	120.00	No Ice	0.00	0.00	0.02
						1/2"	0.00	0.00	0.04
						Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.13
						2" Ice			
KRY 112 144/1	A	From Leg	0.50 0.00 -3.00	0.0000	120.00	No Ice	0.00	0.00	0.01
						1/2"	0.00	0.00	0.01
						Ice	0.00	0.00	0.02
						1" Ice	0.00	0.00	0.03
						2" Ice			
KRY 112 144/1	B	From Leg	0.50 0.00 -3.00	0.0000	120.00	No Ice	0.00	0.00	0.01
						1/2"	0.00	0.00	0.01
						Ice	0.00	0.00	0.02
						1" Ice	0.00	0.00	0.03
						2" Ice			
KRY 112 144/1	C	From Leg	0.50 0.00 -3.00	0.0000	120.00	No Ice	0.00	0.00	0.01
						1/2"	0.00	0.00	0.01
						Ice	0.00	0.00	0.02
						1" Ice	0.00	0.00	0.03
						2" Ice			
** 110 **									
APXV18-206516L-A	A	From Leg	0.50 0.00 0.00	0.0000	110.00	No Ice	0.00	0.00	0.02
						1/2"	0.00	0.00	0.04
						Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.13
						2" Ice			
APXV18-206516L-A	B	From Leg	0.50 0.00 0.00	0.0000	110.00	No Ice	0.00	0.00	0.02
						1/2"	0.00	0.00	0.04
						Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.13
						2" Ice			
APXV18-206516L-A	C	From Leg	0.50 0.00 0.00	0.0000	110.00	No Ice	0.00	0.00	0.02
						1/2"	0.00	0.00	0.04
						Ice	0.00	0.00	0.07

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
							1" Ice	0.00	0.00	0.13
							2" Ice			
KRY 112 144/1	A	From Leg	0.50	0.0000	110.00		No Ice	0.00	0.00	0.01
			0.00				1/2"	0.00	0.00	0.01
			-2.00				Ice	0.00	0.00	0.02
							1" Ice	0.00	0.00	0.03
							2" Ice			
KRY 112 144/1	B	From Leg	0.50	0.0000	110.00		No Ice	0.00	0.00	0.01
			0.00				1/2"	0.00	0.00	0.01
			-2.00				Ice	0.00	0.00	0.02
							1" Ice	0.00	0.00	0.03
							2" Ice			
KRY 112 144/1	C	From Leg	0.50	0.0000	110.00		No Ice	0.00	0.00	0.01
			0.00				1/2"	0.00	0.00	0.01
			-2.00				Ice	0.00	0.00	0.02
							1" Ice	0.00	0.00	0.03
							2" Ice			
** 100 **										
OPA65R-BU6A	A	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.07
			0.00				1/2"	0.00	0.00	0.12
			2.00				Ice	0.00	0.00	0.18
							1" Ice	0.00	0.00	0.32
							2" Ice			
OPA65R-BU6A	B	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.07
			0.00				1/2"	0.00	0.00	0.12
			2.00				Ice	0.00	0.00	0.18
							1" Ice	0.00	0.00	0.32
							2" Ice			
OPA65R-BU6A	C	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.07
			0.00				1/2"	0.00	0.00	0.12
			2.00				Ice	0.00	0.00	0.18
							1" Ice	0.00	0.00	0.32
							2" Ice			
TMABPDB7823VG12A	A	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.02
			0.00				1/2"	0.00	0.00	0.03
			-4.00				Ice	0.00	0.00	0.04
							1" Ice	0.00	0.00	0.06
							2" Ice			
TMABPDB7823VG12A	A	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.02
			0.00				1/2"	0.00	0.00	0.03
			-3.00				Ice	0.00	0.00	0.04
							1" Ice	0.00	0.00	0.06
							2" Ice			
TMABPDB7823VG12A	B	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.02
			0.00				1/2"	0.00	0.00	0.03
			-4.00				Ice	0.00	0.00	0.04
							1" Ice	0.00	0.00	0.06
							2" Ice			
TMABPDB7823VG12A	B	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.02
			0.00				1/2"	0.00	0.00	0.03
			-3.00				Ice	0.00	0.00	0.04
							1" Ice	0.00	0.00	0.06
							2" Ice			
TMABPDB7823VG12A	C	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.02
			0.00				1/2"	0.00	0.00	0.03
			-4.00				Ice	0.00	0.00	0.04
							1" Ice	0.00	0.00	0.06
							2" Ice			
TMABPDB7823VG12A	C	From Leg	0.50	0.0000	100.00		No Ice	0.00	0.00	0.02
			0.00				1/2"	0.00	0.00	0.03
			-3.00				Ice	0.00	0.00	0.04
							1" Ice	0.00	0.00	0.06
							2" Ice			
** 90 **										
OPA65R-BU6BA-K	A	From Leg	0.50	0.0000	90.00		No Ice	0.00	0.00	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.00			1/2"	0.00	0.00	0.13
			1.00			Ice	0.00	0.00	0.18
						1" Ice	0.00	0.00	0.32
						2" Ice			
OPA65R-BU6BA-K	B	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.13
			1.00			Ice	0.00	0.00	0.18
						1" Ice	0.00	0.00	0.32
						2" Ice			
OPA65R-BU6BA-K	C	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.13
			1.00			Ice	0.00	0.00	0.18
						1" Ice	0.00	0.00	0.32
						2" Ice			
TMABPDB7823VG12A	A	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.02
			0.00			1/2"	0.00	0.00	0.03
			-4.00			Ice	0.00	0.00	0.04
						1" Ice	0.00	0.00	0.06
						2" Ice			
TMABPDB7823VG12A	A	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.02
			0.00			1/2"	0.00	0.00	0.03
			-3.00			Ice	0.00	0.00	0.04
						1" Ice	0.00	0.00	0.06
						2" Ice			
TMABPDB7823VG12A	B	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.02
			0.00			1/2"	0.00	0.00	0.03
			-4.00			Ice	0.00	0.00	0.04
						1" Ice	0.00	0.00	0.06
						2" Ice			
TMABPDB7823VG12A	B	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.02
			0.00			1/2"	0.00	0.00	0.03
			-3.00			Ice	0.00	0.00	0.04
						1" Ice	0.00	0.00	0.06
						2" Ice			
TMABPDB7823VG12A	C	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.02
			0.00			1/2"	0.00	0.00	0.03
			-4.00			Ice	0.00	0.00	0.04
						1" Ice	0.00	0.00	0.06
						2" Ice			
TMABPDB7823VG12A	C	From Leg	0.50	0.0000	90.00	No Ice	0.00	0.00	0.02
			0.00			1/2"	0.00	0.00	0.03
			-3.00			Ice	0.00	0.00	0.04
						1" Ice	0.00	0.00	0.06
						2" Ice			

**

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice

Comb. No.	Description
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
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	125 - 121	Pole	Max Tension	42	0.00	0.00	0.00
			Max. Compression	26	-2.08	0.00	0.00
			Max. Mx	8	-0.21	-4.80	0.00
			Max. My	2	-0.21	0.00	4.80
			Max. Vy	8	1.20	-4.80	0.00
			Max. Vx	2	-1.20	0.00	4.80
			Max. Torque	4			-0.00
L2	121 - 117	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-2.66	0.00	0.00
			Max. Mx	8	-0.48	-9.69	0.00
			Max. My	2	-0.48	0.00	9.69
			Max. Vy	8	1.24	-9.69	0.00
			Max. Vx	2	-1.24	0.00	9.69
			Max. Torque	4			-0.00
L3	117 - 113	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.15	0.00	0.00
			Max. Mx	8	-1.03	-16.61	0.00
			Max. My	2	-1.03	0.00	16.61
			Max. Vy	8	2.23	-16.61	0.00
			Max. Vx	2	-2.23	0.00	16.61
			Max. Torque	4			-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	113 - 109	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.74	0.00	0.00
			Max. Mx	8	-1.32	-25.56	0.00
			Max. My	2	-1.32	0.00	25.56
			Max. Vy	8	2.25	-25.56	0.00
			Max. Vx	2	-2.25	0.00	25.56
L5	109 - 105	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.95	0.00	0.00
			Max. Mx	8	-1.51	-34.55	0.00
			Max. My	2	-1.51	0.00	34.55
			Max. Vy	8	2.25	-27.81	0.00
			Max. Vx	2	-2.25	0.00	27.81
L6	105 - 101	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6.50	0.00	0.00
			Max. Mx	8	-2.12	-47.35	0.00
			Max. My	2	-2.12	0.00	47.35
			Max. Vy	8	3.21	-47.35	0.00
			Max. Vx	2	-3.21	0.00	47.35
L7	101 - 97	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-7.96	0.00	0.00
			Max. Mx	8	-2.83	-60.34	0.00
			Max. My	2	-2.83	0.00	60.34
			Max. Vy	8	3.27	-60.34	0.00
			Max. Vx	2	-3.27	0.00	60.34
L8	97 - 93	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.62	0.00	0.00
			Max. Mx	8	-3.59	-75.28	0.00
			Max. My	2	-3.59	0.00	75.28
			Max. Vy	8	4.21	-75.28	0.00
			Max. Vx	2	-4.21	0.00	75.28
L9	93 - 89	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.08	0.00	0.00
			Max. Mx	8	-4.33	-92.13	0.00
			Max. My	2	-4.33	0.00	92.13
			Max. Vy	8	4.24	-92.13	0.00
			Max. Vx	2	-4.24	0.00	92.13
L10	89 - 85	Pole	Max. Torque	12			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.48	0.00	0.00
			Max. Mx	8	-4.67	-109.03	0.00
			Max. My	2	-4.67	0.00	109.03
			Max. Vy	8	4.24	-96.36	0.00
			Max. Vx	2	-4.24	0.00	96.36
L11	85 - 81	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-13.65	0.00	0.00
			Max. Mx	8	-6.26	-128.40	0.00
			Max. My	2	-6.26	0.00	128.40
			Max. Vy	8	4.96	-128.40	0.00
			Max. Vx	2	-4.96	0.00	128.40
L12	81 - 77	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-14.32	0.00	0.00
			Max. Mx	8	-6.75	-148.68	0.00
			Max. My	2	-6.75	0.00	148.68
			Max. Vy	8	5.18	-148.68	0.00
			Max. Vx	2	-5.18	0.00	148.68
L13	77 - 73	Pole	Max. Torque	12			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.00	0.00	0.00
			Max. Mx	8	-7.25	-169.83	0.00
			Max. My	2	-7.25	0.00	169.83
			Max. Vy	8	5.40	-169.83	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L14	73 - 69	Pole	Max. Vx	2	-5.40	0.00	169.83
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.67	0.00	0.00
			Max. Mx	8	-7.75	-191.84	0.00
			Max. My	2	-7.75	0.00	191.84
			Max. Vy	8	5.61	-191.84	0.00
			Max. Vx	2	-5.61	0.00	191.84
L15	69 - 65	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.34	0.00	0.00
			Max. Mx	8	-8.25	-214.69	0.00
			Max. My	2	-8.25	0.00	214.69
			Max. Vy	8	5.82	-214.69	0.00
			Max. Vx	2	-5.82	0.00	214.69
			L16	65 - 61	Pole	Max. Torque	4
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-17.01				0.00	0.00
Max. Mx	8	-8.75				-238.35	0.00
Max. My	2	-8.75				0.00	238.35
Max. Vy	8	6.02				-238.35	0.00
Max. Vx	2	-6.02				0.00	238.35
L17	61 - 57	Pole				Max. Torque	4
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.68	0.00	0.00
			Max. Mx	8	-9.25	-262.80	0.00
			Max. My	2	-9.25	0.00	262.80
			Max. Vy	8	6.21	-262.80	0.00
			Max. Vx	2	-6.21	0.00	262.80
			L18	57 - 53	Pole	Max. Torque	4
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-18.35				0.00	0.00
Max. Mx	8	-9.76				-288.02	0.00
Max. My	2	-9.76				0.00	288.02
Max. Vy	8	6.40				-288.02	0.00
Max. Vx	2	-6.40				0.00	288.02
L19	53 - 50	Pole				Max. Torque	4
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.85	0.00	0.00
			Max. Mx	8	-10.14	-307.41	0.00
			Max. My	2	-10.14	0.00	307.41
			Max. Vy	8	6.53	-307.41	0.00
			Max. Vx	2	-6.53	0.00	307.41
			L20	50 - 46	Pole	Max. Torque	4
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-19.51				0.00	0.00
Max. Mx	8	-10.66				-333.87	0.00
Max. My	2	-10.66				0.00	333.87
Max. Vy	8	6.71				-333.87	0.00
Max. Vx	2	-6.71				0.00	333.87
L21	46 - 42	Pole				Max. Torque	4
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.18	0.00	0.00
			Max. Mx	8	-11.17	-361.01	0.00
			Max. My	2	-11.17	0.00	361.01
			Max. Vy	8	6.87	-361.01	0.00
			Max. Vx	2	-6.87	0.00	361.01
			L22	42 - 38	Pole	Max. Torque	4
Max Tension	1	0.00				0.00	0.00
Max. Compression	26	-20.84				0.00	0.00
Max. Mx	8	-11.69				-388.78	0.00
Max. My	2	-11.69				0.00	388.78
Max. Vy	8	7.02				-388.78	0.00
Max. Vx	2	-7.02				0.00	388.78
L23	38 - 34	Pole				Max. Torque	4
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.50	0.00	0.00
			Max. Mx	8	-12.22	-417.15	0.00
			Max. My	2	-12.22	0.00	417.15

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L24	34 - 30	Pole	Max. Vy	8	7.17	-417.15	0.00
			Max. Vx	2	-7.17	0.00	417.15
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.16	0.00	0.00
			Max. Mx	8	-12.74	-446.06	0.00
			Max. My	2	-12.74	0.00	446.06
			Max. Vy	8	7.30	-446.06	0.00
L25	30 - 26	Pole	Max. Vx	2	-7.30	0.00	446.06
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.82	0.00	0.00
			Max. Mx	8	-13.27	-475.47	0.00
			Max. My	2	-13.27	0.00	475.47
			Max. Vy	8	7.42	-475.47	0.00
			Max. Vx	2	-7.42	0.00	475.47
L26	26 - 22	Pole	Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.48	-0.00	0.00
			Max. Mx	8	-13.81	-505.34	0.00
			Max. My	2	-13.81	0.00	505.34
			Max. Vy	8	7.53	-505.34	0.00
			Max. Vx	2	-7.53	0.00	505.34
			Max. Torque	4			-0.00
L27	22 - 20.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.78	-0.01	0.01
			Max. Mx	8	-14.01	-516.64	0.00
			Max. My	2	-14.01	0.00	516.64
			Max. Vy	8	7.57	-516.64	0.00
			Max. Vx	2	-7.57	0.00	516.64
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
L28	20.5 - 20.23	Pole	Max. Compression	26	-23.87	-0.02	0.01
			Max. Mx	8	-14.08	-518.68	0.00
			Max. My	2	-14.08	0.00	518.68
			Max. Vy	8	7.57	-518.68	0.00
			Max. Vx	2	-7.57	0.00	518.68
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.95	-0.02	0.01
L29	20.23 - 19.98	Pole	Max. Mx	8	-14.15	-520.57	0.00
			Max. My	2	-14.15	0.00	520.57
			Max. Vy	8	7.57	-520.57	0.00
			Max. Vx	2	-7.57	0.00	520.57
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.03	-0.02	0.01
			Max. Mx	8	-14.22	-522.32	0.00
L30	19.98 - 19.75	Pole	Max. My	2	-14.22	0.00	522.32
			Max. Vy	8	7.58	-522.32	0.00
			Max. Vx	2	-7.58	0.00	522.32
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.12	-0.02	0.02
			Max. Mx	8	-14.28	-524.21	0.00
			Max. My	2	-14.28	0.00	524.21
L31	19.75 - 19.5	Pole	Max. Vy	8	7.59	-524.21	0.00
			Max. Vx	2	-7.59	0.00	524.21
			Max. Torque	4			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.18	-0.02	0.02
			Max. Mx	8	-14.32	-526.11	0.00
			Max. My	2	-14.32	0.00	526.11
			Max. Vy	8	7.60	-526.11	0.00
L32	19.5 - 19.25	Pole	Max. Vx	2	-7.60	0.00	526.11
			Max. Torque	4			-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L33	19.25 - 15.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.03	-0.04	0.02
			Max. Mx	8	-15.00	-556.70	0.00
			Max. My	2	-15.00	0.00	556.70
			Max. Vy	8	7.71	-556.70	0.00
			Max. Vx	2	-7.71	0.00	556.70
			Max. Torque	4			-0.00
L34	15.25 - 11.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.82	-0.04	0.02
			Max. Mx	8	-15.68	-587.68	0.00
			Max. My	2	-15.68	0.00	587.68
			Max. Vy	8	7.80	-587.68	0.00
			Max. Vx	2	-7.80	0.00	587.68
			Max. Torque	4			-0.00
L35	11.25 - 7.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.61	-0.04	0.02
			Max. Mx	8	-16.36	-618.99	0.00
			Max. My	2	-16.36	0.00	618.99
			Max. Vy	8	7.88	-618.99	0.00
			Max. Vx	2	-7.88	0.00	618.99
			Max. Torque	4			-0.00
L36	7.25 - 3.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.39	-0.04	0.02
			Max. Mx	8	-17.05	-650.60	0.00
			Max. My	2	-17.05	0.00	650.60
			Max. Vy	8	7.95	-650.60	0.00
			Max. Vx	2	-7.95	0.00	650.60
			Max. Torque	4			-0.00
L37	3.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.01	-0.04	0.02
			Max. Mx	8	-17.61	-676.47	0.00
			Max. My	2	-17.61	0.00	676.47
			Max. Vy	8	8.00	-676.47	0.00
			Max. Vx	2	-8.00	0.00	676.47
			Max. Torque	4			-0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	28.01	0.00	3.22
	Max. H _x	20	17.62	7.98	0.00
	Max. H _z	2	17.62	0.00	7.98
	Max. M _x	2	676.47	0.00	7.98
	Max. M _z	8	676.47	-7.98	0.00
	Max. Torsion	12	0.00	-3.99	-6.91
	Min. Vert	7	13.21	-6.91	3.99
	Min. H _x	8	17.62	-7.98	0.00
	Min. H _z	14	17.62	0.00	-7.98
	Min. M _x	14	-676.47	0.00	-7.98
	Min. M _z	20	-676.47	7.98	0.00
	Min. Torsion	4	-0.00	-3.99	6.91

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	14.68	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	17.62	0.00	-7.98	-676.47	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	13.21	0.00	-7.98	-664.40	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	17.62	3.99	-6.91	-585.84	-338.24	0.00
0.9 Dead+1.0 Wind 30 deg - No Ice	13.21	3.99	-6.91	-575.39	-332.20	0.00
1.2 Dead+1.0 Wind 60 deg - No Ice	17.62	6.91	-3.99	-338.24	-585.84	-0.00
0.9 Dead+1.0 Wind 60 deg - No Ice	13.21	6.91	-3.99	-332.20	-575.39	-0.00
1.2 Dead+1.0 Wind 90 deg - No Ice	17.62	7.98	0.00	0.00	-676.47	0.00
0.9 Dead+1.0 Wind 90 deg - No Ice	13.21	7.98	0.00	0.00	-664.40	0.00
1.2 Dead+1.0 Wind 120 deg - No Ice	17.62	6.91	3.99	338.24	-585.84	0.00
0.9 Dead+1.0 Wind 120 deg - No Ice	13.21	6.91	3.99	332.20	-575.39	0.00
1.2 Dead+1.0 Wind 150 deg - No Ice	17.62	3.99	6.91	585.84	-338.24	-0.00
0.9 Dead+1.0 Wind 150 deg - No Ice	13.21	3.99	6.91	575.39	-332.20	-0.00
1.2 Dead+1.0 Wind 180 deg - No Ice	17.62	0.00	7.98	676.47	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	13.21	0.00	7.98	664.40	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	17.62	-3.99	6.91	585.84	338.24	0.00
0.9 Dead+1.0 Wind 210 deg - No Ice	13.21	-3.99	6.91	575.39	332.20	0.00
1.2 Dead+1.0 Wind 240 deg - No Ice	17.62	-6.91	3.99	338.24	585.84	-0.00
0.9 Dead+1.0 Wind 240 deg - No Ice	13.21	-6.91	3.99	332.20	575.39	-0.00
1.2 Dead+1.0 Wind 270 deg - No Ice	17.62	-7.98	0.00	0.00	676.47	0.00
0.9 Dead+1.0 Wind 270 deg - No Ice	13.21	-7.98	0.00	0.00	664.40	0.00
1.2 Dead+1.0 Wind 300 deg - No Ice	17.62	-6.91	-3.99	-338.24	585.84	0.00
0.9 Dead+1.0 Wind 300 deg - No Ice	13.21	-6.91	-3.99	-332.20	575.39	0.00
1.2 Dead+1.0 Wind 330 deg - No Ice	17.62	-3.99	-6.91	-585.84	338.24	-0.00
0.9 Dead+1.0 Wind 330 deg - No Ice	13.21	-3.99	-6.91	-575.39	332.20	-0.00
1.2 Dead+1.0 Ice+1.0 Temp	28.01	0.00	0.00	-0.02	-0.04	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	28.01	0.00	-3.22	-284.44	-0.04	-0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	28.01	1.61	-2.79	-246.34	-142.25	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	28.01	2.79	-1.61	-142.23	-246.35	-0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	28.01	3.22	0.00	-0.02	-284.46	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	28.01	2.79	1.61	142.19	-246.35	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	28.01	1.61	2.79	246.29	-142.25	-0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	28.01	0.00	3.22	284.40	-0.04	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	28.01	-1.61	2.79	246.29	142.17	0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	28.01	-2.79	1.61	142.19	246.28	-0.00

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
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	28.01	-3.22	0.00	-0.02	284.38	-0.00
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	28.01	-2.79	-1.61	-142.23	246.28	0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	28.01	-1.61	-2.79	-246.34	142.17	-0.00
Dead+Wind 0 deg - Service	14.68	0.00	-1.74	-146.43	0.00	0.00
Dead+Wind 30 deg - Service	14.68	0.87	-1.51	-126.81	-73.22	0.00
Dead+Wind 60 deg - Service	14.68	1.51	-0.87	-73.22	-126.81	-0.00
Dead+Wind 90 deg - Service	14.68	1.74	0.00	0.00	-146.43	0.00
Dead+Wind 120 deg - Service	14.68	1.51	0.87	73.22	-126.81	0.00
Dead+Wind 150 deg - Service	14.68	0.87	1.51	126.81	-73.22	-0.00
Dead+Wind 180 deg - Service	14.68	0.00	1.74	146.43	0.00	0.00
Dead+Wind 210 deg - Service	14.68	-0.87	1.51	126.81	73.22	0.00
Dead+Wind 240 deg - Service	14.68	-1.51	0.87	73.22	126.81	-0.00
Dead+Wind 270 deg - Service	14.68	-1.74	0.00	0.00	146.43	0.00
Dead+Wind 300 deg - Service	14.68	-1.51	-0.87	-73.22	126.81	0.00
Dead+Wind 330 deg - Service	14.68	-0.87	-1.51	-126.81	73.22	-0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-14.68	0.00	0.00	14.68	0.00	0.000%
2	0.00	-17.62	-7.98	0.00	17.62	7.98	0.000%
3	0.00	-13.21	-7.98	0.00	13.21	7.98	0.000%
4	3.99	-17.62	-6.91	-3.99	17.62	6.91	0.000%
5	3.99	-13.21	-6.91	-3.99	13.21	6.91	0.000%
6	6.91	-17.62	-3.99	-6.91	17.62	3.99	0.000%
7	6.91	-13.21	-3.99	-6.91	13.21	3.99	0.000%
8	7.98	-17.62	0.00	-7.98	17.62	0.00	0.000%
9	7.98	-13.21	0.00	-7.98	13.21	0.00	0.000%
10	6.91	-17.62	3.99	-6.91	17.62	-3.99	0.000%
11	6.91	-13.21	3.99	-6.91	13.21	-3.99	0.000%
12	3.99	-17.62	6.91	-3.99	17.62	-6.91	0.000%
13	3.99	-13.21	6.91	-3.99	13.21	-6.91	0.000%
14	0.00	-17.62	7.98	0.00	17.62	-7.98	0.000%
15	0.00	-13.21	7.98	0.00	13.21	-7.98	0.000%
16	-3.99	-17.62	6.91	3.99	17.62	-6.91	0.000%
17	-3.99	-13.21	6.91	3.99	13.21	-6.91	0.000%
18	-6.91	-17.62	3.99	6.91	17.62	-3.99	0.000%
19	-6.91	-13.21	3.99	6.91	13.21	-3.99	0.000%
20	-7.98	-17.62	0.00	7.98	17.62	0.00	0.000%
21	-7.98	-13.21	0.00	7.98	13.21	0.00	0.000%
22	-6.91	-17.62	-3.99	6.91	17.62	3.99	0.000%
23	-6.91	-13.21	-3.99	6.91	13.21	3.99	0.000%
24	-3.99	-17.62	-6.91	3.99	17.62	6.91	0.000%
25	-3.99	-13.21	-6.91	3.99	13.21	6.91	0.000%
26	0.00	-28.01	0.00	0.00	28.01	0.00	0.000%
27	0.00	-28.01	-3.22	0.00	28.01	3.22	0.000%
28	1.61	-28.01	-2.79	-1.61	28.01	2.79	0.000%
29	2.79	-28.01	-1.61	-2.79	28.01	1.61	0.000%
30	3.22	-28.01	0.00	-3.22	28.01	0.00	0.000%
31	2.79	-28.01	1.61	-2.79	28.01	-1.61	0.000%
32	1.61	-28.01	2.79	-1.61	28.01	-2.79	0.000%
33	0.00	-28.01	3.22	0.00	28.01	-3.22	0.000%
34	-1.61	-28.01	2.79	1.61	28.01	-2.79	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
35	-2.79	-28.01	1.61	2.79	28.01	-1.61	0.000%
36	-3.22	-28.01	0.00	3.22	28.01	0.00	0.000%
37	-2.79	-28.01	-1.61	2.79	28.01	1.61	0.000%
38	-1.61	-28.01	-2.79	1.61	28.01	2.79	0.000%
39	0.00	-14.68	-1.74	0.00	14.68	1.74	0.000%
40	0.87	-14.68	-1.51	-0.87	14.68	1.51	0.000%
41	1.51	-14.68	-0.87	-1.51	14.68	0.87	0.000%
42	1.74	-14.68	0.00	-1.74	14.68	0.00	0.000%
43	1.51	-14.68	0.87	-1.51	14.68	-0.87	0.000%
44	0.87	-14.68	1.51	-0.87	14.68	-1.51	0.000%
45	0.00	-14.68	1.74	0.00	14.68	-1.74	0.000%
46	-0.87	-14.68	1.51	0.87	14.68	-1.51	0.000%
47	-1.51	-14.68	0.87	1.51	14.68	-0.87	0.000%
48	-1.74	-14.68	0.00	1.74	14.68	0.00	0.000%
49	-1.51	-14.68	-0.87	1.51	14.68	0.87	0.000%
50	-0.87	-14.68	-1.51	0.87	14.68	1.51	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	0.00018862
3	Yes	5	0.00000001	0.00007161
4	Yes	6	0.00000001	0.00086836
5	Yes	6	0.00000001	0.00030275
6	Yes	6	0.00000001	0.00086836
7	Yes	6	0.00000001	0.00030275
8	Yes	5	0.00000001	0.00018862
9	Yes	5	0.00000001	0.00007161
10	Yes	6	0.00000001	0.00086836
11	Yes	6	0.00000001	0.00030275
12	Yes	6	0.00000001	0.00086836
13	Yes	6	0.00000001	0.00030275
14	Yes	5	0.00000001	0.00018862
15	Yes	5	0.00000001	0.00007161
16	Yes	6	0.00000001	0.00086836
17	Yes	6	0.00000001	0.00030275
18	Yes	6	0.00000001	0.00086836
19	Yes	6	0.00000001	0.00030275
20	Yes	5	0.00000001	0.00018862
21	Yes	5	0.00000001	0.00007161
22	Yes	6	0.00000001	0.00086836
23	Yes	6	0.00000001	0.00030275
24	Yes	6	0.00000001	0.00086836
25	Yes	6	0.00000001	0.00030275
26	Yes	4	0.00000001	0.00000001
27	Yes	7	0.00000001	0.00060558
28	Yes	7	0.00000001	0.00071483
29	Yes	7	0.00000001	0.00071483
30	Yes	7	0.00000001	0.00060560
31	Yes	7	0.00000001	0.00071477
32	Yes	7	0.00000001	0.00071478
33	Yes	7	0.00000001	0.00060555
34	Yes	7	0.00000001	0.00071468
35	Yes	7	0.00000001	0.00071468
36	Yes	7	0.00000001	0.00060553
37	Yes	7	0.00000001	0.00071474
38	Yes	7	0.00000001	0.00071473
39	Yes	4	0.00000001	0.00048502
40	Yes	5	0.00000001	0.00013246
41	Yes	5	0.00000001	0.00013246
42	Yes	4	0.00000001	0.00048502
43	Yes	5	0.00000001	0.00013246
44	Yes	5	0.00000001	0.00013246
45	Yes	4	0.00000001	0.00048502
46	Yes	5	0.00000001	0.00013246
47	Yes	5	0.00000001	0.00013246
48	Yes	4	0.00000001	0.00048502
49	Yes	5	0.00000001	0.00013246
50	Yes	5	0.00000001	0.00013246

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 121	21.203	42	1.7654	0.0000
L2	121 - 117	19.728	42	1.7501	0.0000
L3	117 - 113	18.279	42	1.7045	0.0000
L4	113 - 109	16.882	42	1.6249	0.0000
L5	109 - 105	15.572	42	1.4932	0.0000
L6	105 - 101	14.396	42	1.3062	0.0000
L7	101 - 97	13.321	42	1.2577	0.0000
L8	97 - 93	12.293	42	1.1941	0.0000
L9	93 - 89	11.325	42	1.1148	0.0000
L10	89 - 85	10.430	42	1.0164	0.0000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L11	85 - 81	9.627	42	0.8984	0.0000
L12	81 - 77	8.881	42	0.8833	0.0000
L13	77 - 73	8.148	42	0.8656	0.0000
L14	73 - 69	7.431	42	0.8453	0.0000
L15	69 - 65	6.732	42	0.8223	0.0000
L16	65 - 61	6.054	42	0.7965	0.0000
L17	61 - 57	5.399	42	0.7677	0.0000
L18	57 - 53	4.769	42	0.7359	0.0000
L19	53 - 50	4.167	42	0.7009	0.0000
L20	50 - 46	3.735	42	0.6726	0.0000
L21	46 - 42	3.188	42	0.6320	0.0000
L22	42 - 38	2.677	42	0.5879	0.0000
L23	38 - 34	2.204	42	0.5404	0.0000
L24	34 - 30	1.773	42	0.4894	0.0000
L25	30 - 26	1.385	42	0.4347	0.0000
L26	26 - 22	1.045	42	0.3763	0.0000
L27	22 - 20.5	0.756	42	0.3142	0.0000
L28	20.5 - 20.23	0.661	42	0.2899	0.0000
L29	20.23 - 19.98	0.645	42	0.2878	0.0000
L30	19.98 - 19.75	0.630	42	0.2862	0.0000
L31	19.75 - 19.5	0.616	42	0.2846	0.0000
L32	19.5 - 19.25	0.601	42	0.2823	0.0000
L33	19.25 - 15.25	0.586	42	0.2792	0.0000
L34	15.25 - 11.25	0.374	40	0.2269	0.0000
L35	11.25 - 7.25	0.207	40	0.1717	0.0000
L36	7.25 - 3.25	0.087	40	0.1134	0.0000
L37	3.25 - 0	0.018	40	0.0521	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.75	Truck Ball	42	21.203	1.7654	0.0000	6033
125.00	Canister Load1	42	21.203	1.7654	0.0000	6033
120.00	10' x 42" OD Concealment Canister	42	19.363	1.7420	0.0000	6033
115.00	Canister Load2	42	17.572	1.6689	0.0000	2836
110.00	10' x 42" OD Concealment Canister	42	15.888	1.5352	0.0000	1563
105.00	Canister Load3	42	14.396	1.3062	0.0000	1921
100.00	10' x 42" OD Concealment Canister	42	13.060	1.2466	0.0000	3927
95.00	Canister Load4	42	11.800	1.1550	0.0000	2863
90.00	10' x 42" OD Concealment Canister	42	10.646	1.0454	0.0000	2206
85.00	Canister Load5	42	9.627	0.8984	0.0000	3406

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 121	97.522	8	8.0737	0.0000
L2	121 - 117	90.800	8	8.0059	0.0000
L3	117 - 113	84.189	8	7.8027	0.0000
L4	113 - 109	77.807	8	7.4470	0.0000
L5	109 - 105	71.815	8	6.8546	0.0000
L6	105 - 101	66.420	8	6.0099	0.0000
L7	101 - 97	61.481	8	5.7901	0.0000
L8	97 - 93	56.754	8	5.5011	0.0000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L9	93 - 89	52.298	8	5.1395	0.0000
L10	89 - 85	48.179	8	4.6902	0.0000
L11	85 - 81	44.474	8	4.1501	0.0000
L12	81 - 77	41.028	8	4.0806	0.0000
L13	77 - 73	37.646	8	3.9995	0.0000
L14	73 - 69	34.336	8	3.9062	0.0000
L15	69 - 65	31.109	8	3.8003	0.0000
L16	65 - 61	27.977	8	3.6812	0.0000
L17	61 - 57	24.949	8	3.5486	0.0000
L18	57 - 53	22.039	8	3.4018	0.0000
L19	53 - 50	19.257	8	3.2404	0.0000
L20	50 - 46	17.263	8	3.1096	0.0000
L21	46 - 42	14.737	8	2.9218	0.0000
L22	42 - 38	12.374	8	2.7183	0.0000
L23	38 - 34	10.188	8	2.4986	0.0000
L24	34 - 30	8.193	8	2.2626	0.0000
L25	30 - 26	6.403	8	2.0097	0.0000
L26	26 - 22	4.832	8	1.7398	0.0000
L27	22 - 20.5	3.493	8	1.4524	0.0000
L28	20.5 - 20.23	3.055	8	1.3402	0.0000
L29	20.23 - 19.98	2.979	8	1.3306	0.0000
L30	19.98 - 19.75	2.910	8	1.3228	0.0000
L31	19.75 - 19.5	2.846	8	1.3156	0.0000
L32	19.5 - 19.25	2.778	8	1.3051	0.0000
L33	19.25 - 15.25	2.710	8	1.2904	0.0000
L34	15.25 - 11.25	1.729	8	1.0487	0.0000
L35	11.25 - 7.25	0.956	8	0.7933	0.0000
L36	7.25 - 3.25	0.404	8	0.5240	0.0000
L37	3.25 - 0	0.082	8	0.2407	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.75	Truck Ball	8	97.522	8.0737	0.0000	1405
125.00	Canister Load1	8	97.522	8.0737	0.0000	1405
120.00	10' x 42" OD Concealment Canister	8	89.132	7.9700	0.0000	1405
115.00	Canister Load2	8	80.962	7.6440	0.0000	655
110.00	10' x 42" OD Concealment Canister	8	73.261	7.0438	0.0000	357
105.00	Canister Load3	8	66.420	6.0099	0.0000	435
100.00	10' x 42" OD Concealment Canister	8	60.281	5.7398	0.0000	881
95.00	Canister Load4	8	54.488	5.3231	0.0000	638
90.00	10' x 42" OD Concealment Canister	8	49.171	4.8228	0.0000	489
85.00	Canister Load5	8	44.474	4.1501	0.0000	752

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	125 - 121 (1)	TP6.625x6.625x0.432	4.00	0.00	0.0	8.4049	-0.21	317.71	0.001

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L2	121 - 117 (2)	TP6.625x6.625x0.432	4.00	0.00	0.0	8.4049	-0.48	317.71	0.002
L3	117 - 113 (3)	TP6.625x6.625x0.432	4.00	0.00	0.0	8.4049	-1.03	317.71	0.003
L4	113 - 109 (4)	TP6.625x6.625x0.432	4.00	0.00	0.0	8.4049	-1.32	317.71	0.004
L5	109 - 105 (5)	TP6.625x6.625x0.432	4.00	0.00	0.0	8.4049	-1.51	317.71	0.005
L6	105 - 101 (6)	TP10.75x10.75x0.5	4.00	0.00	0.0	16.100 7	-2.12	608.61	0.003
L7	101 - 97 (7)	TP10.75x10.75x0.5	4.00	0.00	0.0	16.100 7	-2.83	608.61	0.005
L8	97 - 93 (8)	TP10.75x10.75x0.5	4.00	0.00	0.0	16.100 7	-3.59	608.61	0.006
L9	93 - 89 (9)	TP10.75x10.75x0.5	4.00	0.00	0.0	16.100 7	-4.33	608.61	0.007
L10	89 - 85 (10)	TP10.75x10.75x0.5	4.00	0.00	0.0	16.100 7	-4.67	608.61	0.008
L11	85 - 81 (11)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-6.26	1052.07	0.006
L12	81 - 77 (12)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-6.75	1052.07	0.006
L13	77 - 73 (13)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-7.25	1052.07	0.007
L14	73 - 69 (14)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-7.75	1052.07	0.007
L15	69 - 65 (15)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-8.25	1052.07	0.008
L16	65 - 61 (16)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-8.75	1052.07	0.008
L17	61 - 57 (17)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-9.25	1052.07	0.009
L18	57 - 53 (18)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-9.76	1052.07	0.009
L19	53 - 50 (19)	TP24x24x0.375	3.00	0.00	0.0	27.832 5	-10.15	1052.07	0.010
L20	50 - 46 (20)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-10.66	1052.07	0.010
L21	46 - 42 (21)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-11.17	1052.07	0.011
L22	42 - 38 (22)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-11.69	1052.07	0.011
L23	38 - 34 (23)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-12.22	1052.07	0.012
L24	34 - 30 (24)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-12.74	1052.07	0.012
L25	30 - 26 (25)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-13.27	1052.07	0.013
L26	26 - 22 (26)	TP24x24x0.375	4.00	0.00	0.0	27.832 5	-13.81	1052.07	0.013
L27	22 - 20.5 (27)	TP24x24x0.375	1.50	0.00	0.0	27.832 5	-14.01	1052.07	0.013
L28	20.5 - 20.23 (28)	TP24x24x0.85	0.27	0.00	0.0	61.818 7	-14.08	2336.75	0.006
L29	20.23 - 19.98 (29)	TP24x24x0.9875	0.25	0.00	0.0	71.392 2	-14.15	2698.63	0.005
L30	19.98 - 19.75 (30)	TP24x24x0.9875	0.23	0.00	0.0	71.392 2	-14.22	2698.63	0.005
L31	19.75 - 19.5 (31)	TP24x24x0.7125	0.25	0.00	0.0	52.126 4	-14.28	1970.38	0.007
L32	19.5 - 19.25 (32)	TP24x24x0.5	0.25	0.00	0.0	36.913 7	-14.32	1395.34	0.010
L33	19.25 - 15.25 (33)	TP24x24x0.5	4.00	0.00	0.0	36.913 7	-15.00	1395.34	0.011
L34	15.25 - 11.25 (34)	TP24x24x0.5	4.00	0.00	0.0	36.913 7	-15.68	1395.34	0.011
L35	11.25 - 7.25 (35)	TP24x24x0.5	4.00	0.00	0.0	36.913 7	-16.36	1395.34	0.012
L36	7.25 - 3.25 (36)	TP24x24x0.5	4.00	0.00	0.0	36.913 7	-17.05	1395.34	0.012
L37	3.25 - 0 (37)	TP24x24x0.5	3.25	0.00	0.0	36.913 7	-17.61	1395.34	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L1	125 - 121 (1)	TP6.625x6.625x0.432	4.80	52.28	0.092	0.00	52.28	0.000
L2	121 - 117 (2)	TP6.625x6.625x0.432	9.69	52.28	0.185	0.00	52.28	0.000
L3	117 - 113 (3)	TP6.625x6.625x0.432	16.61	52.28	0.318	0.00	52.28	0.000
L4	113 - 109 (4)	TP6.625x6.625x0.432	25.56	52.28	0.489	0.00	52.28	0.000
L5	109 - 105 (5)	TP6.625x6.625x0.432	34.55	52.28	0.661	0.00	52.28	0.000
L6	105 - 101 (6)	TP10.75x10.75x0.5	47.35	165.60	0.286	0.00	165.60	0.000
L7	101 - 97 (7)	TP10.75x10.75x0.5	60.34	165.60	0.364	0.00	165.60	0.000
L8	97 - 93 (8)	TP10.75x10.75x0.5	75.28	165.60	0.455	0.00	165.60	0.000
L9	93 - 89 (9)	TP10.75x10.75x0.5	92.13	165.60	0.556	0.00	165.60	0.000
L10	89 - 85 (10)	TP10.75x10.75x0.5	109.03	165.60	0.658	0.00	165.60	0.000
L11	85 - 81 (11)	TP24x24x0.375	128.41	623.72	0.206	0.00	623.72	0.000
L12	81 - 77 (12)	TP24x24x0.375	148.68	623.72	0.238	0.00	623.72	0.000
L13	77 - 73 (13)	TP24x24x0.375	169.83	623.72	0.272	0.00	623.72	0.000
L14	73 - 69 (14)	TP24x24x0.375	191.84	623.72	0.308	0.00	623.72	0.000
L15	69 - 65 (15)	TP24x24x0.375	214.69	623.72	0.344	0.00	623.72	0.000
L16	65 - 61 (16)	TP24x24x0.375	238.35	623.72	0.382	0.00	623.72	0.000
L17	61 - 57 (17)	TP24x24x0.375	262.81	623.72	0.421	0.00	623.72	0.000
L18	57 - 53 (18)	TP24x24x0.375	288.02	623.72	0.462	0.00	623.72	0.000
L19	53 - 50 (19)	TP24x24x0.375	307.41	623.72	0.493	0.00	623.72	0.000
L20	50 - 46 (20)	TP24x24x0.375	333.88	623.72	0.535	0.00	623.72	0.000
L21	46 - 42 (21)	TP24x24x0.375	361.01	623.72	0.579	0.00	623.72	0.000
L22	42 - 38 (22)	TP24x24x0.375	388.79	623.72	0.623	0.00	623.72	0.000
L23	38 - 34 (23)	TP24x24x0.375	417.15	623.72	0.669	0.00	623.72	0.000
L24	34 - 30 (24)	TP24x24x0.375	446.06	623.72	0.715	0.00	623.72	0.000
L25	30 - 26 (25)	TP24x24x0.375	475.48	623.72	0.762	0.00	623.72	0.000
L26	26 - 22 (26)	TP24x24x0.375	505.34	623.72	0.810	0.00	623.72	0.000
L27	22 - 20.5 (27)	TP24x24x0.375	516.64	623.72	0.828	0.00	623.72	0.000
L28	20.5 - 20.23 (28)	TP24x24x0.85	518.68	1435.58	0.361	0.00	1435.58	0.000
L29	20.23 - 19.98 (29)	TP24x24x0.9875	520.57	1648.33	0.316	0.00	1648.33	0.000
L30	19.98 - 19.75 (30)	TP24x24x0.9875	522.32	1648.33	0.317	0.00	1648.33	0.000
L31	19.75 - 19.5 (31)	TP24x24x0.7125	524.21	1217.53	0.431	0.00	1217.53	0.000
L32	19.5 - 19.25 (32)	TP24x24x0.5	526.11	869.92	0.605	0.00	869.92	0.000
L33	19.25 - 15.25 (33)	TP24x24x0.5	556.70	869.92	0.640	0.00	869.92	0.000
L34	15.25 - 11.25 (34)	TP24x24x0.5	587.68	869.92	0.676	0.00	869.92	0.000
L35	11.25 - 7.25 (35)	TP24x24x0.5	618.99	869.92	0.712	0.00	869.92	0.000
L36	7.25 - 3.25 (36)	TP24x24x0.5	650.60	869.92	0.748	0.00	869.92	0.000
L37	3.25 - 0 (37)	TP24x24x0.5	676.47	869.92	0.778	0.00	869.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	125 - 121 (1)	TP6.625x6.625x0.432	1.20	95.31	0.013	0.00	51.90	0.000
L2	121 - 117 (2)	TP6.625x6.625x0.432	1.24	95.31	0.013	0.00	51.90	0.000
L3	117 - 113 (3)	TP6.625x6.625x0.432	2.23	95.31	0.023	0.00	51.90	0.000
L4	113 - 109 (4)	TP6.625x6.625x0.432	2.25	95.31	0.024	0.00	51.90	0.000
L5	109 - 105 (5)	TP6.625x6.625x0.432	2.25	95.31	0.024	0.00	51.90	0.000
L6	105 - 101 (6)	TP10.75x10.75x0.5	3.21	182.58	0.018	0.00	164.54	0.000
L7	101 - 97 (7)	TP10.75x10.75x0.5	3.27	182.58	0.018	0.00	164.54	0.000

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	$\frac{T_u}{\phi T_n}$	
L8	97 - 93 (8)	TP10.75x10.75x0.5	4.21	182.58	0.023	0.00	164.54	0.000
L9	93 - 89 (9)	TP10.75x10.75x0.5	4.24	182.58	0.023	0.00	164.54	0.000
L10	89 - 85 (10)	TP10.75x10.75x0.5	4.22	182.58	0.023	0.00	164.54	0.000
L11	85 - 81 (11)	TP24x24x0.375	4.96	315.62	0.016	0.00	655.57	0.000
L12	81 - 77 (12)	TP24x24x0.375	5.18	315.62	0.016	0.00	655.57	0.000
L13	77 - 73 (13)	TP24x24x0.375	5.40	315.62	0.017	0.00	655.57	0.000
L14	73 - 69 (14)	TP24x24x0.375	5.61	315.62	0.018	0.00	655.57	0.000
L15	69 - 65 (15)	TP24x24x0.375	5.82	315.62	0.018	0.00	655.57	0.000
L16	65 - 61 (16)	TP24x24x0.375	6.02	315.62	0.019	0.00	655.57	0.000
L17	61 - 57 (17)	TP24x24x0.375	6.21	315.62	0.020	0.00	655.57	0.000
L18	57 - 53 (18)	TP24x24x0.375	6.40	315.62	0.020	0.00	655.57	0.000
L19	53 - 50 (19)	TP24x24x0.375	6.53	315.62	0.021	0.00	655.57	0.000
L20	50 - 46 (20)	TP24x24x0.375	6.71	315.62	0.021	0.00	655.57	0.000
L21	46 - 42 (21)	TP24x24x0.375	6.87	315.62	0.022	0.00	655.57	0.000
L22	42 - 38 (22)	TP24x24x0.375	7.03	315.62	0.022	0.00	655.57	0.000
L23	38 - 34 (23)	TP24x24x0.375	7.17	315.62	0.023	0.00	655.57	0.000
L24	34 - 30 (24)	TP24x24x0.375	7.30	315.62	0.023	0.00	655.57	0.000
L25	30 - 26 (25)	TP24x24x0.375	7.42	315.62	0.024	0.00	655.57	0.000
L26	26 - 22 (26)	TP24x24x0.375	7.53	315.62	0.024	0.00	655.57	0.000
L27	22 - 20.5 (27)	TP24x24x0.375	7.57	315.62	0.024	0.00	655.57	0.000
L28	20.5 - 20.23 (28)	TP24x24x0.85	7.57	701.02	0.011	0.00	1426.80	0.000
L29	20.23 - 19.98 (29)	TP24x24x0.9875	7.58	809.59	0.009	0.00	1637.97	0.000
L30	19.98 - 19.75 (30)	TP24x24x0.9875	7.58	809.59	0.009	0.00	1637.97	0.000
L31	19.75 - 19.5 (31)	TP24x24x0.7125	7.59	591.11	0.013	0.00	1210.24	0.000
L32	19.5 - 19.25 (32)	TP24x24x0.5	7.60	418.60	0.018	0.00	864.87	0.000
L33	19.25 - 15.25 (33)	TP24x24x0.5	7.71	418.60	0.018	0.00	864.87	0.000
L34	15.25 - 11.25 (34)	TP24x24x0.5	7.80	418.60	0.019	0.00	864.87	0.000
L35	11.25 - 7.25 (35)	TP24x24x0.5	7.88	418.60	0.019	0.00	864.87	0.000
L36	7.25 - 3.25 (36)	TP24x24x0.5	7.95	418.60	0.019	0.00	864.87	0.000
L37	3.25 - 0 (37)	TP24x24x0.5	8.00	418.60	0.019	0.00	864.87	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$\frac{P_u}{\phi P_n}$	$\frac{M_{ux}}{\phi M_{nx}}$	$\frac{M_{uy}}{\phi M_{ny}}$	$\frac{V_u}{\phi V_n}$	$\frac{T_u}{\phi T_n}$			
L1	125 - 121 (1)	0.001	0.092	0.000	0.013	0.000	0.093	1.050	4.8.2
L2	121 - 117 (2)	0.002	0.185	0.000	0.013	0.000	0.187	1.050	4.8.2
L3	117 - 113 (3)	0.003	0.318	0.000	0.023	0.000	0.322	1.050	4.8.2
L4	113 - 109 (4)	0.004	0.489	0.000	0.024	0.000	0.494	1.050	4.8.2
L5	109 - 105 (5)	0.005	0.661	0.000	0.024	0.000	0.666	1.050	4.8.2
L6	105 - 101 (6)	0.003	0.286	0.000	0.018	0.000	0.290	1.050	4.8.2
L7	101 - 97 (7)	0.005	0.364	0.000	0.018	0.000	0.369	1.050	4.8.2
L8	97 - 93 (8)	0.006	0.455	0.000	0.023	0.000	0.461	1.050	4.8.2
L9	93 - 89 (9)	0.007	0.556	0.000	0.023	0.000	0.564	1.050	4.8.2
L10	89 - 85 (10)	0.008	0.658	0.000	0.023	0.000	0.667	1.050	4.8.2
L11	85 - 81 (11)	0.006	0.206	0.000	0.016	0.000	0.212	1.050	4.8.2
L12	81 - 77 (12)	0.006	0.238	0.000	0.016	0.000	0.245	1.050	4.8.2
L13	77 - 73 (13)	0.007	0.272	0.000	0.017	0.000	0.279	1.050	4.8.2
L14	73 - 69 (14)	0.007	0.308	0.000	0.018	0.000	0.315	1.050	4.8.2
L15	69 - 65 (15)	0.008	0.344	0.000	0.018	0.000	0.352	1.050	4.8.2
L16	65 - 61 (16)	0.008	0.382	0.000	0.019	0.000	0.391	1.050	4.8.2
L17	61 - 57 (17)	0.009	0.421	0.000	0.020	0.000	0.431	1.050	4.8.2
L18	57 - 53 (18)	0.009	0.462	0.000	0.020	0.000	0.471	1.050	4.8.2

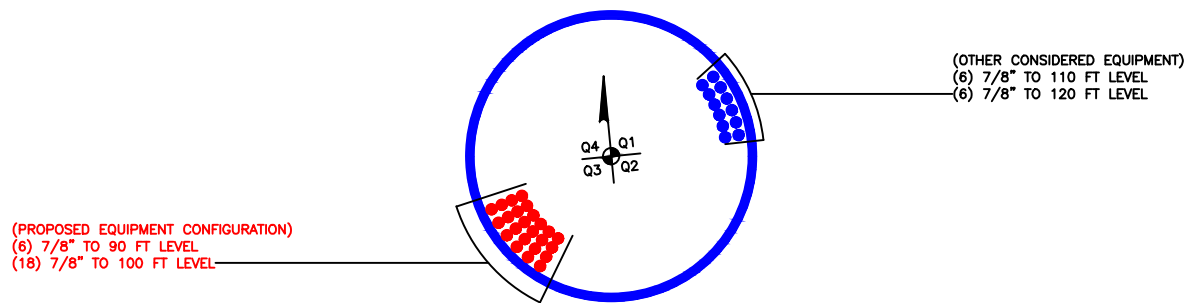
Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
L19	53 - 50 (19)	0.010	0.493	0.000	0.021	0.000	0.503	1.050	4.8.2
L20	50 - 46 (20)	0.010	0.535	0.000	0.021	0.000	0.546	1.050	4.8.2
L21	46 - 42 (21)	0.011	0.579	0.000	0.022	0.000	0.590	1.050	4.8.2
L22	42 - 38 (22)	0.011	0.623	0.000	0.022	0.000	0.635	1.050	4.8.2
L23	38 - 34 (23)	0.012	0.669	0.000	0.023	0.000	0.681	1.050	4.8.2
L24	34 - 30 (24)	0.012	0.715	0.000	0.023	0.000	0.728	1.050	4.8.2
L25	30 - 26 (25)	0.013	0.762	0.000	0.024	0.000	0.775	1.050	4.8.2
L26	26 - 22 (26)	0.013	0.810	0.000	0.024	0.000	0.824	1.050	4.8.2
L27	22 - 20.5 (27)	0.013	0.828	0.000	0.024	0.000	0.842	1.050	4.8.2
L28	20.5 - 20.23 (28)	0.006	0.361	0.000	0.011	0.000	0.367	1.050	4.8.2
L29	20.23 - 19.98 (29)	0.005	0.316	0.000	0.009	0.000	0.321	1.050	4.8.2
L30	19.98 - 19.75 (30)	0.005	0.317	0.000	0.009	0.000	0.322	1.050	4.8.2
L31	19.75 - 19.5 (31)	0.007	0.431	0.000	0.013	0.000	0.438	1.050	4.8.2
L32	19.5 - 19.25 (32)	0.010	0.605	0.000	0.018	0.000	0.615	1.050	4.8.2
L33	19.25 - 15.25 (33)	0.011	0.640	0.000	0.018	0.000	0.651	1.050	4.8.2
L34	15.25 - 11.25 (34)	0.011	0.676	0.000	0.019	0.000	0.687	1.050	4.8.2
L35	11.25 - 7.25 (35)	0.012	0.712	0.000	0.019	0.000	0.724	1.050	4.8.2
L36	7.25 - 3.25 (36)	0.012	0.748	0.000	0.019	0.000	0.760	1.050	4.8.2
L37	3.25 - 0 (37)	0.013	0.778	0.000	0.019	0.000	0.791	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	125 - 121	Pole	TP6.625x6.625x0.432	1	-0.21	333.59	8.8	Pass
L2	121 - 117	Pole	TP6.625x6.625x0.432	2	-0.48	333.59	17.8	Pass
L3	117 - 113	Pole	TP6.625x6.625x0.432	3	-1.03	333.59	30.6	Pass
L4	113 - 109	Pole	TP6.625x6.625x0.432	4	-1.32	333.59	47.0	Pass
L5	109 - 105	Pole	TP6.625x6.625x0.432	5	-1.51	333.59	63.5	Pass
L6	105 - 101	Pole	TP10.75x10.75x0.5	6	-2.12	639.04	27.6	Pass
L7	101 - 97	Pole	TP10.75x10.75x0.5	7	-2.83	639.04	35.2	Pass
L8	97 - 93	Pole	TP10.75x10.75x0.5	8	-3.59	639.04	43.9	Pass
L9	93 - 89	Pole	TP10.75x10.75x0.5	9	-4.33	639.04	53.7	Pass
L10	89 - 85	Pole	TP10.75x10.75x0.5	10	-4.67	639.04	63.5	Pass
L11	85 - 81	Pole	TP24x24x0.375	11	-6.26	1104.67	20.2	Pass
L12	81 - 77	Pole	TP24x24x0.375	12	-6.75	1104.67	23.3	Pass
L13	77 - 73	Pole	TP24x24x0.375	13	-7.25	1104.67	26.6	Pass
L14	73 - 69	Pole	TP24x24x0.375	14	-7.75	1104.67	30.0	Pass
L15	69 - 65	Pole	TP24x24x0.375	15	-8.25	1104.67	33.6	Pass
L16	65 - 61	Pole	TP24x24x0.375	16	-8.75	1104.67	37.2	Pass
L17	61 - 57	Pole	TP24x24x0.375	17	-9.25	1104.67	41.0	Pass
L18	57 - 53	Pole	TP24x24x0.375	18	-9.76	1104.67	44.9	Pass
L19	53 - 50	Pole	TP24x24x0.375	19	-10.15	1104.67	47.9	Pass
L20	50 - 46	Pole	TP24x24x0.375	20	-10.66	1104.67	52.0	Pass
L21	46 - 42	Pole	TP24x24x0.375	21	-11.17	1104.67	56.2	Pass
L22	42 - 38	Pole	TP24x24x0.375	22	-11.69	1104.67	60.5	Pass
L23	38 - 34	Pole	TP24x24x0.375	23	-12.22	1104.67	64.9	Pass
L24	34 - 30	Pole	TP24x24x0.375	24	-12.74	1104.67	69.3	Pass
L25	30 - 26	Pole	TP24x24x0.375	25	-13.27	1104.67	73.9	Pass
L26	26 - 22	Pole	TP24x24x0.375	26	-13.81	1104.67	78.5	Pass
L27	22 - 20.5	Pole	TP24x24x0.375	27	-14.01	1104.67	80.2	Pass
L28	20.5 - 20.23	Pole	TP24x24x0.85	28	-14.08	2453.59	35.0	Pass
L29	20.23 - 19.98	Pole	TP24x24x0.9875	29	-14.15	2833.56	30.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L30	19.98 - 19.75	Pole	TP24x24x0.9875	30	-14.22	2833.56	30.7	Pass	
L31	19.75 - 19.5	Pole	TP24x24x0.7125	31	-14.28	2068.90	41.7	Pass	
L32	19.5 - 19.25	Pole	TP24x24x0.5	32	-14.32	1465.11	58.6	Pass	
L33	19.25 - 15.25	Pole	TP24x24x0.5	33	-15.00	1465.11	62.0	Pass	
L34	15.25 - 11.25	Pole	TP24x24x0.5	34	-15.68	1465.11	65.4	Pass	
L35	11.25 - 7.25	Pole	TP24x24x0.5	35	-16.36	1465.11	68.9	Pass	
L36	7.25 - 3.25	Pole	TP24x24x0.5	36	-17.05	1465.11	72.4	Pass	
L37	3.25 - 0	Pole	TP24x24x0.5	37	-17.61	1465.11	75.3	Pass	
							Summary		
							Pole (L27)	80.2	Pass
							RATING =	80.2	Pass

APPENDIX B
BASE LEVEL DRAWING



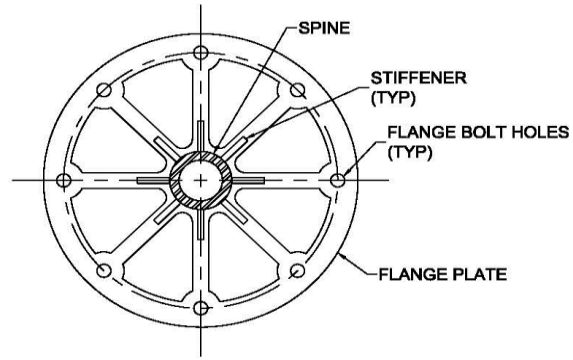
APPENDIX C
ADDITIONAL CALCULATIONS

CCI Flagpole Tool



Site Data	
BU#:	825998
Site Name:	Milford Shore Area
Order #:	531504 - Rev. 3

Code	
Code:	TIA-222-H
Ice Thickness:	1.5 in
Windspeed (V):	125 mph
Ice Wind Speed (V):	50 mph
Exposure Category:	D
Topographic Feature:	N/A
Risk Category:	II



FLANGE PLATE
(TYPE 4: SOLIDITY RATIO 0.55)

Tower Information	
Total Tower Height:	125 ft
Base Tower Height:	85 ft
Total Canister Length:	40 ft
Number of Canister Assembly Sections:	4

Canister Section Number *:	Canister Assembly Length (ft):	Canister Assembly Diameter (in):	Number of Sides Canister Section	Plate Type:	Mating Flange Plate Thickness (in)**:	Mating Flange Plate Diameter (in):	Solidity Ratio	Plate Weight (Kip):	Canister Weight (Kip)	Vent Length (ft):
1	10	42	Round	4	0.50	41.5	0.55	0.211	0.220	0-0
2	10	42	Round	5	1.50	14.75	0.9	0.131	0.220	0-0
3	10	42	Round	4	0.50	41.5	0.55	0.211	0.220	0-0
4	10	42	Round	2	2.75	30	0.75	0.827	0.220	0-0

* Sections are numbered from the top of the tower down

** Mating Flange Plate Thickness at the bottom of canister section

Flag on Tower:	Yes
Flag Width:	25 ft
Flag Height:	15 ft
Flag Elevation(z):	125 ft

Truck Ball on Tower:	Yes
Diameter of Ball:	18 in

Geometry : Base Tower + Spine			
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Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
125	20	0	0	6.625	6.625	0.432	n/a	A53-B-42
105	20	0	0	10.75	10.75	0.5	n/a	A53-B-42

Delete

[x]

[x]

85	35	0	0	24	24	0.375	n/a	A53-B-42
50	30	0	0	24	24	0.375	n/a	A53-B-42
20	20	0	0	24	24	0.5	n/a	A53-B-42

[x]
[x]
[x]

Discrete Loads: Truck Ball	Apply $C_a A_A$ at Elevation(z) (ft)	$C_a A_A$ No Ice (ft ²)	$C_a A_A$ 1/2" Ice (ft ²)	$C_a A_A$ 1" Ice (ft ²)	$C_a A_A$ 2" Ice (ft ²)	$C_a A_A$ 4" Ice (ft ²)	Weight No Ice (Kip)	Weight 1/2" Ice (Kip)
		125.75	0.884	1.378	1.527	1.848	2.581	0.05

Discrete Loads : $C_F A_F$ for Canister Assembly								
Canister Loading	Apply $C_F A_F$ at Elevation(z) (ft)	$C_F A_F$ No Ice (ft ²)	$C_F A_F$ 1/2" Ice (ft ²)	$C_F A_F$ 1" Ice (ft ²)	$C_F A_F$ 2" Ice (ft ²)	$C_F A_F$ 4" Ice (ft ²)	Canister Assembly Weight No Ice (Kip)	Canister Assembly Weight 1/2" Ice (Kip)
Canister Load 1	125	7.875	19.708	20.167	21.083	22.917	0.110	0.240
Canister Load 2	115	15.750	39.417	40.333	42.167	45.833	0.431	0.690
Canister Load 3	105	15.750	39.417	40.333	42.167	45.833	0.351	0.610
Canister Load 4	95	15.750	39.417	40.333	42.167	45.833	0.431	0.690
Canister Load 5	85	7.875	19.708	20.167	21.083	22.917	0.937	1.067

User Forces: Flag Force Calculation Per ANSI/NAAMM FP 1001-07	
Wind _{FORCE} =	0.641 Kip
Weight=	0.039 Kip
Wind _{FORCE, ICE} =	0.106 Kip
Weight _{ICE} =	1.239 Kip
W _{FORCE, SERVICE WIND} =	0.148 Kip
Weight=	0.039 Kip

← Flag force should be included at the top of the flag attachment elevation. If the attachment of the flag to the halyard distributes forces equally to the pole, apply flag forces accordingly in tnx file.

Site BU: 825998
Work Order: 1892835

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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	125	20	0	0	6.625	6.625	0.432		A53-B-42
2	105	20	0	0	10.75	10.75	0.5		A53-B-42
3	85	35	0	0	24.00	24	0.375		A53-B-42
4	50	30	0	0	24.00	24	0.375		A53-B-42
5	20	20	0	0	24.00	24	0.5		A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	19.5	20.5	plate	PL 4.25x1.25	3	0	180	256															
2	19.75	20.33	plate	PL 6x1	1				76														
3	19.5	20.5	plate	CCI-SFP-050125	1					310													
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	4.25	1.25	5.3125	0.625	PC 8.8 - M20 (100)	21	PC 8.8 - M20 (100)	21.000	12.000	3.750	1.1875	A572-50
2	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	7.000	4.750	1.1875	A572-50
3	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	23.000	4.688	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
PL 4.25x1.25	Top	7	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	7	N	3	3	-	-	-	-	-	-	-	-	-
PL 6x1	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	125 - 121	4		0	6.625	6.625	0.432	A53-B-42	1.000
2	121 - 117	4		0	6.625	6.625	0.432	A53-B-42	1.000
3	117 - 113	4		0	6.625	6.625	0.432	A53-B-42	1.000
4	113 - 109	4		0	6.625	6.625	0.432	A53-B-42	1.000
5	109 - 105	4	0	0	6.625	6.625	0.432	A53-B-42	1.000
6	105 - 101	4		0	10.750	10.750	0.5	A53-B-42	1.000
7	101 - 97	4		0	10.750	10.750	0.5	A53-B-42	1.000
8	97 - 93	4		0	10.750	10.750	0.5	A53-B-42	1.000
9	93 - 89	4		0	10.750	10.750	0.5	A53-B-42	1.000
10	89 - 85	4	0	0	10.750	10.750	0.5	A53-B-42	1.000
11	85 - 81	4		0	24.000	24.000	0.375	A53-B-42	1.000
12	81 - 77	4		0	24.000	24.000	0.375	A53-B-42	1.000
13	77 - 73	4		0	24.000	24.000	0.375	A53-B-42	1.000
14	73 - 69	4		0	24.000	24.000	0.375	A53-B-42	1.000
15	69 - 65	4		0	24.000	24.000	0.375	A53-B-42	1.000
16	65 - 61	4		0	24.000	24.000	0.375	A53-B-42	1.000
17	61 - 57	4		0	24.000	24.000	0.375	A53-B-42	1.000
18	57 - 53	4		0	24.000	24.000	0.375	A53-B-42	1.000
19	53 - 50	3	0	0	24.000	24.000	0.375	A53-B-42	1.000
20	50 - 46	4		0	24.000	24.000	0.375	A53-B-42	1.000
21	46 - 42	4		0	24.000	24.000	0.375	A53-B-42	1.000
22	42 - 38	4		0	24.000	24.000	0.375	A53-B-42	1.000
23	38 - 34	4		0	24.000	24.000	0.375	A53-B-42	1.000
24	34 - 30	4		0	24.000	24.000	0.375	A53-B-42	1.000
25	30 - 26	4		0	24.000	24.000	0.375	A53-B-42	1.000
26	26 - 22	4		0	24.000	24.000	0.375	A53-B-42	1.000
27	22 - 20.5	1.5		0	24.000	24.000	0.375	A53-B-42	1.000
28	20.5 - 20.23	0.27	0	0	24.000	24.000	0.85	A53-B-42	0.906
29	20.23 - 19.98	0.25		0	24.000	24.000	0.9875	A53-B-42	0.912
30	19.98 - 19.75	0.23		0	24.000	24.000	0.9875	A53-B-42	0.912
31	19.75 - 19.5	0.25		0	24.000	24.000	0.7125	A53-B-42	1.134
32	19.5 - 19.25	0.25		0	24.000	24.000	0.5	A53-B-42	1.000
33	19.25 - 15.25	4		0	24.000	24.000	0.5	A53-B-42	1.000
34	15.25 - 11.25	4		0	24.000	24.000	0.5	A53-B-42	1.000
35	11.25 - 7.25	4		0	24.000	24.000	0.5	A53-B-42	1.000
36	7.25 - 3.25	4		0	24.000	24.000	0.5	A53-B-42	1.000
37	3.25 - 0	3.25		0	24.000	24.000	0.5	A53-B-42	1.000

TNX Section Forces

Increment (ft):		TNX Output		
	4	P _u	M _{ux} (kip-ft)	V _u
	Section Height (ft)	(K)		(K)
1	125 - 121	0.21	4.80	1.20
2	121 - 117	0.48	9.69	1.24
3	117 - 113	1.03	16.61	2.23
4	113 - 109	1.32	25.56	2.25
5	109 - 105	1.51	34.55	2.25
6	105 - 101	2.12	47.35	3.21
7	101 - 97	2.83	60.34	3.27
8	97 - 93	3.59	75.28	4.21
9	93 - 89	4.33	92.13	4.24
10	89 - 85	4.67	109.03	4.22
11	85 - 81	6.26	128.41	4.96
12	81 - 77	6.75	148.68	5.18
13	77 - 73	7.25	169.83	5.40
14	73 - 69	7.75	191.84	5.61
15	69 - 65	8.25	214.69	5.82
16	65 - 61	8.75	238.35	6.02
17	61 - 57	9.25	262.81	6.21
18	57 - 53	9.76	288.02	6.40
19	53 - 50	10.14	307.41	6.53
20	50 - 46	10.66	333.88	6.71
21	46 - 42	11.17	361.01	6.87
22	42 - 38	11.69	388.79	7.03
23	38 - 34	12.22	417.15	7.17
24	34 - 30	12.74	446.06	7.30
25	30 - 26	13.27	475.47	7.42
26	26 - 22	13.81	505.34	7.53
27	22 - 20.5	14.01	516.64	7.57
28	20.5 - 20.23	14.08	518.68	7.57
29	20.23 - 19.98	14.15	520.57	7.58
30	19.98 - 19.75	14.22	522.32	7.58
31	19.75 - 19.5	14.28	524.21	7.59
32	19.5 - 19.25	14.32	526.11	7.60
33	19.25 - 15.25	15.00	556.70	7.71
34	15.25 - 11.25	15.68	587.68	7.80
35	11.25 - 7.25	16.36	618.99	7.88
36	7.25 - 3.25	17.05	650.60	7.95
37	3.25 - 0	17.61	676.47	8.00

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 121	Pole	TP6.625x6.625x0.432	Pole	8.8%	Pass
121 - 117	Pole	TP6.625x6.625x0.432	Pole	17.8%	Pass
117 - 113	Pole	TP6.625x6.625x0.432	Pole	30.6%	Pass
113 - 109	Pole	TP6.625x6.625x0.432	Pole	47.0%	Pass
109 - 105	Pole	TP6.625x6.625x0.432	Pole	63.4%	Pass
105 - 101	Pole	TP10.75x10.75x0.5	Pole	27.6%	Pass
101 - 97	Pole	TP10.75x10.75x0.5	Pole	35.2%	Pass
97 - 93	Pole	TP10.75x10.75x0.5	Pole	43.9%	Pass
93 - 89	Pole	TP10.75x10.75x0.5	Pole	53.7%	Pass
89 - 85	Pole	TP10.75x10.75x0.5	Pole	63.5%	Pass
85 - 81	Pole	TP24x24x0.375	Pole	20.2%	Pass
81 - 77	Pole	TP24x24x0.375	Pole	23.3%	Pass
77 - 73	Pole	TP24x24x0.375	Pole	26.6%	Pass
73 - 69	Pole	TP24x24x0.375	Pole	30.0%	Pass
69 - 65	Pole	TP24x24x0.375	Pole	33.5%	Pass
65 - 61	Pole	TP24x24x0.375	Pole	37.2%	Pass
61 - 57	Pole	TP24x24x0.375	Pole	41.0%	Pass
57 - 53	Pole	TP24x24x0.375	Pole	44.9%	Pass
53 - 50	Pole	TP24x24x0.375	Pole	47.9%	Pass
50 - 46	Pole	TP24x24x0.375	Pole	52.0%	Pass
46 - 42	Pole	TP24x24x0.375	Pole	56.2%	Pass
42 - 38	Pole	TP24x24x0.375	Pole	60.4%	Pass
38 - 34	Pole	TP24x24x0.375	Pole	64.8%	Pass
34 - 30	Pole	TP24x24x0.375	Pole	69.3%	Pass
30 - 26	Pole	TP24x24x0.375	Pole	73.8%	Pass
26 - 22	Pole	TP24x24x0.375	Pole	78.4%	Pass
22 - 20.5	Pole	TP24x24x0.375	Pole	80.2%	Pass
20.5 - 20.23	Pole + Reinf.	TP24x24x0.85	Reinf. 1 Tension Rupture	57.2%	Pass
20.23 - 19.98	Pole + Reinf.	TP24x24x0.9875	Reinf. 1 Tension Rupture	49.4%	Pass
19.98 - 19.75	Pole + Reinf.	TP24x24x0.9875	Reinf. 1 Tension Rupture	49.6%	Pass
19.75 - 19.5	Pole + Reinf.	TP24x24x0.7125	Reinf. 1 Tension Rupture	51.7%	Pass
19.5 - 19.25	Pole	TP24x24x0.5	Pole	58.6%	Pass
19.25 - 15.25	Pole	TP24x24x0.5	Pole	62.0%	Pass
15.25 - 11.25	Pole	TP24x24x0.5	Pole	65.4%	Pass
11.25 - 7.25	Pole	TP24x24x0.5	Pole	68.9%	Pass
7.25 - 3.25	Pole	TP24x24x0.5	Pole	72.4%	Pass
3.25 - 0	Pole	TP24x24x0.5	Pole	75.3%	Pass
				Summary	
			Pole	80.2%	Pass
			Reinforcement	57.2%	Pass
			Overall	80.2%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*			
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3
125 - 121	40	n/a	40	8.40	n/a	8.40	8.8%			
121 - 117	40	n/a	40	8.40	n/a	8.40	17.8%			
117 - 113	40	n/a	40	8.40	n/a	8.40	30.6%			
113 - 109	40	n/a	40	8.40	n/a	8.40	47.0%			
109 - 105	40	n/a	40	8.40	n/a	8.40	63.4%			
105 - 101	212	n/a	212	16.10	n/a	16.10	27.6%			
101 - 97	212	n/a	212	16.10	n/a	16.10	35.2%			
97 - 93	212	n/a	212	16.10	n/a	16.10	43.9%			
93 - 89	212	n/a	212	16.10	n/a	16.10	53.7%			
89 - 85	212	n/a	212	16.10	n/a	16.10	63.5%			
85 - 81	1942	n/a	1942	27.83	n/a	27.83	20.2%			
81 - 77	1942	n/a	1942	27.83	n/a	27.83	23.3%			
77 - 73	1942	n/a	1942	27.83	n/a	27.83	26.6%			
73 - 69	1942	n/a	1942	27.83	n/a	27.83	30.0%			
69 - 65	1942	n/a	1942	27.83	n/a	27.83	33.5%			
65 - 61	1942	n/a	1942	27.83	n/a	27.83	37.2%			
61 - 57	1942	n/a	1942	27.83	n/a	27.83	41.0%			
57 - 53	1942	n/a	1942	27.83	n/a	27.83	44.9%			
53 - 50	1942	n/a	1942	27.83	n/a	27.83	47.9%			
50 - 46	1942	n/a	1942	27.83	n/a	27.83	52.0%			
46 - 42	1942	n/a	1942	27.83	n/a	27.83	56.2%			
42 - 38	1942	n/a	1942	27.83	n/a	27.83	60.4%			
38 - 34	1942	n/a	1942	27.83	n/a	27.83	64.8%			
34 - 30	1942	n/a	1942	27.83	n/a	27.83	69.3%			
30 - 26	1942	n/a	1942	27.83	n/a	27.83	73.8%			
26 - 22	1942	n/a	1942	27.83	n/a	27.83	78.4%			
22 - 20.5	1942	n/a	1942	27.83	n/a	27.83	80.2%			
20.5 - 20.23	1971	2169	4140	27.83	28.19	56.02	40.9%	57.2%	49.3%	36.2%
20.23 - 19.98	2578	2178	4756	36.91	28.19	65.10	31.4%	49.4%	42.8%	32.1%
19.98 - 19.75	2578	2178	4756	36.91	28.19	65.10	31.5%	49.6%	43.0%	32.2%
19.75 - 19.5	2683	966	3648	36.91	22.19	59.10	42.8%	51.7%		33.8%
19.5 - 19.25	2549	n/a	2549	36.91	n/a	36.91	58.6%			
19.25 - 15.25	2549	n/a	2549	36.91	n/a	36.91	62.0%			
15.25 - 11.25	2549	n/a	2549	36.91	n/a	36.91	65.4%			
11.25 - 7.25	2549	n/a	2549	36.91	n/a	36.91	68.9%			
7.25 - 3.25	2549	n/a	2549	36.91	n/a	36.91	72.4%			
3.25 - 0	2549	n/a	2549	36.91	n/a	36.91	75.3%			

Note: Section capacity checked using 5 degree increments.

Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

Elevation = 85 ft.

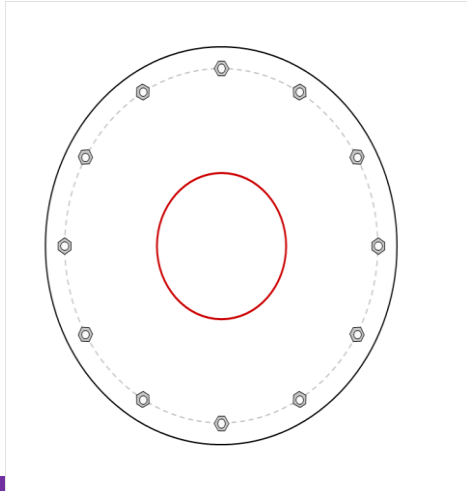


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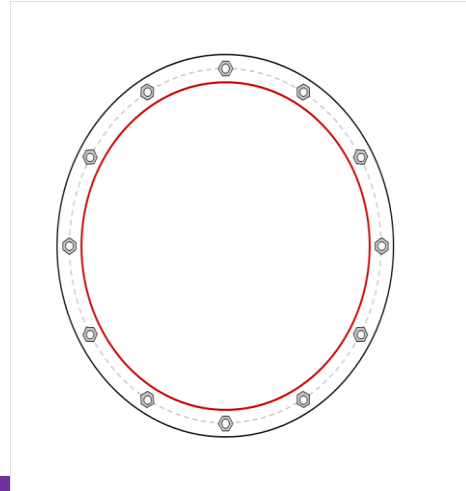
Applied Loads	
Moment (kip-ft)	109.03
Axial Force (kips)	4.67
Shear Force (kips)	4.22

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 5/8" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

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

Top Stiffener Data

N/A

Top Pole Data

10.75" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

28" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	16.38
Allowable (kips)	20.33
Stress Rating:	76.7% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Piroad OK
Tension Side Stress Rating:	Piroad OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Piroad OK
Tension Side Stress Rating:	Piroad OK

Monopole Flange Plate Connection

Elevation = 50 ft.

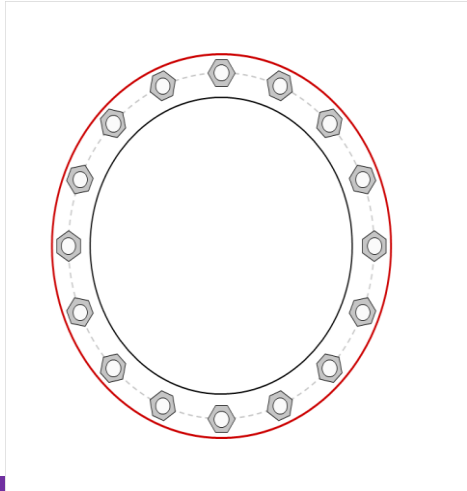


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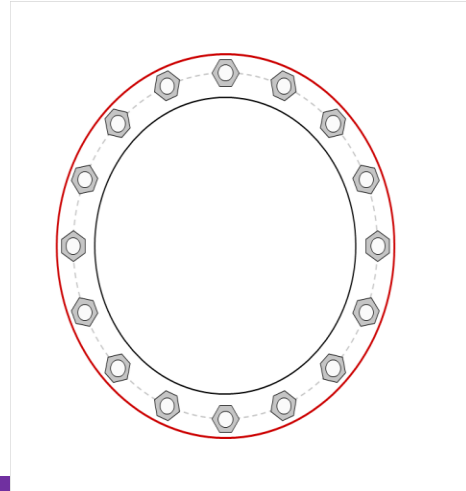
Applied Loads	
Moment (kip-ft)	307.41
Axial Force (kips)	10.14
Shear Force (kips)	6.53

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(16) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 21" BC

Top Plate Data

18" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

18" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	43.24
Allowable (kips)	54.54
Stress Rating:	75.5% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bolted Bridge Stiffeners Reinforcement Check

TIA Rev. H



Description:

This sheet is for the analysis of a reinforced flange connection using existing bolted bridge stiffeners.

Assumptions / Notes:

- 1. For analysis purposes, load is distributed between flange bolts and existing bridge stiffeners.*
- 2. The plastification of the pole is not considered.*
- 3. All shear and axial loads are taken by the flange bolts.*

1. PARAMETERS

Flange Elevation: 20'-0"

1.1 tnxTower Reactions

Apply TIA-222-H Section 15.5?

No
Yes

Moment: $M := 520.574 \text{ kip}\cdot\text{ft}$
Axial Load: $P := 14.15 \text{ kip}$
Shear Load: $V := 7.575 \text{ kip}$

1.2 Shaft Properties at the Flange

Upper Shaft Diameter: $D_{\text{shaft1}} := 24 \text{ in}$
Upper Shaft Thickness: $t_1 := 0.375 \text{ in}$
Lower Shaft Diameter: $D_{\text{shaft2}} := 24 \text{ in}$
Lower Shaft Thickness: $t_2 := 0.5 \text{ in}$
Shaft Grade: $F_{y\text{shaft}} := 42 \text{ ksi}$ $F_{u\text{shaft}} := 60 \text{ ksi}$

1.3 Existing Bridge Stiffener Properties

(Verify existing bolted connection for reduced moment.)

Number of Existing Bridge Stiffeners: $N_{\text{exist}} := 5$
Existing Bridge Stiffener Grade: $F_{y\text{Ex}} := 50 \text{ ksi}$ $F_{u\text{Ex}} := 65 \text{ ksi}$
Diameter to the centroid of Existing Bridge Stiffeners: $BC_{\text{exist}} := 25.25 \text{ in}$
Thickness of Existing Bridge Stiffeners: $t_{\text{exist}} := 1.25 \text{ in}$
Width of Existing Bridge Stiffeners: $w_{\text{exist}} := 4.25 \text{ in}$
Gross Area of One Existing Bridge Stiffener: $A_{g_exist} := w_{\text{exist}} \cdot t_{\text{exist}} = 5.31 \cdot \text{in}^2$
Moment of Inertia of Existing Bridge Stiffeners: $I_{\text{exist}} := \frac{N_{\text{exist}} \cdot BC_{\text{exist}}^2 \cdot A_{g_exist}}{8} = 2116.91 \cdot \text{in}^4$
Radius of Gyration about x-axis: $r_{x2} := \frac{t_{\text{exist}}}{\sqrt{12}} = 0.36 \cdot \text{in}$

1.4 Flange Bolt Properties

Number of Flange Bolts: $N_{bolts} := 16$

Diameter of Flange Bolts:

Bolt Circle of Flange Bolts: $BC_{bolts} := 21 \text{ in}$

Gross Area of One Flange Bolt: $A_{g_bolts} := \frac{\pi}{4} \cdot D_{bolts}^2 = 0.79 \cdot \text{in}^2$

Moment of Inertia of Flange Bolts: $I_{bolts} := \frac{N_{bolts} \cdot BC_{bolts}^2 \cdot A_{g_bolts}}{8} = 692.72 \cdot \text{in}^4$

1.5 Division of Forces

Total Gross Area: $A_{g_total} := N_{exist} \cdot A_{g_exist} + N_{bolts} \cdot A_{g_bolts} = 39.13 \cdot \text{in}^2$

Total Moment of Inertia: $I_{total} := I_{exist} + I_{bolts} = 2809.63 \cdot \text{in}^4$

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners: $M_{exist} := M \cdot \left(\frac{I_{exist}}{I_{total}} \right) = 392.23 \cdot \text{kip} \cdot \text{ft}$

Axial Reaction to Existing Bridge Stiffeners: $P_{exist} := 0 \text{ kip}$

Shear Reaction to Existing Bridge Stiffeners: $V_{exist} := 0 \text{ kip}$

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts: $M_{bolts} := M \cdot \left(\frac{I_{bolts}}{I_{total}} \right) = 128.35 \cdot \text{kip} \cdot \text{ft}$

Axial Reaction to Flange Bolts: $P_{bolts} := P = 14.15 \cdot \text{kip}$

Shear Reaction to Flange Bolts: $V_{bolts} := V = 7.58 \cdot \text{kip}$

Check Flange Connection in CCIplate with these Reactions

2. Existing Bridge Stiffener Checks

2.1 Maximum Axial Forces in Single Existing Bridge Stiffener

Outer Radius of Bolt Circle: $C := \frac{BC_{\text{exist}}}{2} = 12.63 \cdot \text{in}$

Critical Compression Bending Stress: $P_{\text{comp}} := \frac{M_{\text{exist}} \cdot C}{I_{\text{exist}}} \cdot A_{g_{\text{exist}}} + \frac{P_{\text{exist}}}{N_{\text{exist}}} = 149.12 \cdot \text{kip}$

Critical Tension Bending Stress: $P_{\text{tens}} := \frac{M_{\text{exist}} \cdot C}{I_{\text{exist}}} \cdot A_{g_{\text{exist}}} - \frac{P_{\text{exist}}}{N_{\text{exist}}} = 149.12 \cdot \text{kip}$

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor: $\phi_c := 0.9$

Unbraced Length: $L_u := 12 \text{in}$

Effective Length Factor: $K := 1.0$

Effective Length of Member: $L_c := K \cdot L_u = 12 \cdot \text{in}$

[AISC 15th Edition E3-2]

Strength of Bridge Stiffener: $F_{y_{\text{EX}}} = 50 \cdot \text{ksi}$ $F_{u_{\text{EX}}} = 65 \cdot \text{ksi}$

Elastic Buckling Stress:
 [AISC 15th Ed., Eq. E3-4] $F_e := \frac{\pi^2 \cdot 29000 \text{ksi}}{\left(\frac{L_c}{r_{x2}}\right)^2} = 258.81 \cdot \text{ksi}$

Determination of Critical Stress:
 [AISC 15th Ed., Eqs. E3-2 and E3-3] $F_{\text{cr}} := \begin{cases} \left(0.658 \frac{F_{y_{\text{EX}}}}{F_e}\right) \cdot F_{y_{\text{EX}}} & \text{if } 4.71 \cdot \sqrt{\frac{E}{F_{y_{\text{EX}}}}} \geq \frac{L_c}{r_{x2}} \\ (0.877 \cdot F_e) & \text{otherwise} \end{cases}$

$F_{\text{cr}} = 46.12 \cdot \text{ksi}$

Allowable Compressive Strength:
 [AISC 15th Ed., Eqs. J4-6 and E3-1] $\phi P_n := \begin{cases} (\phi_c \cdot F_{y_{\text{EX}}} \cdot A_{g_{\text{exist}}}) & \text{if } \frac{L_c}{r_{x2}} \leq 25 \\ (\phi_c \cdot F_{\text{cr}} \cdot A_{g_{\text{exist}}}) & \text{otherwise} \end{cases}$

$\phi P_n = 220.49 \cdot \text{kip}$

Check Compressive Strength:

$$\text{Check}_{\text{comp}} := \begin{cases} \text{"OK"} & \text{if } \frac{P_{\text{comp}}}{\phi P_n} \leq 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{comp}} = \text{"OK"}$$

$$\text{Capacity}_{\text{comp}} = 64.41\%$$

2.3 Available Tension Strength

Gross Section Yield

[AISC 15th Edition Ch. D2]

Available Tension Yield Strength:

$$\phi P_{\text{ty}} := 0.9 \cdot F_{yEX} \cdot A_{g_exist} = 239.06 \cdot \text{kip}$$

Net Section Fracture

Bolt Hole Diameter:

$$\text{BH} := 1.1875 \text{ in}$$

Thickness:

$$T := t_{\text{exist}} = 1.25 \cdot \text{in}$$

Net Area:

$$A_{\text{net}} := A_{g_exist} - \left(\text{BH} + \frac{1}{16} \text{ in} \right) \cdot T = 3.75 \cdot \text{in}^2$$

Net Area Limitation:

$$A_e := A_{\text{net}} = 3.75 \cdot \text{in}^2$$

Available Fractile Strength:

$$\phi P_{\text{tr}} := 0.75 \cdot F_{uEX} \cdot A_e = 182.81 \cdot \text{kip}$$

Tension Check

Controlling Mode of Failure:

$$\text{Check}_{\text{mode}} := \begin{cases} \text{"Fracture Controls"} & \text{if } \frac{P_{\text{tens}}}{\phi P_{\text{tr}}} > \frac{P_{\text{tens}}}{\phi P_{\text{ty}}} \\ \text{"Yield Controls"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{mode}} = \text{"Fracture Controls"}$$

$$\phi P_{\text{nt}} := \begin{cases} \phi P_{\text{tr}} & \text{if } \text{Check}_{\text{mode}} = \text{"Fracture Controls"} \\ \phi P_{\text{ty}} & \text{otherwise} \end{cases}$$

Controlling Tension Mode Check:

$$\text{Check}_{\text{tension}} := \begin{cases} \text{"OK"} & \text{if } \frac{P_{\text{tens}}}{\phi P_{\text{nt}}} \leq 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{tension}} = \text{"OK"}$$

$$\text{Capacity}_{\text{tension}} = 77.69\%$$

SUMMARY

tnxTower Reactions:

$$M = 520.57 \cdot \text{kip} \cdot \text{ft}$$

$$P = 14.15 \cdot \text{kip}$$

$$V = 7.58 \cdot \text{kip}$$

Flange Bolts:

Diameter of Flange Bolts:

$$D_{\text{bolts}} = 1 \cdot \text{in}$$

Bolt Circle of Flange Bolts:

$$BC_{\text{bolts}} = 21 \cdot \text{in}$$

Loads to Flange Bolts:

$$M_{\text{bolts}} = 128.35 \cdot \text{ft} \cdot \text{kip}$$

$$P = 14.15 \cdot \text{kip}$$

$$V = 7.58 \cdot \text{kip}$$

See CCIPlate for Flange Bolt and Plate Capacities

Existing Jump Plates:

Moment to Proposed Bridge
Stiffeners:

$$M_{\text{exist}} = 392.23 \cdot \text{ft} \cdot \text{kip}$$

Number of Existing Bridge
Stiffeners:

$$N_{\text{exist}} = 5$$

Thickness:

$$t_{\text{exist}} = 1.25 \cdot \text{in}$$

Width:

$$w_{\text{exist}} = 4.25 \cdot \text{in}$$

Controlling Capacity of Existing
Bridge Stiffeners:

$$\text{Capacity}_{\text{exist}} = 77.7\%$$

Monopole Flange Plate Connection

Elevation = 20 ft.

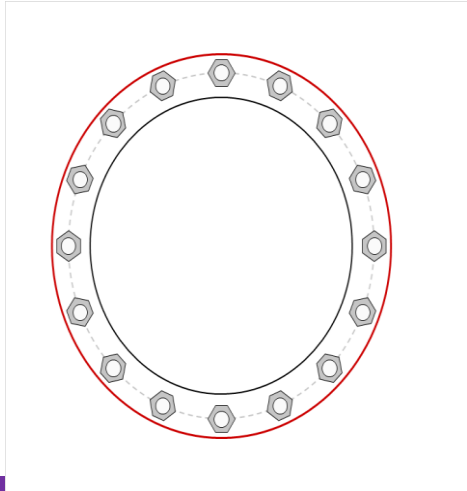


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Order #	531504 - Rev. 3
TIA-222 Revision	H

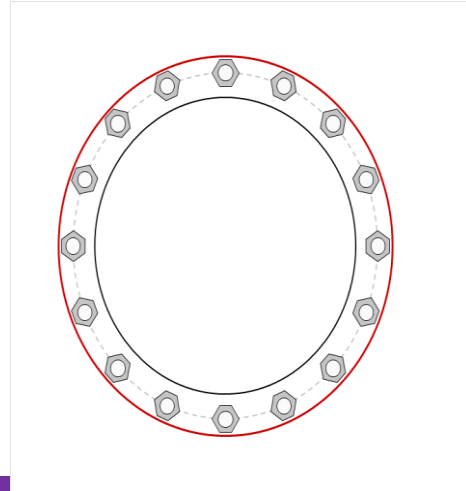
Applied Loads	
Moment (kip-ft)	128.35
Axial Force (kips)	14.15
Shear Force (kips)	7.58

*TIA-222-H Section 15.5 Applied

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(16) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 21" BC

Top Plate Data

18" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

18" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

24" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	17.44
Allowable (kips)	54.54
Stress Rating:	30.4% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Pirod OK
Tension Side Stress Rating:	Pirod OK

Monopole Base Plate Connection

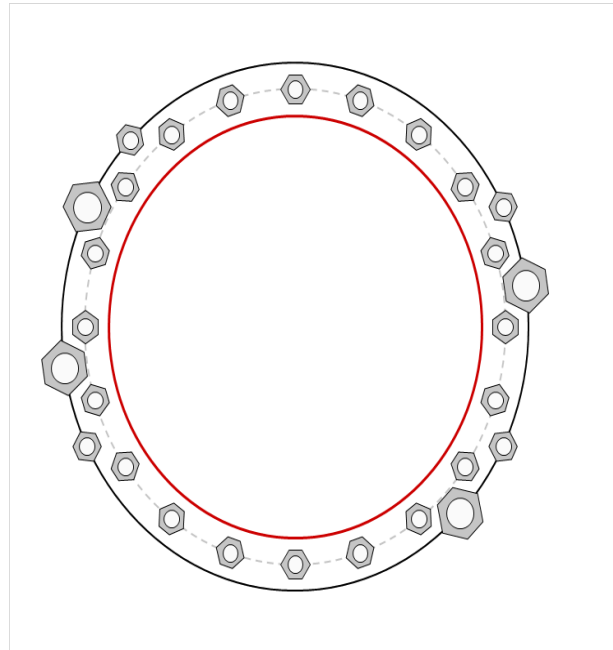


Site Info	
BU #	825998
Site Name	Milford Shore Area
Order #	531504 - Rev. 3

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

Applied Loads	
Moment (kip-ft)	676.47
Axial Force (kips)	17.61
Shear Force (kips)	8.00

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
GROUP 1: (20) 1" ϕ bolts (A687 N; $F_y=105$ ksi, $F_u=125$ ksi) on 27" BC
GROUP 2: (4) 1" ϕ bolts (A687 N; $F_y=105$ ksi, $F_u=125$ ksi) on 30" BC <i>pos. (deg): 27, 135, 207, 333</i>
GROUP 3: (4) 1-3/4" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 30" BC <i>pos. (deg): 9, 153, 189, 315</i>
Base Plate Data
30" OD x 1.25" Plate (A36; $F_y=36$ ksi, $F_u=58$ ksi)
Stiffener Data
N/A
Pole Data
24" x 0.5" round pole (A53-B-42; $F_y=42$ ksi, $F_u=63$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>		
GROUP 1:	$Pu_c = 44.94$	$\phi Pn_c = 74.22$	Stress Rating
	$Vu = 0.4$	$\phi Vn = 33.4$	57.7%
	$Mu = n/a$	$\phi Mn = n/a$	Pass
GROUP 2:	$Pu_c = 37.83$	$\phi Pn_c = 74.22$	Stress Rating
	$Vu = 0$	$\phi Vn = 33.4$	48.5%
	$Mu = n/a$	$\phi Mn = n/a$	Pass
GROUP 3:	$Pu_c = 109.7$	$\phi Pn_c = 227.3$	Stress Rating
	$Vu = 0$	$\phi Vn = 102.28$	46.0%
	$Mu = n/a$	$\phi Mn = n/a$	Pass
Base Plate Summary			
Max Stress (ksi):	28.41		(Flexural)
Allowable Stress (ksi):	32.4		
Stress Rating:	83.5%		Pass

CClplate

Elevation (ft) (Base)

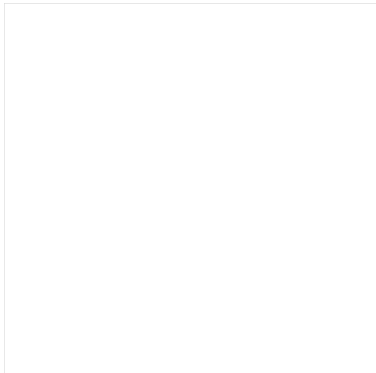
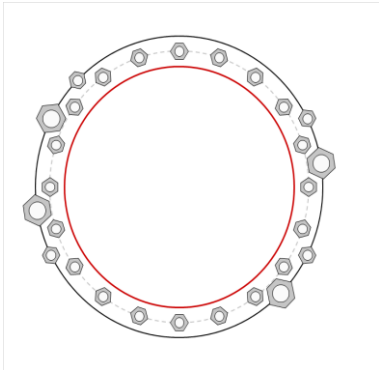
note: Bending interaction not considered when Grout Considered = "Yes"

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

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η :	I_{ar} (in):	Thread Type	Area Override, in ²	Tension Only
1	1	0	1	A687	27	0.5	0	N-Included		No
2	1	18	1	A687	27	0.5	0	N-Included		No
3	1	36	1	A687	27	0.5	0	N-Included		No
4	1	54	1	A687	27	0.5	0	N-Included		No
5	1	72	1	A687	27	0.5	0	N-Included		No
6	1	90	1	A687	27	0.5	0	N-Included		No
7	1	108	1	A687	27	0.5	0	N-Included		No
8	1	126	1	A687	27	0.5	0	N-Included		No
9	1	144	1	A687	27	0.5	0	N-Included		No
10	1	162	1	A687	27	0.5	0	N-Included		No
11	1	180	1	A687	27	0.5	0	N-Included		No
12	1	198	1	A687	27	0.5	0	N-Included		No
13	1	216	1	A687	27	0.5	0	N-Included		No
14	1	234	1	A687	27	0.5	0	N-Included		No
15	1	252	1	A687	27	0.5	0	N-Included		No
16	1	270	1	A687	27	0.5	0	N-Included		No
17	1	288	1	A687	27	0.5	0	N-Included		No
18	1	306	1	A687	27	0.5	0	N-Included		No
19	1	324	1	A687	27	0.5	0	N-Included		No
20	1	342	1	A687	27	0.5	0	N-Included		No
21	2	27	1	A687	30	0.5	0	N-Included		No
22	2	135	1	A687	30	0.5	0	N-Included		No
23	2	207	1	A687	30	0.5	0	N-Included		No
24	2	333	1	A687	30	0.5	0	N-Included		No
25	3	9	1.75	A193 Gr. B7	30	0.5	0	N-Included		No
26	3	153	1.75	A193 Gr. B7	30	0.5	0	N-Included		No
27	3	189	1.75	A193 Gr. B7	30	0.5	0	N-Included		No
28	3	315	1.75	A193 Gr. B7	30	0.5	0	N-Included		No

Plot Graphic



Drilled Pier Foundation

BU #: 825998
 Site Name: Milford Shore Area
 Order Number: 531504 - Rev. 3

TIA-222 Revision: H
 Tower Type: Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	676.47	
Axial Force (kips)	17.62	
Shear Force (kips)	7.98	

Material Properties	
Concrete Strength, f _c :	3 ksi
Rebar Strength, F _y :	60 ksi
Tie Yield Strength, F _{yt} :	40 ksi

Pier Design Data	
Depth	18.4 ft
Ext. Above Grade	0.8 ft
Pier Section 1	
<i>From 0.8' above grade to 18.4' below grade</i>	
Pier Diameter	4.5 ft
Rebar Quantity	13
Rebar Size	7
Rebar Cage Diameter	36 in
Tie Size	4
Tie Spacing	in

[Rebar & Pier Options](#)

[Embedded Pole Inputs](#)

[Belled Pier Inputs](#)

Analysis Results		
Soil Lateral Check		
	Compression	Uplift
D _{v=0} (ft from TOC)	11.03	-
Soil Safety Factor	1.89	-
Max Moment (kip-ft)	769.16	-
Rating*	66.9%	-
Soil Vertical Check		
	Compression	Uplift
Skin Friction (kips)	119.87	-
End Bearing (kips)	477.13	-
Weight of Concrete (kips)	42.57	-
Total Capacity (kips)	596.99	-
Axial (kips)	60.19	-
Rating*	9.6%	-
Reinforced Concrete Flexure		
	Compression	Uplift
Critical Depth (ft from TOC)	11.01	-
Critical Moment (kip-ft)	769.16	-
Critical Moment Capacity	831.34	-
Rating*	88.1%	-
Reinforced Concrete Shear		
	Compression	Uplift
Critical Depth (ft from TOC)	15.51	-
Critical Shear (kip)	178.63	-
Critical Shear Capacity	222.14	-
Rating*	76.6%	-

Soil Interaction Rating*	66.9%
Structural Foundation Rating*	88.1%

Min. Steel is assumed

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
	N/A <input type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Soil Profile			
Groundwater Depth	8	# of Layers	4

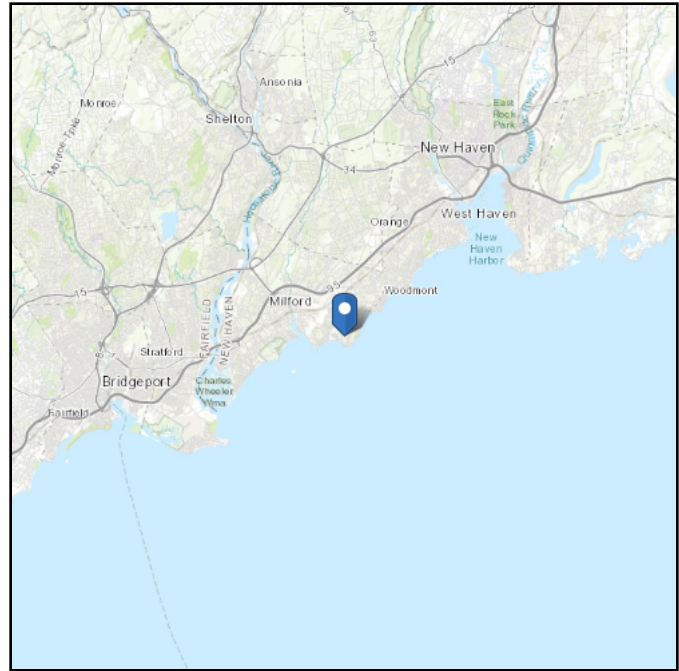
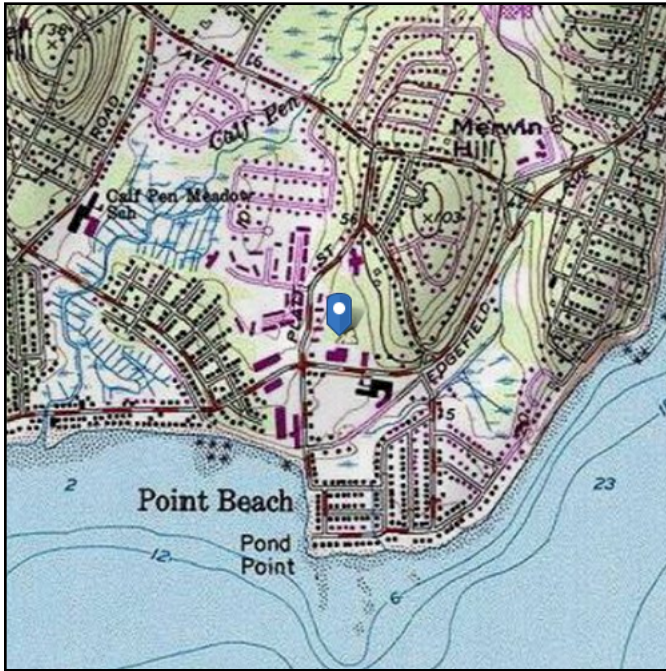
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2.25	2.25	135	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2.25	8	5.75	135	150	0	0	0.000	0.000	0.70	0.70			Cohesionless
3	8	10	2	75	87.6	0	0	0.000	0.000	0.70	0.70			Cohesionless
4	10	18.4	8.4	75	87.6	0	38	0.000	0.000	0.70	0.70	40		Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 28.9 ft (NAVD 88)
Latitude: 41.210005
Longitude: -73.019014



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	101 Vmph

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

Date Accessed: Tue Oct 13 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

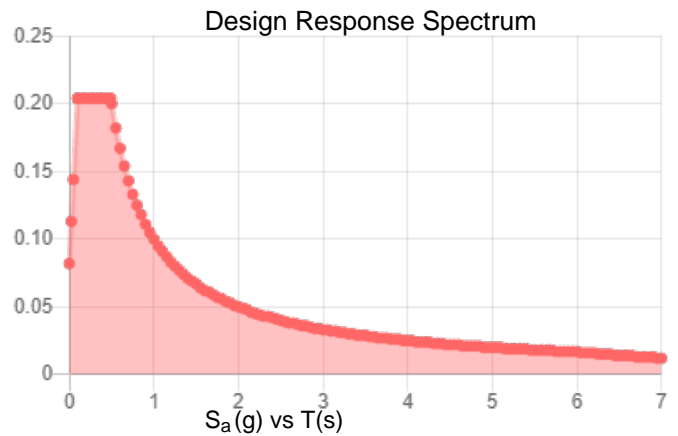
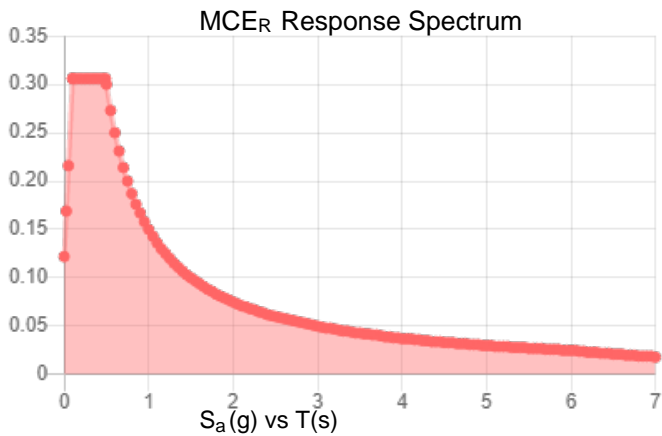
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.191	S_{DS} :	0.204
S_1 :	0.062	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.101
S_{MS} :	0.306	PGA _M :	0.162
S_{M1} :	0.15	F _{PGA} :	1.597
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Oct 13 2020

Date Source:

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

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

Date Accessed: Tue Oct 13 2020

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

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

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

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Exhibit E

Power Density/RF Emissions Report

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

AT&T Existing Facility

Site ID: 825998 / CTL05601

Sherman-Anderson R D Exit
234 Melba Street
Milford, Connecticut 06460

March 12, 2021

EBI Project Number: 6221001216

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	24.38%

March 12, 2021

Emissions Analysis for Site: 825998 / CTL05601 - Sherman-Anderson R D Exit

EBI Consulting was directed to analyze the proposed AT&T facility located at **234 Melba Street** in **Milford, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of

incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at 234 Melba Street in Milford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 LTE channels (700 MHz FN Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 2 UMTS channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 4 LTE / 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.

- 8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 9) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antennas used in this modeling are the CCI OPA65R-BU6BA for the 850 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the CCI OPA65R-BU6A for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector A, the CCI OPA65R-BU6BA for the 850 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the CCI OPA65R-BU6A for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector B, the CCI OPA65R-BU6BA for the 850 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the CCI OPA65R-BU6A for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antenna mounting height centerline of the proposed antennas is 91 feet above ground level (AGL).
- 12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 13) All calculations were done with respect to uncontrolled / general population threshold limits.

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI OPA65R-BU6BA	Make / Model:	CCI OPA65R-BU6BA	Make / Model:	CCI OPA65R-BU6BA
Frequency Bands:	850 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	850 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	850 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.25 dBd / 12.15 dBd / 15.95 dBd / 16.25 dBd	Gain:	12.25 dBd / 12.15 dBd / 15.95 dBd / 16.25 dBd	Gain:	12.25 dBd / 12.15 dBd / 15.95 dBd / 16.25 dBd
Height (AGL):	91 feet	Height (AGL):	91 feet	Height (AGL):	91 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	600 Watts	Total TX Power (W):	600 Watts	Total TX Power (W):	600 Watts
ERP (W):	18,811.30	ERP (W):	18,811.30	ERP (W):	18,811.30
Antenna A1 MPE %:	11.36%	Antenna B1 MPE %:	11.36%	Antenna C1 MPE %:	11.36%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	CCI OPA65R-BU6A	Make / Model:	CCI OPA65R-BU6A	Make / Model:	CCI OPA65R-BU6A
Frequency Bands:	700 MHz / 850 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 2300 MHz
Gain:	12.25 dBd / 12.25 dBd / 15.95 dBd	Gain:	12.25 dBd / 12.25 dBd / 15.95 dBd	Gain:	12.25 dBd / 12.25 dBd / 15.95 dBd
Height (AGL):	102 feet	Height (AGL):	102 feet	Height (AGL):	102 feet
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts	Total TX Power (W):	320 Watts
ERP (W):	7,628.87	ERP (W):	7,628.87	ERP (W):	7,628.87
Antenna A2 MPE %:	4.22%	Antenna B2 MPE %:	4.22%	Antenna C2 MPE %:	4.22%

Site Composite MPE %	
Carrier	MPE %
AT&T (Max at Sector A):	15.59%
VoiceStream	0.86%
T-Mobile	3.76%
Verizon	3.28%
Metro PCS	0.89%
Site Total MPE % :	24.38%

AT&T MPE % Per Sector	
AT&T Sector A Total:	15.59%
AT&T Sector B Total:	15.59%
AT&T Sector C Total:	15.59%
Site Total MPE % :	24.38%

AT&T Maximum MPE Power Values (Sector A)							
AT&T Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	671.52	91.0	6.68	850 MHz UMTS	567	1.18%
AT&T 700 MHz LTE FN	4	656.24	91.0	13.06	700 MHz LTE FN	467	2.80%
AT&T 1900 MHz LTE	2	2361.30	91.0	23.50	1900 MHz LTE	1000	2.35%
AT&T 2100 MHz LTE	4	2530.18	91.0	50.36	2100 MHz LTE	1000	5.04%
AT&T 700 MHz LTE	2	503.64	102.0	3.93	700 MHz LTE	467	0.84%
AT&T 850 MHz LTE / 5G	4	671.52	102.0	10.48	850 MHz LTE / 5G	567	1.85%
AT&T 2300 MHz LTE	4	983.88	102.0	15.35	2300 MHz LTE	1000	1.54%
						Total:	15.59%

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

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	15.59%
Sector B:	15.59%
Sector C:	15.59%
AT&T Maximum MPE % (Sector A):	15.59%
Site Total:	24.38%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **24.38%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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